FRONT AXLE

6

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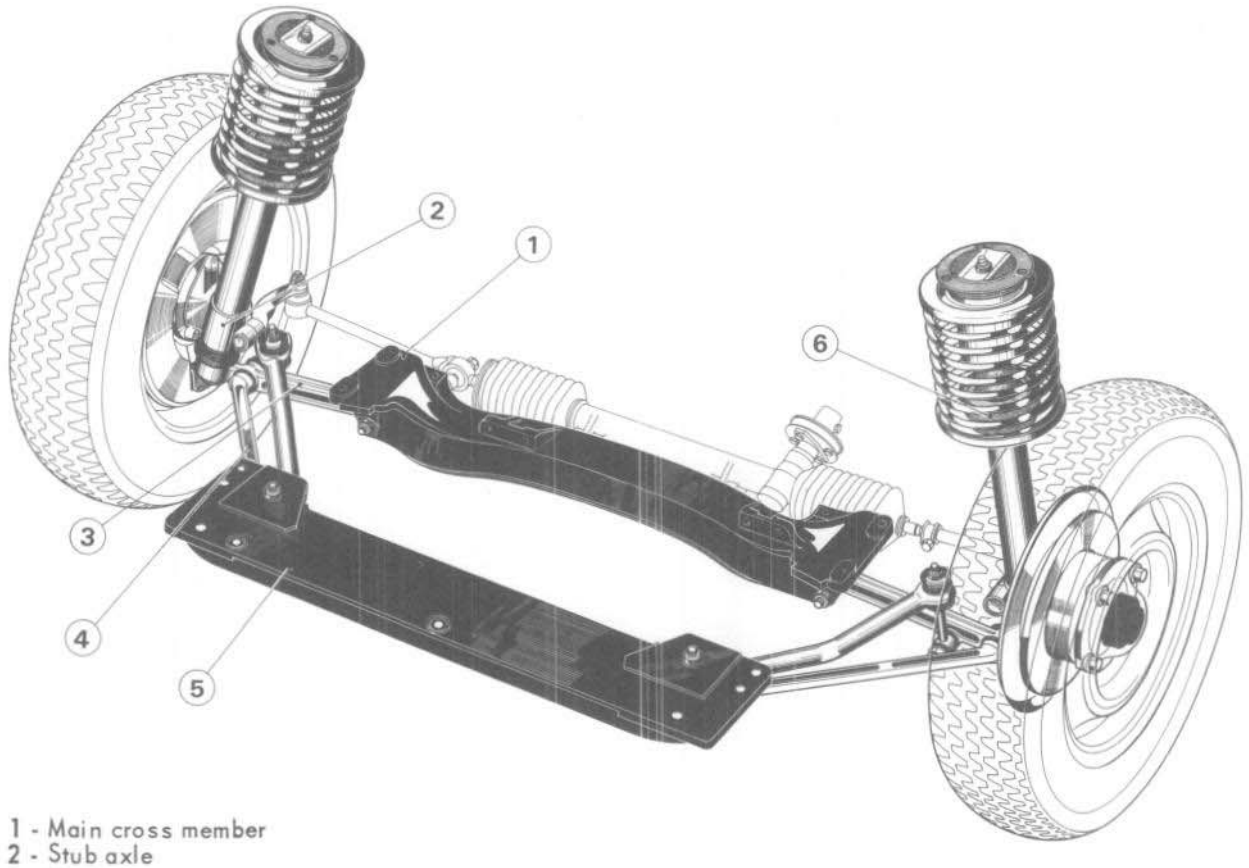
FRONT AXLE
IDENTIFICATION AND CHARACTERISTICS



1 - Main cross member
2 - Stub axle
3 - Triangle rear arm
4 - Triangle front arm
5 - Front cross member
6 - Rebound block

CHARACTERISTICS
(Car in working order) *

TOE IN	3 mm ± 1 mm
CAMBER ANGLE	0° 38' ± 30'
CASTOR ANGLE	2° 40' ± 30'
SWIVEL PIN INCLINATION	8° 54' ± 30'
THEORETICAL STEERING ANGLE (INNER WHEEL)	45° 05'
THEORETICAL STEERING ANGLE (OUTER WHEEL)	35° 15'

	Inner wheel	Outer wheel
STEERING ANGLE CHECK	20° 21° 25'	18° 45' 20°

* With tools, oil, water and petrol.

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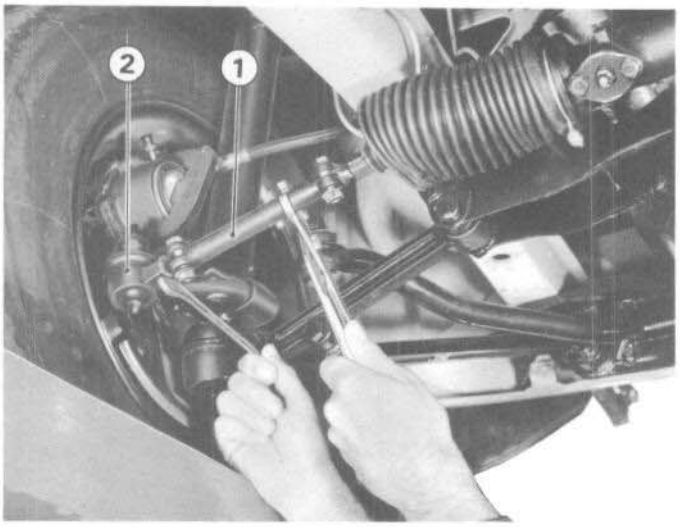
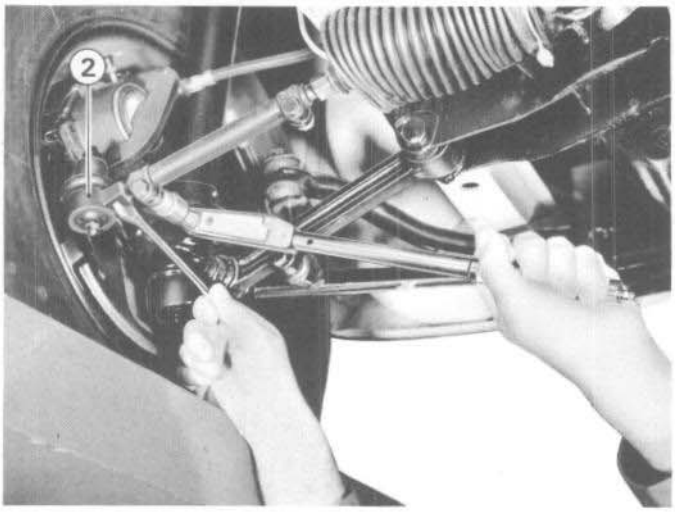


PARALLELISM ADJUSTMENT

- The checking of the front axle can be effected with the BEM MULLER apparatus.
- The parallelism adjustment is carried out, with the vehicle **in working order.** (Car with petrol, oil and water).
- Slacken the two clamp nuts on the adjustable track rod **1.**
- Hold the ball joint **2** in position, with its two flats HORIZONTAL using a 14 mm open ended spanner.
- Screw or unscrew the track rod **1** to obtain a toe in of 4.5 mm ± 1 mm.

N.B. - One turn of the adjustable track rod 4.5 mm at the wheel rim.



- Hold the adjustable track rod in the position thus found.
- Tighten the clamp nuts to **9 ft.lbs** (1.25 m.kg) ensuring that **the ball joint socket 2 remains on a horizontal plane.**

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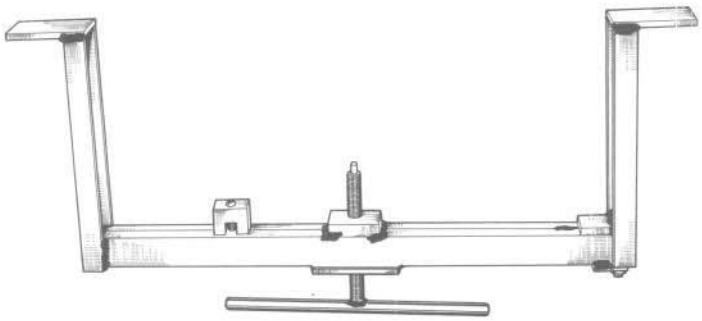
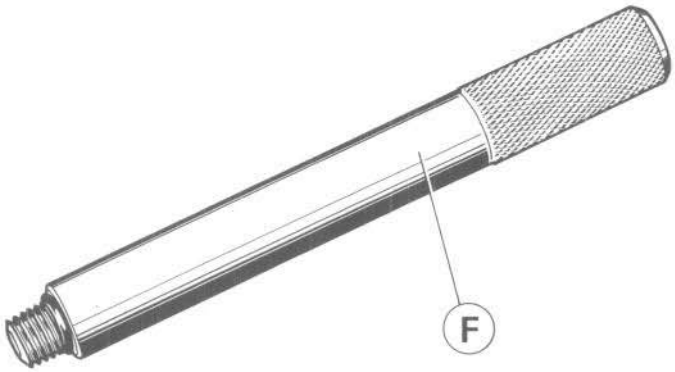


TOOLS TO BE USED

8.0125

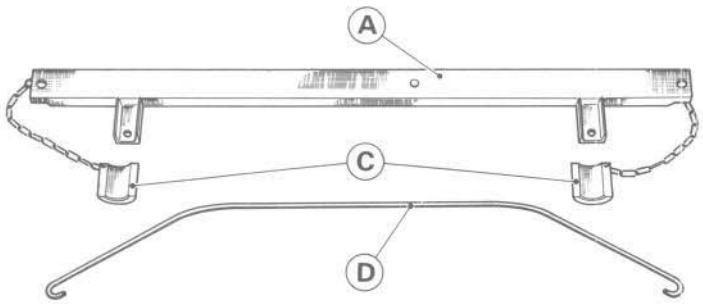
- Engine or gearbox supporting apparatus.



8.0803

- Tool chest for disc brakes

F - Plug rod for the brake master cylinder.



8.1101

Apparatus for holding the front mechanical components comprising of :

A - Crossbar for holding the front triangle arms.

C - Front steering swivel thrust spacers.

D - Front suspension elements connecting bar.

