

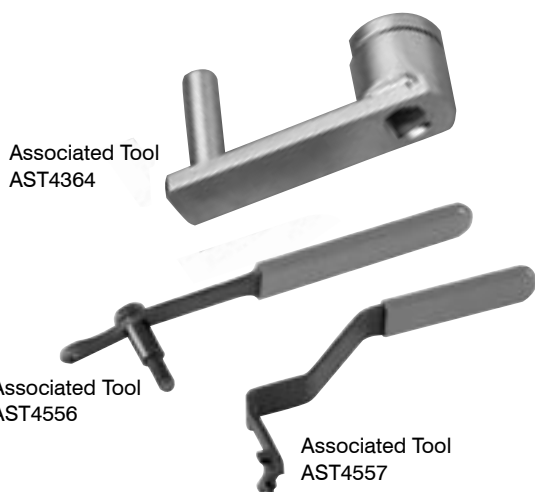
AST4390

Diesel & Petrol Engine Setting/Locking Tool Kit

Associated Tools: AST4364,
AST4556 & AST4557 Tensioner Tools



AST4390



Associated Tool
AST4364

Associated Tool
AST4556

Associated Tool
AST4557

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:

RENAULT Diesel and Petrol engines in

RENAULT

R5	R9	R11
R19	R21	R25
Clio	Twingo	Fuego
Megane/Scenic	Laguna	Safrane
Espace	Express/Extra	Kangoo
Trafic	Master	

CHRYSLER

Jeep Cherokee 2.1D/TD (-93)

FIAT/IVECO

Daily Croma/Argenta Ducato

MITSUBISHI

Carisma 1.9TD

VAUXHALL/OPEL

Arena Movano

VOLVO

340	440	460
480	S40	V40

Petrol Engines: D7F 1.2, E5F/E6J/E7F/E7J 1.4,
K7M 1.6, F1N/F2N+R/F3N 1.7,
F3P/F3R/J5R/J6R/J7R/J7T 1.8,2.0,2.2,
Twin Cam Petrol: F7P/F7R 1.8, 2.0 16V.
Diesel Engines: F8M/F8Q/F9Q 1.9, J8S 2.1,
G8T 2.2, S8U/S9U/S9W 2.5, 2.8

Refer to the Application chart on the following page(s) for specific model information

Additional AST Tools required:

