

SEALEY

INSTRUCTIONS FOR CAMSHAFT INSTALLATION KIT - VAG/PORSCHE BELT & CHAIN DRIVE

MODEL NO: **VSE7171**

Thank you for purchasing a Sealey product. Manufactured to a high standard, this product will, if used according to these instructions, and properly maintained, give you years of trouble free performance.

IMPORTANT: PLEASE READ THESE INSTRUCTIONS CAREFULLY. NOTE THE SAFE OPERATIONAL REQUIREMENTS, WARNINGS & CAUTIONS. USE THE PRODUCT CORRECTLY AND WITH CARE FOR THE PURPOSE FOR WHICH IT IS INTENDED. FAILURE TO DO SO MAY CAUSE DAMAGE AND/OR PERSONAL INJURY AND WILL INVALIDATE THE WARRANTY. KEEP THESE INSTRUCTIONS SAFE FOR FUTURE USE.



Refer to
instruction
manual



Wear eye
protection

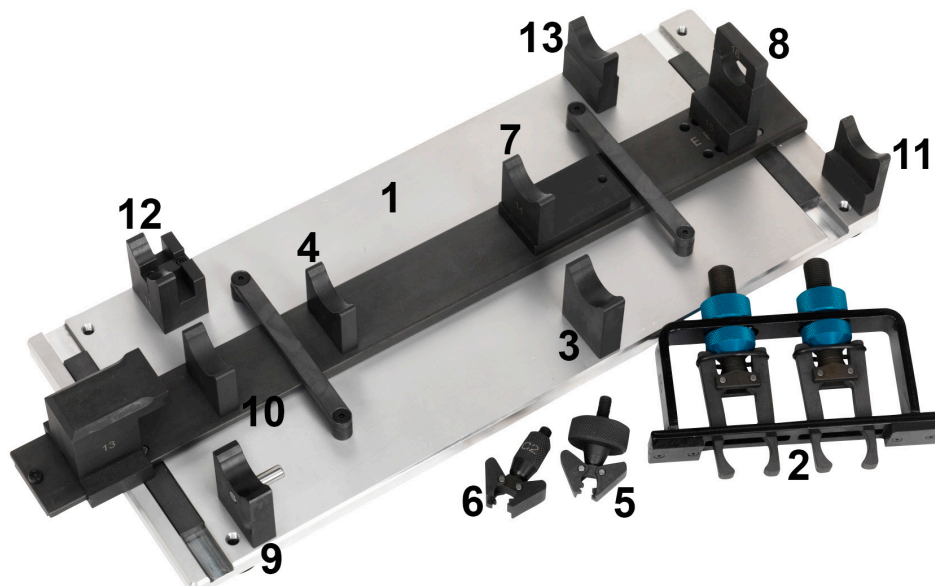
1. SAFETY

- WARNING!** Wear approved eye protection. Wear appropriate Personal Protective Equipment. A full range of Personal Protective Equipment is available from your Sealey dealer.
- WARNING!** Ensure that Health & Safety, Local Authority Regulations and general workshop practice Regulations are adhered to when using tools.
- DO NOT** use tools if damaged.
- Maintain tools to ensure that they are in an adequate condition for safe use and optimum performance.
- Ensure that a vehicle that has been raised by a jack is adequately supported. Use axle stands.
- Wear suitable clothing to avoid snagging. **DO NOT** wear jewellery. Tie back long hair.
- Account for all tools, parts and components being used. **DO NOT** leave these in or near the engine. Return tools to suitable storage after use.
- These Instructions are provided as a guide only.
- Always refer to the vehicle manufactures' service instructions or a proprietary manual to establish the correct procedure and data.
- WARNING!** The warnings, cautions and instructions in this manual cannot cover all possible conditions and situations. The Operator/ user must apply caution and common sense (good practical sense).
- WARNING!** Incorrect or out of phase camshaft timing can result in contact between the valve head and the piston crown. This will cause damage to the engine.

