

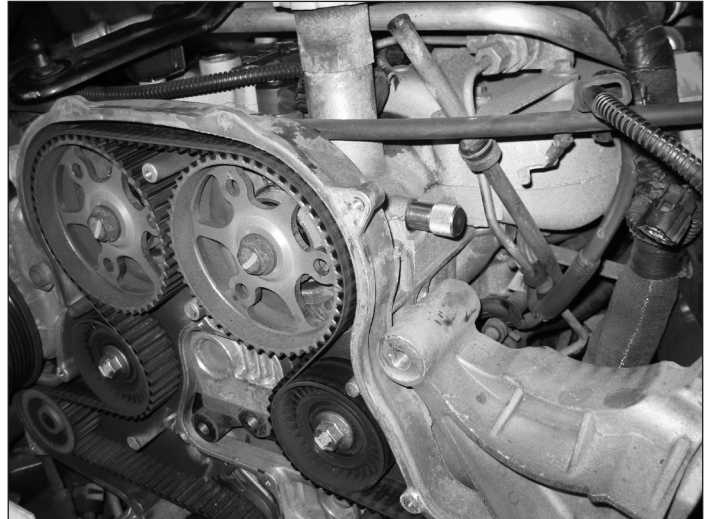
Instructions for:

DIESEL ENGINE SETTING / LOCKING TOOL KIT CHRYSLER 2.5CRD ENGINES

Model No: **VS4945**

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 AND 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. PLEASE KEEP INSTRUCTIONS SAFE FOR FUTURE USE.



1. SAFETY INSTRUCTIONS

- ❑ **WARNING!** Ensure Health and Safety, local authority and general workshop practice regulations are adhered to when using tools.
- x **DO NOT** use tools if damaged.
- ✓ Maintain tools in good and clean condition for best and safest performance.
- ✓ Ensure that a vehicle which has been jacked up is adequately supported with axle stands.
- ✓ Wear approved eye protection. A full range of personal safety equipment is available from your Sealey dealer.
- ✓ Wear suitable clothing to avoid snagging. Do not wear jewellery and tie back long hair.
- ✓ Account for all tools, locking bolts, pins and parts being used and do not leave them in or near the engine.
- ❑ **WARNING!** Incorrect or out of phase camshaft timing can result in contact between valve head and piston crown causing damage to the engine.

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 current procedure and data.

WARNING: The warnings, cautions and instructions discussed in this manual cannot cover all possible conditions and situations that may occur. It must be understood that common sense and caution are factors which cannot be built into this product, but must be applied by the operator.

2. INTRODUCTION & APPLICATIONS

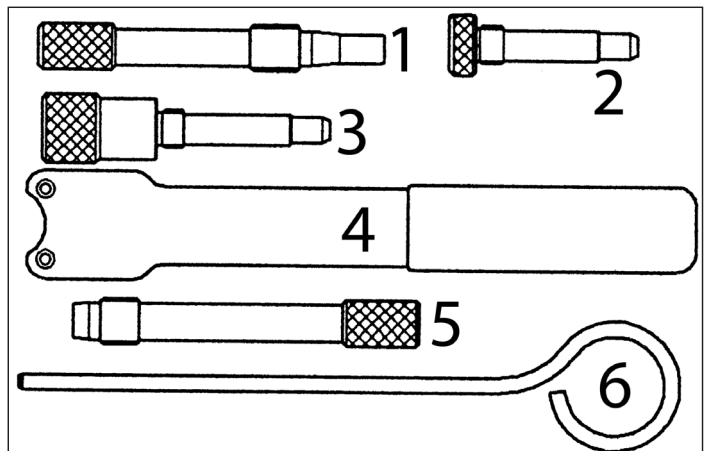
Setting and locking kit for 2.5 VM engine found in Chrysler and LDV vehicles. This engine has variants both with and without balancer shafts and this kit covers both applications. The kit includes flywheel, camshaft and balancer locking pins plus a tensioner adjustment tool.

