

## FRONT AXLE

### TECHNICAL DESCRIPTION

### CHARACTERISTICS

Designation	Material	Quantity	Dimensions	Weight	Notes
1. 2000	2000	1	2000	2000	2000
2. 2000	2000	1	2000	2000	2000
3. 2000	2000	1	2000	2000	2000
4. 2000	2000	1	2000	2000	2000
5. 2000	2000	1	2000	2000	2000
6. 2000	2000	1	2000	2000	2000
7. 2000	2000	1	2000	2000	2000
8. 2000	2000	1	2000	2000	2000
9. 2000	2000	1	2000	2000	2000
10. 2000	2000	1	2000	2000	2000

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# FRONT AXLE

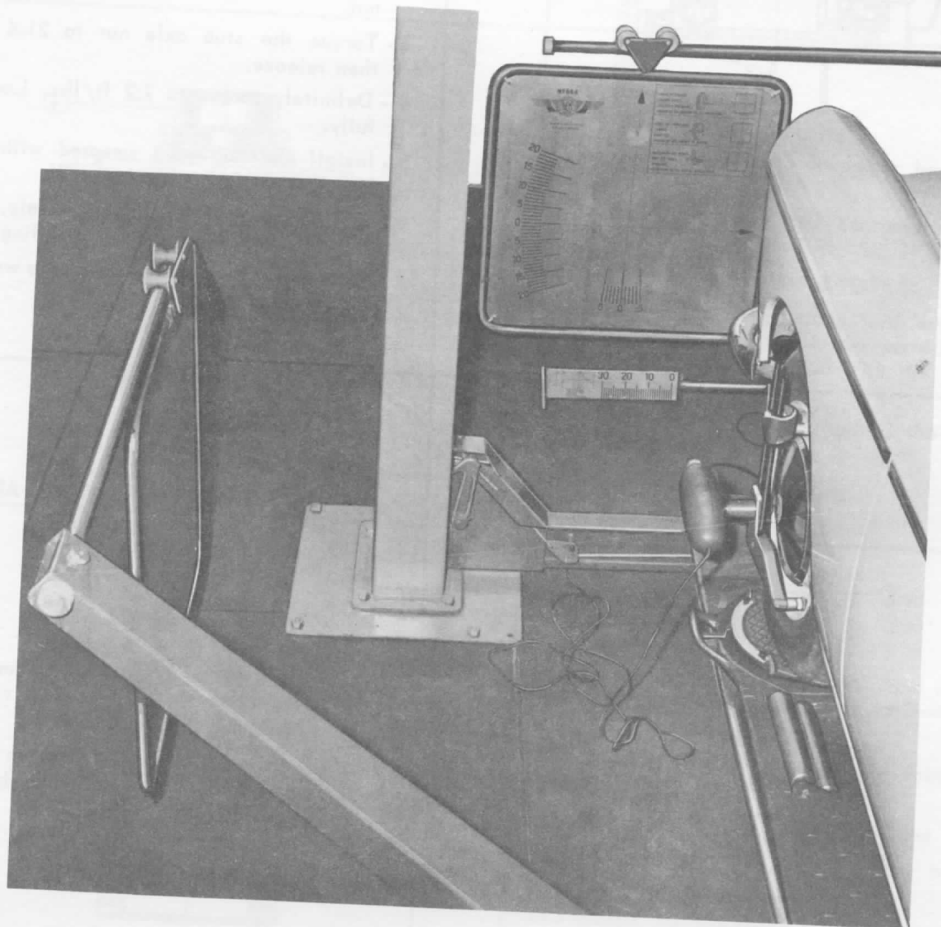
6

III

## TECHNICAL DESCRIPTION

### CHARACTERISTICS

Camber angle	Caster angle	Toe-in (in mm)	Theoretical max. angle of lock	Lock		King pins side inclination
				inner wheel	outer wheel	
$0^{\circ}30' \pm 45'$	$2^{\circ} \pm 1^{\circ}$	$2 \pm 1$	$35^{\circ}$	$20^{\circ}$ $21^{\circ}30'$	$18^{\circ}30'$ $20^{\circ}$	$9,50' \pm 10'$



## REPAIR METHOD

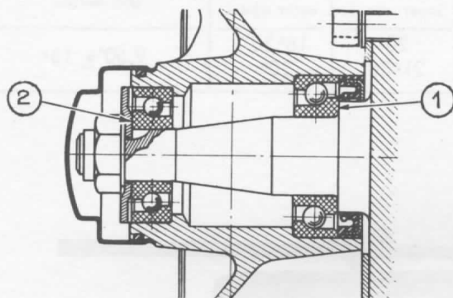
## FRONT HUBS REMOVAL AND REFITTING

**Removal :** Car raised at the front and set under the crossmember.

Remove the front wheels, the brake drums (mark them for position) and the hubs.

## Reinstallation

- 1 - Position the hub onto the stub axle, with the inner ring 1 fully applying onto the stub axle shoulder.
- 2 - Install the washer, with the inner shoulder 2 against the bearing inner ring, and a new nut.
- 3 - Torque the stub axle nut to 21.6 ft/lbs, then release.
- 4 - Definitely torque to 7.2 ft/lbs. Lock carefully.
- 5 - Install the hub plug smeared with "ESSO MULTIPURPOSE GREASE H".
- 6 - Install the brake drums and wheels, respecting the marks left when dismantling.
- 7 - Torque the wheel nuts with torque wrench, to 43.4 ft/lbs.

