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STEERING GEAR

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IDENTIFICATION - CHARACTERISTICS

GENERAL - REFERENCE

Tools for use
Preparation
Fastening

DISMANTLING - RE-ASSEMBLY - ADJUSTING

Tools for use
Fastening
Fastening - Adjusting

FACE

Tools for use
Preparation the vehicle body

FACE FOR BALL JOINTS

Tools for use
Fastening - Pre-adjusting

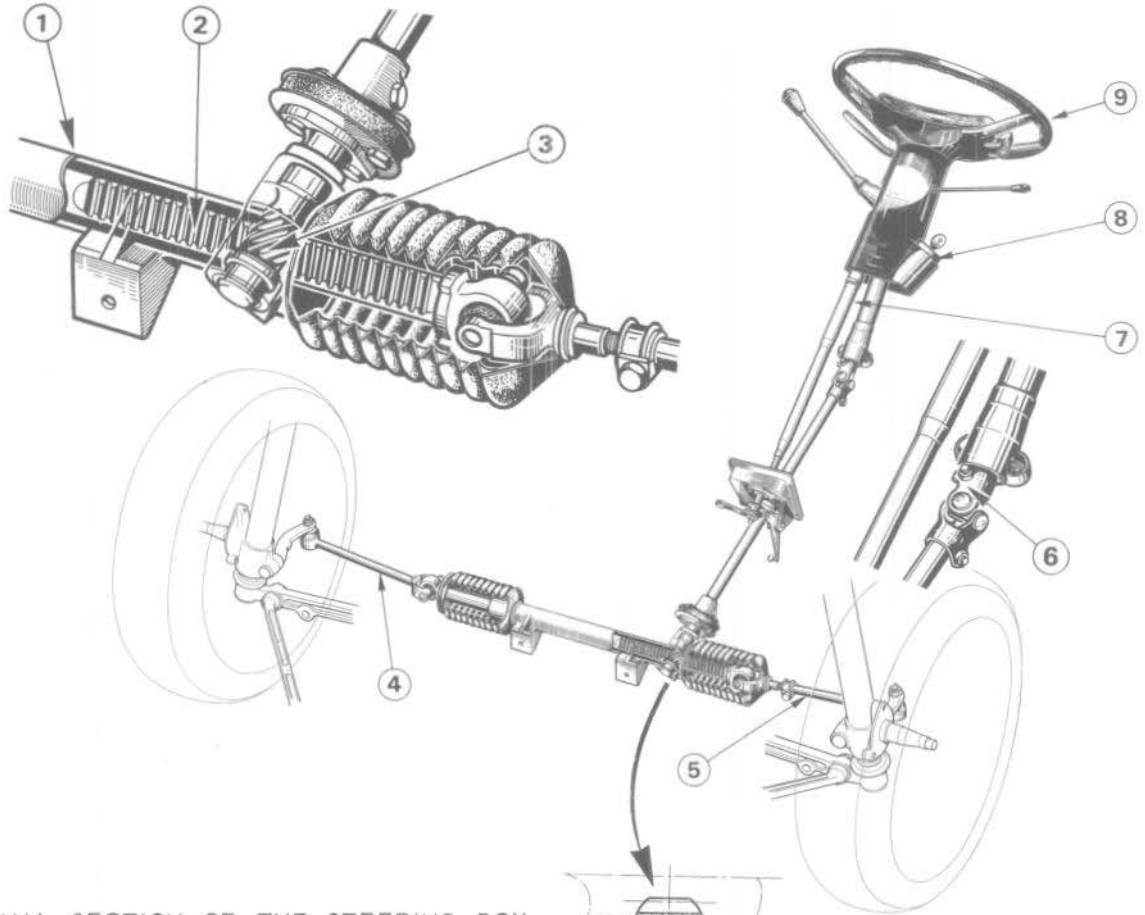
STEERING COLUMN

Preparation
Fastening

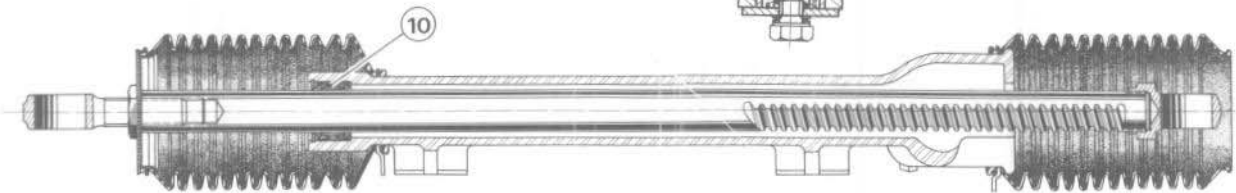
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STEERING GEAR
IDENTIFICATION AND CHARACTERISTICS

7 0101



LONGITUDINAL SECTION OF THE STEERING BOX



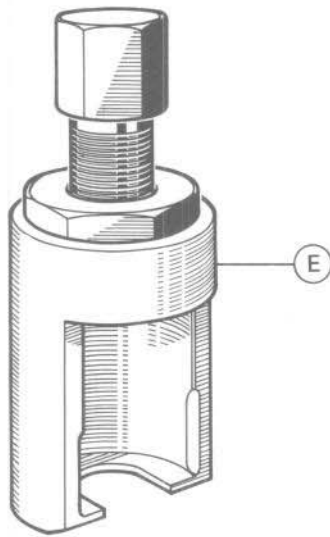
- 1 - Steering box
- 2 - 32 tooth rack
- 3 - 7 tooth pinion
- 4 - R.H. track rod
- 5 - L.H. track rod (adjustable in length)
- 6 - Cardan jointed steering column
- 7 - Gear change control arm
- 8 - Anti-theft steering lock support
- 9 - Steering wheel
- 10 - Flexible guide bush for the rack
- 11 - Rack plunger

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STEERING GEAR
REMOVAL - REFITTING

7

0201

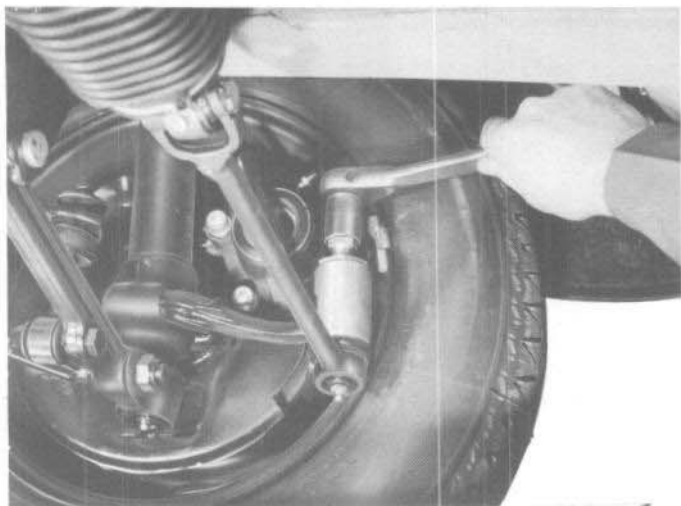


TOOLS TO BE USED

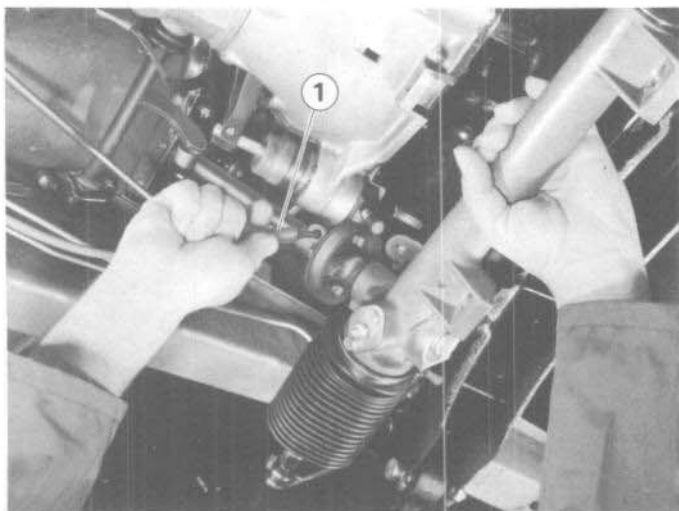
8.0703 W

Tool chest for the steering gear.

E - Track rod ball joint extractor.

STEERING GEAR
REMOVAL

- Place the car over a pit or on car a lift.
- Disconnect the track rod ball joints using the extractor 8.0703 E.



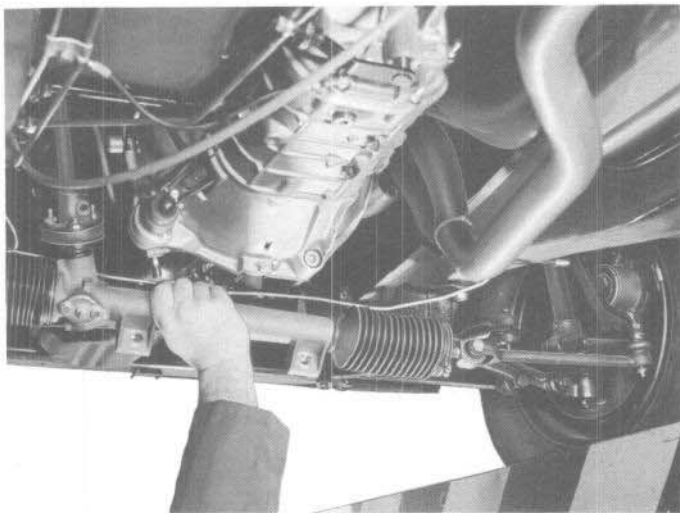
- Remove :
 - the steering column/flector assembly bolt.
 - the two Allen type screws securing the steering box to the cross-member.
- Insert a 6 mm centre punch 1 in place of the flector bolt.
- Disengage the steering column by rocking the flector slightly, using the centre punch as a lever.

