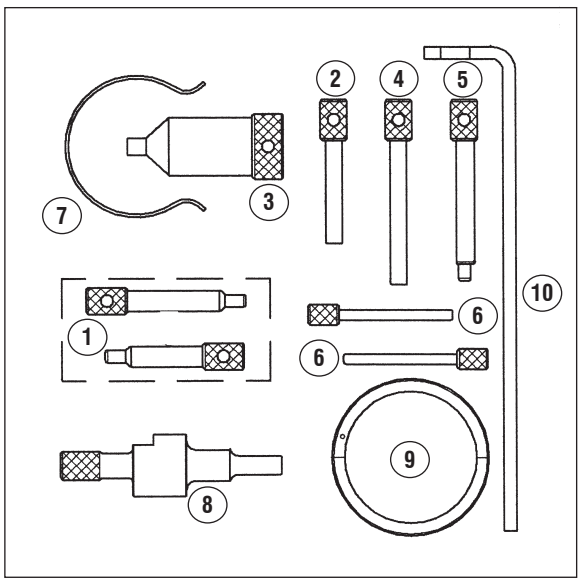
AST4825

Petrol Engine Twin Camshaft Setting/Locking Tool Kit

Associated Tool: AST4576
Crankshaft Pulley Flange Repositioning Tool

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:

CITROËN/PEUGEOT Twin Camshaft 16v. (Code 'EW') Petrol engines in

CITROËN

Xsara/Picasso	C4	C5
Evasion/Synergie	C8	Jumpy/Dispatch

PEUGEOT

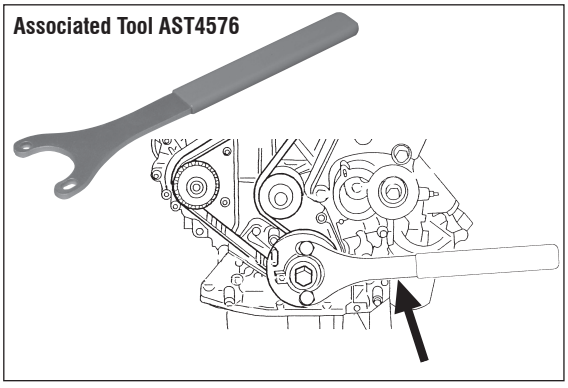
206 /CC/GTi	307/CC	406/Coupe
407	607	806
807	Expert	

EW7J4 (6FZ), EW10J4 (RFN/RFR), EW10J4S (RFK), EW10D-HPi (RLZ), EW12J4 (3FZ) engines

Refer to the Application Charts on the following pages for specific model information

Additional AST Tools required:
AST4576 Crank Pulley Flange Repositioning Tool

Associated Tool AST4576



Kit contents/spares

Item	Part Number	Description
1	AST4575P10	Camshaft Locking Pins (Pair)
2	AST4575P11	Crankshaft Locking Pin
3	AST4575P12	Flywheel Holding Tool
4	AST4575P13	Tensioner Setting Pin
5	AST4575P14	Camshaft Locking Pin (HPi)
6	AST4735P15	Camshaft Locking Pins (2 in Kit)
7	AST4569	Belt Retaining Clip
8	AST4825P19	Flywheel Locking Pin
9	AST4826-1	Tensioner Turning Tool } AST4826
10	AST4826-2	Tensioner Locking Tool } Set
--	AST4825-84	Case + Insert

