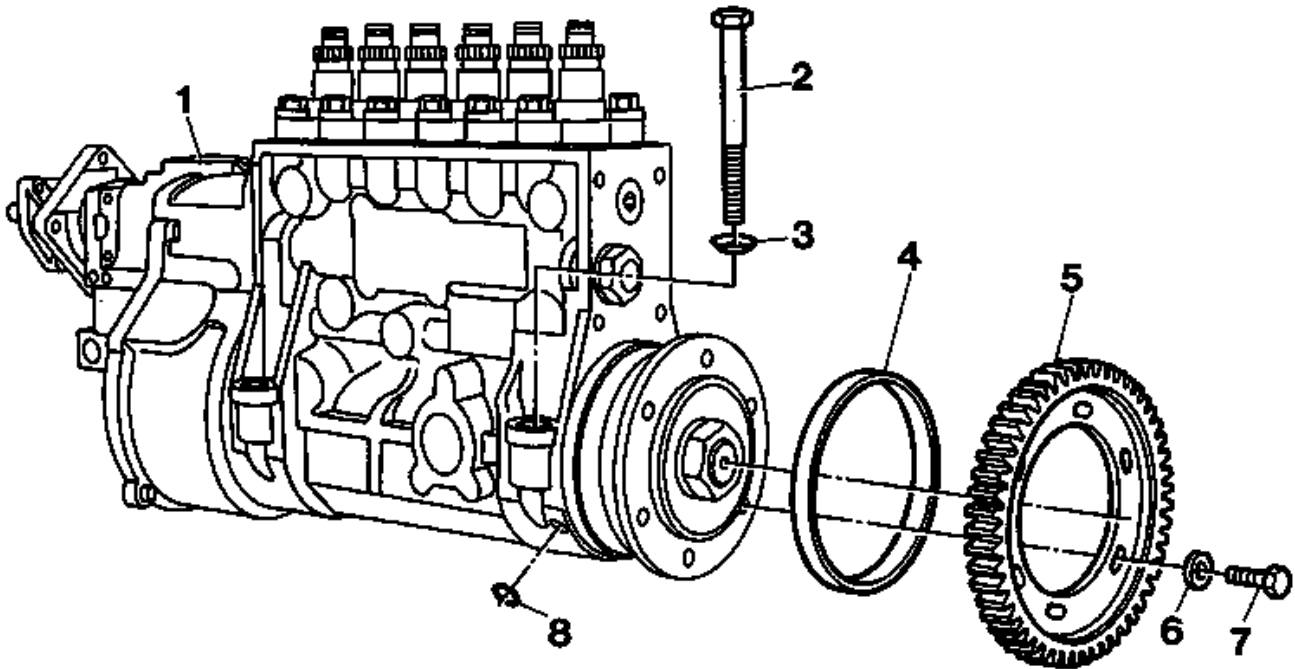


07-8410 Removing and installing injection pump

Preceding work:

Charge air pipe removed (09-8621).



1 Injection pump

2 Bolt

3 Washer

4 Seal

5 Drive gear

6 Washer

7 Hexagon bolt

8 O-ring

Assembly gauge 422 589 01 63 00

Hexagon bolt 1st stage 10 Nm,
2nd stage 50 Nm.

Twelve-sided bolt 1st stage 10 Nm,
2nd stage 50 Nm,
3rd stage 90° to 100° angle of
rotation

Note

Pay attention to tightening diagram.

replace.

Note

Replace seal only in conjunction with timing case
cover gasket.

35 Nm.

replace.

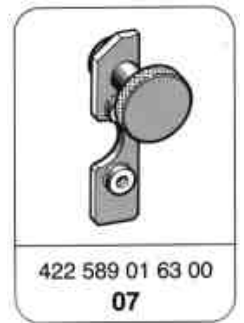
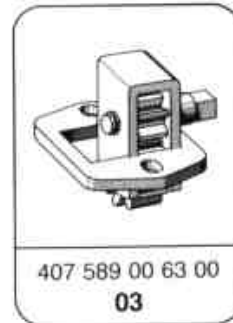
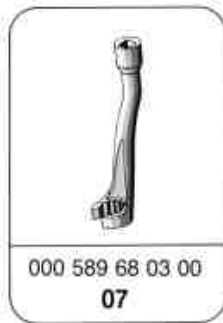
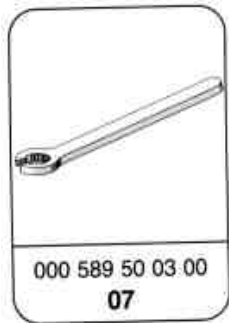
W07-0118-04



