6 - FRONT AXLE AND SUSPENSION

Contents

FRONT AXLES AND SUSPENSION

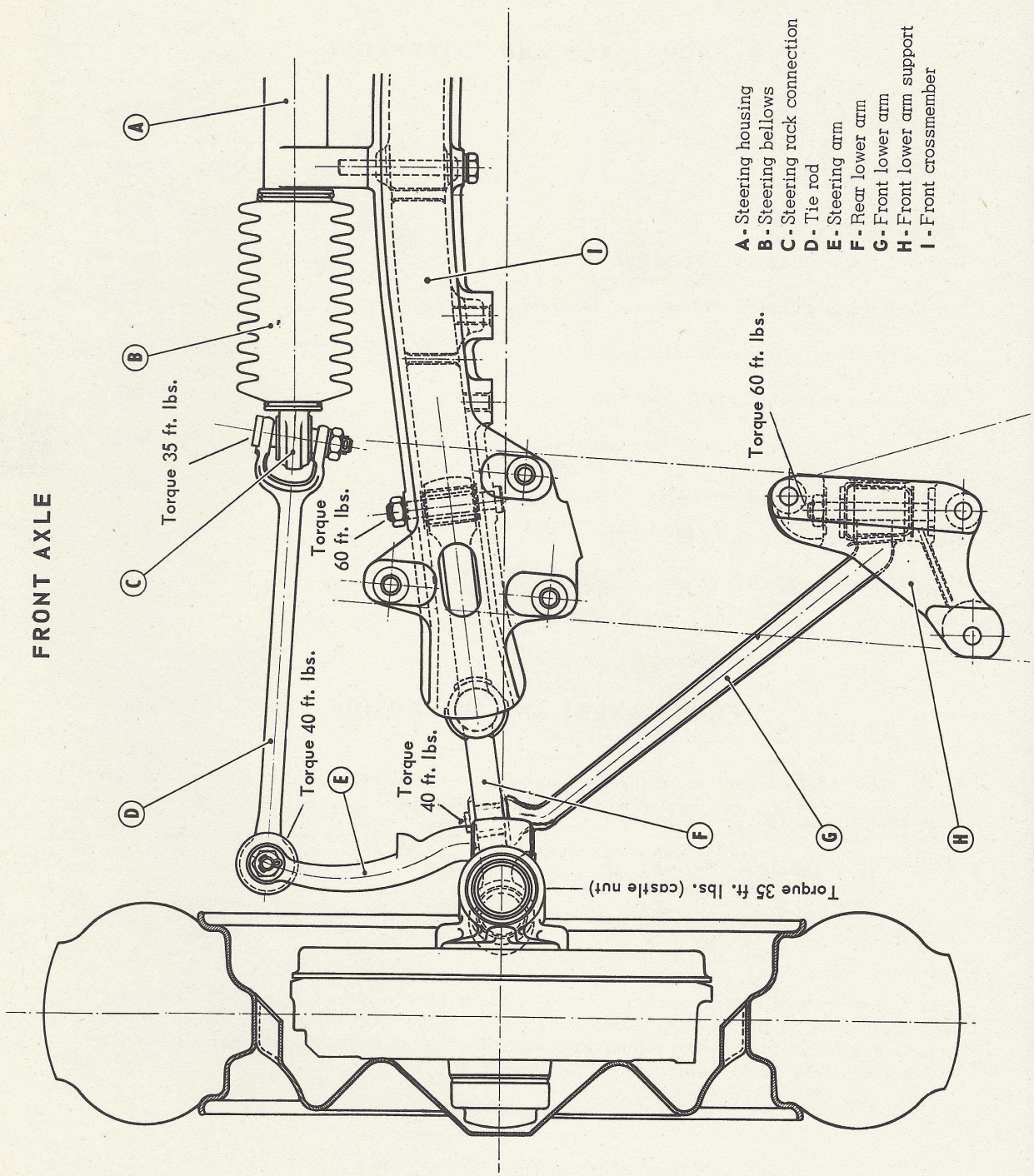
The front suspension of the Peugeot 404 uses coil springs and telescopic shock absorbers, in a design that provides the following advantages:

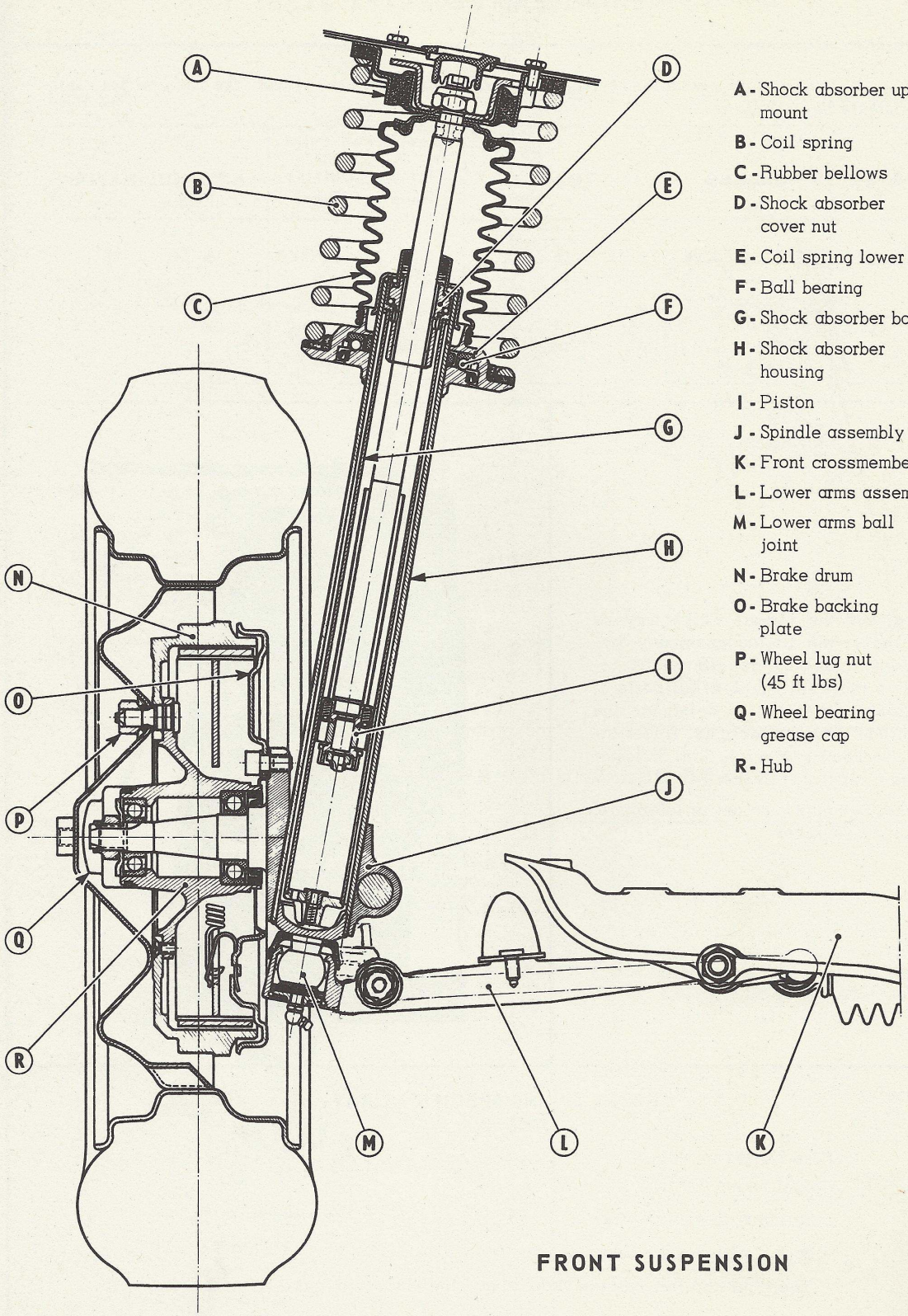
- very low center of gravity
- good front wheel geometry
- accurate steering
- high driving and riding comfort

