

B. Vibration Damper and Counterweight on the 6-Cylinder Models 220 b to 250 SL

On Models 220 b to 250 SL a rubber vibration damper (1) has been installed between counterweight (12) and vee-pulley (2); the body of the damper and the hub are rubber-vulcanised and have been balanced as a unit.

Removal:

1. If the vibration damper or the counterweight has to be removed with the engine in the vehicle first remove the radiator (see Job No. 50-1). Release the tension of the fan belts and remove them.
2. Unscrew the three hexagon screws (5) and

remove the vee-pulley (2) with the forced-on spacer ring (6) and the vibration damper (1) (Fig. 03-10/2).

3. Unscrew the stretch screw (4) with washer (3) from the crankshaft and pull the counterweight (12) off the crankshaft using Puller Part No. 112 589 07 33 00.

Note: See Section C for the proper procedures for fastening loose or sliding counterweights.

When the counterweight is damaged the crankshaft must be removed and must be rebalanced together with the new counterweight. Replacement of a damaged vibration damper is possible because the vibration damper is balanced independently of the crankshaft.

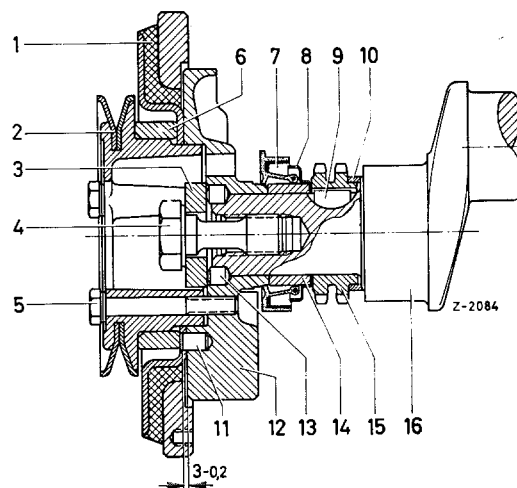


Fig. 03-10/2

- | | |
|------------------------------------|------------------------------|
| 1 Vibration damper | 9 Woodruff key |
| 2 Vee-pulley | 10 Compensating ring |
| 3 Washer | 11 Dowel pin 8h 8 × 12 DIN 7 |
| 4 Stretch screw or 3 plate springs | 12 Counterweight |
| 5 Hexagon screw | 13 Dowel pin 8 × 8 N 27 b |
| 6 Spacer ring | 14 Spacer ring |
| 7 Oil seal | 15 Crankshaft sprocket |
| 8 Oil thrower | 16 Crankshaft |

Installation:

4. Fit the counterweight (12) to the crankshaft in such a way that the two bores for the dowel pins are aligned. Then drive in the two dowel pins (13) (Fig. 03-10/2).

5. Screw the stretch screw (4) with washer (3) to the crankshaft.
For tightening torque of the stretch screw see Job No. 00-0.

6. Drive the dowel pin (11) into the counterweight (12) until it projects by no more than **3—0.2 mm**.
7. Fit the vibration damper (1) to the pulley (2) and fit them together to the counterweight (12). The dowel pin (11) on the counterweight should project into the bore in the vibration damper. When the vibration damper is properly seated

screw the vibration damper and the pulley to the counterweight by means of the three hexagon screws (5). For tightening torque of the hexagon screws see Job No. 00-0.

8. Fit the vee-belt and tension.
9. Install the radiator (see Job No. 50-1) and fill in the cooling water.

C. Refastening of Loose Counterweights on Crankshaft of Models 190 c to 250 SL

The procedures for fastening the counterweight on the crankshaft have been modified in a few details. The stretch screw is now installed together with 3 plate springs to increase initial tension. The force fit between crankshaft and counterweight was increased and the assembly procedure was modified so that the counterweight is installed on the crankshaft only once.

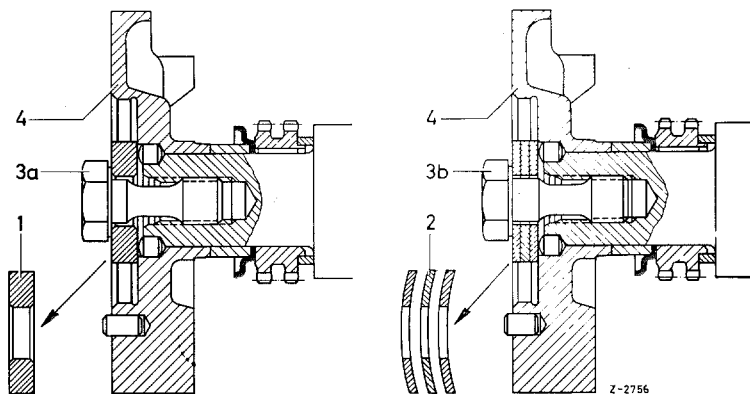


Fig. 03-10/3

- 1 Washer, previous version
- 2 3 plate springs, new version (127 993 00 26)
- 3a Stretch screw, previous version, length 53 mm
- 3b Stretch screw, new version, length 56 mm (127 031 00 71)
- 4 Counterweight

The following repair procedures have been evolved in order to make it possible to refasten a loose previous-version counterweight without having to replace the whole crankshaft; these procedures can be used provided that the play between crankshaft stub and counterweight hub does not exceed 0.16 mm.