PEUGEOT

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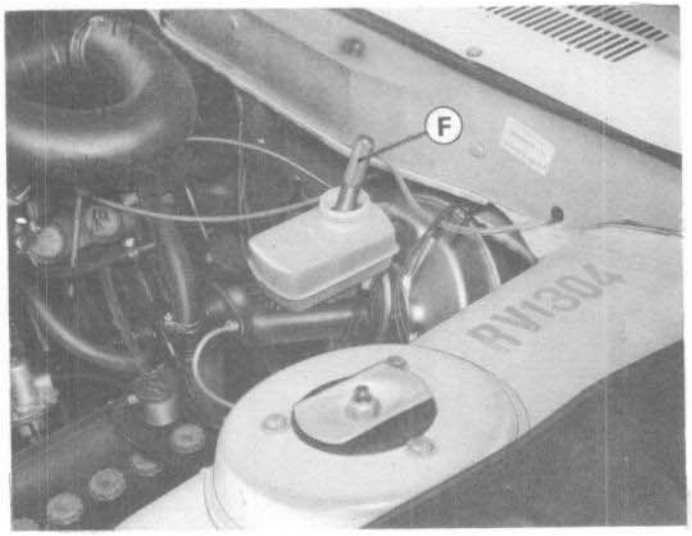
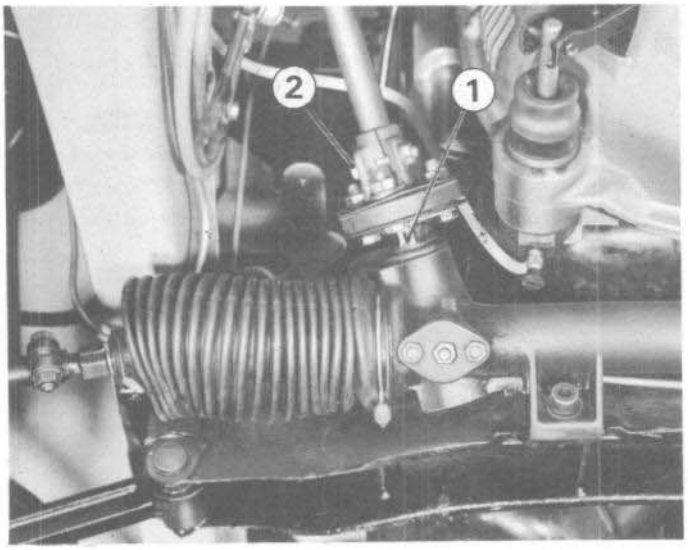
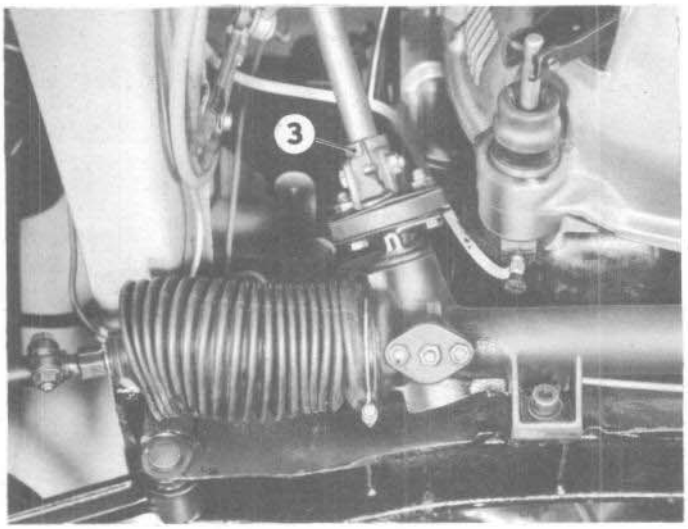


- Place the car over a pit or on a car lift.
- Protect the wings with the covers.
- Disconnect the battery.
- Thread the plug rod **8.0803 F** into the hollow master cylinder securing bolt and screw it in completely to prevent draining the brake fluid system.



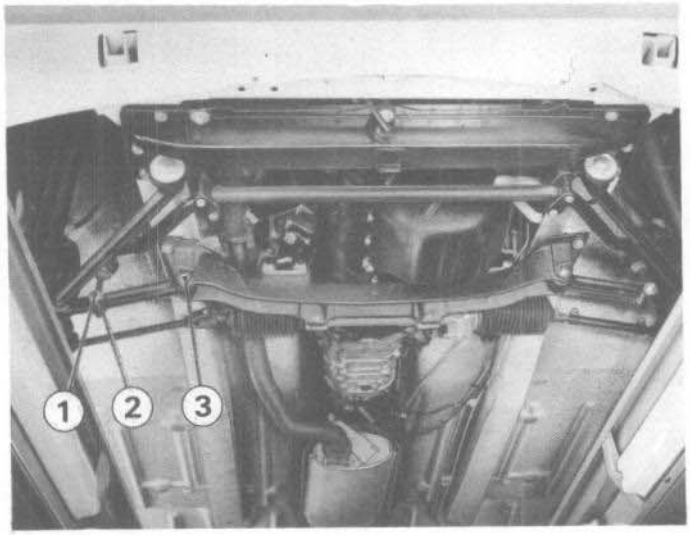
- Mark the rack pinion **1** opposite the bolt **2** on the flector collar.



- Remove the two bolts securing the collar **3** to the steering flector. (Do not slacken the collar bolt).

FRONT AXLE

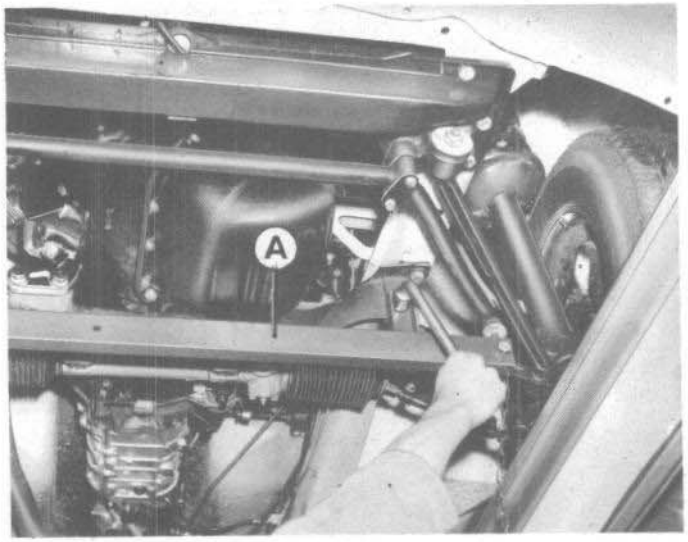
REMOVAL



- Remove the two nuts **1** from the anti-roll bar connecting link pivots on the triangle rear arm.

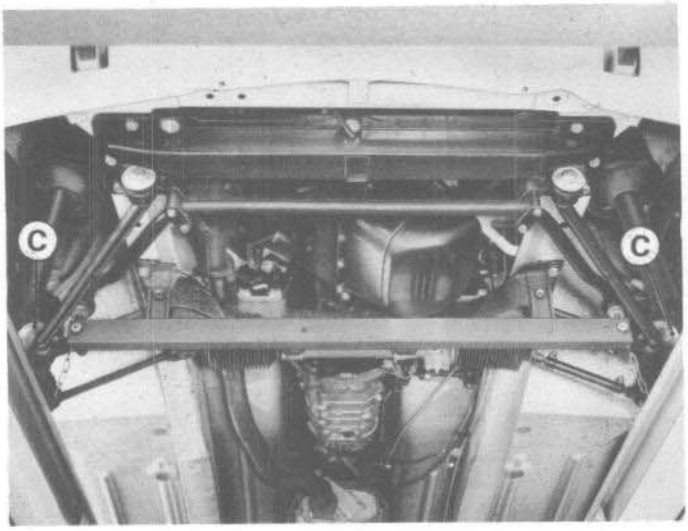
- Leave the flat washers **2** in position.

- Remove the two nuts **3** from the triangle rear arm pivots on the main cross member.



- Raise the front of the car carefully, with a pulley using a hoist chain mounted on the jack guides, until the four pivot holes of the front axle coincide with the holes on the apparatus **8.1101 A.**

- Position the apparatus **A** and tighten the nuts.

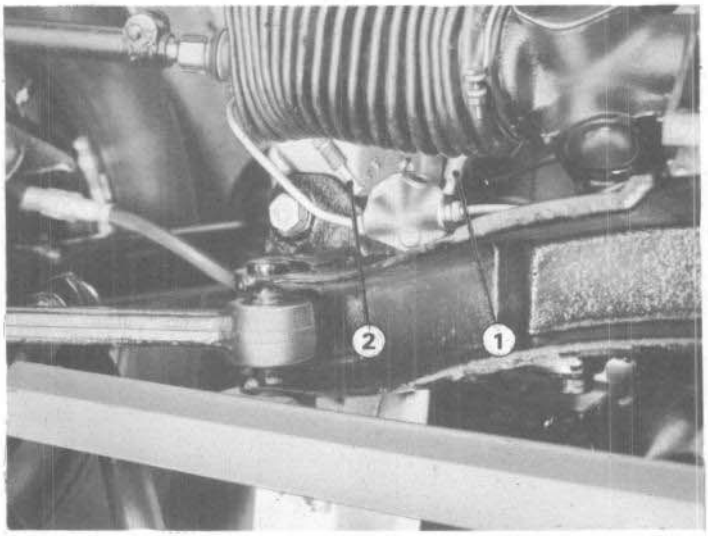


- Lower the car.

- Place the two thrust spacers **C** between the eyelets of the triangle arm silentblocs and the track arm bosses on the front stub axles.

FRONT AXLE

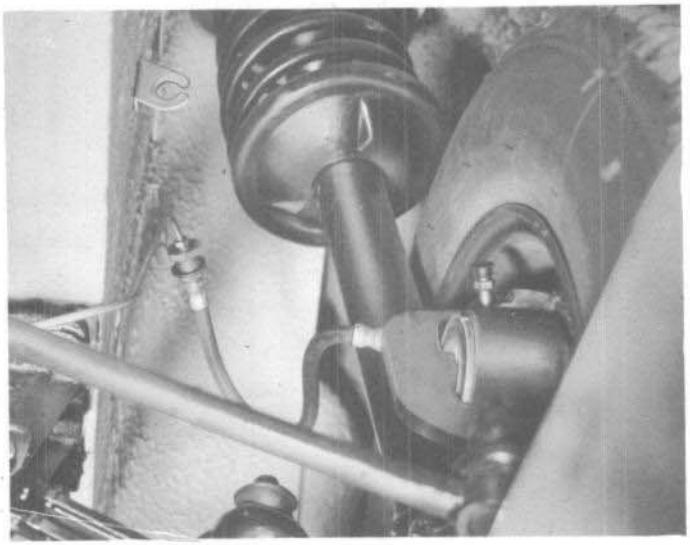
REMOVAL



- Disconnect from the four way union :

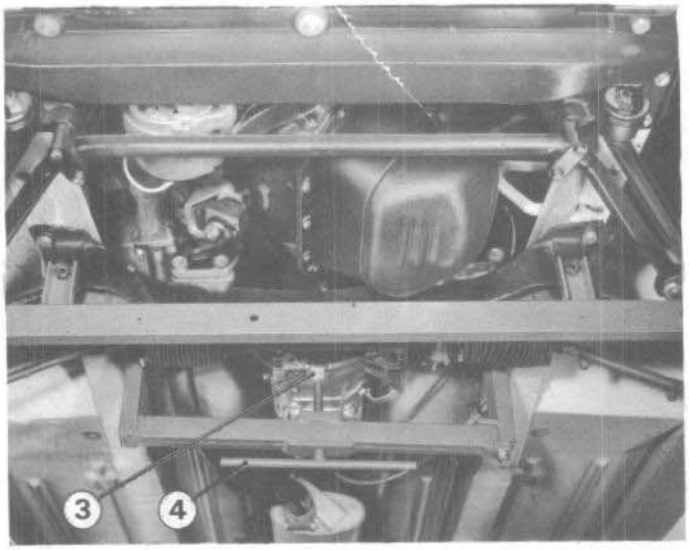
  - the main supply pipe 1

  - the rear brake lines 2



- Slacken the nuts securing the front flexible hoses to the lugs on the front wheel valances.