Two hydraulic double-acting telescopic shock absorbers, manufactured by Peugeot, have their lower section secured to a housing welded to the spindle body. The upper section is attached to the front fender reinforcement panel, isolated from the fender by silentblocs and surrounded by a coil spring.

FRONT AXLE AND SUSPENSION

FRONT AXLE





A - Shock absorber upper mount
B - Coil spring
C - Rubber bellows
D - Shock absorber cover nut
E - Coil spring lower seat
F - Ball bearing
G - Shock absorber body
H - Shock absorber housing
I - Piston
J - Spindle assembly
K - Front crossmember
L - Lower arms assembly
M - Lower arms ball joint
N - Brake drum
O - Brake backing plate
P - Wheel lug nut (45 ft lbs)
Q - Wheel bearing grease cap
R - Hub

FRONT SUSPENSION

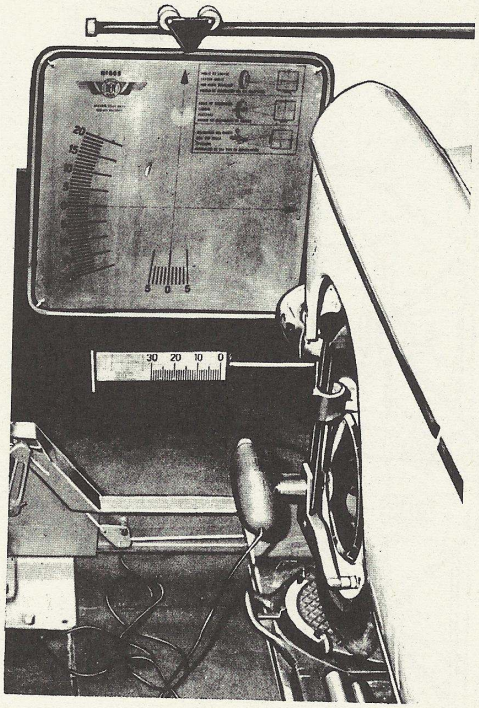
FRONT AXLE AND SUSPENSION
FRONT END GEOMETRY

With correct tire pressures and the vehicle placed absolutely level, the front wheel alignment should be as follows:

CASTER	CAMBER	TOE-IN	Toe-Out on Turns		AXIS INCLINATION
			Inside Wheel	Outside Wheel	
2° ± 1°	0°15' negative to 0°75' positive or 1/2° positive ± 3/4°	1/16" with 1/64" tolerance	20° 21°30'	18°30' 20°	9° 50' ± 10'

Except for the toe-in, which may be adjusted at the tie-rod ends, any discrepancy from the specifications requires a thorough check of all parts of the front suspension to determine the cause and make corrections. Never attempt to bend a steering arm or lower arm as a repair.

If either is found to be out of tolerance, it must be replaced.



FRONT SPRING SPECIFICATIONS

Free Height . . . . . 12-7/8"

Height under 700 lbs:

Spring with one red mark . . . . . 7-5/32" to 7-3/8"

Spring with one white mark . . . . . 7-3/8" to 7-9/16"

The right and left springs should have the same markings.

FRONT AXLE AND SUSPENSION
TO REMOVE AND INSTALL THE FRONT HUB

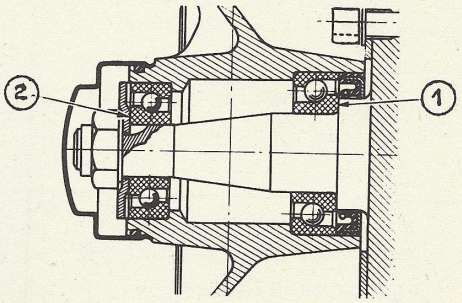
REMOVAL:

Jack up the front of the vehicle by the front cross member.

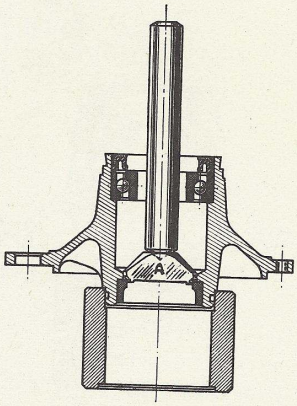
Remove the front wheel, the brake drum, after having marked their positions, the grease cap and the hub.

INSTALLATION:

1 - Place the hub in position on the spindle with the inner bearing (1) seating on the shoulder of the spindle.
2 - Position the washer, with the inner shoulder (2) against the inner race of the outer bearing.
3 - Use a new nut and torque to 21 ft. lbs. and loosen.
4 - Torque to 7 ft. lbs. and carefully lock nut by turning in two sides into the milled grooves with a small punch and hammer.
5 - Install the grease cap after being certain there is 1/2 ounce of multi-purpose grease in the cap.
6 - Mount the brake drum and wheel in the same position that they were removed.
7 - Tighten the wheel lug nuts to 45 ft. lbs. with the use of a torque wrench.



REMOVING & REPLACING FRONT HUB BEARINGS



NOTE: The tools shown in this section are not offered as special tools as they are readily obtained from any tool supplier or are accessory fittings to an arbor press.

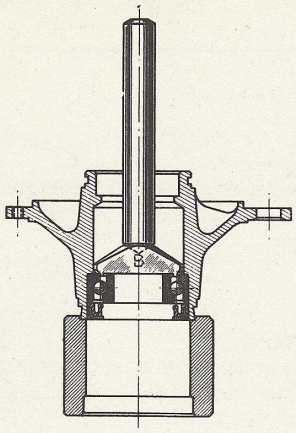
REMOVAL: OUTER BEARING

1 - Take out the inner race of the bearing.
2 - Insert bearing remover A (ø1.66") in the hub and position it correctly on to the outer race of the bearing.
3 - Support the hub and tap the remover adaptor moderately with a drift and mallet.

