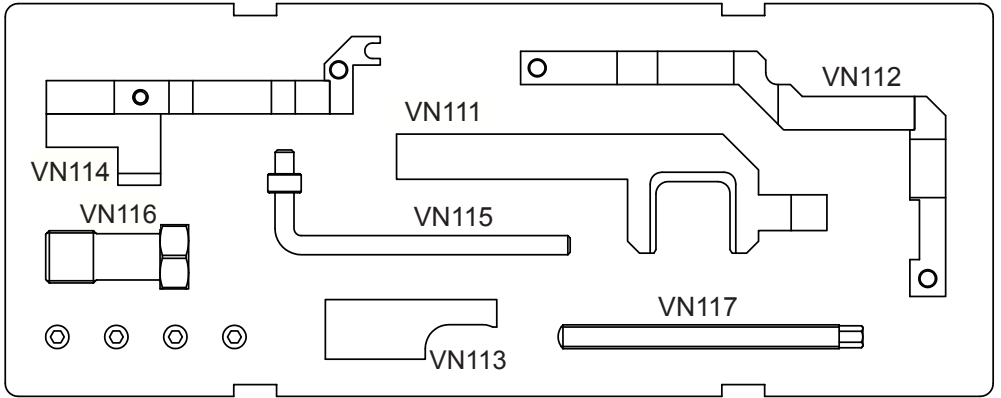


 **Beta**  
**1461/C24B**



**EN**

**INSTRUCTIONS FOR USE**



## ADJUSTABLE TIMING TOOL KIT FOR N12 – N14 ENGINES

### APPLICATION

MODELS	Engine	Engine code
Mini One (07 – 09) Mini Cooper (06-09) Mini Cooper S (06-09)	1.4 – 1.6	R55 - R56
Citroen C4 – C4 Picasso	1.4 – 1.6	EP3 – EP6 EP6DT/DTS
Peugeot 207 Peugeot 308	1.4 – 1.6	

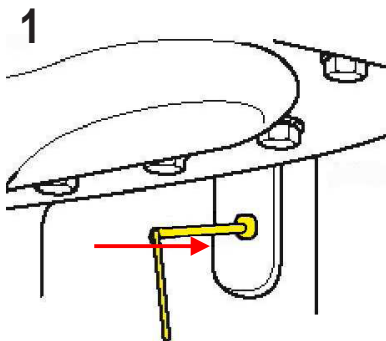


### PARTS:

Ref.	Beta Code	BMW Code	Description
A	VN112	11 9 540	Intake side camshaft alignment tool (engine N12)
B	VN113	11 9 550	Exhaust camshaft locking clamp (engine N14)
C	VN111		Intake side camshaft alignment tool (engine N14)
D	VN116	11 9 340	Threaded chain tensioning bush
E	VN117		Threaded chain tensioning pin
F	VN114	/	Exhaust side camshaft alignment tool
G	VN115	11 9 590	Crankshaft timing pin

## VALVE TIMING PROCEDURE

- Turn the crankshaft until the crankshaft timing pin can be fitted in (ref. G) (fig. 1).
- Check that the “IN” notch on the intake camshaft and the “EX” notch on the exhaust camshaft are facing upwards.
- **Engine N12:** Fit in first the intake side camshaft alignment tool (ref. F), and then the exhaust side camshaft alignment tool (ref. A) (fig. 2).



- Engine N14: fit in first the exhaust side camshaft alignment tool (ref. F-B), and then the intake side camshaft alignment tool (ref. C) (fig. 3).

**Timing is correct when the camshaft alignment tools rest on the cylinder head.**

**Otherwise, take the following steps:**

- Fit in first the exhaust side camshaft alignment tool (ref. F-B), and then the intake side camshaft alignment tool (ref. A for N12, ref. C for N14) (fig. 2 – 3)
- Remove the chain tensioner: if it must be used again, remove oil by slowly compressing the piston twice.
- Slacken the bolts of the camshaft adjustment devices, and check that the “IN” notch on the intake camshaft and the “EX” notch on the exhaust camshaft are facing upwards.
- Align the exhaust camshaft, making sure that the alignment tool rests on the cylinder head.
- Align the intake camshaft, making sure that the alignment tool rests on the cylinder head.
- Tighten the bolts between the alignment tools and the cylinder head.
- Fit in the timing chain pre-tensioning tool (ref. E) and screw in the threaded pin (ref. D), until it comes into contact with the guide rail (fig. 4).
- Now pre-load the timing chain to 0.6 Nm, using the tool, and replace the bolts of all the adjustment devices. Tightening torque: 20 Nm + 180°.
- Remove the following in sequence: crankshaft timing pin, camshaft alignment tools, timing chain pre-tensioning tool
- Finally, fit in the chain tensioner: tightening torque 65 Nm

