

Removal and Installation of Engine Together with Transmission 00-1

Removal

1 Remove the hood.

2 Disconnect ground cable from battery, drain cooling water, detach radiator guard, remove radiator and disconnect heating hoses.

On cars with oil cooler for the automatic transmission and air oil cooler disconnect radiator connections and close with dummy plugs.

3 Remove air intake silencers.

4 Disconnect fuel hoses and vacuum hose to the power brake.

On cars with power steering and level control disconnect oil hoses and close connections with dummy plugs.

On cars with air conditioning system disconnect hoses from refrigerant compressor; **observe safety precautions.**

On 6-cylinder engines remove Visko fan.

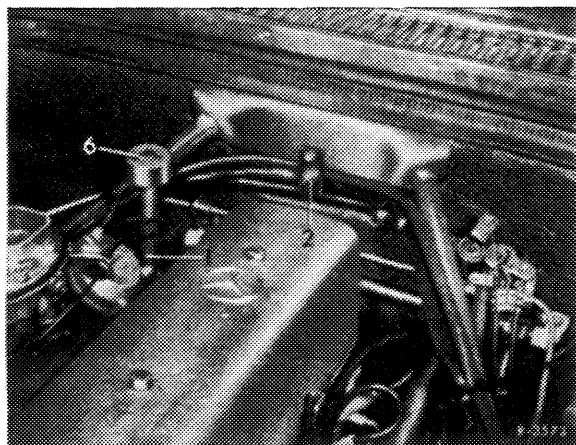


Fig. 00-1/1

2 Heater pipe

5 Disconnect oil pressure gage hose.

6 On 4-cylinder carburetor engines disconnect choke cable from carburetor. On Diesel engines disconnect idle control cable and start stop cable. Detach accelerator linkage.

7 On 6-cylinder engines with 3 groove crankshaft pulley remove heater pipe (Fig. 00-1/1).

8 Disconnect ground cable from engine to car body. Disconnect all other electric cables and plug connections.

9 Detach gearshift linkage.

10 Detach exhaust pipes from exhaust manifold.

11 Loosen steering relay arm and move downward together with center tie rod and steering shock-absorber (Fig. 00-1/2).

On 6-cylinder engines detach engine shock-absorber from support.

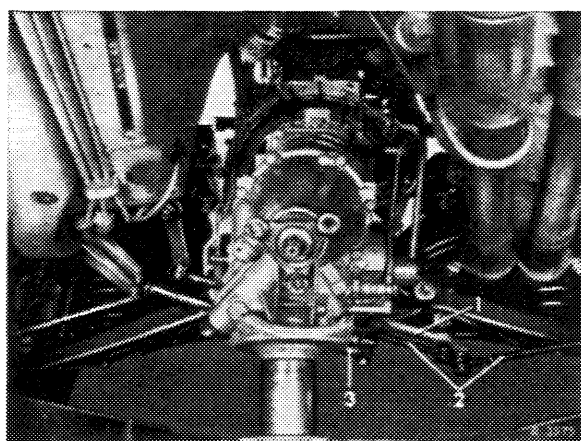


Fig. 00-1/2

1 Steering relay arm
2 Tie rods

3 Steering shock absorber

12 Unscrew hose for hydraulic clutch actuation from clutch housing (Fig. 00-1/3).

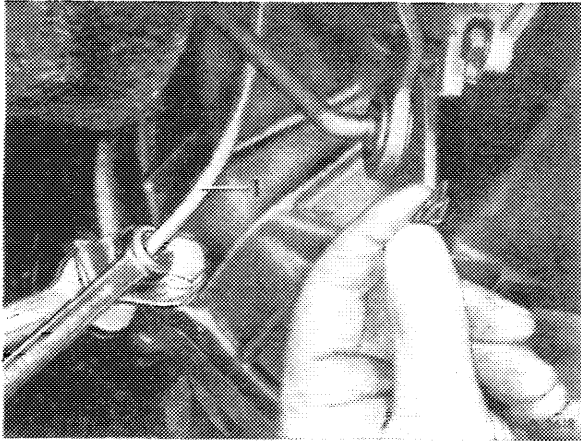


Fig. 00-1/3

1 Line to extraction cylinder

13 On cars with automatic transmission unscrew oil line connectors between transmission and oil cooler (Fig. 00-1/4).

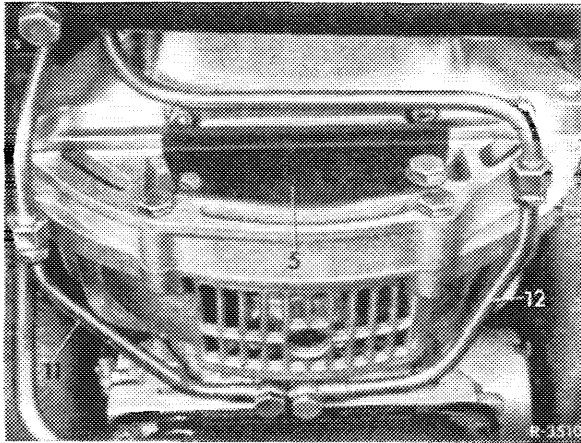


Fig. 00-1/4

11, 12 Oil line connectors

14 Unscrew bracket for the exhaust pipe support from the transmission, loosen clamping strap and push bracket downward; on the mechanical transmission the bracket is attached to the transmission itself (Fig. 00-1/5), on cars with automatic transmission it is attached to the mounting plate (Fig. 00-1/6).

