

### INSTRUCTIONS FOR: DIESEL ENGINE SETTING/LOCKING KIT - MINI 1.6 - BELT DRIVE

MODEL No: **VS5044**

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.



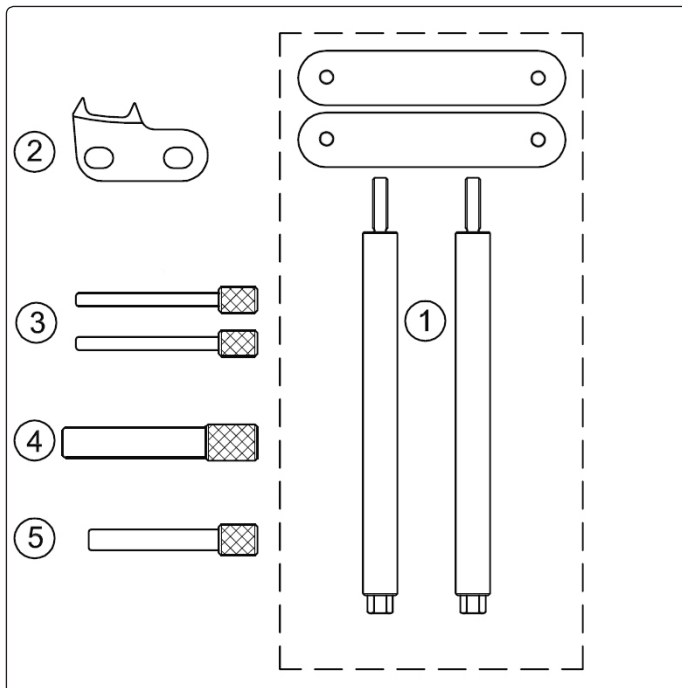
**IMPORTANT: PLEASE READ THESE INSTRUCTIONS CAREFULLY. NOTE THE SAFE OPERATIONAL REQUIREMENTS, WARNINGS AND CAUTIONS. USE THE PRODUCT CORRECTLY AND WITH CARE FOR THE PURPOSE FOR WHICH IT IS INTENDED. FAILURE TO DO SO MAY CAUSE DAMAGE AND/OR PERSONAL INJURY AND WILL INVALIDATE THE WARRANTY. PLEASE KEEP 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 a good, clean condition for the 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, **DO NOT** 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

Designed for timing belt replacement on BMW Mini Cooper 1.6 Diesel engines. Features service position front end support guides which require the front of the vehicle to be moved forward to allow room in the engine compartment when replacing the timing belt and a flywheel locking tool. Timing pins are also suitable for 1.4 & 1.6 PSA HDi / Ford TDCi engines.



Item	Part Number	Description
1	VS5043	Front End Support Guide Set (Service Position)
2	VS5049	Flywheel Holding Tool
3	VS4735.P15	Injection Pump and Crankshaft Locking Pins
4	VS4735.P16	Flywheel Locking Pin (PSA/Ford only)
5	VS4735.P17	Camshaft Locking Pin

#### Applications:

**BMW Mini Cooper 1.6 Diesel (R55 and R56) fitted to:**

Mini Cooper D Clubman (R55)  
Mini Cooper D Hatchback (R56)

Engine Code : W16

This Tool Set will also cover timing belt replacement applications on:

**1.4 & 1.6 HDi engines in Citroën/Peugeot (PSA)**  
**1.4 & 1.6 TDCi Duratorq engines in Ford**



**IMPORTANT:** Always refer to the vehicle manufacturer's service instructions, or a proprietary manual, to establish the current procedures and data. Product Information Sets detail applications and use of the tools with any general instructions provided as a guide only.

### 3. INSTRUCTIONS

#### Timing belt replacement

In order to replace the timing belt, it is necessary to place the front end panel of the vehicle into the "service position". This will allow the front end to move forward on the VS5043 Support Guides allowing access to the timing belt.

