

Warning

Incorrect or out of phase engine timing can result in damage to the valves. The Tool Connection cannot be held responsible for any damage caused by using these tools in anyway.

Safety Precautions – Please read

- Disconnect the battery earth leads (check radio code is available)
- Remove spark or glow plugs to make the engine turn easier
- Do not use cleaning fluids on belts, sprockets or rollers
- Always make a note of the route of the auxiliary drive belt before removal
- Turn the engine in the normal direction (clockwise unless stated otherwise)
- Do not turn the camshaft, crankshaft or diesel injection pump once the timing chain has been removed (unless specifically stated)
- Do not use the timing chain to lock the engine when slackening or tightening crankshaft pulley bolts
- Do not turn the crankshaft or camshaft when the timing belt/chain has been removed
- Mark the direction of the chain before removing
- It is always recommended to turn the engine slowly, by hand and to re-check the camshaft and crankshaft timing positions.
- Crankshafts and Camshafts may only be turned with the chain drive mechanism fully installed.
- Do not turn crankshaft via camshaft or other gears
- Check the diesel injection pump timing after replacing the chain
- Observe all tightening torques
- Always refer to the vehicle manufacturer's service manual or a suitable proprietary instruction book
- 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



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Guarantee

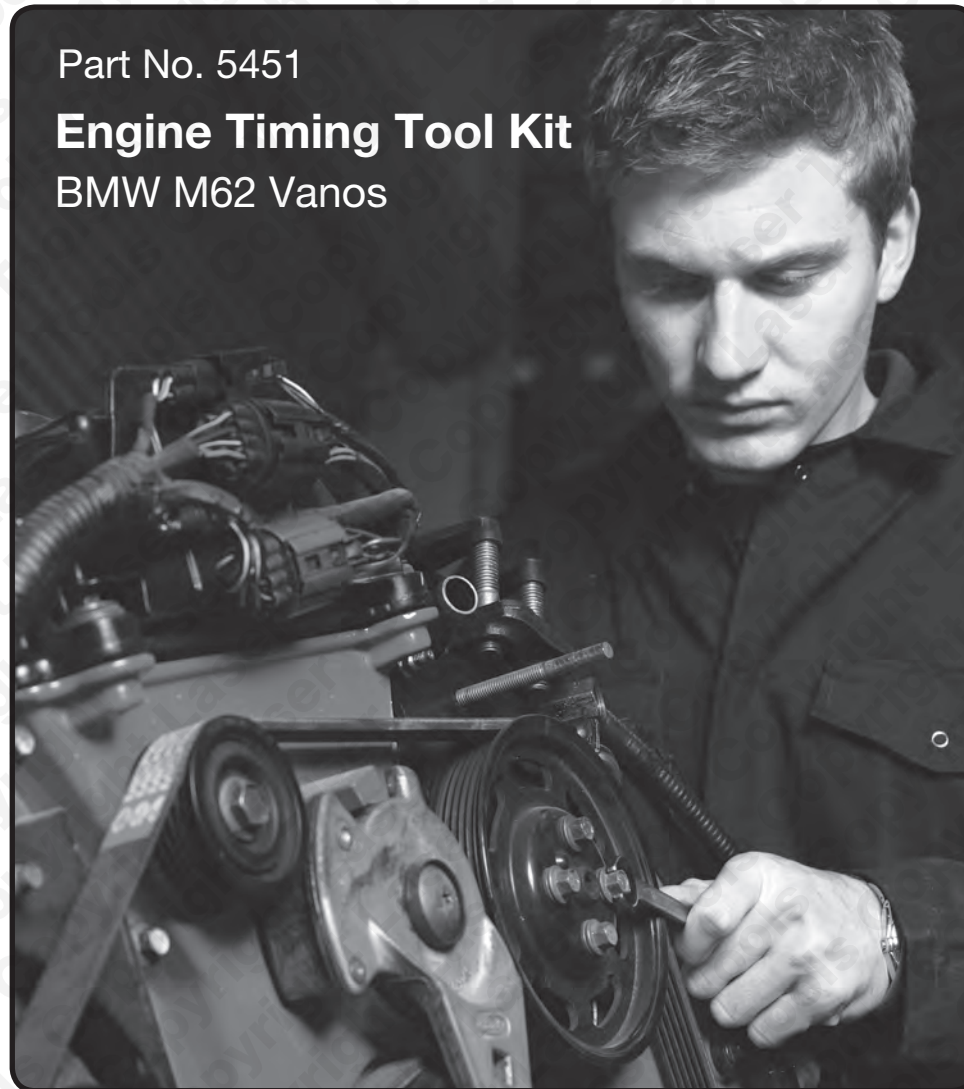
If this product fails through faulty materials or workmanship, contact our service department direct on: **+44 (0) 1926 818186**. Normal wear and tear are excluded as are consumable items and abuse.

