

# Engine Lubrication

Job No.
18-5

## A. General

On Models 180 a, 180 b, 190 SL, 220 a, 219, 220 S, and 220 SE engine lubrication is of the pressure-circulating type and the oil circulation system is the same as in Model 190.

## B. Repair of Oil Pump

The 1<sup>st</sup> version oil pump on Models 180 a and 190 SL is the same as on Model 190 (Fig. 18-5/1). The 2<sup>nd</sup> version pump differs only in a modified suction strainer for improved suction which today is installed in Models 180 a, 180 b, and 190 SL as a standard part (on Model 180 b it has been installed in all cars). When repairs are carried out, the new suction strainer can be subsequently installed in the 1<sup>st</sup> version oil pump.

The 1<sup>st</sup> version oil pump on Models 220 a, 219, 220 S, and 220 SE has a grey-cast iron housing base which differs from the oil pumps of the 4-cylinder engines; the oil pump shafts are carried directly in the housing base without bushings (Fig. 18-5/2). In addition the suction strainer together with the suction pipe is screwed into the housing base.

The 2<sup>nd</sup> version pump on Models 219, 220 S, and 220 SE is of the same construction as the oil pump for the 4-cylinder engines.

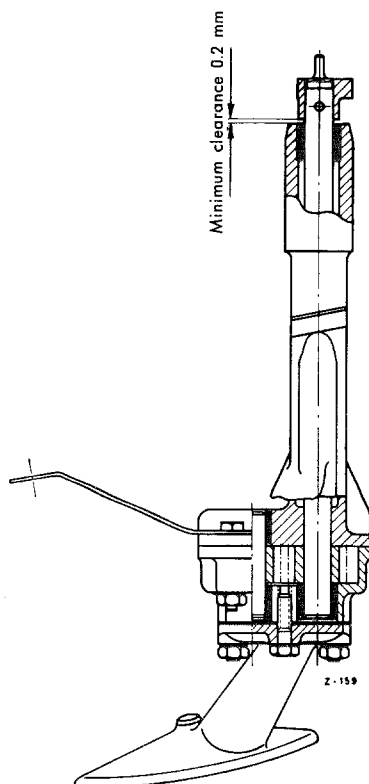


Fig. 18-5/1

Models 180 a and 190 SL 1<sup>st</sup> version  
2<sup>nd</sup> version the same as 1<sup>st</sup> version,  
but with suction strainer as shown in  
Fig. 18-5/3  
Model 180 b only with 2<sup>nd</sup> version

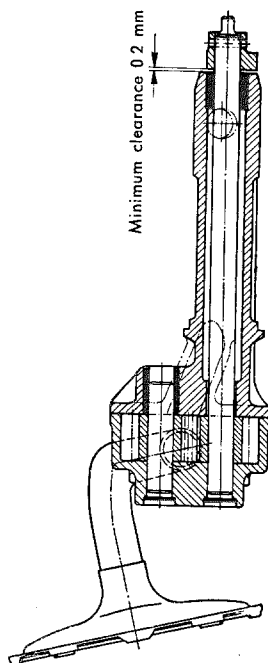


Fig. 18-5/2

Models 220 a, 219, 220 S,  
and 220 SE  
1<sup>st</sup> version

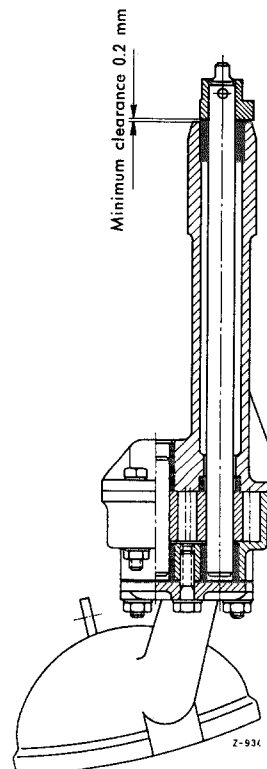


Fig. 18-5/3

Models 219, 220 S,  
and 220 SE  
2<sup>nd</sup> version

**Note:** Model 220 SE has an electrically driven fuel feed pump so that the drive cam on the oil pump shaft is not required.

The repair procedures for the oil pump are practically the same as in the case of Model 190. The diameter of the drive shaft and the oil pump shaft, the bores in the housing top and base, the radial play, end play, and backlash of the gears are identical in all types of pump.

If the bearing bushing in the housing top has to be replaced, make sure that the new bushing is pressed in with the correct oversize. To do this measure the base bore and select a bearing bushing with a suitable outside diameter. If the minimum oversize of 0.014 mm is not obtained, the housing top should be replaced.

#### Assembly Data for Upper Bearing Bushing

Base bore in housing	$\frac{19.000}{19.021}$
Outside diameter of bearing bushing	$\frac{19.048}{19.035}$
Oversize of bearing bushing in housing	$\frac{0.014}{0.048}$

There is a difference in the capacity of the oil pumps of the 4-cylinder and the 6-cylinder engines. The details are listed in the table below.

#### Delivery

Model	Engine speed r.p.m.	Delivery kg/min.	Vacuum suction side mm Hg	Pressure delivery side atm.	Oil temperature °C	Type of oil
180 a, 180 b, 190, 190 b, 190 SL	5000	24.5	400	5	100°	Engine oil SAE 10
220 a, 219, 220 S, 220 SE	5000	33	400	5	100°	Engine oil SAE 10

An oil pump is still serviceable if the minimum delivery is 80% of the specified delivery. Pumps with a lower delivery must under all circumstances be replaced or repaired.