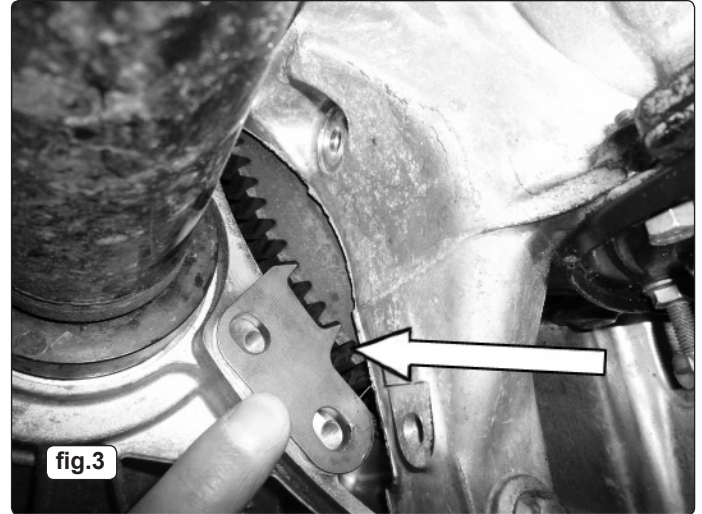
#### 3.1. VS5043 Front End Support Guide Set (Service Position).

- 3.1.1. Remove the vehicle's front bumper assembly, wheel arch covers and the engine undershield.
- 3.1.2. Install the front end support guides from the VS5043 set (fig.1).
- 3.1.3. Remove the front panel securing bolts and the support bolts, then slide the front panel forward (approximately 10cm) into the "service position".
- 3.1.4. Secure the front panel in its "service position" by fitting the front end locking plates from the VS5043 set (fig.2).
- 3.1.5. Raise the vehicle and remove the auxiliary belt and flywheel access cover.



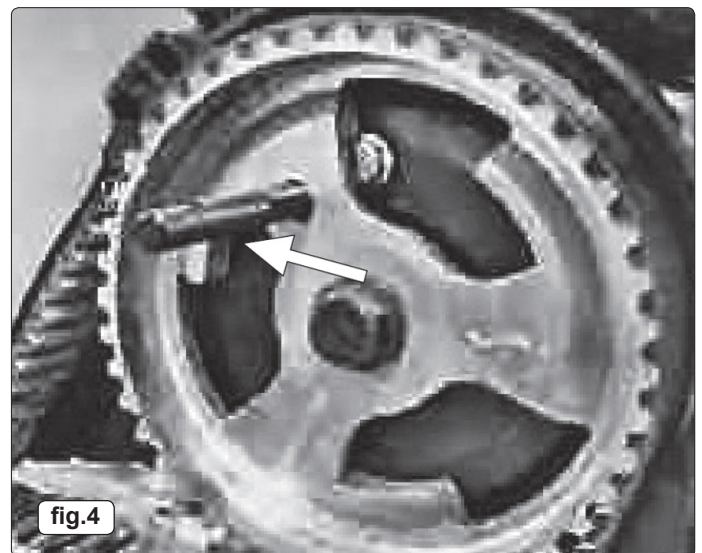
#### 3.2. VS5049 Flywheel Holding Tool.

- 3.2.1. Fit the VS5049 Flywheel Holding Tool into the teeth of the flywheel and bolt it securely in place (fig.3).
- 3.2.2. Remove the crankshaft pulley bolt and the crankshaft pulley.
- 3.2.3. Refit the crankshaft pulley bolt to facilitate turning the engine over.
- 3.2.4. Remove the VS5049 Flywheel Holding Tool and lower the vehicle.
- 3.2.5. Support the engine and remove the right hand engine mounting, belt covers and engine mounting bracket.



#### 3.3. VS4735P17 Camshaft Locking Pin.

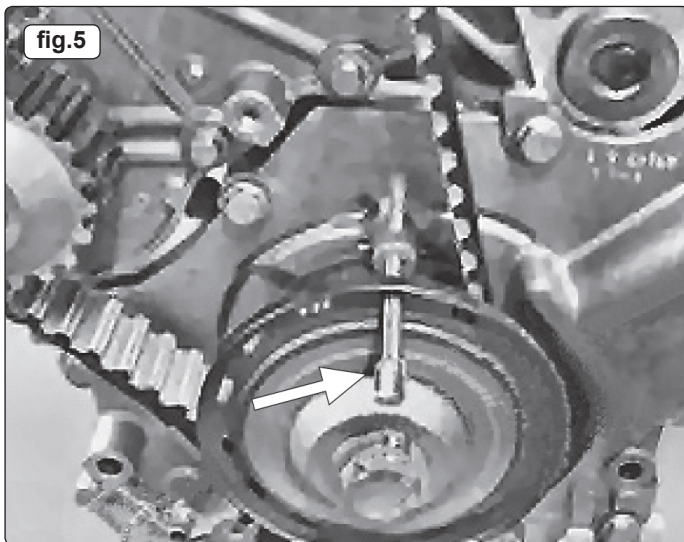
- 3.3.1. Rotate the engine to align the camshaft sprocket timing holes in an approximate 11 o'clock position. Fit VS4735P17 Camshaft Locking Pin (fig.4).





