

AST4450

Diesel Engine  
Setting/Locking Tool Kit

Associated Tool: AST4640V3  
Auxiliary Belt Tensioner Locking Pin



**IMPORTANT:** Always refer to the vehicle manufacturer's service instructions, or 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.

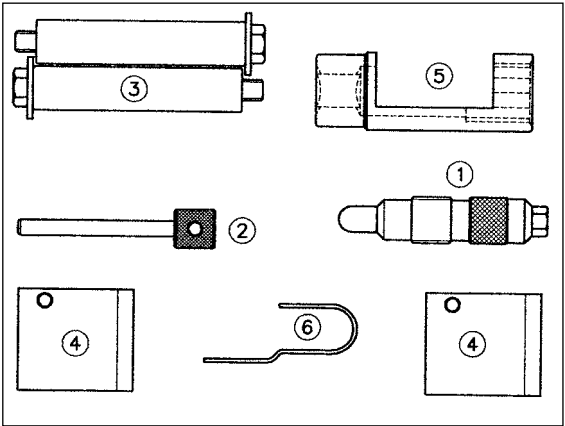
**Applications:**  
V W GROUP V6 2.5TDi Diesel engine in

**AUDI**  
A4                      A6                      A8  
Allroad

**SKODA**  
Superb

**VOLKSWAGEN**  
Passat  
**AFB, AKN, AKE, AYM, BAU, BCZ, BDG, BDH  
& BFC engines**

**Additional AST Tools required:**  
AST4394 Sprocket Holding Tool  
AST4640V3 Auxiliary Belt Tensioner Locking Pin

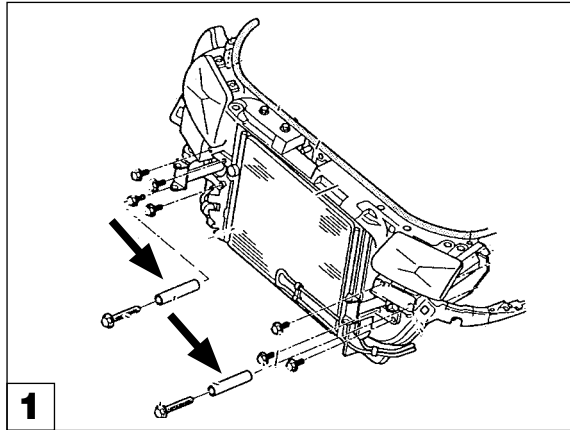


Kit contents/spares

Item	Part Number	Description
1	AST4401	Crankshaft TDC Locking Pin
2	AST4440V2	Injection Pump Locking Pin
3	AST4441	Front Panel Support Guides (Pair)
4	AST4451	Camshaft Setting Plates (Pair)
5	AST4452	Tensioner Adjuster
6	AST4360T1	Tensioner Retaining Pin
-	AST4450-84	Case and Insert

When removing the auxiliary belt its tensioner is pulled back off the belt and locked with pin AST4640V3 - Associated Tool not in kit.

**NOTE:** The V W 2.5TDi V6 engine has two drive belts. The main timing belt and an injection pump belt. Follow procedures to remove the injection pump belt first.

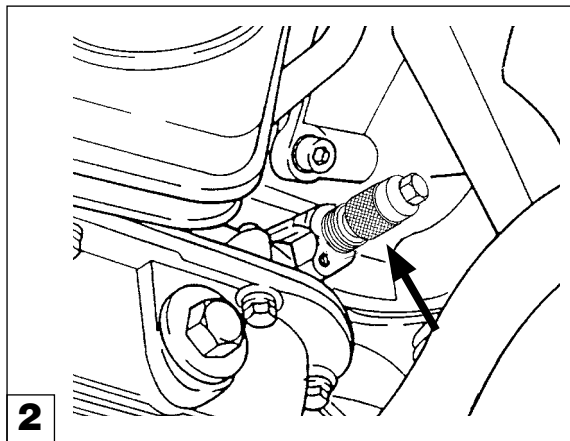


### AST4441 Front Panel Support Guides (Pair)

On Audi A4, A6 and V W Passat models, the front panel is released and moved forward to provide access to the engine.