CHRYSLER 2.5CRD Diesel engines in CHRYSLER

Voyager Grand Voyager
 LDV
 Maxus

Engine codes:
 R2516C / R2516L engines

3. CONTENTS



- 1 VS4947 Flywheel Locking Pin (belt replacement position)
- 2 VS4946/CH1 Camshaft Locking Pin (Exhaust)
- 3 VS4946/CH2 Camshaft Locking Pin (Inlet)
- 4 VS124/03. Tensioner Adjuster
- 5 VS4948 Flywheel Locking Pin (Balancer shafts position)
- 6 VS4949 Balancer Shaft Locking Pin
- VS4945/84. Case + Insert

4. INSTRUCTIONS

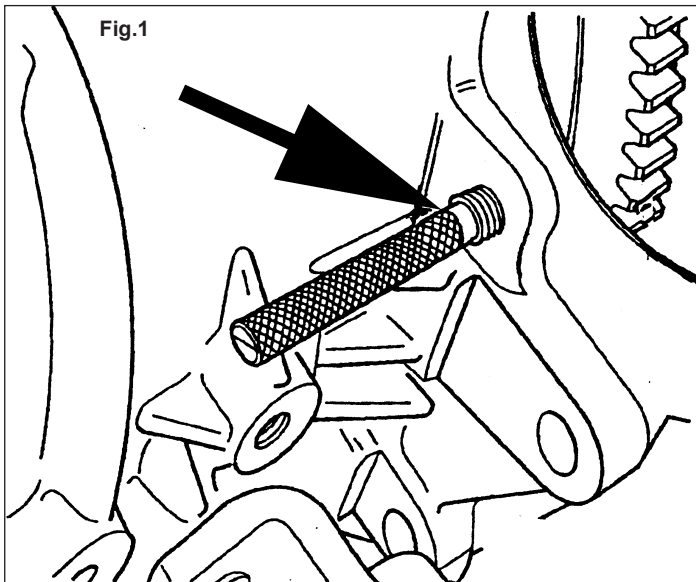
4.1 Timing Belt Replacement

It will be necessary to remove the timing belt cover and air filter assembly.

Support the engine and remove the right-hand splashguard and engine undersheid.

Remove the right-hand engine mounting, the auxiliary belt, its tensioner and the starter motor.

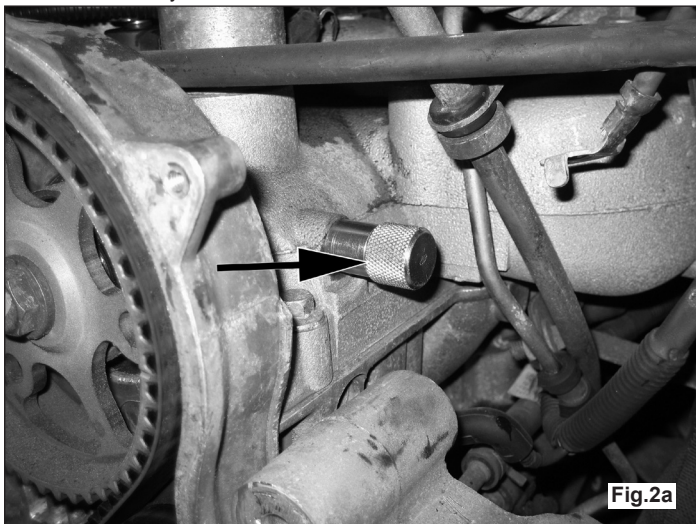
Remove the crankshaft pulley



4.2 VS4947 Flywheel Locking Pin

4.2.1 Turn the engine clockwise until the timing mark on the crankshaft gear is at the 3-0-clock position – **engine at 90° A.T.D.C.** and 'lock' the flywheel using VS4947 Locking Pin. (Fig.1)

IMPORTANT: Ensure that the VS4947 Locking Pin has fully entered into the flywheel.



Inlet camshaft



Exhaust camshaft

4.2.2 VS4946 / CH1 (Exhaust) and VS4946 / CH2 (Inlet) Camshaft Locking Pins.

NOTE: VS4946/CH1 Locking Pin is smaller than CH2 in order to avoid obstructions around its entry hole in the cylinder head cover. Ensure that Pin CH1 is used for locking the exhaust camshaft.

