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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.



Safety First. Be Protected.

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[®]

6181

Engine Timing Tool Kit BMW S54

Instructions



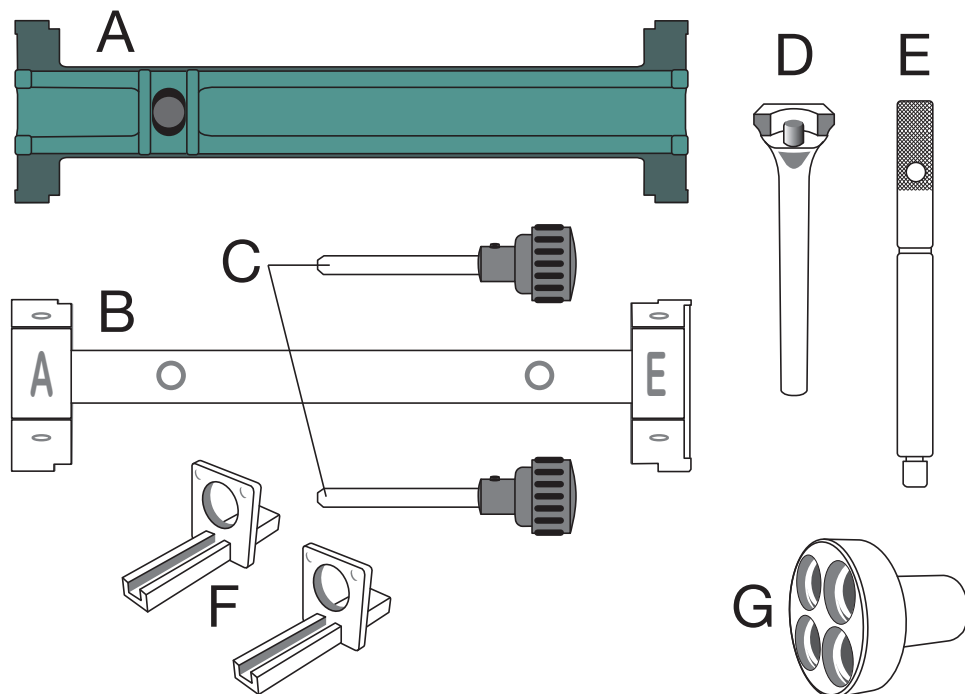
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Engine Timing Tool Kit - BMW M3 1991-2008

The 6181 kit has been specifically designed for the popular BMW M3 fitted with the chain driven 3.2 litre 6 cylinder 24-valve petrol engines.