- see Application Charts

AST4364 Tensioner Tool

AST4556 Tensioner Adjuster

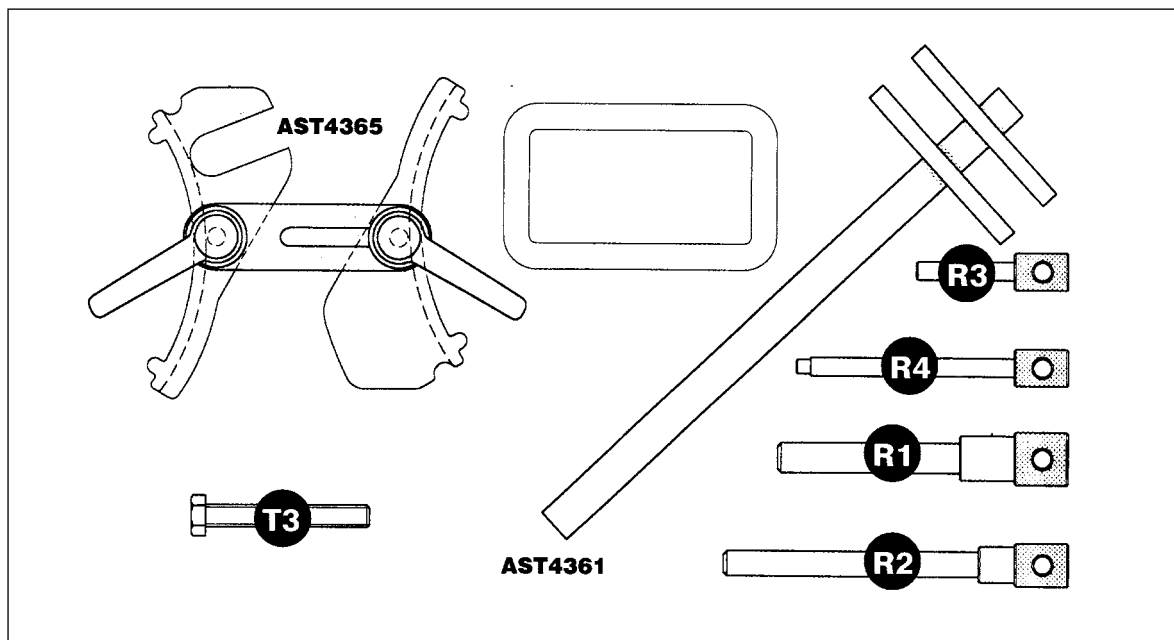
AST4557 Tensioner Adjuster

AST4394 Sprocket Holding Tool

AST3398 } Flywheel Holding

AST4356 } Tools (Crankshaft

AST4357 } Pulley removal)



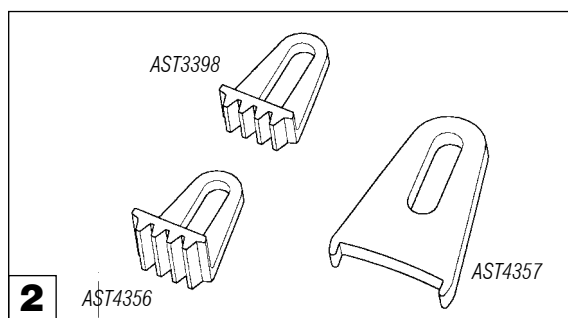
Kit contents

Engine Setting/Locking Tools

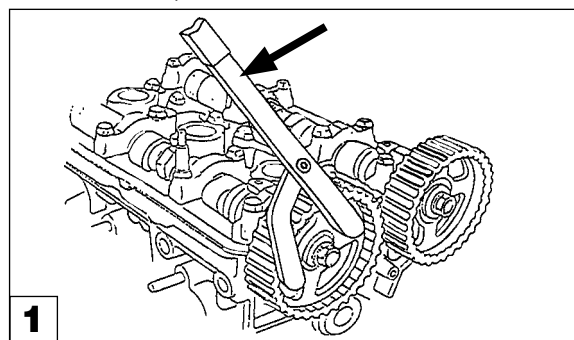
AST4365 Sprocket Locking Device
 AST4360R1 Crankshaft TDC Locking Pin
 AST4360R2 Crankshaft TDC Locking Pin
 AST4360R3 Injection Pump Locking Pin
 AST4360R4 Crankshaft Locking Pin

Tensioner Adjustment Tools

AST4360T3 Adjusting Bolt
 AST4361 Tensioner Adjuster



Additional Tools, not in Kit



AST4394 Sprocket Holding Tool Associated Tool, not in kit

Flywheel Holding Tools (Crank Pulley removal) – Additional Tools, not in kit

It is often necessary to remove the crankshaft pulley when replacing the timing belt. The pulley bolt has a high torque loading and the engine must be 'locked' safely with the correct Flywheel Holding Tool when releasing the bolt.

Use AST3398, AST4356 or AST4357 Holding Tools

For model/engine coverage - see Application Charts and separate Data Sheets.

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, such as AST4394.

