

Workshop Manual

Type 600 The Grand Mercedes



service

slight tension on the cable. The cable must be passed through the space in the left exhaust manifold between cylinders 5 and 6, under the oil pan and through the space in the right exhaust manifold between cylinders 3 and 4 (see Fig. No. 00-1/6).

14. Unscrew hexagon screw (8) and unscrew support (4) from chassis base panel (Fig. 00-1/3).

15. Release propeller shaft intermediate bearing (see Job No. 41-1 and Fig. 00-1/4).

16. Disconnect propeller shaft at transmission. Remove fitted bolts at transmission flange (10) and push propeller shaft, with six-link shaft plate (1) and retainer (11) (Fig. 00-1/5), backward.

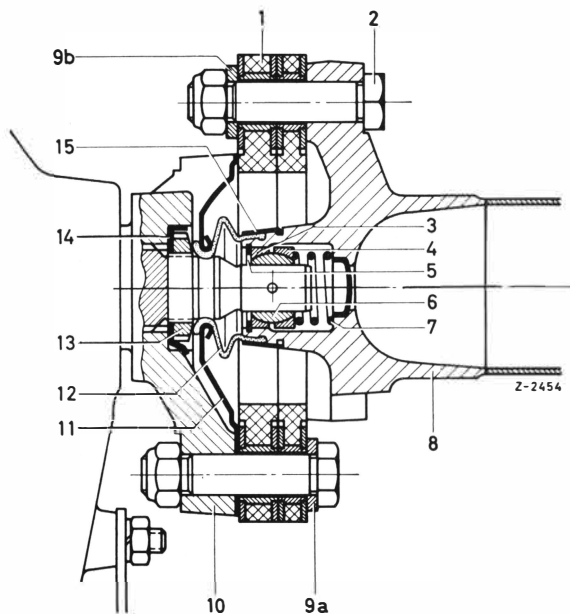


Fig. 00-1/5

- | | |
|-------------------------------------|---------------------|
| 1 Six-link shaft plate | 8 Propeller shaft |
| 2 Fitted bolt with self-locking nut | 9a, 9b Washer |
| 3 Ball socket, front | 10 Joint flange |
| 4 Ball socket, rear | 11 Retainer |
| 5 Snap ring | 12 Rubber sleeve |
| 6 Locating ball | 13 Grooved nut |
| 7 Pressure spring | 14 Locking plate |
| | 15 Attaching sleeve |

Caution!

Care must be taken to ensure that the rubber sleeve (12) is not damaged!

17. Lift engine, together with transmission, into a tilted position, approximately 45° , and lift out upward.

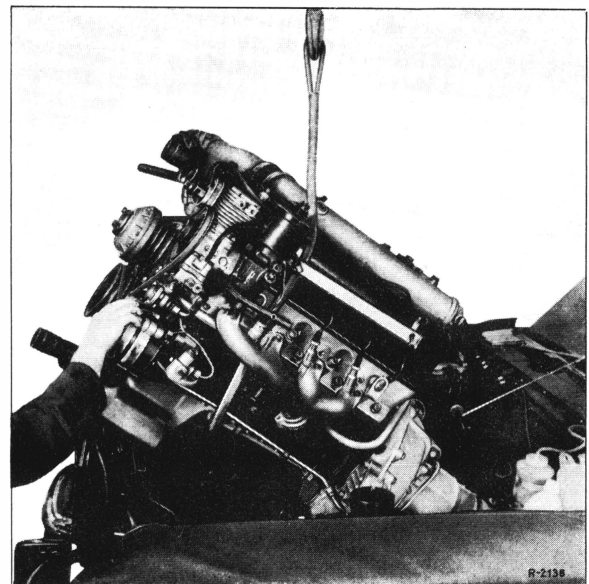


Fig. 00-1/6

Installation:

18. Let down engine, with transmission attached, at an angle of approximately 45° to a point at which the transmission is behind the steering control linkage. Then place a car jack under the transmission and let down the engine onto the engine supports.

