

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

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

### 1. SAFETY INSTRUCTIONS

- 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.
- ✓ Account for all tools, locking bolts, pins and parts being used and do not leave them in or near the engine.
- WARNING!** Incorrect or out of phase camshaft timing can result in contact between valve head and piston crown causing damage to the engine.

**IMPORTANT:** These instructions are provided as a guide only. Always refer to the vehicle manufacturer's service instructions, or a proprietary manual, to establish the current procedure and data.

### 2. INTRODUCTION & APPLICATIONS

#### 2.1. Introduction

Comprehensive set of essential setting and locking tools for timing belt replacement on a huge range of VAG diesel (1.7 and 1.9D/SDi/TDi) and petrol (1.6 to 2.0) engines. Also suitable for chain-in-head timing and tensioner applications on 1.8/1.8T engines. Includes camshaft, injection pump locking tools and cam belt tensioner tools. Supplied with warning tag.

#### 2.2. Applications

- AUDI:** 80, A3, S3, A4, A6, TT, Cabriolet
- SEAT:** Alhambra, Arosa, Cordoba, Ibiza, Inca, Leon, Toledo
- SKODA:** Fabia, Felicia, Octavia, Superb
- VOLKSWAGEN:** Beetle, Bora, Caddy, Golf, Lupo, Passat, Polo/Classic, Sharan, Touran, Transporter

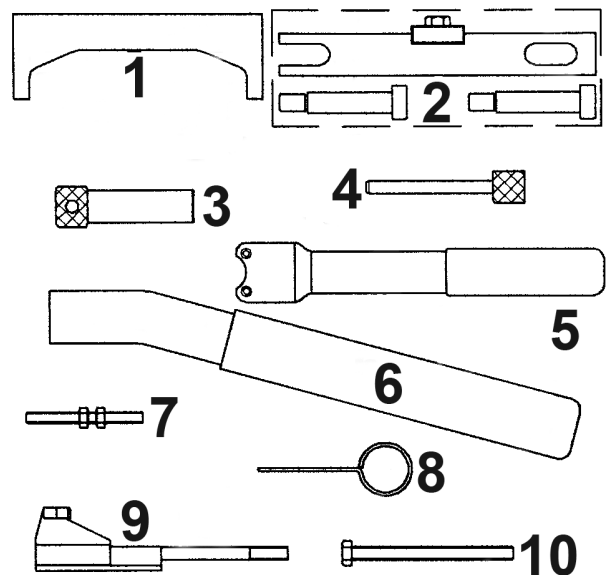
Refer to the Application Charts on the attached pages for specific model information.

#### 2.3. Additional Tool Set required:

**VS4741** Front End Support Guide Set (Service Position).

### 3. CONTENTS

ITEM	PART NO.	DESCRIPTION
1	VS101/1	Camshaft Setting Plate
2	VS4749	Camshaft Setting Plate
3	VS101/5	Injection Pump Locking Pin
4	VS124/V2	Injection Pump Locking Pin
5	VS124/03	Tensioner Adjuster
6	VS12472	Tensioner Adjuster
7	VS124/T1	Tensioner Retainer
8	VS4593/1E	Tensioner Lock Pin
9	VS4809	Tensioner Retainer
10	VS124/V1	Fan Retaining Bolt
--	VS4740/84	Case and Insert (not shown)
<b>Additional Tool required:</b>		
	VS4741	Front End Support Guide Set (Service Position)



**Contents**

## 4. INSTRUCTIONS

### 4.1. Diesel Engine - Camshaft Setting Plates

Refer to Application Charts for model/engine applications

#### VS101/1 and VS4749 Camshaft Setting Plates

Camshaft Setting Plates are used to accurately align a datum slot, located in the end of the camshaft, with the top face of the camshaft housing, and hold the camshaft at the TDC position.