STEERING GEAR REFITTING

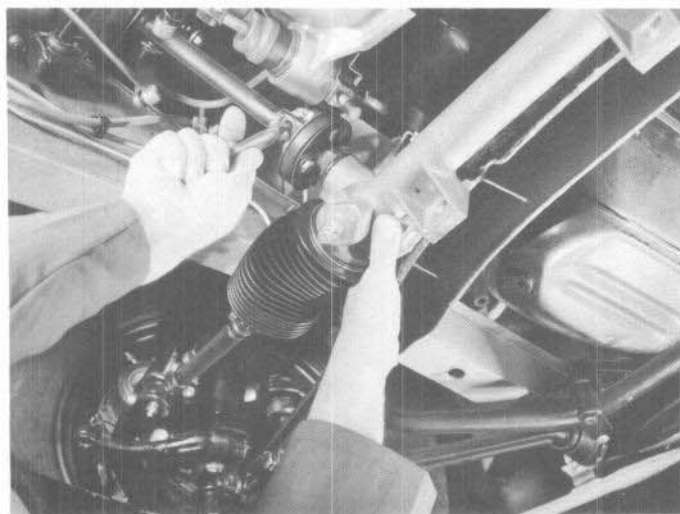
7 0203



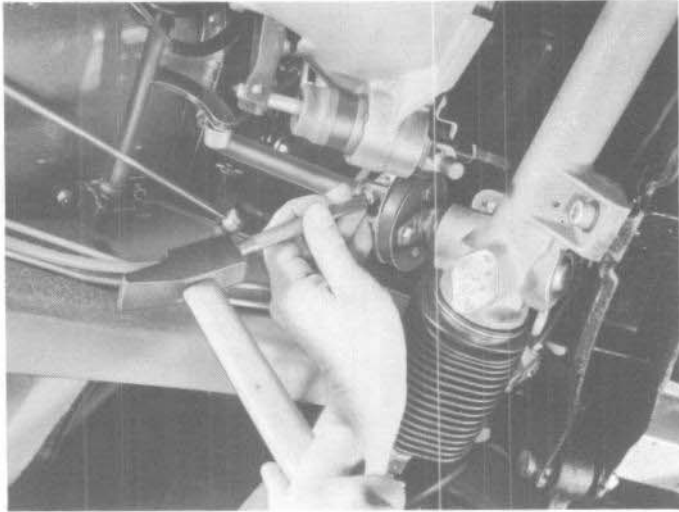
- Position the steering wheel "spokes" vertically.
- Place the front wheel, on the opposite side to the steering wheel, in the "straight ahead" position.
- Turn the other wheel inwards as far as possible.
- Centre the rack in relation to the steering box ("straight ahead position).



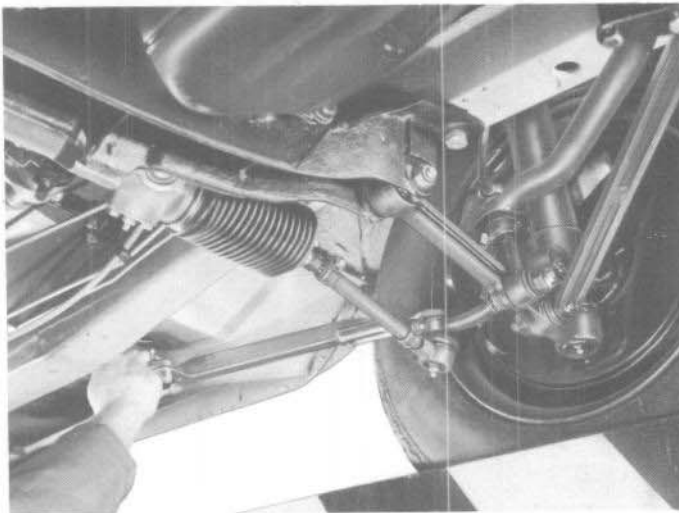
- Connect the track rod ball joint, on the opposite side to the steering wheel temporarily.
- Rotate the steering flector 1/4 of a turn, to align the flector clamp with the splined end of the steering column.



- Insert a 6 mm centre punch in the bolt hole on the flector collar.
- Insert the steering column end in the flector collar by rocking the flector slightly, using the centre punch as a lever.

STEERING GEAR
REFITTING

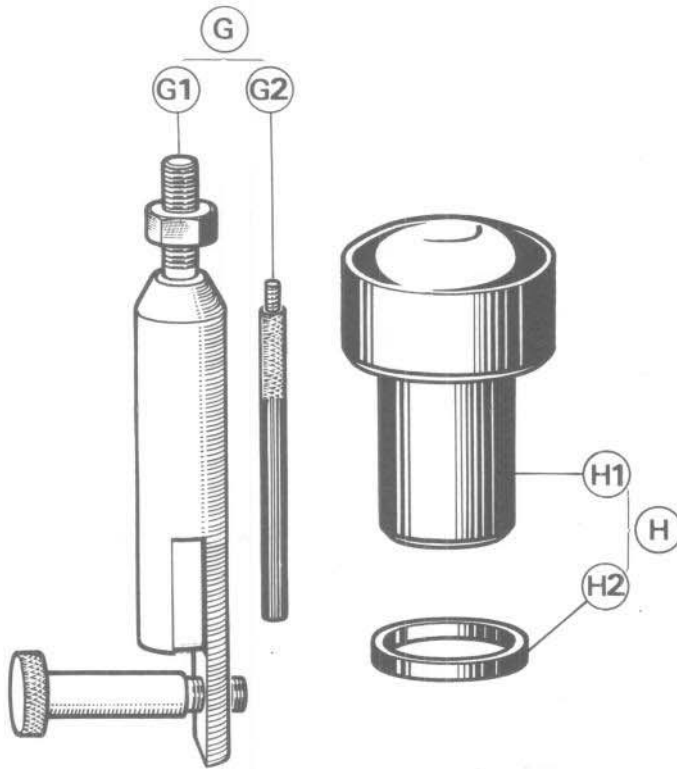
- Secure the steering box to the cross member.
- Tighten the screws to **23.5 ft.lbs (3.25 m.kg)** using an 8 mm Allen socket.
- Secure the steering column in the flector using new nuts, bolts and Blocfor washers.
- Tighten the nut to **7.2 ft.lbs (1 m.kg)** and lock by spreading the end of the bolt.



- Reconnect the track rod ball joint, on the steering wheel side, checking the alignment of the 2 flats on the ball joint housing and the connecting yoke.
- Position the ball joint pin holes perpendicular to the track rod axis.
- Fit new Blocfor washers and tighten the nuts to **31 ft.lbs (4.25 m.kg)**.
- Pin carefully both ball joints.
- Adjust the wheel toe in (see class 6, page 01 03).

STEERING GEAR
DISMANTLING - RE-ASSEMBLY

7 0301



TOOLS TO BE USED

8.0703 W

Tool chest for the steering gear

G - Dial indicator mounting including :

G1 - Dial indicator holder

G2 - Dial indicator feeler extension

H - Tool for replacing the pinion bush including:

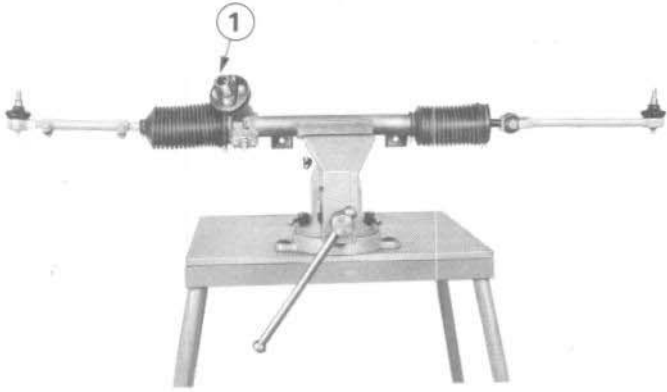
H1 - Drift

H2 - spacer

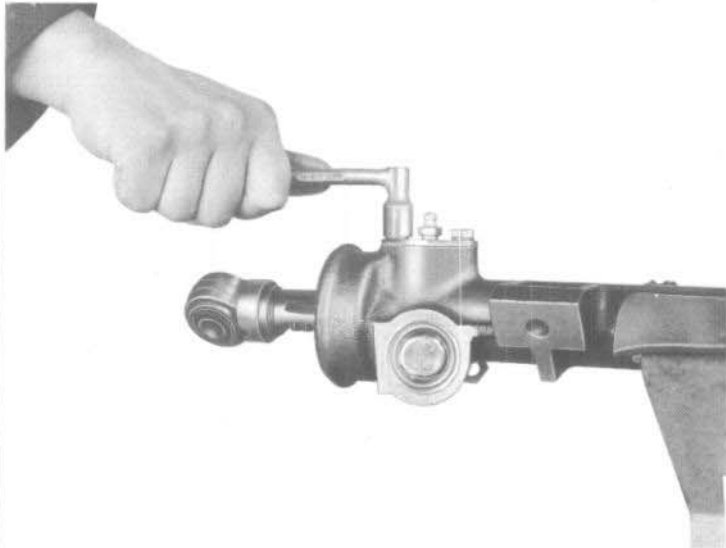
0302

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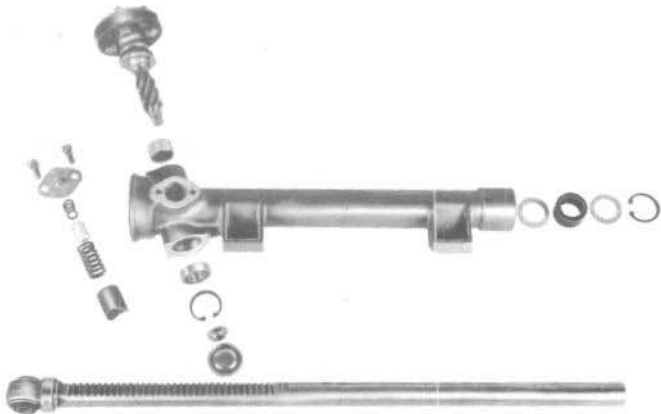
STEERING GEAR DISMANTLING



- Clamp the steering box in a vice fitted with lead jaws.
- Mark the position of the flector collar 1 with the rack in the "straight ahead" position.
- Remove the 4 rubber rack boot clips.
- Push the two boots to the right.
- Unlock and remove the two track rod yoke pivots.



- Remove :
 - the 2 track rods.
 - the rack eye on the opposite side to the pinion (clamp the rack directly in the vice, fitted with aluminium jaws, to slacken the lock nut).
 - the rack plunger retaining plate, with its grease nipple and nylon stop.
 - the plunger spring
 - the rack plunger
 - the bearing sealing cup.
 - the pinion nut.
 - the pinion with its thrust washer and O ring.

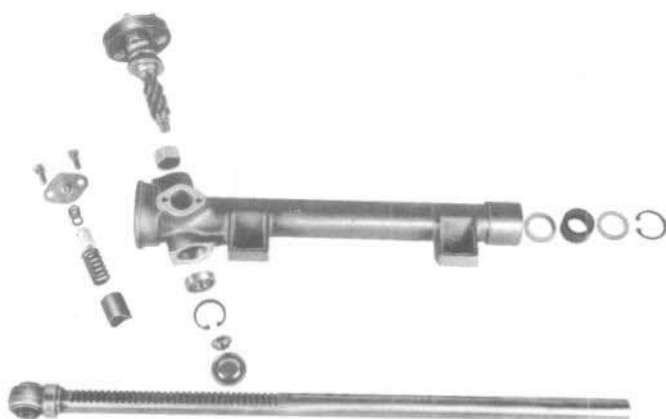


- Withdraw the rack from the pinion side
- Remove :
 - the flexible bush retaining circlips
 - the bush and the two steel thrust washers.
 - the pinion bearing retaining circlips.
- Dip the steering box in boiling water.
- Recover the bearing.

