INSTRUCTIONS FOR:

PETROL ENGINE SETTING/LOCKING KITS RENAULT, NISSAN, VAUXHALL/OPEL 1.4, 1.6, 1.8, 2.0 16v

MODEL Nos: **VSE5071A, VSE5033, VSE5035**

Thank you for purchasing a Sealey product. Manufactured to a high standard, this product will, if used according to these instructions and maintained properly, give you years of trouble free performance.

IMPORTANT: **PLEASE READ THESE INSTRUCTIONS CAREFULLY. NOTE THE SAFE OPERATIONAL REQUIREMENTS, WARNINGS & 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. KEEP THESE INSTRUCTIONS SAFE FOR FUTURE USE.**



Refer to Instructions



Wear Eye Protection

1. SAFETY

❒ **WARNING!** *Ensure Health and Safety, local authority and general workshop practice regulations are adhered to when using tools.*
✗ **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.
✗ **DO NOT** attempt to start the engine or move the vehicle whilst in gear with timing devices fitted.
✓ Always display a warning notification on steering wheel when timing engine components.
✓ Account for all tools, locking bolts, pins and parts being used and do not leave them in or near the engine.

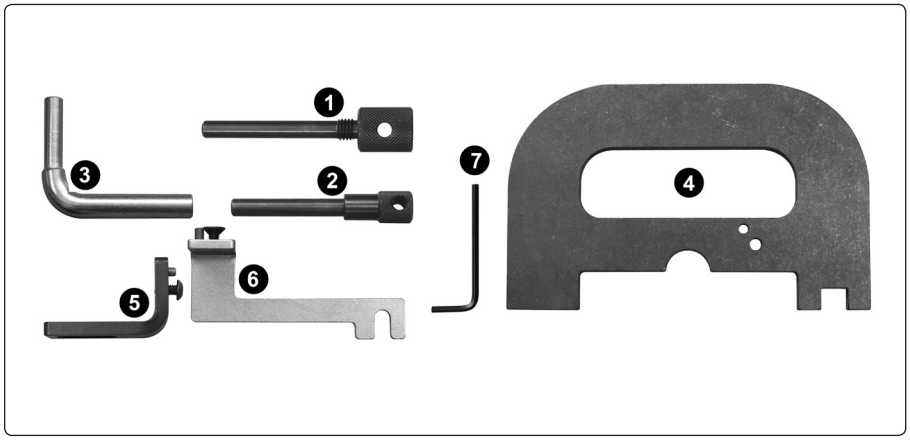
❒ **WARNING!** Incorrect camshaft timing can result in contact between valve head and piston crown causing damage to the engine.

▲ ***IMPORTANT:*** *Always refer to the vehicle manufacturer's service instructions, or a proprietary manual, to establish the current procedure and data.*

2. INTRODUCTION

Updated kit suitable for timing belt replacement on 1.4, 1.6, 1.8 and 2.0 engines fitted in Renault vehicles. These engines will require the use of associated tools, Model No's. VSE5033 or VSE5734 Camshaft Sprocket Holding Tool, to loosen the camshaft sprocket bolts, and VSE5035 Timing Belt Guide Roller Wrench. Kit features updated camshaft setting plate which avoids the camshaft position sensor on later 1.4 and 1.6 engines.

3. CONTENTS





Kit Contents / Part Numbers / Spares			OEM Number	
Item	**Sealey Part Number**	**Description**	**Renault Nissan**	**Vauxhall /Opel**
1	VSE5071A.01	Crankshaft Locking Pin (1.4/1.6)	Mot1489	
2	VSE5071A.02	Crankshaft Locking Pin (1.8/2.0)	Mot1054	KM-6031
3	VSE5071A.03	Crankshaft Locking Pin (1.8/2.0)	Mot861	
4	VSE5071A.04	Camshaft Setting Plate	Mot1496	KM-6233
5	VSE5071A.05	Camshaft Plate Bracket (L shape)	Mot1496	KM-6233
6	VSE5071A.06	Camshaft Plate Bracket (Extended reach)	Mot1750	
7	VSE5071A.07	Hex Key		

Associated Tools		
Sealey	**Renault/ Nissan OEM Ref**	**OEM Vauxhall/ Opel Ref**
VSE5734	Mot1490-01	x
VSE5033	Mot1509-01, Mot1801	KM-6244
VSE5035	Mot1368	x

