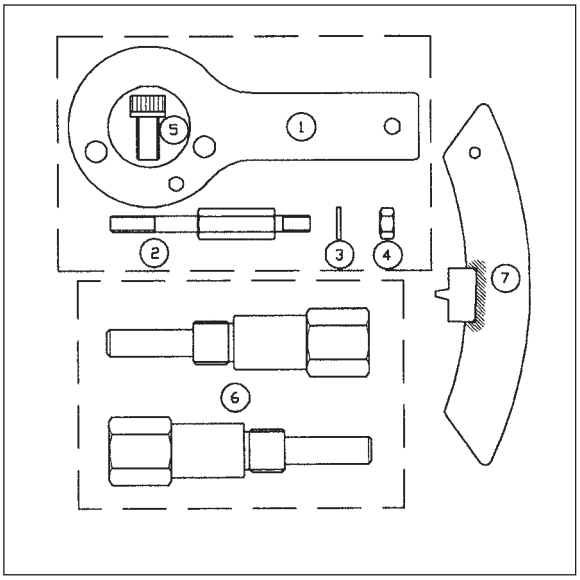
AST4850

Diesel Engine Setting/Locking Tool Kit

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:

ALFA ROMEO, FIAT and LANCIA 1.9JTD 8v./16v. & 2.4JTD 10v./20v. Common Rail Diesel engines in

ALFA ROMEO

145	146	147
156	159	166
GT		

FIAT

Punto	Grande Punto	Brava/Bravo
Marea/Weekend	Stilo	Doblo/Cargo
Multipla	Idea	New Bravo
Croma		

LANCIA

Lybra	Musa	Thesis
Kappa		

1.9JTD (8v.) - 323.02, 371.01,182B4.000, 182B9.000, 186A6.000, 188A2.000, 188A7.000, 188B2.000, 192A1.000, 192A3.000, 192A9.000, 199A5.000, 937A2.000, 939A1.000, 939A2.000, 939A5.000, 939A7.000

1.9JTD (16v.)- 192A5.000, 192B1.000, 937A4.000, 937A5.000, 939A2.000, 939A8.000

2.4JTD (10v.)- 325.01, 342.02, 362.02, 185A6.000, 838A8.000, 829A5.000, 839A6.000, 841C.000

2.4JTD (20v.)- 841G.000, 841H.000, 841M.000, 939A3.000

Kit contents/spares

Item	Part Number	Description
	AST4543A	Crankshaft Locking Tool – items 1-5
1	AST4543-1	Main Body
2	AST4516-2	Support Spindle
3	AST4516-3	Washers (2 off)
4	AST4516-4	Nut
5	AST4543-3	Retaining Screw
6	AST4776	Camshaft Setting Tools (Pair)
7	AST4528	Flywheel Holding Tool (Crank Pulley removal)
--	AST4850-84	Case + Insert

AST4850 Diesel Engine Setting/Locking Tool Kit

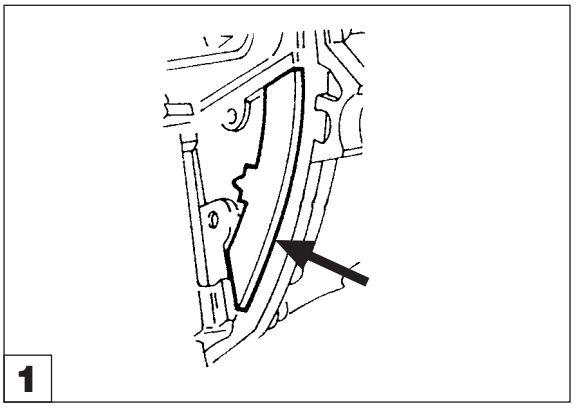
Comprises: AST4776 Camshaft Setting Tools (Pair)
AST4543A Crankshaft Locking Tool
AST4528 Flywheel Holding Tool (Crank Pulley removal)

The 1.9JTD can be single camshaft 8v or twin camshaft 16v. The 2.4JTD (5 cyl.) can be single camshaft 10v. or twin camshaft 20v.. Both engines are common rail diesels – TIMING BELT DRIVE.