STEERING GEAR RE-ASSEMBLY - ADJUSTING

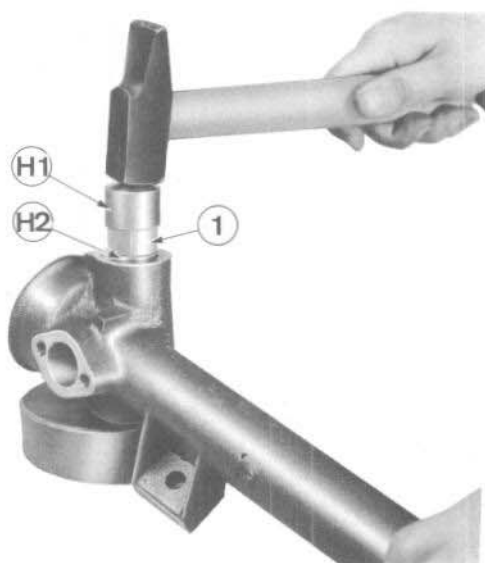
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0303



Preparation

- Clean the steering box and all the mechanical components carefully.
- Check the rack and the pinion (replace if necessary, bearing in mind that the eye on the toothed end is **part of the rack** but the silent-bloc is replaceable : see class 7 page 05 01).
- **Replace if necessary the following parts :**
 - the pinion bearing
 - the pinion bush
 - the flexible bush together with its rubber rings
 - nylon plunger spacer
 - rack rubber boots and clips
- **Replace at each dismantling :**
 - the pinion nut
 - the bearing sealing cup
 - the Blocfor washers



Replacing the pinion bush

- Place on the drift 8.0703 H1 in the following order :
 - a new bush 1
 - the spacer H2.
- Insert the drift in the old bush and tap the drift until it comes into contact with the steering box.
- Recover from inside the steering box :
 - the used bush.
 - the spacer H2.

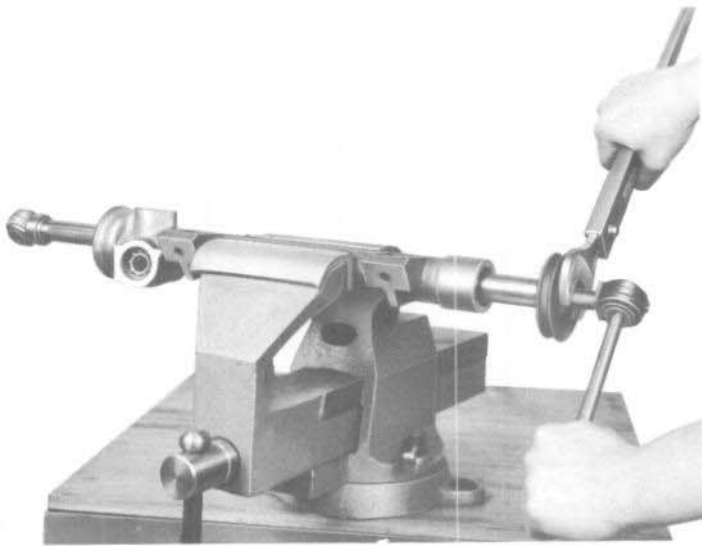
PEUGEOT

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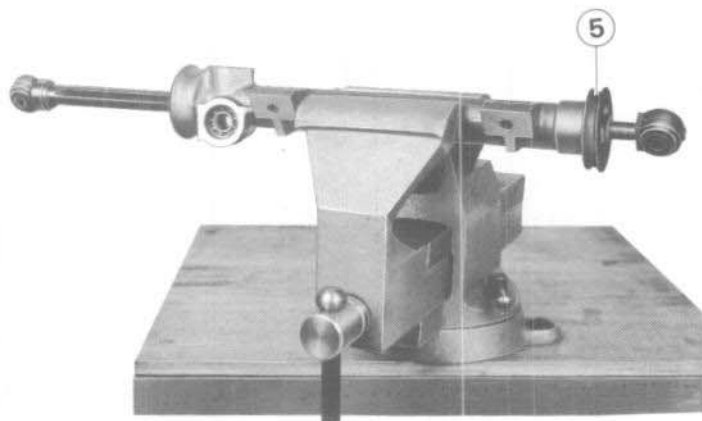
STEERING GEAR RE-ASSEMBLY - ADJUSTMENT



- Grease the bearing with ESSO MULTIPURPOSE GREASE H.
- Immerse the steering box in boiling water for a few minutes.
- Install the bearing in its housing, pressing on the outer race.
- Fit the circlip.
- Insert in the housing, in the opposite end to the pinion :
 - the inner thrust washer 1
 - the flexible bush equipped with its two rubber rings 2.
 - the outer thrust washer 3.
 - the circlip 4.



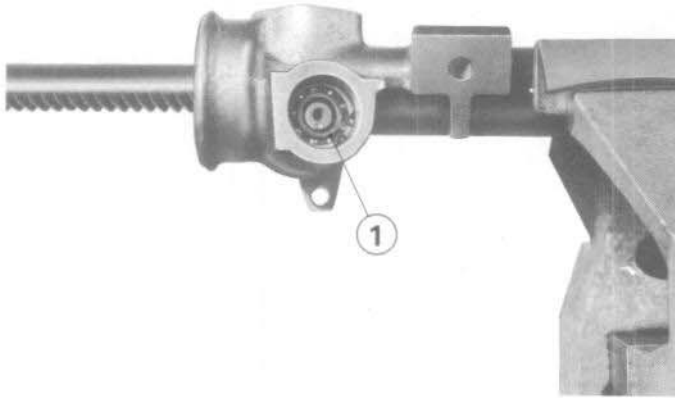
- Grease the rack and flexible bush.
- Insert the rack in the box, pinion side.
- Thread temporarily the second eye onto the rack together with its lock nut.
- Tighten slightly the lock nut.



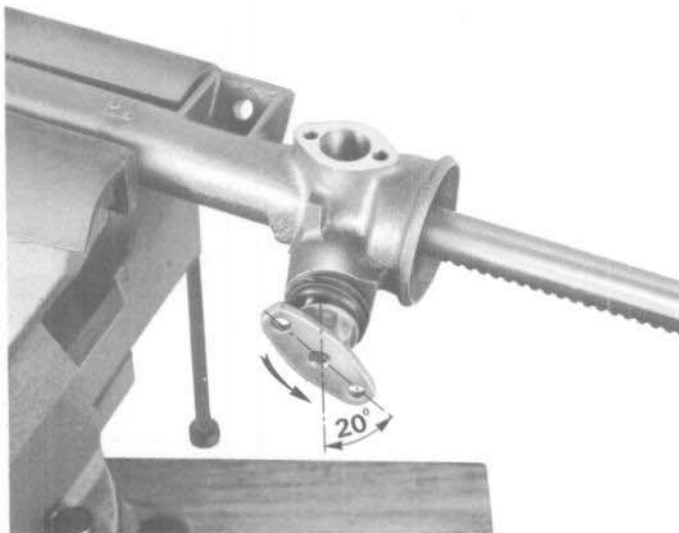
- Push the rack until the lock nut 5 comes into contact with the steering box.

STEERING GEAR
RE-ASSEMBLY - ADJUSTING

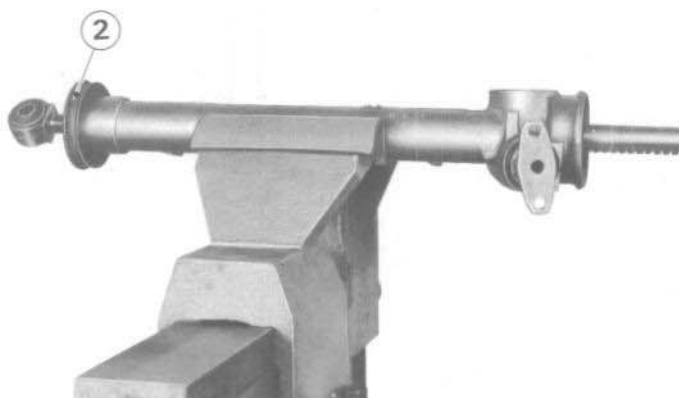
7 0305



- Grease the pinion
- Place in order in the machined pinion housing :
 - the O ring
 - the thin metal thrust washer
- Position the pinion in its bore, with the nut locking groove 1 facing away from the plunger housing.



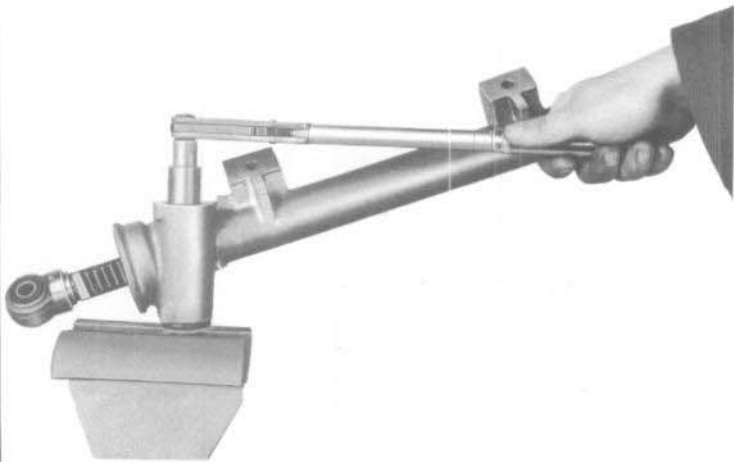
- Starting from the vertical position of the pinion flange, rotate it to the left through app. 20°.



