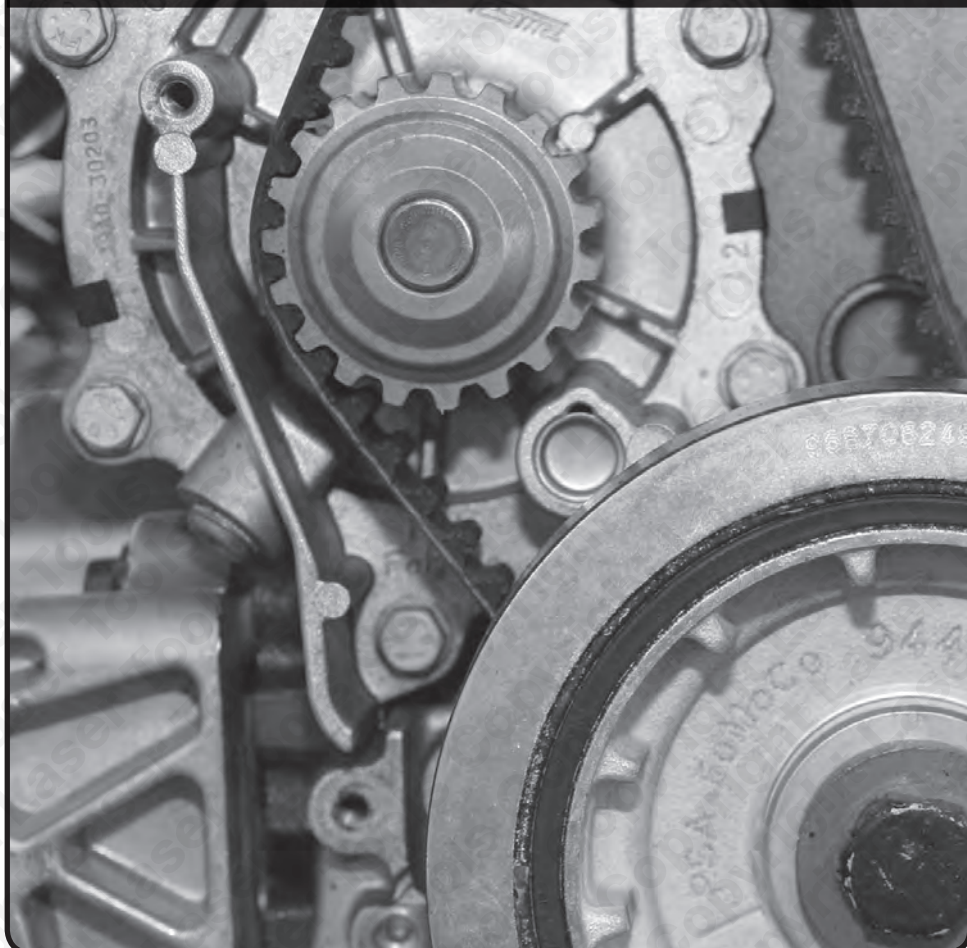


LASER[®]

Part No. 4419

Engine Timing Tools

BMW 1.6 | 1.8 | 2.0



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Introduction



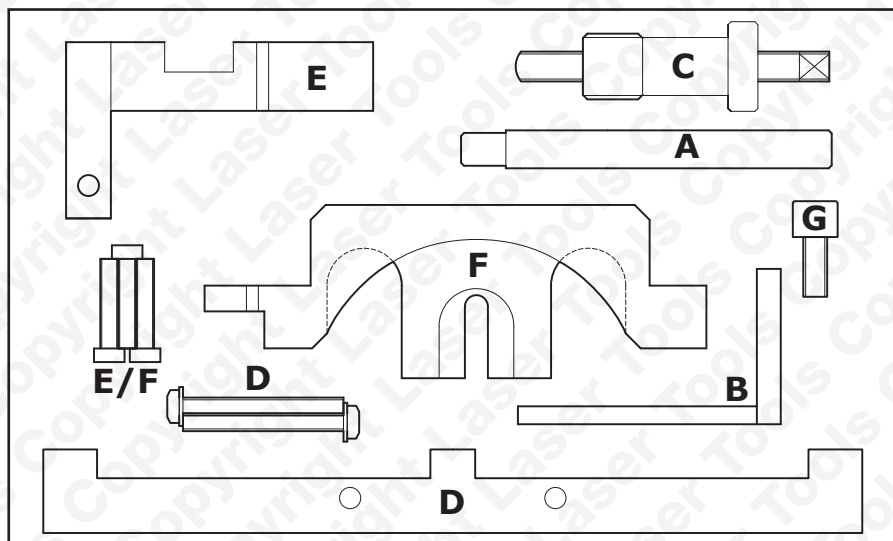
Part No. 4419

Engine Service Tool Kit

BMW 1.6 | 1.8 | 2.0

118i | 120i | 316i | 316ti | 318i | 318ti | 320i | Z4/X3

Plan Layout



Ref	Code	Oem Code	Description
A	C020	11 5 120 11 2 300	Crankshaft Alignment Pin
B	C327	11 9 190	Flywheel Locking Tool Pin
C	C328	11 9 340	Timing Chain Pre-Tensioning Tool
D	C329	11 9 350	Sensor Gear Alignment Tool (# 44)
E	C330	11 9 290 292	Inlet Camshaft Alignment Tool
F	C331	11 9 290 291	Exhaust Camshaft Alignment Tool
G	C332	11 9 290 293	Thumbscrew M8 x 1.25 x 20

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.

