5 - REAR AXLE

TECHNICAL DESCRIPTION

REAR AXLE

Crown wheel : 21 teeth

Worm wheel : 5 threads

Gearing down ratio : 0,238

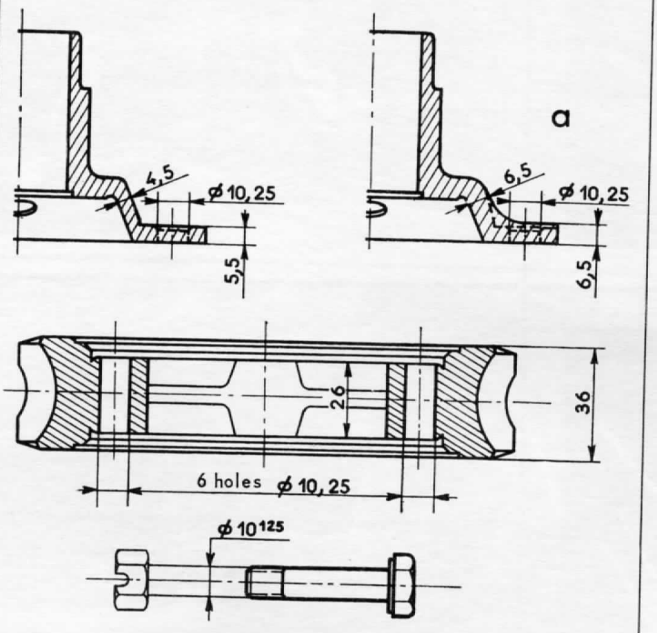
Centre to centre dist : 95.25

Capacity : 1,4 l ESSOLUBE VT OIL (2.5 pints)

NOTE : Only in those countries where ESSOLUBE VT is not yet being distributed, and after carefully flushing out the rear axle, use ESSO GEAR OIL GP 90.

IDENTIFICATION

Earlier fitting



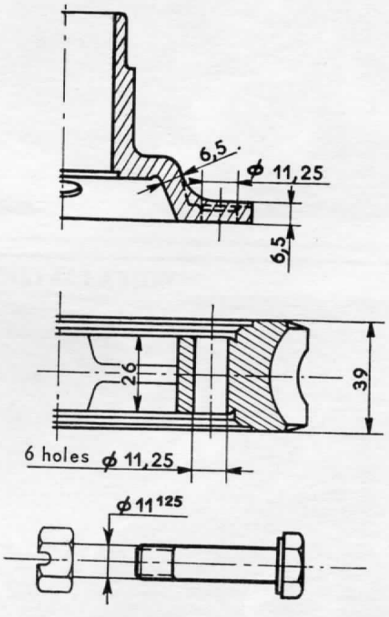
Tightening torque : 39.7 to 47 ft/lbs

Later fitting

404 4.071.372 (save for n° 4.073.501 to 4.073.945)

404 J 4.502.736

404 RHD 4.071.577

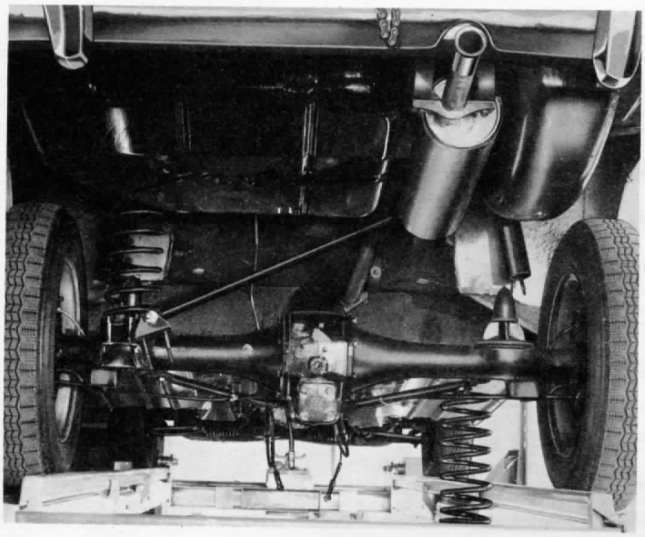


Tightening torque : 47 to 54.2

NOTE : The reinforced differential shells **a** *have been installed as per following serial N° :*

404	*4.006.254*
404 J	*4.500.128*

REAR AXLE



REPAIR METHOD

REMOVAL

1 - Disconnect from rear axle : the rear shock absorbers and the stabilizer bar.

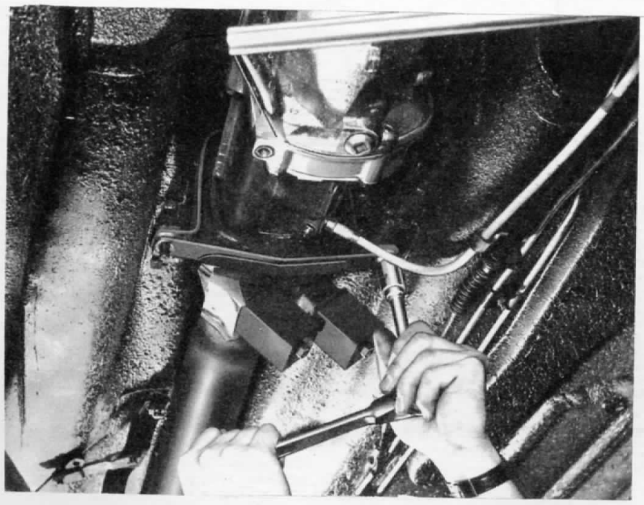
2 - Disconnect from the floor : the hand brake control sheath and the lockeed hydraulic line (stop the orifice on the master cylinder side).