Remove the blanking plugs in the cylinder head cover and insert VS4946/CH1 into the exhaust camshaft (Fig.2b) and VS4946/CH2 into the inlet camshaft. (Fig.2a)

WARNING: Take care not to over-tighten the Camshaft Locking Pins. There are only 3 threads in the cylinder head cover where these Pins enter and over-tightening could 'strip' these threads.

NOTE: If the Camshaft Locking Pins will not locate into the camshafts, remove VS4947 Flywheel Locking Pin and rotate the engine 360°. Re-fit the Flywheel Pin and insert the Camshaft Locking Pins.

Check that the fuel pump timing mark is aligned with the mark on the back cover.

Slacken the camshaft sprocket bolts whilst counter-holding the sprockets with a suitable Sprocket Holding Tool.

Undo the belt tensioner bolt and move the tensioner pulley away from the belt and remove the timing belt.

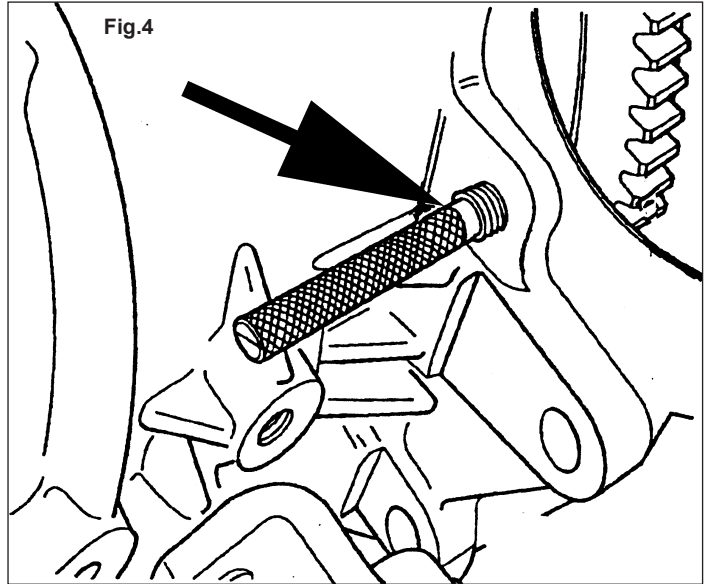
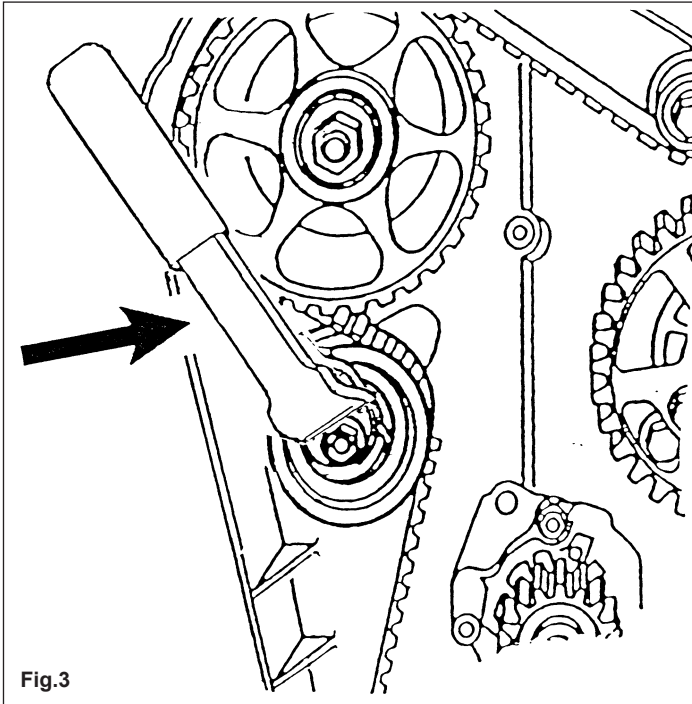
4.2.3 Fitting the new belt

Check that the Flywheel and Camshaft Locking Pins are correctly inserted.

