Part No. 5149

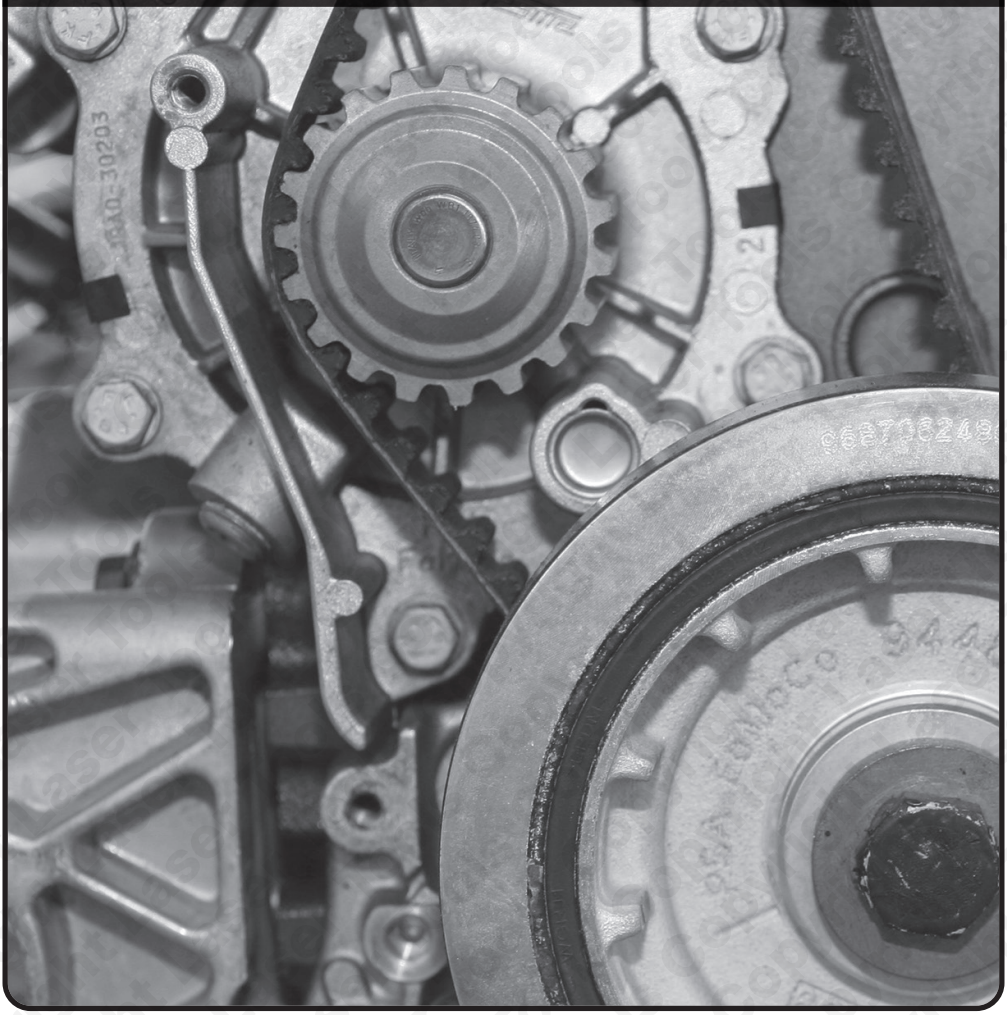
LASER®

**Instructions**

# Engine Timing Tool Kit

MINI Cooper, PSA

MADE IN SHEFFIELD



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## Introduction

MINI and PSA 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.

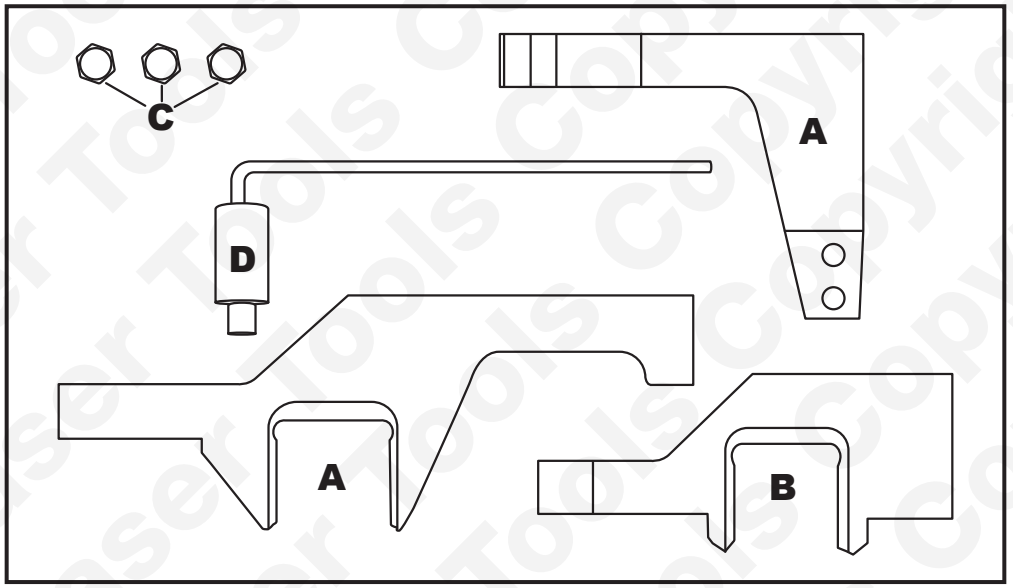
Note: It may be necessary to use a pre-load tool on the chain tensioner which is not supplied in the kit but is available separately - Part No. 5153.