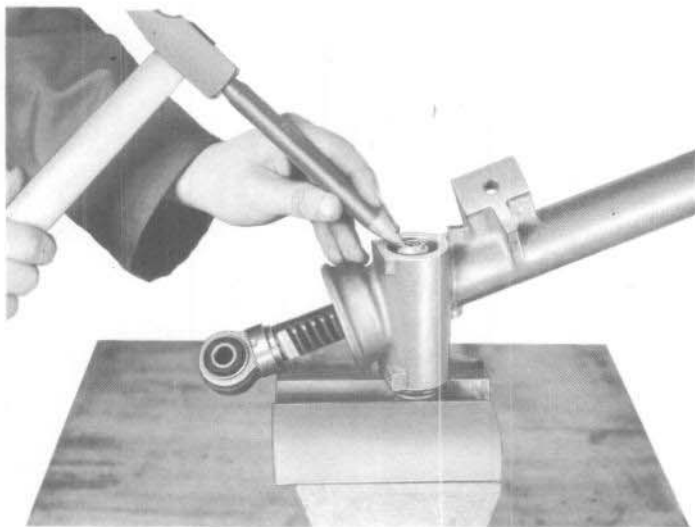
- Push in the pinion until it abuts in the bearing.
- The pinion flange should be vertical, with the lock nut 2 still in contact with the extremity of the steering box.

PEUGEOT

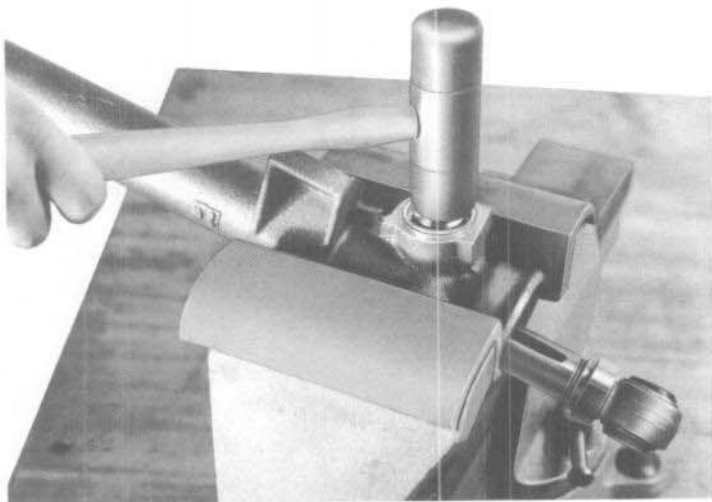
STEERING GEAR RE-ASSEMBLY - ADJUSTING



- Clamp the pinion flange in the vice fitted with soft jaws
- Fit a new nut and tighten to 11 ft.lbs (1.5 m.kg).



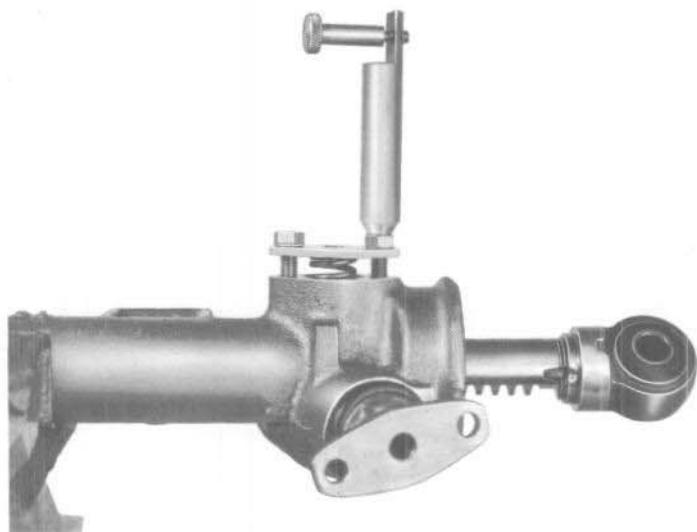
- Lock the nut by tapping the nut collar into the groove on the pinion.



- Grease the bearing housing with ESSO MULTI-PURPOSE GREASE H.
- Fit the new sealing cup, tapping it into place with a mallet.

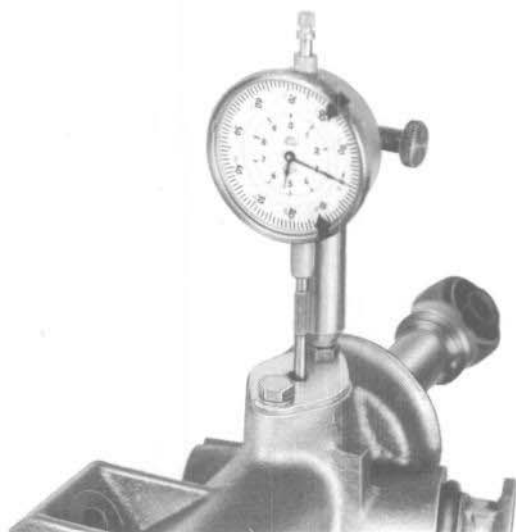
STEERING GEAR
RE-ASSEMBLY - ADJUSTING

7 0307

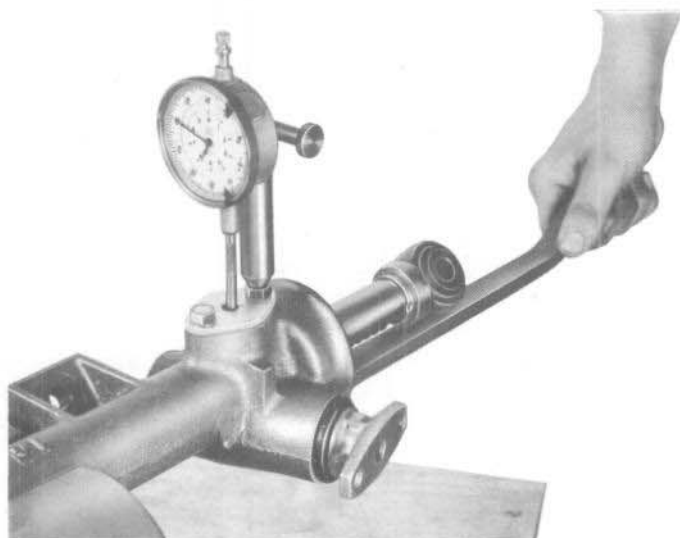


A - Measuring the play in the rack plunger

- Insert the plunger in its housing.
- Place the spring inside the plunger.
- Mount the thrust plate, bear, securing it on one side with 7 mm dia bolt and on the other side with the dial indicator holder 8.0703 G1.



- Tighten the thrust plate onto the steering box after correctly positioning the dial indicator holder.
- Fit the extension feeler G2 to the dial indicator and position it in contact with the plunger through the threaded hole in the plate.
- Slide the rack from one side to the other of the steering box using the pinion.
- The hands of the dial indicator will show the high spots in the vertical movement of the rack during its displacement.
- Mark the highest point indicated by the hand towards the right.
- Set the dial at Zero at this point and immobilise the rack.



- Using a lever, raise the rack, without forcing it until it abuts.
- Check the degree of movement registered on the dial indicator and note the value for the time being.

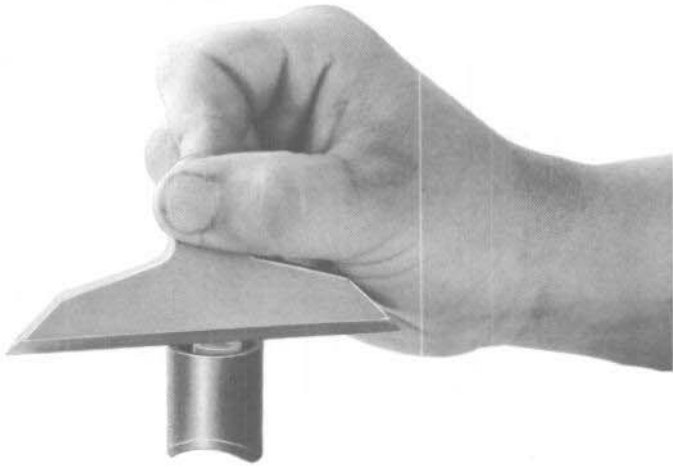
PEUGEOT

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0308

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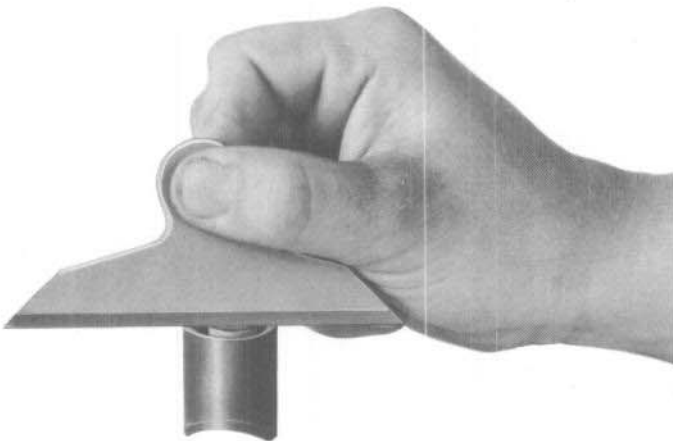
STEERING GEAR RE-ASSEMBLY - ADJUSTING



B - Measuring the clearance of the nylon stop

- Remove the dial indicator and the plunger.
- Place the nylon stop inside the plunger.
- Place on this a flat rule (or square edge plate).

There should be a gap between the nylon stop and the rule.

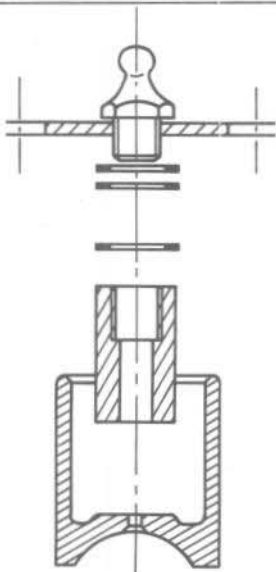


This gap must be eliminated using adjusting washers.

(Use the smallest number of washers possible).

These washers are available in 3 thicknesses :

0.10 - 0.20 - 0.50 mm



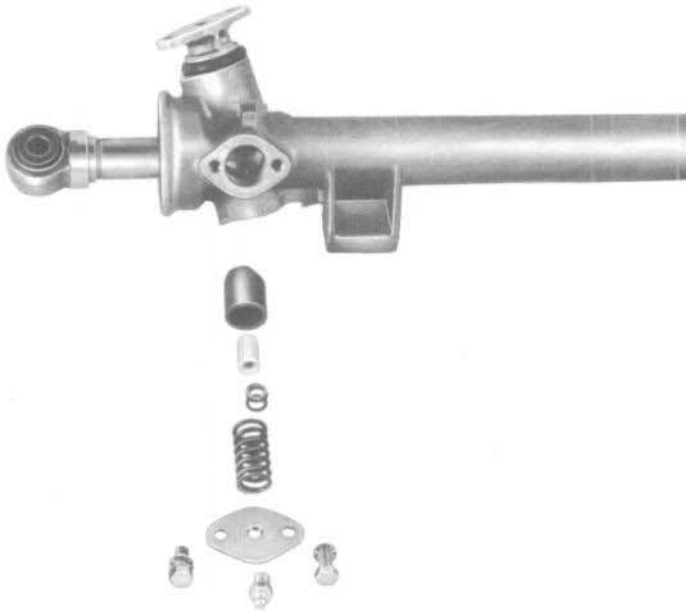
Final adjusting of the plunger

The rack plunger must have a free play of 0.10 ± 0.05 mm at the highest point of the rack.

