

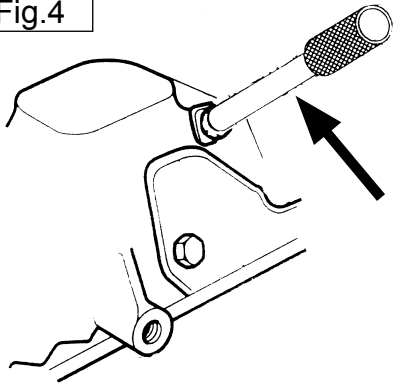
4.5 VS4360/P4 Oil Pump Sprocket Pin (Fig.4)

When installing the oil pump sprocket the correct position can be confirmed by removing the plug from the cylinder block and inserting Pin VS4360/P4 into the hole. The Pin should enter to its full length (60mm).

Should it only enter approx. 20mm, the positioning is incorrect. Remove the Pin and rotate the sprocket 360° and insert the Pin again to enter to its full length.

The Pin is left in place whilst installing the automatic tensioner and fitting timing belt.

Fig.4



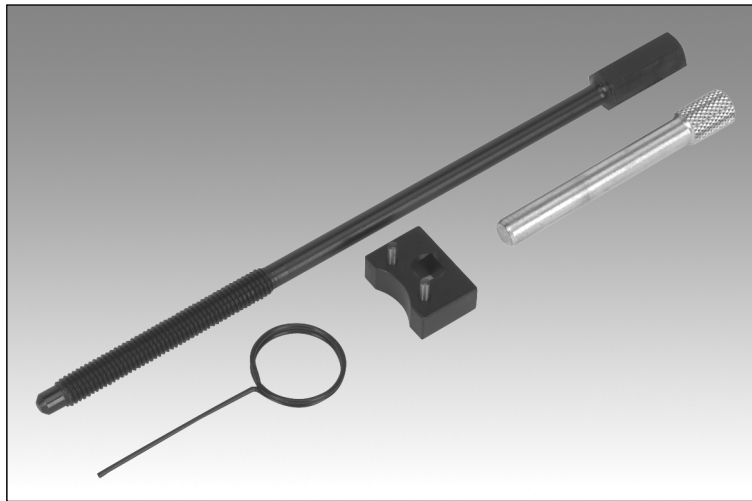
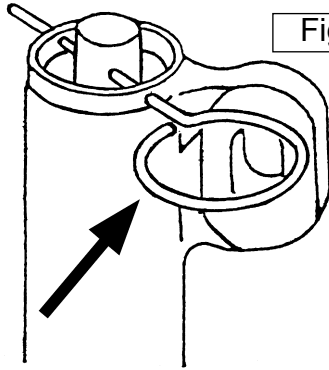
4.6 VS4593.1C Automatic Tensioner Retaining Pin (Fig.5)

A number of the engines have automatic belt tensioners which require removal and 'setting' during timing belt replacement applications.

When a tensioner is removed it must be compressed, often necessitating the use of a vice to compress the tensioner plunger which is then retained by Pin VS4593.1C.

When the tensioner is refitted to the engine, the Pin is withdrawn to activate the plunger which reacts on the tensioner pulley to apply tension to the belt.

Fig.5



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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	Sealey Group, Bury St. Edmunds, Suffolk.	01284 703534	sales@sealey.co.uk



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, pins and parts being used and do not leave them in or near the engine.

WARNING: The warnings, cautions and instructions discussed in this instruction manual cannot cover all possible conditions and situations that may occur. It must be understood that common sense and caution are factors which cannot be built into this product, but must be applied by the operator.

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

Normal engine preparation and timing mark alignment requirements apply to the timing belt replacement procedures on these Hyundai/Mitsubishi engines. The special tool requirement provided in Set VS4657 is centered upon the automatic tensioner and belt tension adjustment.

2.2 Applications

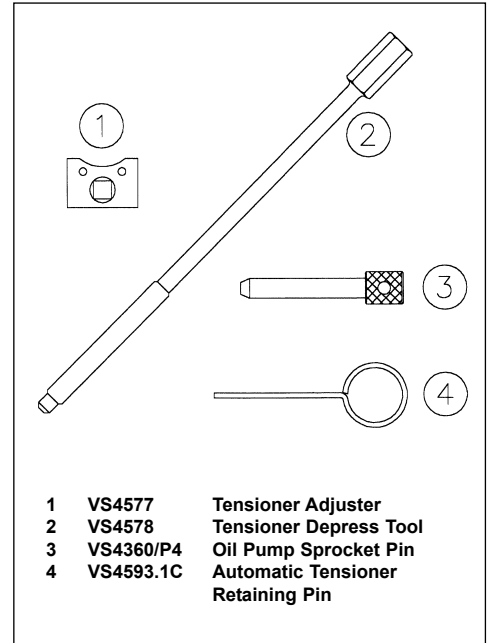
HYUNDAI, MITSUBISHI and PROTON timing belt tensioning in:

HYUNDAI			
Lantra	Sonata	Trajat	Santa-Fe
MITSUBISHI			
Colt	Carisma	Galant	Lancer
Shogun/Pajero/Pinin		Sigma	Sapporo
Space Runner		Space Star	Space Wagon
Starion	3000GT	L200	L300
PROTON			
Persona	418	420D/TD	

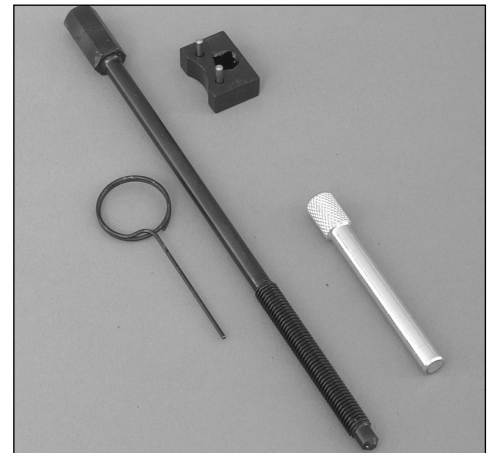
Instructions for:
**BELT TENSIONER TOOL SET -
HYUNDAI, MITSUBISHI & PROTON**

Model No: VS4657

3. CONTENTS



- | | | |
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| 1 | VS4577 | Tensioner Adjuster |
| 2 | VS4578 | Tensioner Depress Tool |
| 3 | VS4360/P4 | Oil Pump Sprocket Pin |
| 4 | VS4593.1C | Automatic Tensioner Retaining Pin |



4. INSTRUCTIONS

4.1 APPLICATION & DATA CHART

VS4657 Application Chart	VS4657 Set Tools			
	VS4577 Tensioner Adjuster	VS4578 Tensioner Depress Tool	VS124/P4 Oil Pump Spr. Pin	VS4593.1C Auto. Ten. Retain Pin
Models/engines				
HYUNDAI Lantra 1.6i (91-92) G4R Initial pushrod protrusion – 12mm. or replace Tensioner – Clockwise 2.6 to 2.8Nm. Final pushrod protrusion 3.8 to 4.5mm.	●	●		●
Lantra 1.6/1.8 16v., Sonata 2.0 16v. (92-98) G4-N/G4-P/G4-R Initial pushrod protrusion – 12mm. or replace Tensioner – Clockwise 2.6 to 2.8Nm. Final pushrod protrusion 3.8 to 4.5mm.	●	●	●	●
Sonata 1.8/2.0/2.4 (88-96) G4-M/G4-P/G4-S			●	
Trajat 2.0, Santa-Fe 2.4 (00-) G4JP/G4JS Initial pushrod protrusion – 14.5mm. or replace. Final pushrod protrusion 6 to 9mm.			●	●
MITSUBISHI Colt/Lancer 1600/1800 DOHC (88-93) 4G61/4G67 Initial pushrod protrusion – 12mm. or replace Tensioner – Clockwise 3.6Nm(1600), 2.8Nm(1800) Final pushrod protrusion 3.8 to 4.5mm.	●	●	●	●
Colt/Lancer 1.8 16v., Carisma 1.8 16v./GDi, Space Star 1.8GDi, Shogun Pinin 1.8GDi/2.0GDi (92-) 4G93 Initial pushrod check – 20Kg force – no more than 1mm or replace Tensioner – Anticlockwise 2.6Nm(Colt/Lancer), 2.5 to 4.0Nm.(Others) Final pushrod protrusion 3.8 to 4.5mm.	●			●
Galant 2.0 16v., Space Wagon 2.0 16v. (92-99) 4G63 Tensioner – Anticlockwise 3.6Nm. Final pushrod protrusion 3.8 to 4.5mm.	●		●	●
Galant/Sapporo 2000, Galant/Sapporo 2.4, Shogun/Pajero 2.4, Starion Turbo, Space Wagon 2.0, L200/L300 (84-94) 4G63T, 4G64			●	
Galant 2.0 V6 24v. (93-97) 6A12 Galant 2.5 V6 (97-) 6A13 Tensioner – Anticlockwise 3Nm. Final pushrod protrusion 3.8 to 5.5mm(2.0), 3.8 to 4.5mm(2.5)	●			●
Galant 2.4GDi, Space Wagon 2.4GDi, Space Runner 2.4GDi (97-) 4G64 Tensioner – Anticlockwise 3.5Nm. Final pushrod protrusion 3.8 to 4.5mm.	●		●	●
Galant 2.5 V6 24v., Sigma 3.0 V6 24v., 3000GT V6 24v. (91-) 6G72/6G73 Initial pushrod protrusion – 11.7 to 12.3mm. or replace Tensioner – Anticlockwise 10Nm. Final pushrod protrusion 3.8 to 4.5mm	●		●	●
Shogan/Sport 3.0 24v. (94-) 6G72 Initial pushrod check – 20Kg force – no more than 1mm or replace Tensioner – Anticlockwise 4.4Nm Final pushrod protrusion 3.8 to 4.5mm.(Shogan), 3.8 to 5.0mm(Sport)	●			●
Shogan 3.5 24v. (94-) 6G74 Initial pushrod check – 20Kg force – no more than 1mm or replace Tensioner – Anticlockwise 9.4Nm(-00), 4.4Nm(00-) Final pushrod protrusion 3.8 to 4.5mm.(-00), 3.8 to 5.0mm(00-)	●			●
PROTON Persona 1.8, 418 (96-) 4G93P Initial pushrod protrusion – 11mm. or replace Tensioner – Anticlockwise 2.6Nm. Final pushrod protrusion 3.8 to 4.5mm	●			●
Persona 2.0D/TD, 420D/TD (96-00) 4D68-2			●	