- Free the pipes from the mounting lugs without disconnecting them.



- Place the support apparatus **8.0125** on the side-members.

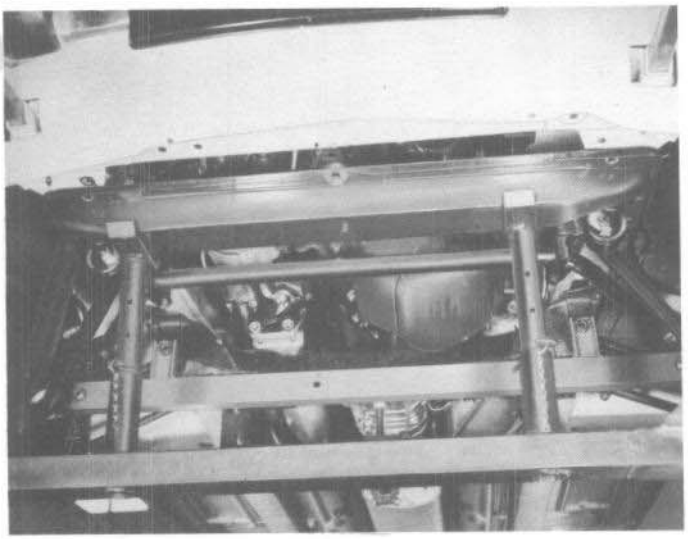
- Ensure the correct positioning of the lifting pad 3 under the clutch housing.

- Bring the pad into contact by turning the bolt 4 without forcing it.

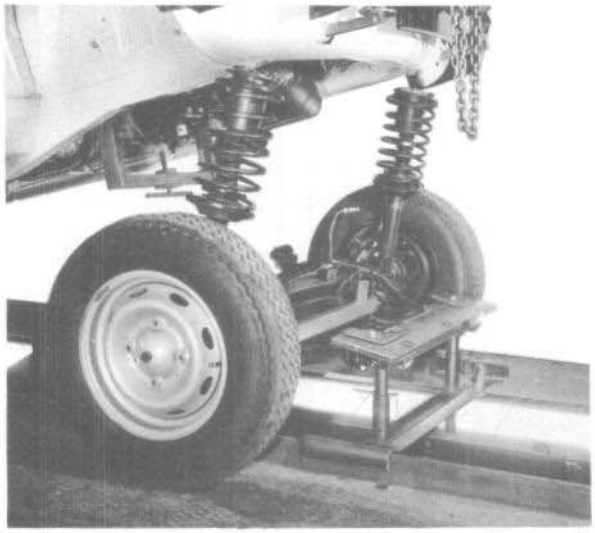
- Remove the four bolts securing the engine supports to the main cross member.

FRONT AXLE

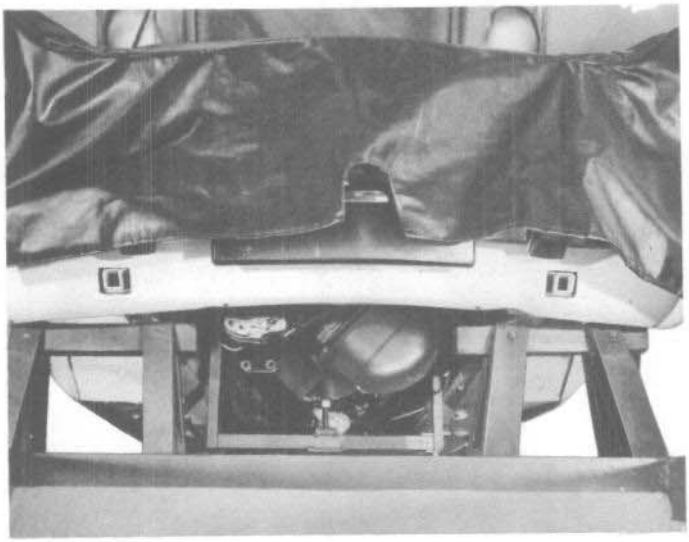
REMOVAL



- Chock the front cross member.
- Remove :
  - the two lower radiator mountings on the front cross member.
  - the six bolts securing the front cross member.
  - the four bolts securing the main cross member.



- Remove the six bolts securing the top spring mountings to the wing valances.
- Raise the front of the car carefully to enable the withdrawal of the front suspension assembly.
- Link the front suspension springs using the connecting bar **D** and withdraw the front axle assembly.

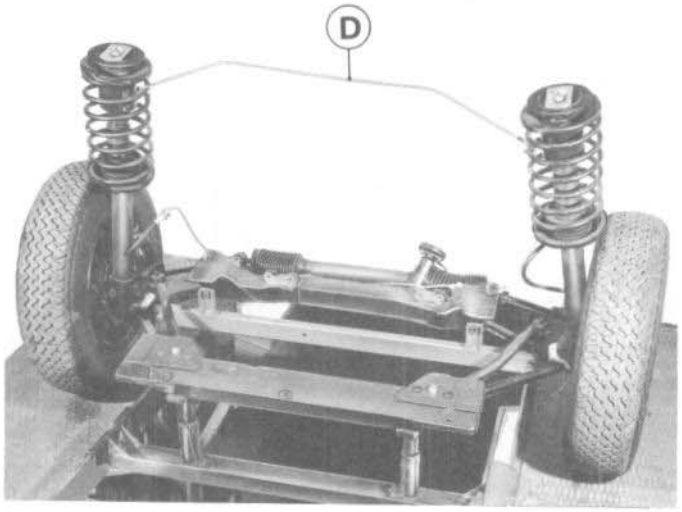


Chocking

- The car, with the front axle removed, can only be chocked under the sidemember mounting points for the front axle. NO OTHER POINT UNDER THE BODYWORK SHOULD BE USED.

FRONT AXLE
REFITTING

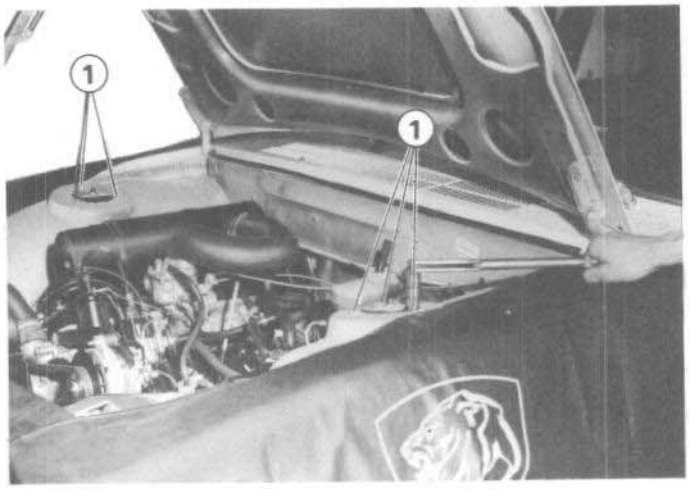
6 0211



- The front axle assembly must be made up of components which are clean and free from defect.

- To refit to the bodywork, chock the assembly, under the front cross member, so that the shock absorbers are leaning forward.

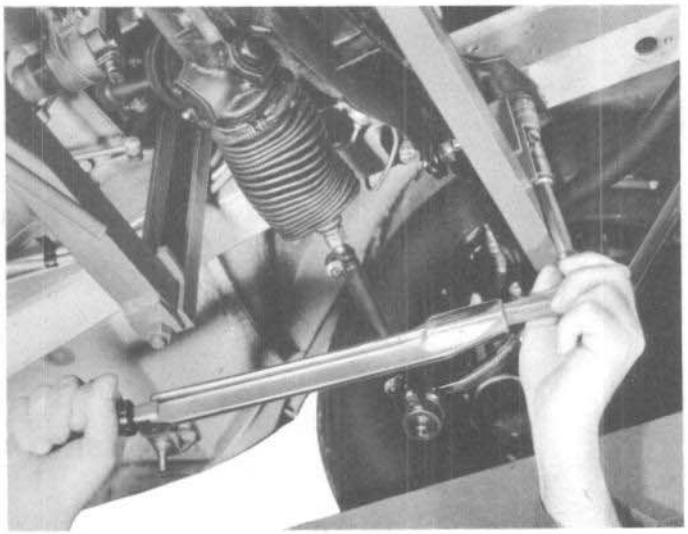
- Remove the connecting bar **D**.



- Lower the hull onto the front axle.

- Guide the upper spring mountings into their respective positions.

- Secure the suspension elements to the wing valances using **new** double toothed washers and tightening the six bolts **1** to **7.2 ft.lbs** (1 m.kg).



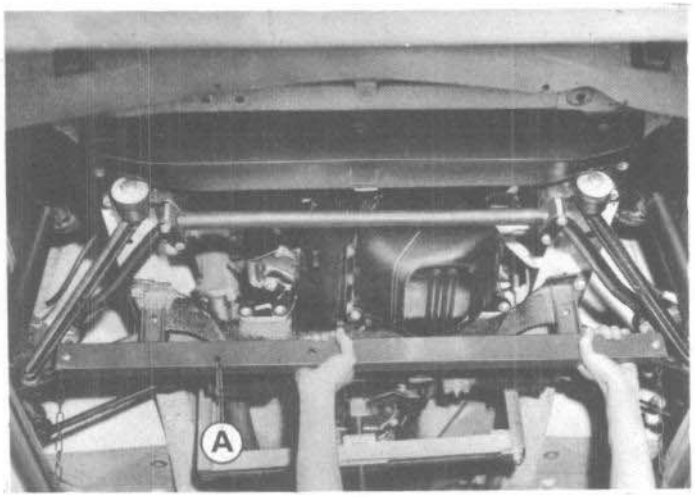
- Secure the two front axle cross members using **new** Blocfor washers and tighten :

  - the four M12 bolts of the main cross member and the two M12 bolts of the front cross member to **31 ft.lbs** (4.25 m.kg).

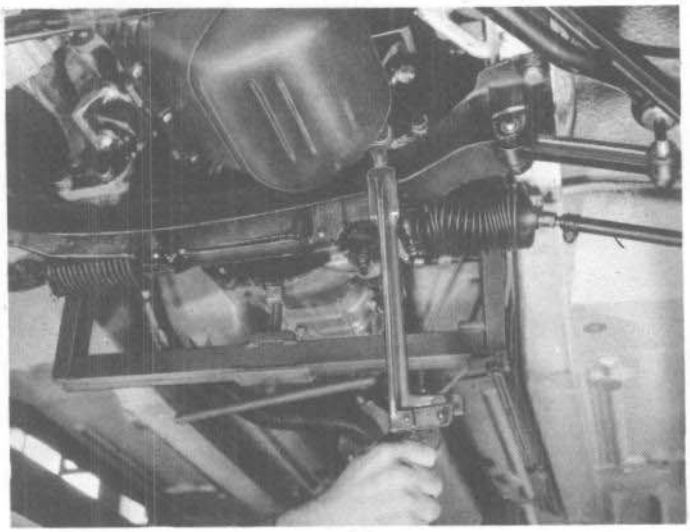
  - the four M10 bolts of the front cross member to **27 ft.lbs** (3.75 m.kg).