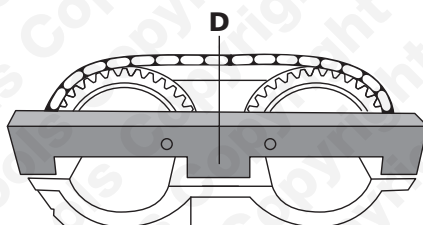
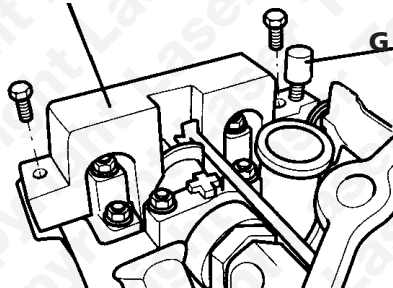
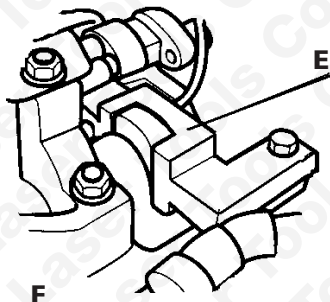
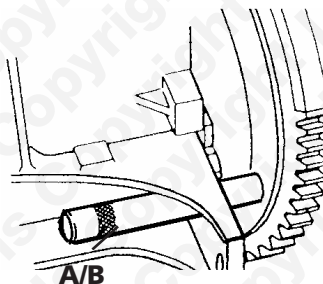
The use of these engine timing tools is purely down to the user's discretion and Tool Connection cannot be held responsible for any damage caused what so ever.

ALWAYS USE A REPUTABLE WORKSHOP MANUAL

Manufacturer	Model	Sizes	Engine Code	Year
BMW	118i 120i (E81 E82 E87)	1.8 2.0	N46 B20B N46T B20	2004-09
	316i 316i Compact (E46)	1.6	N42 B18A N46 B18	2001-05
	318i/318ti Compact (E46)	1.8	N42 B20A N46 B18 N46 B20	2001-06
	318i 320i (E90 E91 E92 E93)	1.8 2.0	N42 B18A N46 B20B	2005-08
	Z4 (E85/E86)	2.0	N46 B20	2004-09
	X3 (E83)	2.0	N46 B20B	2005-09

Instruction

1. Turn the engine to TDC (Top Dead Centre) No 1 cylinder.
2. Remove the blanking plug and insert the correct Flywheel Timing Pin A or B.
3. Check that the curved shape on the rear of each camshaft points upwards.
4. Install the Inlet Camshaft Alignment Tool E, and then the Exhaust Camshaft Alignment Tool F.
5. The Valve Timing position is considered correct when the Tool position relative to the cylinder head is either flush/ touching of slightly raised on the inlet side only.
6. Maximum gap on Inlet Tool E is 0.5 mm. and 1.0 mm. on Exhaust Tool F.
7. The Chain Tensioner plunger is spring loaded, but should be drained of oil and the Plunger compressed slowly twice if being re-used.
8. Install the Pre-tensioning Tool C and tighten the centre screw until light contact with the guide rail.
9. Replace the the bolts on each camshaft adjuster and hand-tighten.
10. Install the Sensor Gear Alignment Tool D and secure to the cylinder head.
11. Slaken, half a turn, the the bolt of each camshat adjuster, and pre-load the timing chain with Tensioning Tool C to 0.6 Nm.
12. Tighten each camshaft adjuster bolt following the manufacturers specification.
13. Re-install the tensioner assembly.
14. Remove all tools, and rotate the Crankshaft twice.
15. The valve timing is correct when each of the alignment tools A or B, E and F can be re-fitted.



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/belt has been removed (unless specifically stated)
- Do not use the timing chain/belt to lock the engine when slackening or tightening crankshaft pulley bolts
- Mark the direction of the chain/belt 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
- Remove spark or glow plugs to make the engine turn easier
- Check the diesel injection pump timing after replacing the chain
- Observe all tightening torques





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Guarantee



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If this product fails through faulty materials or workmanship, contact our service department direct on: **+44 (0) 1926 816166**. Normal wear and tear are excluded as are consumable items and abuse.

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