3 - Disconnect the rear brakes control lever : 3 brake cables, then release the lever rearwards.

4 - Lift the body from the rear, to remove the helical springs.

5 - Remove : the exhaust pipe to manifold flange and the clamping collar on gearbox rear housing.

6 - Install engine support stirrup n° **8.0103 Z** with fitting end **8.0103 C** fitting under clutch housing.

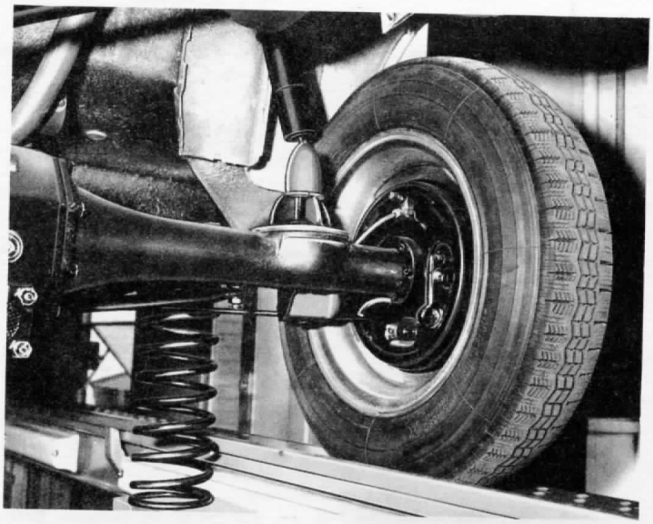


7 - Unscrew : the upper fixation screw and both lower nuts from rear engine mount support.

8 - Release the rear engine support by progressively unscrewing the stirrup screw to lower the rear of the gearbox by some 45 mm.

IMPORTANT CAUTION : see that the lower oil sump does not rest onto the steering gear housing

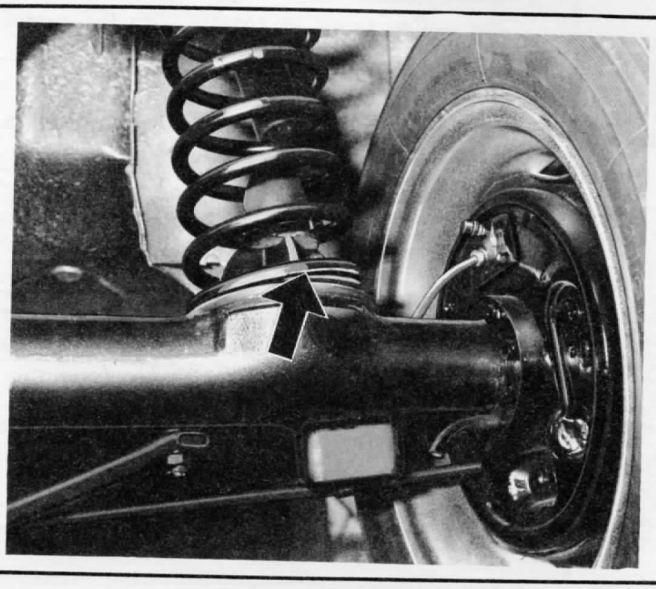
9 - Use wrench n° **8.0406** to remove the 4 assembling screws from the torque tube ball joint cover.



10 - Holding the end of the torque tube, pull the axle rearwards and recover the rear engine support.

11 - Lift up the bodywork enough to permit the passage of the rear axle with its wheels.

12 - Release the rear axle.



REINSTALLATION

Proceed in the reverse sequence.

Particular caution

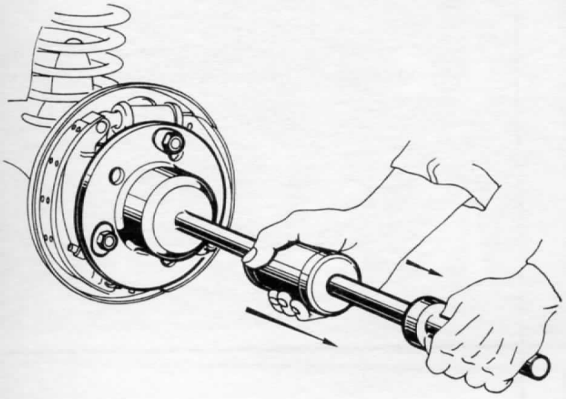
a - The rear engine support should be perfectly safe from grease, oil or paint which affect its useful life.

- Never clean it with trichlorethylene.
- Smear both its mating faces with seal paste.

b - When reinstalling the helical spring, orient the nose on the lower 1st coil to the rear.

NOTE : The RH and LH springs are identical.

c - Bleed the brakes.



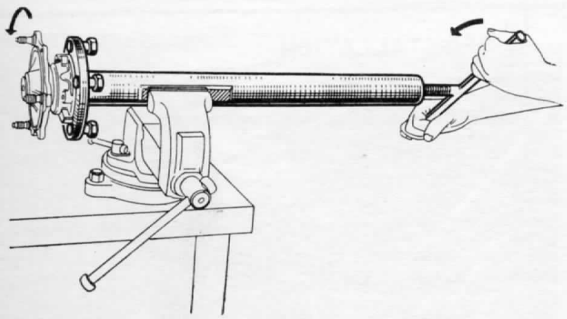
REMOVAL OF A REAR AXLE WHEEL SHAFT

1 - Lift the car from the rear and set it under the rear axle tubes, remove the wheels.

2 - Remove the brake drum.