PEUGEOT

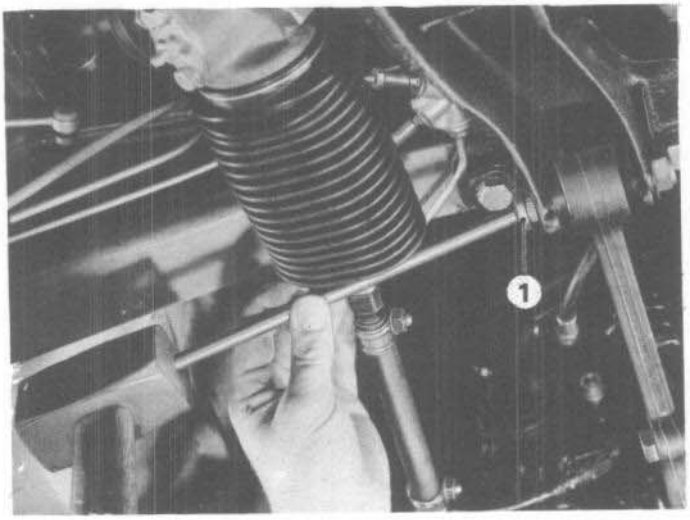
FRONT AXLE
REFITTING



- Secure the radiator to the front cross member.
- Tighten the nuts to **7.2 ft.lbs** (1 m.kg).
- Remove :
  - the thrust spacers **C** in between the triangle arms and the stub axle.
  - the four bolts securing the holding apparatus for the triangle arms **8.1101 A.**
- Raise the car until the apparatus **A** can be freed from its mounting points.
- Remove the holding apparatus **A.**



- Secure the engine to the main cross member, tightening the four bolts, fitted with **new** Grower washers, to **33 ft.lbs** (4.5 m.kg).
- Remove the engine gearbox support **8.0125.**



- If the front axle has been dismantled it is **essential** that the two triangle rear arm pivots **be withdrawn** until the splines disengage.
- Lower completely the hoist chain.
- Roll the car backwards and forwards ro reposition the flexible bushes.
- Drive in the two pivots **1** until they abut.

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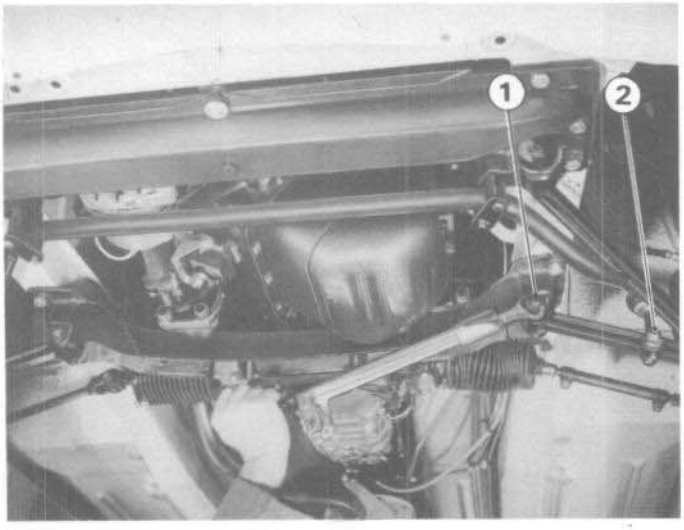
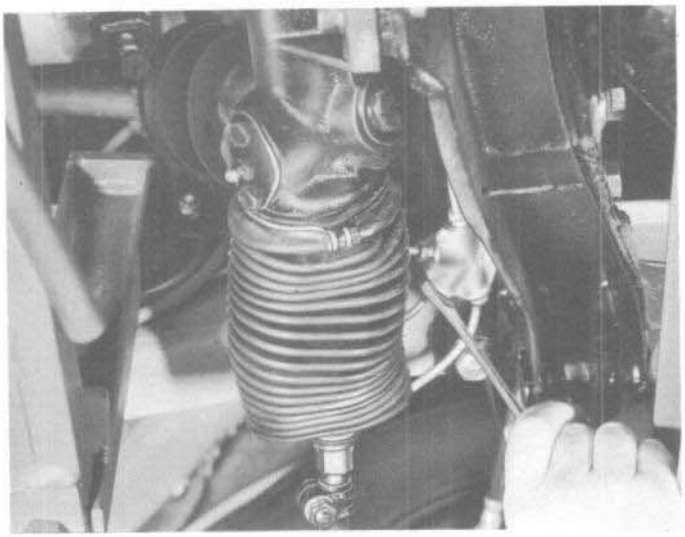
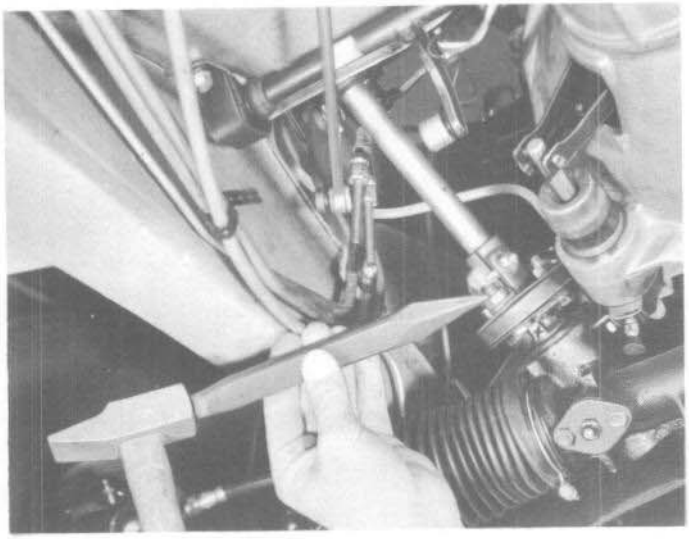


- Fit 2 **new** Nylstop nuts on the rear arm pivots.
- Tighten to **33 ft.lbs** (4.5 m.kg)
  - the pivot nuts **1** on the crossmember.
  - the nuts **2** securing the anti-roll bar links to the rear arm.
  - the triangle arm silentbloc nuts if the front axle has been dismantled.



- Reconnect, to the 4 way union :
  - the main fluid feed pipe
  - the rear brake lines
- Secure the brake flexible hoses to the lugs on the front wing valances.



- Reconnect the collar to the steering flector in the position marked while dismantling..
- Use two M8 × 35 bolts and two **new** blocfor washers ; tighten the nuts to **13 ft.lbs** (1.75 m.kg).
- Bleed the brake system (see class 8).
- Adjust the front wheel parallelism (see class 6, page 01 03).

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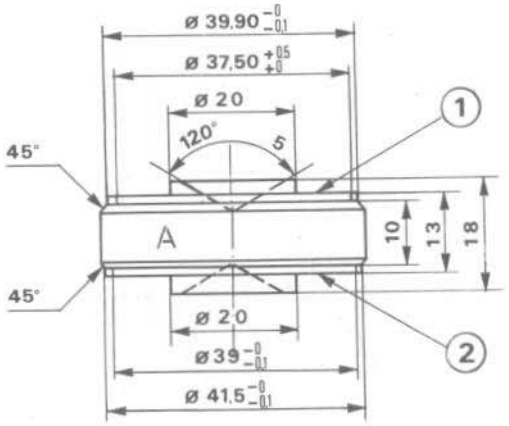
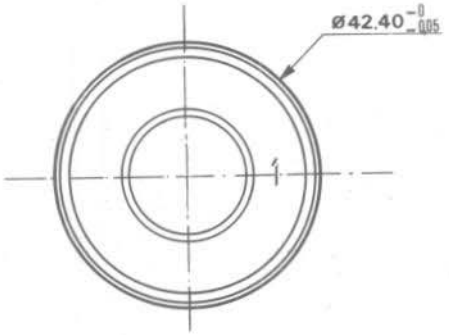




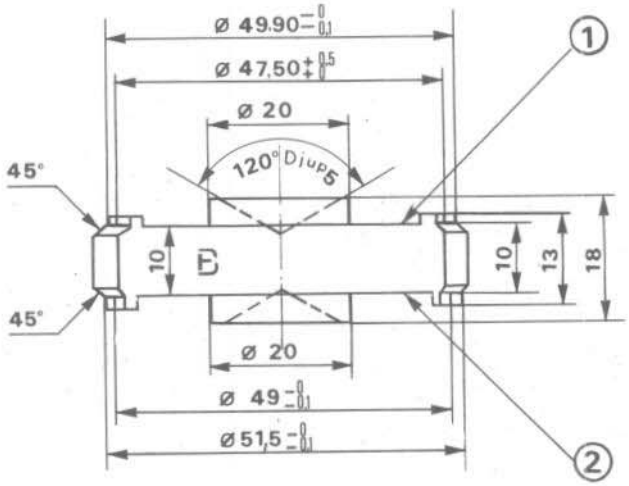
TOOLS TO BE USED

These tools must be made in the workshop.

6.0601 A

- Thrust plate for removing the outer race of the exterior wheel bearing.

2 - race thrust face.

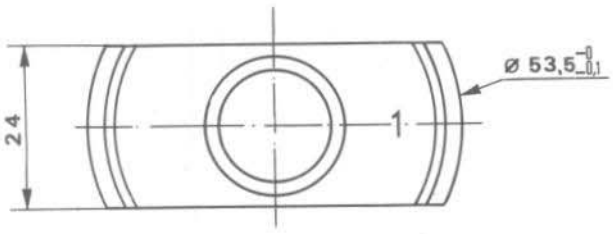


0.0601 B

- Thrust plate for removing the outer race of the inner wheel bearing.

2 - race thrust face.

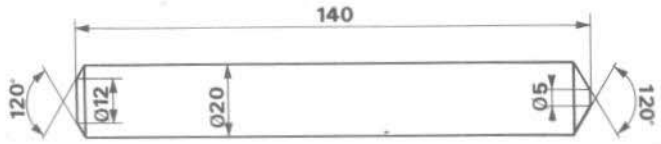
N.B. - The numbers 1 and 2 should be stamped on the corresponding faces.



1 - thrust face for the 404 first fitting wheel bearing races.

