

PETROL ENGINE TWIN CAMSHAFT SETTING/LOCKING TOOL KIT FOR VAUXHALL/OPEL 1.0 & 1.2 ENGINES

1. INTRODUCTION & APPLICATIONS

1.1. Introduction

VS132 Setting/Locking Tool Kit includes the Camshaft Setting Plate to 'lock' the pair of camshafts in their correct timing position, a Crankshaft Locking Pin and Chain Tensioner Locking Pin.

In addition the kit provides the Timing Disc Position Gauge, essential for establishing the correct position of the timing sensor disc located on the inlet camshaft sprocket.

1.2. Applications

Vauxhall/Opel: Corsa and Agila - X10XE 1.0 12v. & X12XE 1.2 16v. EcoTec engines

2. 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.

✓ 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 the valve head and the 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.

3. CONTENTS & ASSOCIATED TOOLS

3.1. Contents

- | | |
|------------------------------------|---|
| 1. VS132/01 Camshaft Setting Plate | 3. VS132/03 Timing Disc Position Gauge |
| 2. VS132/02 Crankshaft Locking Pin | 4. VS132/04 Chain Tensioner Retaining Pin |

3.2. Associated Tools

Note: In order to carry out 'timing' adjustment/checking on these engines the auxiliary belt tensioner must be retracted and retained to remove the auxiliary belt. To do this VS133 Belt Tensioner Set is required.

Other Vauxhall/Opel Timing Tools in our range

Diesel Engine Setting/Locking Tool Kit - Vaux/Opel 2.0Di.....VS131

Diesel Engine Fuel System Priming Device - Vaux/Opel 2.0Di.....VS055

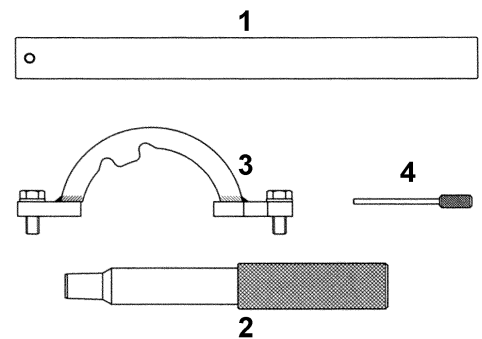
Diesel Engine Setting/Locking Tool Kit - Vaux/Opel 1.6D/1.7DVS114

Diesel Engine Cam Locking Assy - Vaux/Opel 1.6D/1.7DVS1065

Petrol Engine Setting/Locking Tool Kit - Vaux/Opel V6VS130

Petrol Engine Twin Cam Locking Tool - Vaux/Opel 1.4/1.6.....VS1702

Petrol Engine Twin Cam Locking Tool - Vaux/Opel 1.8/2.0/2.2.....VS1701



4. INSTRUCTIONS

The correct engine 'timing' position will need to be re-established whenever service work requiring cylinder head removal, camshaft/valve train adjustment, or major engine repair has been carried out.

IMPORTANT: With the 1st cylinder at TDC, the timing position is correct only when the camshaft plate, crankshaft pin and timing disc gauge can all be installed on the engine.

4.1. VS132/01 Camshaft Setting Plate

VS132/01 is used to 'set' the pair of camshafts in their timed position by locating into the horizontal slots machined at the back of each camshaft (fig. 1).

4.2. VS132/02 Crankshaft Locking Pin

VS132/02 is used to position the crankshaft at TDC. It is inserted through the cylinder block and engages in a 'slot' provided on the first crank web of the crankshaft (figs. 2 & 3).

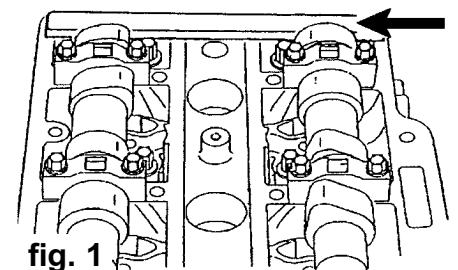
VS132/02 is used for all work involving the timing of the valve train and crank TDC position.

4.3. VS132/03 Timing Disc Position Gauge

The timing disc is attached to the inlet camshaft sprocket. The position of the disc can only be adjusted using VS132/03.