**VS101/1** Plate has extended right angles at each end to allow it to rest on the sides of the cam housing (**Fig.1**).

Remove the camshaft cover and timing belt cover and turn the engine in the normal direction of rotation until the setting plate can be inserted into the machined slot in the end of the camshaft.

When fitting the setting plate, feeler gauges of equal thickness can be inserted on either side of the plate until free play has been eliminated.

**VS4749** Setting Plate is for specified 1.9 diesel engines where the camshaft can be set in timed position without removing the cam cover (**Fig.2**). The vacuum pump (exhauster) is removed giving access to the slot in the end of the camshaft. The vacuum pump retaining bolt holes are used to attach the two **VS4749** bolts and plate.

Fig.1

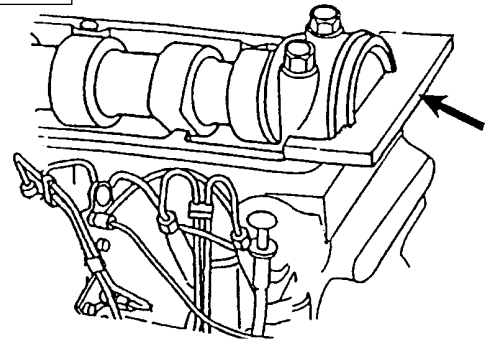
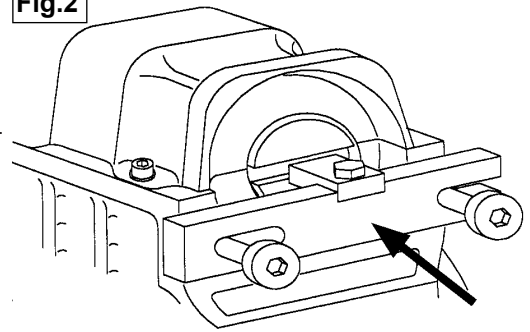


Fig.2



### 4.2. Diesel Engine - Injection Pump Locking Pins

Refer to Application Charts for model/engine applications

#### VS101/5 and VS124/V2 Injection Pump Locking Pins

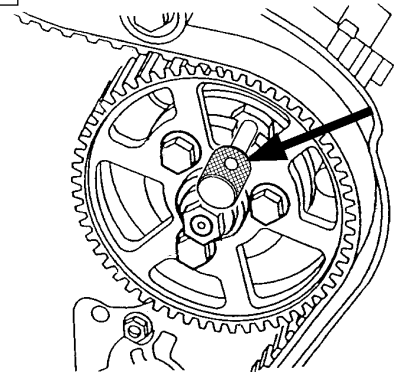
Locking pins are designed to pass through datum holes in the sprockets into fixed holes on the engine.

**VS101/5** is the larger diameter of the two locking pins in the kit and is used on engines having One Piece Injection Pump Sprockets.

**VS124/V2** Pin is used when Two Piece Sprockets are fitted - Sprockets with three retaining bolts securing a front sprocket to a rear mounting (**Fig.3**).

**IMPORTANT:** Do **NOT** use Camshaft Setting Plates or Locking Pins to hold the camshaft/injection pump in position whilst releasing or re-tightening the sprocket bolt. Plates and Pins are for retention of timing position only. Use a suitable Sprocket Holding Tool to counter-hold sprockets.

Fig.3



### 4.3. Diesel and Petrol Engines - Timing Belt Tensioner Adjusters

Refer to Application Charts for model/engine applications

#### VS124/03 and VS12472 Tensioner Adjusters

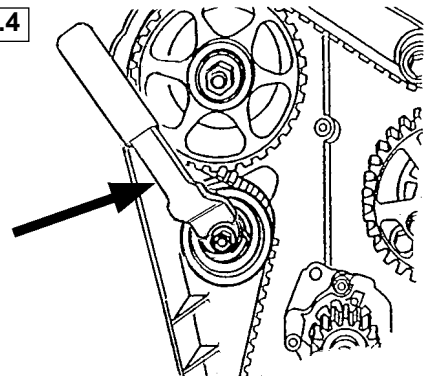
**VS124/03** and **VS12472** Adjusters are used on a very wide range of VW diesel and petrol engines, in all of the Group's marques, to adjust timing belt tension. The tensioner cam has two holes into which the two pegs of the adjuster locate to allow the tensioner to be turned and provide tension adjustment for the timing belt (**Fig.4**).

