

Servicing Diesel direct injection system

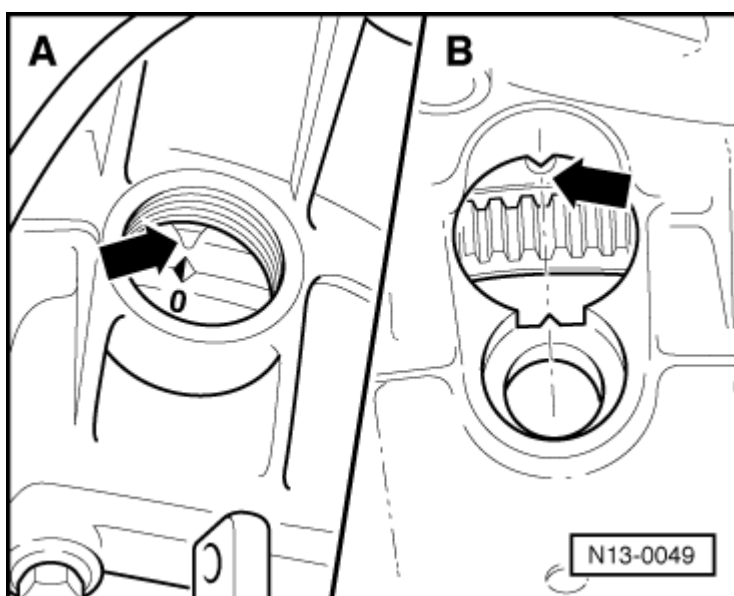
Removing and installing injection pump

Special tools, workshop equipment, testers, measuring instruments and auxiliary items required

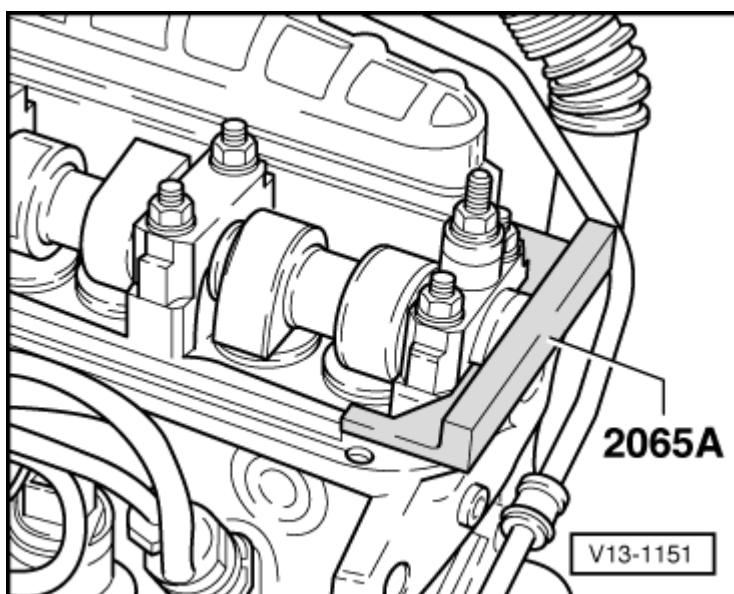
- ◆ Setting bar 2065 A
- ◆ Pin 2064
- ◆ Pin wrench Matra V159
- ◆ Puller 3032
- ◆ Ring spanner 3035
- ◆ Counter-hold tool 3036
- ◆ V.A.G 1331 Torque wrench (5...50 Nm)
- ◆ V.A.G 1332 Torque wrench (40...200 Nm)

Removing

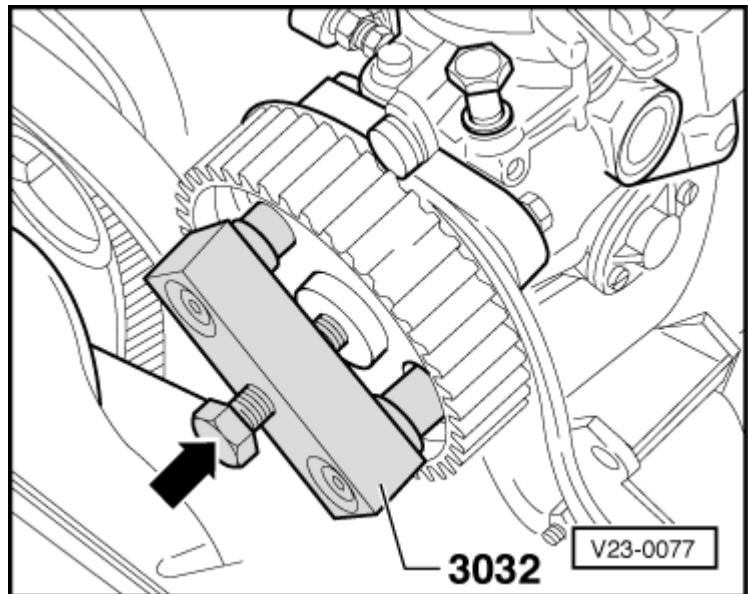
- – Remove air cleaner.
- – Remove upper toothed belt guard and cylinder head cover.
- – → Turn crankshaft to TDC No. 1 cylinder.
 - A: Engine code AEY
 - B: Engine codes AFN, AVG, AHU, ALE, 1Z