INNER BEARING

1 - Insert bearing remover B (ø2.1" or 2-3/32") in the hub and position it correctly on to the outer race of the bearing.

2 - Support the hub and remove the bearing and seal with the drift and a mallet.



REPLACING BEARINGS

1 - Clean all parts with solvent and dry them well.

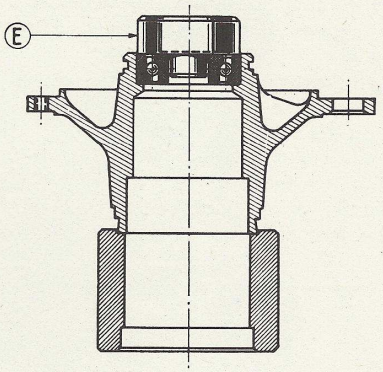
2 - Visually check the spacing of the balls on the tracks of the races.

3 - Coat the bearings and the inside of the hub with multi-purpose grease. About 3 tablespoons of grease should be used per wheel.

4 - Install the outer bearing complete with a bearing installer (E), 2.04" diameter.

*NOTE: **Installer should contact only the outer race of the bearing.***

5 - Remove the inner race.

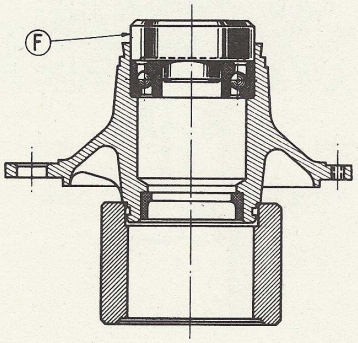


6 - Install the inner bearing with a bearing installer (F), 2.43" diameter.

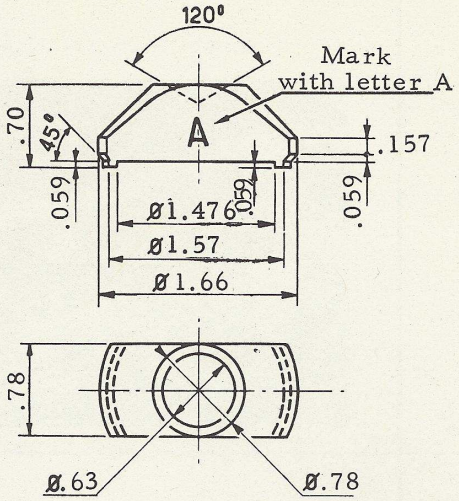
7 - Check that the bearings seat properly against the shoulders.

8 - Install the seal against the inner bearing.

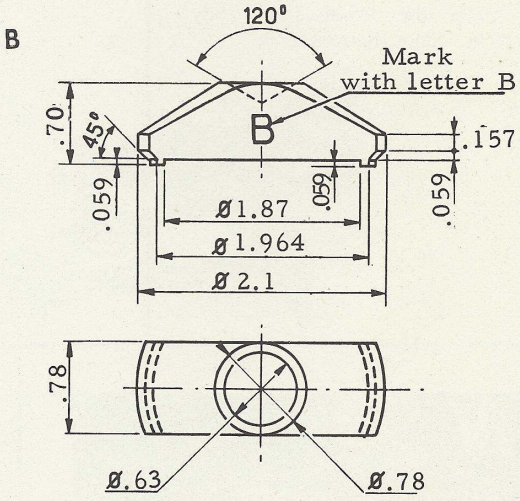
9 - Replace the inner race of the outer bearing.



A



B



These are the drawings and dimensions for the Outer Bearing Remover A and the Inner Bearing Remover B as used in the preceding instructions. They may be made by a machine shop or machine section of a service station.

FRONT AXLE AND SUSPENSION
REMOVING AND REPLACING THE FRONT CROSSMEMBER

REMOVAL:

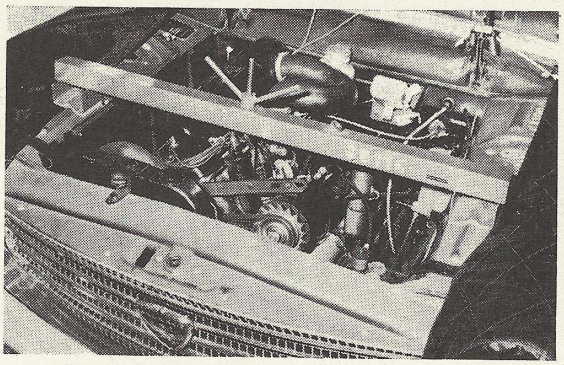
1 - Protect the fenders by installing covers and disconnect the battery.

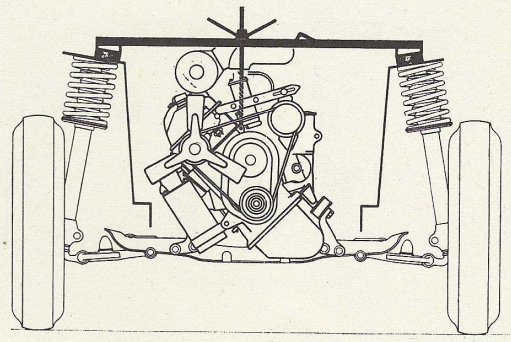
2 - Support the engine from the top.
a. A bar may be placed across the inner fender panels with a connection to the engine hoist eye, as shown.
b. An overhead lift or crane may be attached to the hoist eye.

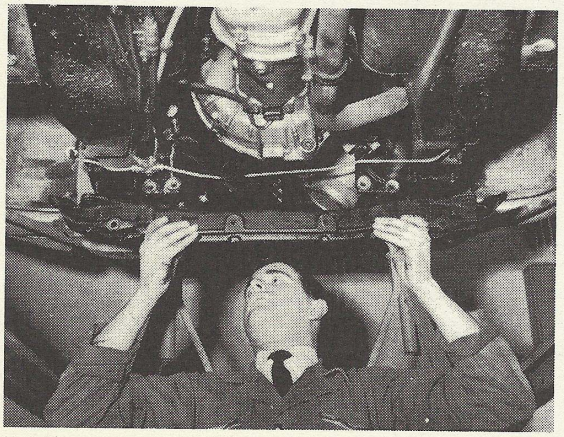
3 - Remove the front engine mount bolts.

4 - Raise the engine a slight amount (about 1/2 inch).

5 - Raise the vehicle until the front wheels clear the floor, then rest vehicle on horses under the lower front body crossmember (under the radiator).







6 - Remove: the two bolts mounting the steering housing. The pin bolts of the triangle arms which will be replaced. The bolt attaching the brake line and the six attachment bolts of the crossmember.

7 - Remove the crossmember.