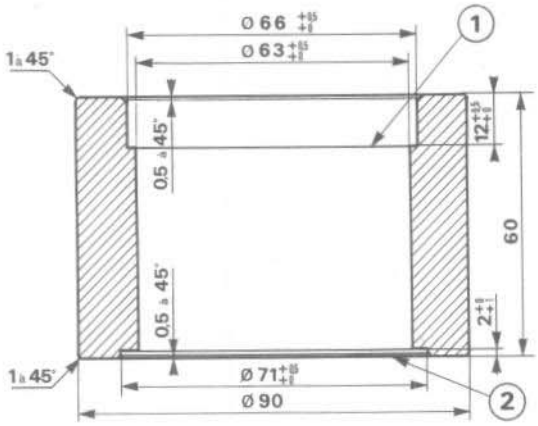
FRONT AXLE

HUBS



0.0601 C

- Drift for removing the outer wheel bearing race (used with thrust plates).

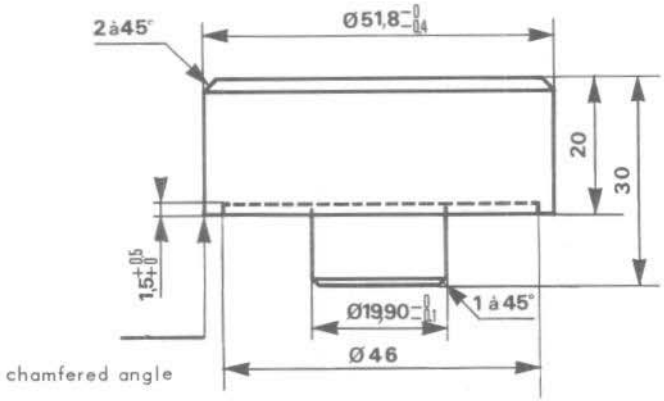


0.0601 D

- Hub thrust block.

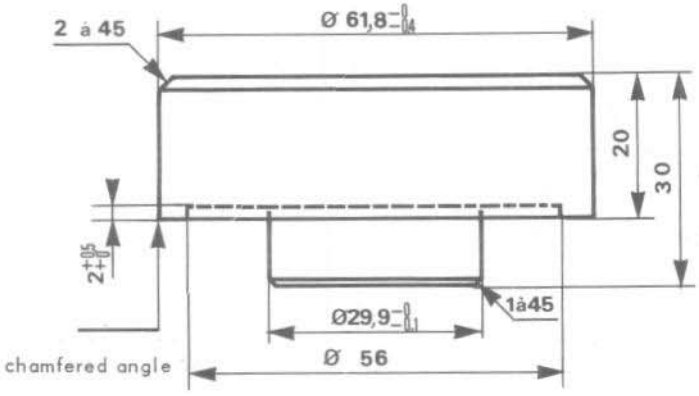
1 - thrust face for hub exterior.

2 - thrust face for hub interior.



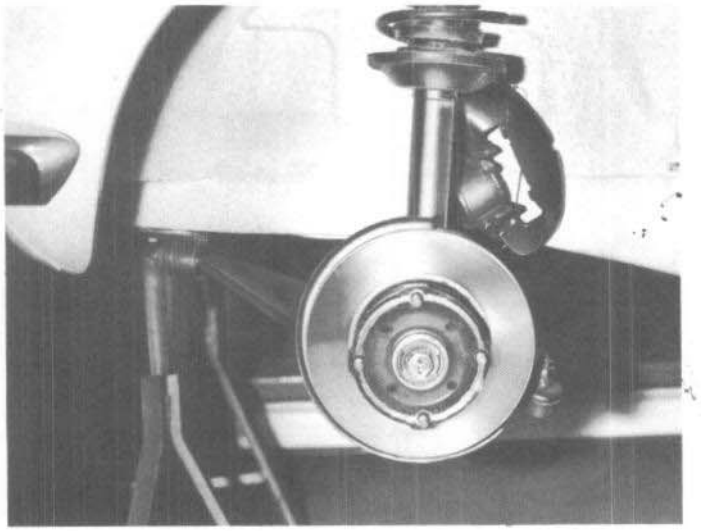
0.0601 E

- Drift for positioning the outer wheel bearing.



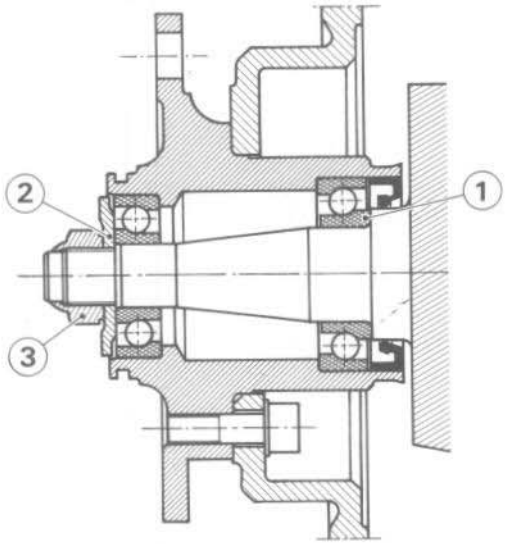
0.0601 F

- Drift for positioning the inner wheel bearing.



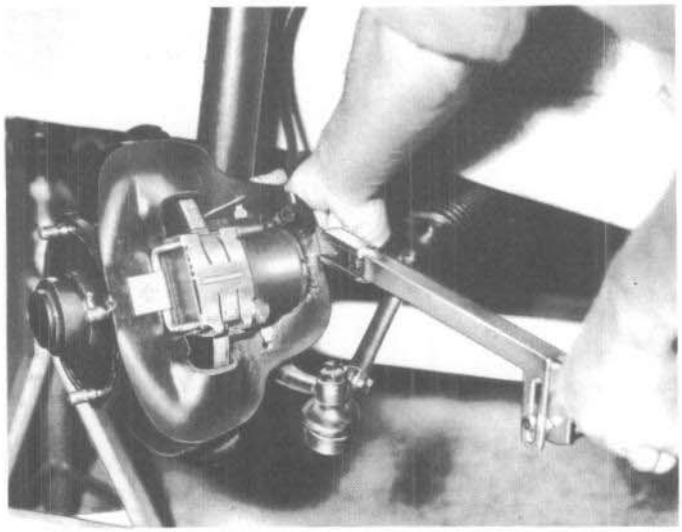
REMOVAL

- Raise the front of the car
- Chock under the front cross member
- Remove the wheel
- Remove bolts securing the brake caliper and hang it from the bodywork, without removing the brake hose.
- Remove the hub nut cap and the nut
- Remove the hub.



REFITTING

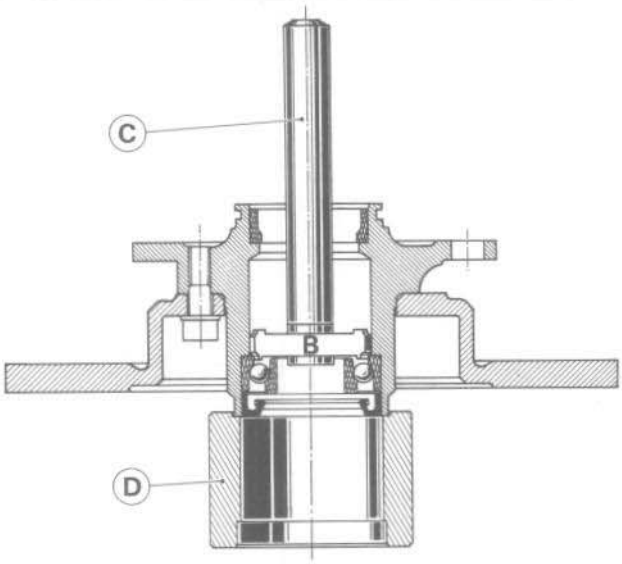
- Position the hub on the stub axle, the inner race 1 tight against the stub axle shoulder.
- Fit the washer, the inner shoulder 2 against the inner race of the bearing.
- Fit **new** nut 3 and pre-tighten to **22 ft.lbs** (3 m.kg).
- Slacken the nut and tighten finally to **7.2 ft.lbs** (1 m.kg).
- Lock the nut, in the 2 grooves provided.



- Fit the hub nut cap with a small amount of grease inside (app. the size of a walnut).
- Clean the brake disc (degrease, if necessary with a cloth soaked in trichlorethylene).
- Refit the brake caliper tightening the bolts to **51 ft.lbs** (7 m.kg).
- Refit the wheel tightening the nuts to **43.5 ft.lbs** (6 m.kg).

FRONT AXLE

HUBS

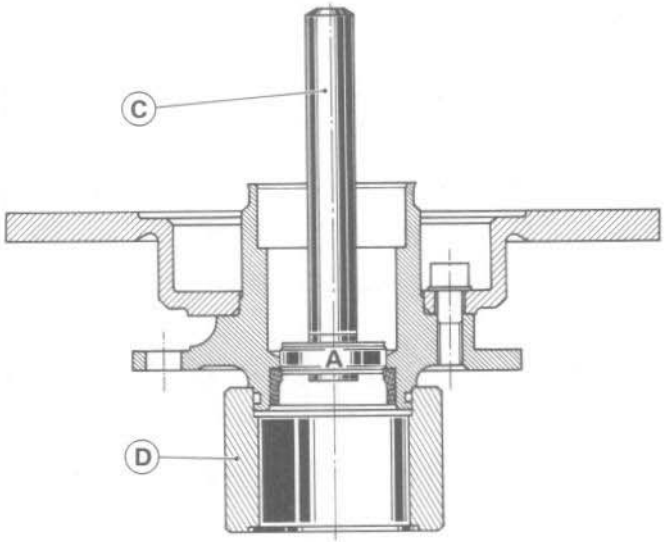


DISMANTLING

- Remove the hub nut cap "O"-ring.
- Remove the surplus grease from the hub.

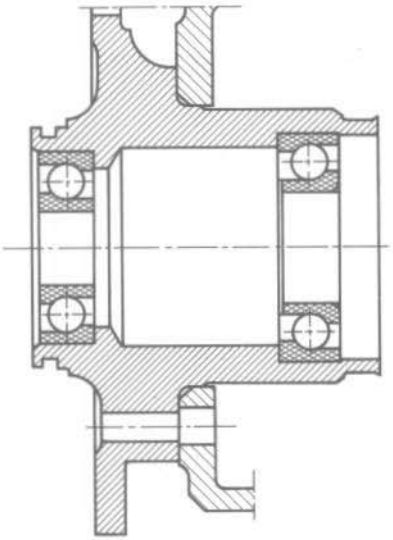
Inner bearing

- Insert the plate **B** in the hub, face **2** resting on the outer race.
- Place the hub on the block **D** on the side with the largest diameter.
- Remove the bearing and oil seal, using the drift **C**, preferably in a press.