- – → Lock camshaft with setting bar.
- – Centralize setting bar as follows:
Turn camshaft so that one end of setting bar contacts the cylinder head. Using feeler gauge establish the gap at the other end of the setting bar. Place a feeler gauge corresponding to half the gap between setting bar and cylinder head. Turn camshaft until the setting bar contacts the feeler gauge. Place a 2nd feeler gauge, of same thickness, at the other end between setting bar and cylinder head.
- – Remove idler roller.



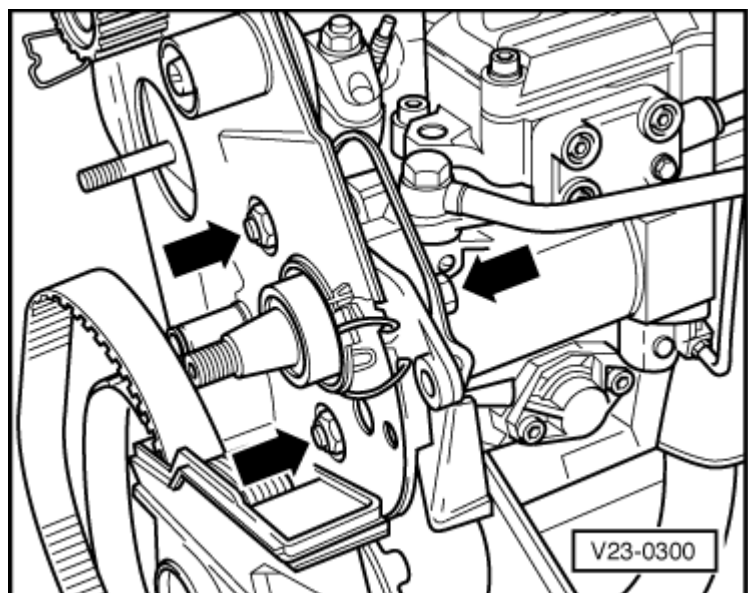
- – Remove tensioning roller nut.
- – Relieve tooth belt tension and take off camshaft and injection pump sprockets.
- – Lock injection pump sprocket with pin 2064.
- – Remove injection pump sprocket securing nut.
- – → Loosen puller arms and offer up.
- – Locate puller arms through holes in injection pump sprocket and tighten.
- – Place injection pump sprocket under tension with puller.
- – Release injection pump sprocket from injection pump taper by tapping lightly on puller spindle - arrow- (when doing this hold sprocket so that it does not fall off).
- – Unbolt all fuel lines at fuel pump.
- – Cover openings with a clean cloth.



Note:

Use slotted ring spanner 3035 to remove high pressure fuel pipes.

- – Disconnect fuel cut-off valve/commencement of injection valve connector.
- – Disconnect quantity adjuster connector and unclip connector from retainer.
- – → Remove securing bolts from console -arrows-.



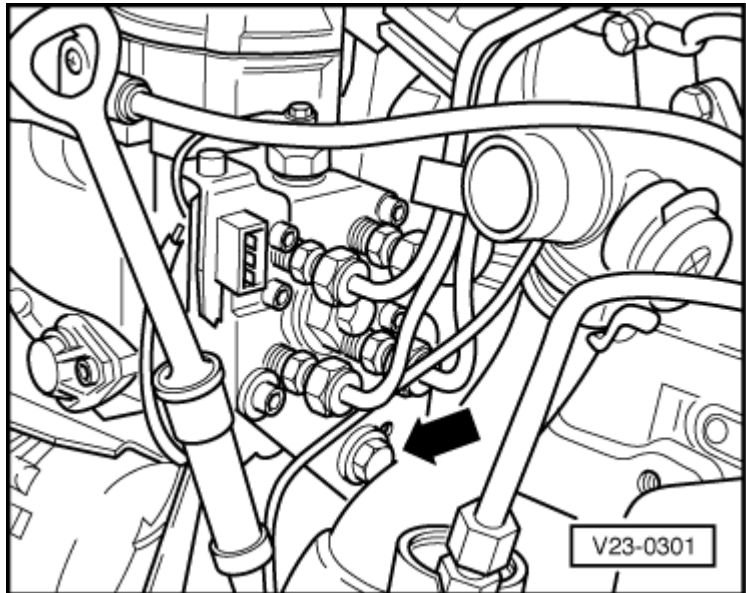
- – → Then remove bolt from rear support -arrow-.
- – Take off injection pump.