2. INTRODUCTION

Camshaft Installation Kit for VAG/Porsche 1.2, 1.6, 2.0, 3.0, 4.0, 4.2 Common Rail Engines. This range of engines has a belt or chain driving one camshaft with interconnecting spring loaded gears driving the second camshaft. This kit contains essential tooling for correctly aligning the camshafts to each other and to their carrier. For four cylinder engines, use this kit in conjunction with Model No. VSE5951 Diesel Engine Setting/Locking Kit and Model No. VSE 5952 Camshaft sprocket Hub Remover/Installer. Use Model No. VSE6181 Diesel Engine Setting/Locking & HP Pump Removal Kit for V6 and V8 engines.

3. CONTENTS



Item	Part No.	Description	OE Numbers
1	VSE7171.01	Camshaft assembly tool	T40094
2	VSE7171.02	Camshaft securing clamp (B)	T40095
3	VSE7171.03	Adaptor (6)	T40094/1 For 4 cylinder engines
4	VSE7171.04	Adaptor (7)	T40094/2 For 4 cylinder engines
5	VSE7171.05	Camshaft gear locking tool (C1)	T40096 For V6 and V8 cylinder engines
6	VSE7171.06	Camshaft gear locking tool (C2)	T40096/1 For 4 cylinder engines
7	VSE7171.07	Adaptor (14)	T40094/9 For 4 cylinder engines
8	VSE7171.08	Adaptor (15/16)	T40094/10 For 4 cylinder engines
9	VSE7171.09	Adaptor (8)	T40094 (set)
10	VSE7171.10	Adaptor (9)	T40094 (set)
11	VSE7171.11	Adaptor (10)	T40094 (set)
12	VSE7171.12	Adaptor (11)	T40094 (set)
13	VSE7171.13	Adaptor (12)	T40094 (set)
Associated Tools			
	VSE5951	Diesel engine setting/locking kit	
	VSE5952	Camshaft sprocket hub remover/ installer	
	VSE6181	Diesel engine setting/locking and HP pump removal kit	