19. Install the hexagon nuts on the front engine supports.

20. Connect up the propeller shaft at the transmission (Fig. 00-1/5).

21. Install rear engine suspension (see Job No. 22-2).

22. Reconnect all other parts and unions in the reverse order to that in which they were removed.

23. Fill oil reservoirs for power steering and finger-tip hydraulic system with oil and bleed (see Job Nos. 46-21 and 80-3).

24. Check oil level in engine.

25. Check oil level in transmission (see Job No. 27-2).

26. Run the engine and check all unions for leakage. Check functioning of electrical system.

27. Check coolant level.

Operational Checks

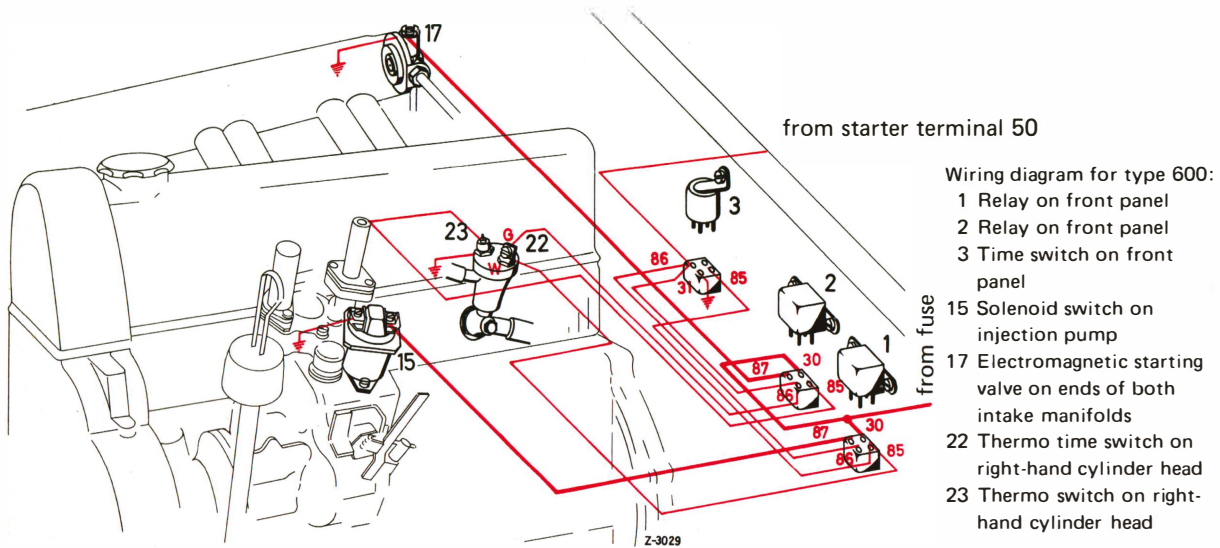


Fig. 00—17/2

Electric wiring diagram shown on type 220 SEB. In type 600 equipped with 2 electromagnetic starting valves (7) the arrangement of the connections are similar.

a) Thermo switch (23) on right-hand cylinder head, rear

Remove lead from thermo switch (23), connect test lamp with positive terminal of battery and with thermo switch. Start engine below $+30^{\circ}\text{C}$ cooling water temperature; above $35^{\circ} \pm 3^{\circ}\text{C}$ water temperature, current should not flow, i.e. test lamp should not light up.

b) Thermo switch (22) on right-hand cylinder head, rear

Remove lead from thermo time switch (22), terminal W, connect test lamp with the positive terminal of battery and terminal W of thermo time switch. Start engine below $+3^{\circ}\text{C}$ cooling water temperature; above $+5^{\circ}\text{C}$ water temperature, current should not flow, i.e. test lamp should not light up.

c) Time switch (3) on front panel in engine compartment, right

Remove high-tension lead from ignition distributor cap, connect test lamp with positive terminal of solenoid switch on the injection pump and with ground. Actuate starter; in the process, test lamp should light up at a cooling water temperature of above $+5^{\circ}\text{C}$ and during operation of the starter for about 1 sec. and simultaneously the control rod of the injection pump move to starting quantity.

d) Relay on right-hand wheel arch

Checking relay (1) without test lamp

Keep one hand on the relay and actuate starter. At a cooling water temperature above $+5^{\circ}\text{C}$ the circuit to relay (1) is closed during the operation of the starter for about 1 sec. and the solenoid switch on the injection pump actuated. Opening and closing of the relay can be heard and felt.

