



VV SET PSA PETROL ENGINES 1.0 VTI-1.2 VTI-1,2 E-VTI-1.2 PURE TECH

Manual

94313350



PICHLER
tools since 1978.

SAFETY NOTICE

To understand the functioning of the tools, is it necessary to read the manual first!

- > Read these instructions before assembling, during installation and throughout use and in the proper sequence
- > Always refer to the OEM manufacturer's instructions and service manuals for the latest data and to maintain the correct sequence
- > These work instructions and the recommended tools are meant to serve as aides only and are by no means a guarantee for certain results.
- > This tool kit is a special collection and it has been tested and used successfully on several occasions. It is of the utmost importance to maintain the correct procedure as per the instructions
- > The use of the tools should only be carried out by qualified personnel!



ATTENTION

Special caution



CORRECT



LIGHT BULB

Hint or recommendation



WRONG



SAFETY GOGGLES

Wearing safety goggles
necessary

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INDRODUCTION

1.0 AND 1.2 EB0/EB2 3 CYLINDER PETROL ENGINES IN:

CITROEN:

C1 II
C4 II/Cactus
DS3
C3 III
C-Elysee DS4

PEUGEOT:

108
2008
208
308

TOYOTA:

Aygo

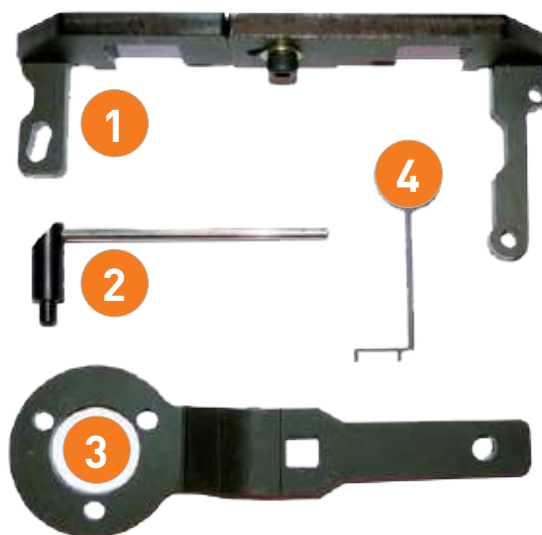
ENGINE CODES:

1.0

EB0 (ZMZ)
EB0F (ZMZ)

1.2

EB2 (HMZ)
EB2D (HMT)
EB2D (HMU)
EB2DT (HNZ)
EB2DTS (HNY)
EB2F (HMZ)
EB2M (HMY)
EB2M (HMY)
EB2NR
1PP (HM01)



Nr.	Description	OE Ref.
1	Camshaft Setting Tool	0109-2A
2	Flywheel Locking Pin	0109-2B
3	Crankshaft Hub Holding Tool	-
4	Belt Test Gauge	0109-6



ATTENTION

Always refer to the vehicle manufacturer's service instructions, or proprietary manual, to establish the current procedures and data. Product Information Sets detail applications and use of the tools with any general instructions provided as a guide only. **94313350** has a policy of continuous development & reserve the right to change product specification or appearance without prior notice.

1. ENGINE TIMING - CHECK

The following information is based on a 1.0 EB0 engine. Always refer to vehicle manufacturer's latest information before carrying out engine timing procedures to ensure that correct procedures and specifications are maintained. Disconnect the vehicle battery.

Remove the engine top covers, air filter housing, air intake pipe, inlet manifold and the camshaft cover.

Remove the right hand engine splash shield to provide access to the crankshaft pulley.



Check the operation of the camshaft VVT units. The VVT unit should be 'locked' to the camshaft at the limit of travel. Using a 21 mm open ended wrench on the flats of each camshaft, attempt to rotate the camshaft back and forth. A small amount of movement may be seen. Total range of movement in each VVT unit is approximately 35°.



If the INLET camshaft and VVT unit are not locked together, rotate the camshaft ANTICLOCKWISE to the limit of its movement and recheck.

If the EXHAUST camshaft and VVT unit are not locked together, rotate the camshaft CLOCKWISE to the limit of its movement and recheck.

If it is not possible to lock each of the camshafts to the VVT units, the VVT units may be faulty and need to be replaced.



Rotate the crankshaft in the normal direction of rotation until the 3 flat sides of the camshaft location faces are uppermost and approximately 30 before the timing position.



Raise the vehicle.
Remove the flywheel blanking plug.

Install Flywheel Locking Pin.

Slowly rotate the crankshaft in the normal direction of rotation until the flywheel pin can be inserted into the timing hole of the flywheel.

ATTENTION

! Ensure that **94307001** Flywheel Locking Pin is located in the flywheel timing hole by gently attempting to rotate the crankshaft back and forth. Do not mistake the recessed face of the flywheel with the correct timing position.