Models/Engines	Flywheel/Crankshaft: Timing Position P11	Flywheel/Crankshaft: Timing Position P19	Flywheel/Crankshaft: Pulley Removal P12	Camshafts: AST4735 P15	Camshafts: (Pair) P10	Camshafts: HPi/VVT P14	Belt Tensioner: AST4826 -1 &-2	Belt Tensioner: P13	Belt Retain Clip AST4569	ASSOCIATED TOOL -not in kit AST4576 Crank Flange Repositioning Tool
CITROËN										
Xsara/Picasso										
1.8 16v.										
EW7J4 (6FZ) 99-										
Crank Pulley with 4 bolts	●		●		●				●	●
Crank Pulley with centre bolt		●			●	●	●		●	
2.0 16v.										
EW10J4/L4/L5 (RFN) 02-05										
Crank Pulley with 4 bolts	●		●		●	●			●	●
Crank Pulley with centre bolt (02-)		●			●	●	●		●	
C4										
2.0 16v.										
EW10J4 (RFN) and EW10J4S (RFK) 04-07		●		RFK	RFN		●		●	
C5										
1.8 16v.										
EW7J4 (6FZ) 00-07										
Crank Pulley with 4 bolts	●		●		●	●			●	●
Crank Pulley with centre bolt		●			●	●	●		●	
2.0 16v.										
EW10J4 (RFN) 00-04										
Crank Pulley with 4 bolts	●		●		●	●			●	●
Crank Pulley with centre bolt (02-)		●			●	●	●		●	
2.0 HPi										
EW10D (RLZ) 00-04										
Crank Pulley with 4 bolts	●		●		●	●			●	●
Crank Pulley with centre bolt (02-)		●			●	●	●		●	
Evasion/Synergie										
2.0 16v.										
EW10J4R/L5 (RFN) 00-02										
Crank Pulley with 4 bolts	●		●		●	●			●	●
Crank Pulley with centre bolt		●			●	●	●		●	

Models/Engines	Flywheel/Crankshaft			Camshafts			Belt Tensioner		Belt Retain Clip	ASSOCIATED TOOL -not in kit AST4576
	Timing Position		Pulley Removal	AST4735	(Pair)	HPi/VVT	AST4826 -1 &-2			
	P11	P19	P12	P15	P10	P14		P13	AST4569	Crank Flange Repositioning Tool
C8										
2.2 16v.										
EW12J4 (3FZ) 02-06										
Crank Pulley with 4 bolts	●		●		●	●		●	●	●
Crank Pulley with centre bolt		●			●	●	●	●	●	
Jumpy/Dispatch										
2.0 16v.										
Ew10J4/L5 (RFN) 00-07										
Crank Pulley with 4 bolts	●		●		●	●			●	●
Crank Pulley with centre bolt (02-)		●			●	●	●		●	
PEUGEOT										
206 / 206CC / GTi										
2.0 16v.										
EW10J4 (RFN) / EW10J4S (RFK) 00-07	●		●		●	●		●	●	●
2.0 16v.										
EW10J4 (RFR) 98-06										
With Adjustable Cam Sprockets	●		●		●			●	●	
With Non-Adjustable Cam Sprockets	●		●		●	●		●	●	●
307 / 307CC										
2.0 16v.										
EW10J4 (RFN) 01-07										
Crank Pulley with 4 bolts	●		●		●	●		●	●	
Crank Pulley with centre bolt		●			●		●		●	●
406 / Coupe / 407										
1.8 16v.										
EW7J4 (6FZ) 00-06										
Crank Pulley with 4 bolts	●		●		●			●	●	●
Crank Pulley with centre bolt		●			●		●		●	
2.0 16v.										
EW10J4 (RFN) 00-06	●		●		●	●		●	●	●
2.0 16v.										
EW10J4 (RFR) 99-06										
With Adjustable Cam Sprockets	●		●		●			●	●	
With Non-Adjustable Cam Sprockets	●		●		●	●		●	●	●

Models/Engines	Flywheel/Crankshaft: Timing Position P11	Flywheel/Crankshaft: Timing Position P19	Flywheel/Crankshaft: Pulley Removal P12	Camshafts: AST4735 P15	Camshafts: (Pair) P10	Camshafts: HPi/VVT P14	Belt Tensioner: AST4826 -1 &-2	Belt Tensioner: P13	Belt Retain Clip: AST4569	ASSOCIATED TOOL -not in kit AST4576 Crank Flange Repositioning Tool
406 / Coupe *(continued)* **2.0 HPi** EW10D (RLZ) 00-04	●		●		●	●		●	●	●
2.2 16v. EW12J4 (3FZ) 99-06 Crank Pulley with 4 bolts Crank Pulley with centre bolt	●	●	●		● ●	● ●	●	●	● ●	●
607 **2.0 16v.** EW10J4 (RFN) and EW10J4 (RFR) 00-06 With Non-Adjustable Cam Sprockets	●		●		●	●		●	●	●
2.2 16v. EW12J4 (3FZ) 00-07 Crank Pulley with 4 bolts Crank Pulley with centre bolt	●	●	●		● ●	● ●	●	●	● ●	●
806 **2.0 16v.** EW10J4 (RFN) 00-02	●		●		●	●		●	●	●
807 **2.0 16v.** EW10J4/L5 (RFN) 02-05 Crank Pulley with 4 bolts Crank Pulley with centre bolt	●	●	●		● ●		●	●	● ●	●
2.2 16v. EW12J4/L5 (3FZ) 02-07	●		●		●	●		●	●	●
Expert **2.0 16v.** EW10J4 (RFN) 00-07	●		●		●	●		●	●	●

