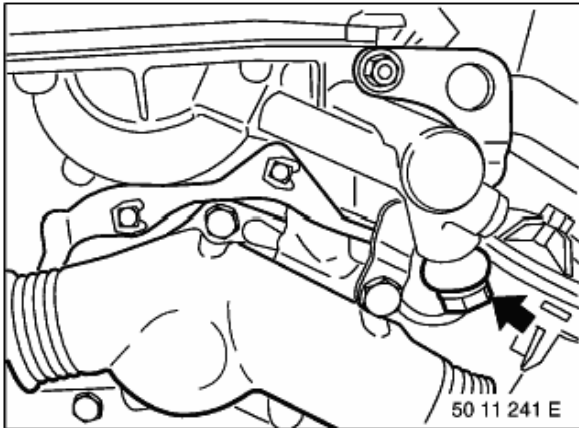


(refer to Operation No. 11 31 005)

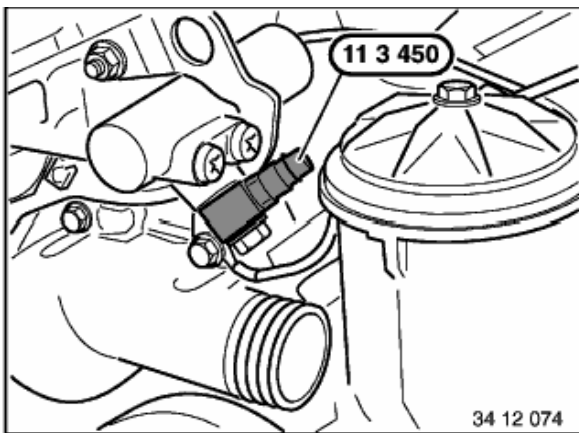
Before performing the adjustment work, check timing of camshaft,

refer to 11 31 005



Unscrew oil pressure pipe.

Disconnect solenoid-valve plug-in connection.

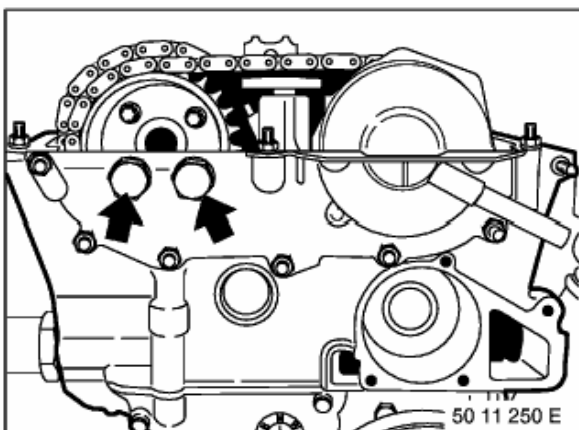


Fit special tool 11 3 450 with banjo bolt on oil pressure line.

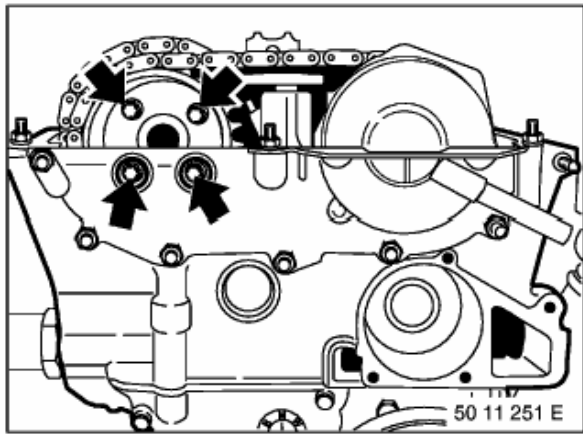
Connect up compressed air (2 ... 8 bar).

