



TIMING TOOL KIT - 1.2D, 1.4D, 1.6D, 2.0D - VAG, FORD & MITSUBISHI - BELT DRIVE

MODEL NO: **VSE2092.V2**

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
instructions



Wear eye
protection

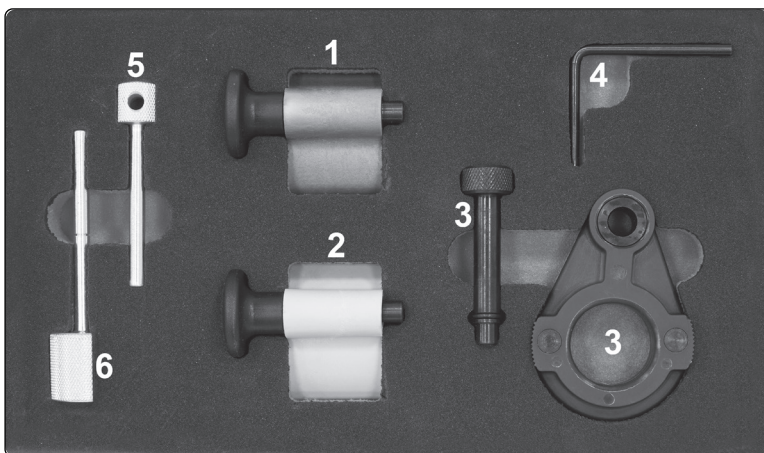
1. SAFETY

- ☐ **WARNING!** Wear approved eye protection. Wear appropriate Personal Protective Equipment. A full range of Personal Protective Equipment is available from your Sealey Stockist.
- ☐ **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.
- ☒ **DO NOT** attempt to start or move a vehicle whilst in gear and with timing devices fitted.
- ☒ 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.
- ☒ When not in use, store in a safe, dry childproof place.
- ☒ Keep children and unauthorised persons away from the work area.
- IMPORTANT!** These instructions are provided as a guide only. Always refer to the vehicle manufacturer's 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).
- ☒ When timing an engine, always prevent the engine from being turned over. Use a notice and / or inhibit the engine.
- ☐ **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

Master timing tool kit for a wide range of VAG, Ford and Mitsubishi diesel engines. Suitable for 3 and 4-cylinder belt drive engines. Includes oil pump and belt tensioner locking pins. Supplied in a storage case with instructions and a warning tag.

3. CONTENTS



Item	Part Number	Description
1	VSE2092.01	Crankshaft locking Tool (silver)
2	VSE2092.02	Crankshaft locking Tool (Gold)
3	VSE2092.03	Crankshaft locking Tool
4	VSE2092.04	Auxiliary Belt Tensioner Locking Pin
5	VSE2092.05	Camshaft/HP Pump Sprocket Holding Tool
6	VSE2092.06	Camshaft/HP Pump Sprocket Holding Tool

OEM Tool(s):	
VAG:	T10490, T10492, T10100, T10050, T10060A
Dodge:	9883, 9882
Mitsubishi:	MB995209, MB995208, MB995206
Ford:	303-085

4. APPLICATIONS

Application(s):	
Audi:	A1 (10-15), A2 (00-06), A3 (01-22), A3 Sportback (09-22), A4 (01-16), A5 (08-15), A5 Coupe (13-21), A6 (10-21), A6 Quattro (19-23), TT (08-14), Q3 (11-22), Q3 Sportback (20-22), Q5 (08-22)
Chrysler:	Sebring (07-10)
Dodge:	Caliber (06-11)
Ford:	Galaxy (02-06)
Mitsubishi:	Grandis (05-10), Lancer (05-10), Outlander (07-10)
Seat:	Alhambra (00-15), Altea/Altea XL (04-15), Cordoba (02-09), Ibiza (02-15), Leon (00-13), Toledo (04-11), Tarraco (20-22)
Skoda:	Fabia (00-14), Fabia II (07-15), Fabia III (14-18), Octavia (00-15), Octavia II (01-15), Octavia III (15-18), Praktik (10-15), Rapid (11-17), Roomster (07-15), Superb (02-08), Superb II (08-15), Superb III (15-21), Yeti (09-17), Yeti Outdoor (13-17)
VW:	Arteon (20-22), Amarok (10-16), Beetle (02-15), Bora (02-08), Caddy/Caddy Maxi (03-15), Crafter (11-17), Eos (06-15), Fox (05-11), Golf (02-15), Golf Plus (05-15), Golf III (20-22), Jetta (05-15), Lupo (02-05), Passat (02-21), Polo (99-14), Scirocco (08-14), Sharan (02-15), Tiguan (07-22), Tiguan Allspace (20-21), Touran (03-18), Transporter (03-19)