15 Pass a suitable lifting cable under the oil pan and tighten the cable lightly until it takes weight (Fig. 00-1/9).

16 Mark the position of the rear engine support in relation to the chassis base panel, unscrew support together with rubber mounting from chassis base panel and transmission and remove support (Fig. 00-1/6). To do this

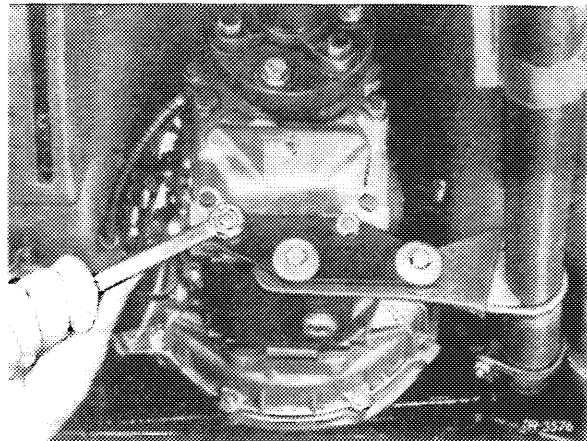


Fig. 00-1/5

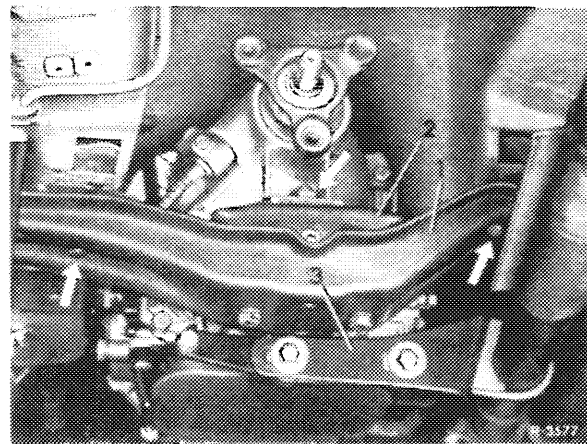


Fig. 00-1/6

1 Rear engine support
2 Engine mounting

3 Exhaust pipe support on engine with automatic transmission

back off the bolts and nuts marked with an arrow.

17 Disconnect speedometer drive.

18 Disconnect the propeller shaft together with shaft plate from the transmission and push to the rear, after having loosened the clamping nut.

19 Disconnect plug connection from automatic transmission.

20 Unscrew hexagon screws at the front engine suspension at the left and right.

On 4-cylinder engines remove front limit stop (Fig. 00-1/7).

21 Unfasten bracket for the power steering reservoir by backing off one screw and pull reservoir sideways when lifting out the engine (Fig. 00-1/8).

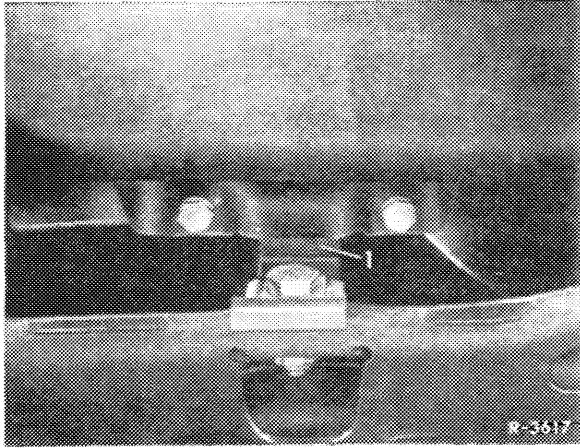


Fig. 00-1/7

1 Front limit stop (only on 4-cylinder engines)

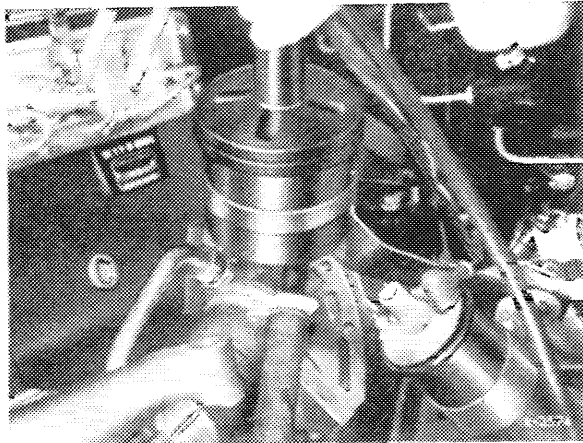


Fig. 00-1/8

22 Slightly raise the engine with the transmission with a hoisting rig, tilt it to an angle of about 45° and lift it out upward (Fig. 00-1/9).