AST4825 Engine Setting/Locking Kit provides the specialised tools required for timing belt replacement on both the original and 2nd generation of "EW Code" 1.8, 2.0 and 2.2 PSA twin camshaft 16v. engines in Citroën and Peugeot models. The kit also covers the HPi and V V T versions of these engines.

In addition, Pulley Flange Repositioning Tool AST4576, may be required on certain engines for final timing adjustment via the crankshaft pulley flange – AST4576 - Associated tool – not in kit.

WARNING: These timing tools are for retention of engine timing position only. DO NOT use to counter-hold whilst removing/tightening sprocket bolts.

Engine Variants

There are a number of variants on "EW Code" 16v. engines and each one requires a slightly different timing belt replacement procedure to be followed, and each employs a different combination of timing tools – see Application Charts for model/engine and tool selection.

Tool Selection - Engine Identification

The "EW Code" covers a large group of major engines and it is important to identify which variant is being worked on as the engine coding basically remained unchanged between generations of engines.

The most straightforward visual indications which may assist you in identifying these engines and in particular, to ensure the correct timing tool selection, appear to be :-

(SECTION 1)

– EW Engines having a crankshaft pulley with 4 x retaining Bolts (98-06)

Note:- EW10J4 (RFR) engines have adjustable camshaft sprockets (-00)

(SECTION 2)

– EW Engines having a crankshaft pulley with a single centre retaining bolt (02-06)

Note: EW10J4S (RFK) engines – camshaft sprocket change (04-06)

The most significant tool usage change occurred during 2002 and then a further change in 2004.

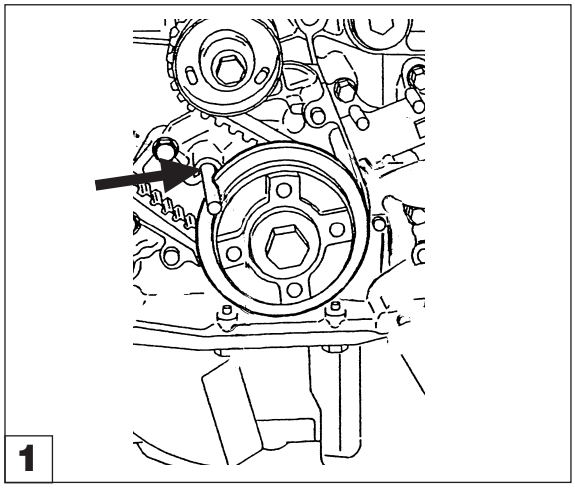
Additionally, with regard to timing tool selection, the specifications to note are V V T (Variable Valve Timing) or HPi (High Pressure Injection) being fitted.

WARNING: **Care is required when working on HPi systems – very high fuel pressures.**

Some engines have variable timing on the inlet camshaft sprocket, eg. EW10D (HPi) engines. The timing belt fitting and tensioning procedure for these engines differs from those with the standard camshafts. Some engines have Adjustable Camshaft Sprockets (Code EW10J4 –RFR (-00))