3 - Disconnect the bearing fixation flange from rear axle tube.

4 - Remove the wheel shaft, using puller n° **8.0601.**



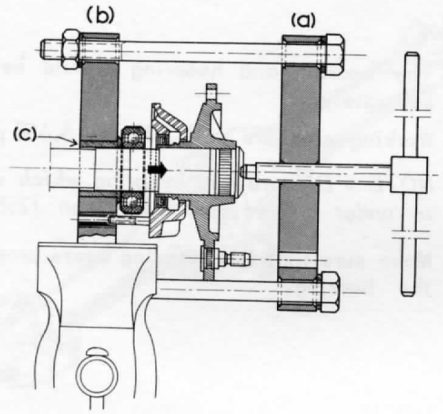
Stripping

5 - Fit n° **8.0507 Z** on the bearing flange, bring the puller screw in contact with the center of the wheel shaft.

6 - Hold the assy in a vice at the reinforcements provided for this purpose.

7 - Remove the assy : flange, tightness seal, bearing and hoop ring.

NOTE - In order to avoid damaging the puller screw, the wheel shaft should be driven by the puller screw rotation.



Reinstallation

When exchanging a bearing, the tightness seal and hoop ring should be systematically replaced.

The bearing and hoop ring are being installed separately, using either the tool n° **8.0517 Z** or a press.

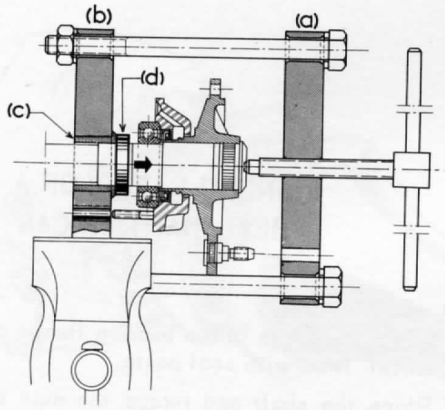
Roller bearing installation

1 Using tool n° 8.0517 Z

- Position the flange equipped with the tightness seal on wheel shaft.
- Lubricate the bearing and place it on wheel shaft.
- Fit in position the tool n° **8.0517 Z** equipped with the ring **C** according to sketch herenext.

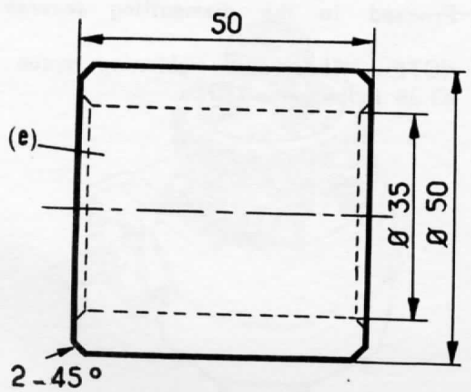
Important

- The flanges **a** and **b** should be strictly parallel.
- Tighten progressively, until bearing comes in contact with rear hub.
- Remove tool.



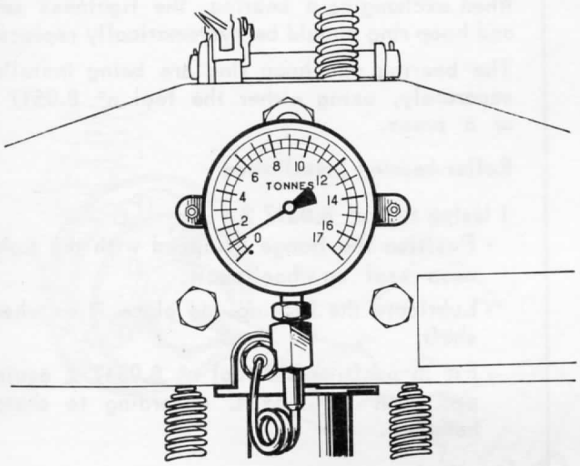
Hoopring installation

- Install hoopring **d** on wheel shaft.
- Place tool with the same precaution.
- Tighten progressively to bring the hoopring against the outer face of the bearing.



2 Using press

To perform installation following this method, a ring **e** will have to be manufactured on the spot.

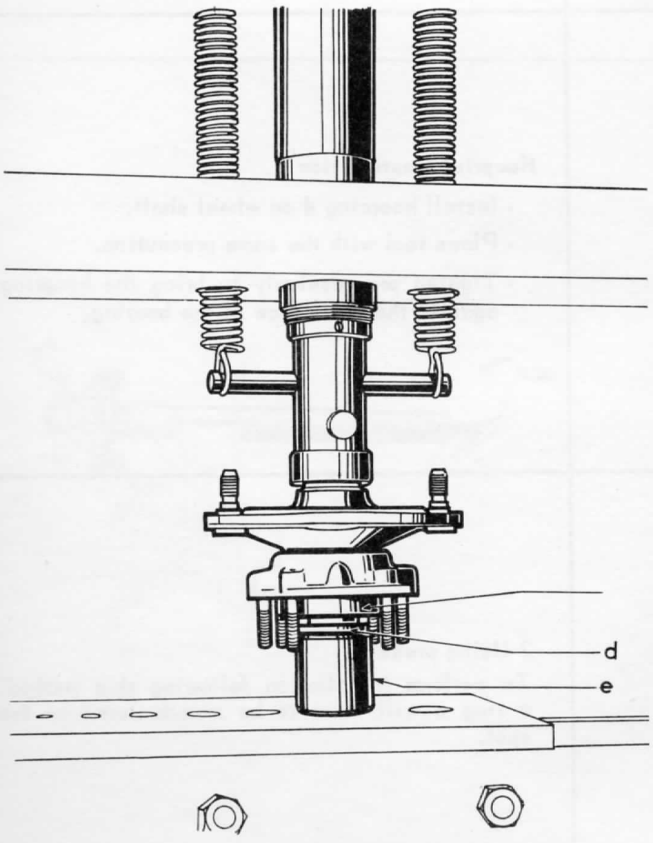


The bearing and hoopring should be mounted separately.