### 4.4. Petrol Engine - 1.8/1.8T Automatic Belt Tensioner and Chain in Head valve timing

Refer to Application Charts for model/engine applications

This VW range of 1.8 and 1.8 Turbo twin cam petrol engines, introduced around 1997 (dependant upon VW Group marques), have a timing belt connecting the crankshaft to exhaust camshaft, and a timing chain situated inside the cylinder head, driving the inlet camshaft from the exhaust camshaft.

Fig.4



#### 4.4.1. Timing Belt Replacement

Timing belt replacement is straightforward. The plunger of the automatic tensioner must be compressed and retained by a pin to allow the belt to be removed.

Position the crankshaft at TDC.

Check that the marks on the crankshaft pulley and camshaft front sprocket align correctly with their timing marks.

Support the engine, as the right hand engine mounting bracket must be removed, along with the crankshaft pulley and timing covers.

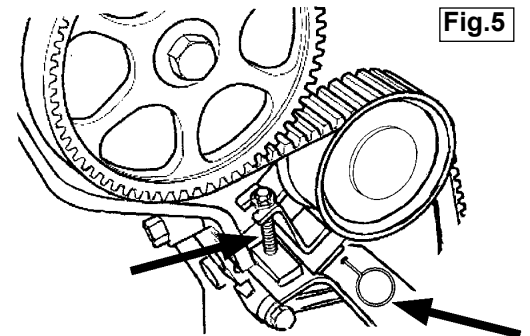
#### VS124/T1 and VS4593/1E Tensioner Tools

Insert Tensioner Retainer **VS124/T1** into the tensioner and tighten sufficiently to depress the plunger and to align the holes in the plunger with the hole in the tensioner housing.

'Lock' the plunger in position by inserting Pin **VS4593/1E** (**Fig.5**).

When fitting a new belt, ensure it is taut on the non-tensioned side. Apply tension by removing the Locking Pin. Remove **VS124/T1** Retainer.

Fig.5



#### 4.4.2. Valve Timing - Chain in Head

##### VS4809 Chain Tensioner Retainer (Fig.6)

Removal and refitting of the valve gear, camshafts, timing chain etc. will require setting of the valve timing.

Prior to any dis-assembly, the crankshaft must be positioned at TDC No.1 cylinder and the mark on the front camshaft sprocket must be aligned with the mark on the cylinder head cover. Mark with paint if necessary, the position of the chain links relative to the arrows on the camshaft rear bearing caps. The distance between arrows should be **16 rollers** on the chain.

The head cover and timing belt can then be removed.

Remove the camshaft front sprocket, using a counter-holding tool to retain sprocket whilst releasing the bolt.

The notches on the camshaft must be aligned with the arrows on the bearing caps.

Fit Chain Tensioner Retainer **VS4809** to release tension off the chain.

**WARNING:** Do not over-tighten Retainer as damage to the tensioner can result.

**IMPORTANT:** When refitting a chain, align the paint marks with the notch/arrows.

A new chain must be fitted so that the distance between the timing marks (the arrows on bearing caps/notches on camshafts) should be **16 rollers** on the chain.

Note however that the link being located onto the exhaust camshaft is **slightly offset from the notch** on the camshaft (Fig.7).

#### 4.4.3. VS124/V1 Viscous Fan Retaining Bolt

On Audi A4 and A6 latest 1.6 and 1.8 petrol engines, timing belt renewal requires the viscous fan coupling to be released. For this to be achieved it must first be "locked" in position using **VS124/V1** and released with a suitable allen key.

