

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.

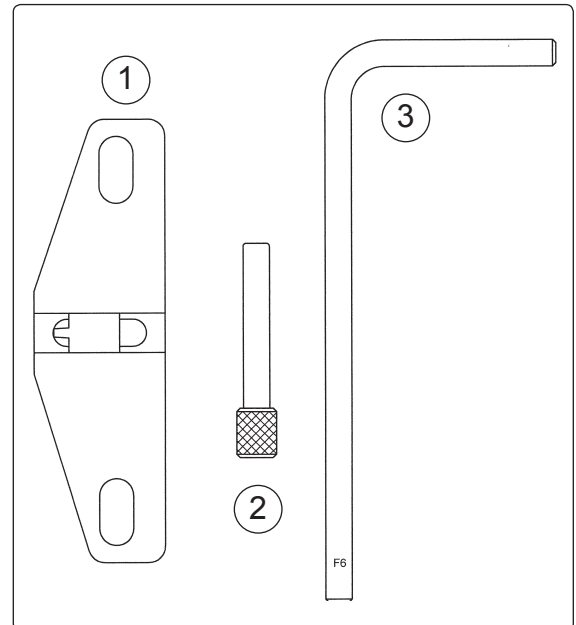


IMPORTANT: PLEASE READ THESE INSTRUCTIONS CAREFULLY. NOTE THE SAFE OPERATIONAL REQUIREMENTS, WARNINGS AND CAUTIONS. USE THE PRODUCT CORRECTLY AND WITH CARE FOR THE PURPOSE FOR WHICH IT IS INTENDED. FAILURE TO DO SO MAY CAUSE DAMAGE AND/OR PERSONAL INJURY AND WILL INVALIDATE THE WARRANTY. PLEASE KEEP 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.
- 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.
- DO NOT** attempt to start engine or move vehicle whilst in gear with locking devices fitted.
- Always display warning notification on steering wheel when locking engine components.
- 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.

2. CONTENTS & APPLICATIONS



Kit Contents/Spares

Item	Part Number	Description
1	VS4831	Flywheel Locking Tool
2	VS4735.P17	Camshaft Locking Pin
3	VS4830-F6	Flywheel Locking Pin

Applications:

VOLVO 2.0 and LAND ROVER 2.2 diesel engines – timing belt replacement in

VOLVO – 2.0 diesel

C30 S40 V50

LAND ROVER – 2.2 diesel

Freelander2 (Td4)

**D4204T / D4204T2 (Volvo)
DW12BTED4 (Land Rover)**

In addition, this Set will also cover belt replacement application for **FORD 2.0TDCi** (belt) engines.



3. INSTRUCTIONS

- 3.1 These second generation, common rail, diesels were developed through a joint venture between PSA (Citroen/ Peugeot) and Ford.

The 2.0 diesel was first introduced in the Ford Focus in 2003 followed by the C-Max. It was then fitted in Volvo S40/V50 models in 2004 and the Volvo C30 in 2006.

The 2.2 variant appeared at the launch of the Land Rover Freelander2 (Td4) in 2006.

The timing belt replacement procedure is basically the same for the 2.0D engines in Volvo and Ford but the 2.2D variant in the Land Rover Freelander2 differs in the positioning of the camshaft sprocket timing hole when the camshaft is in timed position, and tightening torque specifications.

- 3.1.1 Remove the engine under shield, RH front wheel, splash guard and engine top cover.
- 3.1.2 Support the engine and remove the RH engine mounting bracket.
- 3.1.3 It is necessary to dismantle major components for these belt replacement applications, including removal of the auxiliary belt, starter motor and coolant expansion tank.
- 3.1.4 Removal of the upper timing belt cover is straightforward but the crankshaft pulley and CKP sensor will need to be removed prior to removing the lower belt cover.

IMPORTANT: The crankshaft must only be turned in the direction of normal rotation.

- 3.1.5 Turn the engine clockwise to TDC No.1 cylinder.

NOTE: No. 1 cylinder is nearest to the flywheel.