Working pressure : 12.800 to 15.650 p.s.i.

NOTE - Discard any hoopring which would get in under a pressure lower than 12.800 p.s.i.

Make sure that the hoopring bears properly onto the bearing.



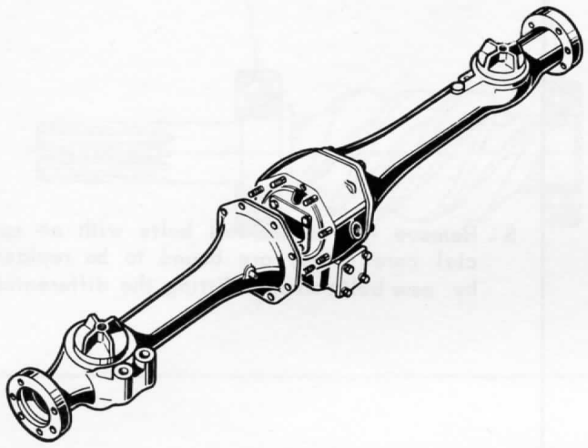
REINSTALLATION OF A WHEELSHAFT ON CAR

Smear the faces of the bearing flange and of the wheel tube with seal paste.

Place the shaft and torque the nuts to **7.23** to **10.8 ft.lbs.**

Proceed in the dismantling reverse order.

NOTE - Wheel nuts tightening torque : 43.28 ft.lbs (page 120).



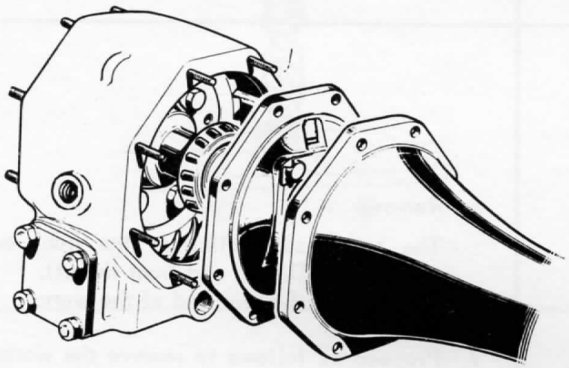
DISMANTLING OPERATIONS

Particular points to observe when stripping a 404 rear axle.

The rear axle has been drained out and the propellor shaft, wheel shafts, torque tube and brakes plates removed :

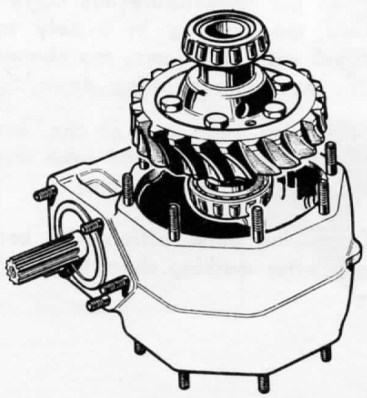
(Wheel shafts removal : page 96)

1 - Unbolt the left hand rear axle tube and remove it, striking it with a mallet.

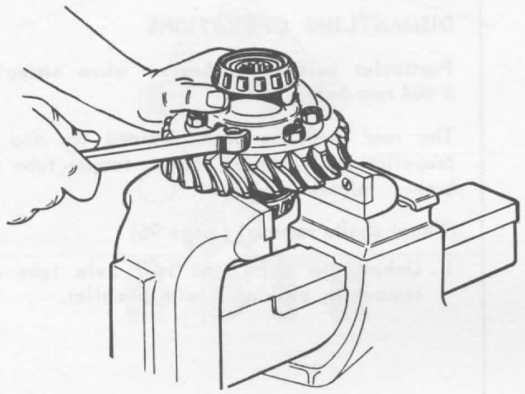


2 - Unbolt and remove the right hand wheel tube.

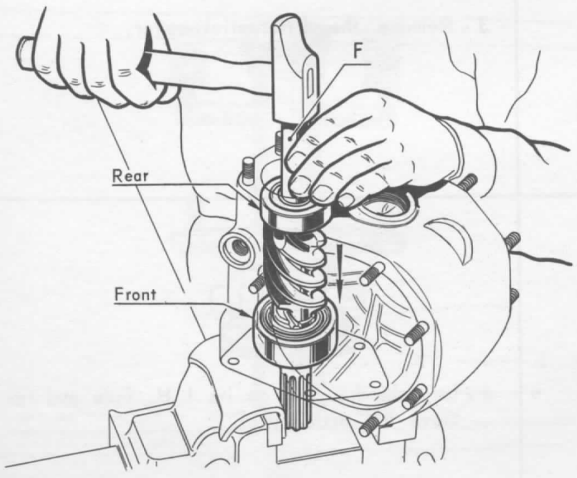
3 - Remove the differential cover.



4 - Lay the housing on its L.H. face and remove the differential.



