

## Service News

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Fiat Auto S.p.A

### Fiat Stilo

all versions

44

01.06

**4420 1 391 MA REAR AXLE**  
**Noisy - Service Solution**



#### FAULT COMPLAINED OF

Knocking type noise coming from the rear of the vehicle.

#### TECHNICAL CAUSE

Leak of oily fluid (glycol) from the rear axle bushes.

#### OPERATIONS IN PRODUCTION

New improved bushes adopted.

#### IMPLEMENTATION OF MODIFICATION

Version	Factory	Line	Chassis No.	Organization No.
all versions in question	Cassino	-	590962	584947

#### OPERATIONS IN NETWORK

#### NETWORK BEHAVIOUR STANDARDS TOWARDS THE CUSTOMER

- If the fault is reported, reassure the customer that the problem can be analyzed and solved by replacing the rear axle bushes.
- After the operation show the Customer what has been done and carry out a test to make sure they are satisfied.

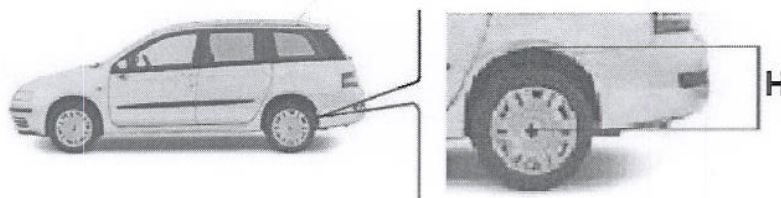
#### SERVICE SOLUTION

If this problem is reported, check that the knocking is due to the above mentioned Technical Cause, then replace the rear axle bushes as described in the Operating Cycle below.

#### OPERATION CYCLE

Measure and make a note of the distance between the centre of the wheel and the wheel arch (H - Fig. 1) with the vehicle on the ground and NOT on a lift.

Fig. 1



Raise the vehicle using an arm lift (with the wheels suspended) and check the following for the rear axle bushes: if there is oil on the sides of the bushes and/or on the axle seal (Fig. 2), replace the bushes as described below.


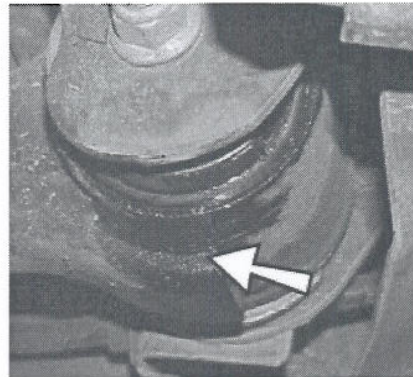

 if the bushes were already replaced previously (which can be determined from the presence of a white paint mark on the bush seal - housing), then the rear axle assembly must be replaced.

Fig. 2




 The presence of oil (Fig. 2) is due to the bush being broken; therefore the unctious fluid (glycol), contained inside the bush, can run along the axle and drip. The presence in the same area, however, of noise-prevention grease, which, unlike glycol is more dense, is considered normal.

If there are doubts, to check whether the greasy fluid in the area of the bush is glycol, simply smear some of the liquid on a sheet of (amber) recycled paper.

If the liquid stain spreads over the sheet after a few seconds (absorbed by the paper), then the bush is cracked and the glycol has escaped; both bushes therefore have to be replaced following the cycle described below.

- Remove the rear wheels (on both sides) and remove the rear axle following the instructions in the Service Manual (Op. 4420D16);
- Proceed with replacing the bushes following the instructions given below.

