

## 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/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

### General Information

Always refer to the vehicle manufacturer's service manual or a suitable proprietary instruction book.



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### Guarantee

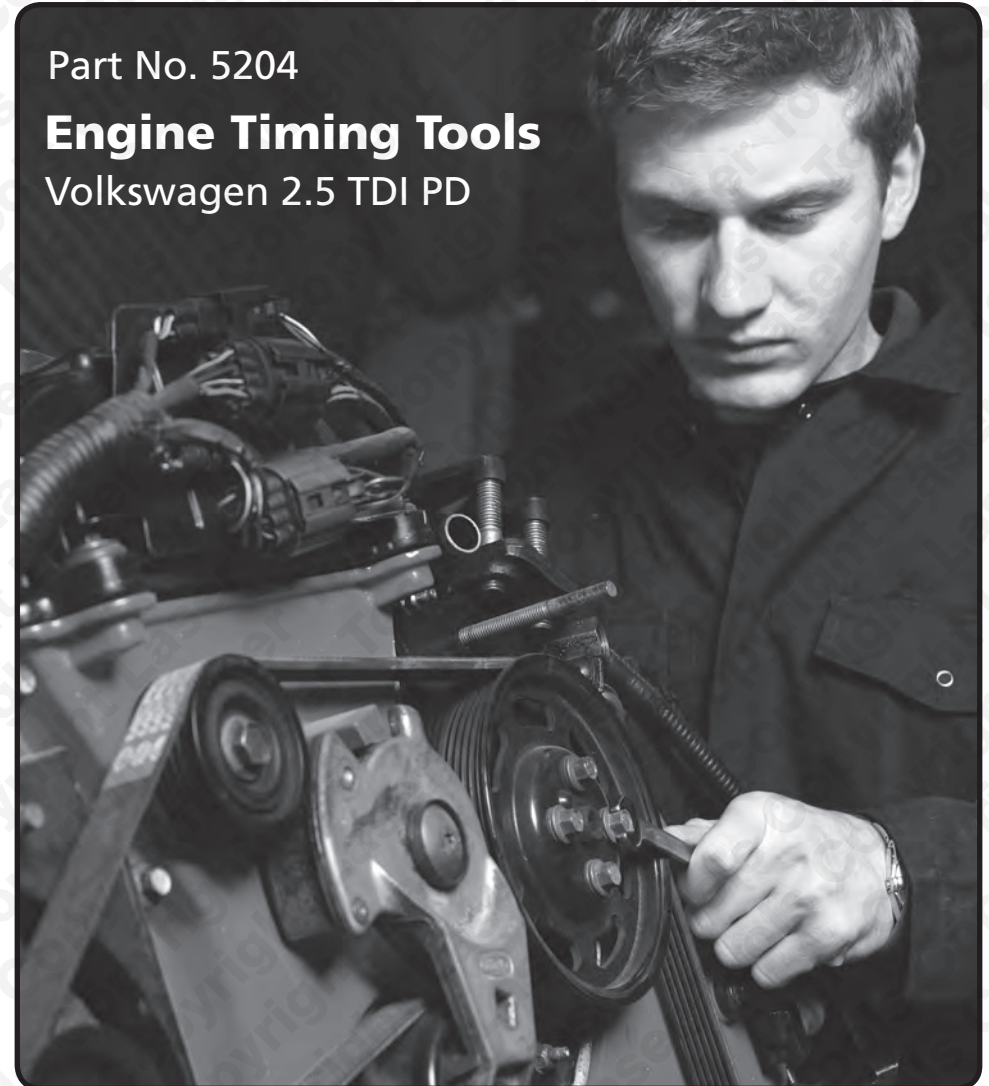
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If this product fails through faulty materials or workmanship, contact our service department direct on: **+44 (0) 1926 818186**. Normal wear and tear are excluded as are consumable items and abuse.