4.2 Automatic Tensioners - General

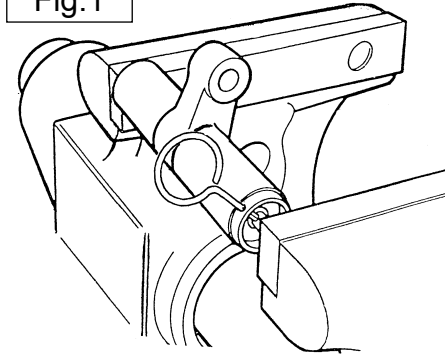
In most cases the automatic tensioner is removed from the engine along with the tensioner pulley and arm in order for the old belt to be removed.

IMPORTANT: The tensioner plunger protrusion should be checked and the tensioner replaced if protrusion is outside of specification - see Application & Data Chart. Place the automatic tensioner in a vice (soft jaws) and carefully compress the plunger into tensioner body. (Fig.1)

NOTE: Use a washer/spacer to protect the protrusion at the base of tensioner.

Align the holes in the tensioner body and plunger and insert a Retaining Pin VS4593.1C to retain the plunger in a retracted position.

Fig.1



4.3 VS4577 Tensioner Adjuster (Fig.2)

When installing the tensioner, arm and pulley, the holes used to locate the Tensioner Adjuster (2 holes in the pulley), should be positioned according to the vehicle manufacturer's instructions. Some will be positioned vertically and to the left of the retaining bolt, others below or above the retaining bolt.

Fit the new belt in an **anticlockwise** direction and ensure the tensioner pulley is forced against the belt.

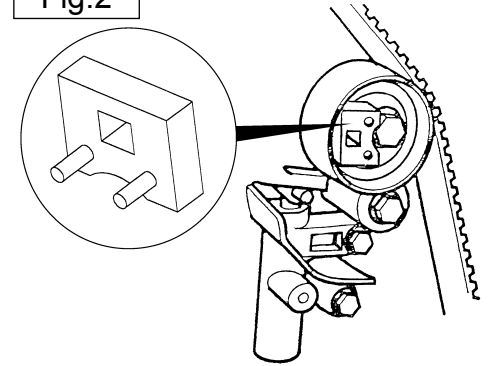
Locate VS4577 Adjuster in to the holes in the pulley and fit a torque wrench to the square drive.

Apply a **clockwise** or **anticlockwise** torque to tensioner pulley, and tighten the pulley bolt.

IMPORTANT: The torque applied differs according to engine - it is essential to refer to the Application & Data Chart for each engine.

Remove the retaining pin from automatic tensioner. Carefully turn the crankshaft twice to seat the belt, return to TDC and wait for 15 minutes. Check that the plunger retaining pin can be easily inserted and removed.

Fig.2



4.4 VS4578 Tensioner Depress Tool (Fig.3)

The Automatic tensioner on the engines detailed on the Application & Data Chart as requiring VS4578 Depress Tool and may also require the use of VS4577 Adjuster. For these engines apply a **clockwise** torque to the tensioner pulley.

Additionally VS4578 Tensioner Depress Tool is needed.

The automatic tensioner is removed from the engine in order to remove the timing belt and the plunger is compressed and retained with a Pin VS4593.1C.

When the new belt has been fitted, the auto tensioner is installed and the tensioner pulley positioned with the two holes for the Tensioner Adjuster to the left of the retaining bolt. The specified torque, as per Application & Data Chart, is applied to the tensioner pulley using VS4577 Adjuster.

The rubber plug is removed from the left hand engine mounting bracket and VS4578 Depress Tool is screwed in to make contact with the tensioner arm. VS4578 is screwed in further to depress the tensioner plunger so the retaining pin can be removed.

NOTE: Final pushrod protrusion should be as detailed on Application & Data Chart. If not, repeat the tensioning procedure.

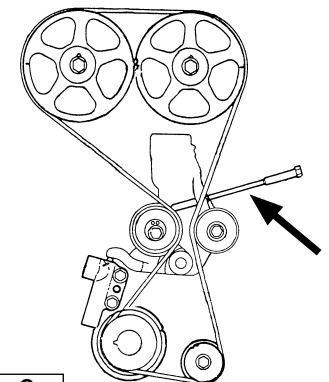


Fig.3