Outer bearing

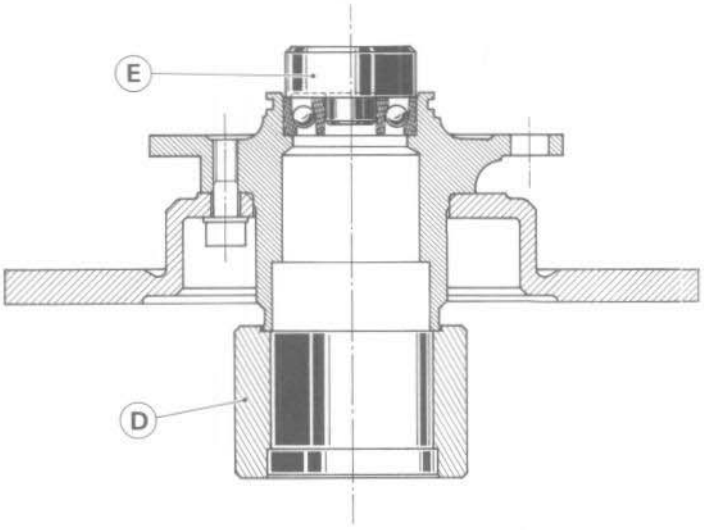
- Insert the plate **A** in the hub, face **2** resting on the outer race.
- Turn the block **D** over.
- Place the hub on the block.
- Remove the race, using the drift **C** preferably in a press.



RE-ASSEMBLY

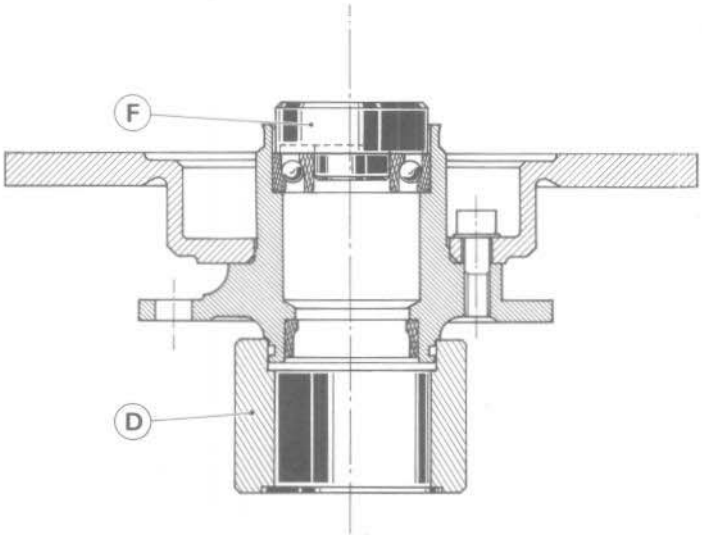
- Clean and dry the components.
- The new bearings should be fitted without degreasing.
- Grease the hub and the bearings with ESSO MULTIPURPOSE GREASE H (app. 100 g.).
- Check that the outer races are inserted in the correct direction of fitment (refer to drawing opposite).

Important - The inner and outer bearing races, as well as the ball cages, are "paired" and this pairing must not be altered.



Outer bearing

- Insert the complete bearing in the hub using :
  - the block **D**,
  - the drift **E**,
  - a press.
- Withdraw the inner race.



Inner bearing

- Insert the complete bearing in the hub using :
  - the block **D** (turned over),
  - the drift **F**,
  - a press.
- Ensure that the races are completely and squarely inserted.
- Fit the oil seal, with its upper face flush with the hub.
- Fit the hub nut cap "O"-ring.
- Fit the inner race of the outer bearing.
- Place the hub on the stub axle.

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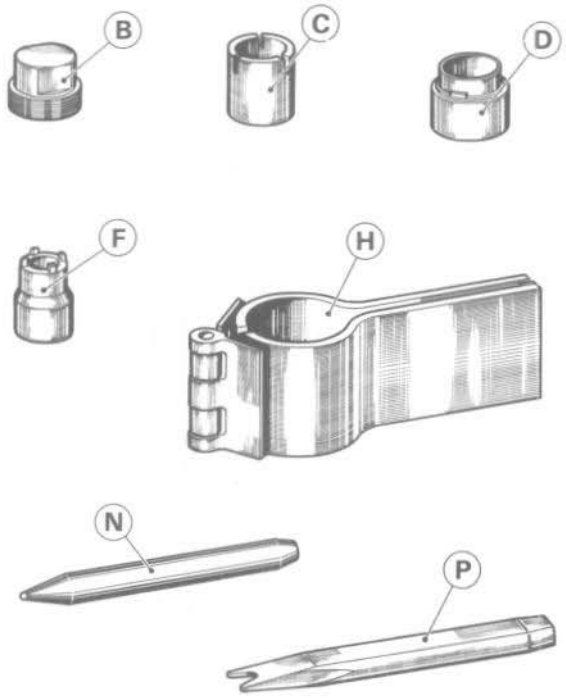


TOOLS TO BE USED

8.0906

Tool chest for front and rear suspension

B - Steering swivel ball joint extractor.

C - Socket head for steering swivel ball joint housing closing nut, with three notches.

D - Socket head, for the steering swivel ball joint housing closing nut, with three shoulders.

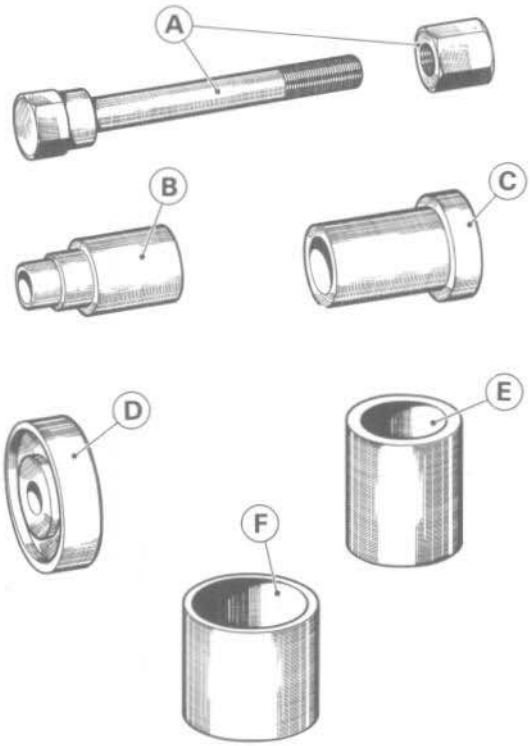
F - Castled socket head for lower ball joint securing nut.

H - Supporting clamp.

N - Punch for locking the closing nut and the front hub nut.

P - Punch for locking the steering swivel ball joint securing nut.

N.B. - The tools 8.0906 C, D, F, N, already exist, for the 404 and Associated vehicles, under references 8.0902 N, M, AZ and K. They are not delivered with this tool chest, but a place is provided for them.



8.0907

Tool chest for front and rear flexible bushes.

A - Nut and bolt for front triangle silentblocs.

B - Removing and refitting drift for the bushing support silentbloc.

C - Removing and refitting drift for the triangle front and rear arm silentblocs.

D - Removing and refitting cup for the front triangle silentblocs.

E - Removing and refitting ring for the front triangle rear arm silentbloc.

F - Removing and refitting ring for the bushing support silentbloc.

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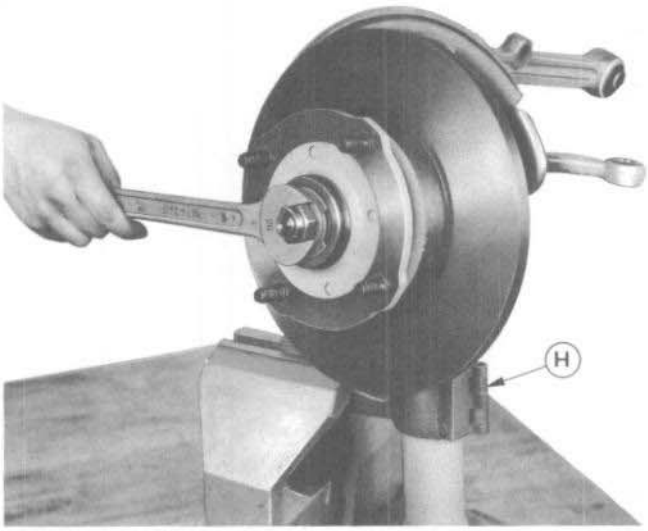


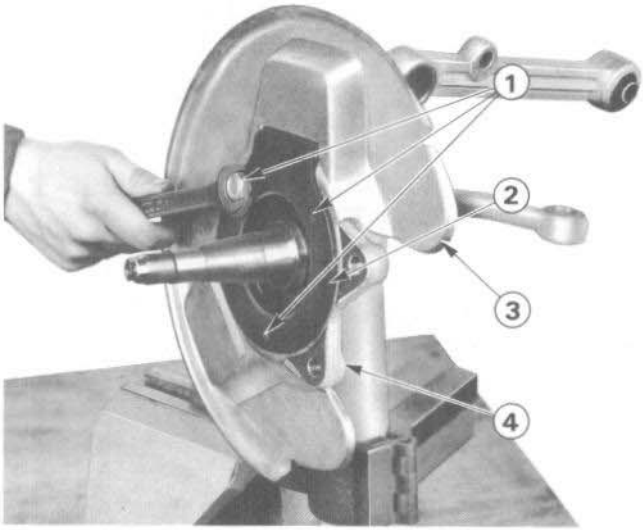
TRIANGLE REAR ARM

DISMANTLING

- Using the support **H**, clamp the assembly in a vice.

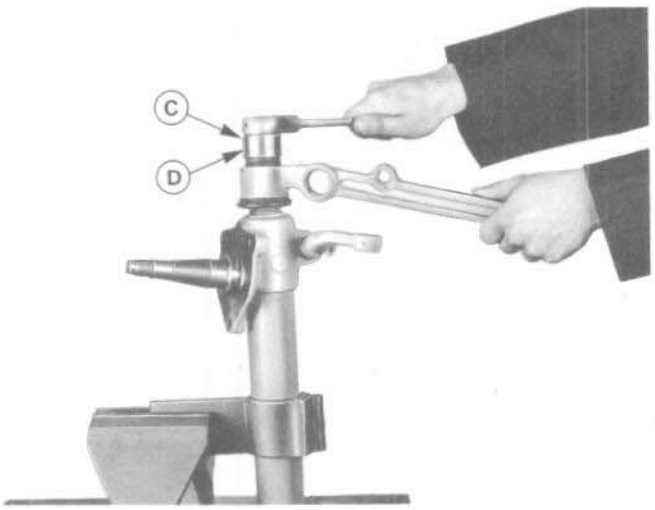
- Remove :
  - the hub nut cap,
  - the hub nut.

- Withdraw the hub/brake disc assembly.



- Remove the three bolts **1**.

- Recover :
  - the grease nipple protector **2**,
  - the disc protector plate **3**,
  - the brake mounting **4**.

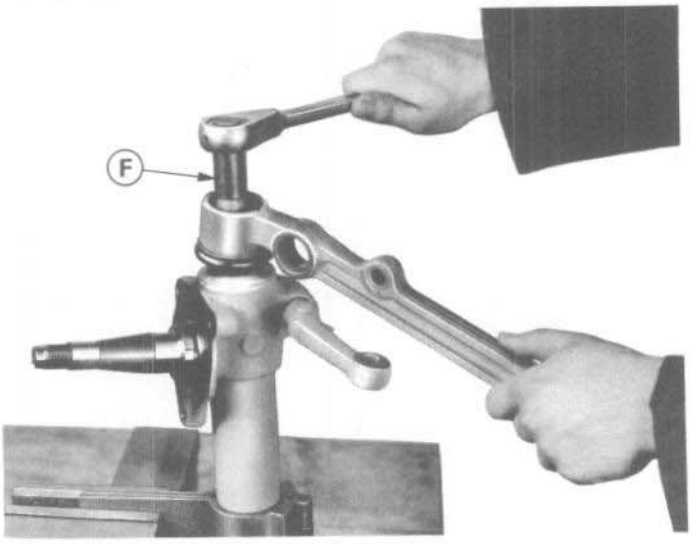


- Unlock the steering swivel ball joint closing nut carefully.