Engine Code(s):	
1.2D:	ANY, AYZ, CFWA
1.4D:	AMF, ATL, BAY, BHC, BMS, BNM, BNV, BWB
1.6D:	CAYA, CAYB, CAYC, CAYD, CAYE, CLNA
1.9D:	AJM, ANU, ARL, ASZ, ATD, AUJ, AVB, AVF, AVQ, AWW, AXB, AXC, AXR, BJB, BKC, BLS, BLT, BMT, BPZ, BRM, BRR, BRS, BRU, BSU, BSV, BSW, BTB, BVK, BXE, BXF, BXJ
2.0D:	AZV, BDJ, BDK, BGW, BHW, BKD, BKP, BLB, BMA, BMM, BMN, BMP, BSY, BYL, BWD, CDCA, CEGA, CFCA, CFFA, CFFB, CFFD, CFFE, CFGB, CFGC, CFHA, CFHB, CFHC, CFHD, CFHE, CFHF, CFJA, CGLA, CGLB, CGLC, CGLD, CJAA, CJCA, CJCB, CJCC, CLCA, CLCB, CLJA, CLLA, CNEA, DTSA, DTSB, ECD, ECE

5. OPERATION

5.1. ENGINE TIMING CHECK 1.2/1.4/1.6/2.0 (NEWER GENERATION ENGINES)

5.1.1. Remove the engine top cover and the timing belt upper cover.

5.1.2. Turn the auxiliary belt tensioner in an anti-clockwise direction to release tension from the belt and lock it in the retracted position using a suitable tensioner locking tool. Remove the auxiliary belt.

NOTE: If the auxiliary belt is to be refitted, mark the direction of rotation before removing, refitting a used belt in the opposite direction of rotation may cause premature failure.

5.1.3. Using a 19mm 12 point socket on the crankshaft central bolt as a counter hold, remove the 4 crankshaft pulley retaining bolts and the crankshaft pulley.

5.1.4. Remove the lower timing belt cover.

NOTE: To remove the lower timing belt cover on some very early engines, an 8mm hole must be drilled through the cover 10mm above the lower retaining clip, it is then necessary to use a small flat bladed screwdriver to break off the guide lug that is moulded on to the back of the cover. If drilling is required, care must be taken not to damage the timing belt. **DO NOT** refit a damaged belt. Turn the crankshaft in the normal direction of engine rotation until the guide peg on the crankshaft sprocket is positioned at approximately 7 o'clock relative to the central bolt.

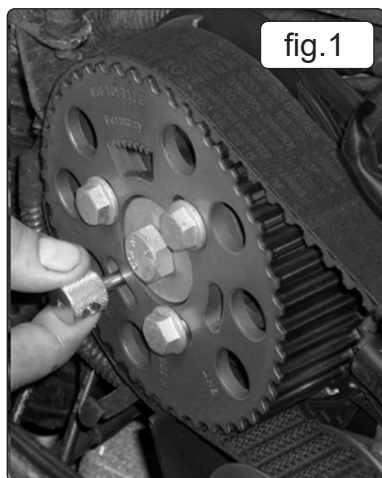
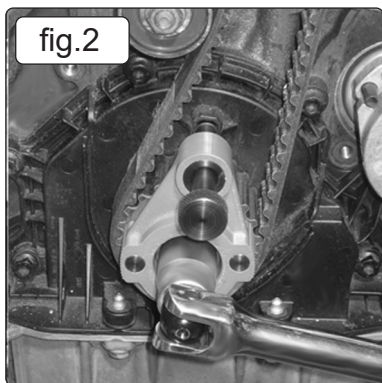
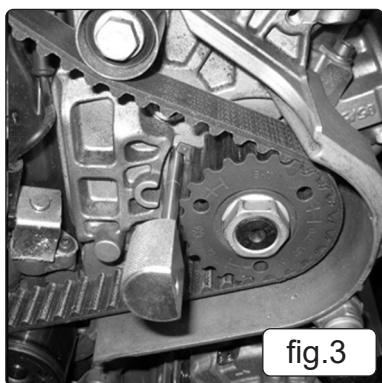


fig.1

- 5.1.5. Ensure the location fork of the camshaft sprocket hub is positioned at approximately 7 o'clock relative to the camshaft central bolt. (fig.1) Fit the VSE2902.05, If it is approximately 180° out of position turn the crankshaft one full revolution and re-check the positions.
- 5.1.6. Fit the VSE2092.03 Crankshaft Locking Tool onto the crankshaft sprocket, ensuring that the sprocket guide pegs are correctly located in the sprocket, and the guide peg is correctly located into the datum hole in the crankshaft seal housing.