##### Associated Tool:

In addition to the special timing tools in Kit **VS4740**, it is recommended you also have available:- **VS4741 Front End Support Guide Set (Service Position)**.

See attached application charts for models/engines requiring **VS4741** tool set.

**VS4741 Front End Support Guide Set - Associated Tool - not included in kit.**

**Lock Carrier - "Service Position".**

Almost all VW Group models have the facility of extending the front panel of the vehicle to provide increased access space in the engine compartment to carry out various service applications.

On a number of models, Audi A4, A6, A8 and Volkswagen Passat for example, moving the front end out to "Service Position" is part of the timing belt replacement procedure.

Remove the front panel bolts, fit the appropriate Support Guides and slide the panel forward. Re-fit the upper bolts to hold panel in position (Fig.8).

Fig.6

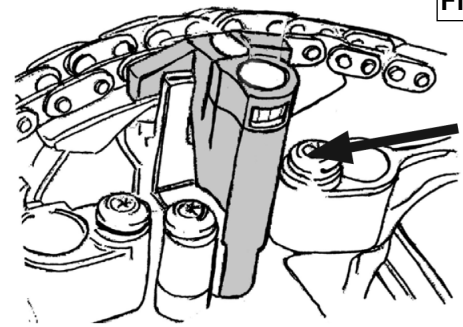


Fig.7

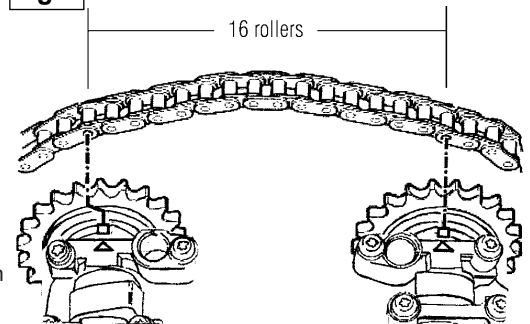
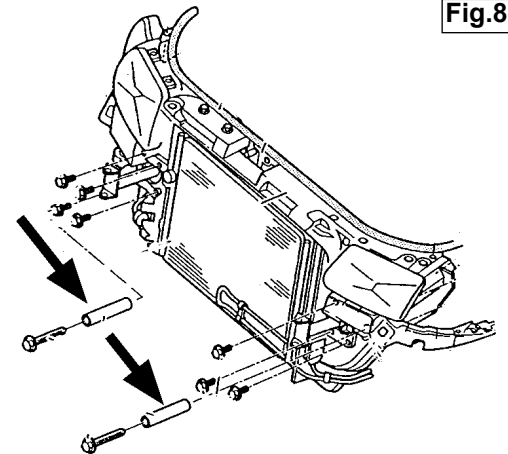


Fig.8



VS124/02 Support Guides from VS4741 Set



VS4741 Set

**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.

**INFORMATION:** For a copy of our latest catalogue and promotions call us on 01284 757525 and leave your full name and address, including postcode.



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## VS4740 Application Chart – DIESEL ENGINES 1.7 & 1.9D/SDi/TDi

Use tools from VS4740 Kit:-

- VS101/1 Camshaft Setting Plate
- VS4749 Camshaft Setting Plate
- VS101/5 Injection Pump Locking Pin
- VS124/V2 Injection Pump Locking Pin
- VS124/03 Tensioner Adjuster
- VS12472 Tensioner Adjuster