SECTION 1

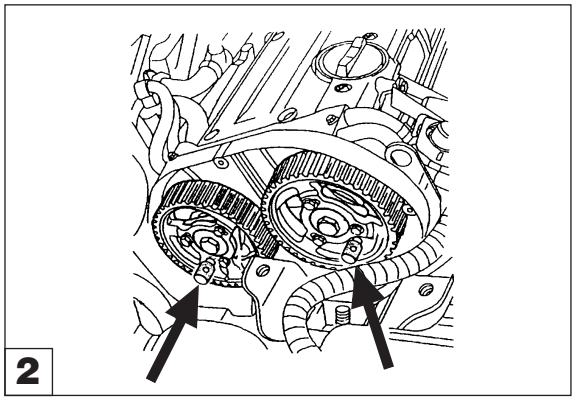
EW Engines with crankshaft pulley with 4 x retaining bolts, EW7J4 (6FZ), EW10J4/L4/L5 (RFN/RFR), EW10D-HPi (RLZ), EW12J4/L5 (3FZ)



AST4575P11 Crankshaft Locking Pin & AST4575P12 Flywheel Holding Tool

Crankshaft timing position is retained by inserting Locking Pin AST4575P11 through the crankshaft pulley flange.

If required, counter-hold the flywheel using AST4575P12 Holding Tool and remove the crankshaft pulley to gain access to the pulley flange.



AST4575P10 Camshaft Locking Pins (Pair) and AST4575P14 Camshaft Locking Pin (VVT/HPi Inlet Camshafts) Refer to Application Charts for model usage

Insert AST4575P10 Camshaft Locking Pins (Pair) through the timing holes in the Inlet and Exhaust camshaft sprockets and into the datum holes in the engine, to retain the camshafts in their timed position.

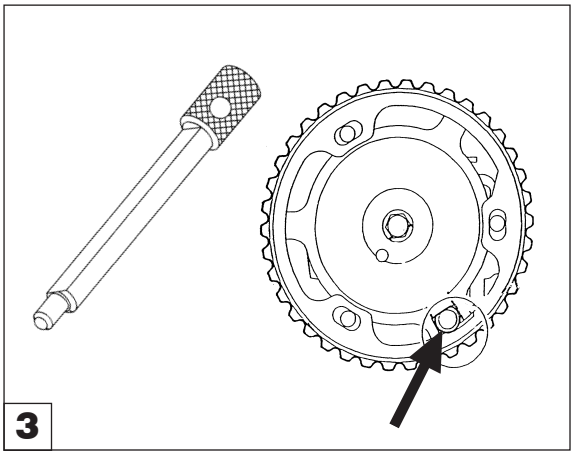
IMPORTANT: Do not slacken camshaft sprocket bolts

NOTE: Engines with V V T - use Locking Pin AST4575P14 in the Inlet camshaft and one of the AST4575P10 Pins in the exhaust camshaft.

Slacken the tensioner bolt and also remove the tensioner pulley bracket from the cylinder block rib to allow greater movement of the tensioner.

Move tensioner away from the timing belt and remove the belt.

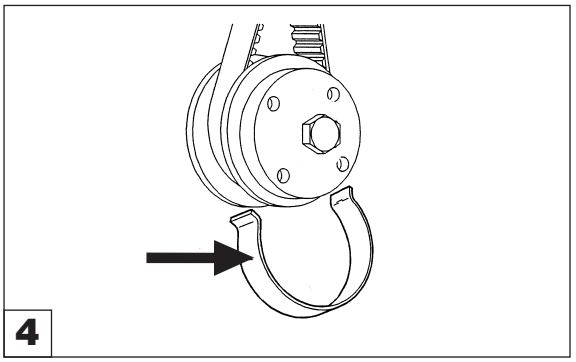
NOTE: Do not re-fit the belt once it has been removed. A new timing belt must be used.



AST4575P14 Inlet Camshaft Locking Pin

Should adjustment to the Inlet Camshaft Dephaser be required, this is made before fitting the timing belt by inserting AST4575P14 Pin, putting the rounded part of the pin towards the sprocket teeth. The 3 screws are slackened and the sprocket turned **anti-clockwise** to rest against the inserted pin. Screws are re-tightened.

IMPORTANT: This adjustment must be made prior to fitting the belt and NOT as a sprocket position adjustment during belt installation.