REPLACEMENT:

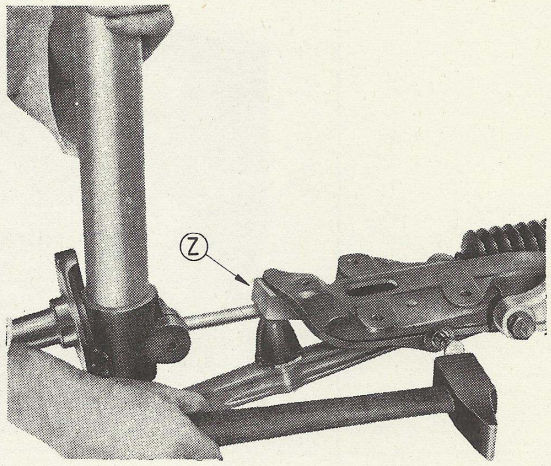
1 - Follow the removal operations in reverse order.

2 - Before completely driving in the new pin bolts of the rear triangle arm (note the splines): Place a 3/4" wooden block (Z), between the rubber bumper and the front crossmember.

3 - Lower front of vehicle and load until the crossmember contacts the wooden block. This places the rubber bushings in a neutral position.

4 - Drive the pin bolts in, torque nuts to 60 ft. lbs. Install cotter pins.

5 - Reconnect the battery and reset the electric clock.



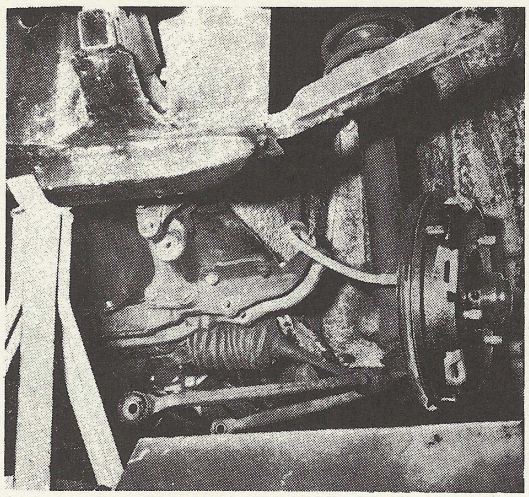
Torque Table

Crossmember Attachment Bolts	40 ft. lbs.
Steering Housing Attachment Bolts	30 ft. lbs.
Front Engine Mount Attachment Bolts	40 ft. lbs.
Pin Bolts of Lower Arms	60 ft. lbs.
Wheel Lug Nuts	45 ft. lbs.

FRONT AXLE AND SUSPENSION
REPLACEMENT OF LOWER ARMS RUBBER BUSHINGS

REMOVAL OF ARMS:

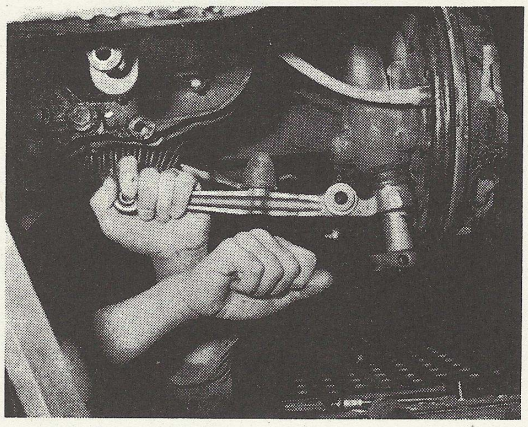
1 - Jack the vehicle and place on horses under the front body crossmember.
2 - Remove the front wheels after marking their position on the hub.
3 - Remove the pin bolts of the front and rear triangle arms.
4 - Remove the front arm from the support on the body and the rear arm from the crossmember.
5 - Disconnect the front arm from the rear arm.
6 - Remove the snap ring from the rear arm ball joint with the use of a drift pin through the small hole in the side.
7 - Catch the cover and the Belleville washers.



8 - Remove the ball joint castle nut with spanner socket 80902A.

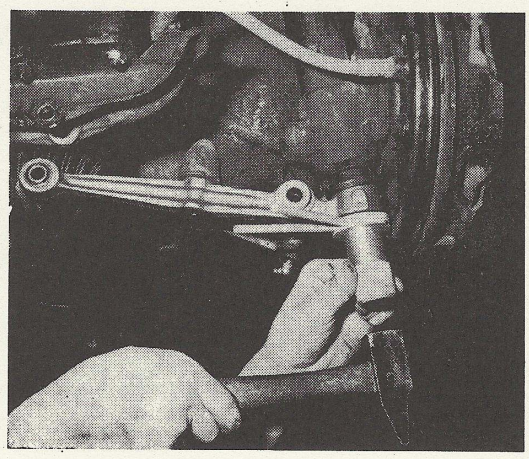
9 - Disengage the ball joint from its cone by tapping down with a mallet on the rear arm.

10 - Replace the rubber bushings.



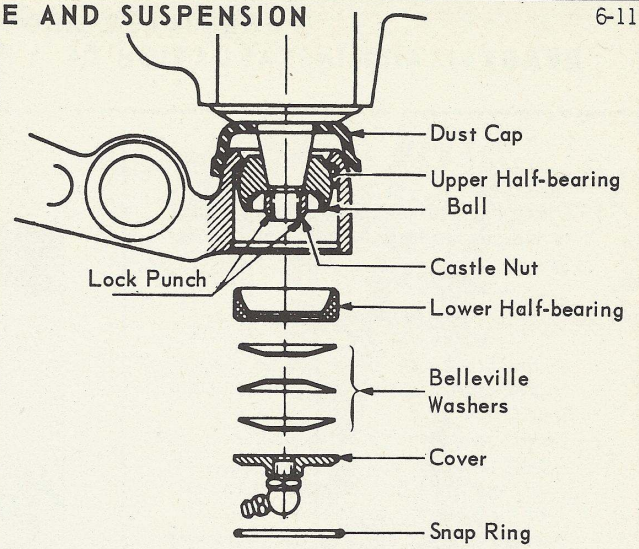
REPLACEMENT OF ARMS:

1 - Clean and check the nylon half-bearings, the ball, the dust cap, and the cone threads.
2 - Mount on the cone the dust cap, the rear arm containing the upper half-bearing (the smaller) and the ball, and a new castle nut.
3 - Tighten the nut to 35 ft. lbs. with the spanner socket 8.0902A and a torque wrench.
4 - Lock the nut with a punch in the two milled grooves of the cone threads.



5 - Insert the lower half-bearing and the Belleville washers with multi-purpose grease to hold them in place. Washers must be positioned as shown.

6 - Install a new snap ring with the use of installer 8.0902B.

