

# Disassembly and Reassembly of Carburetor

Type 220 S

Job No.

M 33 S

## Disassembly:

1. After removing the carburetor cover together with gasket, unscrew the float needle valve, together with gasket.  
Then remove the cover of the starter air valve, after loosening the 3 fixing screws, and take out the spring together with the diaphragm.
2. Take out the plastic float (2) together with the anchor and unscrew the injection tube (5), together with gasket (Fig. M 33 S/1).
3. Unscrew the air correction jet (9) and the mixing tube of Stage 1 and also the air correction jet (10) and the mixing tube of Stage 2 (Fig. M 33 S/1).

**Note:** The air correction jet and the mixing tube of Stage 2 are made in one piece.

4. Unscrew the idle air jet (6) of Stage 1 and the grub screw (13), which is installed instead of the idle air jet of Stage 2 (see Fig. M 33 S/1).

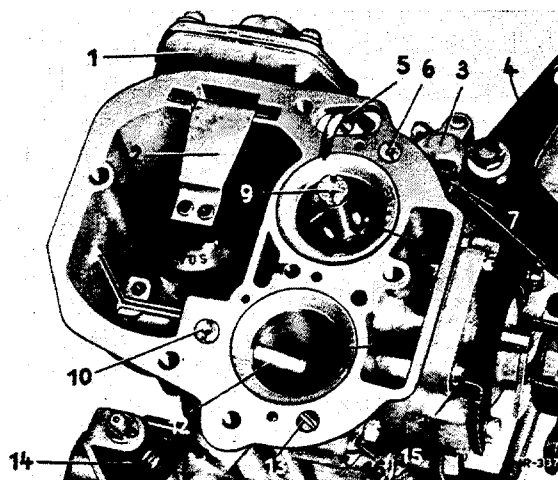


Fig. M 33 S/1

- |                                  |                                                   |
|----------------------------------|---------------------------------------------------|
| 1 Accelerating pump              | 10 Air correction jet with mixing tube of Stage 2 |
| 2 Plastic float                  | 11 Air horn of Stage 2                            |
| 3 Starter air valve              | 12 Mixture discharge tube of Stage 2              |
| 4 Relay lever to start mechanism | 13 Grub screw                                     |
| 5 Injection tube                 | 14 Oil shock-absorber                             |
| 6 Idle air jet                   | 15 Retaining screw of air horn                    |
| 7 Idle fuel jet                  | 16 Grub screw                                     |
| 8 Air horn of Stage 1            | 17 Bowden cable bracket                           |
| 9 Air correction jet of Stage 1  |                                                   |

**Note:** Use only a good screwdriver for unscrewing the jets; if necessary, grind the screwdriver.

5. Unscrew the fixing screws (4) of the Bowden cable bracket at the starter mechanism and also the hexagon nut by which the relay lever (1) is fixed. Then remove the linkage assembly for the start mechanism (Fig. M 33 S/2).

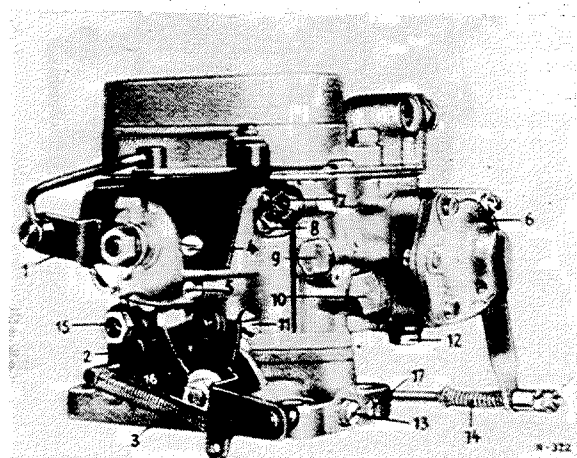


Fig. M 33 S/2

- |                                                |                                           |
|------------------------------------------------|-------------------------------------------|
| 1 Relay lever for operation of start mechanism | 9 Pump jet                                |
| 2 Linkage                                      | 10 Main jet plug with main jet of Stage 1 |
| 3 Return spring                                | 11 Idle adjustment screw                  |
| 4 Fixing screw for relay lever                 | 12 Ball valve with screen                 |
| 5 Fixing screw for start mechanism             | 13 Idle mixture adjustment screw          |
| 6 Accelerating pump                            | 14 Connecting rod to accelerating pump    |
| 7 Idle fuel jet of Stage 1                     | 15 and 16 Fixing nuts for linkage         |
| 8 Retaining screw for air horn of Stage 1      | 17 Union for vacuum ignition control      |