**Note:**

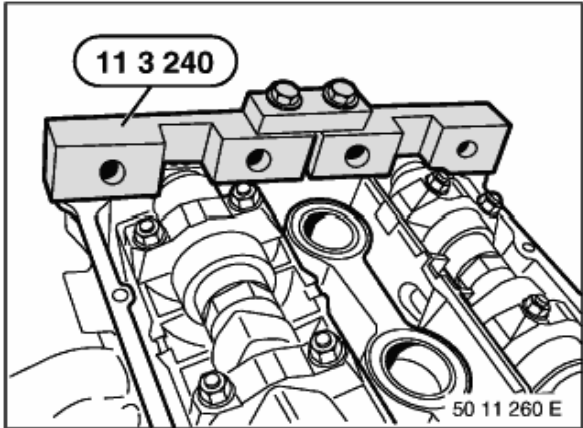
This ensures that spline shaft on VANOS adjustment unit remains in basic setting and camshaft position is not altered by VANOS adjustment unit.



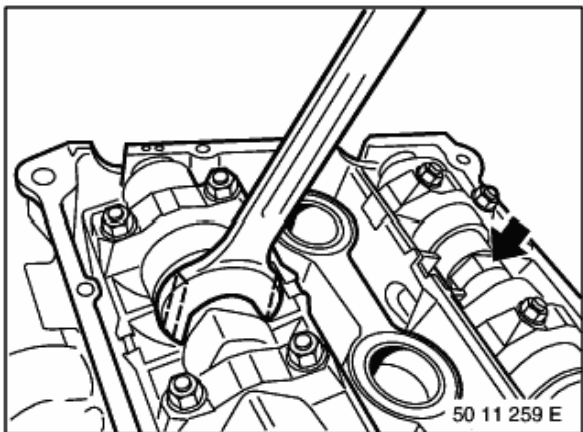
Unfasten screw plugs.



Unfasten sprocket screws on exhaust camshaft.



Remove special tool 11 3 240 from camshaft.

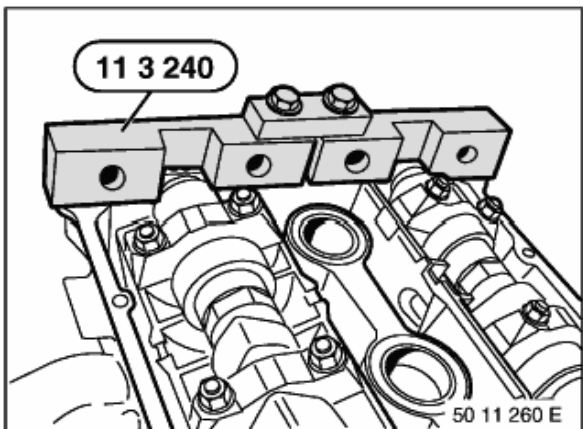


Align camshaft with open-end wrench.

**Caution!**

Do not damage the cylinder head.

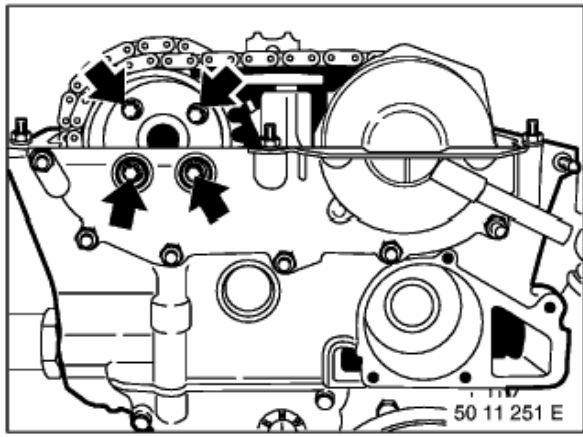
Machine open-end wrench accordingly if necessary.