Installing

- – Insert injection pump into console and then tighten securing bolt on rear support with conical nut first.
- – Align injection pump to central position in console elongated holes and secure hand tight.

Note:

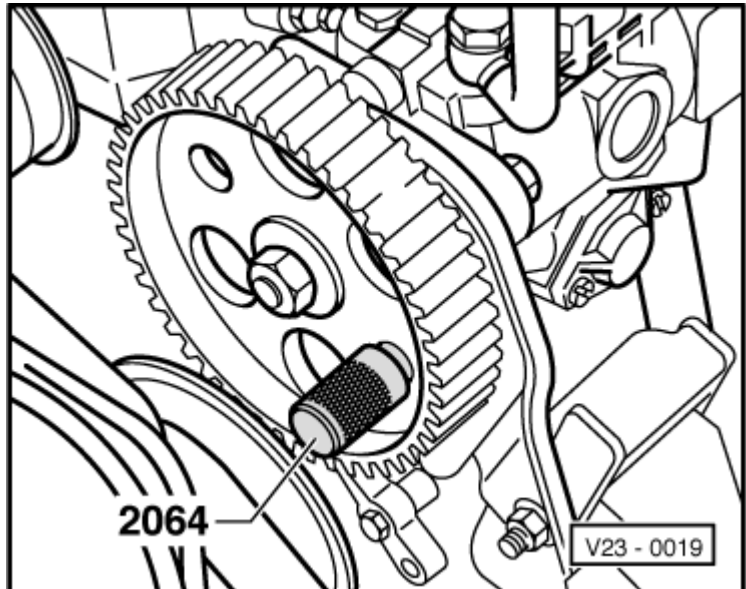
The commencement of injection is set dynamically with V.A.G 1551.



- – → Install injection pump sprocket and lock in position with pin 2064. When installing observe spring washer seating.
- – Tighten securing nut to 55 Nm.

Note:

Never use setting bar as a counter hold when loosening and tightening the camshaft sprocket, use retainer 3036.



- – Loosen camshaft sprocket securing bolt a half turn.
- – Place a drift through hole in the rear of the toothed belt guard and release the camshaft sprocket from camshaft taper with a blow from a hammer.
- – Take camshaft sprocket off.
- – Check whether TDC mark on flywheel and reference mark are aligned.
- – Place tooth belt on injection pump sprocket and tensioning roller.
- – Fit camshaft sprocket into toothed belt and secure sprocket so that the camshaft can still turn.
- – Install idler roller.
- – Remove locking pin from injection pump sprocket.
- – → Tension toothed belt. Using pin wrench (e.g. Matra V159) on eccentric turn clockwise until the notch and the raised mark -

arrows- align.

Note:

If the eccentric has been turned too far the tensioning roller must be relieved completely and retensioned. The eccentric must never be turned back when it has been turned too far.

- – Tighten securing nut to 20 Nm.
- – Check TDC mark on flywheel again.
- – Tighten camshaft sprocket securing bolt to 45 Nm.
- – Remove setting bar 2065A from camshaft.
- – Turn crankshaft two rotations in engine D.O.R. until crankshaft is set to TDC No. 1 cylinder again.
- – Check if
 - the TDC mark on flywheel
 - the setting bar on camshaft
 - the mandrel 2064 in injection pump sprocket
 - the tensioning roller setting (notch/raised mark) align/are fitted correctly.
- – If notch and raised mark do not align, tension the tensioning roller. To do this, hold tensioning roller with pin wrench Matra V159, loosen securing nut, turn eccentric clockwise further until notch and raised mark align opposite one another and tighten securing nut to 20 Nm.
- – Turn crankshaft two rotations in engine D.O.R. until crankshaft is set to TDC No. 1 cylinder again.
- – Repeat check.
- – Fill injection pump with clean Diesel through return pipe union. Quantity for new pump, at least 180 ml.
- – Reconnect injection pipes, fuel pipes and electrical wiring.
- – Install toothed belt guard and cylinder head cover.
- – Install air cleaner.
- – Dynamically check commencement of injection and adjust if necessary =>Page [23-32](#) .