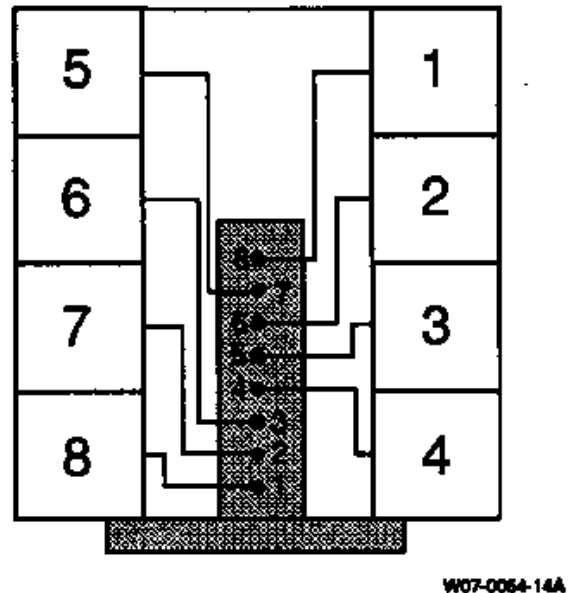
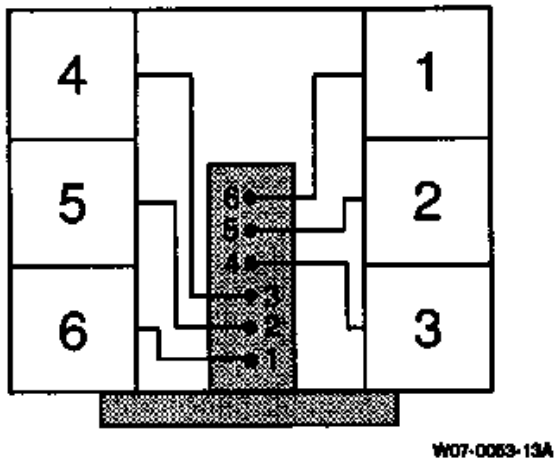
- Risk of fire and explosion!

- Collect fuel which flows out when performing work on the fuel system. After working on the fuel system, start engine and check fuel system for leaks.

Special tools

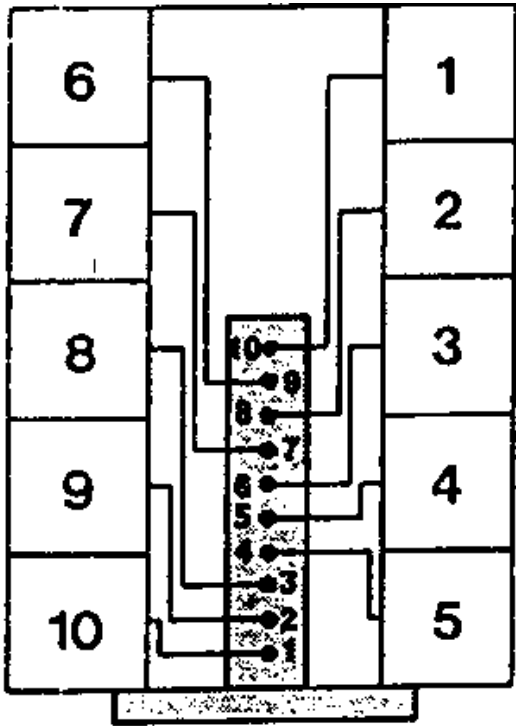


Arrangement of injection pipes

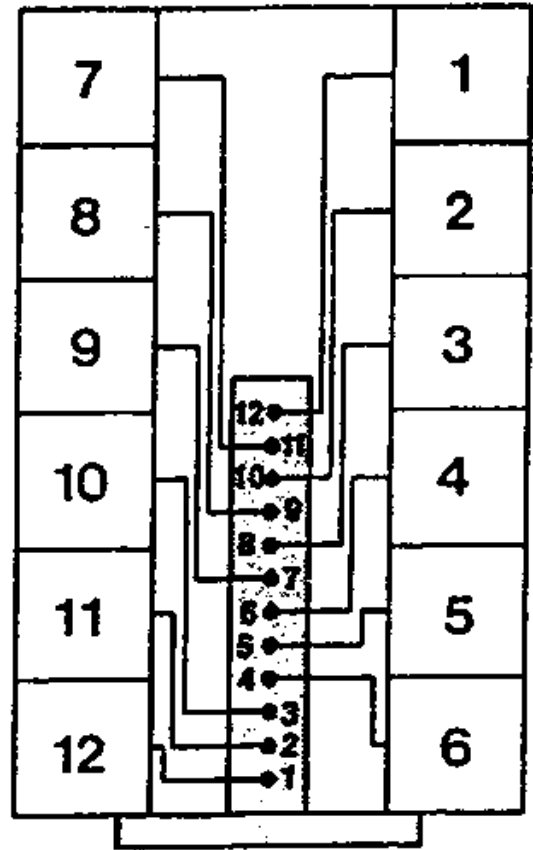


OM 441
OM 441 LA

OM 442
OM 442 A
OM 442 LA



W07-0219-15



W07-0220-16

OM 443
 OM 443 A
 OM 443 LA

OM 444 A
 OM 444 LA

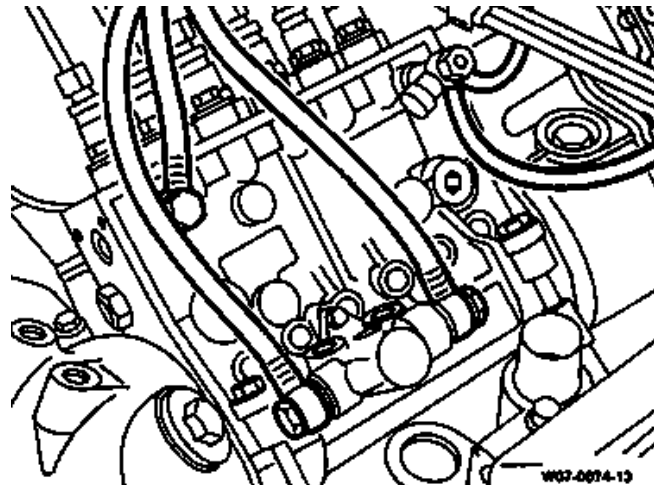
Removing

Note

On LA engines, detach charge air pipe from the intercooler.