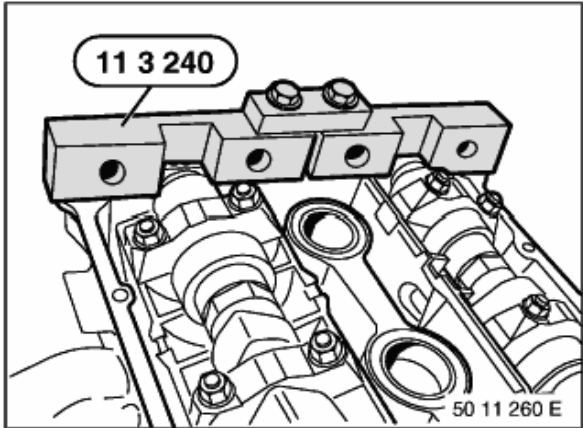
Fit special tool 11 3 240 to camshafts on cylinder 6.

**Note:**

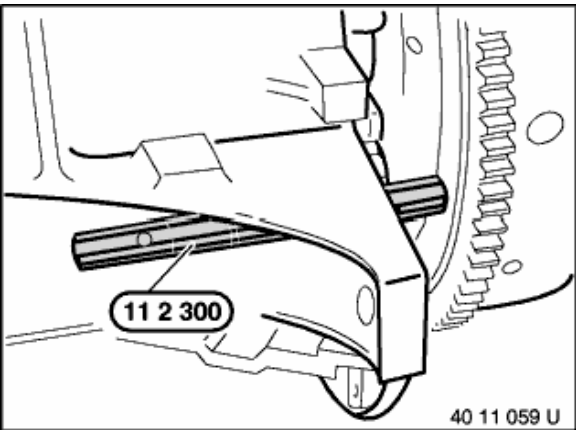
Camshaft setting is OK if special tool 11 3 240 can lie flush on the cylinder head.



Tighten sprocket on exhaust camshaft in two passes.  
Tightening torque,  
refer to Technical Data 11 31 3AZ



Remove special tool 11 3 240.



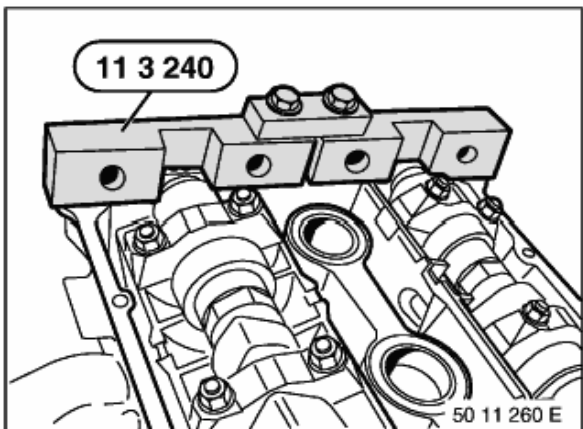
Remove special tool 11 2 300.

Rotate engine twice, then check camshaft adjustment.  
Secure crankshaft with special tool 11 2 300 in TDC position  
of 1st cylinder.

**Caution!**

Do not turn the engine back.

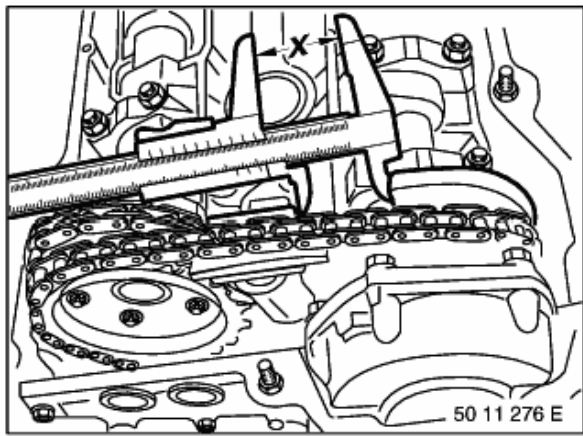
Remove special tool 11 2 300 before switching on the  
engine.