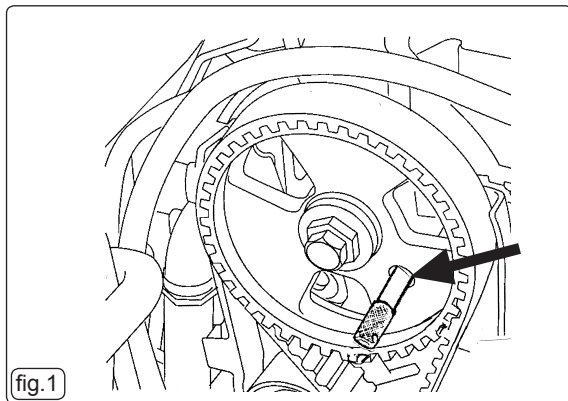


fig.1

3.2 VS4735.P17 Camshaft Locking Pin

- 3.2.1 Check that the timing hole in the camshaft sprocket aligns with the datum hole behind
- **Volvo 2.0D** the timing hole should be at the **4-o-clock** position.
 - **LR 2.2D** the timing hole should be at the **7-o-clock** position
- 3.2.2 Insert VS4735.P17 Camshaft Locking Pin (fig.1).

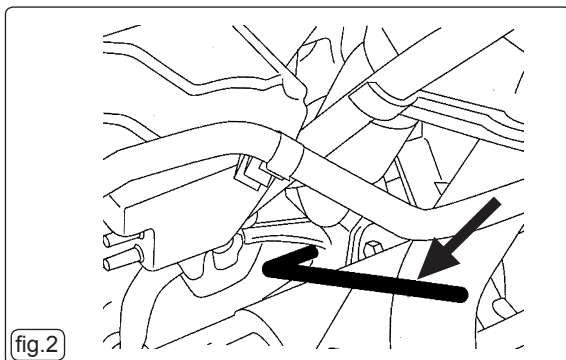


fig.2

3.3 VS4830F6 Flywheel Locking Pin

- 3.3.1 Insert VS4830-F6 Locking Pin in to the flywheel to 'set' the crankshaft position (fig.2) prior to 'locking' in place with the Flywheel Locking Tool VS4831.

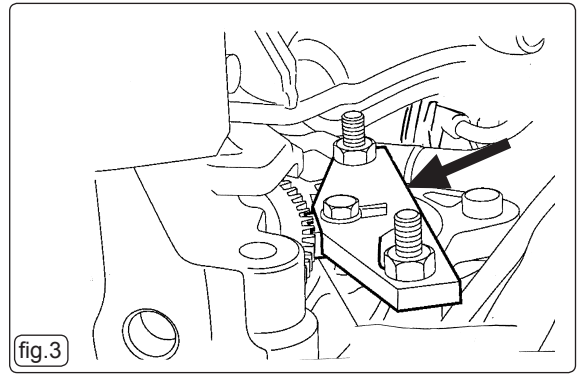


fig.3

3.4 VS4831 Flywheel Locking Tool

- 3.4.1 Ensure the Flywheel Locking Tool Assembly is firmly bolted in position where the starter motor is normally fitted (fig.3) and locates on to the flywheel through the starter motor aperture. Adjust the sliding adaptor part to 'lock' in to the teeth of the flywheel before firmly bolting the Tool in place, to retain the crankshaft in a fixed position.

- 3.4.2 Remove the crankshaft pulley.

WARNING: DO NOT touch the outer sensor ring (reluctor). Check that the reluctor is not damaged.

- 3.4.3 Disconnect the crankshaft position sensor multiplug and remove the sensor.
- 3.4.4 Remove the timing belt upper cover and tensioner pulley / pulley bolt.
- 3.4.5 Remove the guide pulley / bolt.
- 3.4.6 Remove the old timing belt – **DO NOT** re-fit a used belt.

3.5 Installing the new timing belt.

IMPORTANT: The engine must be **COLD** when installing the new belt.

