

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.

- x 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 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. INTRODUCTION & APPLICATIONS

VS1402.V2 Kit includes Camshaft Setting Plates, which locate at the rear of the camshafts to 'lock' them in their timed positions, and special tensioner adjuster.

**Note:** TDC position on Fiat Twin Cam engines is established using VS1404 TDC Positioning Tool, an associated tool, not included in the kit. VS1404 requires a suitable Dial Test Indicator, such as AK9643M.

In addition, a Flywheel Holding Tool is required to 'lock' the crankshaft whilst releasing/tightening the crank pulley bolt. The crank pulley must be removed in order to remove the timing belt. The Flywheel Holding Tool used is dependent upon model.

### 2.2 Applications

FIAT 1.6 16v. Twin Cam Petrol engines (95-) in:  
FIAT

Brava	Bravo	Marea	
Marea Weekend	Multipla	Palio	Stilo

**178B3.000, 182 A4.000, 182 A6.000 & 182B6.000 engines**

Additional AST Tools required:

VS1404 TDC Position Tool

AK9634M Dial Test Indicator (used with VS1404)

VS1283 Flywheel Holding Tools

VS1402/03 (Crank Pulley Removal)

**VS1402.V2**



**Associated Tool  
VS1404  
TDC Position Tool**

### 3. CONTENTS & ASSOCIATED TOOLS

#### 3.1 Contents

1. VS1402/01 Cam Setting Plate Set (AST4521-1 Plate (Inlet))
2. VS4522A Tensioner Adjuster

VS1402.V2/84 Case + Insert

#### 3.2 Associated Tools required:

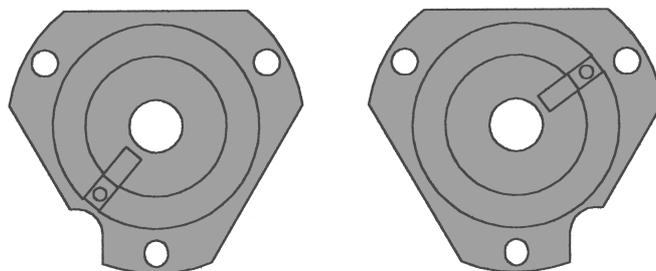
VS1404 TDC Position Tool

AK9634M Dial Test Indicator

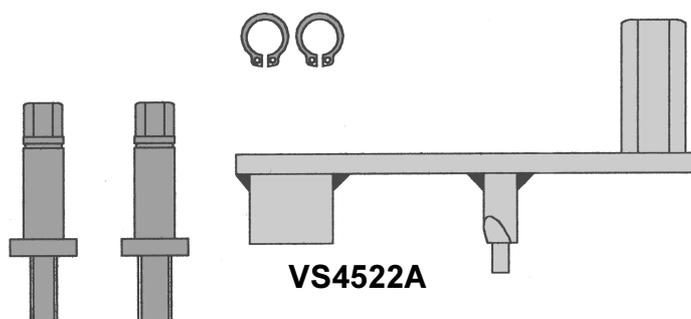
(used with VS1404)

VS1283 Flywheel Holding Tools

VS1402/03 (Crank pulley removal)



VS1402/01



VS4522A

### 4. INSTRUCTIONS

General Guide - Setting & Locking FIAT TWIN CAM engines.

Timing belt replacement on 1.6, 1.8 16v. and 2.0 20v. Fiat twin camshaft engines is carried out with the crankshaft at TDC, established by using VS1404 TDC Position Tool and a DTI (Fig.1), to determine the piston position in No.1 cylinder, and then by checking that all timing marks align.

**NOTE:** To avoid kit contents duplication, VS1404 TDC Position Tool is not included in individual kits but is available as an Associated Tool. It is used on Fiat 1.6, 1.8 and 2.0 multi-valve engines.



VS1404

On the 1.6 16v. engine each camshaft is retained in its 'timed' position by Setting Plates positioned at the rear of the camshafts.

Once crank TDC has been established and camshaft timing positions are 'locked', the tensioner is slackened, and the old belt removed. Both camshaft sprockets are released and free to turn on camshafts.