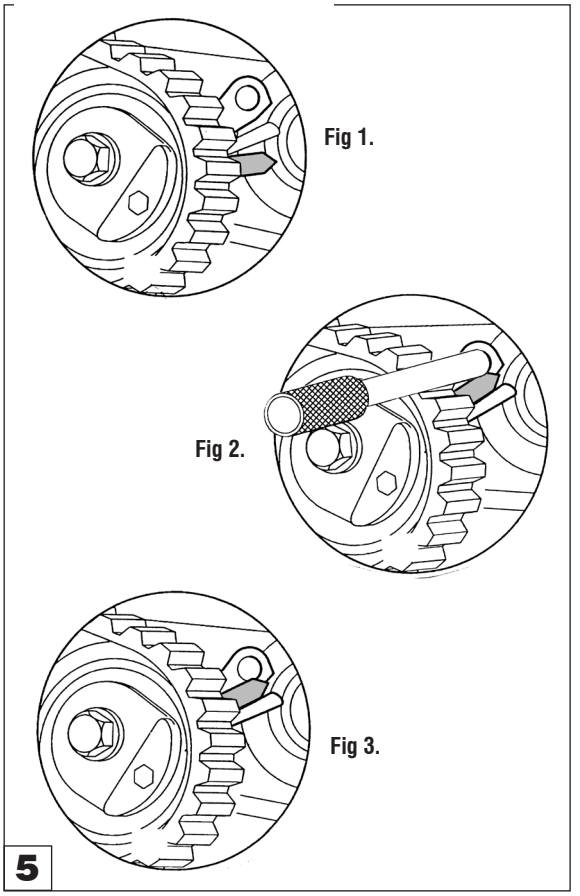


AST4569 Timing Belt Retaining Clip

With the crankshaft and camshaft pins in position, fit the new belt around the crankshaft gear and secure in place with AST4569 Clip.

The timing belt is fitted in an **anti-clockwise** direction in the following sequence – guide roller, inlet cam sprocket, exhaust cam sprocket, water pump, tensioner.

Re-fit the tensioner pulley bracket to the cylinder block rib.



Tensioning procedure – non VVT Engines

The engine must be cold.

Remove timing pins and belt clip.

Release tensioner nut and turn tensioner **anti-clockwise** until the belt is tensioned to its maximum. The pointer should be in the position shown in Fig. 1. Tighten nut.

AST4575P13 Tensioner Setting Pin (fig 2)

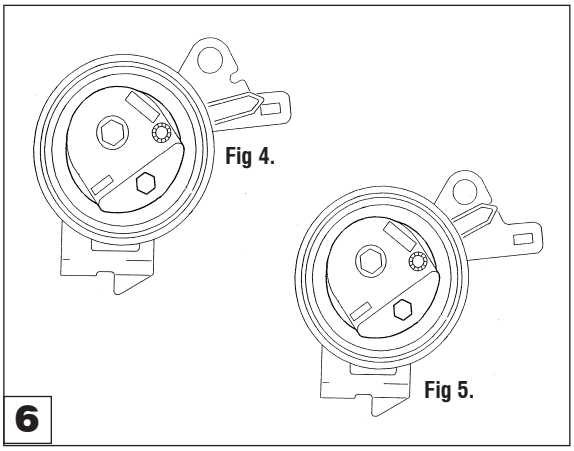
Insert AST4575P13 Setting Pin into the tensioner pulley bracket – Fig. 2 and slacken tensioner nut. Turn the tensioner **clockwise** until the pointer touches the Setting Pin, re-tighten nut and remove the pin, Fig. 3.

Rotate the crankshaft 10 turns, by hand, returning the engine to 'timed' position and check engine timing is correct by inserting crankshaft pin and camshaft locking pins.

Tensioning procedure - Engine variants with VVT

Although the general timing belt replacement and tensioning procedure is similar to the above there are a number of actions which differ on V V T engines and they should be noted.

The camshaft sprockets are NOT released, nor free to turn, during fitting of the new timing belt.



With the new belt fitted turn the tensione**r anti-clockwise** to place the pointer in the position shown in Fig. 4.

IMPORTANT: The pointer MUST PASS the tension position 'notch' by at least 10^{0}

Insert Setting Pin AST4575P13 and turn the tensioner back **clockwise** so that the pointer just rests against the pin and aligns with the 'notch' Fig. 5. Remove the pin.