- 3.5.1 Fit a new guide pulley and bolt and tighten to (55 - 65Nm).
- 3.5.2 Fit a new tensioner pulley and screw in its new retaining bolt - **finger-tight only**.
- 3.5.3 Ensure that both the Flywheel Locking and Camshaft Locking Pins are correctly inserted and that the Flywheel Locking Tool is secure.
- 3.5.4 If the new belt is marked with directional arrows ensure they point in the direction of crankshaft rotation.
- 3.5.5 Fit the new belt –
- Volvo 2.0D** – in an **anti-clockwise** direction commencing at the crankshaft gear.
 - LR 2.2D** – in a **clockwise** direction commencing at the camshaft sprocket.
- 3.5.6 Ensure the new belt is taut between sprockets and if directional arrows are on belt, that they face direction of crankshaft rotation.

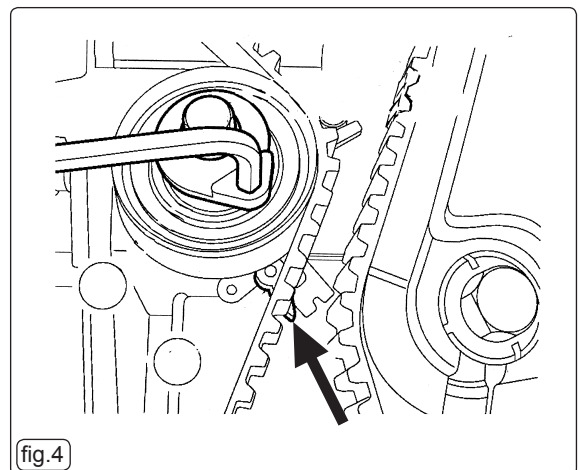


fig.4

- 3.5.7 Use an allen key to turn the tensioner **anti-clockwise** to apply tension to the belt until the tensioner pointer is positioned as shown in fig.4 - **on the left-side of the notch' in the baseplate.**
- 3.5.8 Tighten the tensioner pulley retaining bolt.
Volvo 2.0D - 21Nm.
LR 2.2D – 25Nm.
- 3.5.9 Prepare to re-fit the crankshaft pulley.
WARNING: DO NOT touch the outer sensor ring (reluctor).
- 3.5.10 Use the **old** pulley centre bolt to install the crankshaft pulley, tighten the bolt to –
Volvo 2.0D - 50Nm.
LR 2.2D – 70Nm.
- 3.5.11 Install the timing belt lower cover.
- 3.5.12 Remove the VS4830-F6 Flywheel Locking Pin and VS4735.P17 Camshaft Locking Pin.
- 3.5.13 Remove the VS4831 Flywheel Locking Tool.
- 3.5.14 Rotate the engine 2 turns, by hand, in the normal direction of engine rotation, and return to TDC No.1 cylinder.
- 3.5.15 Check that the timing and datum holes for the camshaft sprocket are aligned and insert VS4735.P17 Locking Pin.
Volvo 2.0D – at **4-o-clock** position.
LR 2.2D – at **7-o-clock** position.
- 3.5.16 Insert the VS4830-F6 Flywheel Locking Pin and the VS4831 Flywheel Locking Tool.
- 3.6 Final Tension Position**
- 3.6.1 Use an allen key on the tensioner to maintain tension on the timing belt.
- 3.6.2 Slacken the tensioner retaining bolt and **position the pointer CENTRALLY** within the notch, on the tensioner.
- 3.6.3 Tighten the tensioner bolt.
- 3.6.4 Release and remove the old crankshaft pulley bolt and install a new bolt.
- 3.6.5 Tighten the new crankshaft pulley bolt in 2 stages –
Volvo 2.0D - 70Nm. + 60 degrees.
LR 2.2D – 70Nm + 82 degrees.
- 3.6.6 Remove all tools.

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 equipment.

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

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	Sole U.K. Distributor Sealey Group Bury St. Edmunds Suffolk.		01284 757500		www.sealey.co.uk
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