- 5.1.7. Fit the VSE2092.06 Camshaft/HP Pump Locking Pin through the location hub fork of the pump sprocket and into the datum point in the housing. (fig.3)



NOTE: It may not be possible to fit the VSE2092.06 Pump Locking Pin if the hub fork is slightly out of alignment; misalignment of 1-2mm at the pump hub is not detrimental to the engine's running and is considered acceptable.

- 5.1.8. If it is not possible to fit the Crankshaft Locking Tool and the Camshaft/HP Pump Locking Pin, the engine timing will require adjustment.

5.2. ENGINE TIMING ADJUSTMENT

- 5.2.1. Remove all Timing Tools.
- 5.2.2. Counter-hold the high pressure fuel pump sprocket, slacken the pump sprocket retaining nut by ¼ turn. **DO NOT** remove the bolt.
- 5.2.3. Using a suitable counter-hold tool, such as the Sealey VS4844 Camshaft Sprocket Holding Tool, release the central bolt of the camshaft sprocket by ¼ turn. **DO NOT** remove the central camshaft sprocket bolt.
- 5.2.4. Refit VSE2092.05 Camshaft Locking Pin through the location fork of the camshaft sprocket and into the datum point in the cylinder head. Release the central bolt of the camshaft sprocket by another ¼ turn so that the sprocket is free to rotate on the camshaft hub.

5.3. REASSEMBLY

- 5.3.1. Check that the metal locating tab of the camshaft belt tensioner is located correctly in its hole in the engine block, tighten the tensioner fixing nut finger tight only at this stage.
- 5.3.2. Ensure that the VSE2092.03 Crankshaft Locking Tool, and the VSE2092.05 Camshaft/HP Pump Locking Pins are all correctly located.
- 5.3.3. Turn the camshaft and high pressure fuel pump sprockets in a clockwise direction until they reach their limit of travel on their hubs.
- 5.3.4. Starting at the crankshaft sprocket and working in a clockwise direction, fit the camshaft drive belt.
- 5.3.5. Re-check the camshaft sprocket and H.P. fuel pump sprockets are on or close to their clockwise limit of rotation.
- 5.3.6. Release the belt tensioner fixing nut.
- 5.3.7. Remove the tensioner locking tool.
- 5.3.8. Using a hex key, turn the hub of the tensioner pulley in a clockwise direction until the indicator arrow is aligned with the slot in the tensioner body.
- 5.3.9. While holding the position of the tensioner, tighten the fixing nut to 20Nm+45°.
- 5.3.10. Using a counter-hold tool, such as VS4844 Camshaft Sprocket Holding Tool, tighten the central bolt of the camshaft sprocket to 10Nm and the central nut of the high pressure fuel pump sprocket to 10Nm.

✱ **DO NOT** use the Setting and Locking Tools to counter hold the sprockets to re-tighten the bolts.

- 5.3.11. Remove all engine setting/locking tools and reassemble.

5.4. 1.6TDI AND 2.0TDI CAMSHAFT ADJUSTMENT CONTROL VALVES

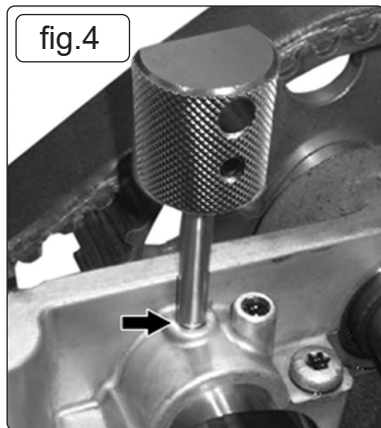
- 5.4.1. Some 1.6TDi and 2.0TDi engines are fitted with a hydraulic valve adjustment unit; this unit is fitted to the rear of the inlet camshaft. When the camshaft adjuster control valve is removed, there is no connection between the inlet and exhaust camshafts.
- 5.4.2. If the camshaft adjuster control valve needs to be removed, the inlet camshaft must be locked in position beforehand using the VSE2092.06 Camshaft/HP Pump Locking Pin fitted through the access hole in the camshaft cover.
- 5.4.3. Set and lock the engine into its timed position as described in the section "Engine Timing Check".
- 5.4.4. Remove the blanking plug from the camshaft cover.
- 5.4.5. Fit the VSE2092.06 Camshaft/HP Pump Locking Pin through the aperture in the camshaft cover and ensure it is fully located in the camshaft. Remove the adjustment unit from the camshaft as required.

NOTE: There will be a gap of 1mm between the head of the VSE2092.06 Camshaft/HP Pump Locking Pin and the plastic camshaft cover. If the plastic camshaft cover is not fitted to the engine, a groove on the shaft of the VSE2092.06 Camshaft/HP Pump Locking Pin is provided as a reference to make sure that the pin is correctly located. (fig.4)

5.4.6. The groove must be in line with the aluminium camshaft housing.

✱ **DO NOT** remove the pin from the inlet camshaft while the adjustment unit control valve is not fitted.