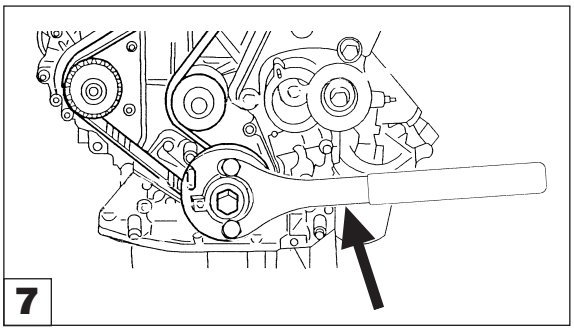
WARNING: **The pointer MUST NOT move above the 'notch'. If it does, the procedure must be started again.**

Finally, check that the hex. drive of the tensioner is positioned approx 15^{0} BELOW the cylinder head gasket level.

Rotate the crankshaft 10 turns, by hand, returning the engine to 'timed' position and insert the Locking Pin in the Inlet camshaft sprocket.

Check that the tensioner pointer remains aligned with the 'notch'.

Insert AST4575P11 Pin through the crankshaft pulley flange.



AST4576 *Repositioning Tool*

AST4576 Crankshaft Pulley Flange Repositioning Tool – Associated Tool, not in kit

If the crankshaft pin cannot be inserted, reposition the pulley flange using Associated tool AST4576

Attach AST4576 to counter-hold the flange whilst releasing the centre bolt sufficiently to reposition the flange to allow the crankshaft locking pin to be inserted.

Attach AST4576 to hold flange whilst tightening centre bolt.

EW10J4 (RFR) engines with adjustable camshaft sprockets (-00)

The same timing tools are required for this engine as detailed in this section, (Section 1).

The camshaft sprockets are "adjustable", and are identified by 3 x retaining bolts in elongated holes. The sprockets are attached to a carrier brackets, not directly to the camshafts. The position of the sprockets on the carriers can therefore be adjusted without changing the position of the camshafts.

The belt tensioning procedure is therefore slightly different from above.

With the crankshaft and camshaft pins in position, fit the new belt around the crankshaft gear and secure in place with AST4569 Clip.

Slacken the 6 x camshaft sprocket bolts and tighten to finger tight only. Turn the sprocket fully **clockwise** within the elongated holes (the sprocket bolts should be just tight enough to feel a slight resistance to turning the sprocket).

Fit the belt around the Belt Guide Roller and place on the teeth of the camshaft sprockets. Turn sprockets slightly **anti-clockwise** to engage the belt in the sprocket teeth. Angular movement must not be more than one tooth space,.

Ensure the belt is taut between sprockets and continue to fit the belt in an **anti-clockwise** direction.

Turn tensioner **anti-clockwise** to max – see Diagram 5 – Fig. 1

IMPORTANT: Check bolts of each camshaft sprocket are not at the end of elongated holes. Tighten sprocket bolts.

AST4575P13 Tensioner Setting Pin

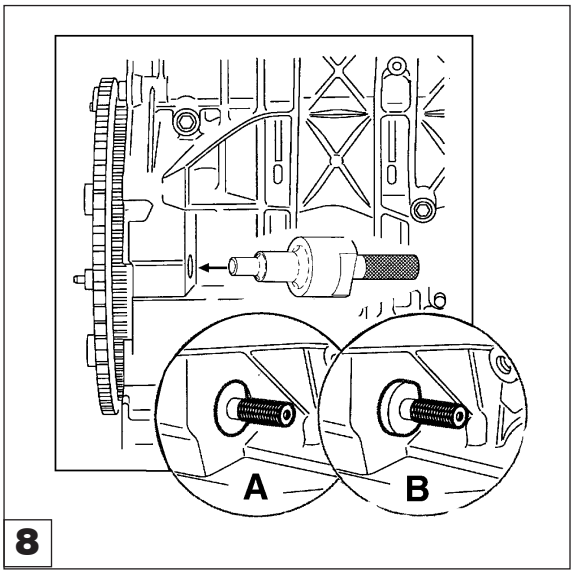
Insert AST4575P13 Setting Pin into the tensioner pulley bracket – see Diagram 5 -Fig. 2 and slacken tensioner nut. Turn the tensioner clockwise until the pointer touches the Setting Pin, re-tighten nut and remove the pin see Diagram 5 -Fig. 3.Ensure pointer and notch are aligned.