Diesel Engines including direct injection Models/engines	AST4390 Kit Tools							Tensioner Adjustment				
	Camshaft, Injection Pump, Crank/Flywheel TDC Lock						R4	R3	R2	R1	AST 4365	AST 4361
Renault R5 1.6D(88-), R9 1.6D, R11 1.6D, Express/Extra 1.6D(-92) F8M engines	●	●							●		●	
Clio 1.9D, Express/Extra 1.9D, R19 1.9D/TD/Chamade, R21 1.9D, Megane 1.9D/TD, Trafic (98-) F8Q engines – with One Piece or 2 Part Inj. Pump Sprockets	●	●							●		●	
Clio 1.9D, Megane/Scenic 1.9TD(96-), R19 1.9TD, Express/Extra/Rapid 1.9D, Kangoo 1.9D F8Q engines – with RAM Inj. Pump Adjustable Sprocket	●	●							●		●	
Clio 1.9TD, Megane(98-), Laguna 1.9TD/dTi, Kangoo 1.9TD DIRECT INJECTION F9Q engines – with RAM Inj. Pump Adjustable Sprocket	●	●							●			
Espace 2.1D/TD, Fuego 2.1TD(-85), R21 2.1D/TD, R25 2.1D/TD(-92), Master/Trafic 2.1D J8S engines	●	●							●			
Safrane 2.1TD(92-) J8S, 760 engine	●	●							●			●
Laguna 2.2D/TD(94-), Safrane 2.2TD, Espace 2.2TD G8T engines – with 2 Part Injection Pump Sprocket	●		●									
Safrane 2.5TD(92-), Master 2.5D/TD/2.8TD, Trafic 2.5D S8U/S9U/S9W engines		Elec injection pump	●					2,5D				8144 variant
Chrysler Jeep Cherokee 2.1D/TD(-93) J8S engines	●	●										
Fiat/Iveco Daily 2.5D(-96), Croma/Argenta 2.5D(-91), Ducato 2.5D S8U engines			●					●				8144 variant
Mitsubishi Carisma 1.9TD F8Q engines	●	●							●			●

NOTE: For Injection Pump timing with 'RAM' Adjustable Sprocket – Set AST4389 is required

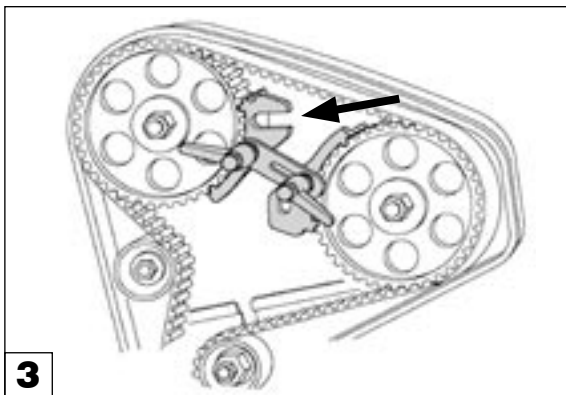
Diesel Engines including direct injection Models/engines	AST4390 Kit Tools Camshaft, Injection Pump, Crank/Flywheel TDC Lock						Associated Tools	Additional AST Tools required	
	AST 4365 'Multi-Lock'	R1	R2	R3	R4	T3			
Vauxhall/Opel Arena Van 1.9D, Movano 1.9D F8Q.606/F9Q.770 engines – with RAM Inj. Pump Adjustable Sprocket	●	●					Tensioner Adjustment	AST4394 Spr Hold Tool	Flywheel Hold Tools
Arena Van 2.5D S8U engine				●	●			●	AST3398
Movano 2.5D/2.8TD S8U/S9U/S9W engines				●	2.5D			●	
Volvo 440/460 1.9TD, S40/V40 1.9TD F8Q (D19T/4192T) engines – with RAM Inj. Pump Adj. Sprocket	●	●						●	

NOTE: For Injection Pump timing with 'RAM' Adjustable Sprocket – Set AST4389 is required

