

***Kamasa-TOOLS***®

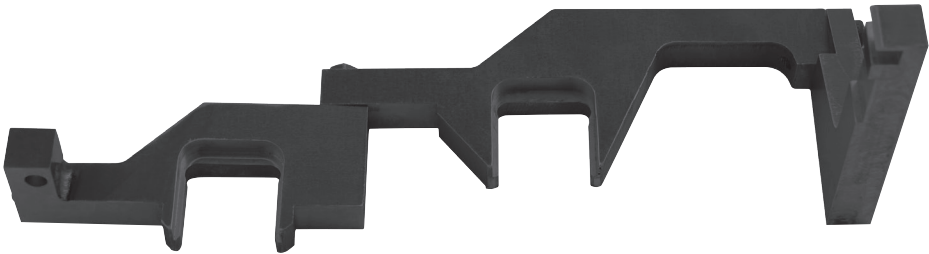
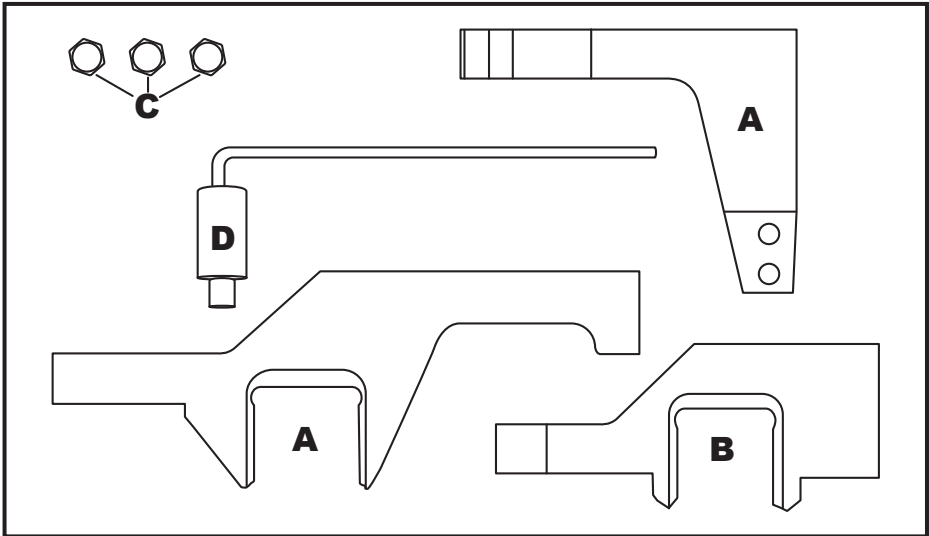
Engine  
timing tools

BMW N12  
PSA  
1.4 / 1.6 Chain

K 10558

[www.kamasatools.com](http://www.kamasatools.com)

## Plan Layout



## Component Identification

Ref	OEM Ref BMW	OEM Ref PSA	Description
A	11 9 540	0197-A3	Inlet Camshaft Locking Tool (Supplied in 2 parts) (Marked IN)
B	11 9 540	0197-A1	Exhaust Camshaft Locking Tool (Marked EX)
C			Fixing Bolts (3)
D	11 9 590	0197-B	Crankshaft Setting Pin

# Applications

The application list for this product has been compiled cross referencing the OEM Tool Code with the Component Code.

In most cases the tools are specific to this type of engine and are necessary for Cam belt or chain maintenance.

If the engine has been identified as an interference engine valve to piston damage will occur if the engine is run with a broken Cam belt.

A compression check of all cylinders should be performed before removing the cylinder head.

Always consult a suitable work shop manual before attempting to change the Cam belt or Chain.

The use of these engine timing tools is purely down to the user's discretion and Tool Connection cannot be held responsible for any damage caused what so ever.

**ALWAYS USE A REPUTABLE WORKSHOP MANUAL**

Manufacturer	Mode	Type	Engine Code	Year
BMW	Mini One		N12B14AB	2007-2010
	Mini Cooper		N12B16A	2006-2010
Peugeot	207   308	1.4	EP3 (8FS)	2007-2010
	207   308	1.6	EP6(5FW)	2007-2010
Citroën	C3   DS3 Vti	1.4	8FR(EP3)	2008-2010
	C3   C3	1.4	5FS(EP6)	2008-2010
	Picasso DS3   C4 VTi	1.4		
	C4 Picasso	1.6		

BMW Mini and Peugeot have developed a pair of new engines; the N12 and N14 ranges incorporate the latest technologies to give the best performance, economy and emissions possible.

This kit has been designed to allow the replacement of the timing chain on the N12 16v 1.4/1.6 engines and to allow the cam and crankshaft to be locked in position so that the camshaft timing can be correctly checked.