Rotate the crankshaft 10 turns, by hand, returning the engine to 'timed' position and check engine timing is correct by inserting crankshaft pin. Slacken camshaft bolts and insert camshaft locking pins. Ensure sprocket bolts are not at the end of the elongated holes and tighten sprocket bolts.

SECTION 2

EW Engines with crankshaft pulleys with a single centre retaining bolt (02-06)

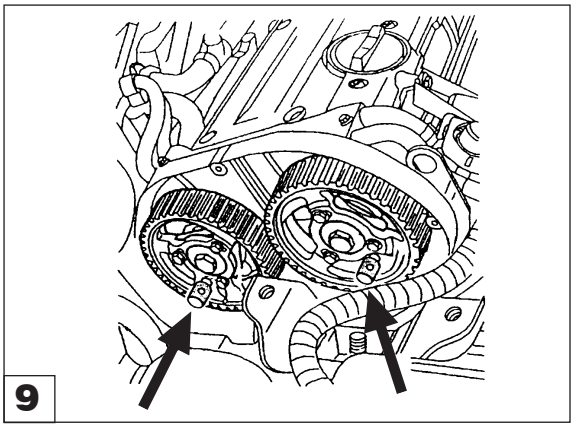
EW7J4 (6FZ), EW10J4/L4/L5 (RFN/RFR), EW10J4S (RFK), EW10D-HPi (RLZ), EW12J4/L5 (3FZ)



AST4825P19 Flywheel Locking Pin

Turn the crankshaft to 'timed' position and insert AST4825P19 Locking Pin through the 'datum hole' in bell housing and in to the flywheel.

NOTE: AST4825P19 Locking Pin will not enter as deep in to the hole on Automatic Transmissions as it does on Manual Transmissions.–see diagram 8 – "**A**" = Manual Transmission / "**B**" = Automatic Transmission

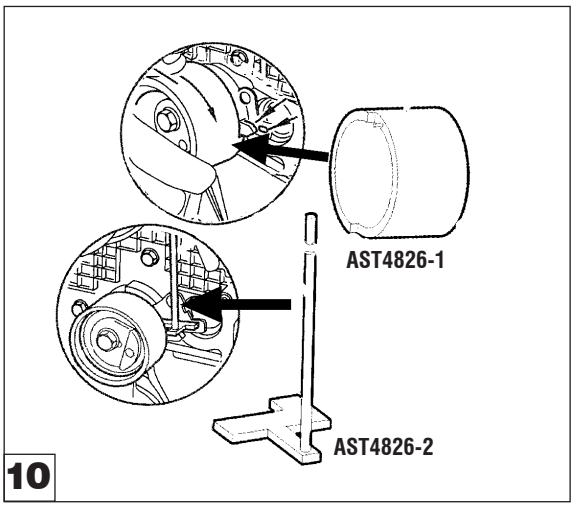


AST4575P10 and AST4575P14 Camshaft Locking Pins

Use the same Camshaft Locking Pins as for Section 1 engines ie. AST4575P10 (pair), (or 1 x AST4575P10 and AST4575P14 for VVT/HPi), to 'lock camshafts. EXCEPT EW10J4S (RFK) engines.

AST4735P15 Camshaft Locking Pins (2 off) EW10J4S (RFK) engines – camshaft sprocket change (04-06)

The procedure and tools detailed in SECTION 2 apply to EW10J4S engines, **except code RFK**. These engines require AST4735P15 Locking Pins (2 required), for the camshaft sprockets.