6. Loosen the fixing screws of the start mechanism and remove the start mechanism.
7. Unscrew the main jet plug with main jet of Stage 1 (10), the pump jet (9), the idle fuel jet of Stage 1 (7) and the grub screw which is installed instead of the idle fuel jet of Stage 2 (Fig. M 33 S/2).

8. Unscrew the main jet (6) of Stage 2 and the starter fuel jet (2) (Fig. M 33 S/3).

**Note:** Before removing the main jet of Stage 2, the fixing screw (8) of the oil shock-absorber

M 33 S/1

(7) must first be loosened since otherwise the rubber bellows (5) of the shock-absorber might be damaged.

9. Unscrew the hexagon nut with which the lever of the counterweight is fixed to the vacuum valve. Then remove the lever, together with counterweight and oil shock-absorber. If necessary, remove the cotter pin with which the oil shock-absorber is fixed to the lever of the counterweight, and take off the oil shock-absorber. (Be careful not to lose the two washers). (Fig. M 33 S/3).

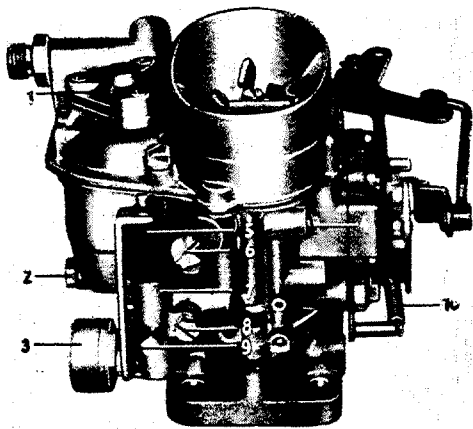


Fig. M 33 S/3

- 1 Starter air valve
- 2 Starter fuel jet
- 3 Counterweight of vacuum valve
- 4 Grub screw
- 5 Bellows of oil shock-absorber
- 6 Main jet of Stage 2
- 7 Oil shock-absorber
- 8 Fixing screw of oil shock-absorber
- 9 Screw plug for open end of oil shock-absorber
- 10 Return spring for linkage

10. Unscrew the two nuts at the connecting rod and the 4 fixing screws with which the accelerating pump is fixed to the carburetor housing and then remove the accelerating pump. If necessary, disassemble accelerating pump. Unscrew ball valve with screen.
11. Unscrew the two hexagon nuts (15) and (16) with which the linkage is fixed. Then take off the linkage, together with washers, spacer sleeve and cam plate (see Fig. M 33 S/2).
12. After unscrewing the retaining screws (1) and (2), take out air horns of Stages 1 and 2 (see Fig. M 33 S/4).

13. Unscrew the 4 fixing screws with which the lower section of the carburetor (grey cast iron flange) is fixed to the carburetor and remove the lower section of the carburetor.
14. If necessary, unscrew the fixing screws of the throttle valves and pull out the throttle valves. Then pull out the throttle valve shafts.

**Note:** Use only a good screwdriver for loosening the fixing screws. The throttle valves should only be removed if their shafts are worn or bent.

15. Unscrew the idle mixture adjustment screw (13) and the union (17) for the vacuum pipe leading to the distributor (see Fig. M 33 S/2).

**Note:** In Fig. M 33 S/2 the union (17) is shown closed by a grub screw.

### Checking:

**Note:** For cleaning the parts of the carburetor, methylated spirits is particularly useful as it dissolves any residue. After cleaning, the parts should be rinsed in unused cleansing fluid, blown out with compressed air and dried. Do not use cotton waste. When rinsing and blowing out, care must be taken to ensure that every particle of dirt or residue is removed. Jets and bores must on no account be cleaned with wire or needles as otherwise the apertures will be enlarged.