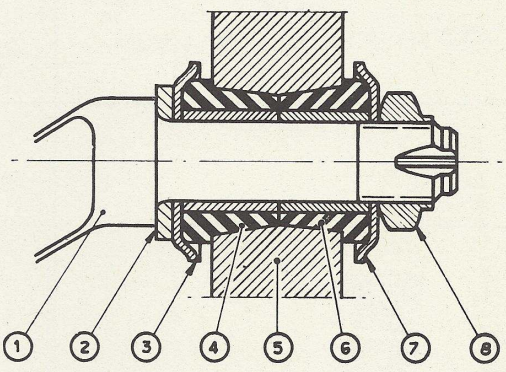


7 - Position the rear arm in the cross-member and insert the pin bolt only as far as the splines.

8 - Install on the front arm the steel washer (2) with chamfered hole against the shoulder, the concave washer (3) and one half of the "articone" rubber bushing (4). Insert this assembly in the rear arm.

9 - Engage the front arm in its mounting shackle with the rubber washer at the front. Install the pin bolt without engaging splines.

10 - Complete the connection of the two arms by inserting the other half of the "articone" bushing (6) concave washer (7), and nut. Tighten nut only hand tight.



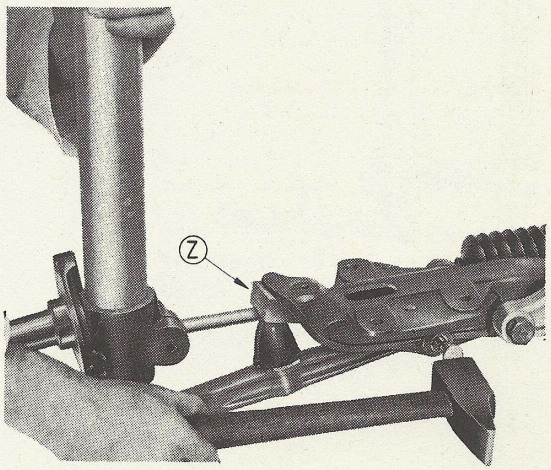
11 - Install the wheels and lower the vehicle to the floor.

12 - Place a 3/4 inch wooden block between the rubber bumper and the front axle. Load front of vehicle until front axle contacts the wooden block (Z).

13 - At this point, the rubber bushings are in neutral position. Drive in the pin bolts and torque to 60 ft. lbs. Install cotter pins.

14 - Torque the connecting nut of the arms to 30 ft. lbs. Lock punch nut in the two milled grooves.

15 - Torque the wheel nuts to 45 ft. lbs.



FRONT AXLE AND SUSPENSION
REMOVAL AND INSTALLATION OF A FRONT SUSPENSION ASSEMBLY

REMOVAL:

1 - Place the front of the vehicle on stands at the crossmember, wheels hanging. Remove
- wheels
- hub-drum assembly
- backing plate

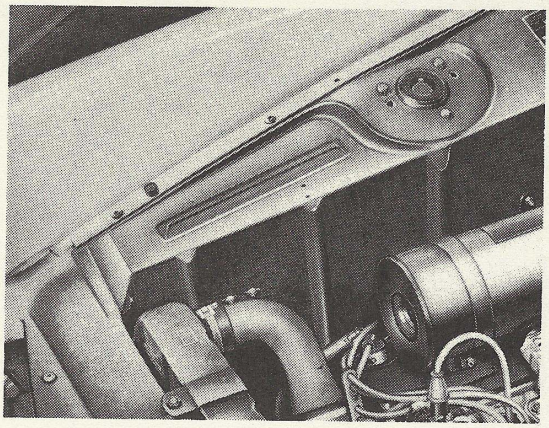
– the brake line need not be disconnected unless other work is done at the time.

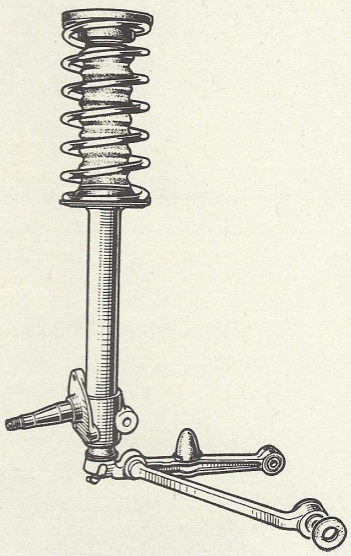
2 - Disconnect tie rod end ball joint:
- remove cotter pin and nut.
- tap gently with a hammer on the end of the steering arm.

3 - Remove the pin bolts of the two lower arms.

4 - Remove the three upper attaching bolts of the assembly on the inner fender panel.

5 - Remove the assembly. Recover the rubber washer from the front arm mount.





INSTALLATION:

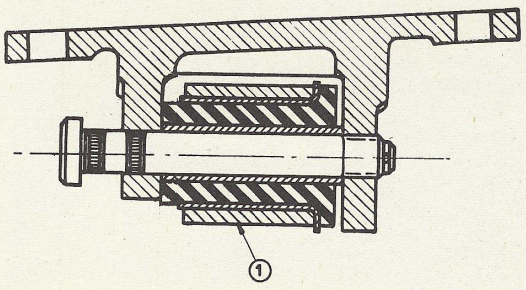
1 - Position the assembly under the inner fender panel and support in place with a choc or horse under the ball joint.

2 - Check that the water drain hole of the safety plate faces toward the interior of the vehicle.

3 - Torque the three bolts to 10 ft. lbs. and insert the cap into the center hole.

4 - Position the rear lower arm in the crossmember and insert the pin bolt, with the head toward the front, only as far as the splines.

5 - Position the front arm (1) in its mounting shackle. Install the pin bolt without engaging the splines.



6 - Install the brake backing plate without forgetting the grease retainer (1). Check that the upper bolt (2) does not touch the shock absorber body, torque to 45 ft. lbs. Lock the threads with a center punch.

7 - To seal the openings around the spindle body, lay an application of Permatex #2 directly from the tube around the outside of the intersection (3).

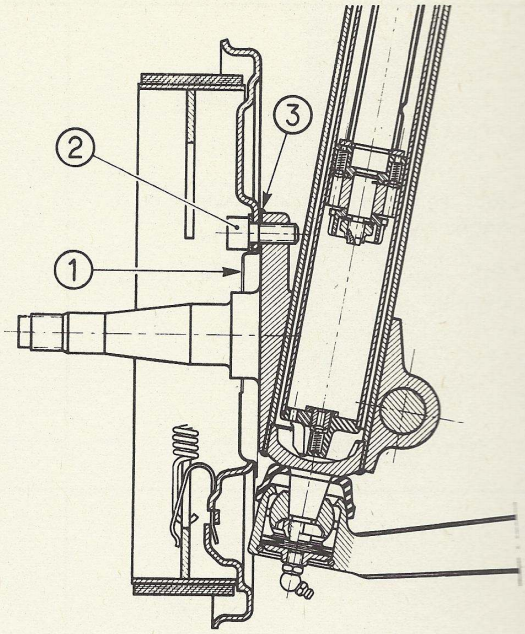
8 - Install the hub with the brake drum. Torque the new nut to 21 ft. lbs., loosen, then torque to 7 ft. lbs. Lock punch the nut carefully. Check that the drum turns freely.