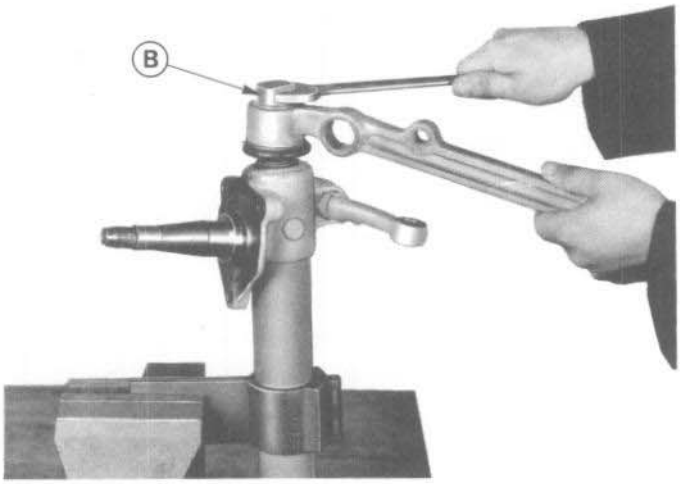
- Remove this using the socket head **C** or **D**.

FRONT AXLE

TRIANGLE ARMS

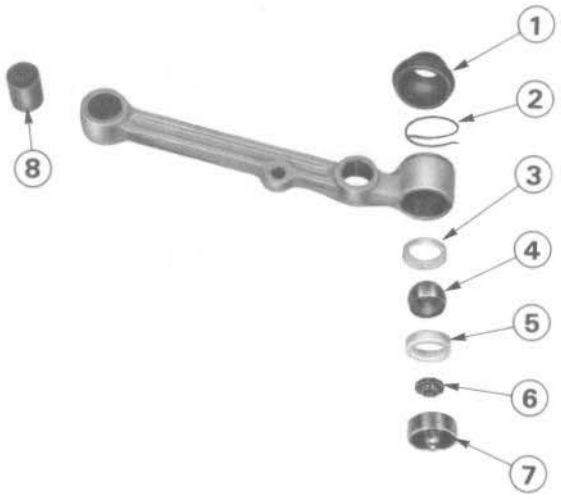


- Remove the steering swivel ball joint securing nut with the castled socket **F**.



- Remove the triangle rear arm using the extractor **B**.

- Remove from the arm :
  - the extractor **B**,
  - the protector boot and its spring clip,
  - the lower cup,
  - the steering swivel ball joint,
  - the upper cup.

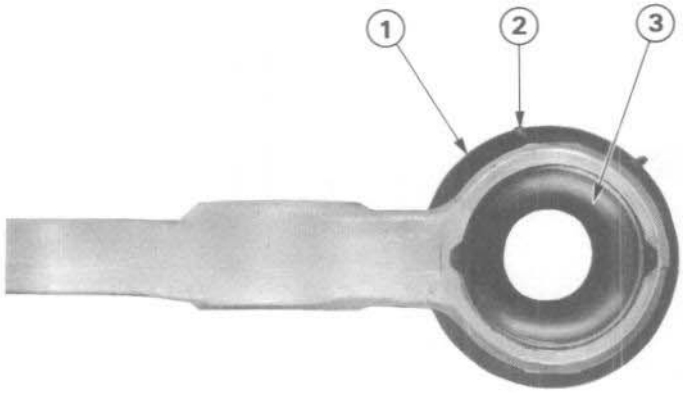


RE-ASSEMBLY

- Only use components which are perfectly clean and free from all defect.

- At each dismantling the following parts must be replaced :

  - the steering swivel ball joint stem rubber protector **1**.
  - Spring clip **2**
  - Upper ball joint cup **3**
  - Steering swivel ball joint head **4** (if necessary)
  - Lower ball joint cup **5**
  - Ball joint nut **6**
  - Closing nut **7**
  - Arm silentbloc **8** (if necessary).



- Fit to the arm :

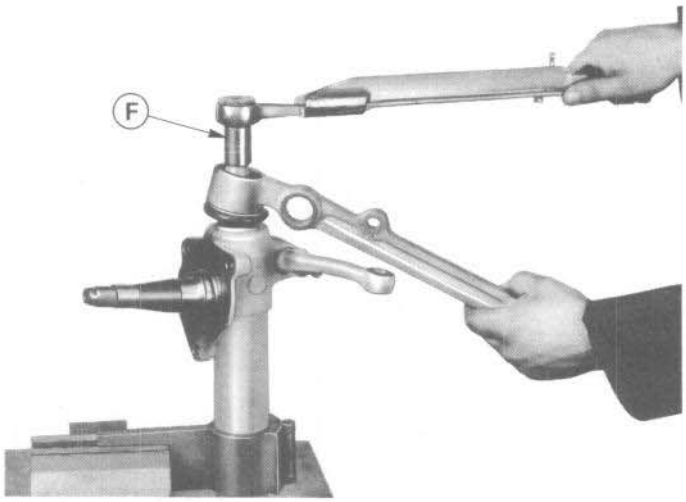
  - The rubber protector **1** after smearing with tallow

  - Secure this with the spring clip **2**

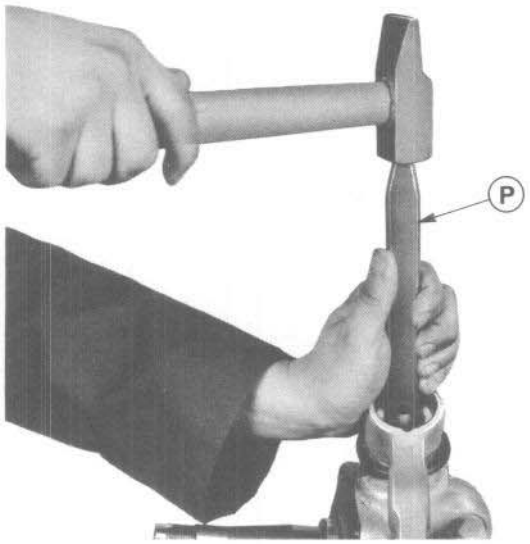
  - The green upper cup **3** (8 mm thick) in the correct direction of fitment.

FRONT AXLE

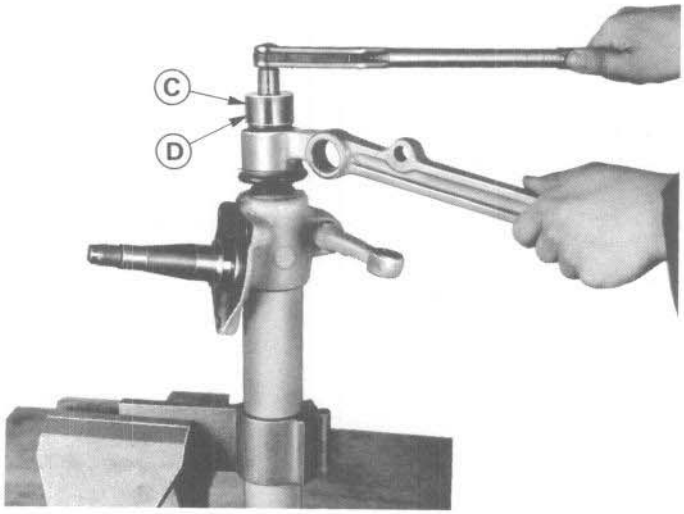
TRIANGLE ARMS



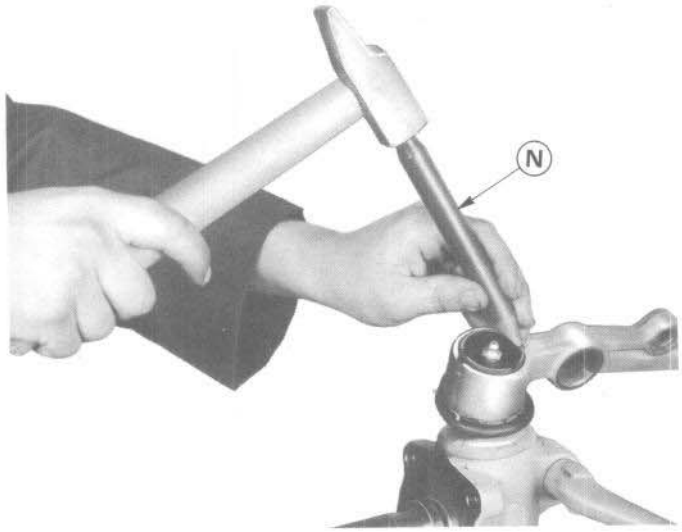
- Grease the housing with ESSO MULTIPURPOSE GREASE H.
- Place the arm on the steering swivel ball joint cone.
- Position the ball head.
- Tighten the ball head securing nut to **33 ft.lbd** (4.5 m.kg) using the castled socket **F**.



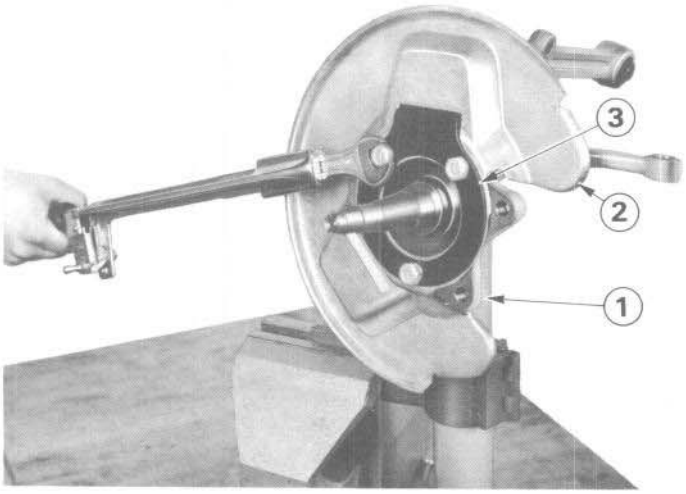
- Lock the ball head securing nut using the punch **P**.