Additional VS tools required:-

- VS4741 Front End Support Guide Set

DIESEL ENGINES Models (Year) / engine codes	Camshaft Plates		Inject Pump Pins		Tensioner Adjustment			Viscous Fan VS124/V1	Additional VS Tools Required	
	VS101/1	VS4749	VS101/5	VS124/V2	VS124/03	VS12472	VS124/T1			VS4593/1E
<b>AUDI</b> 80 1.9D Turbo (91-94), 1.9TDi (91-96) 1Z/AAZ	●		●		●					
<b>A3 1.9TDi</b> (96-03) AGR/AHF/ALH/ASV		●		●						
<b>A4 1.9TDi</b> (95-01) 1Z/AHU/AFF/AFN/AVG <b>1.9TDi</b> (98-01) AHH	●		●		●					VS4741
<b>Cabriole</b> <b>1.9TDi</b> (95-00) 1Z/AHU	●		●		●					VS4741
<b>A6 1.9TDi</b> (94-02) 1Z/AHU/AFN/AVG	●		●		●					VS4741
<b>SEAT</b> Arosa 1.7SDi (98-05) AKU	●		●			●				
<b>Ibiza/Cordoba 1.7SDi</b> (98-99) AKW <b>1.9D</b> (93-99) 1Y <b>1.9D Turbo</b> (93-97) AAZ <b>1.9SDi</b> (96-99) AEF (99-02) AGP/AQM (02-06) ASY <b>1.9TDi</b> (96-99) 1Z/AFN/AHU (99-02) AGR/ALH/ASV	●		●		●					
<b>Leon 1.9SDi</b> (00-05) (AGP/AQM <b>1.9TDi</b> (99-05) AGR/AHF/ALH/ASV	●	●	●	●	●					
<b>Toledo 1.9D</b> (94-99) 1Y <b>1.9D Turbo</b> (94-99) AAZ <b>1.9TDi</b> (95-99) 1Z/AFN/AHU/AZ (99-05) AGR/AHF/ALH/ASV	●		●		●					

DIESEL ENGINES Models (Year) / engine codes	Camshaft Plates		Inject Pump Pins		Tensioner Adjustment			Viscous Fan VS124/V1	Additional VS Tools Required
	VS101/1	VS4749	VS101/5	VS124/V2	VS124/03	VS124/72	VS124/T1		
<b>SEAT</b> <i>continued</i>									
Alhambra 1.9TDi (96-00) 1Z/AFN/AHU/AVG	●		●		●				
Inca 1.9D (96-04) 1Y	●			●	●				
1.9SDi (96-04) Aey (00-04) AYQ	●		●	●	●	●			
<b>SKODA</b>									
Fabia 1.9SDi (99-06) ASY		●		●	●				
Felicia 1.9D (95-01) AEF	●			●	●				
Octavia 1.9SDi (97-05) AGP/AQM		●		●	●				
1.9TDi (96-06) AGR/AHF/ALH/ASV		●		●	●				
<b>VOLKSWAGEN</b>									
Lupo 1.7SDi (98-05) AKU	●				●				
Polo / Polo Classic 1.7D (96-00) AHG/AKU	●		●		●				
1.7SDi (96-00) AHB/AKW	●		●		●				
1.9D (95-02) 1Y/AEF	●		●		●				
1.9SDi (96-02) Aey/AGD/ASX (99-02) AQM/AGP (02-06) ASY	●		●		●	●			
1.9TDi (97-02) AFN/AHU/ALE/ (99-02) AGR/ALH/ASV	●		●		●	●			
<b>Golf/Bora 1.9D</b> (94-96) 1Y	●		●		●				
1.9D Turbo (94-98) AAZ	●		●		●				
1.9SDi (95-98) Aey/AEF (97-05) AGP/AQM	●		●		●				
1.9TDi (93-03) 1Z/AHU/AFN/ALE/AVG/AAZ (97-05) AGR/AHF/ALH/ASV	●		●		●	●			
<b>Passat 1.9TDi</b> (96-00) AFN/AHH 2 Part Pump Sprocket Single Piece Sprocket (97-00) AHU/AVG	●		●		●				VS4741 VS4741 VS4741