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4. APPLICATIONS

RENAULT APPLICATIONS	Engine Codes						
Models:	**K4J 1.4 16v**	**K4M 1.6 16v**			**F4P 1.8 16v**	**F4R(t) 2.0 16v**	
Avantime (00-03)	700	700	744	804	720	700	776
Clio II (99 - 06)	710	701	745	812	722	701	780
Clio III/Sport (05 - 13)	711	704	746	813	760	712	784
Espace/Grand Espace (98 - 02)	712	706	748	824	770	713	786
Espace/Grand Espace IV (02 - 10)	713	708	750	848	771	714	787
Kangoo/Trekka (01 - 09)	714	709	752	854	722	715	790
KangoII/Be Bop (08-12)	715	710	753	858	773	720	791
Laguna (98 - 01)	730	711	760	866	774	722	792
Laguna II (01 - 07)	732	712	761		775	730	794
Laguna III (07 - 10)	740	714	764			732	795
Logan/MCV (05-11)	750	716	766			740	796
Megane (99 - 03)	770	718	782			741	797
Megane II (02 - 10)	780	720	790			7044	800
Megane III/Sport (08 - 13)		724	791			746	810
Megane/Scenic (99 - 00)		730	792			764	811
Modus (04 - 08)		732	794			765	820
Modus/Grand Modus II (08 - 13)		734	800			770	830
Scenic/RX4 (99 - 03)		740	801			771	870
Scenic/Grand Scenic II (03 - 09)		743	802			774	874
Scenic/Grand Scenic III (09-15)							
Trafic II (01 - 11)							
Twingo II/Sport (08 - 13)							
Vel Satis (00-10)							

NISSAN APPLICATIONS	Engine Codes						
Models:	**K4J 1.4 16v**	**K4M 1.6 16v**			**F4P 1.8 16v**	**F4R(t) 2.0 16v**	
Kurbistar X76 (03 - 09)		752				720	
Primaster X83 (02 - 11)		753				722	
						820	

VAUXHALL/OPEL APPLICATIONS	Engine Codes						
Models:	**K4J 1.4 16v**	**K4M 1.6 16v**			**F4P 1.8 16v**	**F4R(t) 2.0 16v**	
Vivaro (01 - 11)						720	
						722	
						820	

NOTE: In addition to the above application coverage on 1.4,1.6, 1.8 & 2.0 16v Petrol Engines, Locking Pins VSE5071A.01 and VSE5071A.02 will also cover crankshaft and camshaft locking for timing belt replacement on Renault 1.5 K9K DIESEL engines.

5. INSTRUCTIONS

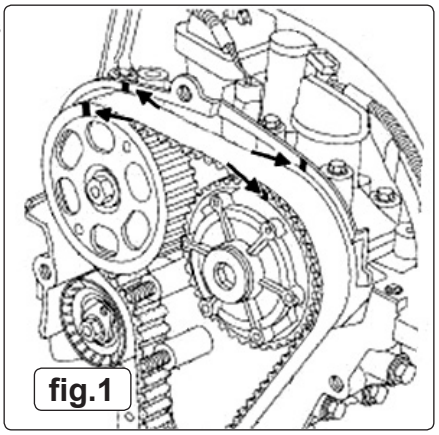
5.1. VSE5071A Petrol Engine Setting/Locking Kit
K4J (1.4), K4M (1.6), F4P (1.8), F4R(t) (2.0)

5.1.1. VSE5071A Setting/Locking Kit provides the timing tools necessary for setting the twin camshafts and locking the crankshaft during timing belt replacement applications on the current range of Renault 16v. petrol engines K4J, K4M, F4P and F4R(t), some of which are also fitted in Nissan and Vauxhall/Opel models.

5.1.2. **IMPORTANT – Use of Associated Tools – not in kit**
According to Renault belt replacement procedures, it is required that the camshaft sprockets fitting of a new timing belt and during the belt tensioning procedures.
Associated Tools VSE5734 (1.4 & 1.6) and VSE5034 (1.8 & 2.0) should be used to hold the camshaft sprockets whilst releasing and tightening the sprocket bolts.
The crankshaft/camshaft timing tools **MUST NOT** be used to counter hold the sprockets – these tools are for retention of timing position only.