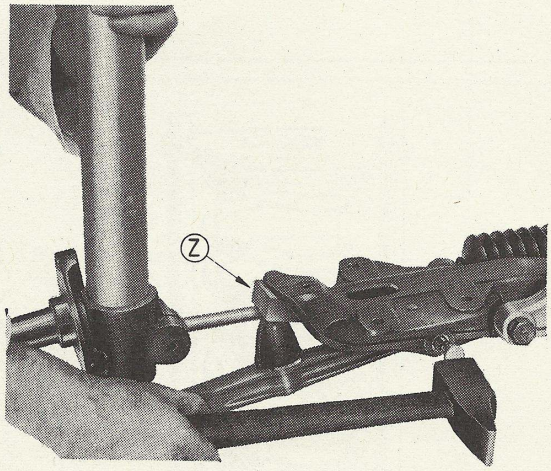
9 - Install the grease cap after checking that there is 1/2 ounce of multi-purpose grease in the cap.

10 - Mount the wheel in the same position that it was removed.

11 - Torque the wheel lug nuts to 45 ft. lbs. with a torque wrench.

12 - Lower the vehicle to the floor.





13 - Place a 3/4 inch wooden block (Z) between the rubber bumper and the front axle. Load front of vehicle until front axle contacts the wooden block.

14 - At this point, the rubber bushings are in neutral position. Drive in the pin bolts and torque to 60 ft. lbs. Install cotter pins.

15 - Torque the connecting nut of the arms to 30 ft. lbs. Lock punch the nut in the two milled grooves.

16 - Reconnect the tie rod end and torque the nut to 40 ft. lbs. Install cotter pins.

17 - If the brake line was disconnected, reconnect and bleed the brake system.

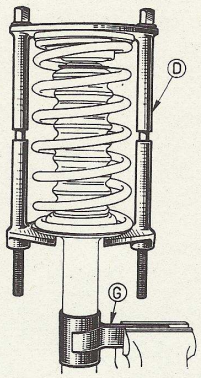
18 - Check and adjust the toe-in to 1/16 inch.

19 - Balance the front wheels on the car.

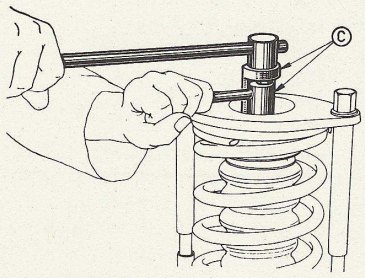
FRONT AXLE AND SUSPENSION
DISASSEMBLY OF A FRONT SUSPENSION UNIT

1 - Hold the assembly with support G in a vise as shown.

2 - With tool D, compress the spring slightly.

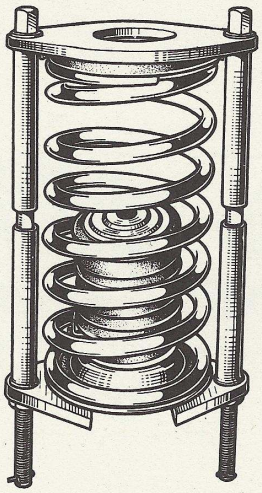


3 - Remove the self-locking nut from the shock absorber rod with tool C.



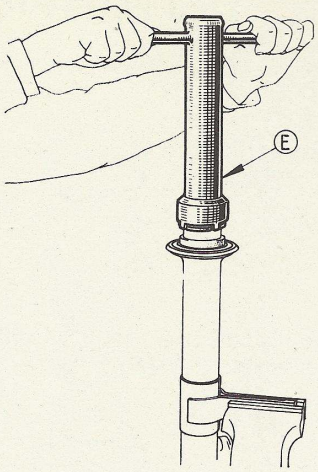
4 - Remove tool D and the following parts:

- safety plate
- shock absorber upper mount
- spring
- spring lower support plate with bellows
- bellows upper support plate



5 - Remove the ball bearing.

6 - With wrench E, remove the cover castle nut.

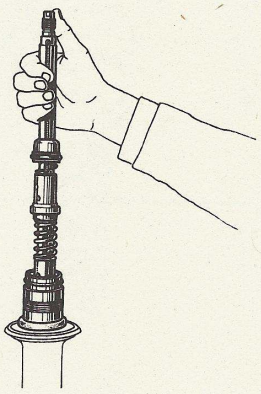


7 - Pull out the piston rod slowly to avoid spilling oil and remove the piston assembly with its bushing and spacer.

8 - Save the nylon spacer and the stop washer in case the shock absorber body is replaced.

9 - Remove the assembly from support G and empty the oil from the body and cylinder.

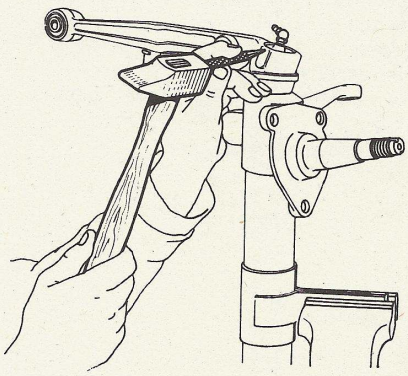
10 - Then remove the cylinder from the shock body.



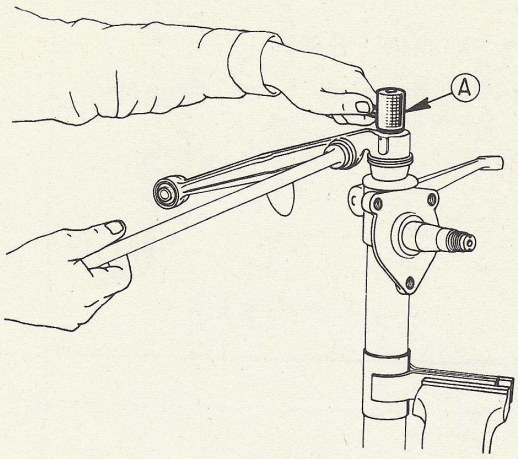
11 - Reinstall the body in support G upside down, with lower arms up to remove the ball joint.

12 - With a fine drift pin and a screw driver, remove the ball joint snap ring. A hole is provided for the pin.

13 - Remove the cover, the Belleville washers and the half-bearing.



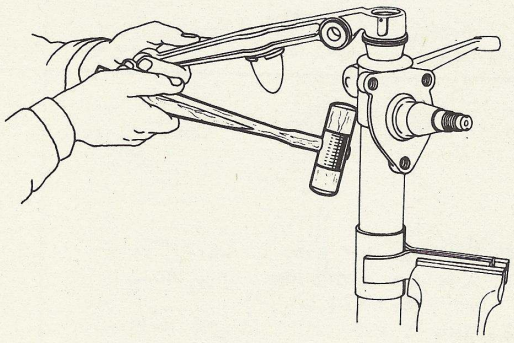
14 - Remove the ball joint castle nut with the spanner socket 8-0902A.