DIESEL ENGINES Models (Year) / engine codes	Camshaft Plates		Inject Pump Pins		Tensioner Adjustment			Viscous Fan VS124/V1	Additional VS Tools Required
	VS101/1	VS4749	VS101/5	VS124/V2	VS124/03	VS124/T1	VS4593/1E		
<b>VOLKSWAGEN</b> <i>continued</i>									
<b>Beetle 1.9TDi</b> (98-02) AGR/ALH		●		●	●				
<b>Sharan 1.9TDi</b> (95-00) 1Z/AHU/AFN/AVG	●		●		●				VS4741
<b>Caddy 1.7SDi</b> (96-00) AHB/AKW	●		●		●				
<b>1.9D</b> (96-01) 1Y/AEF	●		●	●	●				
<b>1.9SDi</b> (96-00) AEY	●		●	●	●				
(98-04) AQM/AYQ		●		●	●				
<b>1.9TDi</b> (96-00) AFN/AHU/ALE	●		●	●	●				
(99-03) ALH/ASV		●		●	●				
<b>Transporter 1.9D</b> (90-96) 1X	●		●	●	●				
2 Part Pump Sprocket	●		●	●	●				
Single Piece Sprocket									
<b>1.9D Turbo</b> (92-03) ABL	●		●	●	●				
2 Part Pump Sprocket	●		●	●	●				
Single Piece Sprocket	●		●	●	●				

## VS4740 Application Chart – PETROL ENGINES 1.6 to 2.0

Use tools from VS4740 Kit:-

- VS124/03 Tensioner Adjuster
- VS12472 Tensioner Adjuster
- VS124/T1 Tensioner Retainer
- VS4593/1E Tensioner Lock Pin
- VS4809 Tensioner Retainer (Chain in Head)
- VS124/V1 Viscous Fan Retaining Bolt

Additional VS tools required:-

- VS4741 Front End Support Guide Set

PETROL ENGINES Models (Year) / engine codes	Camshaft Plates		Inject Pump Pins		Tensioner Adjustment			Viscous Fan VS124/V1	Additional VS Tools Required	
	VS101/1	VS4749	VS101/5	VS124/V2	VS124/03	VS12472	VS124/T1			VS4593/1E
<b>AUDI</b>										
<b>80 1.6</b> (92-96) ABM/ADA <b>2.0</b> (91-96) ABK/ABT/ACE			● ●							
<b>A3 1.6</b> (96-06) AEH/AKL/APF/AVU/BFO/BGU <b>1.8</b> (96-03) AGN/APG <b>1.8 Turbo</b> (96-03) AGU/AJQ/APP/AQA ARX/ARY/ARZ/AUM/AUQ/AMK <b>2.0FSI</b> (03-06) AXW				●		● ●	● ●		● ●	
<b>S3 1.8 Turbo</b> (99-03) AMK/APY/BAM						●			●	
<b>A4 1.6</b> (95-97) ADP (96-06) AHL/ALZ/ANA/ARM <b>1.8</b> (95-01) ADR/APT/ARG <b>1.8 Turbo</b> (95-99) AEB/AJL/ANB/APU (99-01) AEB/AJL/ANB/APU (2001) AWT			● ● ●		●				● ● ● ● ● ●	VS4741 VS4741 VS4741 VS4741 VS4741 VS4741
<b>Cabriolet 1.8</b> (97-00) ADR <b>2.0</b> (91-96) ABK/ACE			● ●						●	
<b>A6 1.8</b> (95-97) ADR (97-02) AJP <b>1.8 Turbo</b> (97-99) AEB/AJL/ANB/APU (99-05) AEB/AJL/ANB/APU <b>2.0</b> (94-97) AAE/ABK/ACE			● ● ●			●			● ● ● ● ● ●	VS4741 VS4741 VS4741
<b>TT 1.8</b> (98-05) AJQ/APP/APX/ARY/AUM/ AUQ/BAM							●		●	