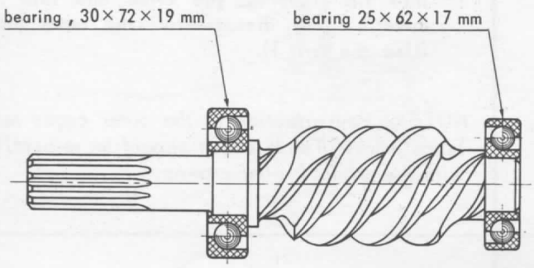
5 - Remove the differential bolts with no special care : they are bound to be replaced by new bolts when refitting the differential.



6 - Remove :
- The tightness sealing at the front end of the worm (AD seal and front thrust).
- The plug at the rear end of the worm.

7 - Proceed as follows to remove the worm from the housing :
- Immerse the housing into boiling water. When the temperature has come to balance, hold the housing in a duly opened vice, fitted with lead jaws, the channeled portion of the worm pointing down.
- Strike on rear end of the worm with an appropriate drift f and take worm out, with its bearings, from the front.

8 - Drive the outer differential bearings rings off, after marking them for location.



REINSTALLATION

Preliminary conditions

All parts clean and dry.

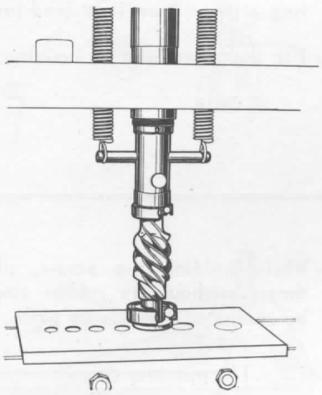
Have the tool kit n° **8.0505** (page 207) at hand.

I - Wormwheel preparation

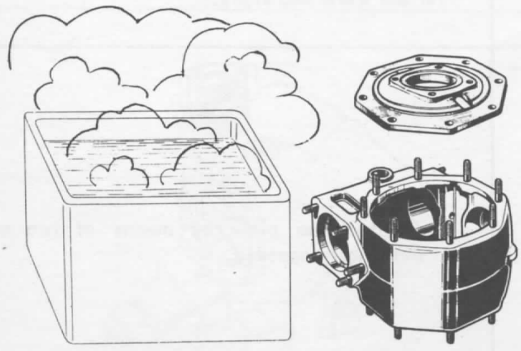
1 - Tallow the portions of the worm where the bearings are supposed to be mounted.

2 - Install the angular race bearing 30 × 72 × 19 in the proper sense, at the front end.

3 - At the rear end, install the angular race bearing 25 × 62 × 17 in the proper sense.



NOTE - In both cases, use pieces of pipe to strike inner ring of bearings or, better, use a press.



II - Rear axle housing preparation

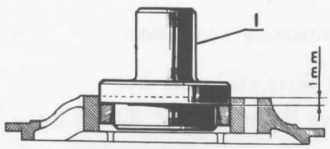
In the case of a housing replacement

a - Install with seal paste the rear axle tubes attachment studs, 8 on each face, the longer ones on the R.H. side.

b - Install with seal paste the 5 torque tube attachment studs :

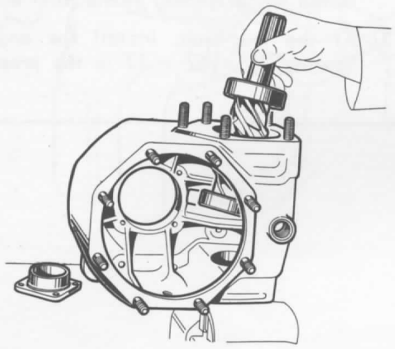
One (10 × 60) at the top.
Four (10 × 50) symetrically disposed.

1 - Immerse the housing and cover into boiling water until they reach about 195° F (90° C).



2 - Install the outer ring of each bearing, one into the housing, the other one into the cover, 1 mm distant from the outer face. (Use the drift 1).

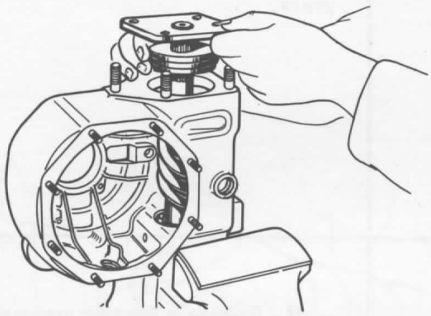
NOTE - Pay attention to the outer cages reference marks. These cages should be reinstalled with the original roller crowns.



III - Worm positioning into the housing.

1 - Hold the housing vertically, with the refilling orifice down (use lead jaws).

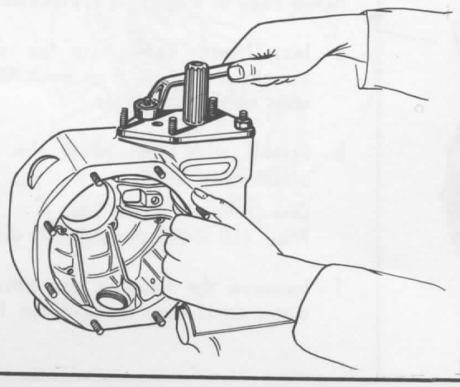
2 - Fit the worm into its housing.



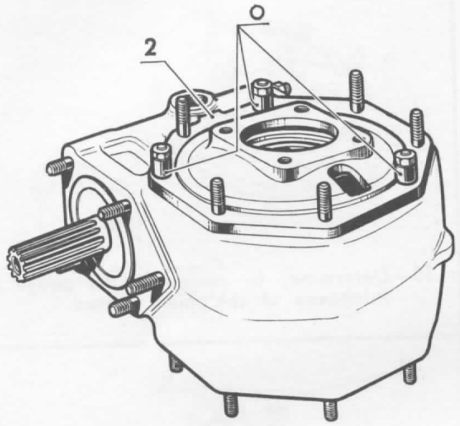
3 - While holding the screw, place the front thrust without its rubber ring, then set it by means of a provisory plate.