- 1 Unbolt fuel pipes at the injection pump.

Serrated wrench 000 589 50 03 00



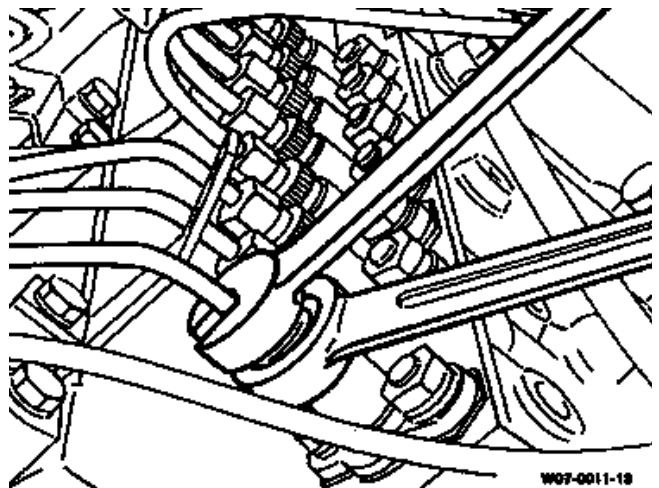
W07-0074-13

- 2 Unscrew union nut of the injection pipes at the nozzle holder and at the injection pump. Counter-hold pipe connection at the injection pump.

Note

Do not bend injection pipes.

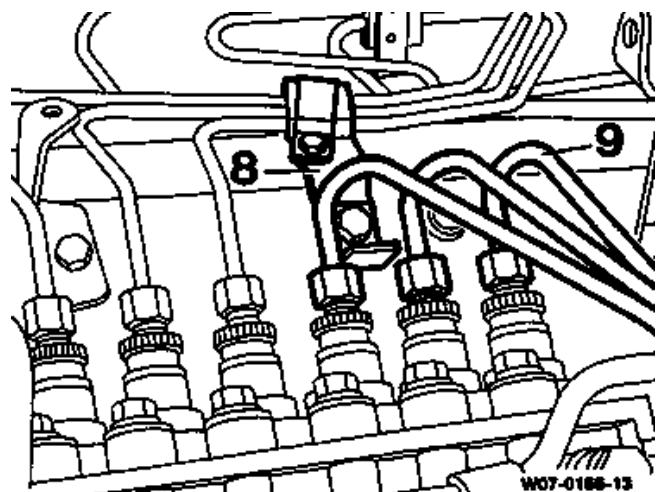
Ring wrench (open) 000 589 07 03 00
Serrated wrench 000 589 50 03 00



- 3 Unbolt bracket for injection pipes at the left and right intake pipe.

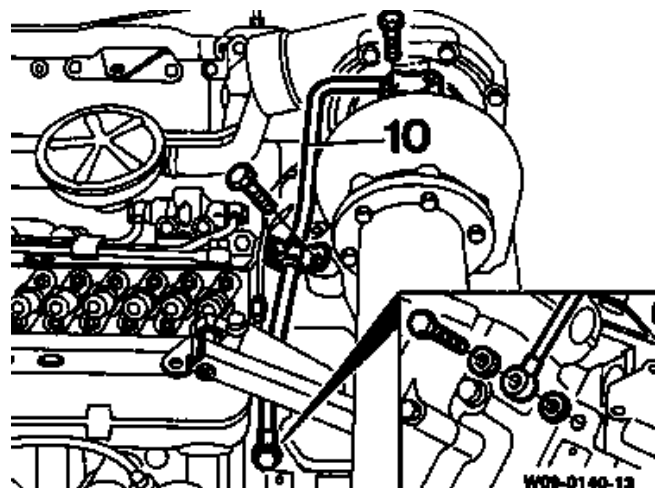
Note

Before removing the left-hand bracket (8), remove right-hand injection pipes (9).

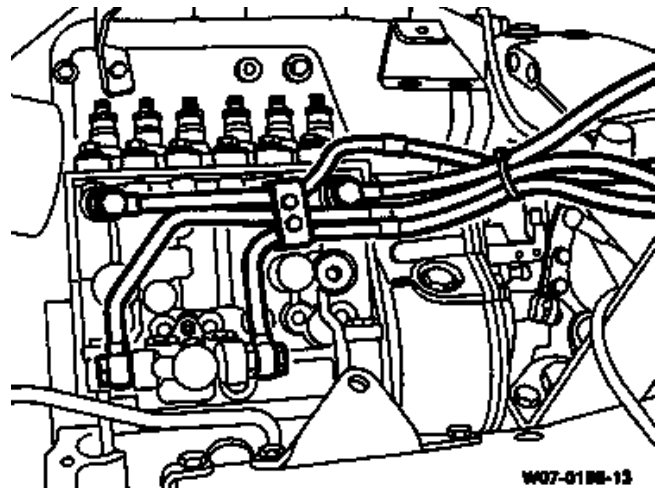


- 4 Remove oil pressure pipe (10) to the turbocharger.