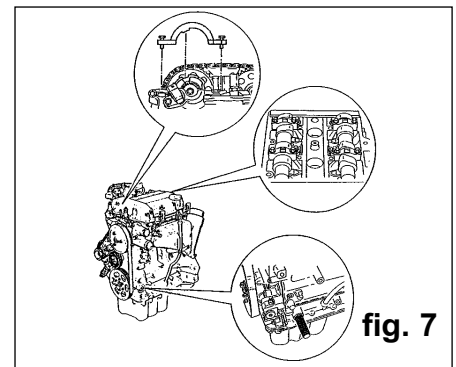
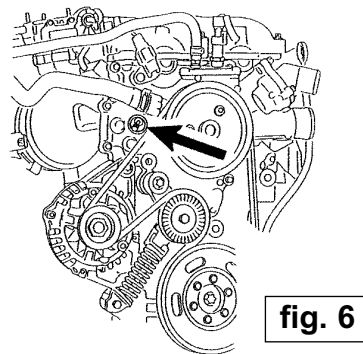
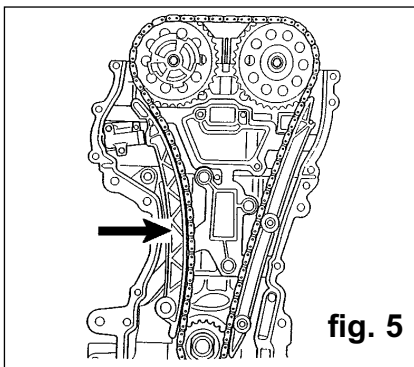
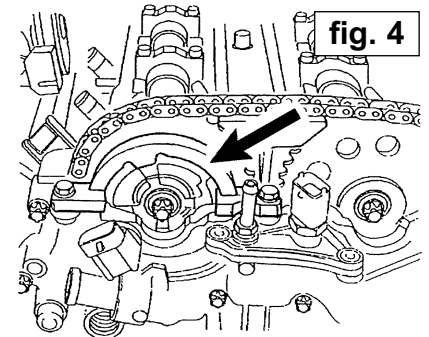
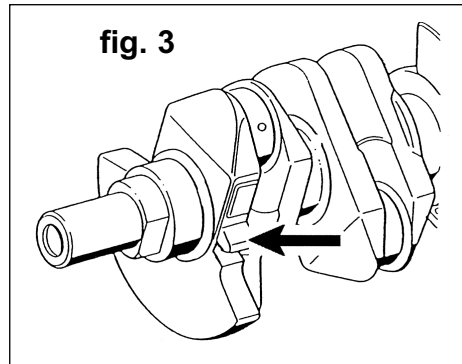
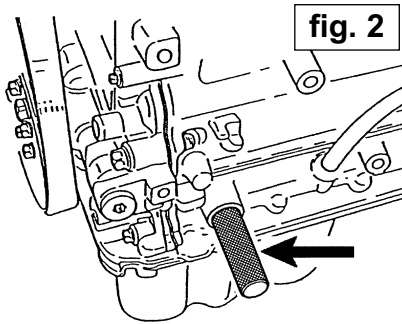
With the engine set at TDC and VS132/01 Cam Plate and VS132/02 Crank Pin in place, VS132/03 Position Gauge can be attached to the timing cover (fig. 4) to complete the installation of all three tools required to conduct an engine timing check - also see 4.6. Timing Adjustment.

IMPORTANT: These timing tools must NOT be used to counterhold the crank or camshaft for removing/releasing pulleys and sprockets. They are for retention of engine timing position only.



4.4. VS132/04 Chain Tensioner Retaining Pin

The simplex timing chain has a tensioning rail applied by a hydraulic tensioner (fig. 5). For all work involving engine timing adjustment, cylinder head removal etc., the tensioning rail must be carefully levered back with a screwdriver and retained by Pin VS132/04. A service hole is provided in the timing cover to allow access for the pin (fig. 6).



4.5. Timing Check

- 4.5.1. Disconnect airflow meter plug and remove air filter housing.
- 4.5.2. Detach oil pressure, coolant temperature and camshaft sensor plugs.
- 4.5.3. Remove cylinder head cover.
- 4.5.4. Turn engine to a position just prior to 1st cylinder TDC. Remove crank access plug and insert VS132/02 Crank Pin. Turn engine slowly to TDC until the Pin fully engages into the crankshaft.
- 4.5.5. Install VS132/01 Camshaft Setting Plate into 'slots' in rear of camshafts.
- 4.5.6. Fix VS132/03 Timing Disc Position Gauge onto the phase sensor disc.

IMPORTANT: For engine timing to be correct, it must be possible to install all the above timing tools in their positions on the engine - if any or all cannot be fitted refer to 4.6. Timing Adjustment.

4.6. Timing Adjustment

- 4.6.1. If the crankshaft and camshafts can be 'locked' in TDC position using VS132/01 Plate and VS132/02 Pin, but VS132/03 Timing Disc Position Gauge cannot be installed, proceed as follows:

- 4.6.1.1. Retract and retain the tensioning rail away from the chain using VS132/04 Pin.

IMPORTANT: For 'Timing Adjustment' procedures the tensioning rail must be retracted to avoid damage to the rail.

- 4.6.1.2. Release the inlet camshaft sprocket bolt, counter-holding the camshaft with a spanner on the hex. provided on the camshaft. **DO NOT** use the timing tools to counter-hold camshafts or crankshaft.
 - 4.6.1.3. Fit a new sprocket bolt and tighten only sufficiently to allow the timing disc to turn.
 - 4.6.1.4. Remove the Tensioner Retaining Pin.
 - 4.6.1.5. Position the sensor disc to allow Gauge VS132/03 to be installed and bolt VS132/03 onto the timing cover.
 - 4.6.1.6. Tighten the sprocket bolt to correct torque whilst counter-holding the camshaft.
 - 4.6.1.7. Remove all timing tools.
 - 4.6.1.8. Rotate engine twice in normal direction, returning to TDC.
 - 4.6.1.9. Insert VS132/01 Plate, VS132/02 Pin and VS132/03 Gauge to check that engine timing position is correct. If any of the timing tools cannot be inserted, Timing Adjustment must be repeated.
- 4.6.2. Should the situation arise where both the Timing Disc Gauge and Camshaft Setting Plate cannot be installed when the crankshaft is 'locked' at TDC with VS132/02, then follow procedure above but release **both** camshaft sprocket bolts and turn the camshafts using a spanner on hex. provided, and install VS132/01 Cam Plate. Then continue as detailed above to install the VS132/03 Timing Disc Position Gauge.

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

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