REMOVING AND INSTALLING ENGINE

Special Tools: P 35a Gauge for adjusting clutch release bearing before installing engine.

General

Depending on the equipment available in the repair shop there are various ways of performing the operations of jacking up, supporting the car, and removing the engine, so that the work is accomplished in the simplest manner. Suitable equipment includes a vehicle hoist, a dolly, crane, hydraulic jack, etc.
Fig. 24 shows the engine being removed by means of a hoist and portable jack.
The following sequence should be observed in order to remove and install the engine.

Removal:

1. Disconnect battery cables.
2. Close fuel tap.
3. Open rear hood.
4. Disconnect heater control linkage.

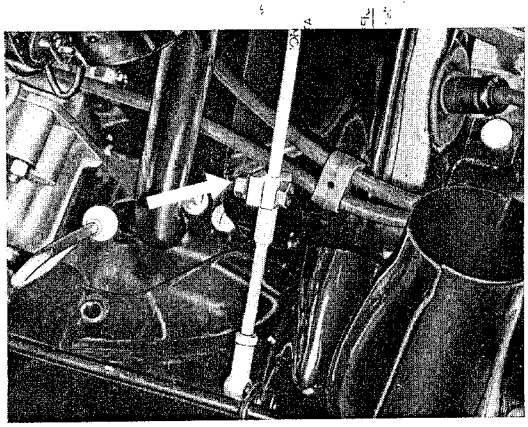

Fig. 18

5. Remove engine rear cover plate.
6. Disconnect lead from oil temperature sending unit.

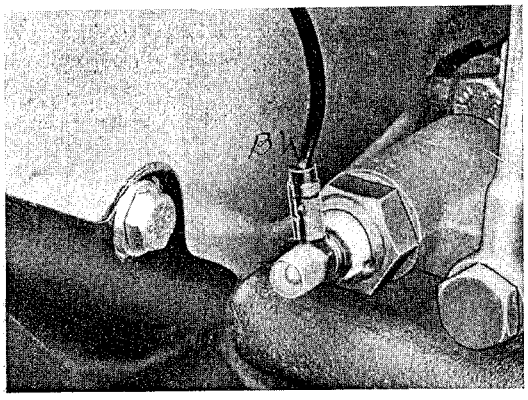

Fig. 19

7. Disconnect (black) lead from ignition coil.

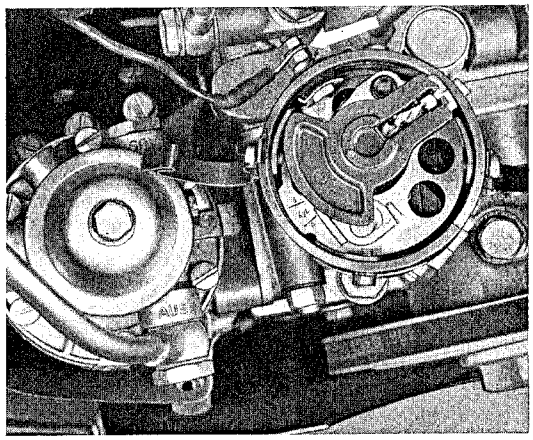

Fig. 20

8. Disconnect (green) lead from oil pressure sending unit.
9. Disconnect generator leads D– (Yellow-white), DF (black), D+ (red).