5.2. RENAULT K9K Diesel Engines
In addition to covering this range of 1.4 to 2.0 16v. petrol engines, Locking Pins VSE5071A.01 and VSE5071A.02, are included in the kit, and are used for timing belt replacement on K9K diesel engines.

5.2.1. To remove the timing belt it is necessary to support the engine and remove the right-hand engine mounting bracket. Additionally the crankshaft pulley must be removed.
IMPORTANT: When removing the crankshaft pulley, ensure that the crankshaft gear does not fall off the end of the crankshaft.
Mark the camshaft sprockets positions (for engines with variable valve timing, mark both the camshaft sprocket and VVT adjuster) with chalk before the timing belt is removed as this will help with alignment on installation (fig.1).


fig.1

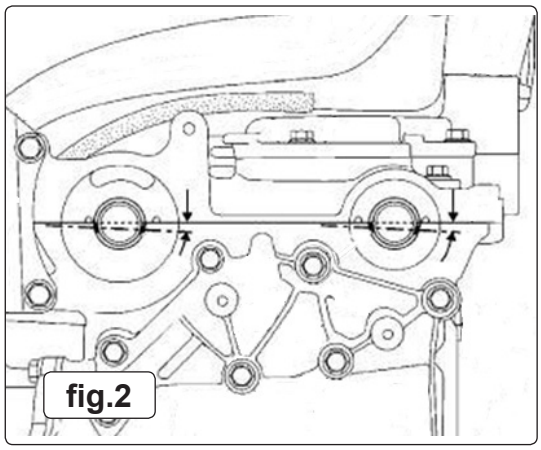
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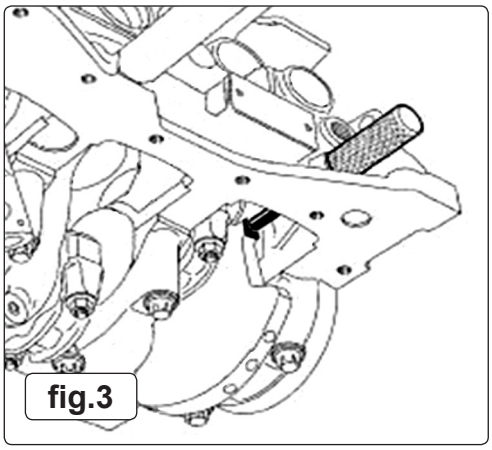
5.3. VSE5071A.01 (K4J/K4M) and VSE5071A.02 (F4P/F4R(t))
Crankshaft Locking Pins

To install the Crankshaft Locking Pins a blanking plug, located in the engine block, must be removed to expose the timing hole.
Also remove the sealing plugs at the rear of the camshafts in order to view the position of the timing slots in the ends of the camshafts.

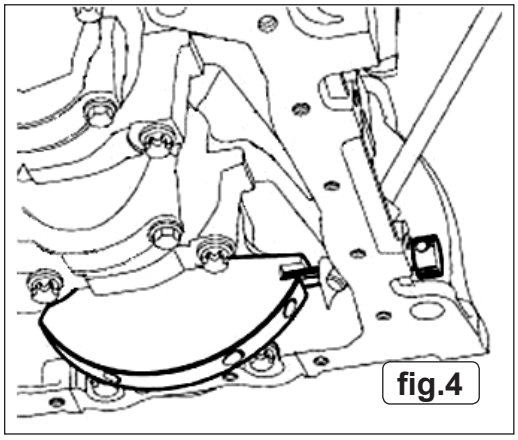
5.3.1. Turn the crankshaft **clockwise** until the camshafts are just before their timing position – this is the correct position for inserting the Crankshaft Locking Pins (fig. 2).