 **Before proceeding with the operations of removing and refitting the bushes, the special equipment described below must be ready. If one of these tools is not available, do not proceed with the operations described below under any circumstances, but seek assistance from the reference dealership. The Claim procedures are described at the end of the Service News.**

#### EQUIPMENT REQUIRED FOR IMPLEMENTING THE SERVICE SOLUTION

- Service Kit - FIAT tool n° 2.000.011.200 (Fig. 3) composed of:

A - Set of jaws

B - Base plate with drawbars

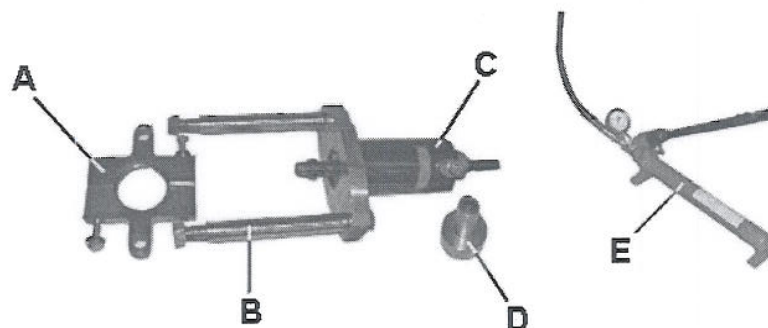
C - Hydraulic removal cylinder

D - Removal bush


E - Hydraulic pump

- Reaction extractor (e.g. USAG 372A/4 type)
- Fork extractor (e.g. USAG 354N/3 type)
- Plate for removal - Fiat tool n° 2.000.000.500 (1c - Fig. 10)
- Plate with pins for removal - Fiat tool n° 2.000.000.400 (1 - Fig. 19)

Fig. 3

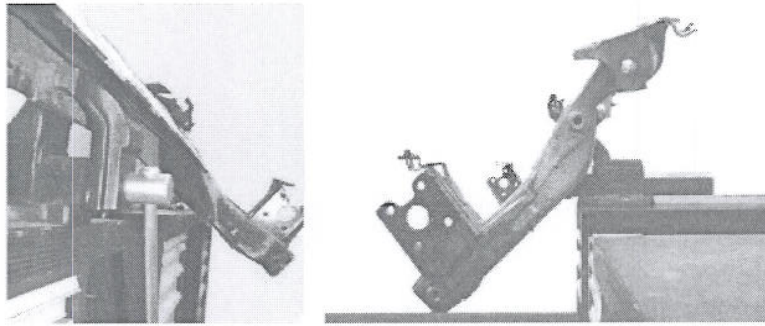


#### REMOVING

 **If a hydraulic bush is being replaced, the seat of the bush replaced must be marked clearly and permanently with indelible white paint on the outer part of the axle seal and the seat of the replaced bush because it is ABSOLUTELY PROHIBITED to carry out the operation more than once on the same axle.**

- Place the axle in a vice (fig. 4) positioning some teflon or rubber between the jaws and the axle.

Fig. 4

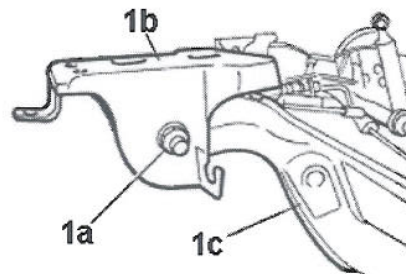


**There are some structural welding seams in the area where the operations are being carried out which could make the positioning of the tools difficult; NOT DO ALTER OR REPAIR THESE WELDS.**

**The axle is painted to be resistant to the corrosive action of rust and oxides; take care when replacing the bush not to scratch this paint.**

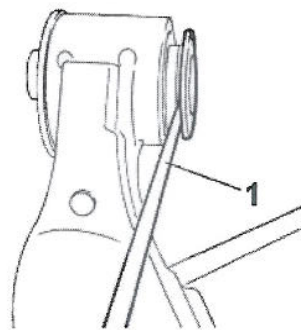
- Undo the fixing bolt (1a - Fig. 5) on both sides and separate the left and right brackets (1b) from the rear axle (1c).