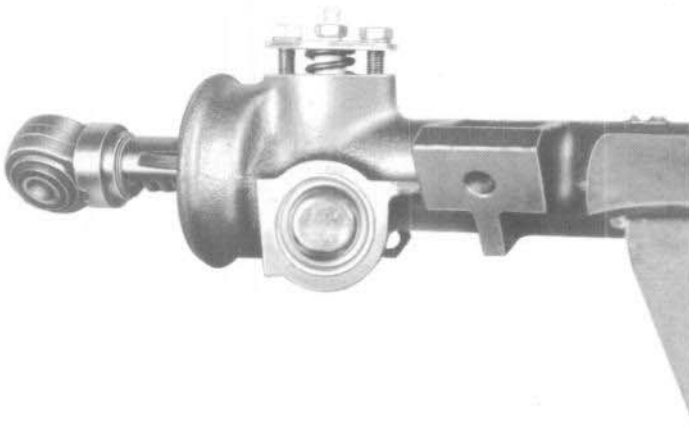
- To obtain this free play, subtract 0.10 mm from the value previously obtained.
- The thickness of shims required should be added to those which are used to eliminate the clearance between the plunger and the nylon stop

STEERING GEAR
RE-ASSEMBLY - ADJUSTING

7 0309



- Assemble on the thrust plate in the following order :
- the grease nipple tightened to 7.2 ft.lbs (1 m.kg).
- the shims determined during the previous operation.
- the nylon stop.
- Place the plunger and spring in its housing in the steering box.



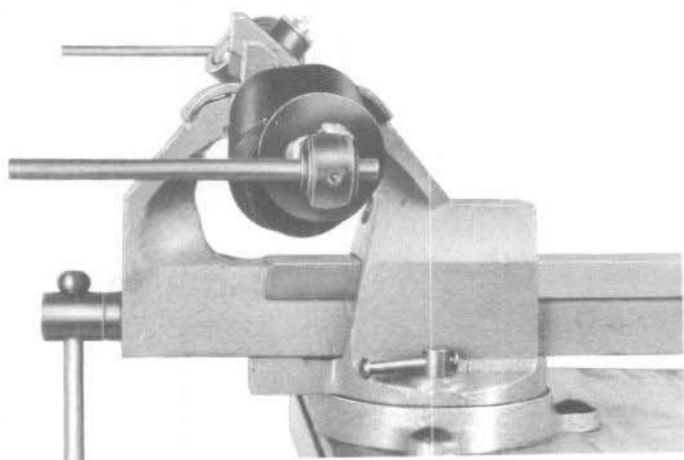
- Secure the thrust plate assembly using the two 7 mm dia bolts equipped with new Blocfor washers.
- Tighten the 2 bolts to 7.2 ft.lbs (1 m.kg).
- Grease the plunger with ESSO MULTIPURPOSE GREASE H.



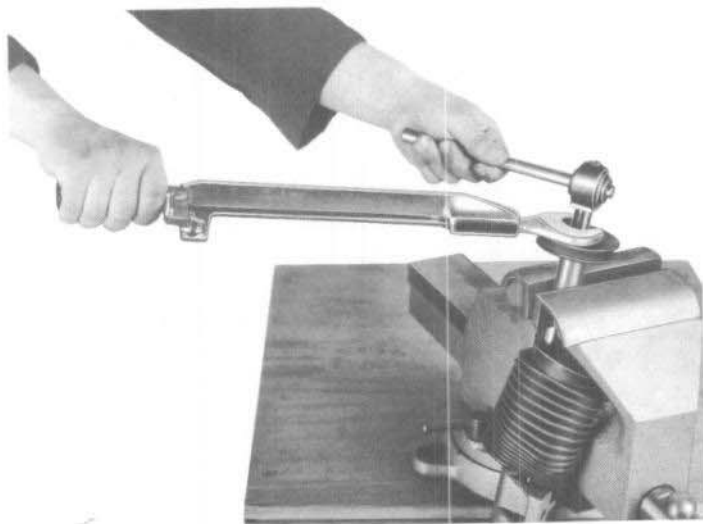
- Remove the eye from the rack on the opposite end to the pinion.
- Fit the rack rubber boot.

Refit and adjust the rack eye (20 to 21 mm between the lock nut and the shoulder of the eye).

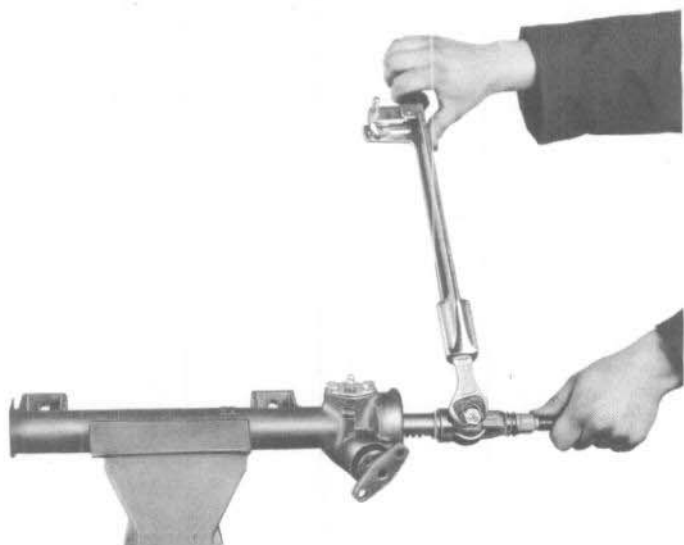
STEERING GEAR RE-ASSEMBLY - ADJUSTING



- Align the moveable eye with the fixed eye using two 12 mm diameter rods inserted in the inner rings of the silent blocs.
- Tighten the lock nut moderately to immobilise the eye.



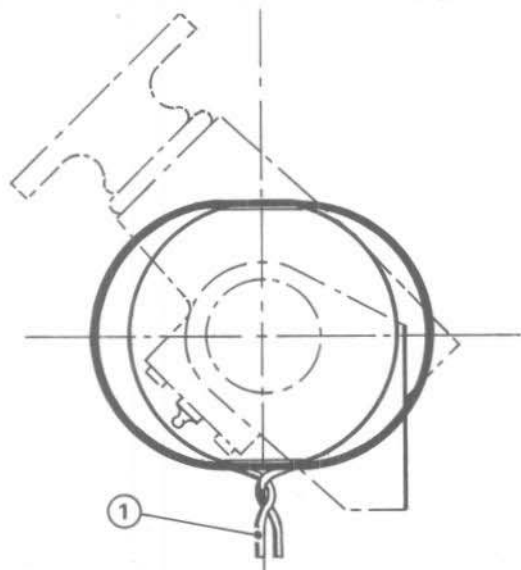
- Turn the pinion to disengage sufficiently the rack.
- Clamp the rack in a vice fitted with aluminium jaws.
- Tighten the lock nut to 25 ft.lbs (3.5 m.kg) ensuring the complete immobilisation of the eye.



- Position the yoke of the track rod on the pinion side of the rack.
- Place the track rod in line with the track, the head of the bolt on the same side as the pinion flange.
- Use a new tab washer.
- Tighten the bolt to 33 ft.lbs (4.5 m.kg).
- Bend the tab washer up around the bolt head.

STEERING GEAR
RE-ASSEMBLY - ADJUSTING

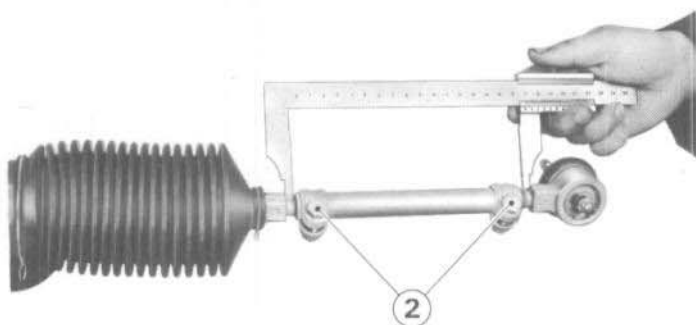
7 0311



- Fit the rack boot on the pinion side so that the larger axis is perpendicular to the bearing faces of the mounting flanges on the steering box on the main cross member.
- The prongs 1 on the clips must face the lower part of the steering box.

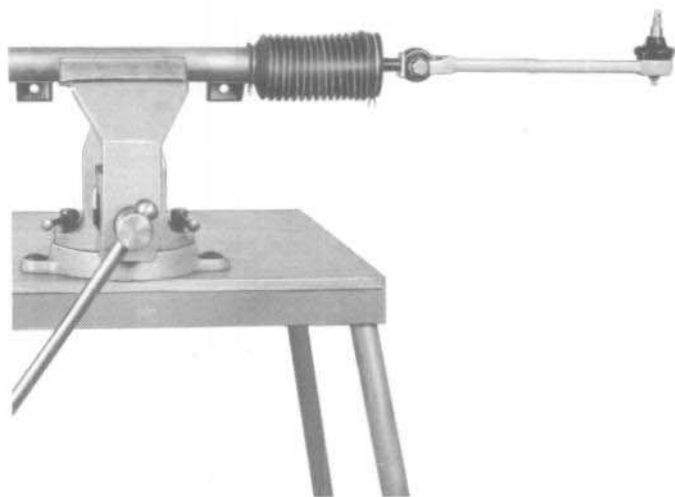
IMPORTANT : the prongs of the clips are shaped in such a way that they interlock easily using a pair of pliers.

Do not attempt to bend them out of their original shape.