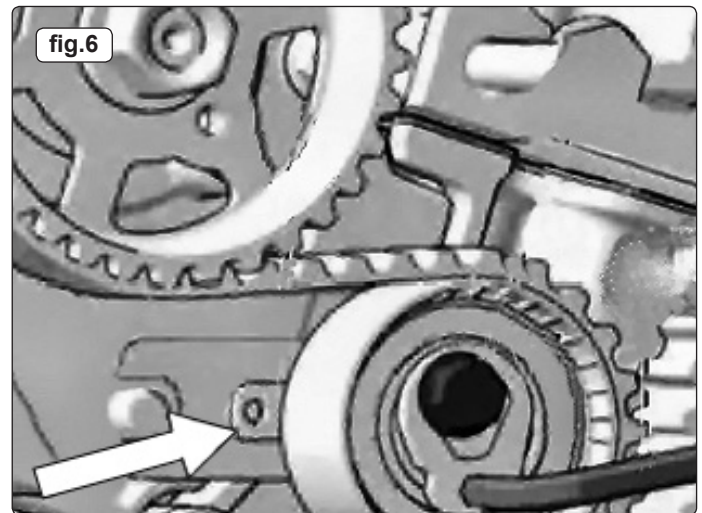
### 3.4. VS4735P15 Crankshaft and Fuel Pump Sprocket Locking Pins (2 in set)

- 3.4.1. Check that the crankshaft timing holes align -12 o'clock position. Fit VS4735P15 Crankshaft Locking Pin (fig.5).
- 3.4.2. One of the VS4735P15 Locking Pins is used to lock the crankshaft, and the other one locks the high pressure fuel pump sprocket. Check the fuel pump alignment via the holes in the pump sprocket and the corresponding hole in the pump bracket. If there is no hole in the bracket, then align the pump by positioning the two holes in the sprocket vertically.
- 3.4.3. Remove the crankshaft position sensor and timing belt guide.
- 3.4.4. Release the tensioner bolt, allowing the tensioner to move away from the belt, and remove the timing belt.



### 3.5. Fitting New Timing Belt.

- 3.5.1. Fit the new timing belt, starting at the crankshaft gear and continue in an **anti-clockwise** direction – idler pulley, camshaft sprocket, high pressure diesel pump, tensioner and the water pump.
- 3.5.2. Using an Allen key, rotate the tensioner in an **anti-clockwise** direction until the pointer is positioned between the sides of the window. Tighten the tensioner bolt (fig.6).
- 3.5.3. Remove the Camshaft, Crankshaft and High Pressure Pump Locking Pins.
- 3.5.4. Carefully rotate the crankshaft 10 revolutions, then check the engine timing by inserting VS4735P17 tool into the camshaft and VS4735P15 locking pins into the crankshaft and high pressure fuel pump.
- 3.5.5. Check that the belt tensioner is in the correct position.
- 3.5.6. Remove the engine timing pins.
- 3.5.7. Refit the timing belt covers and the engine mounting bracket.
- 3.5.8. Refit the right hand engine mounting.
- 3.5.9. Raise the vehicle, and refit the VS5049 Flywheel Holding Tool.
- 3.5.10. Remove and discard the old crankshaft pulley bolt, then install a new pulley bolt and tighten it to 30Nm + 180°.
- 3.5.11. Remove VS5049 Flywheel Holding Tool and refit the engine covers.



**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 UK Distributor, Sealey Group,  
Kempson Way, Suffolk Business Park,  
Bury St. Edmunds, Suffolk  
IP32 7AR



01284 757500

01284 703534



[www.sealey.co.uk](http://www.sealey.co.uk)



[sales@sealey.co.uk](mailto:sales@sealey.co.uk)