5.3.2. For K4J and K4M engines insert VSE5071A.01 by screwing it into the timing hole in the engine block and slowly rotate the crankshaft until the flat on the crankshaft web is pressing against the end of the VSE5071A.01 Pin (fig.3).


fig.2


fig.3

5.3.3. VSE5071A.02 Locking Pin is for F4P and F4R(t) engines. It also enters through a timing hole in the engine block but slides in (not screwed). It retains the crankshaft position by entering into a timing slot in the crankshaft web. Rotate the crankshaft slowly until the timing slot is aligned with the hole and insert the VSE5071A.02 Pin.
WARNING: Ensure the Locking Pin enters the “slot” and not one of the many holes in the web (fig. 4)


fig.4

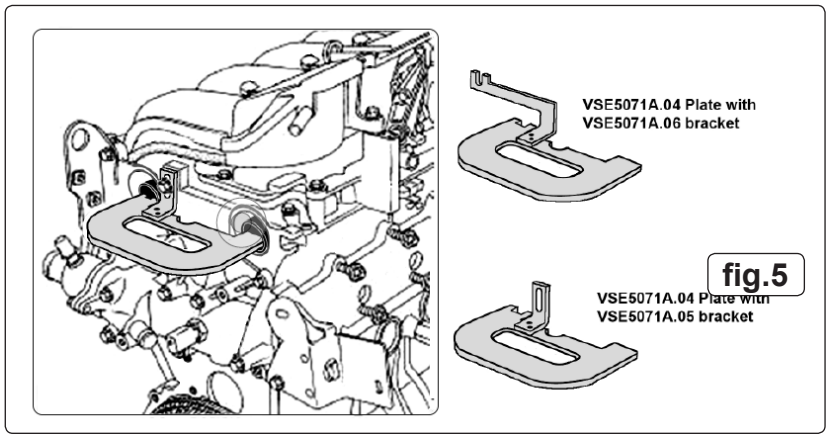


fig.5

5.4. VSE5071A.03 Crankshaft Locking Pin

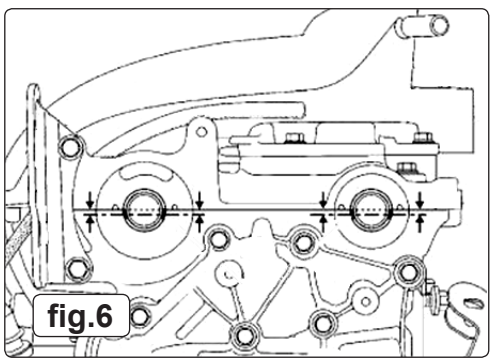
5.4.1. VSE5071A.03 Locking Pin is also included in the kit and can be used on some 1.8 / 2.0 engines when timing holes are more difficult to access and the VSE5071A.02 Locking Pin cannot be used.

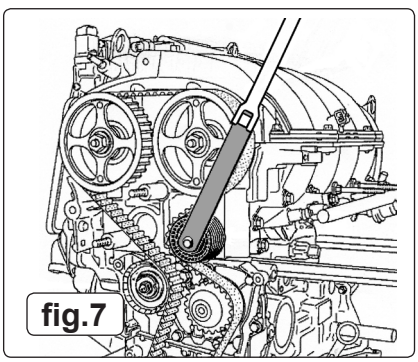
5.5. VSE5071A.04 Camshaft Setting Plate and VSE5071A.05 and VSE5071A.06 Brackets

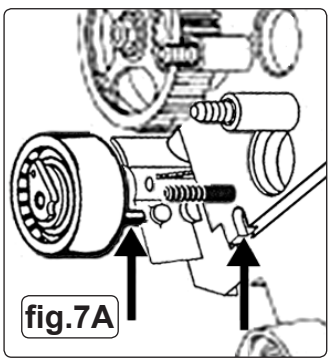
5.5.1. VSE5071A.04 Camshaft Setting Plate is used on all the K4J, K4M, F4P, F4R(t) applications.
The Plate locates into the timing slots in the rear of the camshafts and is secured in place on the engine by either VSE5071A.05 or
` VSE5071A.06 Bracket. VSE5071A.05 Bracket is the most widely used. On some engines, however, the positioning of a camshaft position sensor requires the use of alternative VSE5071A.06 Bracket (fig. 5)

5.5.2 The correct timing position is achieved when the timing slots in the rear of the camshafts are aligned horizontally and are positioned below the surface line of the cylinder head (fig. 6).