Fig. 5



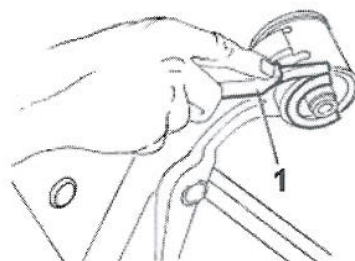
- With the help of a large, flat screwdriver (1 - Fig. 6) and using leverage at the rubber buffers, remove the outer bevel from the spacer.

Fig. 6



- Cut the outer lip of the bushes at the base using a special cutter (1 - Fig. 7).

Fig. 7



- Fit the extractor (1 - Fig. 9) on the free part of the seal between the bush end of travel fitting position and the welding in order to remove it in the direction shown in Fig. 8.

Fig. 8 - Bush removal



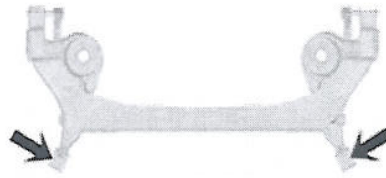
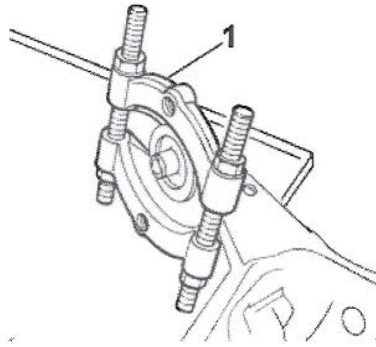


Fig. 9



- Fit the extractor (1a - Fig. 10) matching it with the extractor (1b - Fig. 10) and use the tool (for removal) no. 2.000.000.5000 (1c - Fig. 10) as a reference between the bush and the extractor.
- Tighten the bolt in order to partly remove the rubber part of the bush from its outer metal housing.


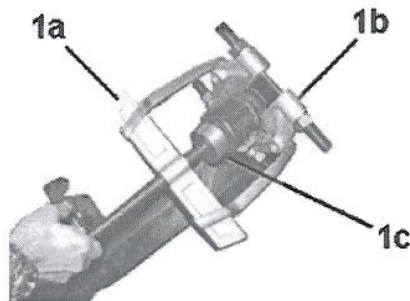
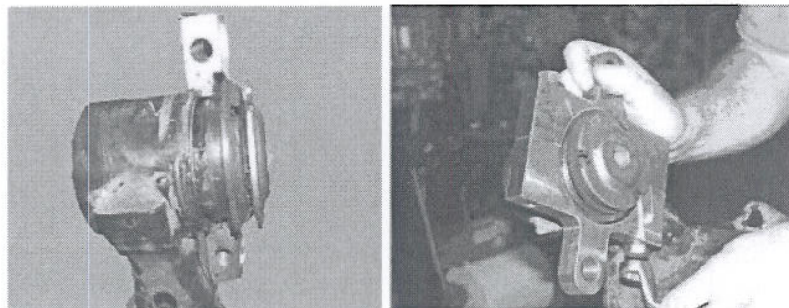
 Some oily substances may escape during the removal described above. Great care must be taken during the removal of the bush to ensure that the extractor is working on the same axis as the actual bush to prevent sticking which would make this operation impossible.

Fig. 10



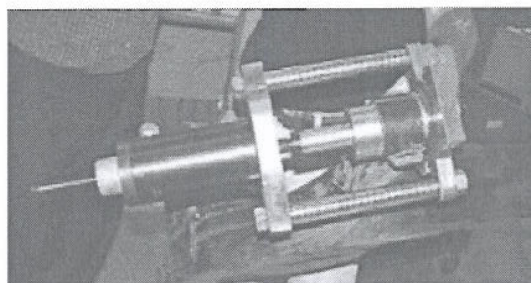
- Remove the tools.
- Fit the set of jaws (A - Fig. 3) between the partly removed bush and the seat on the axle as illustrated in figure 11.

Fig. 11



- Position the base plate and drawbars (B - Fig. 3) and the hydraulic actuator on the set of jaws (A - Fig. 3), placing the removal bush (D - Fig. 3) in between as illustrated in Fig. 12.