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LASER®

Part No. 5451

Engine Timing Tool Kit BMW M62 Vanos



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Introduction



Part No. 5451 Engine Timing Tool Kit BMW | M60 | M62 Vanos

This kit has been developed to set and lock the crankshaft and camshaft components of the BMW M60 and M62 VANOS and non VANOS V8 petrol engine used in BMW, Range Rover and the Morgan Aero 8 vehicles.

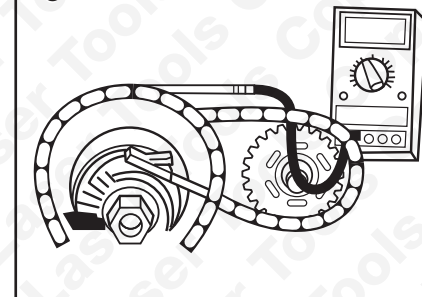
Instructions

VANOS equipped engines

Note: the camshaft nuts and screws have left hand threads

- Secondary cam chain tensioners -
- When refitting the cam chains on VANOS equipped engines BMW recommend the use of a multi-meter set to continuity and connected to the camshaft adjuster contact pin and the screw on the oil line on the cylinder head as shown on Figure 3.

Figure 3

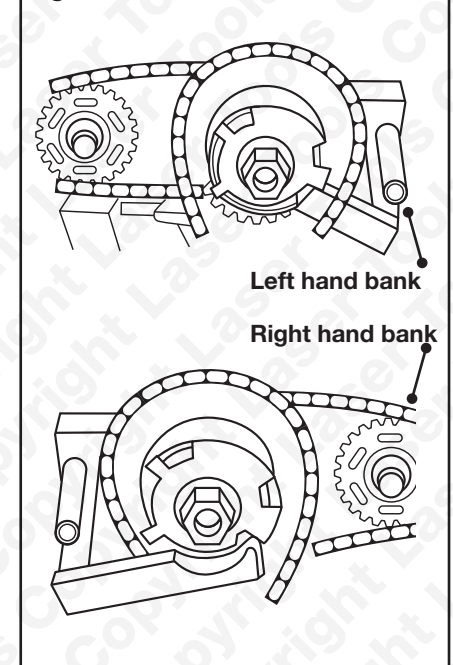


- Using component L turn the camshaft fixing anticlockwise using a torque wrench set to 40Nm. Turn the pulley fixing nut until the multi-meter buzzer sounds indicating the camshaft adjuster is set. Now tighten the fixing bolts of the camshaft pulley.
- Repeat for both banks.

Installing sensor gears on inlet camshafts

- Fit the sensor gear, do not tighten the fixing nut
- Align the sensor gears as shown and install the locking tools (I & J) as shown in fig. 4

Figure 4



Instructions

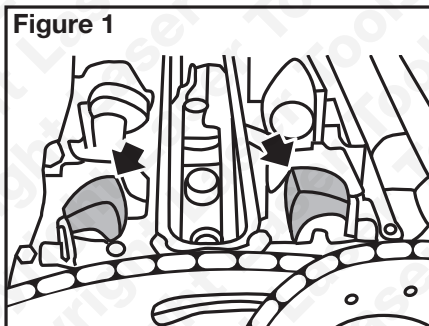
Instructions – checking the timing

Note: these instructions are for reference only. Please refer to the vehicle manufacturer's instructions or other such reputable data provider.