5.4.7. A diamond coated friction washer is located between the end of the inlet camshaft and the valve adjustment unit. This washer must be refitted when the unit is reassembled.



5.5. REASSEMBLE THE CRANKSHAFT

5.5.1. Reassembly of the camshaft adjustment unit is carried out in the reverse order of removal, tighten to 50Nm.

5.5.2. Remove all timing tools.

5.5.3. Turn the crankshaft two full revolutions in the normal direction of rotation and re-check the timing as described in "Engine Timing Check". Once the timing is confirmed as correct, remove all tooling and reassemble.

5.6. 1.4TDI 3 CYLINDER ENGINE BALANCE SHAFT UNIT

5.6.1. The 1.4TDi 3 cylinder engines are fitted with balance shaft that is part of the oil pump. The oil pump is gear driven from the crankshaft. Used oil pump units should not be refitted.

5.6.2. Set and lock the engine into its timed position as described in the section "Engine Timing Check".

5.6.3. Remove the lower sump and the oil pump/balance shaft unit.

5.6.4. Fit the VSE2092.06 Camshaft/HP Pump Locking Pin through the oil pump/balance shaft drive gear to help position it during refitting, ensuring that the timing marks of the oil pump drive gear and the crankshaft drive gear are correctly aligned and install the oil pump/balance shaft unit.

5.6.5. Remove all tooling and reassemble.

5.7. EARLY ENGINES

5.7.1. Rotate the crankshaft until the engine is at TDC on number one cylinder. Ensure the camshaft sprocket window is approximately at the 12 o'clock position, and that the timing mark is aligned with the notch on the camshaft sprocket hub.

NOTE: There are some differences with these marks dependant on engine codes.

5.7.2. Insert VSE2092.05 Camshaft Locking Pin through the camshaft drive sprocket and into the datum hole in the cylinder head behind, see fig.1

5.7.3. Lock the crankshaft by using either the gold or silver Crankshaft Locking Tool. (fig.5) The type of drive gear will need to be identified before the correct type of Crankshaft Locking Tool can be fitted.



NOTE: Due to the gear design the locking tool has to be slid along the gear, and not placed over it. The lug of the Crankshaft Locking Tool must engage in the hole in the oil seal housing, ensure the timing marks are aligned. The timing marks on the two Crankshaft Locking Tools are not stamped in the same location.

5.8. REMOVING THE CAMSHAFT DRIVE BELT

- 5.8.1. Slacken the camshaft sprocket securing bolts enough to allow the sprocket to be moved on the slotted holes. Slacken the camshaft drive belt tensioner pulley securing nut and turn the tensioner pulley anti-clockwise until the VSE2092.04 Tensioner Locking Pin can be inserted. Turn the tensioner pulley fully clockwise and tighten the securing nut. The camshaft drive belt and tensioner pulley can now be removed.

5.9. REFITTING THE CAMSHAFT DRIVE BELT

- 5.9.1. Fit the camshaft drive belt in the following order: crankshaft sprocket, tensioner pulley, camshaft sprocket and finally the water pump sprocket.
- 5.9.2. Refit the guide pulley and tighten the securing bolt to 20Nm + 45 degrees. Remove the VSE2092.04 Tensioner Locking Pin. Loosen the tensioner pulley nut, turn the tensioner clockwise until the pointer aligns with the notch ensuring the securing nut does not turn. Hold the tensioner pulley and tighten the securing nut to 20Nm + 45 degrees.

NOTE: tightening the tensioner pulley nut may move the pointer clockwise, up to 5mm movement is permissible. **DO NOT** adjust the position of the tensioner pulley.

- 5.9.3. Hold the camshaft sprocket and ensure the camshaft drive belt is taught between the sprockets on the non-tensioned side. Tighten the camshaft sprocket fixing bolts to 20Nm + 45 degrees. Remove all tooling and turn the crankshaft through two revolutions clockwise. Make sure the timing marks are aligned and that the Crankshaft Locking Tool can be fitted easily. Make sure the tensioner pulley pointer is aligned with the notch, (or within 5mm to the right of it). Once the timing has been confirmed as correct, remove all tooling and reassemble in the reverse order of dismantling. Tighten the crankshaft pulley securing bolts to 10Nm + 90 degrees.



ENVIRONMENT 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 any fluids (if applicable) into approved containers and dispose of the product and fluids according to local regulations.



REGISTER YOUR
PURCHASE HERE

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. Please note that other versions of this product are available. If you require documentation for alternative versions, please email or call our technical team on technical@sealey.co.uk or 01284 757505.

Important: No Liability is accepted for incorrect use of this product.

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

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