15 - Disengage the ball joint from its cone with a light tap of a mallet on the arm.

16 - Remove the rubber dust cap.

17 - Disconnect the front arm from the rear arm.
Recover:
- the steel washer
- two halves of the "articone" bushing
- two concave washers



FRONT AXLE AND SUSPENSION
REASSEMBLY OF A FRONT SUSPENSION UNIT

From the following instructions, only those steps which are applicable to the repair should be adhered to.

1 - Check condition of the piston rod by sliding the bushing up and down the rod. A bent or scored rod should be rejected.

2 - Assemble the parts on the rod in the position shown.

3 - Replace all rubber parts. Apply a coat of lubriplate to rubber parts before assembly.

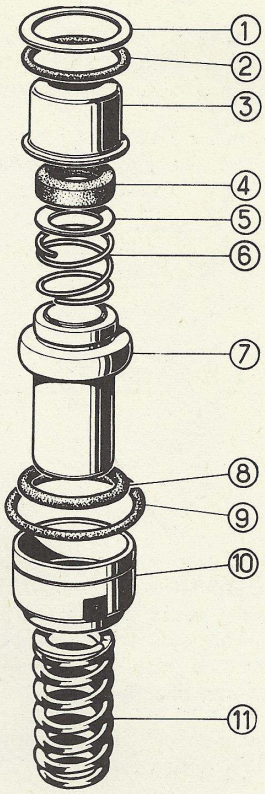
4 - Be careful not to twist the rubber ring (9) during assembly or it could leak oil.

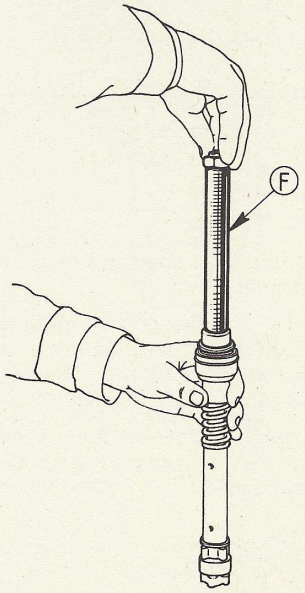
5 - The rubber washer (4) must be correctly placed with the circular mark against the concave steel washer (5). This washer has its convex side against the spring (6).

6 - Thoroughly clean the inside of the shock body and clamp it in the support G.

7 - Install on the shock body the nylon spacer with its chamfer toward the top and the stop washer.

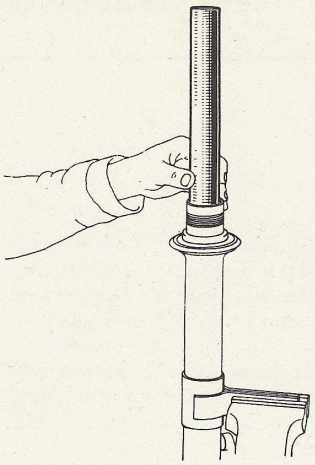
8 - Place spacer F (6.89 inches in length) on piston rod and, with the self-locking nut, compress the spring only until cover (3) rests on the bushing. This precaution is mandatory to prevent damage to the upper washer (1) and upper seal (2) when the cover castle nut is tightened.





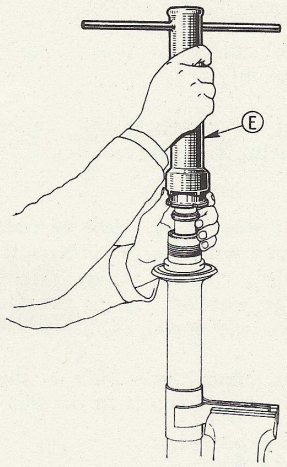
9 - Be certain that all parts are absolutely clean and insert the cylinder assembly into the shock body.

10 - Pour into shock body 3/4 pint (12 fluid ounces) of shock absorber fluid.



11 - Insert the piston and rod assembly into the cylinder slowly until the bushing (10) rests on top of the cylinder. The spacer should protrude 1/8 inch from the threaded part of the shock body.

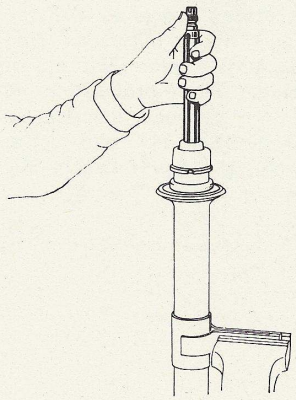
12 - Install cover castle nut and torque to 45 ft. lbs. with wrench E.



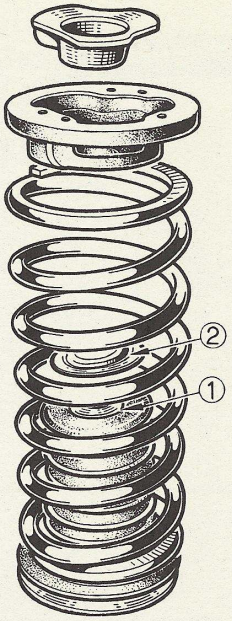
13 - Remove the self locking nut from the rod and the spacer F.

14 - Check the movement and rotation of the piston rod by operating it with the hand. Leave the rod fully extended for installation.

15 - Set the ball bearings of the spring seat in place and grease with multipurpose grease.



16 - Preparation of the Spring:
- with a little cement secure
- plate (1) inside the rubber bellows.
- attach the bellows in its position with the clamp.
- place spring on its lower seat.
- set the upper mount plate in place and insert the safety plate in position by the dowel and slot.



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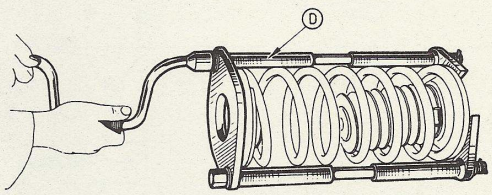
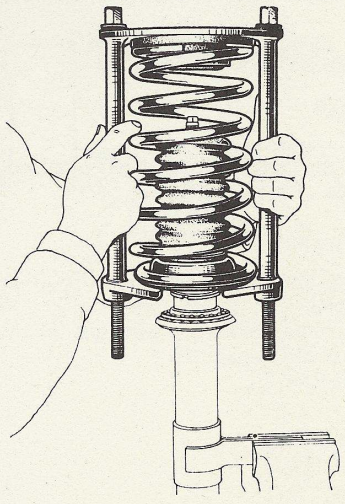
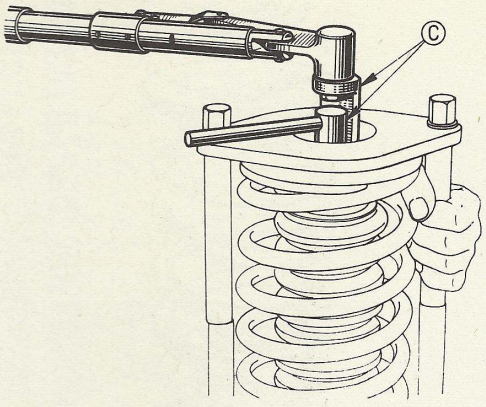
17 - Compress the spring with tool D.



