

List of Modifications on Engines Types 220 and 220a

The following is a short compilation of the most important modifications made on the engines of Type 220 and Type 220a. Take these alterations into regard when assembling an engine.

Engine M 180 I for Type 220

In the place of the cast iron cylinder head a light metal cylinder head having the same compression ratio ($\varepsilon = 6.5$) may be installed.

If this is done, the valve spring supporting ring must also be exchanged. The outer diameter of the ring is 29.5 mm (1.16") for a light metal cylinder head and 22.4 mm (0.88") for a cast iron head. (See also Operation No. M 3, cf. 59 Note).

Furthermore pistons with extended skirt, which are standard on the engine for Type 220a, may be subsequently installed into the engines for Type 220 and Convertible A of Type 220.

Engine M 180 I for Type 220, Convertible A

In the case of a repair on the Convertible A a light metal cylinder head with higher compression ratio ($\varepsilon = 7.6$) will be supplied as a replacement part, even if before a cast iron head with compression ratio 6.5:1 had been installed.

When installing a light metal cylinder head with compression ratio 7.6:1 in the place of a cast iron cylinder head with compression ratio 6.5:1, exchange the valve spring supporting ring and replace idle jet g 52.5 in the carburetor with a jet g 50.

When mounting the cylinder head, be sure to install the correct cylinder head gasket. In the case of the gasket for a high-compression cylinder head the cut-out for the compression area is smaller (see also Operation No. M 20, cf. 8a).

The high-compression cylinder head ($\varepsilon = 7.6$), the camshaft with modified valve settings and the pistons with extended skirts from Type 220a are standard on the engine for Convertible A.

Engine M 180 II for Type 220a

Below are listed the modified parts for the engine of Type 220a.

1. Piston: Extended piston skirt
2. Suction pipe for oil pump: Shape and length have been altered
3. Front part of oil pan: Shape has been altered
4. Front counterweight: Shape has been altered
5. Flywheel: Profile has been altered, graduation is now at bottom of flywheel
6. Intermediate plate: Holes for fastening screws are now countersunk
7. Cylinder head: Light metal head with a compression ratio of 7.6:1
8. Cylinder head gasket: Altered for compression ratio 7.6:1
(cut-out for compression area is smaller)
9. Camshaft: Valve settings have been altered, rear end of camshaft bears the number 14

10. Spring supporting ring: Outer diameter is larger (29.5 mm = 1.16")
11. Rocker arm and safety: Shaft is shorter and not provided with a recess for snap rings. The rocker arms are secured by means of a plain yoke fastened to the rocker arm bracket
12. Cylinder head vent: Vent pipe in cylinder head cover is new
13. Oil filter: Two consecutive filter elements with two oil relief valves
14. Oil dip stick and guide tube: Both are longer
15. Intake and exhaust manifolds: Both have been altered
16. Carburetor: Solex dual downdraft carburetor 32 PAATI
17. Fuel pump: Intermediate flange is provided with sealing ring for push rod (formerly no sealing ring had been provided)
18. Water pump: Bearing housing is larger, pulley has been altered
19. Pulleys: Shaped to take pointed V-belts
20. Starter: 12 volts – EED 0,8/12 R 25
21. Generator: 12 volts – LJ/GEG 160/12 – 2600 R 2
22. Generator mounting: Belt tensioner with M 8 threads, formerly M 10
23. Distributor: VJU 6 BR 24
24. Distributor support: Rubber sleeve for octane value compensator control cable is new, adjustment screw and nut at distributor support are provided with thread M 10 \times 1, formerly M 6
25. Heater connection: Has been altered
26. Front engine suspension: Has been altered
27. Intake silencer: Has been altered