FUEL INJECTOR PULLER & SERVICE KIT FOR VAG 24PC

MODEL NO: **VS2083**

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 & 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 instruction manual | Wear a face shield | Wear protective clothing | Wear protective gloves | Wear ear protection

1. SAFETY

❑ **WARNING!** *Ensure Health and Safety, local authority and general workshop practice regulations are adhered to when using tools.*
❑ **WARNING!** Petrol fumes and battery gases are explosive, **DO NOT** smoke or allow a naked flame or sparks in the work area.
✓ Keep a dry chemical (class B) fire extinguisher near to the work area.
✓ Avoid fire hazard by using caution when disconnecting fuel lines, as some spillage is inevitable.
× **DO NOT** let fuel spill onto a hot engine.
✓ Before repairing the fuel system, turn off the ignition switch and disconnect the battery as per manufacturer's procedure. Never disconnect the battery while the engine is running.
❑ **WARNING!** Wipe up fuel spills immediately.
× **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.
✓ Keep children and unauthorised persons away from the work area.
× **DO NOT** attempt to start engine with the injectors removed.
✓ **Always** display a warning notification on steering wheel when engine components have been removed.
✓ Account for all tools and parts being used and **DO NOT** leave them in or near the engine.
✓ Ensure all pieces are returned to the case and store this in a safe, dry, childproof location.

▲ ***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.*

❑ ***WARNING: The warnings, cautions and instructions in this 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.***

2. INTRODUCTION

Comprehensive kit designed for quick and easy removal of injectors and injector seals. For petrol and diesel injectors and injector seals on 1.4SDi/TDi, 1.9D/SF/TDi/TDi(PD), 2.0Ti/TDi(PD), 2.8TDi(PD) and FSi injectors found on VAG engines. Equivalent OEM number T10133 and T10163. Supplied in a storage case.

3. SPECIFICATION

MODEL NO:	VS2083 DIESEL
Applications:	1.4 SDi/TDi | 1.9D/SDi/TDi (PD) | 2.0TDi (PD) 4-valves 2.5 TDi 2.5TDi (PD) | 2.8TDi (PD) 2.7/3.0TDi (PD.
Contents:	Large Injector Remover, 2-Leg Injector Remover, Injector Remover Adaptor (x3), Slide Hammer, 300mm Slide Hammer Extension Bar, 110mm Slide Hammer Extension Bar, Cleaning Brush, Teflon®Ring Assembly Cone, Teflon®Ring Assembly Sleeve, Teflon® Ring Calibration Sleeve (x2), Injector Installer, Teflon® Ring Spacer Sleeve, Support Ring Locking Plate, Support Ring Assembly Cone, Support Ring Calibration Sleeve, Injector Remover Bridge, Support Ring Calibration Sleeve, Offset Adaptor, Hook Adaptor, 22mm Adaptor, 17mm Adaptor
Nett Weight:	3kg

NOTE: Although the injectors don't suffer seizure like other types, the removal can be tricky due to limited space. This can sometimes lead to technicians using unsuitable tooling which can result in damage to the injectors themselves or the solenoids. The set is supplied in a sturdy blow mould case.

MODEL NO:	VS2083 PETROL
Applications:	FSI: 1.4, 1.6, 1.8, 2.0, 2.7 V6, 3.0 V6, 3.2 V6, 3.6 V6, 4.2L V8
Contents:	Injector Remover 2 Leg, Injector Remover (x3), Slide Hammer, Cleaning Brush, Teflon Ring Assembly Cone, Teflon Ring Assembly Sleeve, Teflon Ring Calibration Sleeve (x2), Injector Installer, Teflon Ring Spacer Sleeve, Support Ring Locking Plate, Support Ring Assembly Cone, Support Ring Calibration Sleeve (Single Knurl), Injector Remover Bridge, Support Ring Calibration Sleeve (Double Knurl).
Nett Weight:	2.53kg