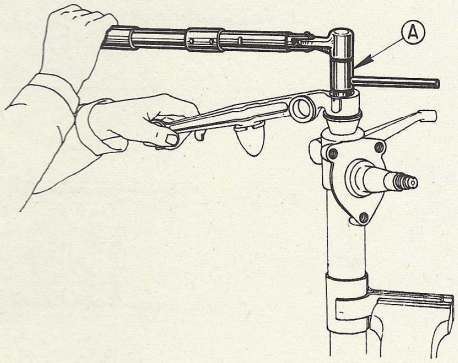
19 - Center the spring assembly on the shock absorbers.
- fit the bellows upper washer (2).
- do not allow the piston rod to be pushed down.
- when the lower spring seat rests on the ball bearings, the piston rod threads should appear through the safety plate.





20 - Use a new self-locking nut and torque to 40 ft. lbs. with a torque wrench and tool C.

21 - Remove tool D and turn assembly upside down in support G for installing the ball joint.



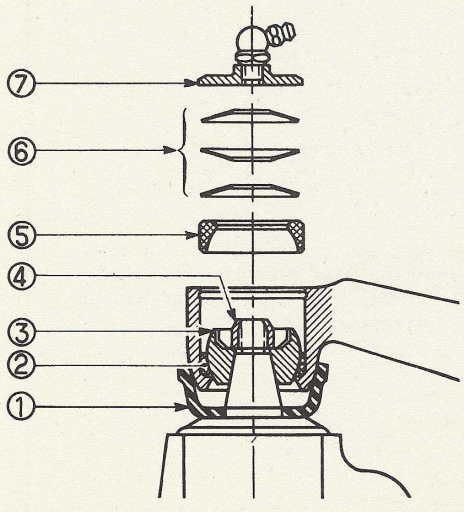
22 - On the ball joint cone, install in this order:

- the rubber dust cap (1).
- the rear arm containing the upper half-bearing (2), (the smaller) and the ball (3).
- torque a <u>new</u> castle nut (4) to 35 ft. lbs. with the spanner socket A.

23 - Lock punch the nut in the two milled grooves of the cone thread.

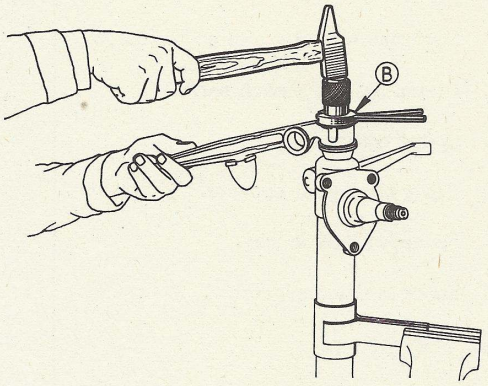
24 - Then install:

- the lower half-bearing (5) (the larger).
- the three Belleville washers (6) in the positions shown.
- the cover (7).



25 - Place a new snap ring in tool B center groove with the ring gap opposite the tool hinge.

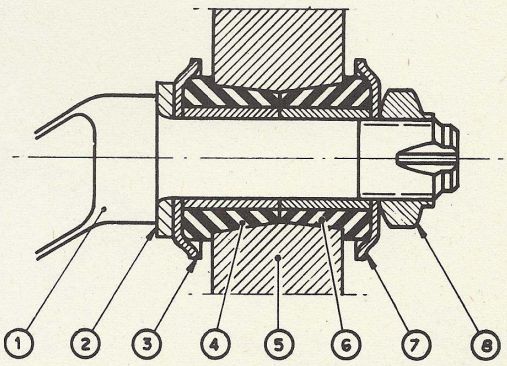
- compress the tool.
- hold rear arm to line with shock body.
- insert the shoulder of tool B into ball joint housing. The tool will hold itself in the housing.
- place drift B on the snap ring in tool B while still holding rear arm in alignment.
- tap gently with a hammer to release snap ring from the groove in tool B.
- tap again a little harder to compress Belleville washers and locate the snap ring in its groove in the lower arm.



26 - Connect the two lower arms:

- install on the front arm the steel washer (2) with chamfered hole against the shoulder, the concave washer (3) and one-half of the "arti-cone" bushing (4).
- insert this assembly into the rear arm.
- install the other half of the "arti-cone" bushing (6) concave washer (7) and a new nut (8).
- tighten the nut only hand tight at this time.

27 - Lubricate the ball joint with multi-purpose grease.



FRONT AXLE AND SUSPENSION

Front Suspension Tool Kit 8.0902

A Balljoint nut spanner socket.

B Snap ring installer tool and drift.

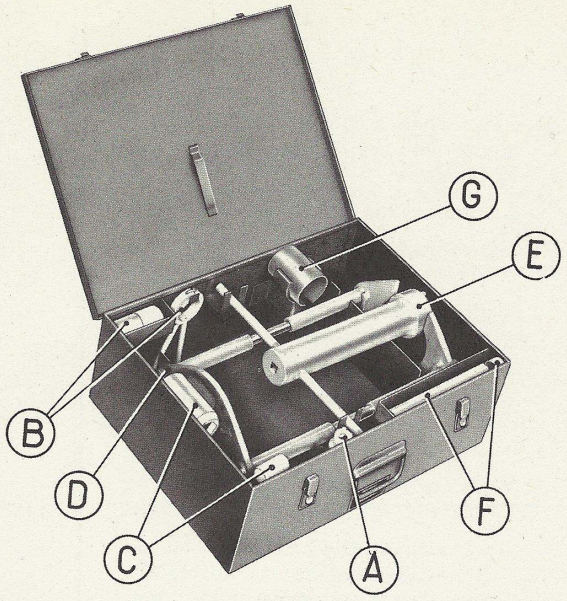
C Piston rod nut wrench set.

D Spring compressor.

E Cover castle nut spanner.

F Spacer of 6.89 inches.

G Shock housing support.



Front Suspension Tool Kit #8.0902 can be ordered through the distributor.

STEERING

Contents

Section 7

DESCRIPTION

The Peugeot 404 is equipped with a rack and pinion type steering gear which features an automatic play take-up device.

The steering ratio of 18.6 to 1 provides a direct control of the wheels, without looseness, while giving an easy handling. The steering gear housing made of aluminum alloy is located behind the front cross-member. The steering column is connected to the pinion through a flexible rubber joint. The left tie rod is secured to the rack by a ball joint providing, through fractions of a turn, a very accurate adjustment of the toe-in.

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