4. APPLICATIONS

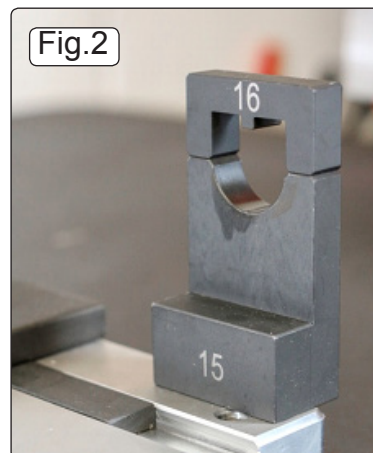
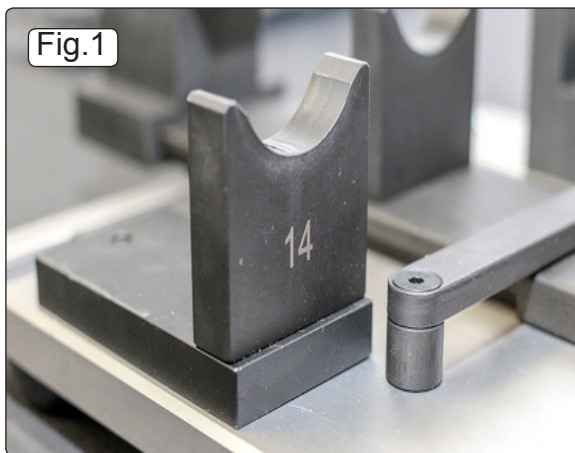
Models:	Volkswagen	Engine codes:	2.0D TDi CR	2.0D TDi CR/Alltrack/Bluemotion/ Freetrack
Audi	Polo (09-14)	1.2D TDi CR/Bluemotion	Cont.	CBAB
A1 (10-15)	Golf V Estate (07-11)	CFWA	CBBB	CFFA
A1 Sportback (10-15)	Golf VI (08-13)		CBDA	CFFB
A3 (08-13)	Golf VI Bluemotion	1.6D TDi CR	CBDC	CFGC
A3 Sportback (08-13)	(09-13)	CAYA	CBDB	CFGB
A3 Cabriolet (08-13)	Golf VI Cabriolet (11-15)	CAYB	CCHA	CFHC
A4 (07-15)		CAYC	CCHB	CLLA
A4 Allroad (09-15)	Golf VI Estate (08-15)	CAYD	CDBA	
A4 Quattro (05-15)	Golf VII (13-16)	CAYE	CFCA	2.0D TDie CR
A4 Cabriolet (05-09)	Golf Plus (08-14)	CEGA	CEGA	CGLD
A5 (08-15)	Beetle (11-15)	CLNA	CFFA	
A5 Sportback (09-15)	Beetle CC (12-15)	CRKB	CFFB	2.7 TDie CR
A5 Cabriolet (07-15)	Eos (08-15)		CFFE	BPP
A5 Coupe (07-15)	Caddy/Caddy Maxi (09-15)	1.6D TDi CR/Ecomotive/ Freetrack/Greenline	CFGB	CANC
A6 (08-14)	Jetta (08-15)	CAYB	CFGC	CAMA
A6 Allroad (06-14)		CAYC	CFGD	CANA
A6 Quattro (05-15)	Passat (08-15)		CFHA	CGKA
A7 (10-14)	Passat Allroad (10-15)	2.0D BiTDi CR	CFHB	
A8 (05-14)	Passat Alltrack (12-15)	CDCA	CFHC	3.0 TDi Bluemotion
TT (08-14)	Passat CC (09-15)	CKTB	CFHD	CASA
Q3 (11-15)	Passat CC Bluemotion (09-15)	2.0D GTD CR	CFHE	CASD
Q5 (08-15)			CFHF	CJMA
Q7 (07-15)	Phaeton (07-14)	CBAB	CFJA	CJGD
	Scirocco (08-14)	CFGB	CGLA	CRCA
	Sharan (10-15)		CGLB	
Seat		2.0D TDi Bluemotion	CGLC	3.0 TDi Clean Diesel CR
Alhambra (10-15)	Touran (10-15)	CAAD	CGLD	CMHA
Altea/Altea XL (09-15)	Touran Bluemotion (10-15)	CAYB	CJAA	
Exeo (09-16)			CJCA	3.0D TDi CR
Ibiza (09-15)	Tiguan (08-15)	2.0D TDi CR	CJCB	ASB
Leon (09-16)	Toureg (08-15)	CAAA	CJCC	CDTB
	Toureg Bluemotion (08-15)	CAAB	CJCD	CDUD
		CAAC	CGLE	CEXA
Skoda	Transporter T5 (09-15)	CAAD	CKTC	CARA
Fabia II (09-15)		CAAE	CLCA	CASA
Octavia II (08-15)	Transporter T5	CAGA	CLCB	CASB
Rapid (12-15)	Bluemotion (11-15)	CAGB	CLJA	CASD
Roomster (10-15)		CAGC	CLLA	CCMA
Praktik (10-12)	Porsche	CAHA	CNFA	CCWA
Praktik Greenline (10-15)	Panamera (13-14)	CAHB	CNFB	CCWB
Superb II (08-15)	Macan (14-15)	CBAA	CRLB	CDUC
Superb II Greenline (10-15)	Cayenne (09-15)	CBAB	CRMB	CDYA
Yeti (09-13)		CBAC	CSHA	CDYB
Yeti Greenline (10-13)		CBBA	CUNA	CDYC
				CDTA
				ASE
				CCFA
				CCFC
				CDSB
				MCU.DB
				4.2D TDi CR