- 5 Remove oil separator (01-9751).



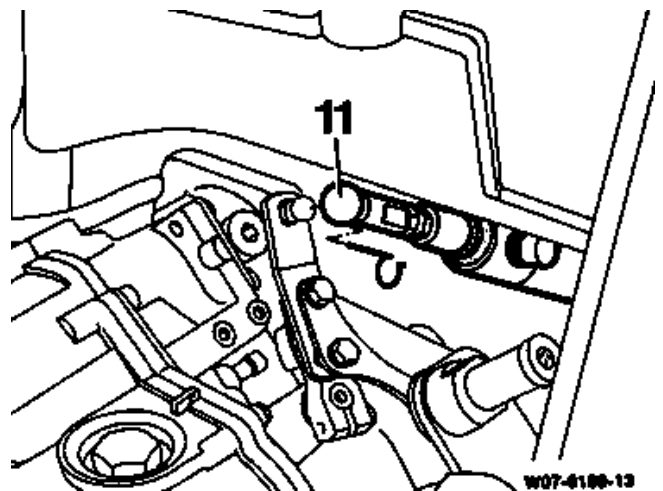
6 Unbolt fuel pipes at the injection pump.



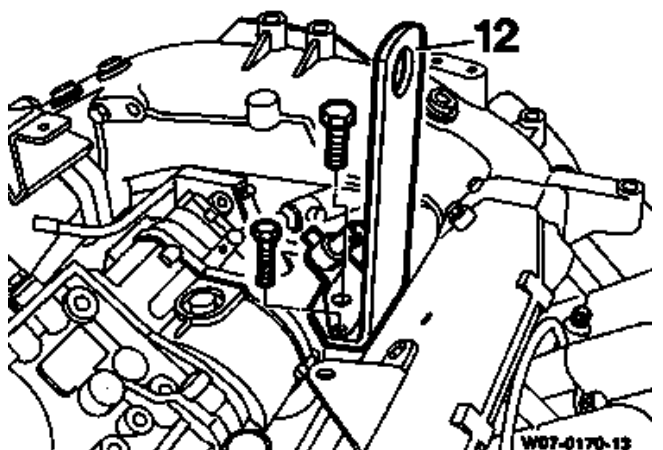
7 Release lock of ball socket (11) of the stop cylinder at the accelerator control lever of the injection pumps and press off the ball head.

Note

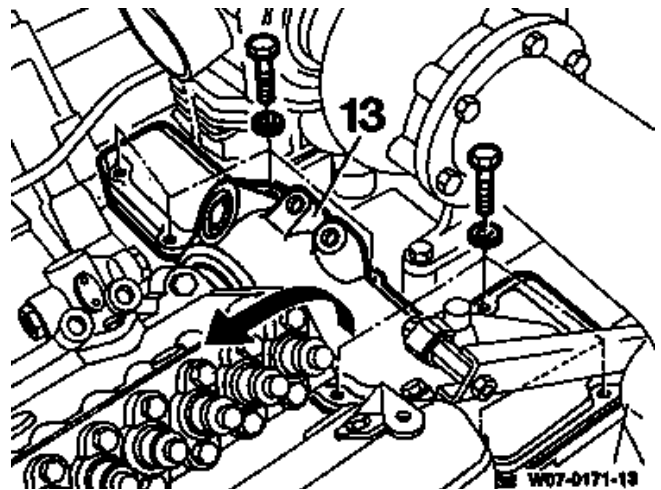
With v+n accelerator control, detach linkage for servomotor at the ball head of the injection pump.



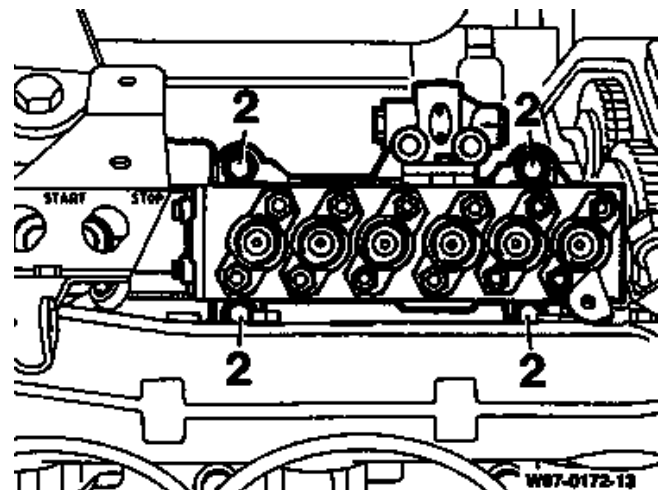
8 Remove bracket (12) with idle speed stop cylinder.