Note: It may be necessary to use a pre-load tool on the chain tensioner which is not supplied in the kit but is available separately.

## Preparation

1. The valve timing on these engines is not set with No1 piston at TDC but with all the pistons in the 90° position. For this reason it is recommended by the manufacturers that the spark plugs be removed so that all pistons can be positioned at the same height in the bores.
2. Where the crankshaft locking pin slots into the flywheel there are also balance slots in the flywheel which the pin could slot into by mistake. To ensure the tool is in the timing hole check the piston heights are equal with the pin fitted.
3. Remove the Cam Cover to gain access to the Camshafts
4. Remove the front splash guard (Mini)
5. It is highly recommended that the Vanos unit be checked and if found faulty replaced (See Manufacturers Workshop Manual)

## Component Descriptions

### Components A

Inlet Camshaft Locking Device – used to lock the inlet cam in position to allow the timing to be set. This component is supplied in 2 parts and must be assembled prior to use. Ensure that the Crankshaft Locking Pin and Exhaust Camshaft Locking tools are in place before fitting this component (Fig1)

### Components B

Exhaust Camshaft Locking Device – used to lock the exhaust camshaft in position and connects to the inlet camshaft locking tool as shown in (Fig1)

### Component C

Fixing bolts for above

### Components D

Crankshaft Locking Pin – used to lock the crankshaft in position as shown in (Fig2).

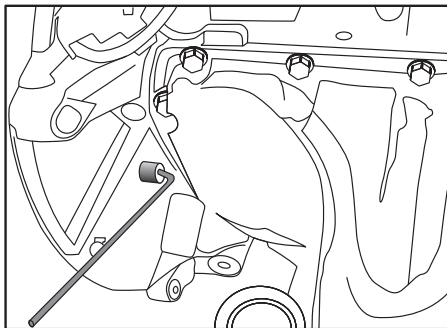
**Note:** These instructions are for reference only. Please refer to the vehicle manufacturer's instructions or other such reputable data provider. The Tool Connection Limited recommend the use of Autodata.

1. Turn the engine in a clockwise direction using the crankshaft pulley centre fixing until the Crankshaft Locking Pin can be slotted in as shown in (Fig2).
2. Double check correct positioning by checking the piston heights as described above.
3. Check that the camshafts are in the correct position by ensuring the markings (IN) on the inlet camshaft and (EX) on the Exhaust camshaft are facing upwards – if not turn the crankshaft 360° and reset.
4. Fit Item B onto the exhaust camshaft as shown in (Fig1).
5. Fit the inlet camshaft locking tool as shown so it bolts onto Item B
6. The timing is correct when the locking tools sit on the surface of the cylinder head with ease.

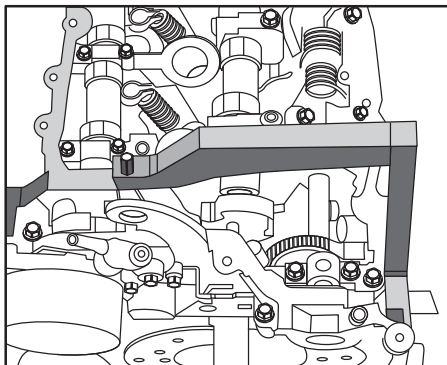
**Note:** In order to adjust the camshaft timing the cam chain tensioner must be removed and the camshaft adjuster centre bolts must be loosened to allow the crankshaft and 2 cams to be turned independently of each other so that the timing can be set.

Please refer to the vehicle manufacturers data.

**Fig. 2**



**Fig. 1**



## **Safety Precautions**

- If the engine has been identified as an Interference engine, damage to the engine will occur if the timing belt has been damaged. A compression check of all the cylinders should be taken before the cylinder head(s) are removed.
- Do not turn crankshaft or camshaft when the timing belt has been removed
- To make turning the engine easier, remove the spark plugs
- Observe all tightening torques
- Do not turn the engine using the camshaft or any other sprocket
- Disconnect the battery earth lead (check radio code is available)
- Do not use cleaning fluids on belts, sprockets or rollers
- Some toothed timing belts are not interchangeable. Check the replacement belt has the correct tooth profile
- Always mark the belt with the direction of running before removal
- Do not lever or force the belt onto its sprockets
- Check the ignition timing after the belt has been replaced.
- Do not use timing pins to lock the engine when slackening or tightening the crankshaft pulley bolts
- ALWAYS REFER TO A REPUTABLE MANUFACTURERS WORKSHOP MANUAL

**Warning – Incorrect or out of phase engine timing can result in damage to the valves. It is always recommended to turn the engine slowly, by hand, and to re-check the camshaft and crankshaft timing positions**



[www.kamasatools.com](http://www.kamasatools.com)