Pre-adjustment of the pinion side track rod

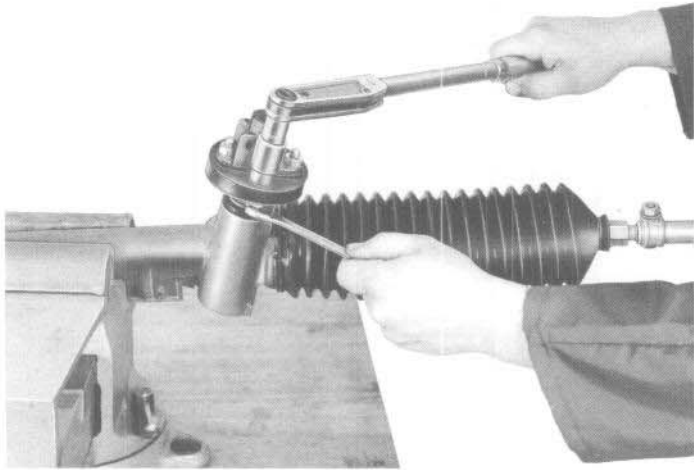
- Adjust the distance between the shoulders of the yoke and ball joint housing to 180 mm
- Equalise the distance between the shoulders and the adjuster rod.
- The tightening of the two bolts 2 is effected with the steering gear in position on the car, after adjusting the toe in of the front wheels.



- Fit the rack boot on the opposite end to the pinion, following the above mentioned instructions.
- Fit the one piece track rod to the rack.
- Position the track rod in line with the rack.
- Fit a new tab lock.
- Tighten the bolt to 33 ft.lbs (4.5 m.kg).
- Bend the tab up around the bolt head.

PEUGEOT

STEERING GEAR RE-ASSEMBLY - ADJUSTING



Mounting the flector

- Fit 4 new Blocfor washers and bolts, the heads of the bolts towards the steering box.
- Position the plates on both sides of the flector with the holes forming a cross.
- Secure the flector thus assembled to the pinion flange.
- Centre the rack, in relation to the steering box, to the "straight ahead" position.
- Fit the clamp to the flector using the reference mark made whilst dismantling.

In the "straight ahead" position the bore of the collar bolt hole must be parallel to the rack.

The thrust faces of the pinion flange and the collar should be in contact with flector through the holes in the plates.

- Tighten the 4 nuts to 13 ft.lbs (1.75 m.kg).

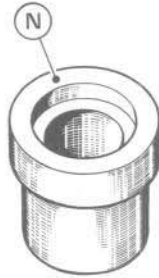
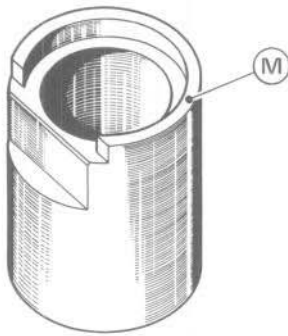


- Lock the bolts by spreading the threads using a cold-chisel.

STEERING GEAR
RACK

7

0501



TOOLS TO BE USED

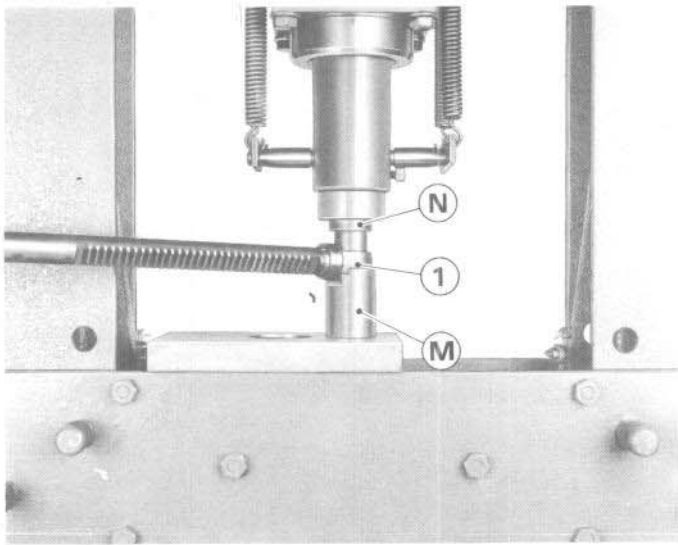
8.0907

Tool chest for front and rear flexible bushes.

M - Removing-refitting base for the steering rack silentblochs.

N - Removing-refitting drift for the steering rack eye silentbloc.

STEERING GEAR RACK

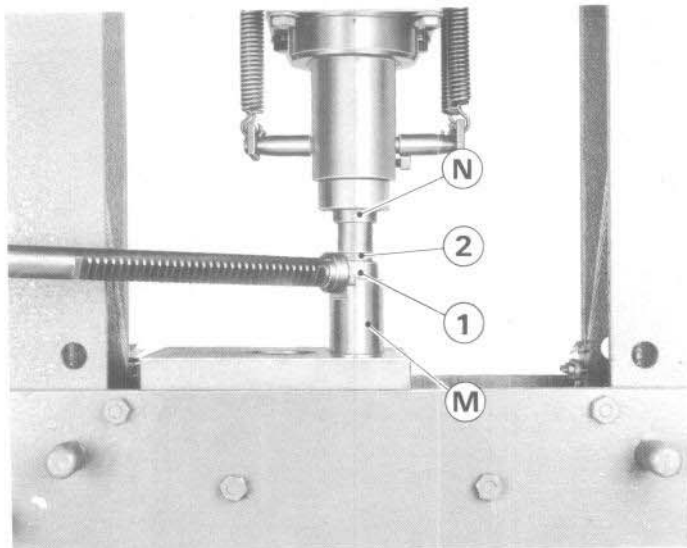


REPLACING THE STEERING RACK SILENT-BLOCS

As the eye on the pinion end of the rack is not removable, the replacement of the silentbloc can be effected with rack removed from the steering box or with the mechanism assembled.

Removal of a silentbloc

- Assemble on the press base plate, the following :
 - the base M.
 - the steering rack eye 1.
 - the drift N with the smaller diameter facing the eye.
- Lower the press piston until the silentbloc falls into the base M.



Refitting a silentbloc

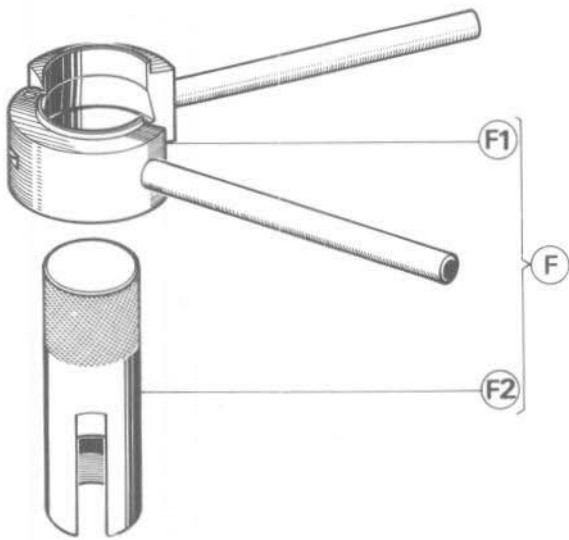
- Smear, with tallow, the outside of the silentbloc and the inside of the rack eye.
- Assemble on the press base plate the following :
 - the base M.
 - the rack eye 1.
 - the new silentbloc 2.
 - the drift N with the smaller diameter facing the silentbloc as for removal.



- Lower the press piston until the chamfered edge of the silentbloc protrudes from the eye.
- Equalise the protrusion of the silentbloc, on both sides of the eye, if necessary.

STEERING GEAR
TRACK ROD BALL JOINT

7 0601



TOOLS TO BE USED

8.0703 W

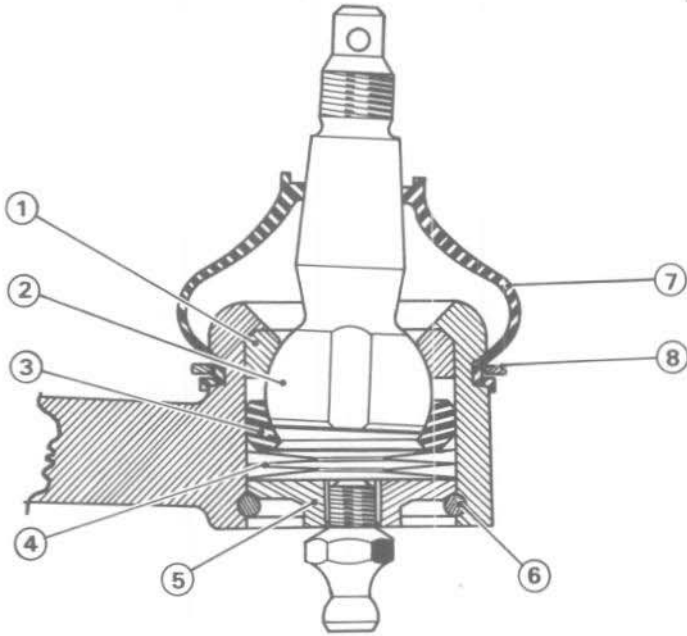
Tool chest for the steering gear

F - Apparatus for fitting ball joint spring clip,
including :

F1 - Clamp

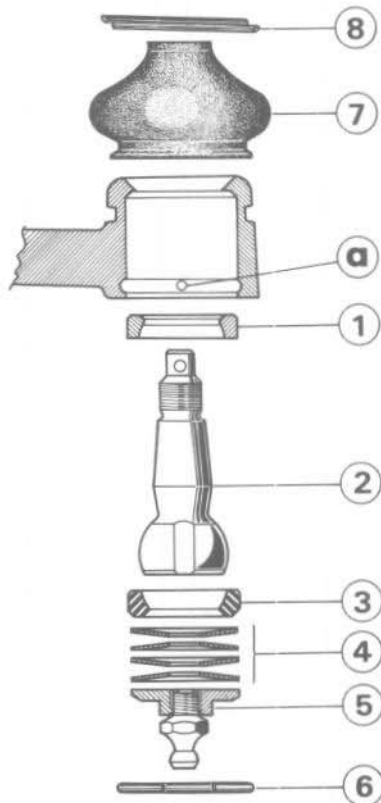
F2 - Drift

STEERING GEAR TRACK ROD BALL JOINTS



DISMANTLING

- Clamp the track rod in a vice.
- Remove the clip 8 and the rubber boot 7.
- Disengage the spring clip 6, for the ball joint cover, using a pin punch inserted in hole a provided.
- Then remove :
 - the ball joint cover 5
 - the Belleville washers 4
 - the lower nylon half cup 3
 - the ball head 2
 - the upper steel half cup 1.