9 Remove timing case cover (13) upward.



10 Unscrew hexagon bolts (2) or twelve-point bolts of the injection pump and remove injection pump.



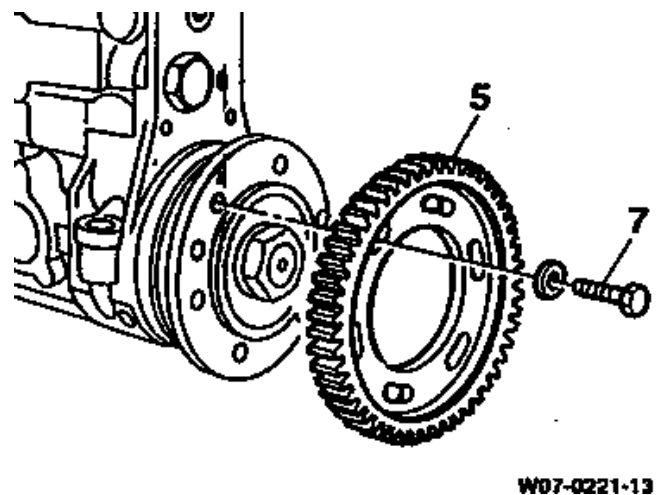
11 Unscrew hexagon bolt (7).

12 Detach drive gear (5) from the drive flange.

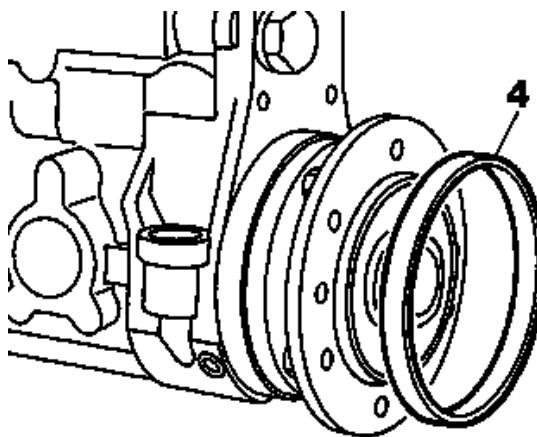
Note

- Naturally aspirated engine - 4 hexagon bolts (7).

- Turbocharged engine - 6 hexagon bolts (7).



13 Take seal (4) off the injection pump.

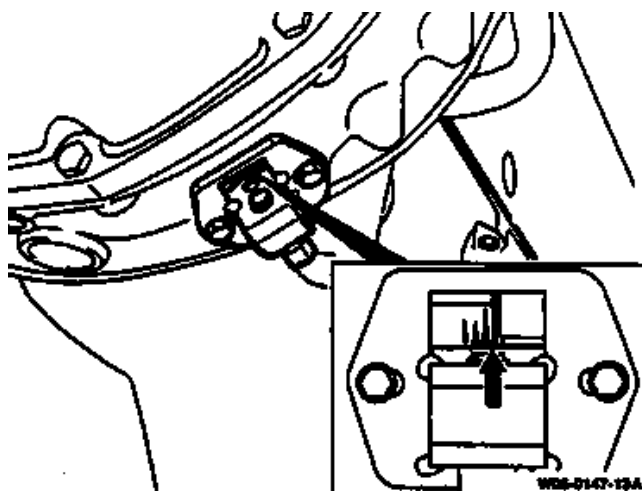


W09-0061-13

Installing

- 1 Attach cranking device with M8×20 bolts to the timing case and crank engine in the compression stroke of cylinder 1 sufficiently until the appropriate marking for start of delivery is aligned with the edge (arrow) in the inspection hole.

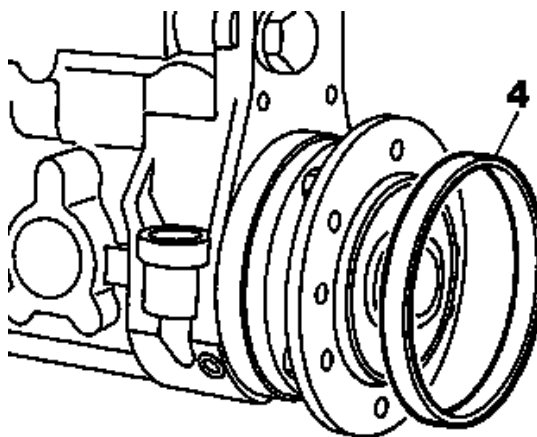
The engine must not be cranked back when performing this step (the valves of cylinder 1 must be closed, the rocker arms fully relieved and the tappet rods must turn easily in the ball socket).



W09-0147-13A

Cranking device 407 589 00 63 00

- 2 Fit sealing ring (4) over the drive flange of the injection pump.