5.5.3 With the appropriate Crankshaft Locking Pin in place and the Camshaft Setting Plate retaining the camshafts in timed position, the belt tensioner can be slackened and removed together with the old belt and the belt guide roller.


fig.6


fig.7

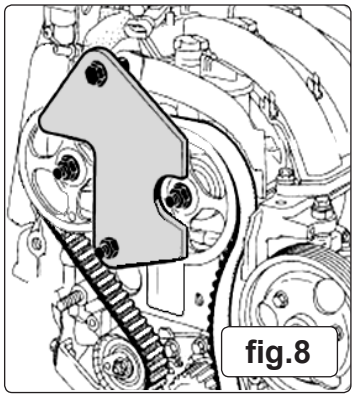

fig.7A

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5.6 Installing the new timing belt.
VSE5035 Timing Belt Guide Roller Wrench.

5.6.1. Fit a new roller guide and belt tensioner. Use Associated Tool VSE5035 to release and tighten roller guide bolt.
5.6.2. **NOTE:** The pin at the rear of the tensioner should be located into the slot in the cylinder head (fig.7A).
5.6.3. Remove the crankshaft gear and ensure that the contact surfaces of the crankshaft gear and pulley and the end of the crankshaft are degreased – to prevent slipping during re-fitting.
IMPORTANT: F4P/F4R(t) engines – Replace the crankshaft gear if it is not fitted with integral key.
5.6.4. Install crankshaft gear - **NOTE:** the keyway should be at the 12 o'clock position for K4J/K4M engines and aligned centrally between the lugs on the front engine housing on FP4/F4R engines.

5.7 K4J (1.4) / K4M (1.6) Engines.
ASSOCIATED TOOL VSE5734 Camshaft Sprocket Holding Tool
During timing belt installation the camshaft sprockets should be free to turn on the camshafts – but not tilt. VSE5734 Holding Tool is fitted to hold the sprockets whilst installing the belt and releasing/tightening the sprocket bolts/nuts (fig. 8).
5.7.1 Fit the VSE5734 Holding Tool and remove the camshaft sprocket bolts/nuts.
5.7.2 Remove the Sprocket Holding Tool and the camshaft sprockets.
NOTE: The sprockets and camshafts should be degreased to prevent slippage during installation.


fig.8

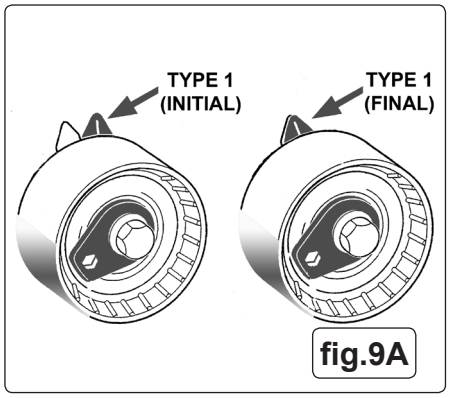


fig.9A

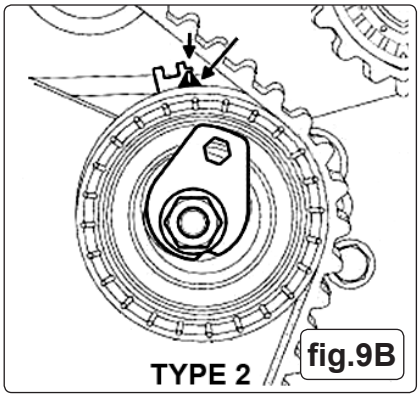


fig.9B

5.7.3 Refit the sprockets using new bolts/nuts and ensure the Renault logo mark is positioned at 12-o-clock. Tighten the sprocket bolts/nuts finger tight only allowing the sprockets to turn but not tilt. The new belt is fitted in an **anticlockwise** direction starting at the crankshaft gear. It must be taut on the side opposite the tensioner.
5.7.4 Fit the timing belt onto the camshaft sprockets and, ensuring they do not move, install VSE5734 Holding Tool in place on the engine, then complete the installation of the timing belt. If fitted - ensure VVT Unit is locked. Turn the tensioner clockwise to the **INITIAL** tensioned position. There are two types of belt tensioner on K4J / K4M engines, see figs.9A & 9B.
5.7.5 **On Type 1** the pointer is positioned at the right hand stop (7 to 8mm. past the fixed pointer), fig.9A.
On Type 2 the moveable pointer is aligned with the "notch", Fig.9B.
5.7.6 Fit new crankshaft pulley using a new bolt – **do not** lubricate. Lock the flywheel and tighten the bolt. Tighten the camshaft sprocket bolts/nuts and remove all timing tools
5.7.7. Turn the engine over twice returning to timed position. Check position is correct by inserting the VSE5071A.01 Locking Pin and checking it fits against the "flat" of the crankshaft web. Remove the Crankshaft Locking Pin.
5.7.8. Adjust the tensioner to the **FINAL** position
Type 1 The moveable and fixed pointers should align with each other.
Type 2 The moveable pointer is aligned with the "notch".
5.7.9 Install the Crankshaft Locking Pin and Camshaft Setting Plate to check that engine timing is correct.