Marks on the new belt are aligned to marks on the sprockets/pulley and fitted in the order given for each engine. Initially the timing belt tension is adjusted to maximum, using the Tensioner Adjuster.

The camshaft sprocket bolts are then tightened, and all setting/locking tools removed.

The engine is rotated by hand and VS1404 TDC Position Tool refitted to ensure return to TDC.

The tensioner is adjusted to operating position and the engine rotated again and returned to TDC. All timing marks must align.

It is good practice to confirm the timing is correct by adjusting to TDC and refitting the camshaft tools to check the timing position.

**WARNING: DO NOT use Camshaft Setting Plates to hold camshafts in position whilst releasing or tightening the sprocket bolts. Plates are for retention of timing position only. Use a suitable Sprocket Holding Tool to counter-hold sprockets, taking care not to damage any position sensors located behind the sprockets.**

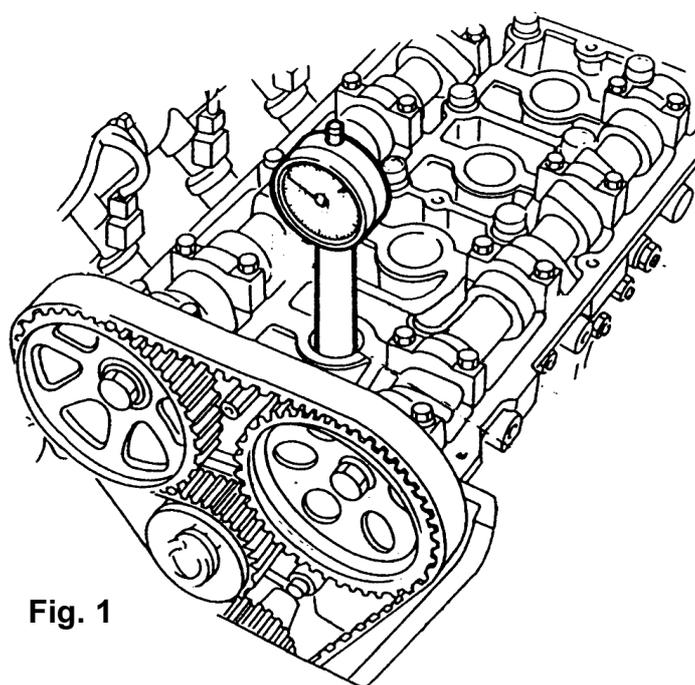


Fig. 1

Use VS1404 to determine TDC position

#### 4.1 VS1402/01 Camshaft Setting Plate Set (Fig. 2)

These Setting Plates retain the camshafts in their timed positions by fixing at the rear of each camshaft.

VS1402/01 Set comprises two similar but different Setting Plates. These plates are marked 'Inlet' and 'Exhaust' and must only be used on the corresponding camshaft.

**IMPORTANT: VS1402/01 Setting Plates are NOT interchangeable - they must only be fitted to the appropriate camshaft marked on the plate.**

Remove covers at the rear of camshafts. Slide Plates over studs and locate onto each camshaft ensuring the key on the Plate fits into the slot in the camshaft (fig.2). Secure in place with cover nuts.

**IMPORTANT:** To ensure the correct Plate is fitted to appropriate camshaft and correct camshaft position has been achieved, the 'notch' on the side of the Plate MUST align to the blanking plug on the camshaft housing (fig. 3).

1.6 16v. new belt is fitted in the following order - Crank, Oil Pump, Guide, Cam(Inlet), Cam(Exh), Tensioner.