The Tool Connection recommend the use of Autodata.

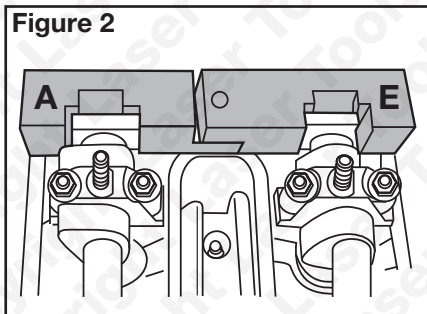
- Turning the engine in the normal direction of rotation only, set the engine to TDC number one cylinder and insert the appropriate flywheel locking tool.
- Check the engine is at TDC No1 by ensuring the cams lobes on number one cylinder are as shown in fig. 1.

Figure 1



- Now fit (A, B, C & D) cam shaft locking tools as shown in fig. 2. (A & B = right hand bank, C & D = left hand bank)

Figure 2



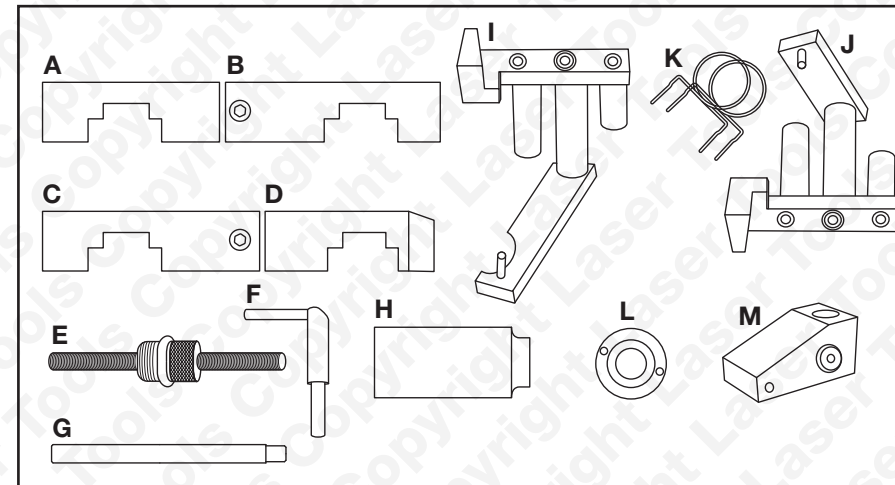
- Ensure components (A, B, C, and D) sit flush on the cylinder heads when engaged with the cam shafts. The camshafts have a "hex" portion on them that allows the use of a wrench to turn them to ensure components (A, B, C and D) sit flush.

Note: use the Hex portion to hold the camshaft against any torque applied for the loosening or tightening of the camshaft pulleys.

Do not use Components (A, B, C and D) to hold against these loads.

- The engine sump can now be removed and the timing chains and sprockets removed as described by the manufacturer.
- When pre-tensioning the main timing chain ensure that component (E) is used on non-VANOS engines and (E) with (M) are used to pre-tension the main chain on VANOS engines.
- If removing the transfer chains Fit the secondary chain tensioner pins (K) after pushing the tensioners back.

Plan Layout



	Code	BMW OEM Code	Range Rover OEM Code	Description
A	C546	11 2 445	LRT 12-223 2	Exhaust Camshaft Locking Tool Cyl 1-4 (R/H Bank)
B	C547	11 2 441	LRT 12-223 1	Inlet Camshaft Locking Tool Cyl 1-4 (R/H Bank)
C	C548	11 2 442	LRT 12-223 3	Inlet Camshaft Locking Tool Cyl. 5-8 (L/H Bank)
D	C549	11 2 446	LRT 12-223 4	Exhaust Camshaft Locking Tool Cyl. 5-8 (L/H Bank)
E	C385	11 4 230 11 3 390	LRT 12-222	Camchain Pre-Tensioner Tool
F	C526	11 5 180	LRT 12-227	Flywheel Locking Tools (E54 - X5) and Range Rover
G	C020	11 2 300		Flywheel Locking Tool BMW M60 M62
H	C550	11 6 420	LRT 12-226	Vanos Solenoid Socket
I	C551	11 6 452	LRT 12-228 1	Camshaft Sensor Locking Tool RH
J	C552	11 6 451	LRT 12-228 2	Camshaft Sensor Locking Tool LH
K	C553	11 3 310	LRT 12-220	Secondary Tensioner Pins (2)
L	C554	11 6 440	LRT 12-224	Vanos Adjuster
M	C555	11 7 380	LRT 12-221	Chain Tensioner Block (use with E)