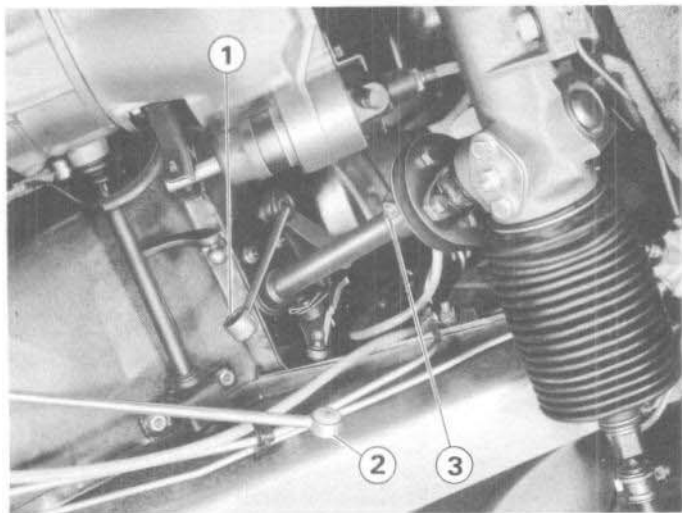


RE-ASSEMBLY

- Place the steel half cup 1 in the bottom of the ball joint housing.
- Place in position :
 - the ball head 2
 - the nylon half cup 3
 - the new Belleville washers 4 (note direction of fitment).
 - the ball joint cover 5.
- Compress the Belleville washers and position the new spring clip 6 using the apparatus F.
- Position correctly the ball head (the pin hole perpendicular to the axis of the track rod).
- Fit the rubber boot 7 and the clip 8.
- Grease the ball joint cover.

STEERING GEAR STEERING COLUMN

7 0701

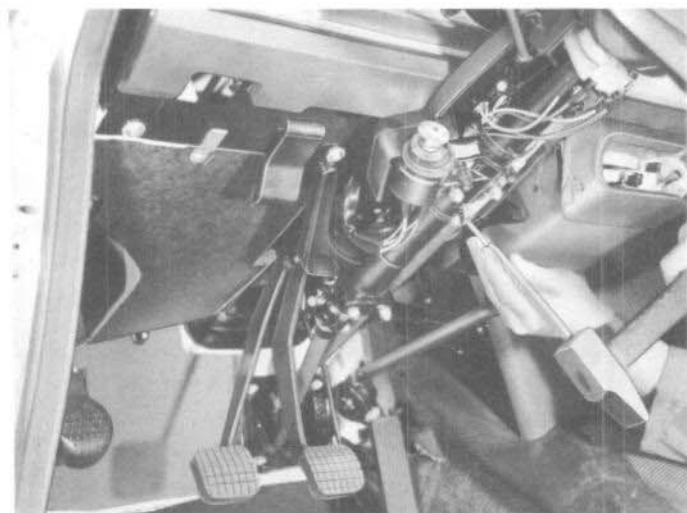


REMOVAL

- Disconnect the battery
- Release :
 - the upper gear change control rod 1
 - the selector rod 2 from its lever.
- Remove the bolt 3 from the flexor.

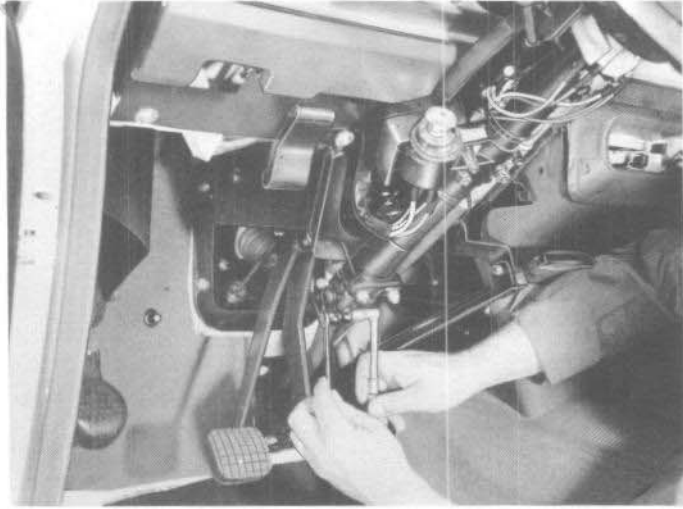


- Remove the lower shell from the steering column.
- Move upwards the clip 4, which retains the pin assembling the gear change control rods.

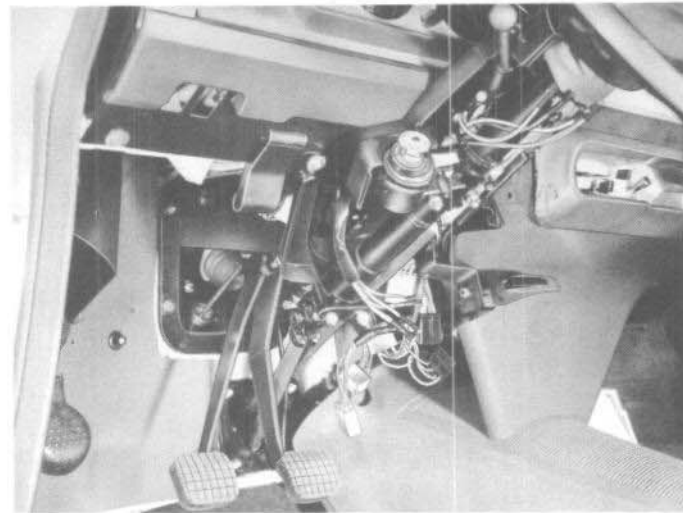


- Remove the pin using a 6 mm drift.

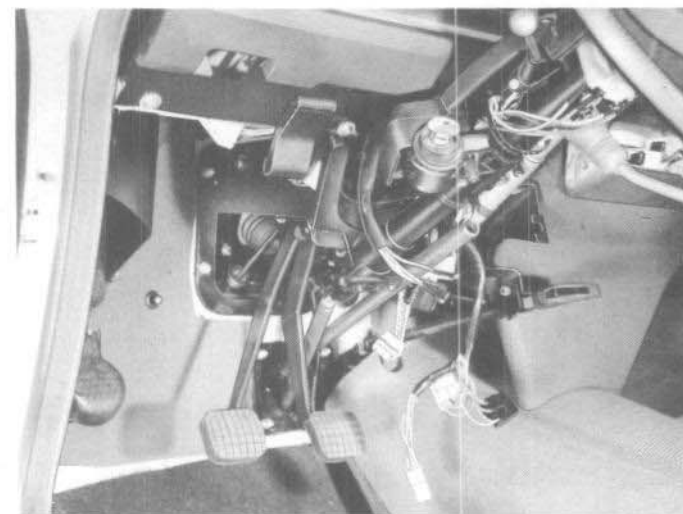
STEERING GEAR STEERING COLUMN



- Remove the clamp bolt from the lower collar of the steering column cardan joint.
- Slide the lower part of the steering column downwards until it abuts on the flector.



- Disconnect :
 - the Neiman anti-theft lock wires
 - the 3 connectors on the steering column wiring harness.
- Remove the 2 bolts securing the handbrake lever support under the dashboard.



- Remove the 4 bearing nuts of the column, under the dashboard.
- Release simultaneously the two parts of the gear change control rod and the steering column.
- Lower the hand brake lever support to enable the freeing of the wiring harness of the steering column.

STEERING GEAR
STEERING COLUMN

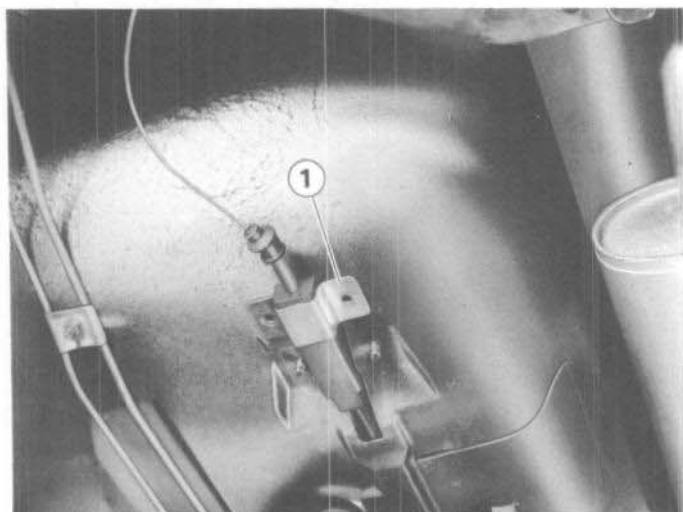
7 0703



- Withdraw the upper steering column assembly.

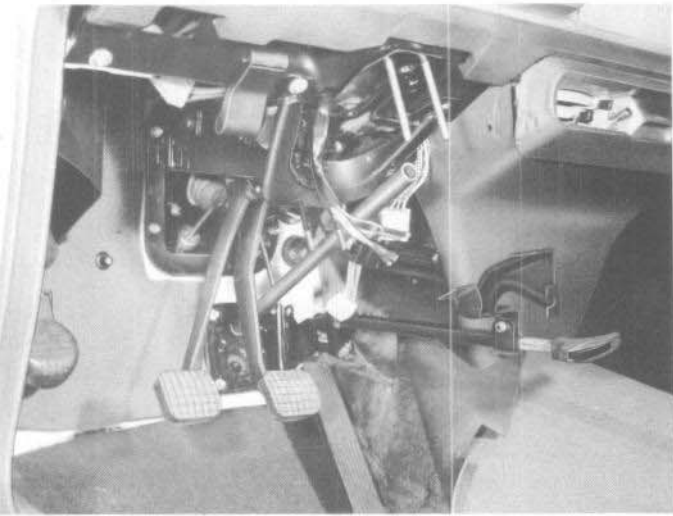


- Withdraw the lower bar of the steering column as far as possible and disengage it towards the interior of the car.

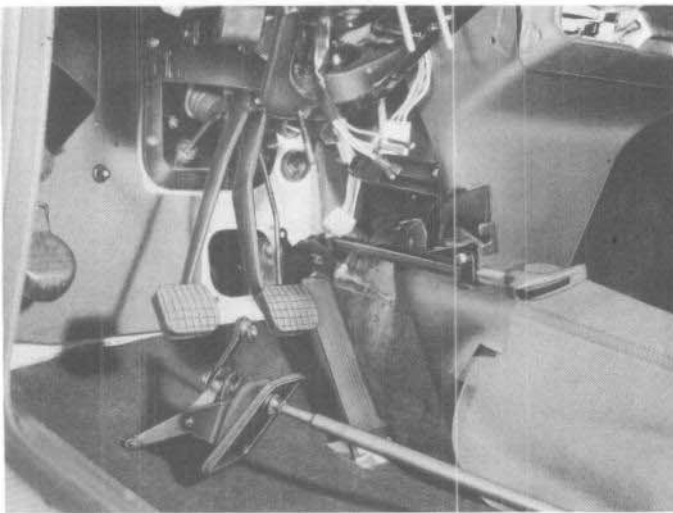


- Remove the hand brake outer cable stop clamp to enable the withdrawal of the handbrake return lever in relation to the scuttle.