The timing belt configuration is the same for both engines with the belt driving the camshaft, high pressure pump and coolant pump. On the twin camshaft engines the belt drives the exhaust camshaft which in turn drives the inlet cam, via gears.

For timing belt replacement applications the same tool is required to 'lock' crankshaft position, on all variants (AST4543A). On the single cam engines the camshaft is aligned to timing marks, and on twin camshaft engines, special Setting Tools are required to position the camshaft.

In order to remove the timing belt it will be necessary to remove the crankshaft pulley.



1

AST4528 Flywheel Holding Tool (Crank Pulley removal)

On most of the 8v./10v. engines AST4528 is required to 'lock' the flywheel.

Remove the flywheel access cover and install AST4528 Flywheel Holding Tool to 'lock' the engine to facilitate release of the crank pulley bolt. Remove tool.

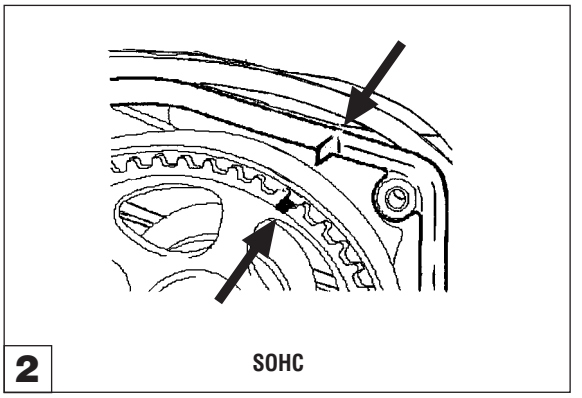
AST4528 will also be required when refitting the pulley.

Remove the R-H road wheel, inner wing splash panel, auxiliary belt, crankshaft pulley and timing belt covers.

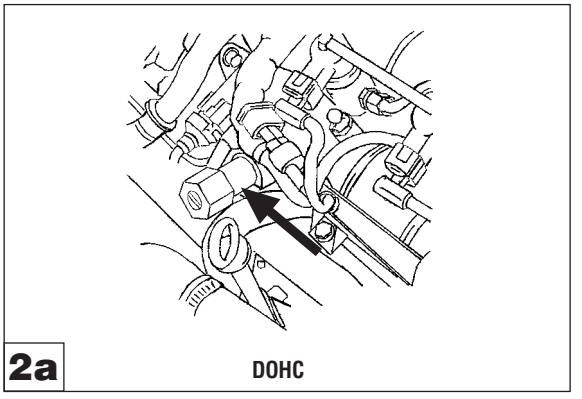
NOTE: As it will be necessary to remove the engine mounting/ brackets to remove and fit the timing belt, the engine must be supported from below.

Set the engine at TDC No.1 cylinder on ignition stoke.

NOTE: Check the engine timing is correct by fitting the appropriate timing tools.



2 **SOHC**



2a **DOHC**

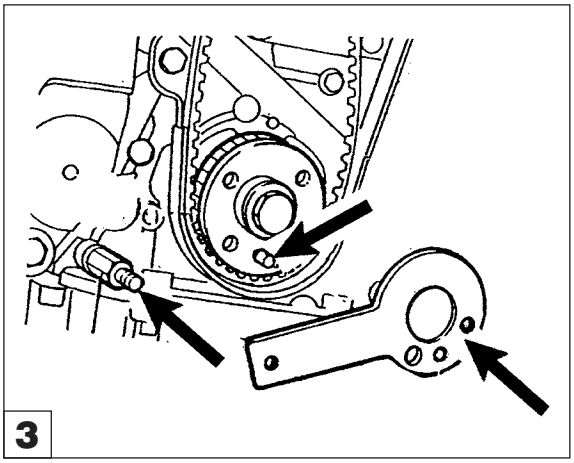
8v. & 10v. (single camshaft) – Ensure camshaft sprocket timing mark aligns with the mark on the camshaft housing cover.