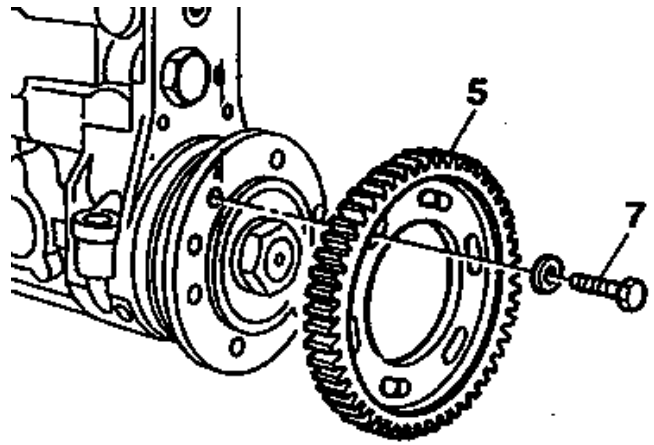


W09-0061-13

- 3 Attach drive gear (5) to the drive flange.

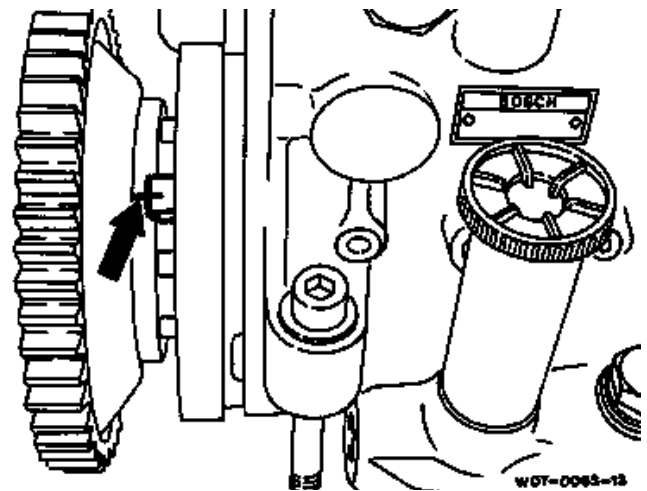
Note

Do not tighten hexagon bolts (7).



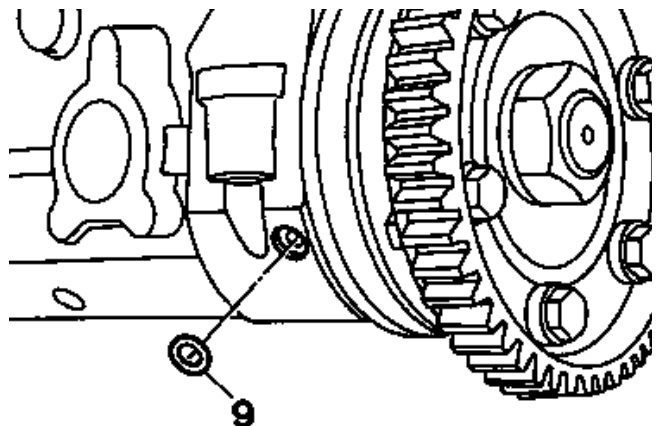
W07-0221-13

- 4 Rotate camshaft of the injection pump to the point where the marking on the drive flange is aligned with the matching marking on the injection pump (arrow).
- 5 Position drive gear of the injection pump in the middle position of the oblong holes.



W07-0062-12

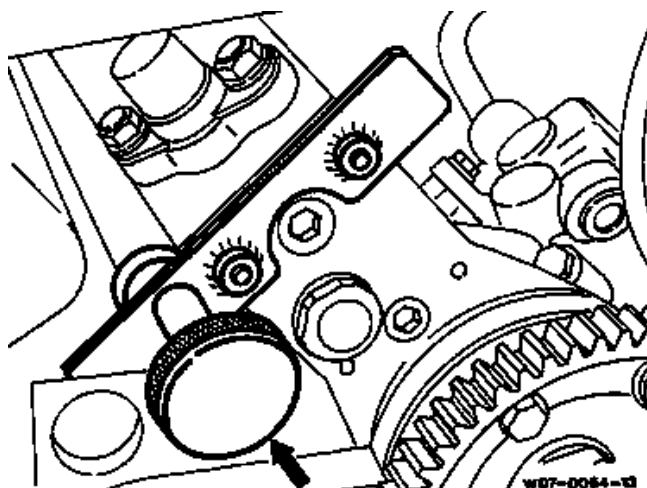
- 6 Replace O-ring (9) for oil pressure gallery of the injection pump.
- 7 Insert injection pump into the bearing point on the crankcase. The markings on the injection pump must be aligned when this step is performed. The drive gear must mesh into the splines of the injection timing device without any prestress.



W07-9069-13

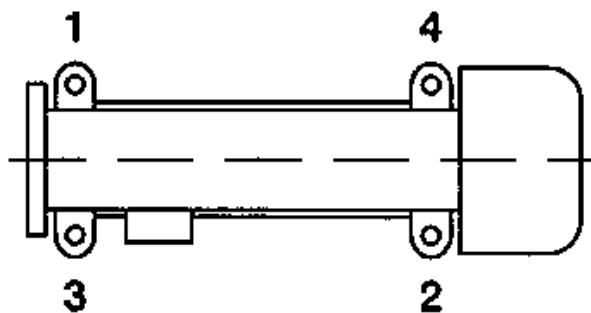
- 8 Fit assembly gauge onto the injection pump and clamp tight with the knurled screw (arrow). Swivel injection pump until the assembly gauge makes contact with the crankcase.