Remove the front panel bolts, fit AST4441 Support Guides and slide panel forward.

Refit the upper bolts to hold panel in position.

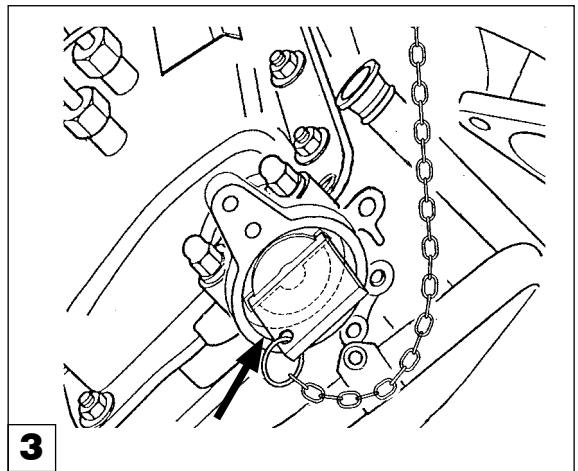


### AST4401 Crankshaft TDC Locking Pin

AST4401 Crankshaft Locking Pin is used to retain the crankshaft at TDC position, entering via a threaded hole in the crankcase and into a TDC location hole in the crankshaft web.

Turn crankshaft to TDC and check that the camshaft mark aligns with the centre of the oil filler cap hole ('OT' visible).

Remove blanking plug from crankcase and ensure the location hole in the crankshaft web is aligned with the blanking plug hole before screwing in the AST4401 Pin.

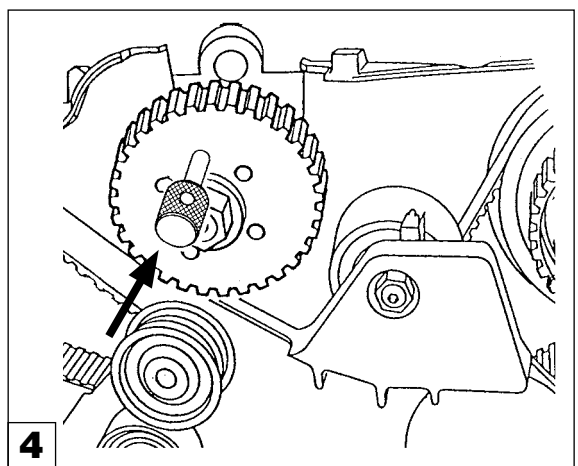


### AST4451 Camshaft Setting Plates (Pair)

There are two setting plates, one for each camshaft. These locate within the slots in the rear of the camshafts. They are supplied with chains which are attached to a suitable engine part to prevent them from falling into the engine.

Remove exhaust pump and cover plate and fit camshaft setting plates.

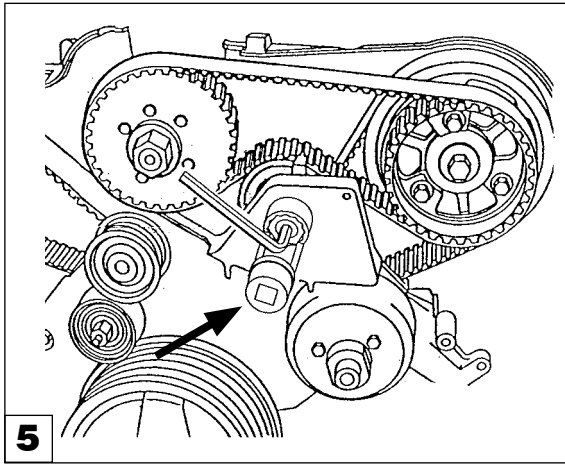
**IMPORTANT:** Setting Plates **MUST NOT** be used to 'lock' camshafts when releasing sprocket bolts. They are for timing position retention only - Use Sprocket Holding Tool AST4394 - Additional Tool not included in kit.