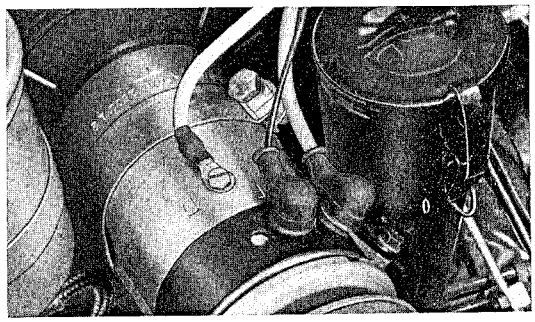

Fig. 21

10. Disconnect ball joint throttle linkage.

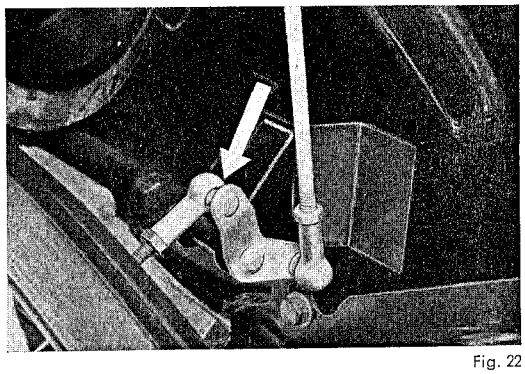

Fig. 22

11. Lift or jack up car.
12. Remove both heater-flap cables (12 EN).
13. Disconnect heater linkage and loosen flexible heater pipes from engine.

14. Loosen exhaust tail pipe clamps and remove elbow pipes from muffler.
15. Disconnect fuel line hose.
16. Disconnect tachometer drive cable.
17. Remove both lower engine mounting nuts.
18. Place dolly or jack under engine.
19. Have a helper hold the upper engine mounting bolts and remove the nuts.
20. Dolly: Lower car until engine rests on dolly.
    Jack: Raise until engine rests on jack.
21. Move the engine away from the gearbox until the main shaft clears the clutch plate.
22. Lower the engine pulling it out to the rear.

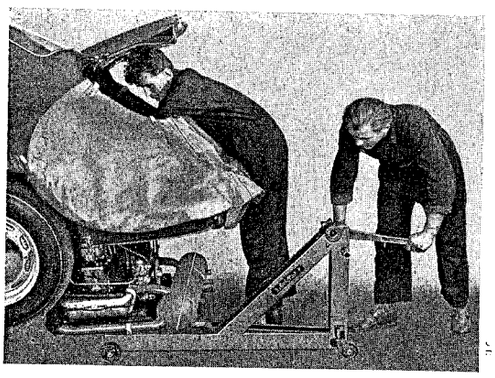

Fig. 23

Installation

The engine is installed in the reverse order of removal observing the following points.

1. Leave off the rear engine cover plate.
2. Check the gearbox mainshaft for trueness.
3. The clutch release bearing must be parallel to the gearbox flange (Fig. 24). Check with special tool P 35a. The correct distance from the flange to the bearing face is 50 mm ($1^{31}/_{32}$ in.).
4. Lubricate inside of flywheel gland nut with 2 to 3 cc ($^1/_{10}$ to $^1/_5$ cu. in.) graphite grease.

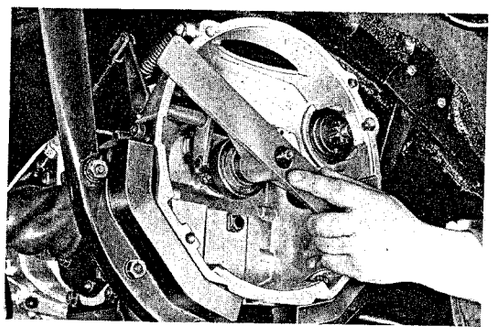

Fig. 24

5. Inspect main shaft splines and bearing surface, starter shaft bushing, starter pinion, and flywheel ring gear and lubricate with a light film of graphite grease.
6. Carefully clean engine and gearbox joining surfaces.
7. The engine must be raised and pushed forward into place carefully to insure that the pilot bushing in the gland nut is not damaged, that the clutch release bearing is not damaged and that the main shaft does not become bent. To facilitate engaging the splines of the main shaft into the clutch plate, engage a gear and turn the crankshaft back and forth by the V-belt.
8. When securing the engine to the gearbox insert the four mounting bolts and push the engine firmly against the flange insuring a snug fit. The nuts on the upper bolts should be fastened first then tighten all nuts uniformly.
9. Connect the throttle linkage.
10. When connecting the tachometer cable remember to install the rubber seal and thrust washer.
11. Connect and adjust heater linkage.
12. Adjust control linkage for the engine compartment heater.
13. Connect the generator leads correctly (Fig. 21).
14. Position rubber weather strip around the engine compartment floor.
15. Check clutch adjustment (63 EN).

Note

To simplify the positioning of the weather strip, stretch a chalk-line into the slot between the two strips before installing the engine. When the engine is properly positioned the chalk line can be pulled out to the required side to properly fit the weather strip.