# LASER®

Part No. 5204

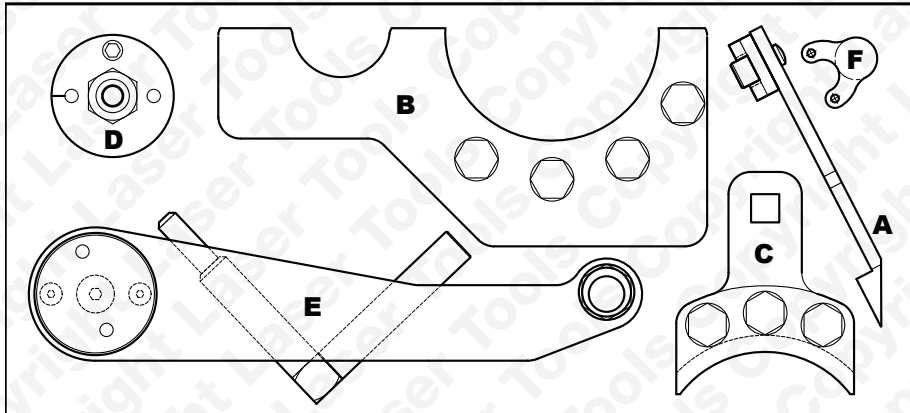
## Engine Timing Tools Volkswagen 2.5 TDI PD



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## Plan Layout



Ref	Code	OEM Ref	Description
A	C422	T10193	Camshaft Locking Tool Type 1
B	C425	T10199	Camshaft Gear Retaining Tool Type 1
C	C426	T10199/1	Camshaft Gear Retaining Tool Type 2
D	C428	T10225	Crankshaft Turning Tool
E	C429	T10226	Crankshaft Alignment Tool
F	C430	T10234	Camshaft Compensation Gear Pre-tensioning tool

## Instructions

A timing tool kit designed for gear driven engines where the engine utilises the VAG PD fuel injection system.

Volkswagen Touareg and Transporter 2.5 TDI PD models with engine code: BAC, BLK, BPD, AXD, AXE, BLJ, BNZ, BPC (05-09).

This engine is driven by Timing Gears which are more commonly fitted to engines without an overhead Camshaft or on diesel engines. Most gears used for driving camshafts and diesel injection pumps have helical-cut teeth but some applications have spur gears with straight cut or backlash reduction systems.

The service life of the timing gears depends on:

Correct gear backlash

Correct lubrication

Timing gears are not normally considered part of the general service and need checking only if they are dismantled or become noisy

### Component A

Two tools (A/B) are used for removing and installing the camshaft drive gear and eliminating play in the gear train

- Fit the camshaft locking tool (A) into the end of the camshaft. If the camshaft locking tool will not fit re-check the crankshaft alignment. If the crankshaft alignment is good but the camshaft alignment tool will not fit then the camshaft alignment must be set as follows:

### Component B

- Remove the camshaft bearing cap closest to the camshaft gear, check the alignment of the camshaft sensor pickup (marks aligns with cylinder head toe to face).
- Fit the camshaft gear retaining tool (B) and tighten the bolts to 40Nm.
- Loosen the gear retaining bolt and turn the camshaft so that (A) fits.

### Component C

- Remove (B) and fit (C) and using the manufacturers' torque settings tighten the camshaft gear fixing bolt. Refit camshaft bearing cap and remove all locking/setting tools. Check timing by turning the engine by hand 2 complete turns. Ensure all locking tools fit correctly.

### Component D

- Fit the crankshaft turning tool (D) and rotate crankshaft in the direction of rotation to align the crankshaft timing marks. Once aligned, check that the camshaft lobes on No1 cylinder are sticking up ("rabbit ears"). If not, turn the crankshaft one complete turn, re-align marks and check again.

### Component E

- Replace the crankshaft turning tool (D) with (E)

### Component F

- Use the camshaft compensation gear pre-tensioning tool (F) to set the gear pre-load by applying a load (see manufacturers' data) in an anti-clockwise direction and tighten the compensation gear bolt fixing.

### ALSO REQUIRED:

- Standard 3/8" D Torque Wrench
- M16 Spline bit – for removing and installing the camshaft drive gear securing bolt and rear brake calliper on Volkswagen Touareg only