Petrol Engines, including twin cam Renault							Associated Tools	Additional AST Tools required	
Clio 1.2(95-), Twingo 1.2, Kangoo 1.2 D7F engines		●					AST4364	●	AST4356
Clio 1.2, 1.4, Express/Extra 1.4, Kangoo 1.4, R19 1.4, Megane/Scenic 1.4/1.6 E5 – E7F/E7J/K7M engines									AST3398 AST4356 (K7M)
R5 1.7, Clio 1.7/1.8, R19 1.7/1.8, R21 1.7, Megane/Scenic 2.0, Laguna 1.8/2.0(8v), Espace 2.0 Traffic 1.7 F1N – F3N/F3P/F2R – F3R engines		●				●		●	AST3398
Clio/Williams 1.8/2.0 16v(-95), R19 1.8 16v, Megane 2.0 16v, Spider 2.0 16v F7P/F7R TWIN CAM engines	●	●				●		●	AST3398
R21 2.0/2.2, R25 2.0/2.2, Safrane 2.0/2.2, Espace 2.0/2.2, Master/Trafic 2.0/2.2 J5R – J7R/J7T engines		●				J7R 720			AST3398 (J5R)
Volvo 340(-91), 440/460/480 F Series(B16/B18/B20) engines		●				●		●	

NOTE: For N7Q/N7U 2.0/2.5 Twin Cam engines – Set AST4387 is required. For K4J/K4M 1.4/1.6 and F4P/F4R 1.8/2.0 Twin Cams – Kit AST4560 is required.

Camshaft and Injection Pump Sprocket Locking



AST4365 'Sprocket Locking Device

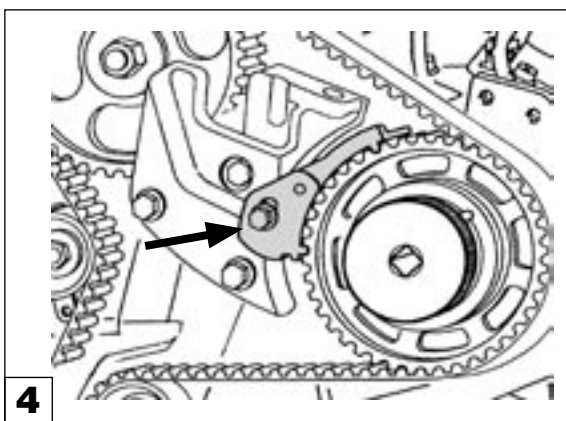
AST4365 is designed to 'Lock' twin camshafts, cam and/or injection pump sprockets on their timing marks to ensure the engine timing position is retained during timing belt removal/renewal.

AST4365 is uniquely adjustable in size between sprockets to provide a parallel fit or additionally, lateral/off-set positioning.

It locates in to the sprocket teeth giving a firm and secure 'lock'.

Dependant upon application, the AST4365 'Sprocket Locking Device' is used complete, as a combined left and right hand plate between two sprockets, or is dis-assembled and the plates used singly. When using a single plate it fits into the teeth of the sprocket and bolts onto the engine to lock the injection pump sprocket.

On most Renault diesel engines the injection pump sprocket can be held on its timing mark by locking AST4365 onto the sprocket teeth. On F8M (1.6D) and J8S (2.1D/TD) engines the complete tool is used and timing positions are retained by locking in to both the camshaft and injection pump sprockets.



For F8Q, F9Q (1.9D/TD), G8T 2.2D/TD diesels a single plate only is used, being positioned in the injection pump sprocket teeth and bolted to the engine in the place provided, to secure the timing position.

When using a single plate it can also be used to hold the injection pump sprocket firmly in place to release and tighten the pump/sprocket nut for timing/removal of the injection pump.

For **F8M & J8S** engines - Use complete **AST4365**

For **F8Q/F9Q & G8T** engines - Use single plate.

Twin Cam Petrol Engines

In addition to diesel engine applications, the AST4365 'Sprocket Locking Device' is also used to 'lock' twin camshaft engine sprockets in their timed positions during timing belt replacement. On Renault 1.8 and 2.0 16v (F7P/F7R) engines, the timing marks are aligned and AST4365 is placed between the cam sprockets, expanded to engage into the teeth of both sprockets and tightened firmly in position to retain their timing positions.