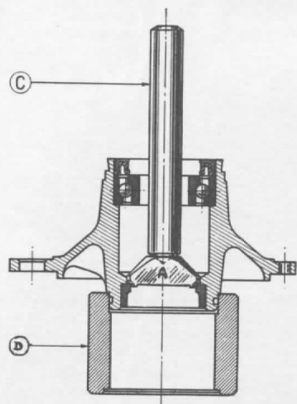


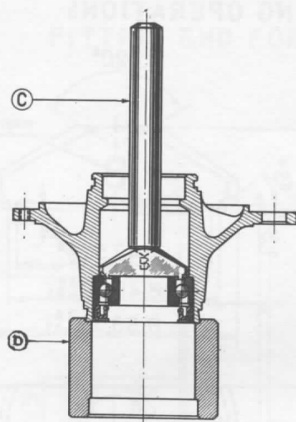
## HUB BEARINGS REMOVAL AND REINSTALLATION

## Removal

## Outer bearing

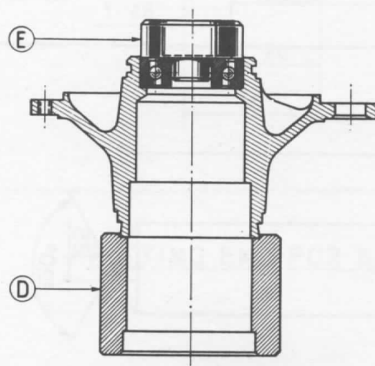
- 1 - Remove the bearing inner ring.
- 2 - Place the fitting end A into the hub, so that it rests correctly on the outer ring of the small bearing.
- 3 - Place the hub on stake D, the drift C on the fitting end and remove the ring by striking gently with a hammer.





## Inner bearing

- 1 - Place fitting end B in the hub, resting on the outer ring.
- 2 - Turn the stake D upside down.
- 3 - Place the hub on the stake.
- 4 - Remove the bearing and seal by means of the drift C.

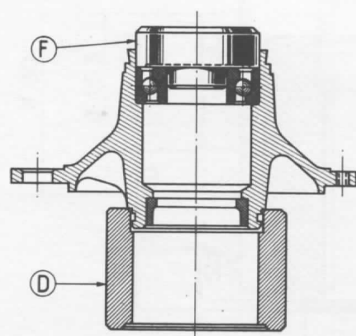


## Reinstallation

- 1 - Clean and dry the parts.
- 2 - Check the balls for proper bearing on the ball race.
- 3 - Smear the hub and bearings with "ESSO MULTIPURPOSE GREASE H" (100 gr.).
- 4 - Place the hub on the stake D.

*NOTE : The outer rings with angular race, acting as thrust, should be installed so that the inner rings, equipped with the ball cages, may be removed.*

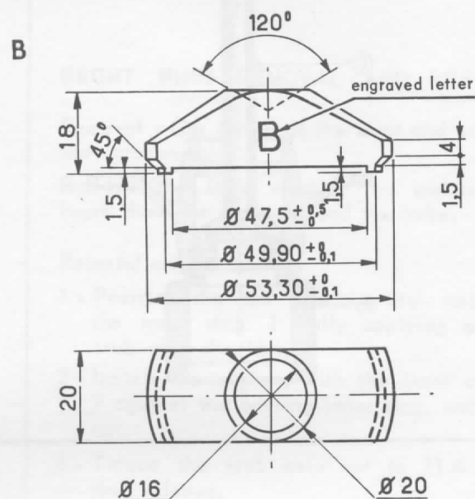
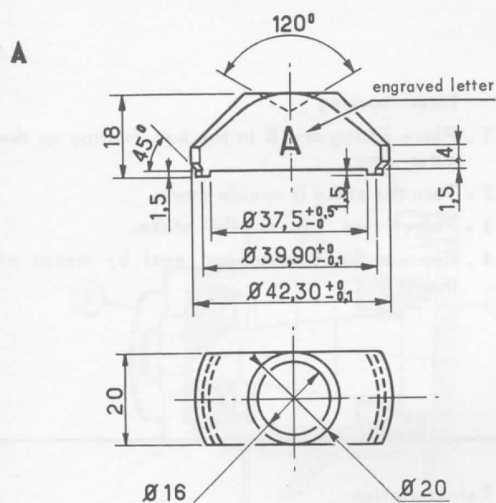
- 5 - Using fitting end E, install the outer bearings complete.
- 6 - Remove the inner ring.



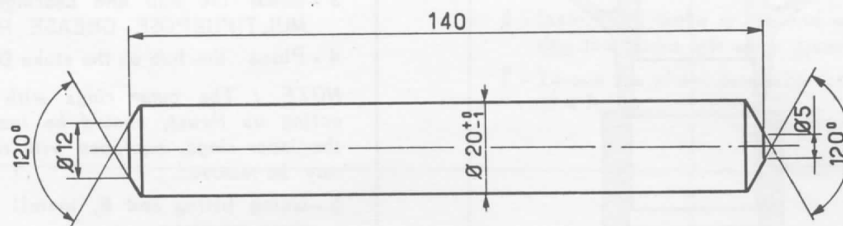
- 7 - Turn the stake upside down and install the hub inner bearing complete by means of the fitting end F.
- 8 - Check that the rings are fully down in their housings.
- 9 - Install the seal resting on the bearing.
- 10 - Install the inner ring of the hub outer bearing.
- 11 - Install the hub (page 112).