Checking relay (1) with test lamp

Connect test lamp with terminals 87 and 30/51 of relay (1). Actuate starter; at a cooling water temperature above 50°C and during operation of the starter for about 1 sec. the test lamp should light up and simultaneously the injection pump control rod move to starting quantity.

Checking relay (2) with test lamp

Connect test lamp with terminals 87 and 30/51 of relay (2). Actuate starter; at a cooling water temperature up to $+35^{\circ}\text{C}$ test lamp should light up during the whole period of actuating the starter.

10. Unscrew brackets (1) for cylinder head cover (see Fig. 01-3/2).

11. Turn crankshaft to T.D.C. mark.

Caution! The engine must only be turned to the right! Use serrated wrench, Part No. 186 589 00 08 00 and adapter, Part No. 100 589 02 59 00!

12. Remove chain tensioner (5) (see Fig. 01-3/2).

13. Unscrew hexagon screw at camshaft sprocket and take camshaft sprocket, together with chain, off the camshaft.

Note: There is no reason why the chain should not be allowed to drop down into the crankcase.

14. **Unscrew oil-pressure line to gage (25) at rear end of cylinder head** (Fig. 01-3/1).

15. Unscrew cylinder head screws and take off cylinder head, together with induction manifold.

Installation:

(process described in respect of left cylinder)

16. Clean joining surface of crankcase and cylinder head and fit a new cylinder head gasket.

17. The installation procedure for the cylinder head is the reverse of the removal procedure.

Note: When the camshaft sprocket is being fitted, care should be taken to ensure that the "pull" side of the chain is tight, that the crankshaft — or the piston of the 1st cylinder — is at T.D.C. (ignition T.D.C.) and the marks (a) of the two camshafts

correspond with those of the camshaft bearings (Fig. 01-3/2). The crankshaft is at ignition T.D.C. of the 1st cylinder when the T.D.C. mark on the vibration damper corresponds with the indicator and the distributor rotor arm points to the No. 1 cylinder mark on the distributor case.

18. Tighten up cylinder head screws (see Job No. 00-0).

19. Bleed chain tensioner.

20. Adjust tappet clearance (see Job No. 00-3).

21. Check valve timing (see Job No. 00-7).

22. Bleed hydraulic system at power steering (see Job No. 46-7).

Right cylinder head

Removal and installation of the right cylinder head should be carried out on exactly the same lines as in the case of the left cylinder head. The extra procedures involved are described in the following paragraphs in such a way that they can always be inserted in the description of removal and installation for the left cylinder head after the number mentioned in each paragraph.

After 4: Remove bearing bracket (7) together with control shaft (Fig. 01-3/1).

After 6: Unscrew support (2) together with refrigerant compressor (6) at cylinder head and lay aside.

Before the above, the Vee belt "d" must be released and removed (see Job No. 23-2).

Caution! The pressurized lines on the refrigerant compressor must not be disconnected.

After 8: Remove thermostat of the remote-action thermometer at the rear end of the cylinder head.

Disconnect cable from thermo switch and thermo time switch.

After 9: Remove coolant hose for heater line at rear end of cylinder head.

After installing bearing bracket (7) (Fig. 01-3/1), adjust control linkage (see Job No. 00-15).