5. INSTRUCTIONS

- 5.1. VAG have a range of 1.2 three cylinder, 1.6 and 2.0 four cylinder common rail TDi twin overhead camshaft diesel engines. These engines use a timing belt to drive one camshaft, the rear end of the camshafts have interconnecting gears to drive the second camshaft within the cylinder head. One of the drive-gears is a split gear and is spring loaded; these camshafts do not have timing marks and therefore cannot be accurately set to their timed position without using this kit. Also included are the two types of tooling required to lock the split drive-gear into position.
- 5.2. The range of V6 2.7, V6 3.0 and V8 4.2 common rail TDi twin overhead camshaft diesel engines use chain drive for the camshaft but still utilise the gear drive system linking the camshafts within the cylinder head.
- 5.3. It is essential to correctly align the camshafts not only with each other, but to the bearing points within the cylinder head, failure to do so can result in damage and premature failure of the bearing surfaces.
- 5.4. For three and four cylinder engines a VSE5951 Setting and Locking kit is also required, for V6 and V8 engines a VSE6181 Setting and Locking kit is also required. Both types of engine will require the use of a VSE5952 Camshaft Sprocket Hub Removing tool.
- 5.5. For demonstration purposes, these instructions show the process for aligning and setting the timing of camshafts on the 2.0 litre engine variant. The other engine variants follow a similar process but in some cases the camshafts have to be mounted with the gear drive at the fixed end of the VSE7171.01 Due to the large variety and engine types and sizes this kit covers, the use of a propriety workshop manual is vital to determine the correct bearing posts required and their mounting positions.

5.6. Setting up the VSE7171 Camshaft Installation Tool for 2.0 litre four cylinder engines

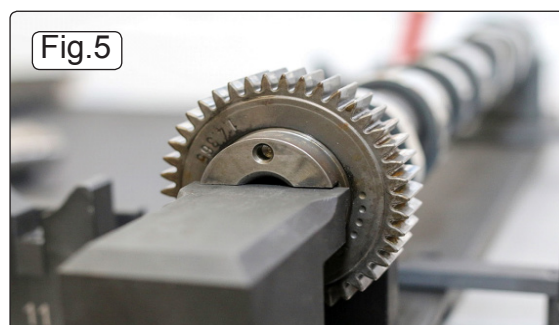
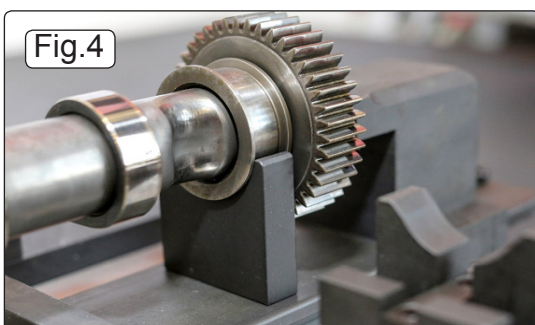
- 5.6.1. Fit the VSE7171.07 (marked 14 in fig.1). It may be necessary to remove the foot from the VSE7171 Camshaft Installation Tool to allow access to the fixing bolt.



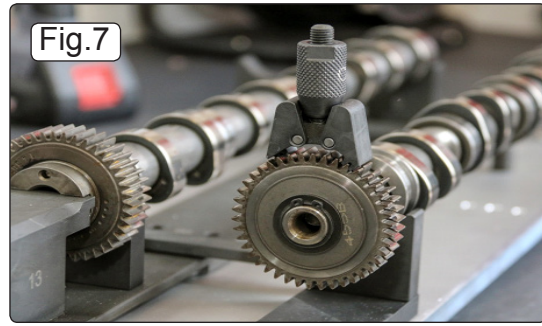
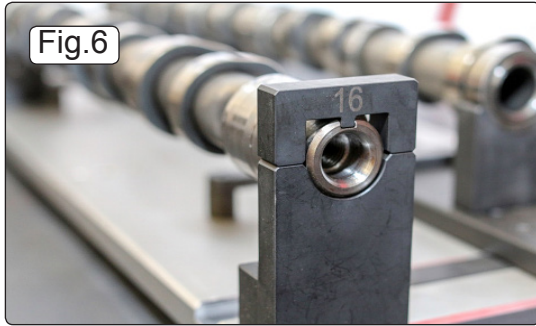
- 5.6.2. Fit VSE7171.08 (marked 15 and 16 in fig.2). It may be necessary to remove the foot from the VSE7171 Camshaft Installation Tool to allow access to the fixing bolt.
- 5.6.3. On the sliding bar of the VSE7171 Camshaft Installation Tool fit the VSE7171.04 adaptor (marked 7 see fig.3) into hole set "A" and the VSE7171.03 (marked 6 see fig.3) onto hole set "F" The tool is now ready for use.