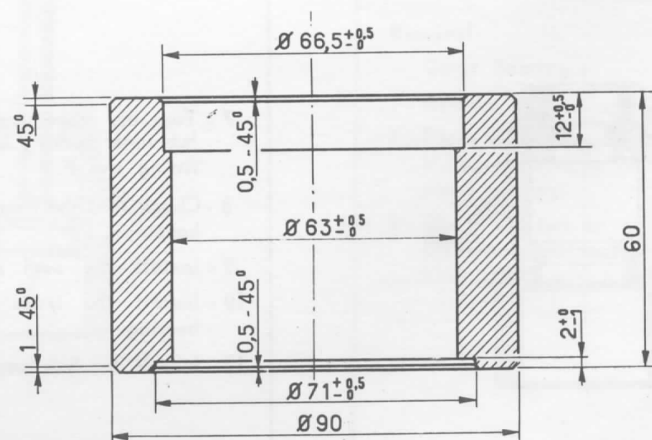
## FITTING ENDS FOR DISMANTLING OPERATIONS

**C**

## DRIFT

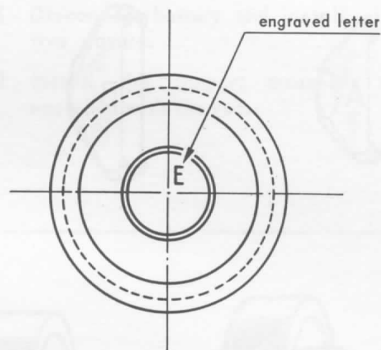
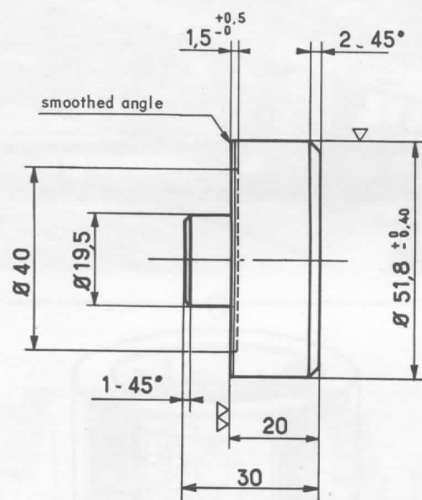
**D**

## STAKE



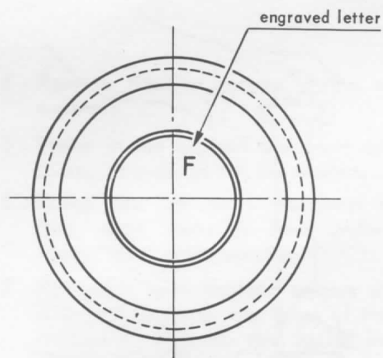
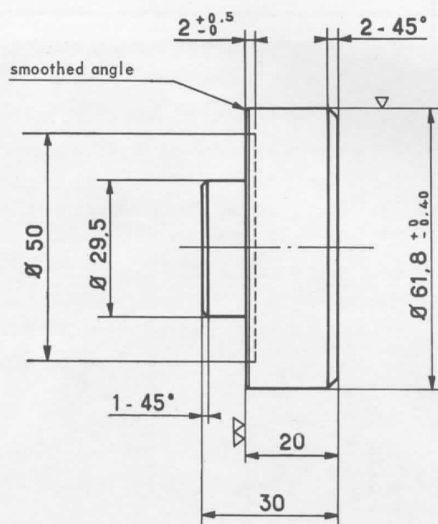
E

FITTING END FOR BEARING 20×52×15 INSTALLATION

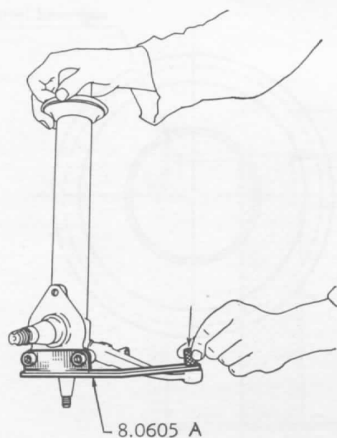
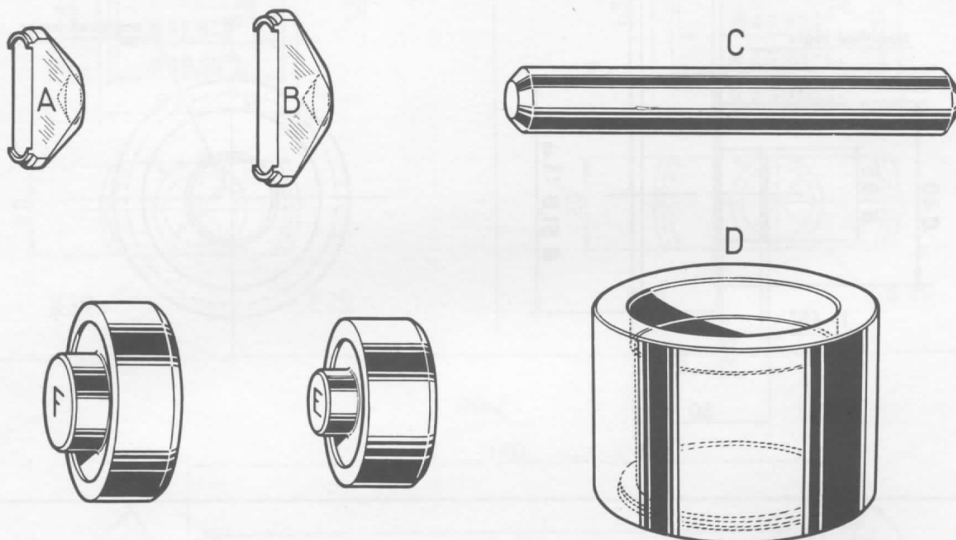


F

FITTING END FOR BEARING 30×62×17.5 INSTALLATION



The parts hereunder, in the dimensions shown on the two preceeding pages, permit to remove and refit the bearings in both bores of the hub.