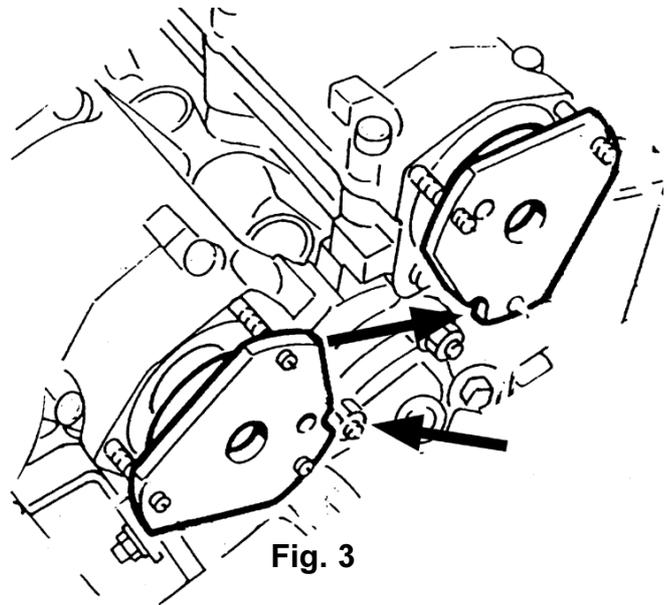


Fig. 3

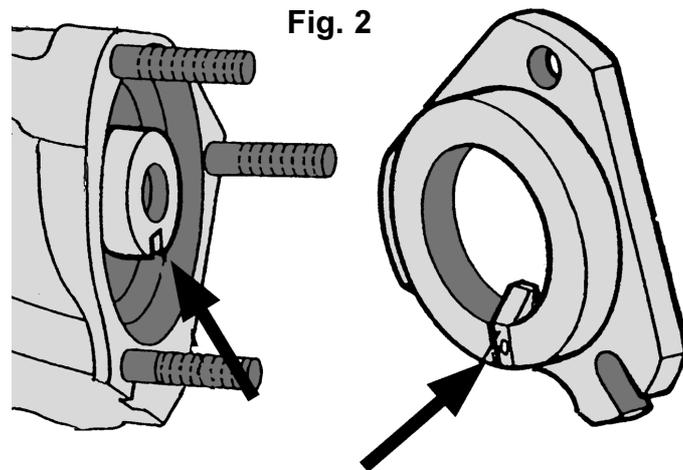


Fig. 2

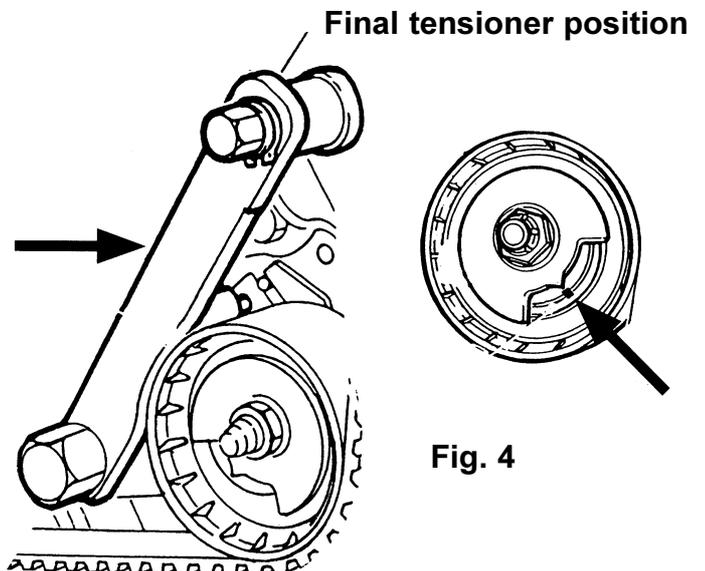


Fig. 4

#### 4.2 VS4522A Tensioner Adjuster (Fig. 4)

Remove bolt from front casing, above/left of tensioner and attach VS4522A via spindle.

**NOTE:** VS4522A has interchangeable spindles - use the appropriate spindle to suit thread - M8 or M10.

When fitting new belt, use a spanner to lever VS4522A to initially adjust tensioner to maximum position, moving pointer to the end of its travel.

After tightening camshaft sprocket bolts, turning engine by hand two revolutions, returning to TDC, and ensuring that all timing marks align, adjust the final position of the tensioner so its pointer is in line with the reference point (fig. 4).