Applications

Component Descriptions

Components A, B, C and D.

Inlet and exhaust camshaft locking tools – A, B, C and D fit on top of the inlet and exhaust camshafts locking them in place. They interlock with each other in pairs in the same way as they are stored.

Component E

Camchain pre-tensioner tool – used to release and adjust the cam chain prior to the fitting of the cam tensioner. May be used with component M (VANOS engines)

Component F

Flywheel locking tool – component F is specifically designed for the BMW E54 (X5) and the BMW powered V8 4.4 Range Rover

Component G

Flywheel locking tool – component G is the flywheel locking tool for all other BMW M60/M62 (applications not covered by component F)

Component H

VANOS solenoid socket – a specifically sized socket designed to allow the removal of the VANOS solenoid

Components I and J

Right and left bank camshaft sensor locking tools – locking tools designed to lock the camshaft sensors in their timed position on the VANOS equipped engines.

Component K

Secondary chain tensioner pins – the BMW M60 | 62 engines have a single chain driving the inlet cams on each bank and use a secondary short chain to transfer the drive from the inlet camshaft to the exhaust camshaft.

There is one short chain on each bank and one secondary tensioner for each short chain. Components K are used to lock these tensioners in their retracted position

Components L

VANOS adjuster – used to adjust the VANOS to its left hand stop during assembly and adjustment procedures. Use with I and J.

Component M

Chain tensioner block – used with E (VANOS engines only).

Preparation

- Remove both cylinder head covers.
- Remove all camshaft oil lines from both cylinder heads.
- Remove crankshaft front pulley (vibration damper).

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.

Autodata

Our applications data is supplied by Autodata and we are able to supply this data to you in a PDF format. If this is a specific kit for a group of engine codes the application list has been supplied showing the main vehicles this kit is designed for and does not list every model each pin fits. If this is a master kit then all vehicles are included. The data is the copyright of The Tool Connection Ltd and should not be reproduced

If the application data is extensive we have included a CD with the application list in .pdf format.

Languages

Please go to our website for translated instructions in:
French | Spanish | Italian | Dutch | German | Portuguese

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

ALWAYS USE A REPUTABLE WORKSHOP MANUAL

For up to date information go to: www.lasertools.co.uk/toolpoint

Engine Code	Type	Size	Model	Year
M60B30 30 8S 1	Non-Vanos	2997cc	E34 530i E32 730i E38 730i	93 to 95 92 to 94 94 to 96
M60B40 40 8S 1	Non-Vanos	3982cc	E34 540i E32 740i E38 740i E31 840i	93 to 95 92 to 94 94 to 96 92 to 96
M62B35 35 8S 1	Non-Vanos	3498cc	E39 535i E38 735i	96 to 98 96 to 97
M62TUB35 35 8S 2	Single-Vanos	3498cc	E39 535i E38 735i	97 to 2003 98 to 2002
M62B44 44 8S 1	Non-Vanos	4398cc	E39 540i E38 740i E31 840ci	96 to 98 96 to 98 96 to 97
M62TUB44 44 8S 2	Single-Vanos	4398cc	E39 540i E38 740i E53 X5 4.4i	98 to 2003 99 to 2001 99 to 2003
M62B46 46 8S 1	Single-Vanos	4619cc	E53 X5 4.6i	2001 to 04
Range Rover V8/44 8S 2	Single-Vanos	4400cc	Range Rover (02) 4.4	2003 to 05
Morgan M62		4398cc	Aero 8	2000 to 04