#### Swivel arms inspection

With the set of rules n° 8.0605 A

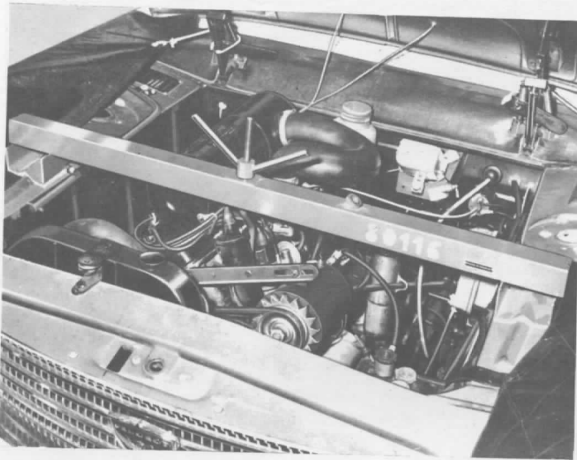
Fit the cam axis 8.0605 B on the corresponding checking rule and check :

- In the horizontal plane, the parallelism of the swivel arm eyelet with the rule.

Engage the axis 8.0605 B into the rule.

Rotate the axis to introduce the lower screw acting into the tapered hole of the swivel.

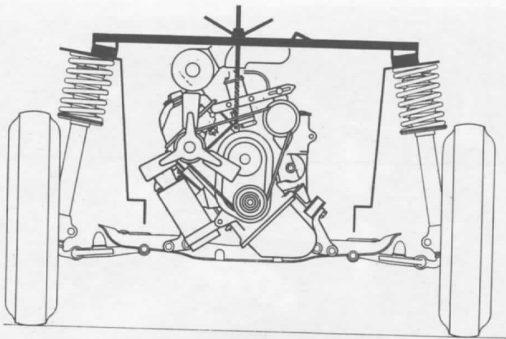
**NOTE :** Systematically discard all stub axles with an out-of-norms swivel arm.



### FRONT CROSS MEMBER REMOVAL AND REINSTALLATION

#### Removal :

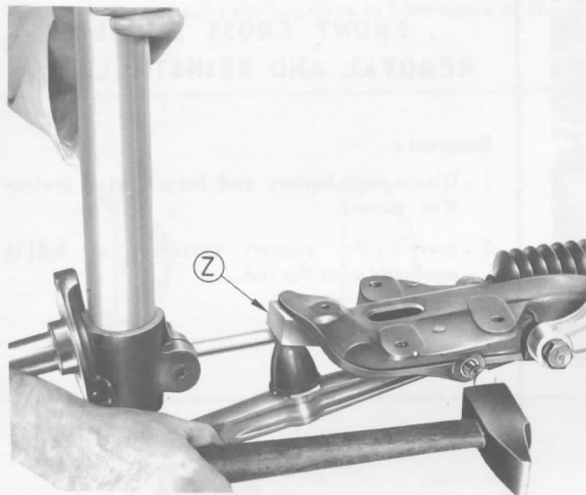
- 1 - Disconnect battery and install wing protective covers.
- 2 - Install the support cross-bar n° 8.0116 equipped with the rod.



- 3 - Fit the hook into the suspension eyelet on cylinderblock, underneath the coil.



- 4 - Remove fixation screws of the engine front supports.
- 5 - Screw in the support cross-bar nut by a few turns, in order to lift the engine.
- 6 - Raise the car until the front wheels get free, then stake it from under the body lower front cross-member.
- 7 - Remove : both fixation screws of the steering gear housing, the axles of the wishbone (axles to replace) the brake line fixation screws and the six cross-member to side-rails fixation bolts.
- 8 - Remove the cross-member

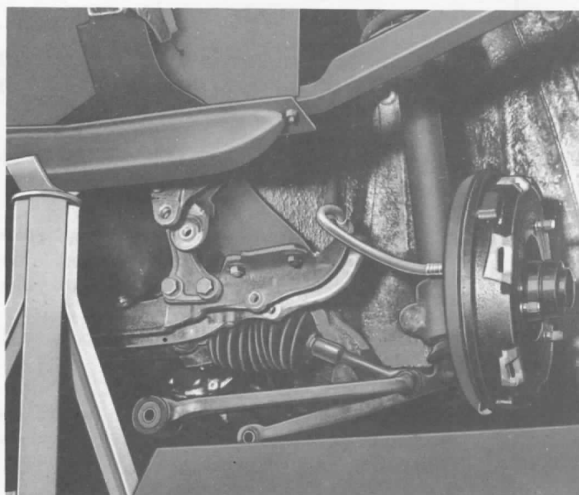


#### Reinstallation

- 1 - Proceed in the reversed removal sequence.
- 2 - Before engaging the new axles of rear wishbone arms completely onto the crossmember : place the 31 mm shim **Z** between the backing thrust and the rebound block.
- 3 - Load the front of the car until the shim is stopped between thrust and block.  
The elastic joints are then in **neutral position**.
- 4 - Drive in the axles, tighten the nuts and pin.
- 5 - Reconnect the battery and set the time clock.