Fig. 12




- Connect the pipe for the hydraulic pump (E - Fig. 3) to the hydraulic actuator
- Operate the hydraulic pump and remove the flexible bush (Fig. 13).

Fig. 13

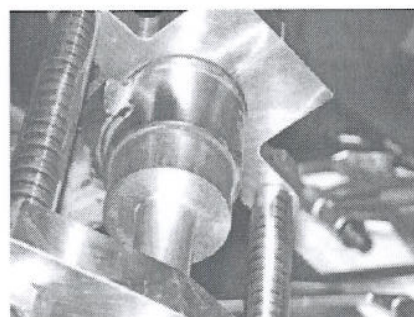


Great care must be taken during the removal of the bush to ensure that the extractor is working on the same axis as the actual bush (Fig. 14) to prevent sticking which would make this operation impossible.

 It is also advisable to keep an eye on the pressure on the manual pump gauge to make sure that the operation is proceeding correctly. If there is an excessive increase in pressure, check that the extractor is correctly aligned with the bush or check that the hydraulic actuator is not in the end of travel position.

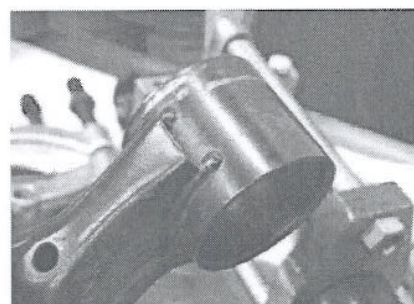
Since the travel of the hydraulic actuator is less than the length of the bush it is necessary, when the maximum actuator travel is reached, to retract the piston and tighten the threaded stem for the complete removal.

Fig. 14



- Clean the seat of the bush (Fig. 15) on the axle.

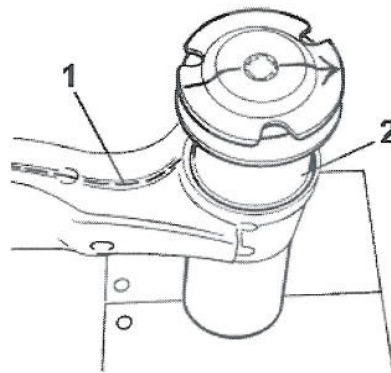
Fig. 15



## REFITTING

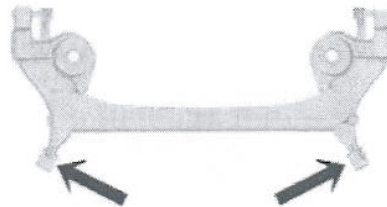
- Before fitting, position the new bush (2 - Fig. 16) as illustrated in the diagram: the arrow on the bush should be pointing in the direction of travel of the vehicle and be aligned with the weld seam (1 - Fig. 16).

Fig. 16



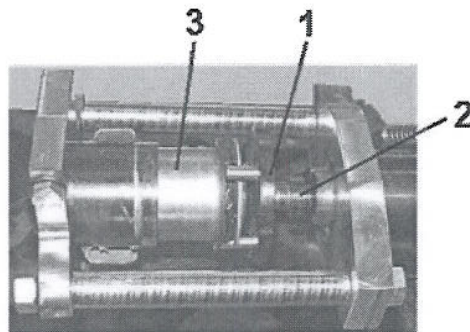
Since the fitting direction (Fig. 17) of the bush should be from the inside towards the outside of the vehicle, the extractor must be rotated 180° in relation to the axle.

**Fig. 17 - Bush fitting**



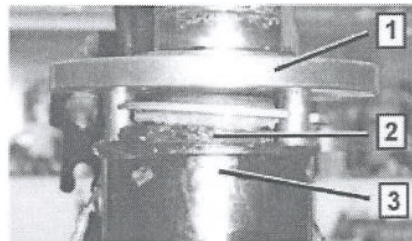
- Place FIAT tool no. 2.000.000.400 (1 - Fig. 18 and 1 - Fig. 19) between the hydraulic cylinder rod (2 - Fig. 18) and the bush so that the three spacers fit perfectly in the three slots on the bush washer (3 - Fig. 18).