Components



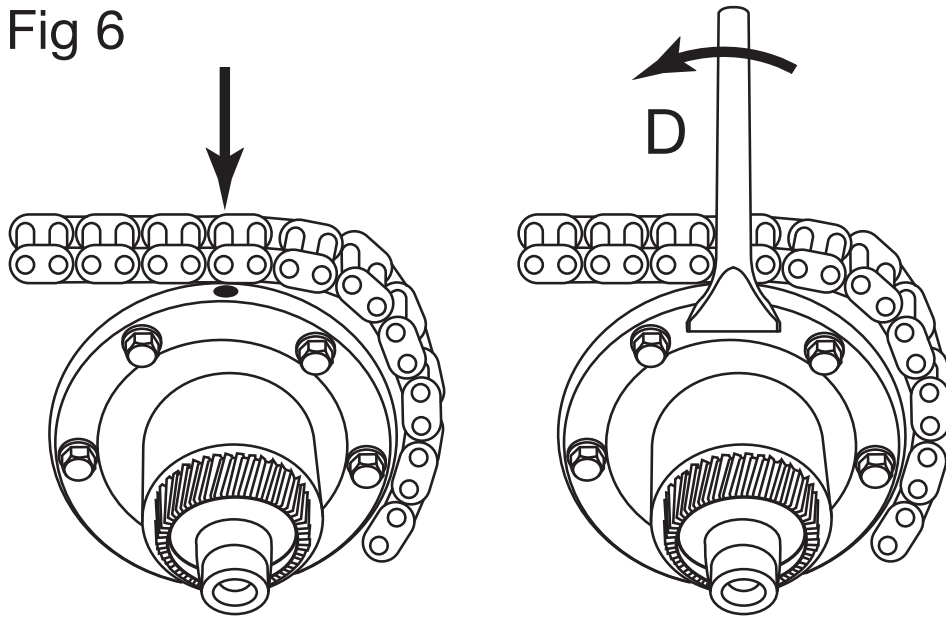
Safety Precautions - PLEASE READ

- Disconnect the battery earth leads (check radio code is available).
- Remove spark 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, or crankshaft 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.
- 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.

VANOS Alignment Lever (D) -

used to align the VANOS splines as shown in Fig 6.

Fig 6



VANOS Spacers (F) -

used to space the VANOS adjustment unit.

Crankshaft Turning Tool (G) -

used on the front pulley bolts to allow the crankshaft to be turned by attaching a 1/2" drive ratchet handle or similar.

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 any way.

Applications

- BMW S54

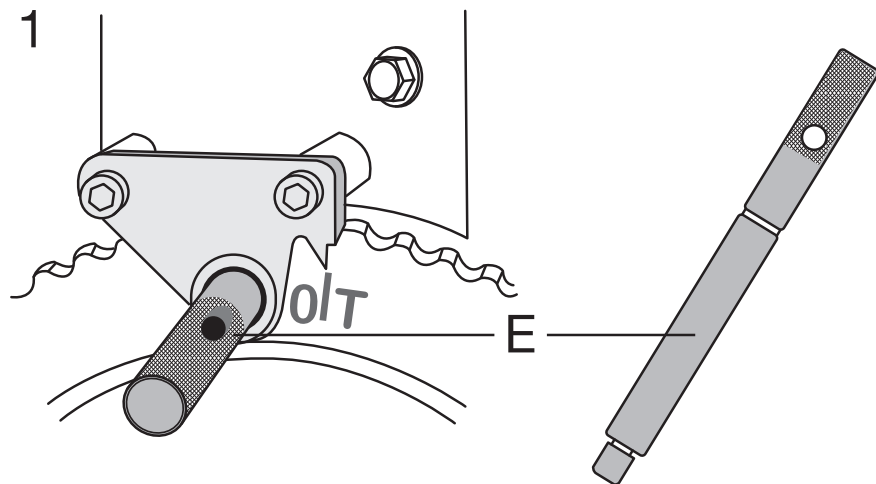
Model	Chassis	Engine	CC	Year (From)
M3	E46	S54 (32-6S-4)	3200	2000
Z3 (M)	E36	S54 (32-6S-4)	3200	2000
Z4 (M)	E85 / E86	S54 (32-6S-4)	3200	2006
M3 (GSL)	E46	S54 (32-6S-4)	3200	2003

- **Note:** The following component descriptions and instructions are provided for guidance only. Please refer to the vehicle manufacturer's documentation and instructions (or from another reputable information provider). The Tool Connection Ltd recommends the use of AutoData.

Instructions

• Initial Setting

Fig 1



- Set the engine to TDC number one cylinder and fit crankshaft locking pin (component **E**) — refer to Fig 1. (**Note:** do not use component **E** to lock the crank to loosen or tighten the front pulley fixing. Always use the appropriate crankshaft pulley holding tool.
- Check both number 1 cylinder camshaft lobes are as shown in Fig 2.
- If the camshaft lobes are 180° out remove component **E** and turn the crankshaft 360° to correctly align the cams as shown.