NOTE - The operator can :

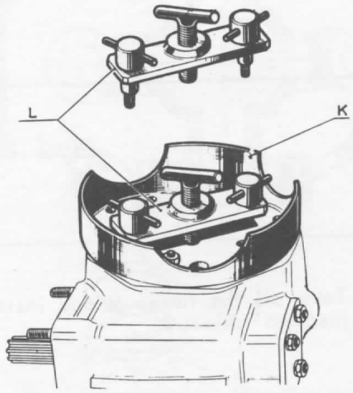
- *Either use a front tightness plate from a rear axle 203 first type.*
- *Or make a square provisory plate, 100 mm in dimension, with a central bore and four holes for the worm and studs.*



4 - Tighten the plate by means of two nuts diagonally opposed.



3 - Cover the housing with its lid using a paper gasket smeared with seal paste, taking care to place one of the oil passages downside, near the draining hole (an orientation boss 2 permits an easy orientation).
The spacers **0** should be placed over the studs to permit an efficient tightening.

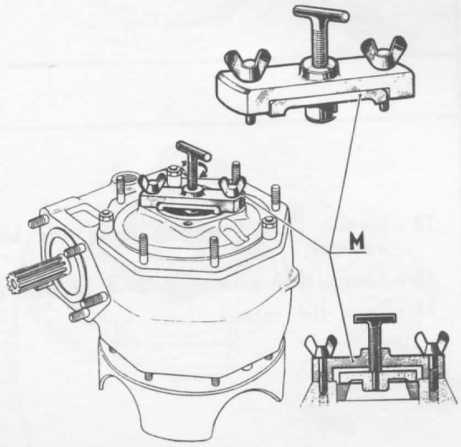


4 - Turn the assy upside down.

5 - Orient both holes of the shell to face the housing parts.

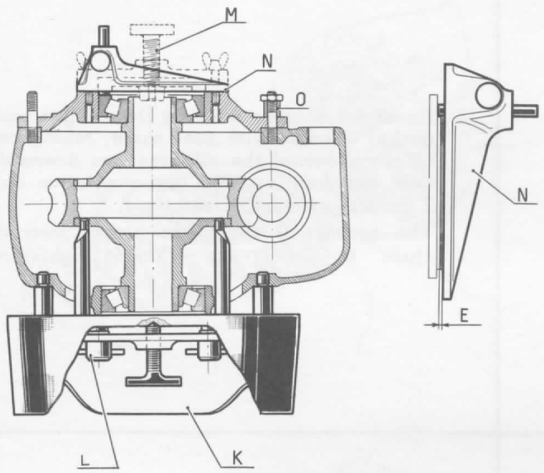
6 - Place the assy **K** with both finders resting against the wheel.

7 - Install the flange **L**, so that the assy is correctly fitting onto the housing.

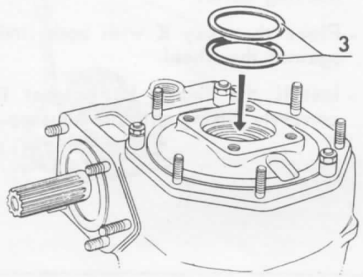


8 - Turn the assy over, apparatus **K** resting on its feet.

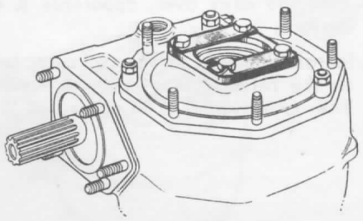
9 - Install flange **M**, press the outer bearing ring on the roller crown (without overtightening). The crownwheel is in place.



10 - Determine, by means of the gauge **N**, the thickness of the shims wanted.



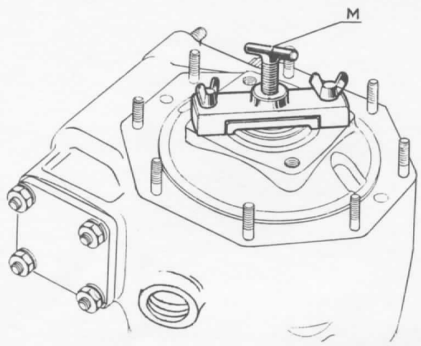
11 - Take off the flange **M** and install the adjustment shims. **3.**



12 - Install the resting plate and both tab washers.

13 - Torque the screws to **21.6 to 25.4 ft/lbs.**

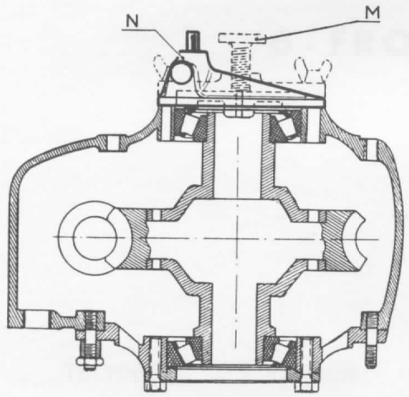
14 - Lock the screws.



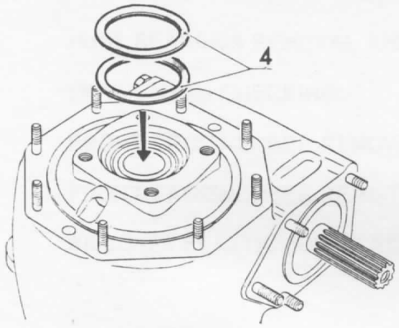
15 - Turn the assy over, so that it rests on the cover.