16v. & 20v. (twin camshaft) – Fit AST4776 Camshaft Setting Tool Camshafts have a 'timing position slot' and are locked in timed position by AST4776 Setting Tool, which is spring loaded, screws in to the camshaft housing, and locates into the timing position slot in the camshaft.

Slowly turn the engine in its normal direction of rotation.

As the ends of the spindle engages the slot in the camshaft an audible '**click**' will be heard as the spring activates the spindle and pushes it into the 'timing position slot'.

NOTE: For timing belt replacement it is only necessary to use one of the AST4776 Tools which should be fitted to the exhaust camshaft, (the inlet side is not accessible). When undertaking cylinder head and camshaft work, BOTH AST4776 Tools should be used, (inlet and exhaust camshafts).



3

AST4543A Crankshaft Locking Tool – All variants

To check that the engine is at TDC, fit AST4543A Locking Tool by removing the oil pump bolt and insert Support Spindle of AST4543A.

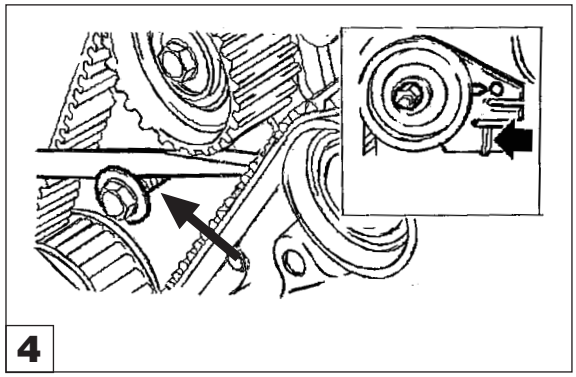
Fit the main body of the tool locating it onto the support spindle and the dowel on the crank gear.

With the dowel correctly located, secure the tool with Retaining Screw AST4543-3 through to the crank gear.

Having now checked that the engine is a TDC No.1 cylinder/ignition stroke, remove AST4543A Tool, support engine and release RH engine bracket. Slacken belt tensioner and remove the old timing belt.

On 16v./20v. engines slacken the exhaust camshaft sprocket bolt whilst counter-holding the sprocket with a Sprocket Holding Tool.

DO NOT use Timing Tools to hold crankshaft/camshafts in position whilst releasing or tightening the sprocket bolt. Setting Tools are for retention of timing position only.



4

Fitting new belt

Fit the new belt around the crank gear and install AST4543A Crank Locking Tool, securing with Retaining Screw AST4543-3 through to the crank gear.

Continue fitting the new belt ensuring the non-tensioned side is taut.

To tension the belt, screw in a temporary bolt to provide a 'lever point' and using a screwdriver lever the belt tensioner to the initial tensioning position.

Initial Tensioner position

On 8v./10v. engines lever the adjuster in direction of arrow until the tensioner is at **maximum** ie. the pointer is positioned **ABOVE** the hole.

On 16v./20v. engines the tensioner pointer should be **IN LINE** with the hole.

Tighten tensioner bolt.

On 16v./20v. engines, tighten the exhaust sprocket bolt, counter-holding the sprocket with a Sprocket Holding Tool.

Remove AST4543A and AST4776 Tools and turn the crankshaft two revolutions, by hand, in normal direction of rotation.

Return the engine to TDC and install AST4776 and AST4543A Tools to again check timing position is correct.

Slacken tensioner bolt and, if necessary, again lever the tensioner so the pointer is in line with the hole. Tighten the tensioner bolt and remove all tools and 'temporary level bolt'.

Final Tensioner position

Turn crankshaft two revolutions and re-check tensioner **pointer aligns with hole.**

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