Check that the 3 flat faces of the camshaft are up-permost and that the rounded side of the camshaft is at the bottom.

Install Camshaft Setting Tool onto the flats of the camshafts.

Ensure that the legs of the tool are flat on the cylinder head, retain in position using two bolts from the camshaft cover.

If it is not possible to fully install the Flywheel Locking Pin and Camshaft Setting Tool the engine timing is incorrect and will require adjustment, see section "Engine Timing – Adjust".

BELT-IN-OIL REPLACEMENT (ENGINE TIMING – ADJUST)

This information assumes that the procedure "Timing – Check" detailed above has been carried out and that Flywheel Locking Pin and Camshaft Setting Tool are correctly installed.

If the VVT units are to be replaced, ensure that Flywheel Locking Pin and Camshaft Setting Tool are correctly installed, then continue with the "Timing – Adjust" procedure, replacing the units when they are removed from the camshafts.

If the toothed belt is to be refitted, mark the direction of rotation on the belt before removing it from the engine. Raise the vehicle.

Remove the auxiliary belt tensioner and the auxiliary belt.

Cut the water pump drive belt from the engine; The water pump drive belt should be replaced, not re-used.



Release the three retaining bolts and remove the crankshaft pulley from the engine, then remove the toothed belt tensioner access panel.



Release the toothed belt tensioner bolt and remove the tensioner from the engine.

Remove the toothed belt guide pulley from the engine.



Remove the crankshaft oil seal from the engine.



Install Crankshaft Hub Holding Tool to the crankshaft hub using three crankshaft pulley bolts. Using Crankshaft Hub Holding Tool + Handle as a counter-hold, remove the crankshaft hub bolt from the engine and discard it. Remove the crankshaft hub and sprocket from the engine, taking care not to drop the crankshaft sprocket inside the engine casing.

ATTENTION

! Engine setting/locking tools must not be used to counter-hold when removing or installing the camshaft / crankshaft sprocket bolts.



Lower the vehicle.

If Camshaft Setting Tool is not installed on the camshafts, use an open ended wrench to rotate the camshafts to the correct position, then install as described in section "Timing – Check".



Using an open ended wrench to counter-hold each camshaft in turn, remove and discard the retaining bolts from the VVT units, then lift the VVT units and toothed belt from the engine.
Replace the toothed belt as required.



ATTENTION

Engine setting/locking tools must not be used to counter-hold when removing or installing the camshaft / crankshaft sprocket bolts.

The belt has two marks that correspond to marks on the outer edges of the VVT units.
Position the toothed belt within the engine casing with the marks at the upper end of the belt.e section "Engine Timing – Adjust".



Refit the crankshaft sprocket and crankshaft hub, ensuring that the flanged edge of the crankshaft sprocket is to the rear of the toothed belt and that the tooth of the crankshaft hub is located in the recess at the front of the crankshaft.

Install a new crankshaft hub retaining bolt hand tight only at this stage, ensuring that the sprocket remains free to rotate on the crankshaft hub.



Refit the toothed belt guide pulley, tightening the bolt to the specified torque.

Refit the toothed belt tensioner pulley, hand tightening the bolt only at this stage.

The hexagonal hole of the tensioner pulley should be at the 11 o'clock position to aid fitment.



Refit the Inlet and Exhaust VVT units onto the camshafts.

Install the toothed belt on the sprockets of the VVT units so that the marks of the belt align with the marks of the VVT units.

When installed, the timing mark for the Inlet VVT unit should be in the 8 o'clock position and the timing mark for the exhaust VVT unit should be in the 4 o'clock position, just above the cylinder head. Tighten the retaining bolts to the specified torque.



WARNING

The VVT units must be installed on the correct camshafts. The VVT units are 'keyed' to the camshafts and can only be installed in one position. The Inlet camshaft VVT unit is marked "IN" and the Exhaust camshaft VVT unit is marked "EX". Incorrect installation may result in damage to the VVT units and other engine components.



Rotate the toothed belt tensioner in an anti-clockwise direction to apply tension to the belt. Continue to rotate the tensioner until the tensioner marks align. Tighten the tensioner retaining bolt to the specified torque to retain the tensioner position.



Using Crankshaft Hub Holding Tool + Handle as a counter-hold, tighten the crankshaft hub bolt to the specified torque.



Install a new crankshaft seal using the installation guide sleeve provided by the seal manufacturer. Replace the seal in the tensioner access panel and refit the panel to the engine, tightening the retaining bolts to the specified torque. Remove all tools from the engine. Slowly rotate the crankshaft two full turns in the normal direction of rotation. Repeat "Engine Timing – Check" procedure to ensure that correct engine timing has been achieved. Reassemble the engine in the reverse order of removal.



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