16 - Remove the flange **L** and assy **K.**

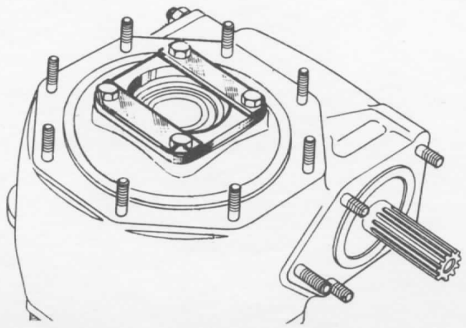
17 - Install flange **M** and press the bearing outer ring onto the roller crown (without overtightening).



18 - Use gauge **N** to determine thickness of shims necessary.



19 - Remove flange **M** and fit the adjustment shims **4.**



20 - Install the resting plate with two tab washers.

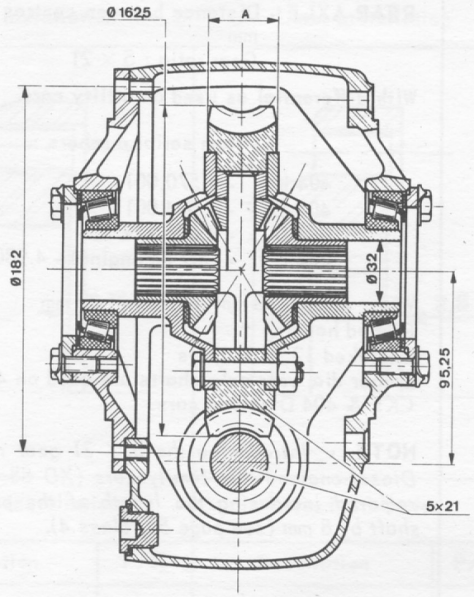
21 - Torque screws to **21.6 to 25.3 ft/lbs.**

22 - Lock the screws.

NOTA - The rear axle is adjusted and the rear axle R.H. rube will be installed after removing spacers **0.**
Install the rear axle in the dismantling reversed sequence.

5 - REAR AXLE

A Earlier installation : 36 mm
Later installation : 39 mm



Adjustment : Base : 8.0505 K
Fingers : K1
Oil capacity : 1.6 quart

REAR AXLE - Distance between centres : 95.5
Gear ratio : 5 × 21
Same differential as 403 sedans

Earlier installation

Up to serial numbers :

404 - 4.071.371
404 J - 4.502.735

36-mm wide wheel
10 - 125 bolts
10.25 mm dia. holes in differential case

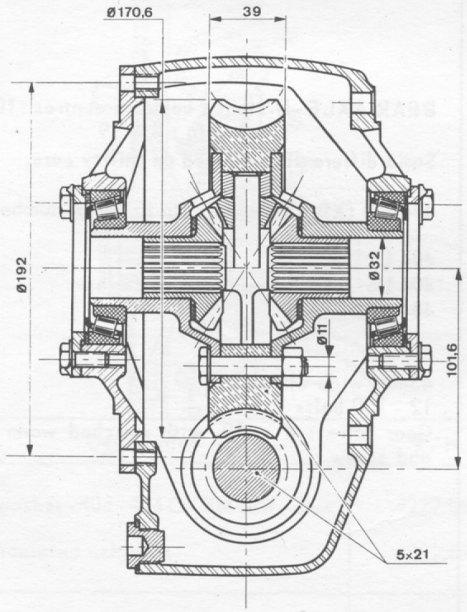
Later installation

From serial numbers :

404	- 4.071.372	to	5.045.497
404 J	- 4.502.736	to	4.529.909
404 SL	- to serial numbers		4.414.913
404 KF	-		4.551.335
404 C	-		4.595.819
404 CKF	-		4.590.865

39-mm wide wheel
11.25 mm dia. holes in differential housing
11 - 125 bolts

NOTE. - *Spare Parts Department supplies 39-mm wide wheels equipped with 11-mm dia. bolts which are interchangeable with the 36-mm wide wheels used in the first installation.*



Adjustment : Base : 8.0505 K
Fingers : K1
Oil capacity : 1.8 quart

REAR AXLE - Distance between centres : 101.6 mm
Gear ration : 5 × 21

Same differential as 403 sedans

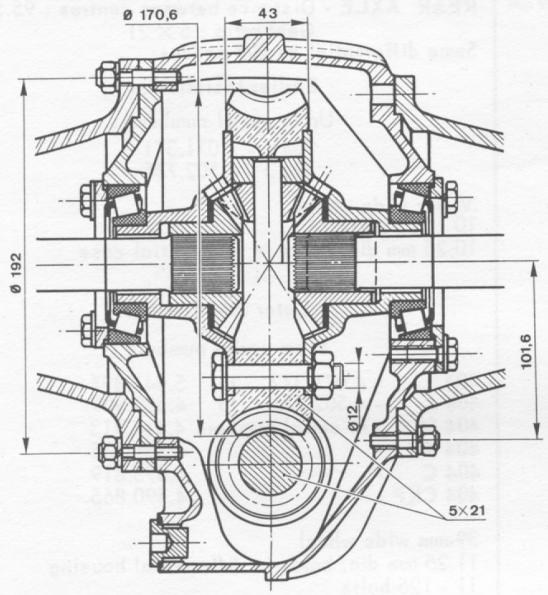
As from serial numbers

404	- 5.045.498
404 J	- 4.529.910
404 SL	- 4.414.914
404 C	- 4.495.820
404 KF	- from 4.551.336 to 4.569.999
404 CKF	- from 4.590.866 to 4.593.999
404 D	- from 4.600.001 to 4.605.178

Same differential as 403 sedans
11.25mm dia. holes in differential housing
11- 125 bolts

INTERCHANGEABILITY

Rear axle housing assemblies with greater distance between centres (101.6 mm) may be used to replace housing assemblies with 95.25 mm between centres, provided torque tube and rear axle right tube are also replaced.



