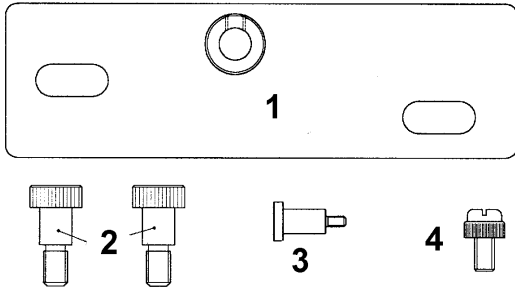


CAMSHAFT SETTING TOOL FOR VAUXHALL/OPEL DIESEL ENGINE



PARTS LIST

1	VS114B/01	Cam Setting Plate
2	VS114B/02	Shoulder Lock Screws (2)
3	VS114B/03	DTI Foot
4	VS114B/04	Thumbscrew

1. INTRODUCTION & APPLICATION

1.1. INTRODUCTION.

VS106A Camshaft Setting Plate is used with dial indicator AK9634M to check the correct TDC relationship between the camshaft and crankshaft. It is also used with VS1065 to adjust for the correct timing of the camshaft. VS114B 'Update' Set provides the tools required to 'set' the crankshaft and injection pump in their fixed position.

1.2. APPLICATION

Vauxhall/Opel: 1.6, 1.7, 1.7TD 1.7DR, 1.7DTL engines.
Astra 1.6/107D, Astravan 1.6/1.7D. Astramax 1.6/1.7D, Cavalier 1.6/1.7D.

2. SAFETY INSTRUCTIONS

- WARNING!** Ensure all health and safety, local authority and general workshop practice regulations are strictly adhered to when using tools.
- DO NOT use tools if damaged.
- Maintain the tool in good and clean condition for best and safest performance.
- If required ensure the vehicle to be worked on is adequately supported with axle stands, 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 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 possible damage to the engine. Incorrect injection pump timing may cause excessive smoke emissions, poor starting and low power output.

IMPORTANT: Always refer to the vehicle manufacturer's service instructions, or proprietary manual to establish the current procedure and data. These instructions for use are provided as a guide only.

3. INSTRUCTIONS FOR USE

- WARNING!** Ensure you have read and understood chapter 2 safety instructions before commencing.

Note: 'TDC' refers to top dead centre on the compression/injection stroke (inlet and exhaust valves both closed).

3.1. VS106A Camshaft Setting/Locking Tool.

Used with AK9634M Dial Test Indicator. For camshaft setting/locking - vehicles from '87 onward, see applications.

NOTE: VS106A is used in conjunction with optional Alignment Tool VS1065.