The following instructions are for guidance only. Please refer to OEM derived data such as the vehicle manufacturers' own data or Autodata.

The use of this engine timing tool kit is purely down to the user's discretion and The Tool Connection Ltd. cannot be held responsible for any damage caused whatsoever.




## Components




| Ref. | Comp. Code | OEM Ref. MINI | OEM Ref. PSA | Description |
|---|---|---|---|---|
| A | C515 | 11 9 540 | 0197-A3 | Inlet Camshaft Locking Tool (supplied in 2 parts) (marked IN) |
| B | C514 | 11 9 540 | 0197-A1 | Exhaust Camshaft Locking Tool (marked EX) |
| C | | | | Fixing Bolts (x3) |
| D | C512 | 11 9 590 | 0197-B | Crankshaft Setting Pin |

## Applications

| Manufacturer | Model | Year | Engine Codes |
|---|---|---|---|
| MINI | Cooper (R56/57) | 2006 - 2010 | 1.4L |
| | Clubman (R55) | 2007 - 2010 | N12 B14AB |
| | | | N12 B14 |
| | | | 1.6L |
| | | | N12 B16A |
| Peugeot | 207 / 308 | 2007-2010 | 1.4L |
| | | | EP3 (8FS) |
| | | | 1.6L |
| | | | EP6(5FW) |
| Citroën | C3 / DS3 Vti | 2008-2010 | 1.4L |
| | Picasso DS3 / C4 VTi | | 8FR(EP3) |
| | C4 Picasso | | |
| | | | 1.6L |
| | | | 5FS(EP6) |

*Always refer to the website for most up to date applications:*
***www.lasertools.co.uk/product/5149***



## Instructions

### 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 (Fig. 1).

#### 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 (Fig. 1).

#### Component C

Fixing bolts for above.

#### Components D

Crankshaft Locking Pin – used to lock the crankshaft in position as shown in (Fig. 2).

## Instructions

### Checking the Timing

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 (Fig. 2).
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 component B onto the exhaust camshaft as shown in (Fig. 1).
5. Fit the inlet camshaft locking tool as shown so it bolts onto component B.
6. The timing is correct when the locking tools sit on the surface of the cylinder head with ease.

**Fig. 1**

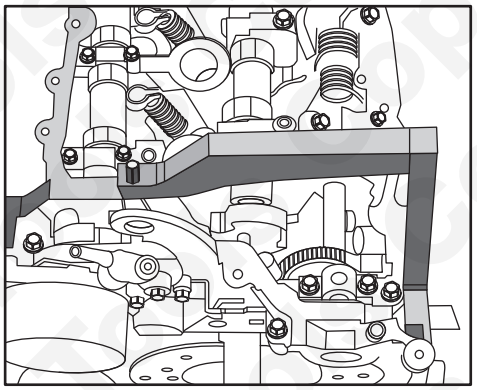
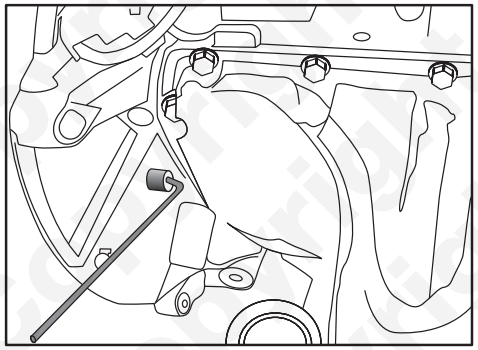


**Fig. 2**



**Note: In order to adjust the camshaft timing the camchain 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.**



## Safety Warnings - please read

- 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/chain has been removed.
- To make turning the engine easier, remove the spark plugs/glow plugs or injectors.
- 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.
- 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.

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If applicable, the applications database and any instructional information provided has been designed to offer general guidance for a particular tool's use and while all attention is given to the accuracy of the data no project should be attempted without referring first to the manufacturer's technical documentation (workshop or instruction manual) or the use of a recognised authority such as Autodata.

It is our policy to continually improve our products and thus we reserve the right to alter specifications and components without prior notice. It is the responsibility of the user to ensure the suitability of the tools and information prior to their use.




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