Adjustment : Base : 8.0505 K
Fingers : Q
Oil capacity : 1.8 quart

REAR AXLE - Distance between centres : 101.6 mm
Gear ratio : 5 × 21

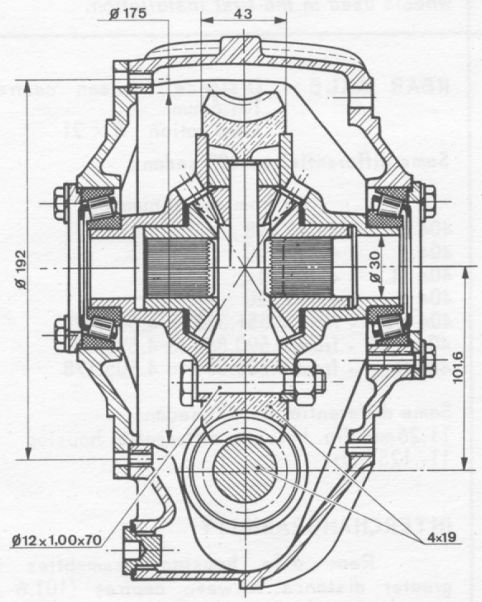
With differential as used on utility cars.

As from serial numbers :

404 KF - 4.570.001
404 CKF - 4.594.001
404 D - 4.605.179
404 LD - (XD 88 engine) - 4.980.001

Wider whell : 43 mm instead of 39 mm
Ribbed housing *
Unstaked 12 - 100 bolts
Larger dia. rear axle shafts are used on 404 KF-CKF & 404 D saloon cars.

NOTE. - *Introducing the 5 × 21 gear ratio on Diesel-engined 404 family cars (XD 88 engine) required increasing the length of the propeller shaft by 8 mm (see page 50, class 4).*



ADJUSTMENT : Base : 8.0505 K
Fingers : Q
Oil capacity : 1.9 quart

REAR AXLE - Distance between centres : 101.6mm
Gear ratio : 4 × 19

Same differential as used on utility cars.

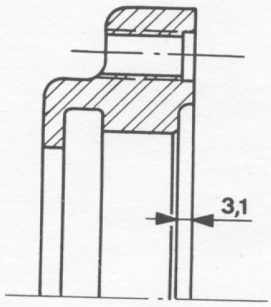
404 LD (XD 85 engine) - Up to serial number 4.979.999
404 L
404 U6 From beginning of series
404 U6D

43-mm wide wheel
12 - 100 bolts
Gear ratio : 4 × 19, with matched worm wheel and screw.

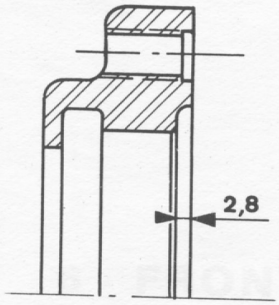
* Rear axle ribbed housing P/N 3003.33 may be used with all types of rear axles where distance between centres is 101.6 mm.

BALL BEARING RETAINER

Earlier installation



Later installation



Earlier installation		Later installation	
Description	**P/N**	**Description**	**P/N**
Bearing retainer 404, 404 C, 404 S.W. cars	3340.08	Bearing retainer 404, 404 C, 404 S.W. cars	3340.19
404 associated vehicles	3340.13	404 associated vehicles	3340.20

BRAKE PLATE-TO-REAR AXLE TUBE ATTACHMENT

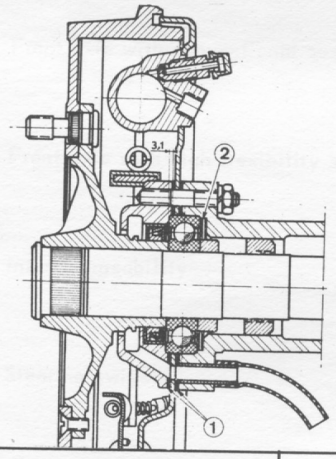
As from serial numbers :

404	- 4.445.196	**404 L**	- 4.843.345
404 J	- 4.528.632	**404 LD**	- 4.977.753
404 KF	- 4.559.575	**404 U6**	- 4.727.289
404 C	- 4.497.247	**404 U6D**	- 4.905.873
404 CKF	- 4.592.454	**404 U6A**	- 1.921.875
404 D	- 4.600.484		

0.15 mm thick paper gaskets are installed on either side of each rear wheel brake plate.

Modification of bearing retainer :

Bearing recess depth has been decreased by 0.3 mm.



Description	P/N
1 - Paper gasket - 404 - 404 C - 404 S.W. cars	4222.06
404 associated vehicles	4222.07
2 - Adjusting shim - 404 - 404 C - 404 S.W. cars	3337.01
404 associated vehicles	3337.03

INTERCHANGEABILITY

1 - Later installation bearing retainers may be installed on cars built prior to the above modification, provided a paper gasket is installed on either side of the rear wheel brake plate.

2 - Rear brake plate gaskets 1 may be installed on cars built prior to the above modification provided two 0.15 mm thick adjusting shims 2 are mounted inside the rear axle tube, against the bearing face.