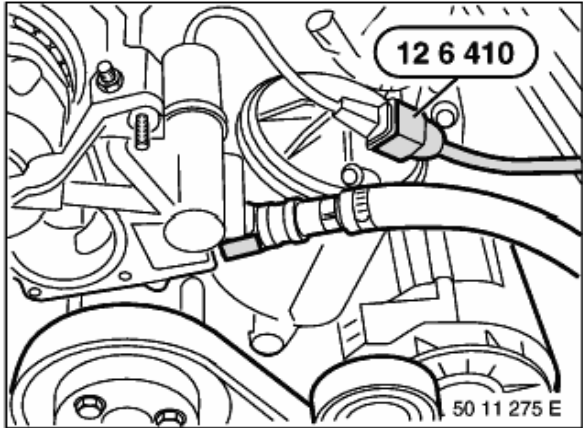
Apply special tool 11 3 240 on camshafts.

The camshaft setting is OK if special tool 11 3 240 locates  
flush against the cylinder head.

Remove special tool 11 3 240.



Check adjustment travel of VANOS adjustment unit:  
 Measure gap (x) between secondary tensioner and edge of sensor gear.  
 Note down distance 1.

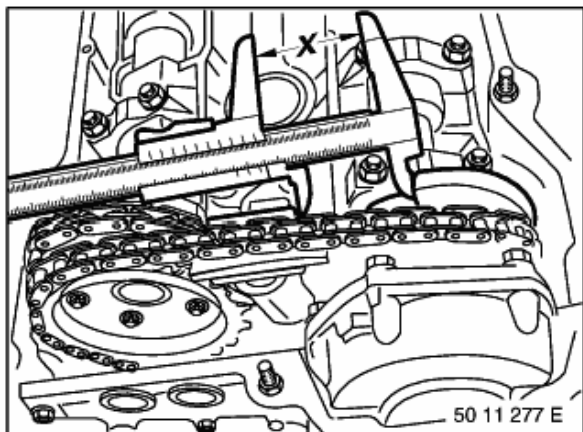


Connect special tool 12 6 410 to plug connection for VANOS solenoid valve.  
 Connect positive clip to battery connection point.  
 To adjust camshaft, connect negative terminal to vehicle earth.



**Caution!**

If terminals on special tool are accidentally inverted, this destroys the diode installed on the VANOS solenoid valve. Solenoid valve remains serviceable but current spikes can give rise to faults in vehicle circuit.

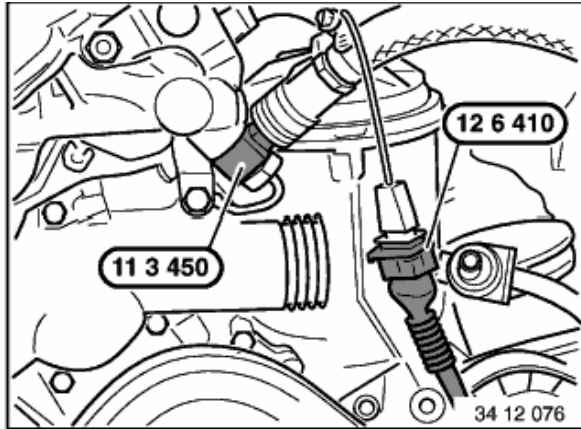


Measure gap (x) between secondary tensioner and edge of sensor gear.  
 Note down distance 2.  
 Determine control travel:  
 Distance 2 - distance 1 = length of stroke.



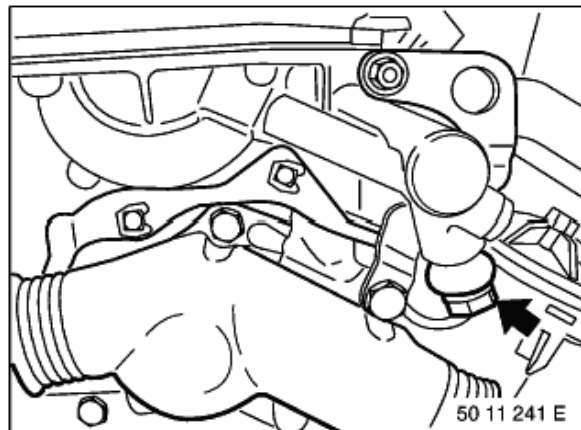
### Caution!

If adjustment travel is less than 8.5 mm, the VANOS adjustment unit must be removed and reset, refer to 11 36 010



Remove compressed air connection.