#### TIGHTENING TORQUES

- Steering gear casing to front crossmember attachment screws	21.6 to 32.5 ft/lbs
- Wishbone arms to front crossmember gudgeon	50.6 to 58 ft/lbs
- Front mount support to front crossmember attachment screw	36.1 to 43.3 ft/lbs
- Crossmember to body attachment bolts	28.9 to 43.7 ft/lbs



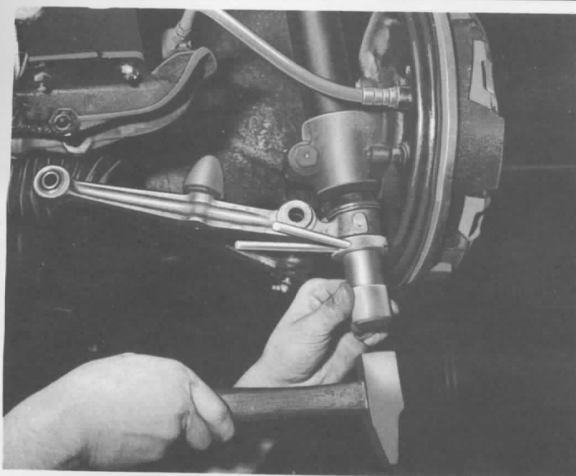
## FRONT WISHBONES ARMS ELASTIC JOINTS REPLACEMENT

### Wishbone arms removal

- 1 - Raise the car and stake it under the front crossmember.
- 2 - Remove the wheels, marking their position on the hubs.
- 3 - Remove the front and rear wishbone arms axles.
- 4 - Release the front arm from the side rail yoke and the rear arm from the crossmember.
- 5 - Disconnect the front arm from the rear one.
- 6 - Take off the circket from the rear arm, working with a punch through the hole provided for this purpose.
- 7 - Recover the lid and Belleville washers.



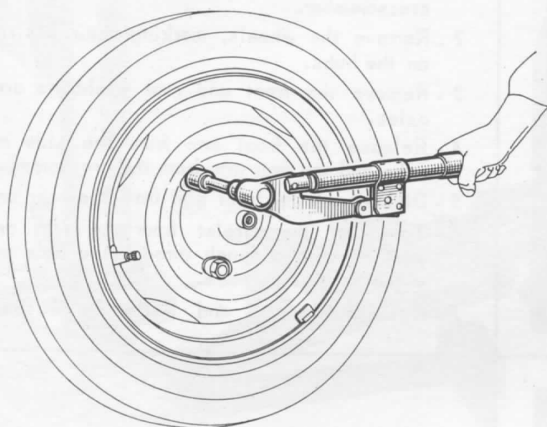
- 8 - Remove the ball head fixation nut, using wrench 8.0902 A.
- 9 - Hold the rear arm and strike it with a sharp blow, as close as possible to the ball head housing in order to release the ball head from its cone.  
Replace the elastic joints.



### Wishbone arms reinstallation

- 1 - Clean and check the nylon bearing shells, the ball head, the protector and cone thread on shock absorber body.
- 2 - Install on ball head cone the protector, then the rear arm, tightening the ball head with a new nut.
- 3 - Torque nut to 28.9 to 36.1 ft/lbs using wrench 8.0902 A and lock.
- 4 - Place into the housing : the lower half bearing shell, the Belleville washers smeared with "ESSO MULTIPURPOSE GREASE H" and the ball head cover.
- 5 - Install a new circket using tool 8.0902 B.

## FRONT AXLE



- 6 - Engage the rear arm into the crossmember and position the new axle, driving it only until the notched part.
- 7 - Install the front arm onto rear arm and hand-tighten the nut.
- 8 - Engage the front arm into the side-rail yoke, fitting the rubber washer between the elastic joint and the front part of the yoke.
- 9 - Install the new axle, driving it only until the notched part.
- 10 - Refit the wheels, paying attention to the location marks left when removing and let the car down on its wheels.
- 11 - Proceed in the same way as before (crossmember reinstallation) to bring the elastic joints in neutral position (page 118).
- 12 - Tighten front arm to rear arm attachment nut to 21.6 to 28.9 ft/lbs.
- 13 - Lubricate the ball head through its nipple.
- 14 - Tighten the wheel nuts, torque to 43.3 ft/lbs.

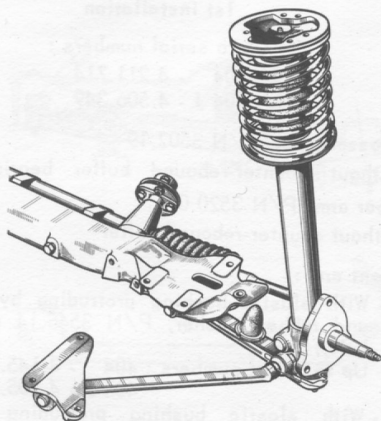


## 6 - FRONT AXLE

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## FRONT AXLE WITH CONVENTIONAL SUSPENSION



## 404 saloon cars

Up to serial numbers :

404 - 4.234.333

404 J - 4.506.712

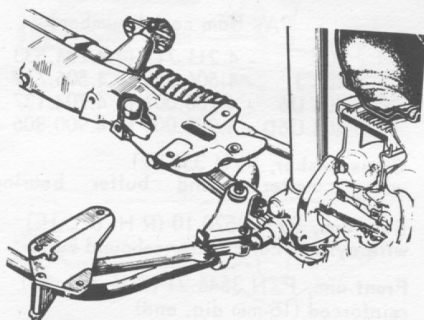
## 404 commercial cars

From beginning of series :