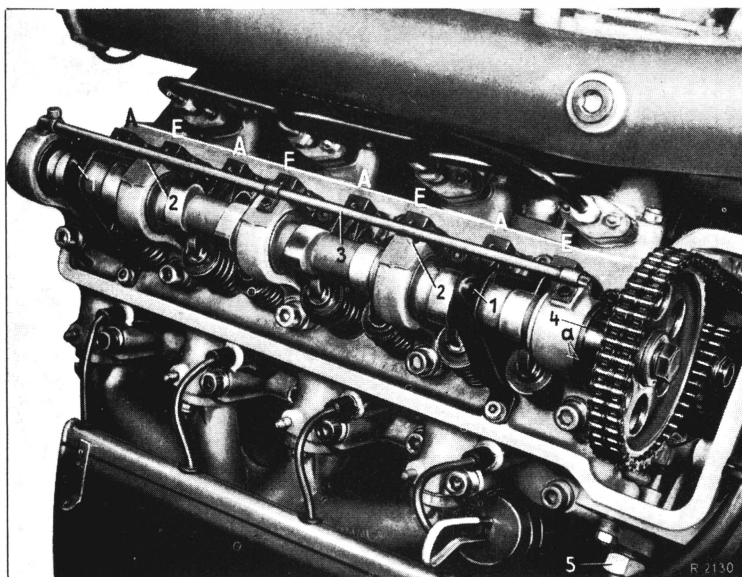


Fig. 01-3/2

Right cylinder head

1 Bracket for cylinder head cover

2 Oil case in camshaft bearing

3 External oil pipe

4 Shim

5 Chain tensioner

E Rocker arm for intake valve

A Rocker arm for exhaust valve

a Mark for camshaft bearing and take-up washer

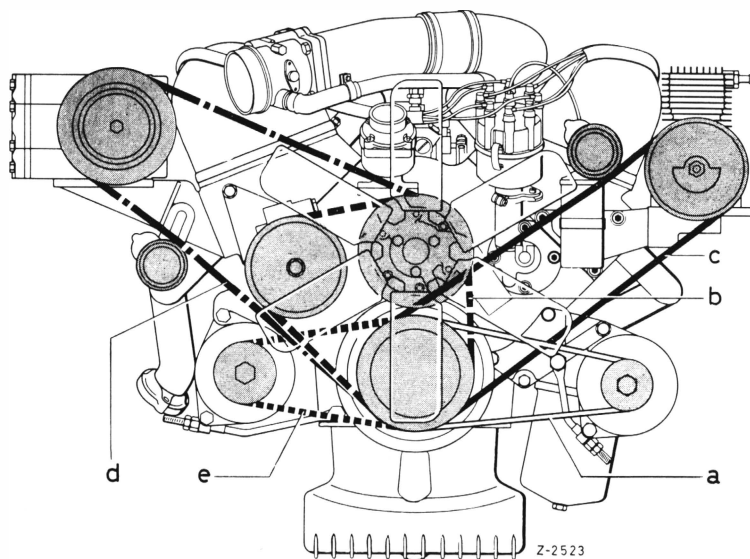


Fig. 23-0/1

Arrangement of Vee belts, reading from front to rear

Vee belt	Link	Size
a	From the crankshaft to the left threephase generator	9.5×960 toothed
b	From the crankshaft to the finger-tip control hydraulic pump and the hydraulic fan coupling	12.5×1025
c	From the crankshaft to the air compressor and the high-pressure oil pump	12.5×1425
d	From the crankshaft to the refrigerant compressor and to the hydraulic fan coupling	12.5×1600
e	From the crankshaft to the right threephase generator	9.5×775 toothed

Vee belt tension

Vee belts	"a" and "e"	"b"	"c" and "d"
Depth in mm of depression between pulleys obtained at a pressure of 6 kg, applied vertically to the Vee belt	5 to 10	8 to 12	automatic, controlled by spring-loaded tension pulley

Tightening torques in mkg

Hexagon screw (1) at Vee pulley finger-tip control hydraulic pump (Fig. 23-1/1)	1.5
Clamp nut for fixing Vee pulley on crankshaft	18 ± 1

Removal:

1. Loosen attachment (17) of torsion bar, left and right, on lower control arm and mounting (13) on frame/floor (Fig. 32-6/1).