Assembly gauge 422 589 01 63 00



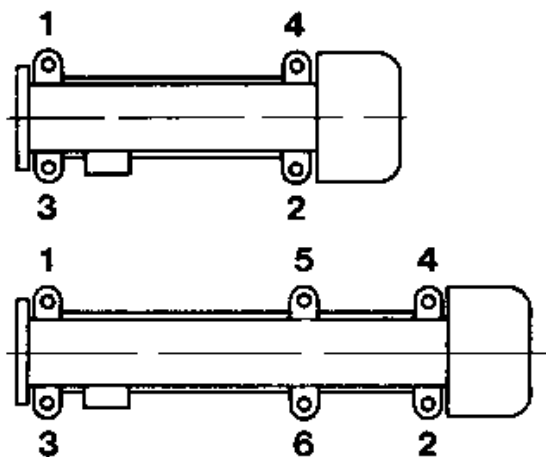
- 9 Tighten bolts of the injection pump with spherical washers in the stated order in the following stages.

- 9.1 Hexagon bolts 1st stage 10 Nm
 2nd stage 50 Nm



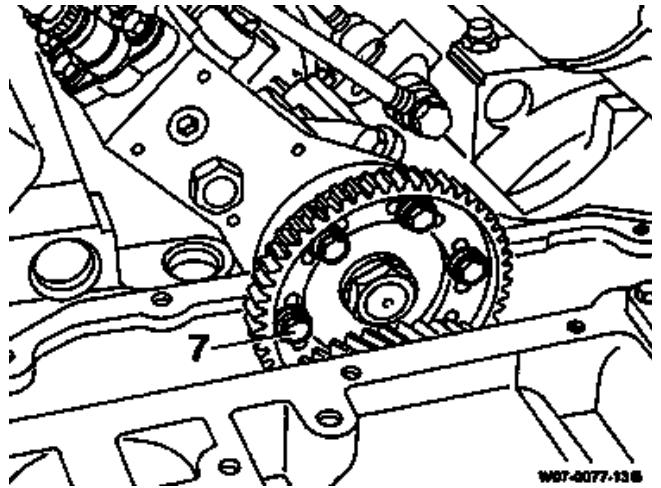
W07-0173-13

- 9.2 Twelve-point bolts 1st stage 10 Nm
 2nd stage 50 Nm
 3rd stage 90° to 100°
 angle of rotation

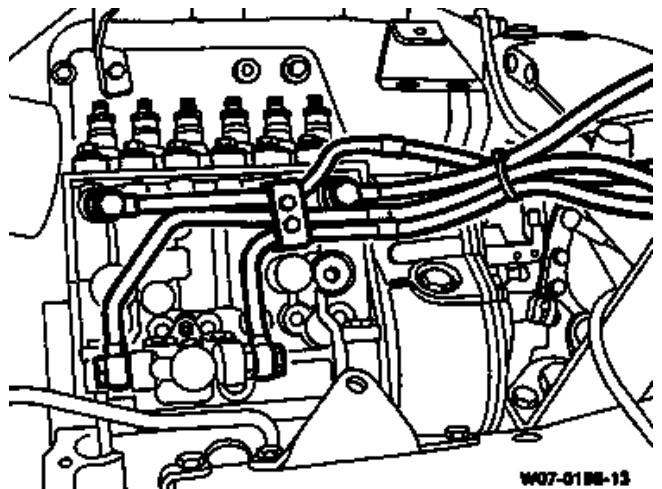


W07-0052-13

- 10 Tighten hexagon bolts (7) of the drive gear, 35 Nm.
- 11 Install timing case cover and seal (01-8000).



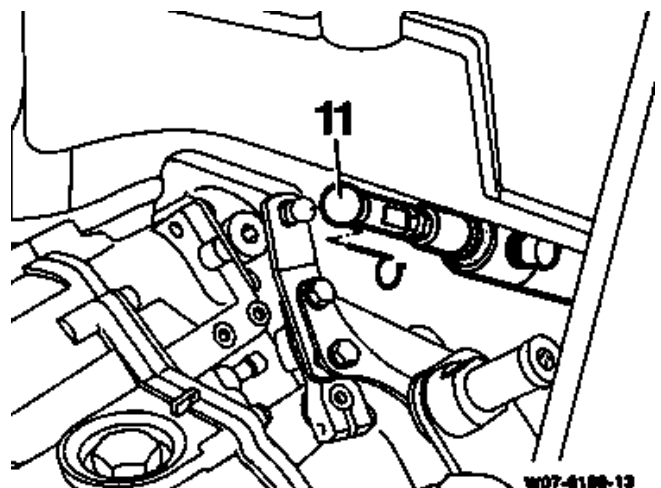
- 12 Attach fuel pipes with new seals and screw tight, 30 Nm.