Remove special tools 11 3 450 and 12 6 410.

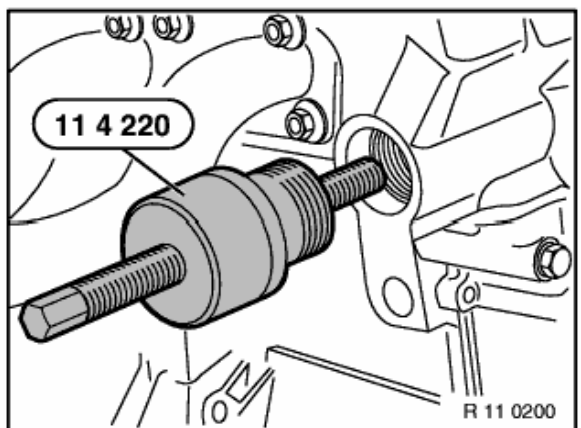


Fit oil pressure line with new seals.

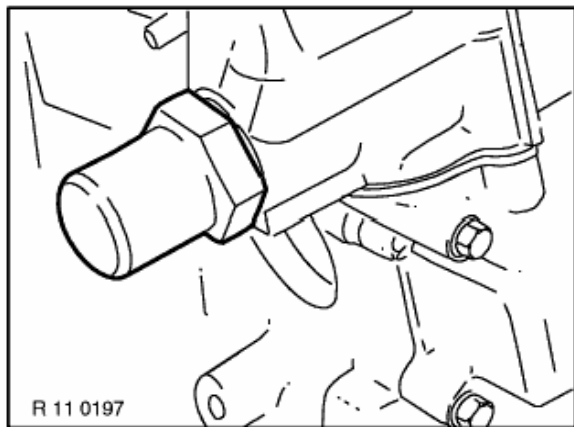
Tightening torque,

refer to Technical Data 11 36 2AZ

Install solenoid-valve plug-in connection.



Relieve tension on special tool 11 4 220 and remove.



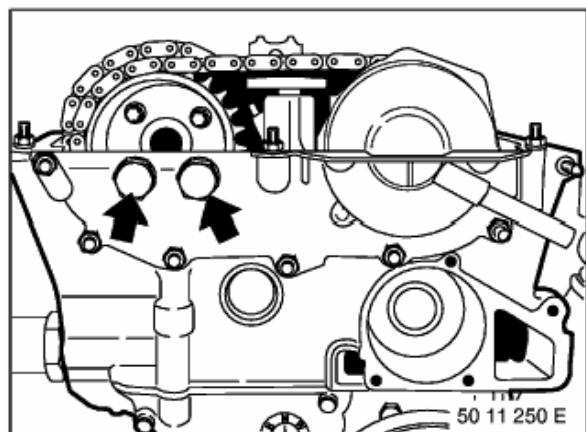
Install cylinder for chain tensioning piston:

**M52**

refer to 11 31 090

**S52**

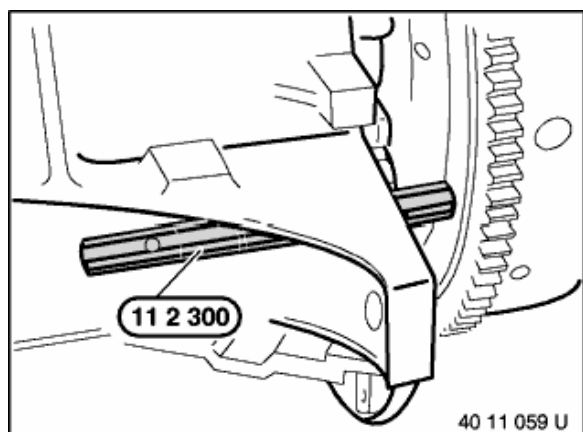
refer to 11 31 091



Install plugs with new sealing rings.

Tightening torque,

refer to Technical Data 11 36 3AZ



Remove special tool 11 2 300 (plug mandrel).

Assemble engine.