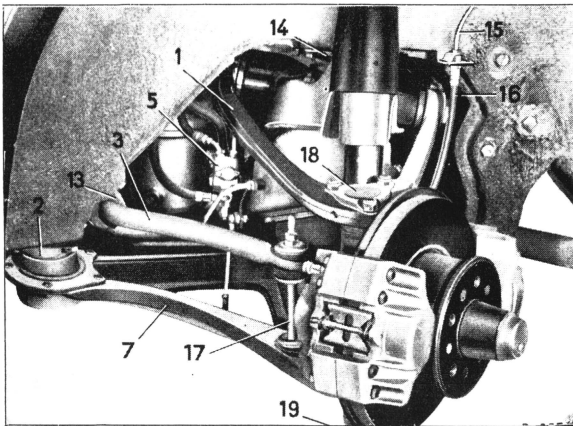
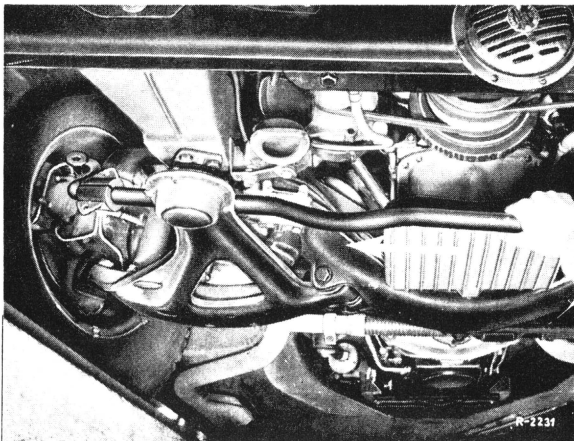


Fig. 32-6/1

- | | |
|----------------------------------|---------------------------|
| 1 Upper control arm | mounting to frame/floor |
| 2 Supporting joint | 15 Brake line |
| 3 Torsion bar | 16 Brake hose |
| 5 Levelling control valve, left | 17 Torsion bar attachment |
| 7 Lower control arm | to lower control arm |
| 13 Mounting of torsion bar | 18 Guide joint |
| on frame/floor | 19 Carrying joint |
| 14 Rubber bushing for front axle | |

2. Slide torsion bar toward the right vehicle side (see arrow) and remove toward the left side (Fig. 32-6/2).

**Installation:**

3. Check whether rubber bushing (13) and rubber buffers (5) can still be used (Fig. 32-6/3).

4. Slide rubber bushing (13) over torsion bar and install torsion bar (Fig. 32-6/2).

5. Fit torsion bar mounting to frame/floor and attachment to lower control arm (Fig. 32-6/3). Ensure correct location of rubber buffers (5) and plate (4). Tighten hexagon nut (2) to thread end.

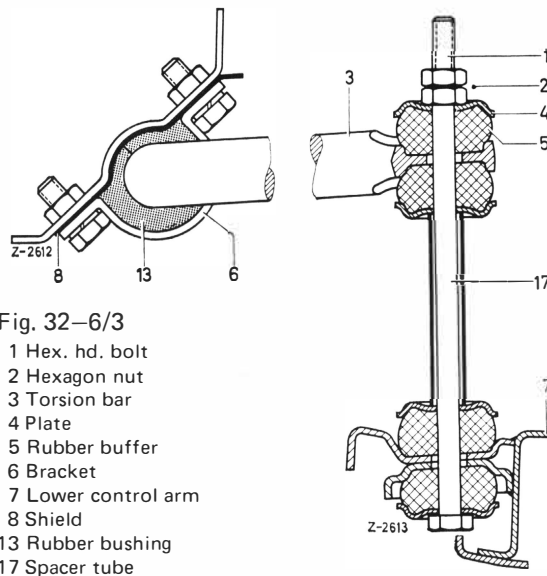


Fig. 32-6/3

- | |
|---------------------|
| 1 Hex. hd. bolt |
| 2 Hexagon nut |
| 3 Torsion bar |
| 4 Plate |
| 5 Rubber buffer |
| 6 Bracket |
| 7 Lower control arm |
| 8 Shield |
| 13 Rubber bushing |
| 17 Spacer tube |

Note: Shield (8) resting against the oil filter of the engine is attached on the left-hand mounting of the torsion bar only (Fig. 32-6/3).

As of late, rubber bushing (13) is provided with a bead to prevent any slipping out when the torsion bar carries out large movements. Bracket (6) is also beaded. In place of the former hex. hd. screws, hexagon socket screws are now used for attachment of the bracket.

Fig. 32-6/2