1. Remove counterweight. To do this remove radiator, fan, vee-pulley and vibration damper, back out stretch screw and remove counterweight (see Sections A and B).
2. Clean front crankshaft stub and counterweight bore, use emery cloth if necessary. Measure crankshaft stub with a micrometer and counterweight bore with an internal micrometer and calculate the play.
3. Spray crankshaft stub with "Loctite Activator N" or with "Omnifit Activator" and wait until activator is completely dry (normally within 15—20 minutes, but check with instructions).
4. When activator has dried, select appropriate type of Loctite or Omnifit according to the play as determined above and apply a thin coat to both counterweight and crankshaft stub.

6. Drive the dowel pin (11) into the counterweight (12) until it projects by no more than **3—0.2 mm**.
7. Fit the vibration damper (1) to the pulley (2) and fit them together to the counterweight (12). The dowel pin (11) on the counterweight should project into the bore in the vibration damper. When the vibration damper is properly seated

screw the vibration damper and the pulley to the counterweight by means of the three hexagon screws (5). For tightening torque of the hexagon screws see Job No. 00-0.

8. Fit the vee-belt and tension.
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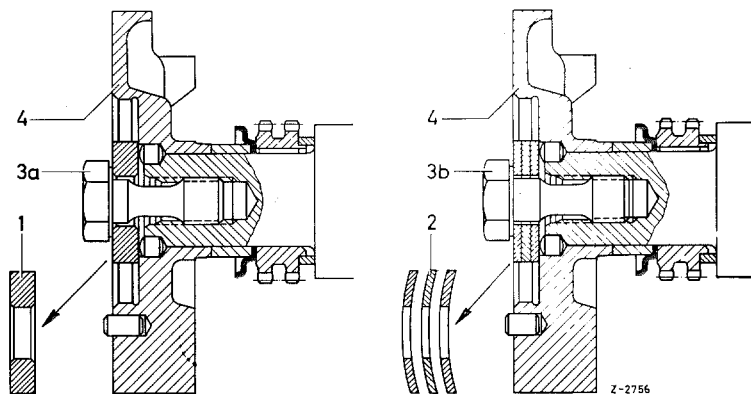


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3. Spray crankshaft stub with "Loctite Activator N" or with "Omnifit Activator" and wait until activator is completely dry (normally within 15—20 minutes, but check with instructions).
4. When activator has dried, select appropriate type of Loctite or Omnifit according to the play as determined above and apply a thin coat to both counterweight and crankshaft stub.

| Play | Loctite Type | Omnifit Type |
|-----------|---------------------|--------------|
| 0.00—0.06 | "Fügeteile" (green) | 250 (red) |
| 0.07—0.16 | AVX (red) | 250 (blue) |

5. Slide the counterweight on the crankshaft making sure that the half bores of the counterweight are aligned with those of the crankshaft. (The dowel pin bore for the vibration damper should be in the TDC position. The relative position of crankshaft and counterweight is marked.) Now insert a 6—8 mm long tube with an outer diameter of appr. 8 mm in one of the dowel pin bores to prevent the counterweight from turning when the stretch screw is being tightened.

6. Screw in a new 56 mm stretch screw together with three plate springs and tighten with a torque of 21 + 1 mkp.

7. **Leave the Loctite or Omnifit to harden for a minimum of 24 hours.**

Note: Loctite and Omnifit require this minimum period to reach the final hardness required.

8. Bore the two dowel pin bores to

10 ϕ -0.044 mm
 0.056 mm

using a three-lipped twist drill (DIN 343).

Never use a standard twist drill since this will produce neither accurate bores nor the required surface quality.

Note: Since the distance between counterweight and front cross-member is only 21 cm, it is advisable to use an angular drilling machine for the purpose.

9. Measure depth of bore and length of dowel pin. Shorten new dowel pin, if necessary; there must be a minimum clearance of 0.3 mm between driven-in pins and counterweight face.

10. On 6-cylinder models:

Drive in 2 new 8 mm dowel pins.

On 4-cylinder models:

Drive in one 8 mm and one 16 mm dowel pin.

Note: The dowel pin must always have the prescribed fit (see List of Parts required). On the 4-cylinder models always extend the vee-pulley bores to 10 mm since the 16 mm long dowel pin also serves to fix the vee-pulley.

11. Screw in a new stretch screw together with three plate springs and tighten with a torque of 21 + 1 mkp. Make sure that the plate springs are properly positioned: they must all be pushed on with the dished side pointing toward the screw head (Fig. 03-10/3).

12. Install vibration damper, vee-pulley, fan and radiator: see Sections A and B.

13. Run the engine and with the increase in speed check whether the engine runs without any abnormal vibrations and noises.

List of Parts Required:

| | |
|---------------------------------|--|
| Dowel pins | 10 m 6 ϕ , length 8 mm, DIN 7, Part. No. 000007 010120 |
| | 10 m 6 ϕ , length 16 mm, DIN 7, Part. No. 000007 010101 |
| Three-lipped twist drill ϕ | 10 \times 8 DIN 343 |
| Loctite Activator Type N or | 180 cc spray bottle |
| Omnifit Activator | 180 cc spray bottle |
| Loctite Type "Fügeteile" | 50 cc bottle green |
| Omnifit 250 red | 50 cc bottle red |
| Loctite Type AVX or | 50 cc bottle red |
| Omnifit 250 blue | 50 cc bottle blue |

These parts can be ordered from the Stuttgart-Untertuerkheim Spare Parts Department; or Loctite products also from Loctite-Technik Deutschland, Delo GmbH & Co. KG, 8 München 23, Bonner Platz 1, and Omnifit products from Omni-Technic GmbH, 8 München 54, Hanauer Strasse 30 a.