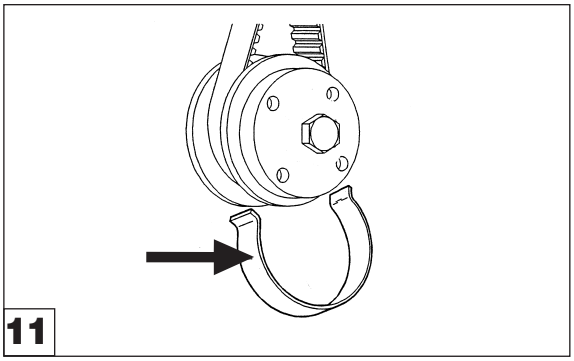
AST4826 Belt Tensioner Tool Set

Comprises AST4826-1 Tensioner Turning Tool & AST4826-2 Tensioner Locking Tool

Slacken tensioner bolt to remove belt. Slide AST4826-1 Turning Tool over the tensioner roller and locate it onto the tensioner pointer between the 'step' and roll pin on the Turning Tool.

Turn AST4826-1 **clockwise** until the 'pointer passes both the 'notch' and the rectangular cut-out on the tensioner back plate.

Fit AST4826-2 Locking Tool in to the cut-out in the back plate to 'lock' the pointer in position underneath the plate of the Locking Tool. Remove AST4826-1 Turning Tool.



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AST4569 Timing Belt Retaining Clip

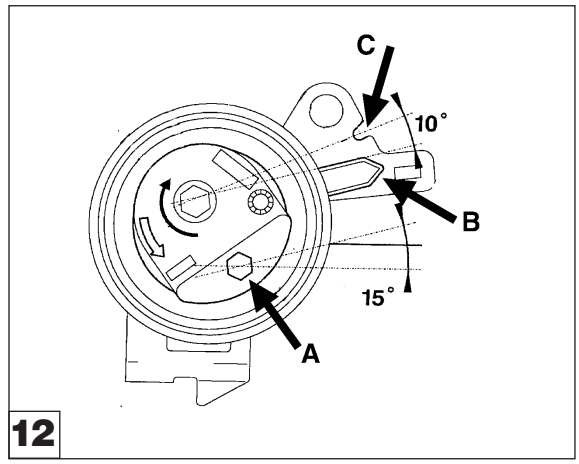
As with engines in Section 1, fit the new belt around the crankshaft gear and secure in place with AST4569 Clip.

The timing belt is fitted in an **anti-clockwise** direction – ensure it is taut between sprockets.

Fit crankshaft pulley and remove Locking Pin from Exhaust sprocket, AST4569 Clip and AST4826-2 Tensioner Tool.

More AST Timing Tools for Citroën / Peugeot

Petrol Engine Setting/Locking Tool Set 1.4 16v. ET Codes (KFU)	see **AST4935**
Diesel Engine Setting/Locking Tool Kit HDi 1.4, 1.6, 2.0. 2.2 (DW10/DW12)	see **AST4820**
Diesel Engine Setting/Locking Tool Kit HDi 1.4, 1.6, (DV4/DV6)	see **AST4735A**
Diesel Engine Setting/Locking Tool Kit DW8 1.9	see **AST4822**
Diesel & Petrol Engine Setting/Locking Tool Kit TU, XU, TUD, XUD	see **AST4388A**
Diesel Engine Setting/Locking Tool Set 2.8D //Hdi	see **AST4865**
V6 Petrol Engine Setting/Locking Tool Kit ES9J4	see **AST4580**



12

Tensioner position

Using an Allen Key turn tensioner **anti-clockwise** at Hex. "**A**" until pointer achieves position "**B**" - POINTER MUST PASS 'NOTCH' BY AT LEAST 10° – or replace tensioner.

Turn tensioner **clockwise** to align the pointer with the 'notch' "**C**" – DO NOT TO PASS 'NOTCH' "**C**"

Tighten tensioner bolt – DO NOT allow tensioner to turn whilst tightening the bolt.

The Allen Key Hex "**A**" position – MUST BE 15° BELOW CYLINDER HEAD GASKET LINE – or replace tensioner.

Remove remaining timing tools and turn crankshaft 10 turns, by hand, **clockwise**, returning the engine to 'timing' position.

Check Tensioner Position - Insert Locking Pin into Inlet Camshaft sprocket – check that the tensioner pointer is aligned with the 'notch' – If pointer passes 'notch' "**C**" – repeat the tensioning procedure.

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