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## PETROL ENGINE TWIN CAM SETTING/LOCKING TOOL KIT

### 1. INTRODUCTION & APPLICATIONS

#### 1.1. INTRODUCTION

The VS1220 Twin Cam Engine Setting/Locking Tool Kit covers engine timing and belt replacement applications on the latest range of Renault 1.4, 1.6, 1.8 and 2.0 16 valve engines.

The kit includes Camshaft Setting Plate and appropriate Crankshaft Locking Pins.

#### 1.2. APPLICATIONS

Renault: Clio 1.4, 1.6 16v.  
Megane/Scenic 1.4, 1.6 16v.  
Laguna 1.6 16v.  
K4J/K4M engines (98-)

Laguna 1.8, 2.0 16v.  
Clio Sport 2.0 16v.  
Megane/Scenic 2.0 16v.  
Espace 2.0 16v.  
F4P/F4R engines (98-)

### 2. SAFETY INSTRUCTIONS

- WARNING!** Ensure that 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 the ignition key is removed, to prevent inadvertent engine cranking.
- If the vehicle to be worked on is raised, ensure that it is adequately supported with axle stands or ramps and chocks.
- 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 on or near the engine.
- \* **IMPORTANT:** Always refer to the vehicle manufacturer's service instructions, or a proprietary manual, to establish the current procedure and data. These instructions are provided as a guide only.

### 3. CONTENT & ASSOCIATED TOOLS

#### 3.1. Content

1. VS1220/01 Camshaft Setting Plate
2. VS1220/02 Crankshaft Locking Pin
3. VS125/R1 Crankshaft Locking Pin  
- VS1220/84 Case + Insert

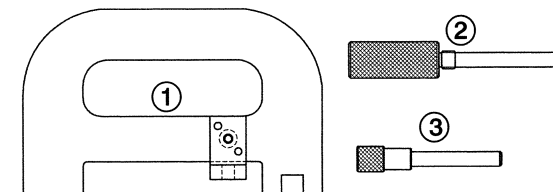
#### 3.2. Associated Tools & Applications

Use with:

Flywheel Holding Tool.....VS1284

#### Associated Tools:

MASTER KIT - Engine Setting/Locking Tool Kit -  
French Engine Applications - Citroën/Peugeot/Renault .....VS125  
Engine Setting/Locking Tool Kit - Renault petrol & diesel .....VS120



### 4. INSTRUCTIONS

VS1220 Twin Camshaft Engine Setting/Locking Tool Kit comprises: VS1220/01 Camshaft Setting Plate, VS1220/02 and VS125/R1 Crankshaft Locking Pins.

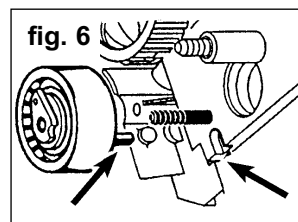
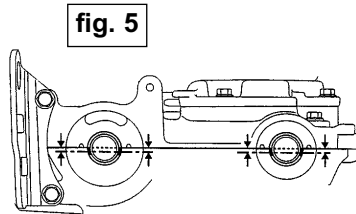
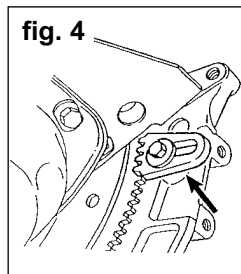
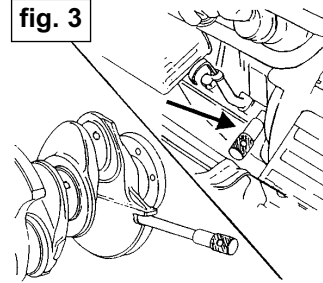
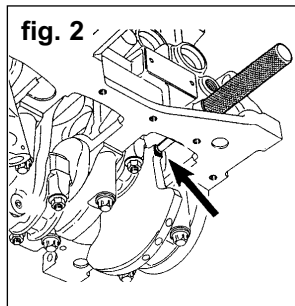
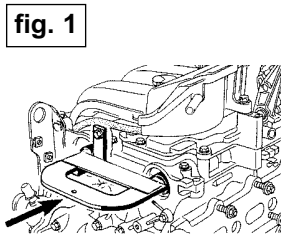
The VS1220/01 Camshaft Setting Plate is used on K4J/K4M and F4P/F4R engines, and locates into slots at the rear of the camshafts (fig.1).

Note: To use VS1220/01 Plate the sealing plugs at the rear of the camshafts must be removed.

VS1220/02 Crankshaft Locking Pin is applicable to K4J/K4M engines, whilst the VS125/R1 Pin covers F4P/F4R engines.