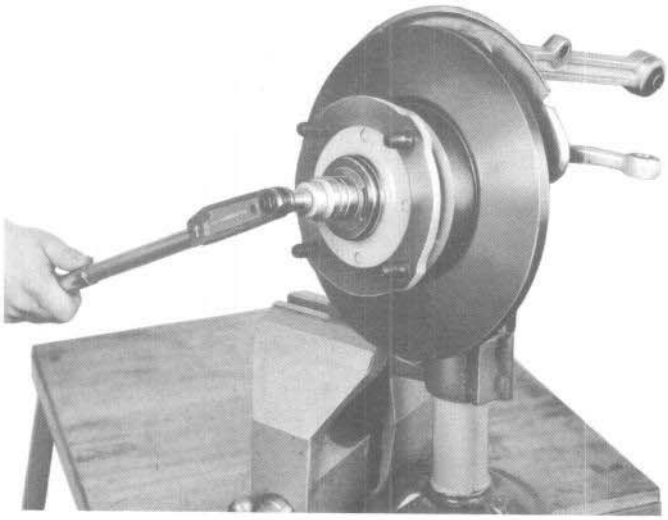
- Position the lower nylon cup, white, (10 mm thick) on the ball head.
- Fit a **new** closing nut.
- Tighten this to **5.5 ft.lbs** (9.75 m.kg) using the socket head **C** or **D**.
- Move the arm around and retighten the nut to the specified torque until the two half cups are correctly positioned.



- Lock the nut using the punch **N**



- Place on the steering swivel :
  - the brake mounting **1**, securing points on the track arm side
  - the brake disc shield **2**.
  - the grease nipple protector **3**.
- Fit the bolts equipped with **new** Blocfor washers and tighten to **40 ft.lbs** (5.5 m.kg).
- Lock the bolts with a punch mark on the threads protruding from the steering swivel.



- Place on steering swivel, the hub/brake disc assembly.
- Fit the washer with the inner shoulder against the inner race of the bearing.
- Use a **new** nut.
- Pre-tighten to **22 ft.lbs** (3 m.kg).
- Slacken the nut and tighten finally to **7,2 ft.lbs** (1 m.kg).
- Lock the nut in the two grooves provided, using the punch **N'**.
- Fit the hub nut cap after greasing with ESSO MULTIPURPOSE GREASE H.

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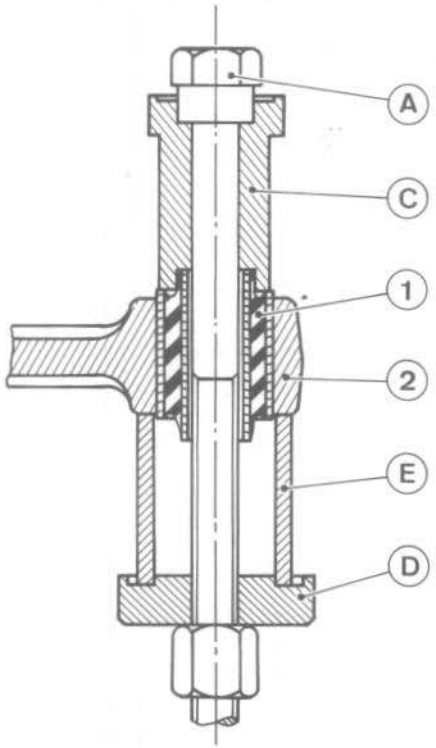
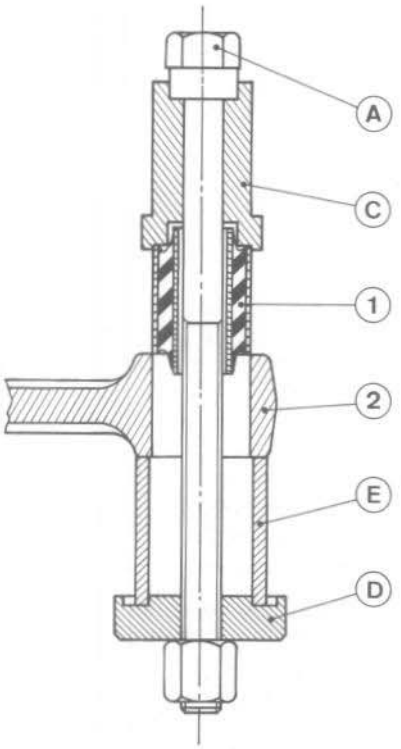
REPLACING THE FLEXIBLE BUSHINGS



FRONT TRIANGLE REAR ARMS

REMOVAL

- Assemble, in order, on the oiled bolt **8.0907 A** ;
  - the drift **C** as shown opposite
  - the inner silentbloc ring **1**, of the arm **2**,
  - the ring **E**,
  - the cup **D**,
  - the nut for the bolt **A**.
- Hold the nut and tighten the bolt until the silentbloc is withdrawn completely.
- Dismantle the apparatus and recover the silentbloc.



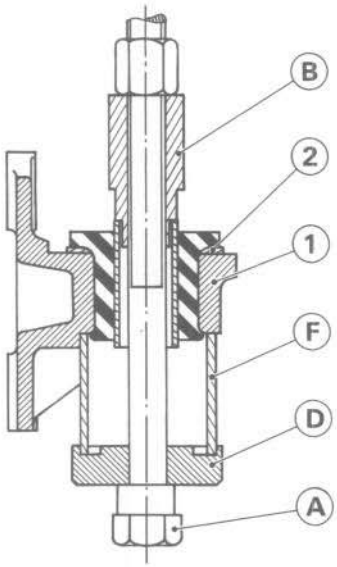
REFITTING

- Smear with tallow the outer face of the silentbloc and the bore of the triangle arm.
- Place on the bolt **A** the following :
  - the drift **C** as shown opposite,
  - the silentbloc, **1**, with the chamfer facing downwards,
  - the triangle arm **2**,
  - the ring **E**,
  - the cup **D**,
  - the nut for the bolt **A**.
- Tighten until the drift **C** comes into contact with the arm **2**.

  The correct position of the silentbloc in the arm is obtained through the shape of the drift **C**.
- Dismantle the apparatus.

PEUGEOT

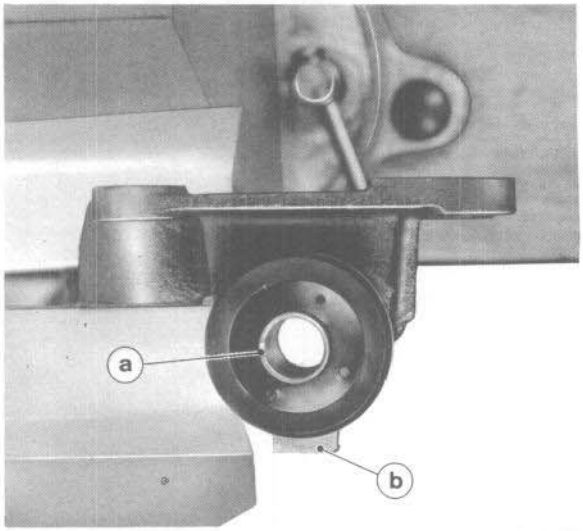
FRONT AXLE
TRIANGLE ARMS



BEARING SUPPORT

REMOVAL

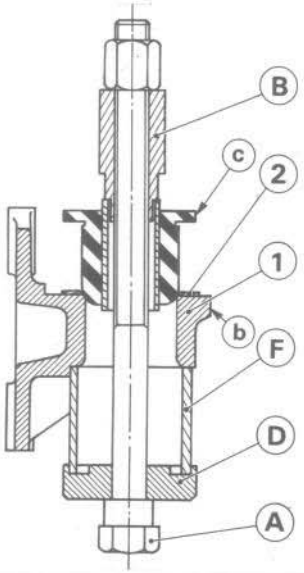
- Assemble in order, on the oiled bolt **8.0907 A** the following :
  - the cup **D**,
  - the ring **F**,
  - the bearing support **1** as shown opposite
  - the drift **B**,
  - the nut for the bolt **A**,
- Tighten the nut **A** until the silentbloc is completely withdrawn.
- Recover the thrust washer **2**.



REFITTING

Prelimary conditions

- Dip the **new** silentbloc in methylated spirit before fitting.
- **Every silentbloc, including new ones, must be replaced, if removed from the support.**
- **When positioning the new silentbloc, place the notch a on the inner ring facing the anti-roll bar support side and on a parallel axis to this.**
- In case of faulty positioning, fit temporarily the triangle front arm ; tighten the nut and correct the position of the silentbloc using the arm as a lever.



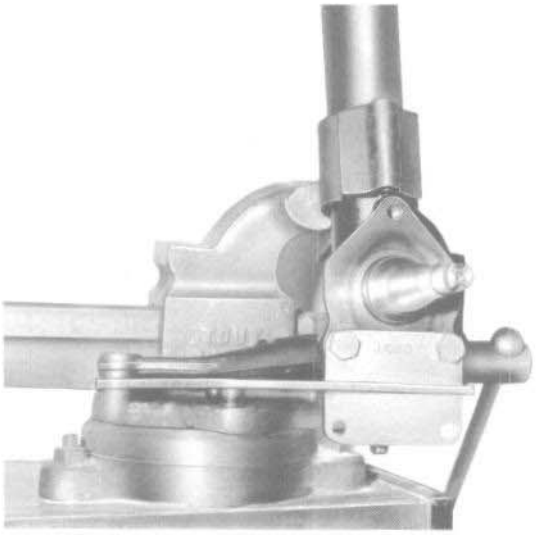
- On bearing support face **1** with boss **b** :
  - place the thrust washer **2**, with the inner edge facing the silentblock, for supports having a depth **p** = 26 mm.
  - this washer is not used with support having a depth **p** = 28 mm.
- Assemble the parts on bolt **A** in the order as for removal.
- Tighten the nut on the bolt **A** until the shoulder **c** of the silentblock comes into contact with the washer **2**.
- Remove the assembly from the bolt.

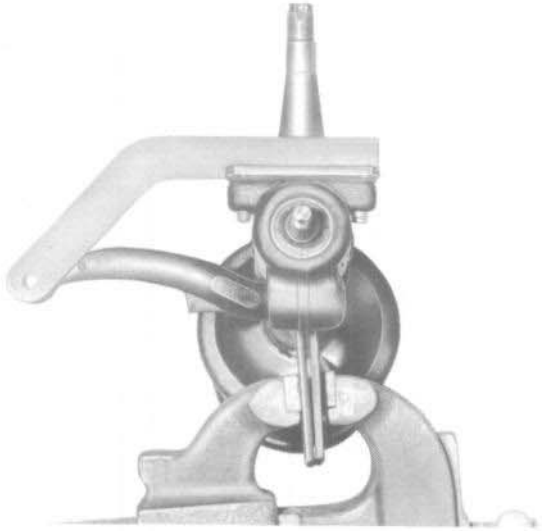
N.B. - *When re-assembled, tighten :*
- *the bearing support securing bolts to* **27 ft.lbs** *(3.75 m.kg).*
- *the nuts on the front arm, rear arm and bearing support to* **33 ft.lbs** *(4.5 m.kg).*

TOOLS TO BE USED

8.0610

Left and **right** hand double gauge for checking the track arms on the front steering swivels.





CHECKING THE TRACK ARMS

- Secure the gauge to the stub axle and check :
  - horizontally, the parallelism of the track arm eye with the gauge.
  - vertically that the hole in the gauge lines up perfectly with track arm eye.

N.B. Replace the complete steering swivel if the track arm does not meet exactly with the above tolerances.

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