- 5.6.4. Place the inlet camshaft onto the VSE7171.04 and VSE7171.03 adaptors with the geared end facing the locking device (marked 13). Turn the inlet camshaft so the camshaft recess is facing outwards and slide the locking device (marked 13) into position, see figs.4 and 5.



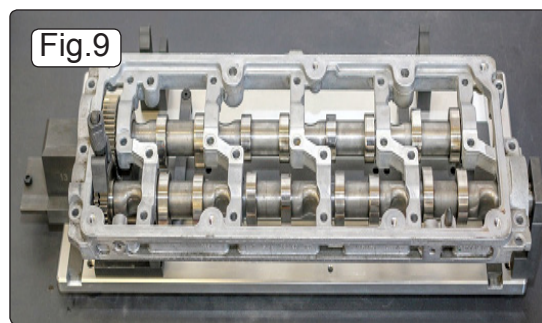
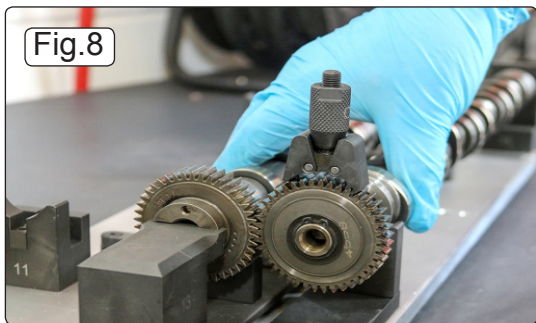
- 5.6.5. Place the exhaust camshaft onto the VSE7171.07 and VSE7171.15 adaptors ensuring the slot in the camshaft is facing upwards and the VSE7171.09 (marked 16) can be fitted and locks the camshaft into position, see fig.6.



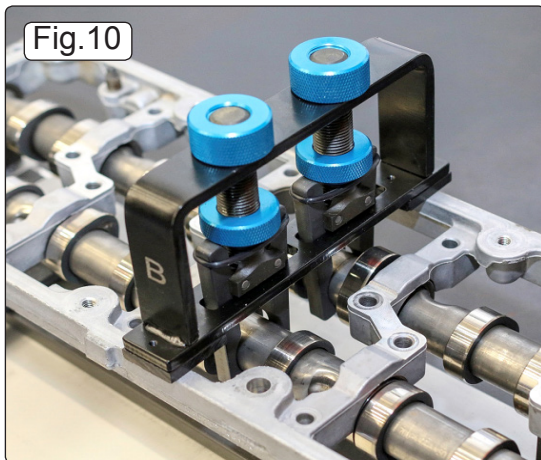
- 5.6.6. Using the VSE7171.06 Camshaft Locking Tool, (marked C2) ensure that the widest side of the tool is aligned with the widest side of the split drive gear. Tighten the VSE7171.06 until the teeth on the camshaft split drive gear are correctly aligned across the two halves, see fig.7.

Note: the spring within the split-gear is very strong.

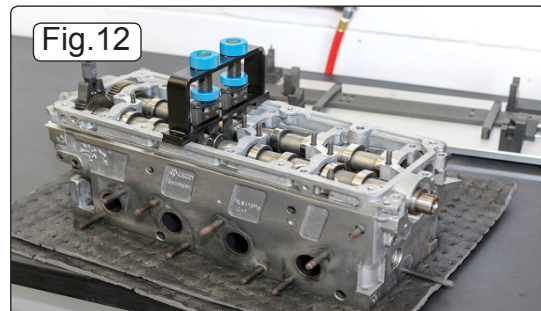
- 5.6.7. Slide the inlet camshaft towards the exhaust camshaft until both of the drive gears engage fully. The camshafts are now correctly timed together and set into their TDC timing positions, see fig.8.



- 5.6.8. Ensure that the mating surface of the upper carrier is clean and lint free. Lightly lubricate the bearing surfaces and fit the carrier onto the camshafts ensuring that the bearing surfaces are correctly seated onto the camshafts, see fig.9.