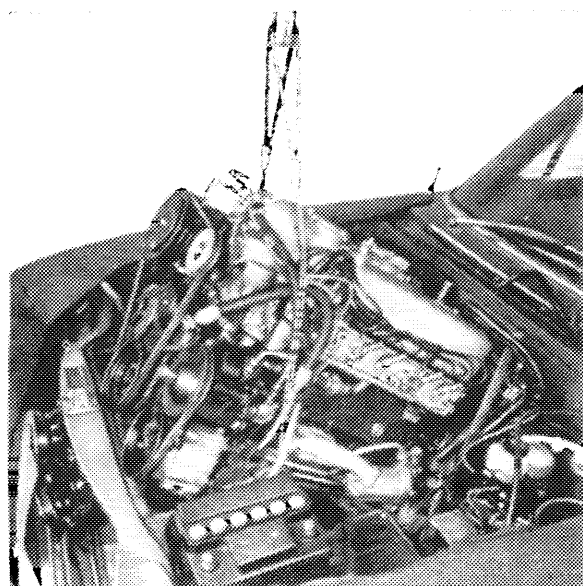


Fig. 00-1/9

Installation

23 Lower the engine together with the transmission at an angle of about 45° until the transmission is behind the front axle support. Then place a jack under the transmission and lower the engine at the front until it is seated on the engine mountings. On 6-cylinder engines slide the engine shock-absorber into the support on the subframe cross member while lowering the engine.

24 Screw the hexagon screws for the front engine supports at the left and right into the engine mountings.

25 Raise the jack under the transmission until the propeller shaft together with shaft plate can be flanged to the transmission.

26 Connect the flexible speedometer drive. Connect electric plug connection to automatic transmission.

27 Screw support together with rear engine mounting to transmission and chassis base panel noting the positions marked during removal.

28 Install steering relay arm. Attach engine shock-absorber to support (only on 6-cylinder engines).

29 Attach hose for hydraulic clutch actuation to clutch housing.

30 Attach gearshift linkage and check adjustment.

31 On cars with automatic transmission install oil line connectors between transmission and oil cooler (Fig. 00-1/4).

32 Connect all electric cables paying attention to the color coding;

a) Cable connections to generator:
Put in plug connection and connect red cable with 4 mm section to terminal B+.

b) Cable connections to starter:
Screw battery cable 30 and red cable 51 to terminal 30 of the solenoid switch. Push rubber cap over the terminal.
Connect violet control cable to solenoid switch KL 50.

Caution: The violet control cable must not be passed through the rubber grommet at the starter terminal since it might rub against the terminal for battery cables 30 and 51. In this case the control cable might become live and operate the starter. The violet control cable must therefore be wound around cables 30 and 51 and be connected directly to terminal 50.

- c) Attach engine ground cable to car body.
- d) Connect the ignition cable from ignition coil to distributor.
- e) Plug in cable to heating spiral for automatic starting mechanism of Zenith carburetors.
- f) Connect cable from glow plug resistance to glow plugs.
- g) Connect ground cable to battery.

33 Screw exhaust pipes to exhaust manifolds with new gaskets; tighten hexagon screws and nuts evenly.

34 In the case of mechanical transmissions screw the bracket of the exhaust pipe support to the transmission and in the case of automatic transmissions to the mounting plate, together with rubber washers, cup washers, sleeves and the two hexagon bolts together with washers, lock washers and hexagon nuts.

35 On 4-cylinder carburetor engines attach choke cable to carburetor. On diesel engines attach idle adjustment cable and start/stop cable.

36 Install Visko fan.

37 Install radiator together with guard, tighten guard, connect radiator thermometer and heating hoses. Install heater pipe (Fig. 00-1/1). On cars with automatic transmission and air oil cooler attach connections to radiator.

Caution: Before reinstalling the water hoses check them outside and **inside** for damage and aging. Water hoses that are not fully serviceable should always be replaced.

38 Attach vacuum hose to power brake.

39 Install or connect air intake silencer.

40 Attach fuel lines and the flexible hose of the oil gage line to the oil filter.

On cars with power steering and level control connect oil hoses. Attach reservoir bracket of the power steering.

On cars with air conditioning system attach hoses to refrigerant compressor.

41 Bleed hydraulic system of clutch actuating mechanism.

42 Install engine hood and check for correct seating.

43 Fill up cooling water.

44 Check oil level in engine and transmission. On cars with power steering check oil level in oil pressure pump reservoir.

45 Move car back and forward. Tighten clamping nut on propeller shaft. Loosen hexagon socket screw on rear engine mounting and retighten (see Job No. 24).

On 4-cylinder engines install front limit stop.

46 Start engine, watch oil pressure gage and check all unions for mechanical tightness and leakage and check electrical system. Open the heating system.

47 Bleed power steering and level control system.

48 Again check cooling water level.