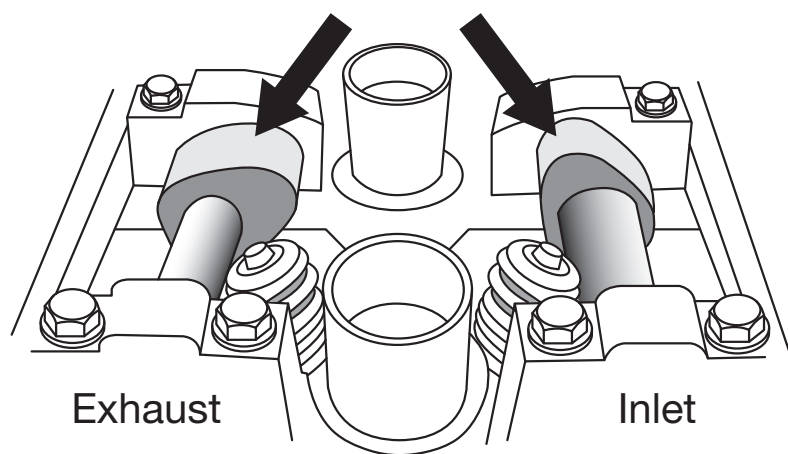


Fig 2

Valve Timing Checking Tool (A) –

used to initially check the cam shaft position relative to TDC number 1 cylinder. (Refer to Figs 3 and 4.)

Fig 3

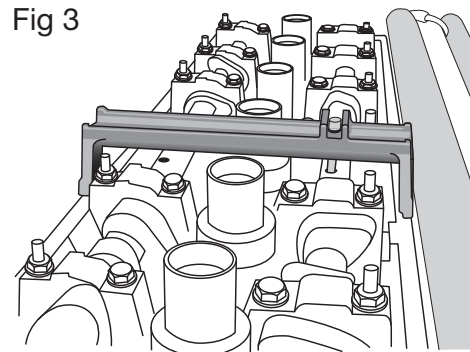
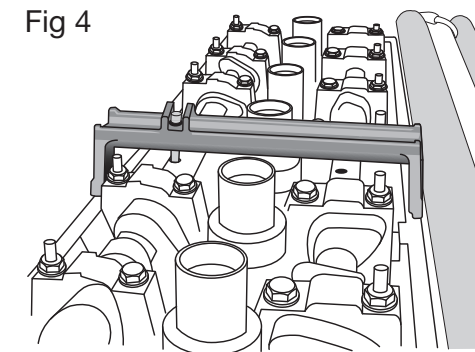


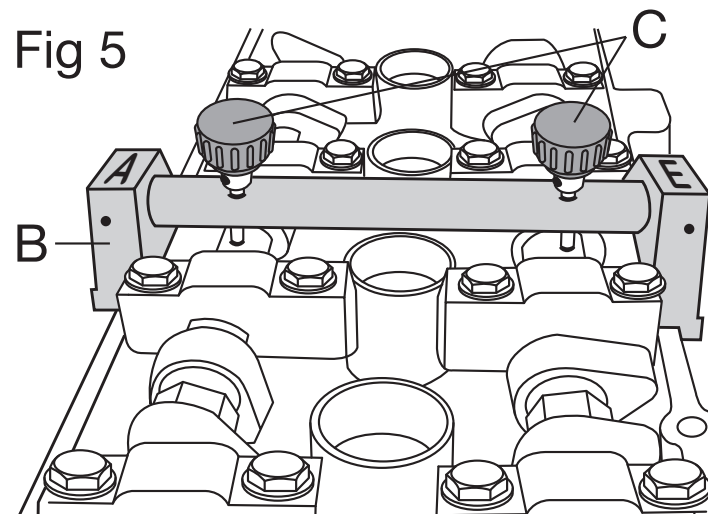
Fig 4



Camshaft Setting Tool and Pins (B and C) –

used to set and hold the camshafts in their timed position as shown in Fig 5.

Fig 5



Note:

- Pay attention to installation direction of Camshaft Setting Tool **B**:
A = Exhaust side; **E** = Inlet side.
- These components are setting tools and not designed to take the torque of tightening or loosening the camshaft pulleys against.