PETROL ENGINES Models (Year) / engine codes	Camshaft Plates		Inject Pump Pins		Tensioner Adjustment			Viscous Fan VS124/V1	Additional VS Tools Required	
	VS101/1	VS4749	VS101/5	VS124/V2	VS124/03	VS124/72	VS124/T1			VS4593/1E
<b>SEAT</b> <b>Ibiza / Cordoba 1.6</b> (96-02) AFT/AEH/AKL/ APF/AUR <b>1.8</b> (93-99) ABS/ADZ <b>1.8 16v.</b> (94-97) ADL <b>1.8 Turbo</b> (99-02) AQX/AYP					● ●	●	●	●	●	
<b>Leon 1.6</b> (99-05) AEH/AKL <b>1.8</b> (99-05) AGN/APG/APT <b>1.8 Turbo</b> (99-05) AJO/APP/ARY/AUQ <b>1.8 CupraR</b> (02-05) AMK						●	● ● ● ●	●	● ● ● ●	
<b>Toledo 1.6</b> (94-99) 1F/AFT (99-05) AEH/AKL <b>1.8</b> (94-97) ABS/ADZ (99-05) AGN/APG/APT <b>1.8 Turbo</b> (02-05) ARY/AUQ <b>2.0</b> (94-99) 2E/AGG <b>2.0 16v.</b> (94-99) ABE					●	● ●	● ●	● ●	● ●	
<b>Alhambra 1.8 Turbo</b> (97-06) AJH/AWC <b>2.0</b> (96-06) ADY/ATM					ADY	ATM	●	●	●	
<b>Inca 1.6</b> (95-04) 1F					●					
<b>SKODA</b> <b>Octavia 1.6</b> (97-05) AEH/AKL/AVU <b>1.8 Turbo</b> (96-00) AGN (98-05) AGU/ARX/ARZ/AUM <b>1.8 TurboRS</b> (00-06) AUQ <b>2.0</b> (99-05) AEG/APK/AQY/AZH/AZJ						●	● ● ● ●	● ● ● ●	● ● ● ●	
<b>Superb 2.0</b> (02-06) AZM					●					VS4741
<b>VOLKSWAGEN</b> <b>Polo / Classic 1.6</b> (95-02) AFT/AKS (99-02) AEH/AKL/APF					●	●				



PETROL ENGINES Models (Year) / engine codes	Camshaft Plates		Inject Pump Pins		Tensioner Adjustment			Viscous Fan VS124/V1	Additional VS Tools Required
	VS101/1	VS4749	VS101/5	VS124/V2	VS124/03	VS124/T1	VS4593/1E		
<b>VOLKSWAGEN</b> <i>continued</i>									
<b>Golf / Bora 1.6</b> (94-98) AEK/AFT/AKS (98-05) AKS (97-05) AEH/AKL/APF/AVU/BFQ/BGU <b>1.8 Turbo</b> (97-03) AGN (97-04) AGU/AQA/ARZ/ALUM/AUQ 2.0 (98-02) APK/AQY/AZH/AZJ/BEH (99-02) ATU/AWF/AWG <b>2.0 16v.</b> (92-97) ABF <b>2.0FSI</b> (04-06) AXW					● ●	● ●	● ●	● ●	VS4741
<b>Beetle 1.6</b> (00-06) AYD/BFS <b>1.8 Turbo</b> (99-06) AVC/AWU 2.0 (98-06) AQY/AZJ						●	●	●	
<b>Passat 1.6</b> (96-05) ADP/AHL/ANA/ARM/ALZ 1.8 (96-00) ADR/APT/ARG <b>1.8 Turbo</b> (96-00) AEB/ANB/APU 2.0 (01-05) AZM					● ● ●		●	● ●	VS4741 VS4741 VS4741 VS4741
<b>Touran 1.6</b> (03-06) BGU <b>2.0FSI</b> (03-06) AXW						● ●			
<b>Sharan 1.8 Turbo</b> (97-06) AJH/AWC 2.0 (95-00) ADY/AKT (00-06) ATM					●	●	●	●	
<b>Caddy 1.6</b> (95-00) AFT (03-06) BGU					●	●			
<b>Transporter 2.0</b> (90-03) AAC (04-06) AXA					●	●			