16. Thoroughly clean and check all parts. Replace damaged or worn parts.
17. Replace float needle valve if damaged.

**Note:** To test the float needle valve for leakage, connect the valve up to a compressed air line with the aid of a threaded fitting. The closed valve must not leak at a pressure of as much as 1.5 atmospheres. Make the leakage test in a gasoline-filled container. In an emergency, the test can be carried out without pressure. To do this, connect a short hose line to the union of the carburetor cover and fill it with gasoline. The gasoline must remain in the hose.

18. Replace float needle valve gaskets if faulty.
19. Replace float if leaking or dented.
20. Check that the mixing tube holder is firmly seated in the float chamber.

**Note:** If necessary, the mixing tube holder can be tinned at the fitting surface and pressed in again.

21. Re-condition starter rotary slide valve and back plate individually (strictly necessary if the sliding surfaces show signs of wear or dark patches). Use straightening-plate and grade **100-grain** emery cloth.
22. Examine throttle housing closely for flaws.
23. Examine float chamber for flaws.
24. Examine all flange surfaces including the insulation flange and if necessary, true up or replace insulation flange.
25. Check bores of throttle shafts. If the bores are worn, replace throttle housing or float chamber. Do not attempt to repair. Carefully grind throttle shafts if they bind.
26. Examine check valves in the diaphragm pump and check injection tube.
27. Examine diaphragms of starter air valve and diaphragm pump.

#### Reassembly:

Special attention should be paid to the following points when reassembling.

28. Lightly coat the gasket with oil.  
Fit the insulation flange with sealing compound.

**Note:** Apply sealing compound very thinly.

**Caution:** Care should be taken to ensure that none of the bores in the insulation flange, in the carburetor housing and in the throttle housing are stopped with sealing compound when the parts are pressed together.

29. The air horns should be seated firmly but not tightly in the carburetor; they are kept in position by the retaining screws.

30. Fit the start mechanism with rotary slide valve into the lower part of the starter so that the fuel chamber (19) is at the top (Fig. M 33 S/4).

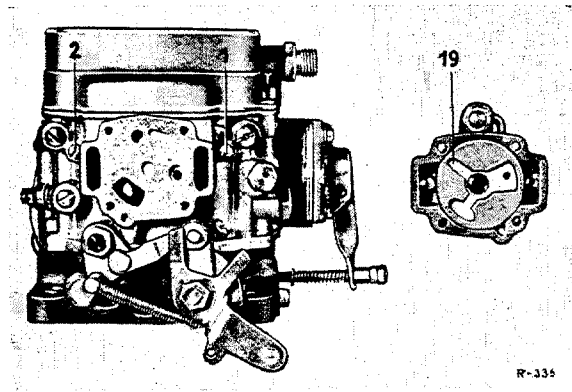


Fig. M 33 S/4

- 1 Retaining screw for air horn of Stage 1
- 2 Retaining screw for air horn of Stage 2
- 19 Fuel chamber (see also Fig. M 31 S/07)

**Note:** The starter rotary slide valve must not be distorted when fitting since otherwise the start mechanism will not operate. Check all levers and throttle valves for ease of movement.

Check carburetor for leaks.

31. Check the insulation flange between the carburetor and the grey cast iron flange for leakage.  
To do this, screw the idle mixture adjustment screw in completely as far as it will go and wet the joint at the insulation flange with gasoline.  
Then blow compressed air into the idle air jet (take off carburetor cover for this operation). If the flange makes a perfect seal, no bubbles will form along it.
32. Before installing the carburetor in the vehicle, fill the oil shock-absorber with 1.2 ccs. SAE 10 W engine oil (see Servicing and Filling Instructions for Oil Shock-Absorber of Carburetor).