404 U6 - 4.700.001

404 U6D - 4.900.001

## FRONT AXLE WITH HIGH FLEXIBILITY SUSPENSION



## Earlier installation

## Cabriolets

Up to serial numbers :

404 C - 4.495.518

404 C.KF - 4.590.110

## Later installation

## All types of 404s (L.H.D.) except commercial cars

As from serial numbers :

404 - 4.260.001

404 J - 4.525.001

404 KF - 4.550.052

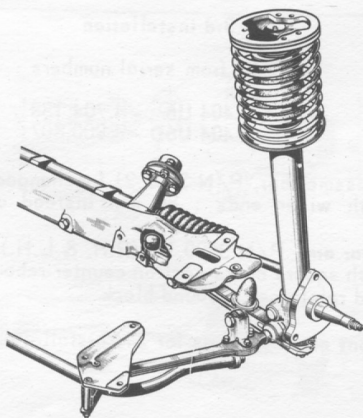
404 C - 4.495.419

404 C.KF - 4.590.111

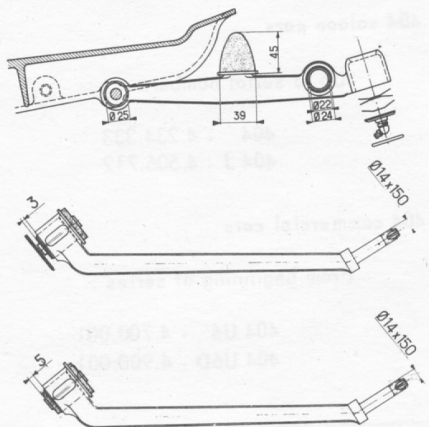
404 D - 4.600.001

404 L - 4.825.001

404 LD - 4.975.001



## IDENTIFICATION OF TRIANGLE ARMS AND FRONT AXLE CROSSMEMBERS



## 1st installation

Up to serial numbers :

404 - 4.211.714

404 J - 4.506.349

Crossmember, P/N 3502.19

without counter-rebound buffer bearing face

Rear arm, P/N 3520.07

without counter-rebound buffer

Front arm :

1 - With elastic bushing protruding by 5 mm, and rubber washer, P/N 3546.14 (R.H. &amp; L.H.)

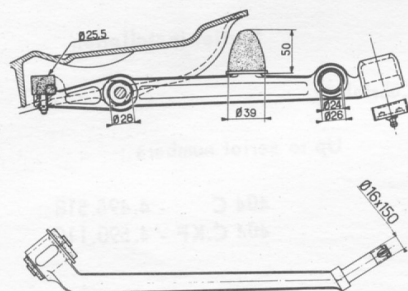
Up to serial numbers : 404 - 4.145.984

404 J - 4.505.086

2 - With elastic bushing protruding 5 mm, P/N 3546.16 (R.H. &amp; L.H.)

From serial numbers : 404 - 4.145.985 to 4.211.714

404 J - 4.505.087 to 4.506.349



## 2nd installation

As from serial numbers :

404 - 4.211.715 to 4.234.333

404 J - 4.506.350 to 4.506.712

404 U6 - 4.700.001 to 4.704.137

404 U6D - 4.900.001 to 4.900.806

Crossmember, P/N 3502.21

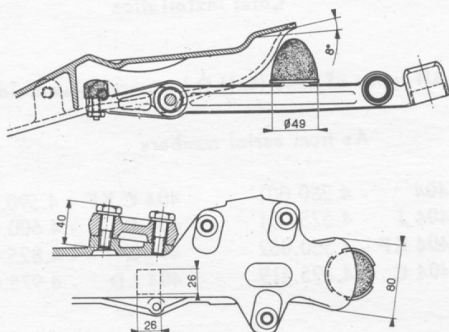
with counter-rebound buffer bearing face

Rear arm, P/N 3520.10 (R.H. &amp; L.H.)

with cylindrical counter-rebound buffer

Front arm, P/N 3546.21 (R.H. &amp; L.H.)

reinforced (16-mm dia. end)



## 3rd installation

As from serial numbers :

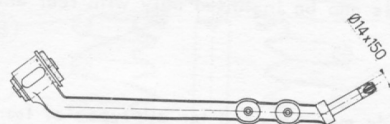
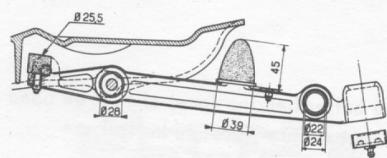
404 U6 - 4.704.138

404 U6D - 4.900.807

Crossmember, P/N 3502.21 (unchanged)  
with wider ends : 80 mm instead of 70 mmRear arm, P/N 3520.12 (R.H. & L.H.)  
with square cross-section counter-rebound buffer  
and reinforced rebound block

Front arm : same as for 2nd installation.

## IDENTIFICATION OF FRONT AXLE TRIANGLES AND CROSSMEMBERS



### 1st installation

Up to serial numbers :

404 C - 4.495.418  
404 C.KF - 4.590.110

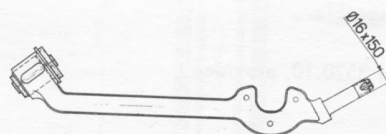
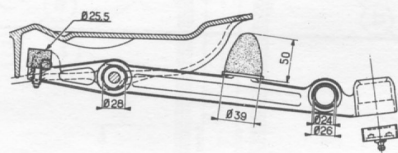
Crossbar, P/N 3502.21

Rear arm, P/N 3520.10

with one tapped hole for attaching the antiroll bar stirrup

Front arm, P/N { 3546.18 (L.H.)  
3546.19 (R.H.)

with two tapped holes for attaching the antiroll bar stirrup.