These engines also use AST4360R1 Crank TDC Lock Pin and AST4360T3 Tensioner Adjuster.

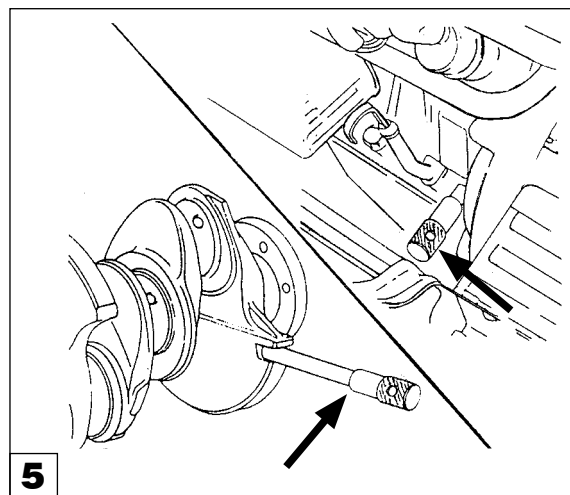
For **F7P/F7R**

Twin Cam engine

-see Application Charts for specific models

Use **AST4365 'MULTI-LOCK'**

AST4360R1 & AST4360T3



Engine Setting/Locking Tools

AST4360R1 and R2 Crankshaft TDC Locking Pins

Used on many Renault diesel and petrol engines, these pins enter datum holes in the engine casing and locate into crankshaft to lock engine at TDC.

Rotate the engine in the normal direction of rotation and align all timing marks ensuring No1 cylinder is at TDC.

Remove plug and insert locking pin to engage into the crankshaft datum hole.

IMPORTANT: Move crankshaft forwards and backwards slightly to be certain pin is inserted correctly.

For **F8M, F8Q, F9Q, J8S** diesel

D7F, F1/2/3, J5/7 petrol

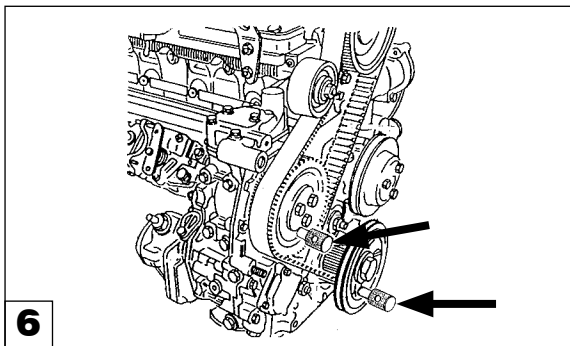
F7P/F7R Twin Cams

For **G8T 2.2** diesel engines

- see application charts for specific models.

Use **AST4360R1**

Use **AST4360R2**



AST4360R3 and R4 Locking Pins

These locking pins are used as a pair to lock the crankshaft and injection pump on the Renault S8U/S9U diesel engines.

Pins enter through holes in sprockets into datum holes on the engine. Ensure all timing marks are aligned and Pin R4 will locate through and lock crankshaft pulley.

Pin R3 will lock the injection pump sprocket..

NOTE: If crank pulley does not have a hole, insert pin in the flywheel.