## Servicing and Filling Instructions for Oil Shock-Absorber of Carburetor

33. In order to fill the oil shock-absorber (1), remove the slotted-head screw on shock-absorber, together with sealing.
  34. Using a suitable oil can (2), inject SAE 10 W engine oil into the bore thus exposed until the oil runs out of the filler bore (Fig. M 33 S/5).
  35. Re-install the slotted-head screw or stop the bore with the finger.  
Now move the piston rod of the oil shock-absorber up and down until the air is removed from below the piston.
  36. Open the filler bore once more and again inject SAE 10 W engine oil until it overflows. The total capacity is approx. 1.2 ccs.
  37. Re-install the slotted-head screw with sealing ring.
- Note:** The cushion effect must now be noticeable almost down to the end of the stroke.
38. The oil level in the oil shock-absorber must be checked after 500 km and then every 16 000 km.

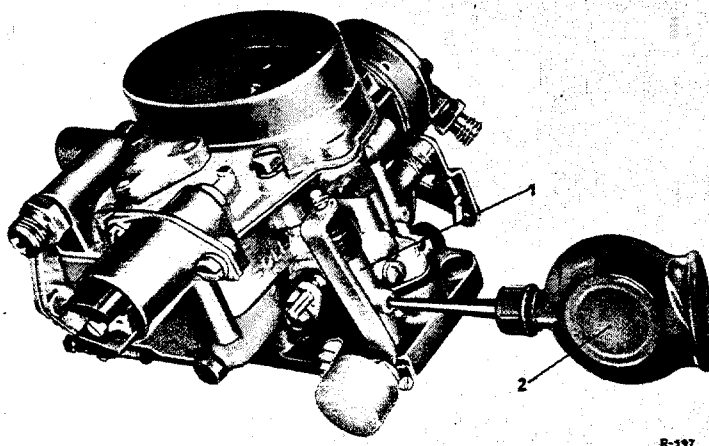


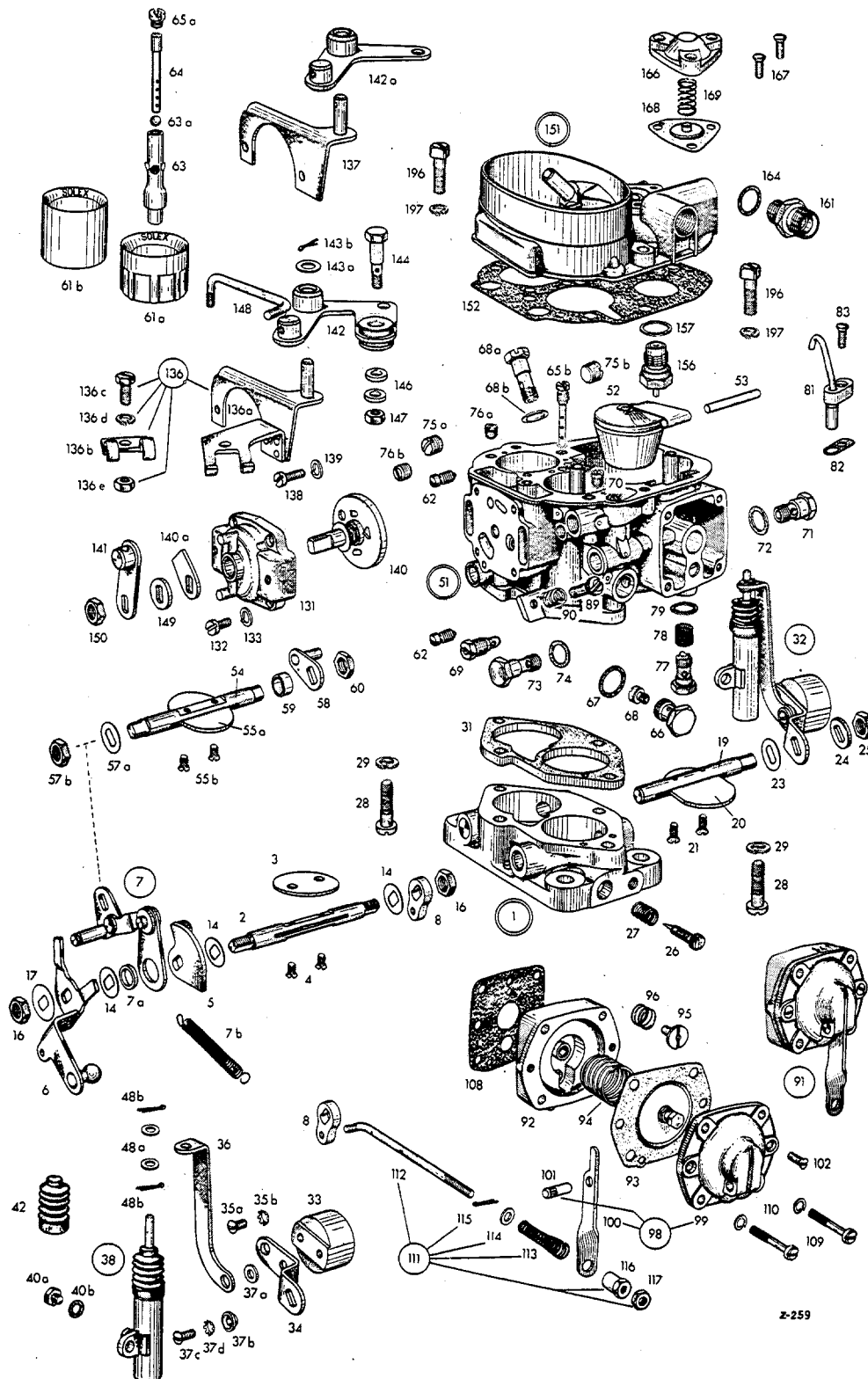
Fig. M 33 S/5

1 Oil shock-absorber      2 Oil can

## Technical Data for Compound Carburetor Type 32 PAITA

Designation	Stage 1	Stage 2
Air horn "K"	23	27
Main jet "Gg"	0125	0130
Air correction jet "a"	200	190 c (with mixing tube)
Mixing tube "s"	44	—
Mixing tube holder with polyamide ball valve	Res. 5.5	—
Idle fuel jet "g"	g 47.5	—
Idle air jet "u"	1.8	—
Idle air jet bore	1.5	—
Accelerating pump No. 841 Injection amount	1.2 — 1.4 ccs/stroke	—
Pump jet	80	—
Injection tube	high, 08 graded	—
Starter fuel jet "Gs"	100	—
Starter air jet bore in starter slide	3	—
Float needle valve	2.0	
Float weight	7.3 g Plastic float	
Fuel level	19 — 21 mm	
Angle of inclination of throttle valves	8°	17°
By-pass bores	2 × 1.5	—
Filling capacity of oil shock absorber Engine oil SAE 10 W	—	app. 1.2 ccs