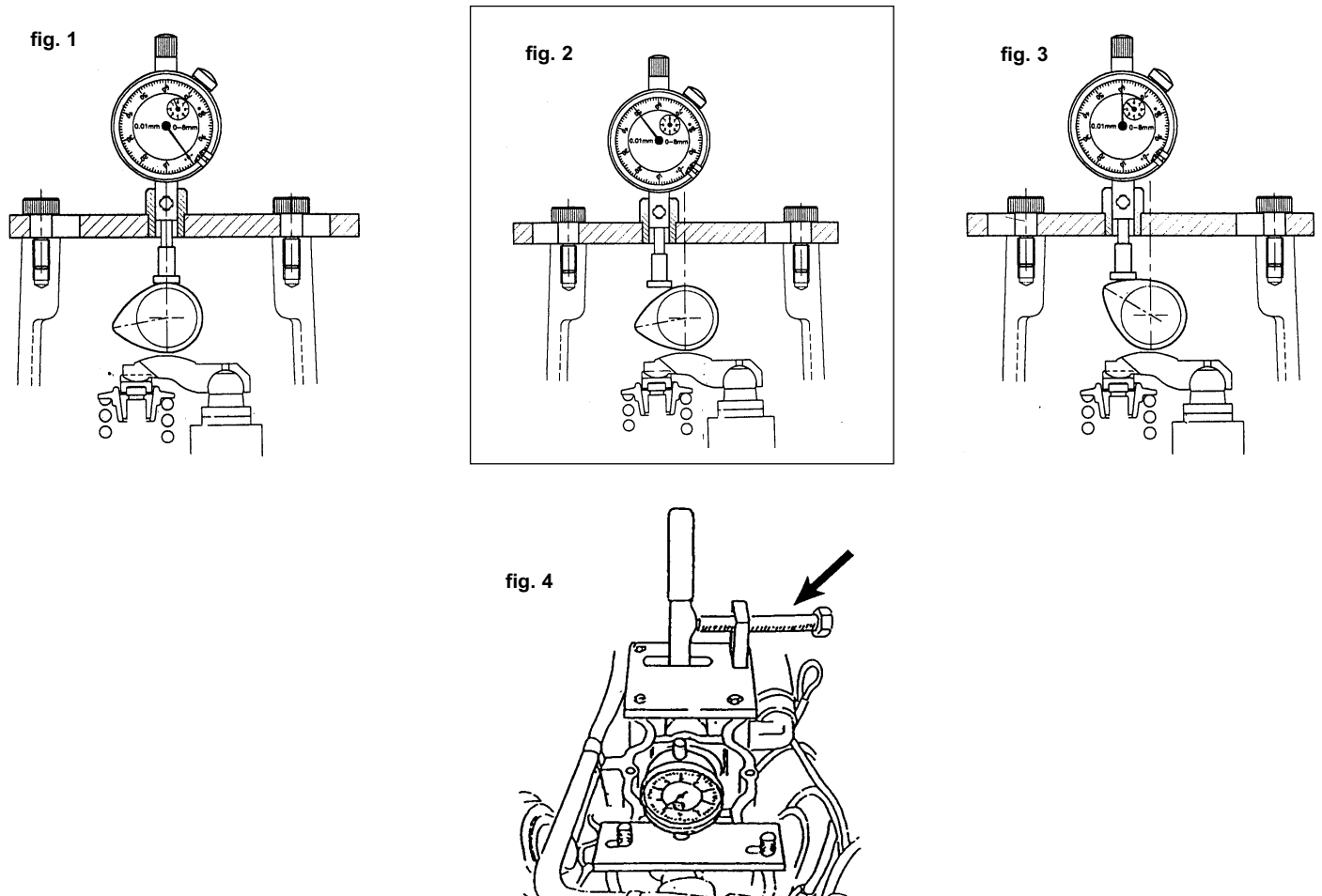
3.1.1. Checking Timing

1. Turn crankshaft in the normal engine direction of rotation to 90 degrees before TDC (No.1 cylinder).
2. Insert DTI into Setting Plate VS114B/01. **IMPORTANT: DTI must be held securely by Thumbscrew VS114B/04 in VS114B/01 plate.**
3. Unscrew plunger end off the DTI gauge AK9634M and screw in its place DTI Foot VS114B/03. Ensure the foot threads fully up to its shoulder into the DTI.
4. Locate Shoulder Screws VS114B/02 through setting plate body into camshaft housing holes at No.1 cylinder, over 2nd cam. Push plate to rest against the right stop so that the DTI foot rests over the base of cam, fig.1. Release thumbscrew and pre-load the indicator gauge **TO NOT MORE THAN 0.5mm**. Secure DTI firmly in the plate with thumbscrew. **Set the DTI gauge to zero (datum point)**. Push plate to rest against the left stop so that indicator foot rests over cam lobe, fig.2.
5. Turn crankshaft in the normal engine direction to TDC No.1 cylinder, fig.3. Read off the value on the dial test indicator, nominal value: 0.55 +/- 0.03mm. If nominal value is not obtained timing must be adjusted.

3.1.2. Adjusting Timing.

1. Ensure timing belt tension is correct.
2. Turn crankshaft in the normal engine direction to TDC No.1 cylinder.
3. Locate spanner on camshaft hexagon and restrain while loosening fastening bolt of camshaft pulley.
4. Break the taper between camshaft and pulley.
5. Remove crankcase vent hose and fit Alignment Tool VS1065 (optional, not in kit) over No.4 cylinder, secure with three M6x1.0P screws, fig.4.
6. Insert DTI AK9634M with 10mm dia. Foot VS114B/03 into Setting Plate VS114B/01. Locate Shoulder Screws VS114B/02 through setting plate body into camshaft housing holes at No.1 cylinder, over 2nd cam.
7. Push plate to rest against right stop so that DTI foot rests over base of cam, fig.1.
8. Turn camshaft in opposite direction to normal rotation until the DTI foot rests on the base diameter of the cam, with the cam lobe in position as fig.1.
9. Pre-load the indicator **TO NOT MORE than 0.50mm**, and set gauge to zero (datum point).
10. Push plate to rest against left stop so that DTI rests over the cam lobe, fig.2. Dial gauge will now read below the zero datum point.
11. Turn camshaft carefully, with the spanner of VS1065, in the normal engine direction until the DTI returns to zero datum point and then continue to turn until a reading of approx 0.80mm is achieved.
12. Fine adjust with the adjusting bolt on VS1065 to give an indicator reading of 0.60mm-0.64mm, fig.4.
13. Leave VS1065 in place whilst fitting new fastening bolt to lock camshaft pulley to camshaft (never refit old bolt), tighten to specified torque.
14. Remove VS1065 and VS106A. Rotate crankshaft and return to alignment of all TDC marks. Repeat "Check Timing" procedure to ensure 0.55 +/- 0.03mm nominal value is achieved.

IMPORTANT: Check the diesel fuel injection pump timing using VS1079 or VS110 Pump Timing Tool according to the injection pump fitted.



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