### 2nd installation

From serial numbers :

404 - 4.260.001 to 4.299.190  
404 J - 4.525.001 to 4.525.563  
404 KF - 4.550.052 to 4.550.832  
404 C - 4.495.419 to 4.495.777  
404 C.KF - 4.590.111 to 4.590.776  
404 L - 4.825.001 to 4.826.697  
404 LD - 4.975.001 to 4.975.272

Crossbar, P/N 3502.21

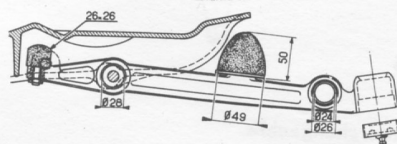
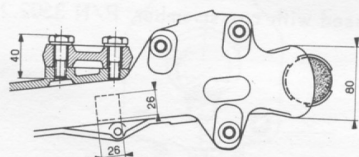
Rear arm, P/N 3520.10 (R.H. & L.H.)

Without tapped hole

With reinforced "Articone" rubber cone

Front arm, P/N 3546.20 (R.H. & L.H.)

Reinforced - with tapped holes for attaching the anti-roll bar stirrup.



### 3rd installation

As from serial numbers :

404 - 4.299.191      404 C - 4.495.778  
404 J - 4.525.564      404 C.KF - 4.590.777  
404 KF - 4.550.833      404 L - 4.826.698  
404 D - 4.600.001      404 LD - 4.975.273

Crossbar : Same as for the 2nd installation

Rear arm, P/N 3520.12 (R.H. & L.H.)

with square cross-section counter-rebound buffer and reinforced rebound block.

Front arm : Same as for the 2nd installation

## INTERCHANGEABILITY OF CROSSBARS AND TRIANGLE ARMS

## CROSSBARS

Crossbar, P/N 3502.19 (without counter-rebound buffer bearing face) should be used only for front axles with 1st installation conventional suspension (without counter-rebound buffer).

Crossbar, P/N 3502.21 with 70-mm wide ends can be installed only with rear arms incorporating 39-mm dia. rebound blocks.

Crossbar, P/N 3502.21 with 80-mm wide ends may be used for all types of front axles.

Because of this, Spare Parts Department supplies only crossbars, P/N 3502.21 with 80-mm wide ends.

## REAR ARMS

Rear arms, P/N 3520.07 - 3520.09 - 3520.10 are not interchangeable.

Rear arm, P/N 2520.12 may be used to replace rear arm, P/N 3520.10, provided :

- A square cross-section counter-rebound buffer, P/N 3514.09, is installed,
- Front engine bracket screws are replaced by 5-mm shorter screws  $\left\{ \begin{array}{l} \text{Petrol engine : 40-mm screw P/N 1803.04} \\ \text{Diesel engines : 70-mm long screw, P/N 1803.05} \end{array} \right.$
- 39-mm dia. rebound blocks, P/N 3514.08, are used with crossmember, P/N 3502.21 having 70-mm wide ends.

## FRONT ARMS

Front arms P/N 3546.14 & 3546.16 only are interchangeable.

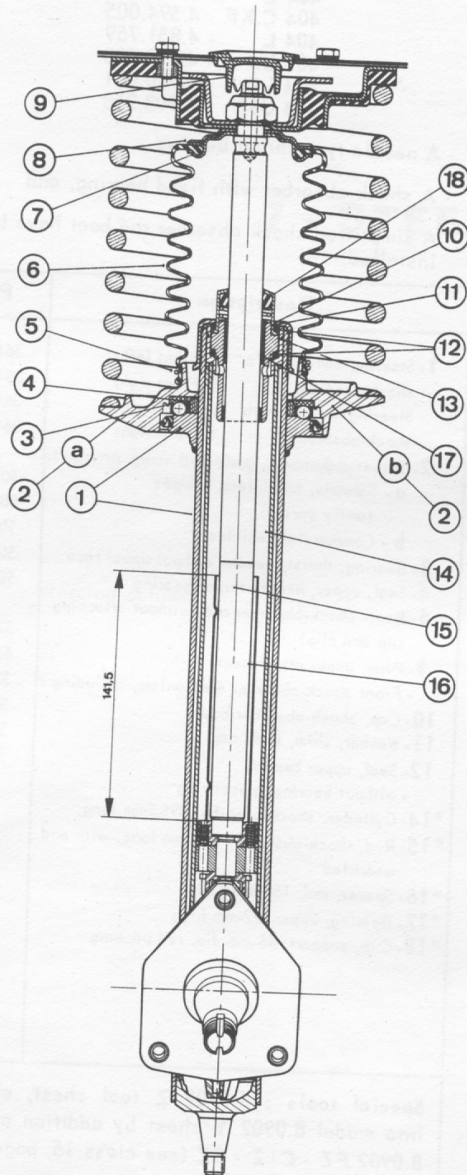


# FRONT AXLE STEERING SWIVEL

6

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Schematic of high flexibility front suspension assembly -  
Earlier installation



## Earlier installation

Up to serial numbers :

404	- 5.047.268
404 J	- 4.529.915
404 KF	- 4.570.595
404 D	- 4.605.479
404 C	- 4.497.653
404 C.KF	- 4.594.004
404 L	- 4.851.758
404 LD	- 4.979.999
404 U6	- 4.737.899
404 U6D	- 4.908.257

- A ball-carrier, and

- A shock-absorber with swivelling bearing have been used.