# List of Component Parts of Compound Carburetor Type 32 PAITA



Z-259

- 1 Throttle butterfly section
- 2 Throttle valve shaft, Stage 1
- 3 Throttle valve, Stage 1
- 4 Oval head countersunk screw
- 5 Abutment (for throttle, Stage 1)
- 6 Throttle lever
- 7 Relay lever, rod and linkage lever
- 7a Spacer sleeve
- 7b Tension spring
- 8 Link lever (for mechanical pump)
- 14 Spacer washer (for throttle valve shaft, Stage 1: 1 washer between housing and abutment, 1 washer between housing and relay arm, 1 washer between spacer sleeve and throttle valve lever)
- 16 Hexagon nut (for throttle valve shaft, Stage 1)
- 17 Slotted washer (for hexagon nut on throttle lever)
- 19 Vacuum valve shaft
- 20 Vacuum valve
- 21 Oval head countersunk screw
- 23 Spacer washer (for vacuum valve shaft between housing and counterweight lever)
- 24 Washer (for vacuum valve shaft)
- 25 Hexagon nut (for vacuum valve shaft)
- 26 Idle mixture adjustment screw
- 27 Compression spring
- 28 Assembly screw (for fixing float chamber on to throttle butterfly section)
- 29 Lock washer
- 31 Insulation flange
- 32 Shock-absorber with counterweight
- 33 Counterweight
- 34 Lever
- 35a Oval head countersunk screw
- 35b Toothed washer
- 36 Relay arm
- 37a Washer
- 37b Bushing
- 37c Oval head countersunk screw
- 37d Toothed washer
- 38 Shock-absorber, complete
- 40a Hexagon screw
- 40b Sealing ring
- 42 Bellows
- 48a Washer
- 48b Split-pin
- 49a Hexagon screw (for shock-absorber)
- 49b Lock washer
- 51 Float chamber
- 52 Float
- 53 Shaft (for float)
- 54 Throttle valve shaft, Stage 2
- 55a Throttle valve, Stage 2
- 55b Oval head countersunk screw (for throttle valve, Stage 2)
- 57a Spacer washer
- 57b Hexagon nut
- 58 Stop lever (on throttle valve shaft, Stage 2, for counterweight lever)
- 59 Spacer sleeve (between float chamber and stop lever)
- 60 Hexagon nut, dished (for throttle valve shaft, Stage 2)
- 61a Air horn, Stage 1
- 61b Air horn, Stage 2
- 62 Retaining screw (for air horn)
- 63 Mixing tube holder
- 63a Polyamide ball (for mixing tube holder)
- 64 Mixing tube
- 65a Air correction jet
- 65b Air correction jet with mixing tube
- 66 Main jet plug, Stage 1
- 67 Sealing ring
- 68 Main jet, Stage 1
- 68a Main jet, Stage 2
- 68b Sealing ring
- 69 Idle fuel jet
- 70 Idle air jet
- 71 Starter fuel jet
- 72 Sealing ring
- 73 Pump jet
- 74 Sealing ring
- 75a Grub screw (in place of a second idle air jet)
- 75b Grub screw (below main jet, Stage 2)
- 76a Grub screw (in place of a second idle fuel jet)
- 76b Grub screw (left, next to starter)
- 77 Ball valve
- 78 Screen (for ball valve)
- 79 Sealing ring
- 81 Injection tube, "high"
- 82 Gasket
- 83 Oval head countersunk screw
- 89 Idle adjustment screw
- 90 Compression spring (for idle adjustment screw)
- 91 Diaphragm pump, complete, No. 841
- 92 Lower section
- 93 Diaphragm
- 94 Diaphragm spring
- 95 Plate valve (drilled)
- 96 Valve spring
- 98 Pump cover, complete (for diaphragm pump)
- 99 Cover
- 100 Pump arm
- 101 Shaft
- 102 Oval head countersunk screw
- 108 Gasket
- 109 Cheese-head screw
- 110 Lock washer
- 111 Connecting rod, complete (between pump arm and relay arm)
- 112 Connecting rod
- 113 Spring
- 114 Washer
- 115 Cotter pin
- 116 Shoulder nut
- 117 Hexagon nut
- 131 Starter body
- 132 Cheese-head screw
- 133 Lock washer
- 136 Bowden cable anchorage, complete
- 136a Bowden cable anchor plate
- 136b Clip
- 136c Hexagon nut
- 136d Lock washer
- 136e Hexagon nut
- 137 Bracket (Carburetor No. 2)
- 138 Cheese-head screw (for bowden cable anchor plate)
- 139 Lock washer
- 140 Starter rotary slide valve
- 141 Starter lever, complete
- 140a Stop lug
- 142 Relay lever
- 142a Angle relay lever (Carburetor No. 2)
- 143a Washer
- 143b Cotter pin
- 144 Clamping screw
- 146 Washer
- 147 Hexagon nut
- 148 Connecting rod (between starter lever and relay lever)
- 149 Washer
- 150 Hexagon nut
- 150a Slotted washer
- 151 Carburetor cover
- 152 Gasket
- 156 Float needle valve
- 157 Sealing ring
- 161 Threaded union
- 164 Sealing ring
- 166 Valve cover (for starter air valve)
- 167 Oval head countersunk screw
- 168 Diaphragm
- 169 Valve spring (for starter air valve)
- 196 Assembly screw
- 197 Lock washer (for assembly screw)