STEERING GEAR STEERING COLUMN



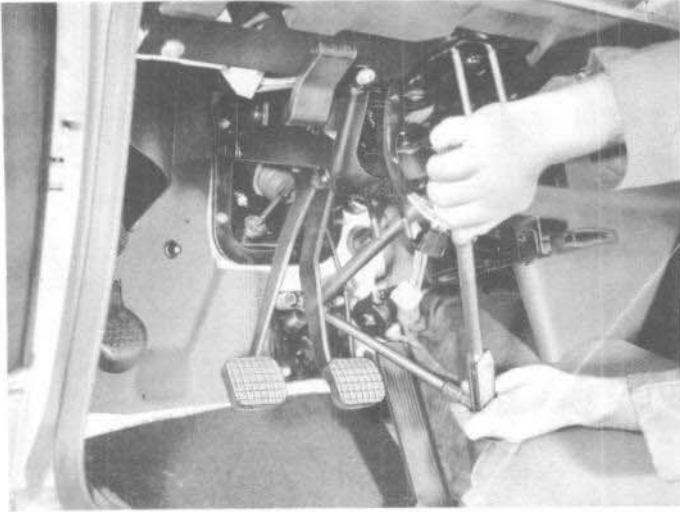
- Remove the 4 nuts securing the steering column closing plate to the scuttle.
- Disengage the hand brake lever support from its securing studs to enable the freeing of the closing plate.



- Remove the lower gear change control assembly together with the closing plate and its gasket.

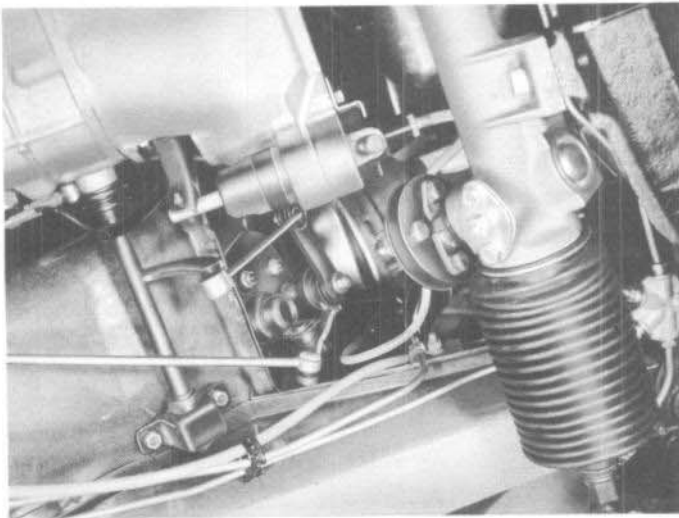
STEERING GEAR
STEERING COLUMN

7 0705



REFITTING

- Replace, if necessary, the closing plate gasket
- Refit the lower gear change control assembly together with the hand brake return lever support.
- Secure the plate and the support using new star washers.
- Tighten the nuts to 7.2 ft.lbs (1 m.kg).

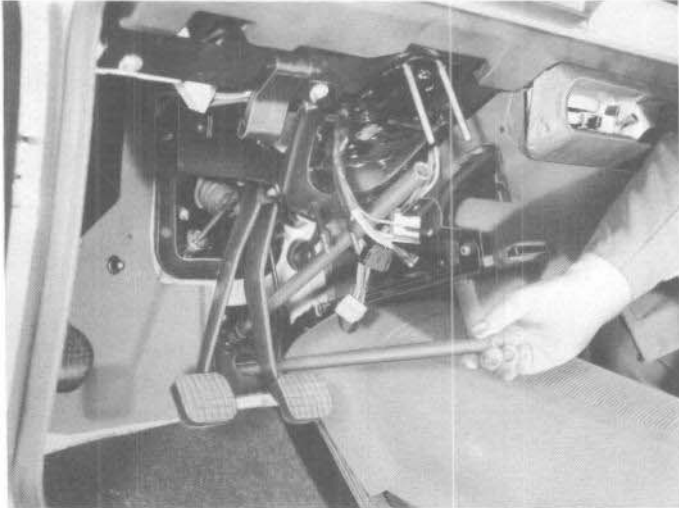


- Re-connect the gear selector and change control rods to their respective levers ensuring the correct fitting of the nylon bearing on the ball head of the control rod.

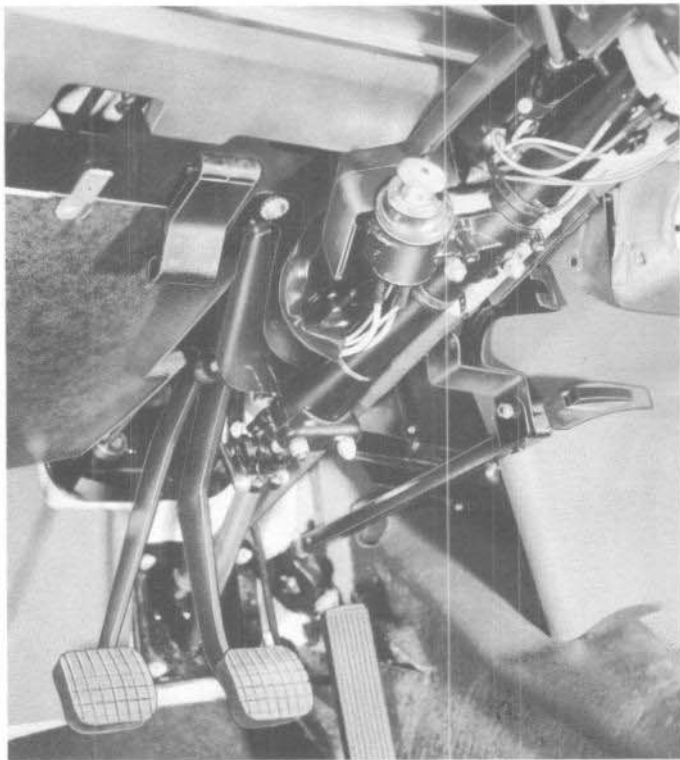


- Secure the hand brake outer cable clamp to the floor.
- Tighten the nuts to 3.5 ft.lbs (0.5 m.kg).
- Ensure the free movement of the hand brake lever which should have neither free play nor tightness when in the "at rest" position.

STEERING GEAR STEERING COLUMN



- Grease thoroughly the lower steering column bush, which is fitted in the sealing plate.
- Insert the lower steering column rod in its bearing and in the flector collar.
- Push the rod home into the flector.

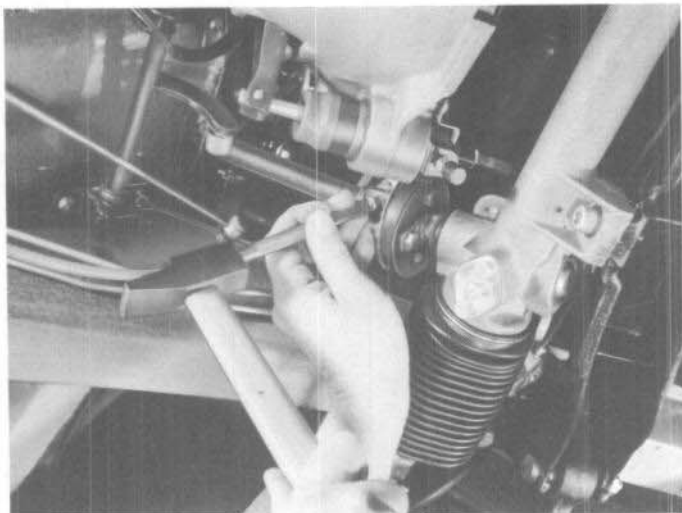


- Fit the upper assembly of the steering column.
- Connect simultaneously the two parts of the gear change control rod and the steering column
- Using new star washers, fit and tighten the 4 nuts, securing the steering column, under the dashbord to 7.2 ft.lbs (1 m.kg).
- Fit a new Mecanindus pin, to assemble the gear change control rods.
- Position the retaining clip over the pin.
- Secure the lower part of the cardan joint on the steering column using a new bolt nut and Blocfor washer.
- Tighten the nut to 7.2 ft.lbs (1 m.kg) and lock it by spreading the protruding end of the bolt.
- Reconnect :
 - the Neiman anti-theft lock wires
 - the 3 wiring harness connectors on the steering column.
- Secure the harness under the dashbord.

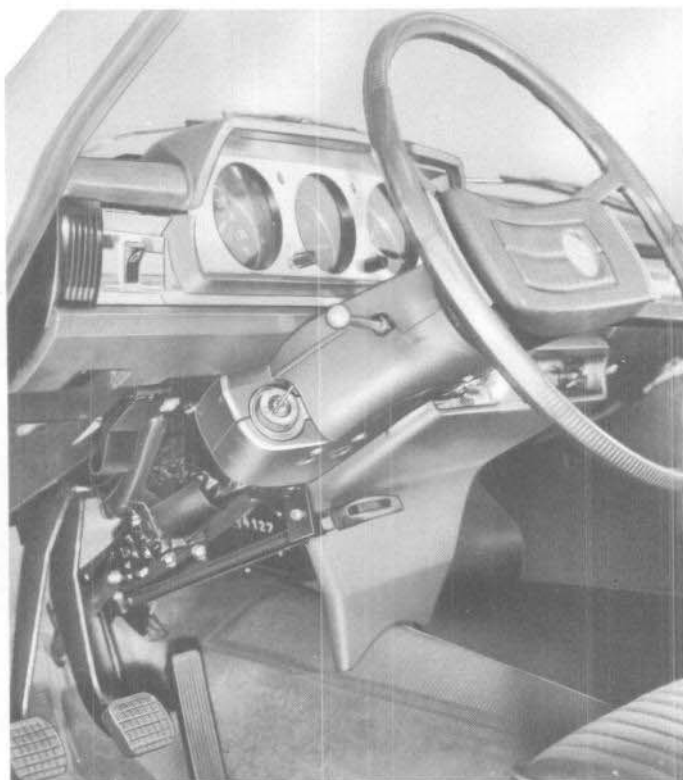
STEERING GEAR
STEERING COLUMN

7

0707



- Secure the column in the flector using a new nut, bolt and Blocfor washer.
- Tighten the nut to 7.2 ft.lbs (1 m.kg) and lock it by spreading the protruding end of the bolt.



- Secure the hand brake lever support under the dashboard,
- Re-connect the battery and reset the clock.
- Check the operation of the lighting, the indicators and the Neiman anti-theft lock.
- Fit the lower shell of the steering column.
- Check and adjust if necessary, the gear change control rods and the horns.

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