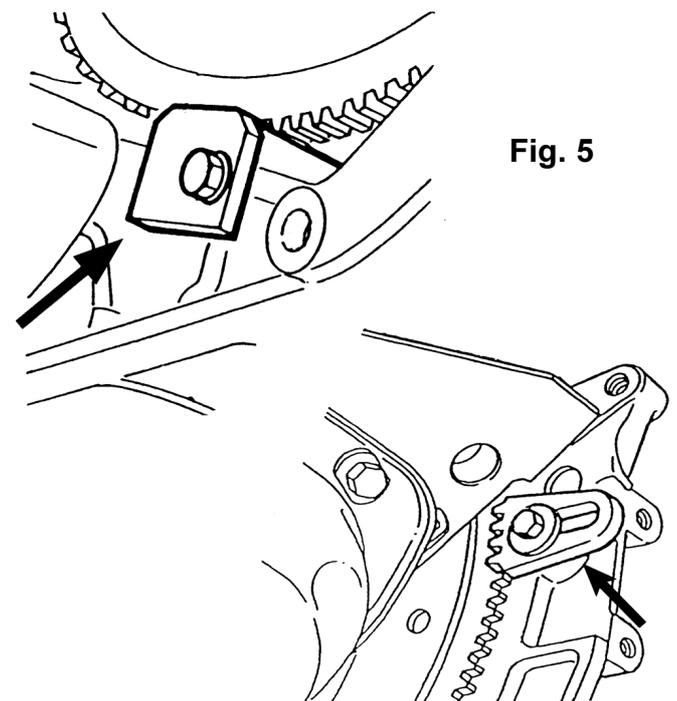


Fig. 5

#### 4.3 VS1283 and VS1402/03 Flywheel Holding Tools - Associated Tools - not included in kit (Fig.5)

Flywheel Holding Tools are used to 'lock' the flywheel as it is necessary to remove the crankshaft pulley in order to remove and replace the timing belt. The engine must be 'locked' in a secure and safe position when releasing and tightening the pulley bolt. Tools 'lock' into the teeth of the flywheel to counter-hold the crankshaft, whilst releasing/tightening the bolt.

Applications: VS1283 - Fiat Stilo

VS1402/03 - Fiat Brava/Bravo, Marea/Weekend, Multipla, Palio

#### 4.4 VS1404 TDC Position Tool (Fig. 6) Associated Tool not in kits

The correct engine/crank TDC position is established using VS1404 Tool together with a suitable DTI, such as AK9634M Dial Gauge.

VS1404 Tool determines when the piston of No.1 cylinder is at its highest point. **NOTE: Must be when it is on the ignition stroke.**

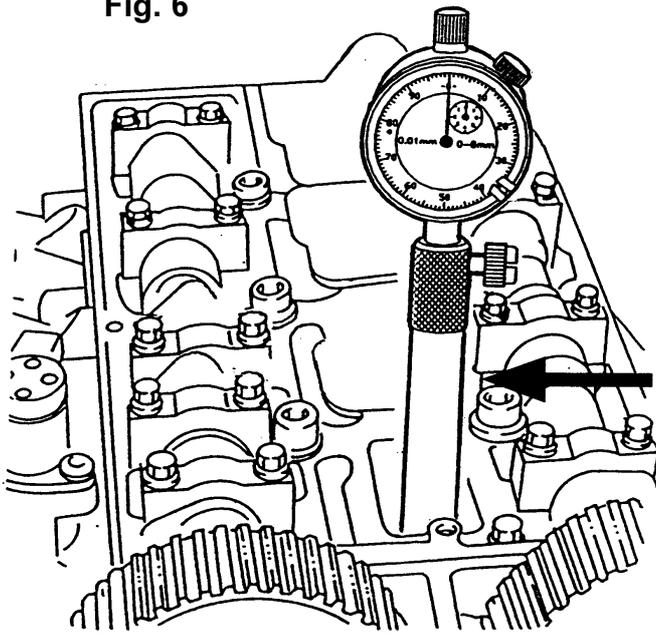
Remove the spark plugs. Install the DTI into VS1404 and secure with the Thumbscrew.

Screw VS1404 fully into the spark plug hole of No1 cylinder, taking care not to overtighten. By turning the crankshaft, in the normal direction of engine rotation, the piston will raise the indicator pin of VS1404 and in turn, move the needle of the DTI.

TDC is achieved when the DTI needle reaches its highest reading and starts to move in the reverse direction.

Check that all timing marks align.

Fig. 6



**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 product.

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

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