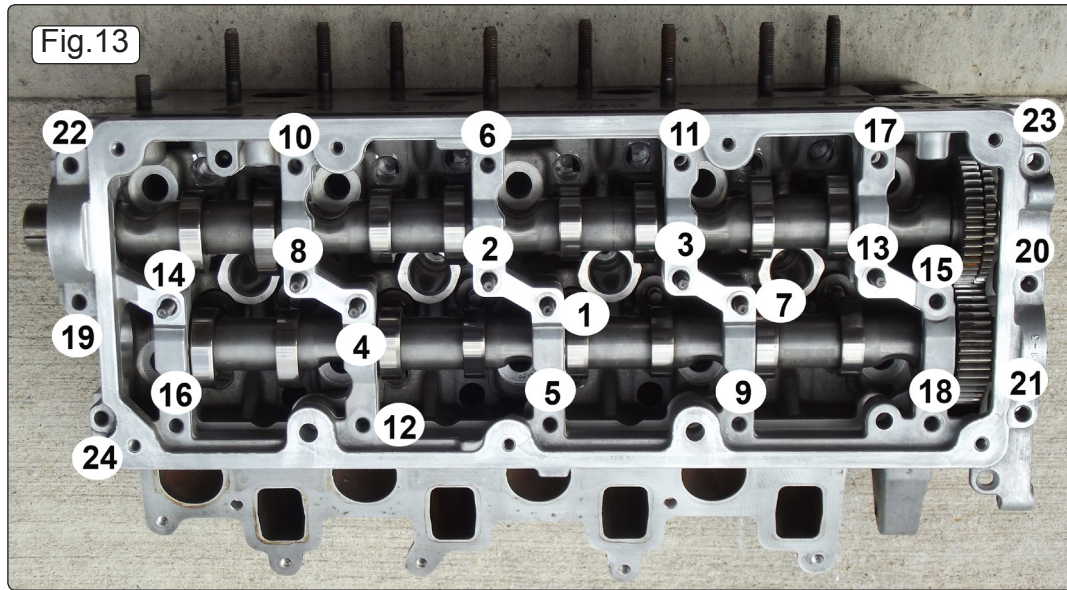


- 5.6.9. Fit the VSE7171.02 Camshaft Securing Clamp and secure the camshafts to the camshaft carrier by adjusting the lower knurled nuts to hold the camshafts, then the upper knurled nuts to clamp the assembly. Remove the VSE7171.09 adaptor top section, and slide the inlet camshaft locking device (marked 13) away from the camshaft, see fig.10.



- 5.6.10. Ensure the mating surface on the cylinder head is clean and lint free. Using the manufacturers recommended sealant, apply a 2-3mm wide sealant bead to the mating surface on the cylinder head, ensure sealant does not foul the bearing surfaces. Pay close attention to ensure the camshaft bearing oil feed holes are not obscured by sealant.

- 5.6.11. Lift the camshaft carrier as a complete assembly with the camshafts clamped to it and fit it carefully onto the cylinder head, see figs.11 and 12.



- 5.6.12. The camshaft carrier securing bolts must initially be lightly tightened manually, and in the correct sequence as shown. Once the initial tightening sequence has been completed, the bolts must then be tightened in the same sequence to 10Nm. See fig.13 (picture shown without tooling for demonstration purposes).
- 5.6.13. Remove the VSE7171.02 Camshaft Securing Clamp and the VSE7171.06 Camshaft Gear Locking Tool.
- 5.6.14. The remaining re-assembly can now commence in the reverse order of dismantling.
Please note that the engine must not be started for at least 30 minutes after the camshaft carrier has been refitted to allow for hydraulic camshaft followers to reset. Failure to follow this procedure may result in valve/piston contact.



Environmental Protection

Recycle unwanted materials instead of disposing of them as waste. All tools, accessories and packaging should be sorted, taken to a recycling centre and disposed of in a manner which is compatible with the environment. When the product becomes completely unserviceable and requires disposal, drain off any fluids (if applicable) into approved containers and dispose of the product and the fluids according to local regulations.

NOTE: It is our policy to continually improve products and as such we reserve the right to alter data, specifications and component parts without prior notice.

IMPORTANT: No liability is accepted for incorrect use of this product.

WARRANTY: Guarantee is 12 months from purchase date, proof of which will be required for any claim.



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