**Fig. 18**



The minimum fitting load should not be less than 1500 KG.  
The application of the fitting load **SHOULD NEVER BE MADE** on the bush thrust washer.  
The fitting operation is over when the rubber stop for the bush (2 - Fig. 19) is in contact with the seal (3 - Fig. 19).

**Fig. 19**

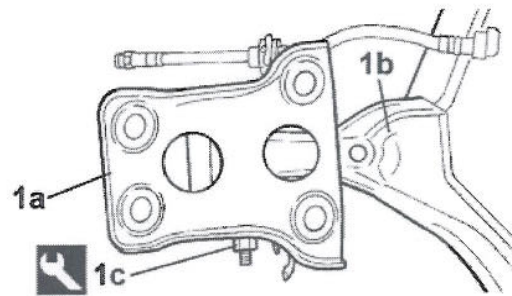


The protective paint may be damaged where the tools and the axle seal have made contact therefore the damaged areas must be renewed by applying special anti-rust protective paint.

- Place the fixing bracket (1a - Fig. 20) in position on the rear axle (1b - fig. 20) and screw in the bolt (1c - Fig. 20) without tightening it.

**Fig. 20**

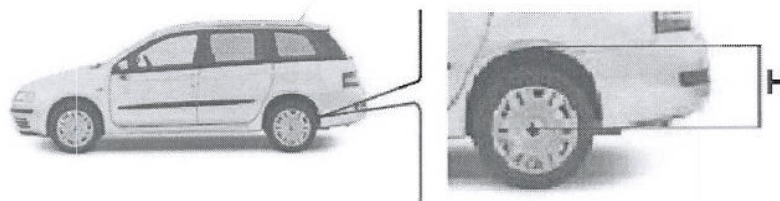




- Fit the axle on the vehicle tightening the four bolts securing the axle bracket to the floor of the vehicle.
- Position a hydraulic stand under one of the axle wheels in order to produce the distance (H - Fig. 21) measured at the start of the procedure and tighten the fixing bolt between the bush and the bracket (1c - Fig. 20) to the recommended torque of 12.5 daNm.
- Repeat this operation on the second wheel.

**⚠ In order to prevent damage to the bushes, do not tighten the fixing bolts between the bush and the bracket (1c - Fig. 20) with the axle completely released without having raised the wheels until distance H is produced.**

Fig. 21



#### IDENTIFICATION THAT REPAIR HAS TAKEN PLACE

White paint mark on the outer part of the axle seal (bush seat).

#### AVAILABILITY OF PARTS

Version	Description	Part No.	Qty.
all versions in question	Bush	50706505	2

#### CLAIM REPORT DATA

Version	Operation	Piece	Fault	Position	Time allowance
all versions in question	4420139 (*)	1	MA	-	3.60 (*)
all versions in question	4420140 (**)	1	MA	-	2.75 (**)
all versions in question	4420135 (***)	1	MA	-	2.25 (***)
all versions in question	4420141 (****)	1	MA	-	1.65 (****)

(\*) Operation of removing-refitting the axle plus replacing the bushes.

(\*\*) Operation of removing-refitting the axle plus taking the axle to the reference dealership for replacement of the bushes.

(\*\*\*) Operation of replacing the axle only (if the bushes were already replaced previously)

(\*\*\*\*) Operation of replacing the bushes only with the axle already removed.

Workshops that do not have the special equipment for carrying out the entire operation available should detach the rear axle and take it to the reference dealership which does have the special equipment. In this case, both the workshop and the dealership should send a claim form.



First the operation of removing and refitting the axle plus taking it to the dealership will be acknowledged (Op.4420140 - 2.75 hours). Then the operation of replacing the bushes will be acknowledged (Op.4430141 - 1.65 hours).