### AST4440V2 Injection Pump Locking Pin

Remove injection pump damper and insert AST4440V2 Locking Pin through injection pump sprocket.

**WARNING:** Do not release centre nut of the injection pump sprocket as the basic pump setting will be affected. This cannot be reset within the workshop.

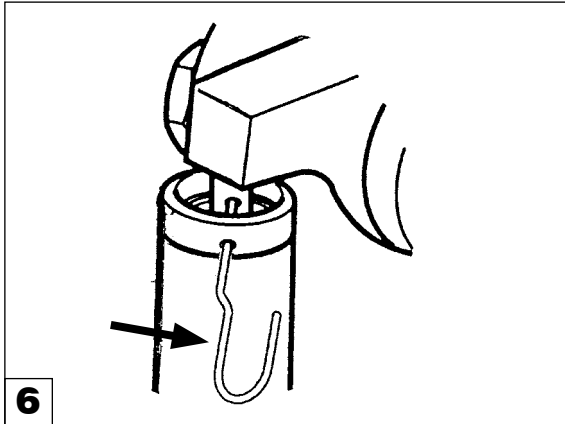


### AST4452 Tensioner Adjuster

Release the injection pump belt tensioner using AST4452 and turn tensioner away from belt in order to remove the belt.

Using Sprocket Holding Tool AST4394 to counter-hold sprockets, release the camshaft sprocket bolts and camshaft/injection pump belt sprocket.

To remove the timing belt, first remove the injection pump belt, as above, and then the crankshaft pulley.



### AST4360T1 Tensioner Retaining Pin

Turn timing belt tensioner so that the plunger is depressed to align hole in plunger with the hole in the main body and insert Pin AST4360T1 to 'lock' in place.

Release camshaft sprockets off their taper with suitable puller and remove left-hand sprocket to remove timing belt.

**WARNING:** These timing tools must **NOT** be used to counterhold the crank or camshaft for removing/releasing pulleys or sprockets. They are for retention of engine timing position only. Use appropriate Holding Tool.

### Installing timing belt

To install timing belt, align the camshaft timing mark in the centre of the oil filler cap hole ('OT' visible).

Ensure the crankshaft is 'locked' at TDC with AST4401 Pin and AST4451 Camshaft Setting Plates are located in the end slots of the camshafts.

The RH camshaft sprocket must be able to turn freely on its taper, but not tilt.

Re-fit the LH camshaft sprocket and cam sprocket (for injection pump belt)

Again the LH sprocket must turn freely on its taper, **but not tilt**

Turn timing belt tensioner slightly to release AST4360T1 Pin. Using a torque wrench on the tensioner apply 15Nm. to tensioner pulley.

Counter-hold camshaft sprockets with AST4394 and tighten centre bolts.

### Installing injection pump belt

When refitting the injection pump belt, the crankshaft, camshaft and injection pump timing tools must be in place.

Fit the camshaft (to injection pump belt) sprocket ensuring that the bolts are towards the centre of the slotted holes in the sprocket. Do **NOT** tighten as the sprocket must be free to turn.

Fit the injection pump belt.

Release the injection pump belt tensioner onto the belt and check that the markings align. Tighten tensioner nut.

Tighten sprocket bolts.

Remove all timing tools and re-fit blanking plug to crankcase.

Rotate engine slowly for two turns, returning to TDC position.

Re-fit AST4401 Crankshaft Locking Pin and check that AST4451 Camshaft Setting Plates can be inserted into the slots at the rear of the camshafts.

Check that AST4440V2 Injection Pump Locking Pin can be inserted and that the markings of the tensioner are correctly aligned.

### More AST Timing Kits for V W GROUP

Petrol & Diesel Engine Setting/Locking Tool Kit – see **AST4440**

V6 Petrol Engine Setting/Locking Tools – see **AST4401**  
**AST4402**  
**AST4403**

2.5TDi Diesel Engine Setting/Locking Tool Kit, Audi ( -97) – see **AST4449A**

1.2/1.4/1.9TDi Pumpe Düse Diesel Engine Setting/Locking Tool Kit see **AST4640**