## Engine Setting & Locking - Timing Belt Replacement

- 4.1. Support the engine and remove the right-hand engine mounting.
- 4.2. Remove the sealing plugs from the rear of the camshafts. Turn the engine to the timing position and note that the slots in the end of the camshafts are aligned horizontally.
- Note: The slots should be below the surface line of the cylinder head.
- 4.3. **VS1220/02 and VS125/R1 Crankshaft Locking Pins**
  - 4.3.1. Insert the appropriate Crankshaft Locking Pin. VS1220/02 is used for 1.4 and 1.6 K4J/K4M engines - remove the blanking plug from the cylinder block and screw in VS1220/02 Pin.
  - Note: Ensure that the web of the crankshaft **rests against** the pin (fig. 2). VS125/R1 is for F4J/P/F4R engines and when inserted it enters into the timing slot in the crankshaft.
  - Note: Ensure that the pin is positioned **in the timing slot** and not into a crankshaft web hole (fig. 3).
  - 4.3.2. Lock the flywheel using a suitable Holding Tool such as VS1284 (fig. 4), release the crankshaft pulley bolt and remove the crankshaft pulley.  
**IMPORTANT: DO NOT use Crankshaft Locking Pins to hold crankshaft in position whilst releasing or tightening the pulley bolt. Locking Pins are for retention of timing position only. Use an appropriate Flywheel Holding Tool.**
- 4.4. **VS1220/01 Camshaft Setting Plate**
  - 4.4.1. With the crankshaft 'locked' in position, check that the slots in the ends of the camshafts are aligned horizontally (fig. 5), and fit VS1220/01 Setting Plate, securing it to the engine (fig. 1).
  - 4.4.2. Slacken tensioner and remove together with guide roller and timing belt.  
**WARNING: Ensure that the crankshaft gear does not fall off the crankshaft.**
- 4.5. **Installing a new timing belt**
  - 4.5.1. With VS1220/01 fitted and retaining the camshafts in position, and either VS1220/02 or VS125/R1 Pin 'locking' the crankshaft, fit a new guide roller and tensioner pulley. The pin on the tensioner locates into the slot in the cylinder head (fig. 6).  
**IMPORTANT: It is vital to degrease the bore and contact surface of the crankshaft gear and pulley and the end of crankshaft to prevent slip during re-assembly.**
  - 4.5.2. The new timing belt is fitted in an **anti-clockwise** direction commencing at the crankshaft. Ensure that it is taut on the non-tensioner side.
  - 4.5.3. Measure the crankshaft pulley bolt. If it is longer than 49.1mm replace with a new one.



- 4.5.4. Fit crankshaft pulley - if reusing the original bolt, oil threads. If fitting a new bolt - **DO NOT** lubricate. **IMPORTANT: When installing, do not fully tighten crankshaft bolt - leave approx. 2mm clearance between pulley and bolt head.**
- 4.6. **Initial tensioning**
  - 4.6.1. Turn tensioner clockwise until... for **K4J/K4M engines** - moving pointer is at its right-hand stop position (7 to 8mm past fixed pointer, fig. 7). or, for **F4P/F4R engines** - tensioner marks align (fig. 8). ...and tighten nut.
  - 4.6.2. The engine is to be rotated to equalise belt tension and it is useful to be able to determine when the engine has returned to **just before** the timing position, to help with insertion of the crankshaft pin. Therefore mark the camshaft sprockets, at the 12 o'clock position, with paint or chalk and place a corresponding mark on the cylinder head (fig. 9).
  - 4.6.3. Lock the flywheel in position and remove the camshaft setting plate and crankshaft locking pin.
  - 4.6.4. Tighten the crankshaft pulley bolt and remove the flywheel holding tool.
  - 4.6.5. Rotate the engine twice in a **clockwise** direction, returning to a point **just before** the timing position (use the paint/chalk camshaft sprocket guide marks).
  - 4.6.6. Insert the appropriate Crankshaft Locking Pin, VS1220/01 or VS125/R1, and carefully rotate the engine further to the timing position, ensuring correct location of the locking pin in the crankshaft, as previously described. Check that the camshaft slots are aligned horizontally and are below the surface line of the cylinder head and then fit VS1220/01 Camshaft Setting Plate, ensuring that it can be easily inserted.
- 4.7. **Final tensioner positions**
  - 4.7.1. **K4J/K4M engines** - Turn tensioner **anti-clockwise** until both pointers align (fig. 10).  
**F4P/F4R engines** - Check that the tensioner marks still align (fig. 8). If not - repeat tensioning procedure.
  - 4.7.2. Remove all timing tools.