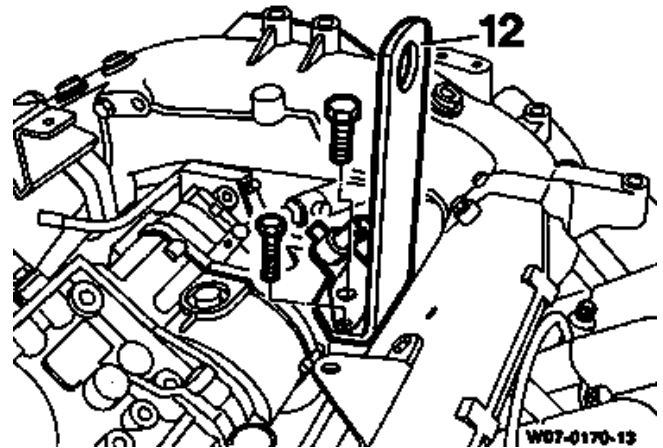
- 13 Grease ball socket (11) of the stop cylinder with longlife grease, press onto the accelerator control lever of the injection pump and secure.

Note

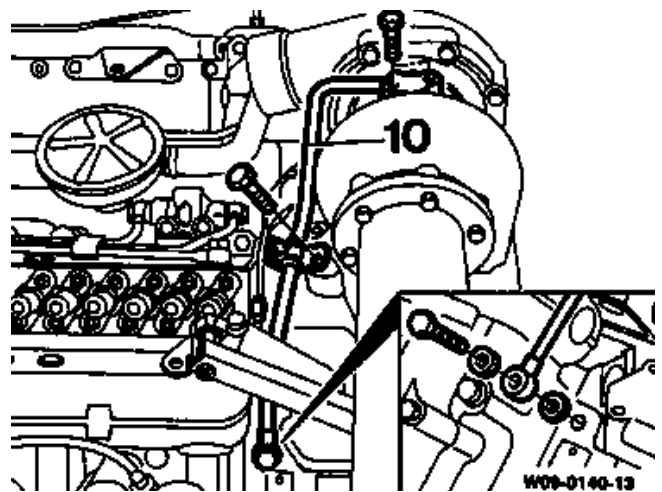
With v+n accelerator control, attach bracket with servomotor.



- 14 Install bracket (12) with idle speed stop cylinder.



- 15 Tighten oil pressure pipe (10) with new gasket at the turbocharger and new sealing rings at the crank case, 25 Nm.

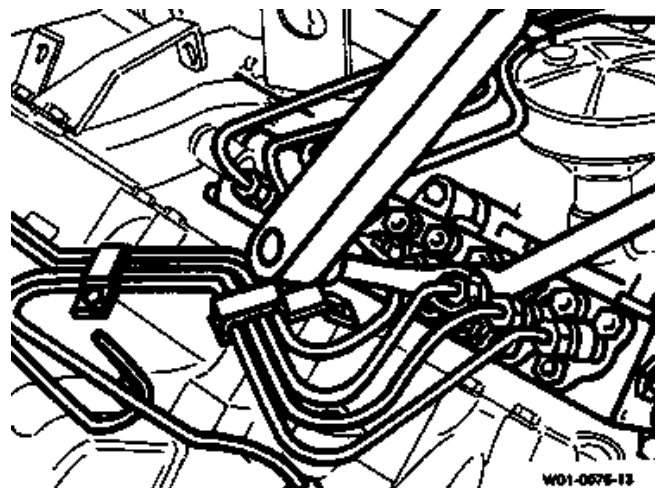


- 16 Fit on injection pipes free of stress and tighten, 25 Nm. Counter-hold pipe connection of the injection pump.

Ring wrench insert 000 589 68 03 00
Serrated wrench 000 589 50 03 00

Note

Pay attention to installation sequence of the injection pipes.



- 17 Remove cranking device at the timing case.

18 Install charge air pipe (09-8621).

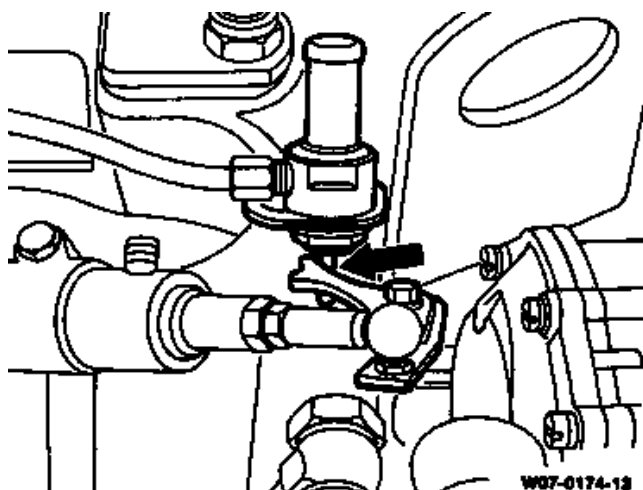
Note

Before starting engine, fill 1.5 ltr. of engine oil into governor housing.

Adjusting idle speed stop cylinder

19 Adjust idle speed stop cylinder (arrow) free of play relative to the injection pump lever when engine idling.

Engine 441 / LA (RQ governor)



Engine 442/ A / LA
441 / LA (RQV governor)

Note

Pay attention to special versions in the case of industrial engines.