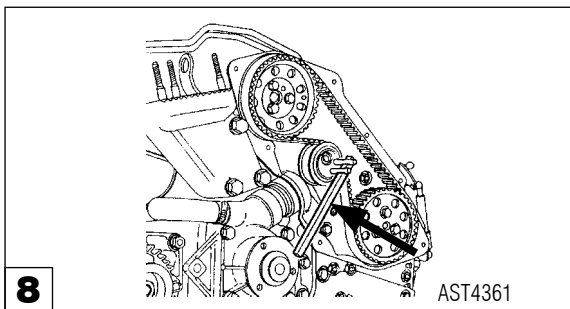
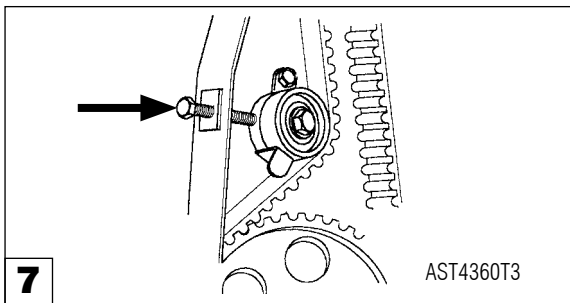
For **S8U/S9U** 2.5 diesel engines - Use **AST4360R3 and R4**

NOTE: For 2.8TD variants and where an Electronic Injection Pump is fitted it may be necessary to use AST4360R1 Pin for the crankshaft 'lock' .

Tensioner Adjustment Tools

Belt tensioning procedures are critical and the manufacturer's procedure **MUST** be followed.

These procedures often require a tensioning tool to adjust the tensioner itself.



AST4360T3 and AST4361 Tensioner Adjusters

AST4360T3 Adjuster is required on petrol and diesel applications to allow tension to be applied to the tensioner/belt. It is screwed into the threaded hole in rear upper timing cover to push the tensioner and apply tension to the belt.

For **F8M, F8Q 1.6/1.9** diesel

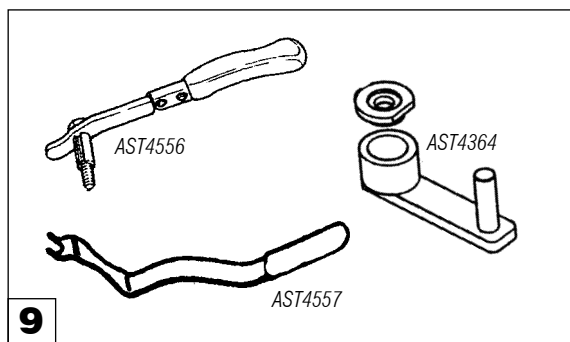
F1/2/3 petrol, **F7P/F7R** Twin Cams Use **AST4360T3**

-see Application Charts for specific models.

AST4361 Tensioner Adjuster turns the belt tensioner to apply correct tension. This specialised wrench locates into two holes on the tensioner in Renault petrol engines and variants of J8S and S8U diesel engines.

For **D7F, E5/E7, J7, K7M** petrol

J8S.760, S8U.8144 diesel engines Use **AST4361**



New Tensioner Adjusters – Associated Tools, not in kit

AST4364 for D7F 1.2 petrol engines

This tensioning tool is used to apply tension to the timing belt during the final belt tensioning procedure on the 1.2 litre engine - D7F in Clio, Twingo and Kangoo.

AST4556 for G8T 2.2 diesel engines

Attaches to the engine and allows leverage of the tensioner to apply tension to belt – Laguna 2.2D (94-96)

AST4557 for J8S 2.1 diesel engines

'Peg style' wrench which locates into the two holes in the tensioner in order to turn it and apply belt tension – Fuego, R18, R20, R21, R25, R30, Espace, Trafic & Master.

More AST Timing Kits for RENAULT

Petrol & Diesel Engine Setting/Locking Tool Kit – French Engines

see **AST4360A MASTER KIT**

Petrol Twin Cam Engine Setting/Locking Tool Kit K4J/K4M 1.4/1.6 & F4P/F4R 1.8/2.0 –

see **AST4560**

Petrol Twin Cam Engine Setting/Locking Tool Kit N7Q/N7U 2.0 16v/2.5 20v.

see **AST4387**

'RAM System' Injection Pump Timing Set –

see **AST4389**

V6 Petrol Engine Setting/Locking Tool Kit – L7X –

see **AST4580**