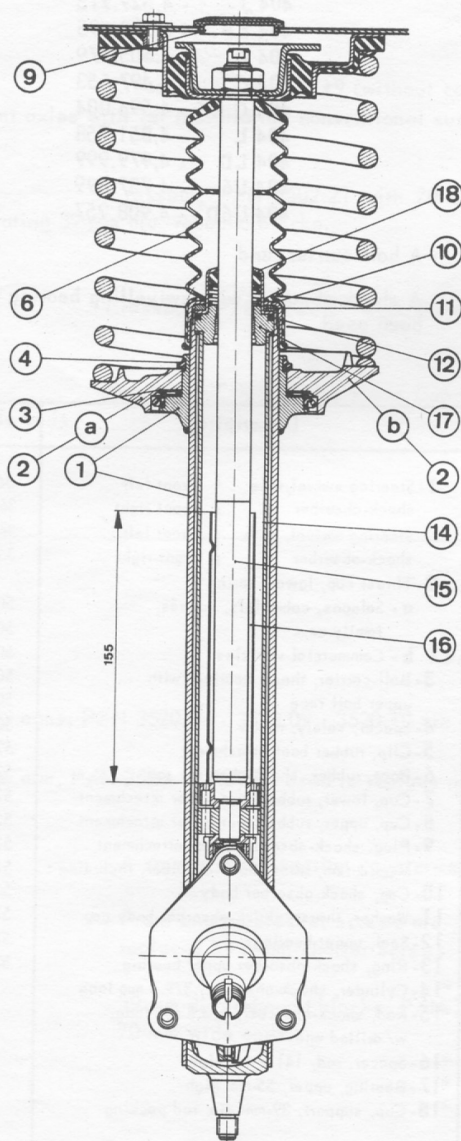
Description	P/N
1- Steering swivel, w/o shock-absorber	Front left 3644.34/42 Front right 3645.38/45
Steering swivel, with shock-absorber	Front left 3642.02/04 Front right 3642.02/04
2- Thrust cup, lower, spring :	
a - Saloons, cabriolets, coupés, family cars	5033.12
b - Commercial vehicles	5033.13
3- Ball-carrier, thrust bearing, with upper ball race	5033.11
4- Spacer, safety, nylon	5035.04
5- Clip, rubber boot attachment	5034.04
6- Boot, rubber, shock-absorber rod	5038.01
7- Cup, lower, rubber boot upper attachment	5256.01
8- Cup, upper, rubber boot upper attachment	5254.02
9- Plug, shock-absorber upper attachment	5255.02
- Mechanism, front shock-absorber, including :	5255.01
10- Cap, shock-absorber body	5209.01
11- Washer, thrust, shock-absorber body cap	5201.20
12- Seal, upper bearing	5346.09
13- Ring, shock-absorber upper bearing	5347.02
*14- Cylinder, shock-absorber, 379.5 mm long	5334.11
*15- Rod, shock-absorber, 473.5 mm long, w/drilled end	5334.10
*16- Spacer, rod, 141.5 mm high	
*17- Bearing, upper, 55-mm high	
*18- Cup, support, 39-mm dia. rod packing	

\*These parts are not supplied separately by Spare Parts Department

Special tools : 8.0902 Z or Y tool chest  
(see class 15, page 155)

# FRONT AXLE STEERING SWIVEL

Schematic of high flexibility front suspension assembly -  
Later installation



## Later installation

As from serial numbers :

404	- 5.047.269
404 J	- 4.529.916
404 KF	- 4.570.596
404 D	- 4.605.480
404 C	- 4.497.654
404 C.KF	- 4.594.005
404 L	- 4.851.759
404 U6	- 4.737.900
404 LD	- 4.980.001
404 U6D	- 4.908.258

- A needle-type thrust bearing,
- A shock-absorber with fixed bearing, and
- A simplified shock-absorber rod boot have been installed.

Description	P/N
1- Steering swivel, w/o shock-absorber	{ Front left 3644.40 Front right 3645.43
Steering swivel, with shock-absorber	{ Front left 3642.03 Front right 3643.03
2- Thrust cup, lower, spring :	
a - Saloons, cabriolets, coupés family cars	5033.14 5033.15
b - Commercial vehicles	5033.16
3- Bearing, thrust, needle without upper race	5033.05
4- Seal, upper, needle thrust bearing	5037.02
6- Boot- shock-absorber rod (without attaching cup and clip)	5254.03
9- Plug, upper attachment	5209.03
- Front shock-absorber mechanism, including :	5201.24
10- Cap, shock-absorber body	5346.10
11- Washer, shim, body cap	5347.04
12- Seal, upper bearing	5334.14
- without bearing spacer ring	
* 14- Cylinder, shock-absorber, 398.5mm long,	
* 15- Rod, shock-absorber, 464 mm long, with end undrilled	
* 16- Spacer, rod, 155 mm high	
* 17- Bearing, upper, 22-mm high	
* 18- Cup, support, 45-mm dia. rod packing	

Special tools : 8.0902 Z tool chest, changed into model 8.0902 Y chest by addition of tools 8.0902 FZ - C1Z - EZ (see class 15, page 155).

**INTERCHANGEABILITY** - Parts from both installations are not interchangeable separately.