Fit new bolts in the camshaft sprockets and tighten to finger-tight only. Check that the fuel pump timing marks are aligned.

Fit the new belt onto the crankshaft gear and then in an **anti-clockwise** direction fit to fuel pump, belt guide, inlet camshaft sprocket, exhaust camshaft sprocket, belt guide, coolant pump and belt tensioner.

Using a suitable Sprocket Holding Tool, turn the inlet camshaft sprocket slightly **anti-clockwise**, to remove slack in the timing belt.



4.3.1 VS4948 Flywheel Locking Pin (Balancer shaft)

If the balancer shaft assembly has been removed, No. 1 cylinder must be positioned at TDC and VS4948 Flywheel Locking Pin inserted to 'lock' the flywheel, before the assembly can be installed. (Fig.4).

4.2.4 VS124/03 Belt Tensioner Adjuster

Fit VS124/03 Tensioner Adjuster into the two holes in the tensioner pulley and turn it **clockwise** until the 'notch' on the pointer is aligned with the dowel pin, and tighten the pulley bolt. (Fig.3).

Counter-hold the camshaft sprockets with a suitable Sprocket Holding Tool and tighten each of the sprocket bolts to 108 Nm.

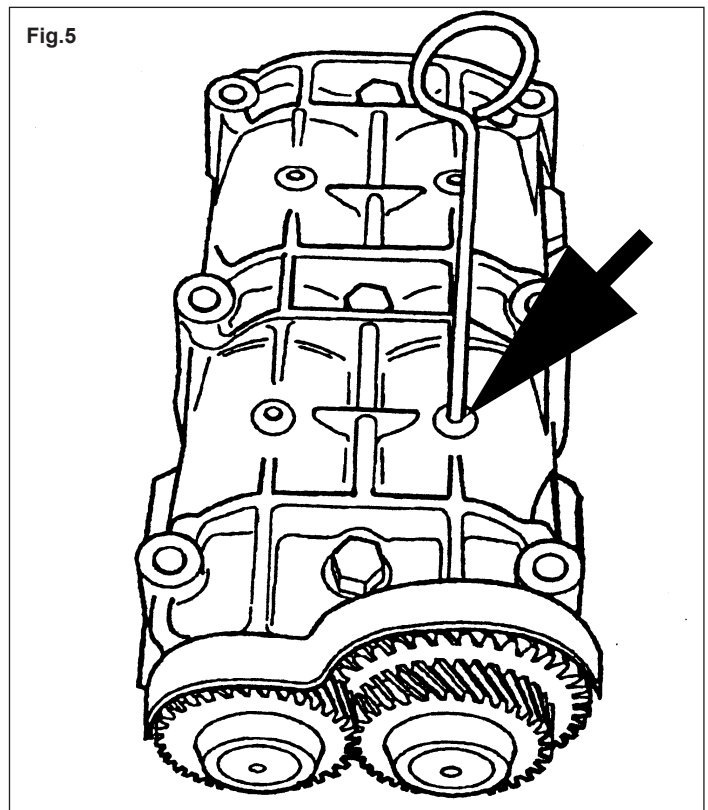
Remove the Flywheel and Camshaft Locking Pins.

4.2.5 Check the engine timing by making a small paint mark on the timing belt and adjacent cover.

Rotate the crankshaft clockwise until the mark returns to its original position, and insert VS4947 Flywheel Locking Pin. Check that the CH1 and CH2 Camshaft Locking Pins will enter and that the tensioner pointer is in the correct position.

4.3 Balancer Shafts

The balancer shafts are housed in an aluminium carrier, mounted to the engine block.



4.3.2 VS4949 Balancer Shaft Locking Pin

Whilst the balancer shaft assembly is out of the engine, VS4949 Locking Pin can be inserted to ensure that the balancer shaft and crankshaft timing is correct after assembly. (Fig.5)

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.

INFORMATION: For a copy of our latest catalogue and promotions call us on 01284 757525 and leave your full name and address, including postcode.