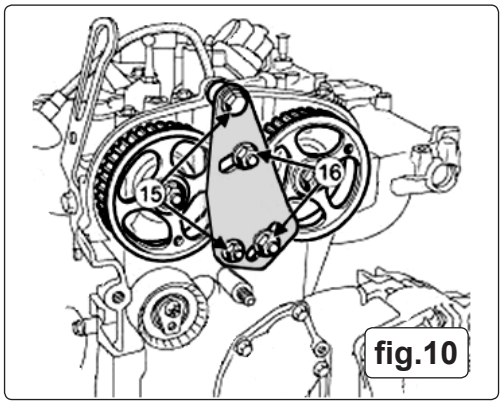
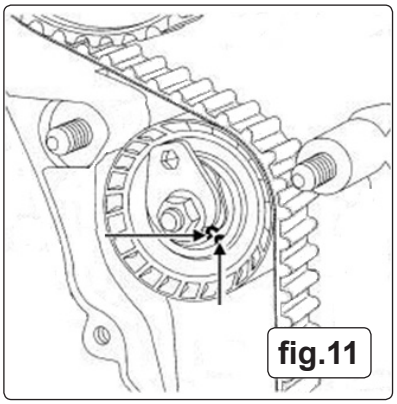


fig.10


fig.11

5.8 F4P (1.8) / F4R(t) (2.0) engines
ASSOCIATED TOOL – VSE5033 Camshaft Sprocket Holding Tool.
VSE5033 Holding Tool is fitted to hold the sprockets whilst installing the belt and releasing/tightening the sprocket bolts/nuts (Fig.10).
5.8.1 Fit the VSE5033 Holding Tool and tighten attachment nuts to 80Nm.
Remove the camshaft sprocket bolts/nuts. If VVT fitted, remove blanking plug to access bolt.
Remove the Sprocket Holding Tool and the camshaft sprockets.
NOTE: The sprockets and camshafts should be degreased to prevent slippage during installation.
5.8.2 Refit the sprockets using new bolts/nuts and tighten the sprocket bolts/nuts finger tight only allowing the sprockets to turn but not tilt. The new belt is fitted in an **anticlockwise** direction starting at the crankshaft gear. It must be taut on the side opposite the tensioner.
5.8.3 Fit the timing belt onto the camshaft sprockets, and ensuring they do not move, install VSE5033 Holding Tool in place on the engine, then complete the installation of the timing belt. If fitted - ensure VVT Unit is locked.

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5.8.4 Turn the tensioner clockwise until the marks align (fig. 11).
5.8.5 Fit the VSE5033 Holding Tool and tighten attachment nuts to 80Nm. Fit new crankshaft pulley using a new bolt – **DO NOT** lubricate. Lock the flywheel and tighten the bolt.
5.8.6 Tighten the camshaft sprocket bolts/nuts and remove all timing tools. Turn the engine over twice returning to timed position.
Check position is correct by inserting the VSE5071A.02 Locking Pin and checking that it locates into the timing "slot" in the crank shaft web.
5.8.7 Check that marks previously made are aligned and that the Camshaft Setting Tool locates easily into the timing slots in the rear of the camshafts.
5.8.8 Check that the belt tensioner marks are aligned. If not – repeat the tensioning procedure.

Environmental Protection

Recycle unwanted materials instead of disposing of them as waste. All tools, accessories and packaging should be sorted, taken to a recycling centre and disposed of in a manner which is compatible with the environment. When the product becomes completely unserviceable dispose of it according to local regulations.

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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