4. CONTENTS

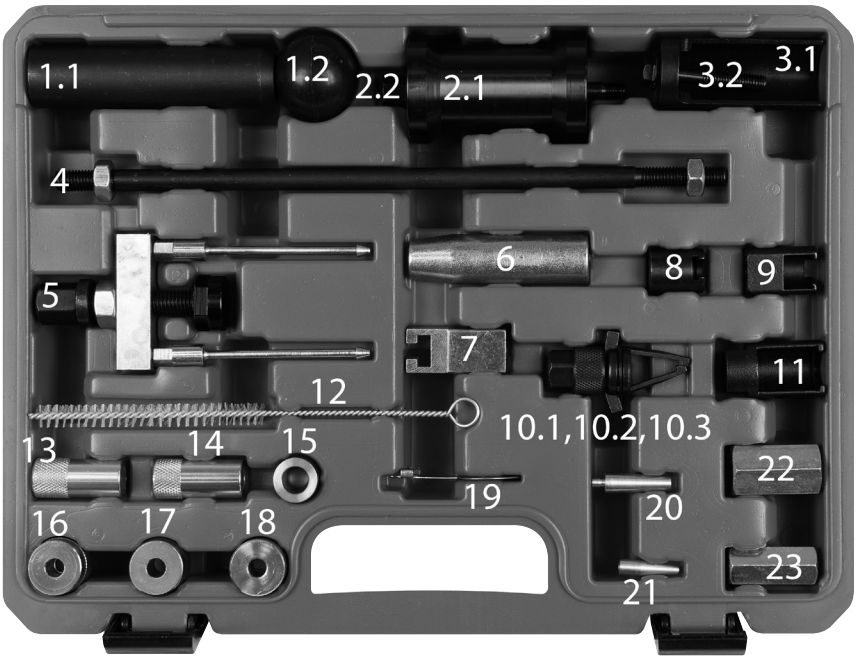
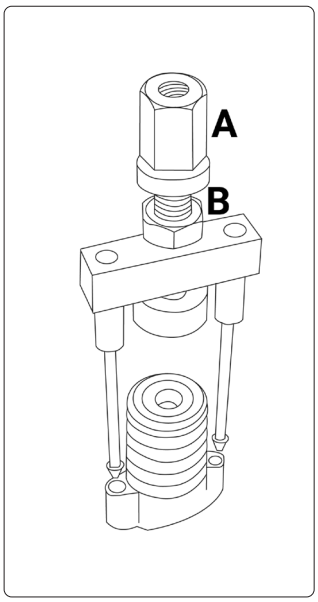


fig.1A VS2083-05



Item	Part No.	Description
1.1	VS2083-1.1	Injector installer
1.2	VS2083-1.2	Special knob for injector installer
2.1	VS2083-2.1	Slide hammer
2.2	VS2083-2.2	Slide hammer rod
3.1	VS2083-3.1	Injector remove bridge
3.2	VS2083-3.2	Injector remove bridge rod
4	VS2083-04	Long threaded shaft for slide hammer
5	VS2083-05	Direct overgrip
6	VS2083-06	Leg
7	VS2083-07	Hook adaptor
8	VS2083-08	Injector remover
9	VS2083-09	Injector remover
10.1	VS2083-10.1	Injector remover (2 Leg)
10.2	VS2083-10.2	Spacer for injector remover
10.3	VS2083-10.3	Injector remover leg
11	VS2083-11	Injector remover
12	VS2083-12	Cleaning brush

Item	Part No.	Description
13	VS2083-13	Support ring calibration sleeve
14	VS2083-14	Support ring calibration sleeve
15	VS2083-15	Teflon ring spacer sleeve
16	VS2083-16	Teflon ring assembly sleeve
17	VS2083-17	Teflon ring calibration sleeve
18	VS2083-18	Teflon ring calibration sleeve
19	VS2083-19	Support ring locking plate
20	VS2083-20	Support ring assembly cone
21	VS2083-21	Teflon ring assembly cone
22	VS2083-22	Support ring calibration sleeve (a)
23	VS2083-23	Support ring calibration sleeve (b)

5. OPERATION FOR DIESEL

As the set provides pulling methods for a number of different engine applications, the manufacturer's documentation or workshop manual must be referred to before the injector(s) can be removed. For example, the cam cover must be removed, in some applications the camshaft has to be set to a particular position, rocker arms may have to be removed, or the rocker arm shaft may have to be removed. When refitting the injector or a new injector, pay particular attention to the manufacturer's installation sequence, regarding the pressing of the injector unit into the head, the alignment of the injector unit, the tightening sequence of the securing bolts and any final adjustment of the rocker arm setting (usually using a dial gauge).The kit includes two methods of pulling: using the direct overhead grip (5) or the offset or hook adaptors (4 and 7). Use the suitable method according to the design of PD injector and how it is secured to the cylinder head.To ensure dirt, oil or carbon does not enter the fuel system, clean all around the injector(s) to be removed, and around the fuel lines, etc.Assemble the slide hammer by screwing 2-1,2-2 onto slide hammer shaft 4.

USING THE DIRECT OVERHEAD GRIP

Once access has been gained to the injector unit to be removed (refer to manufacturer's documentation — see above), pull ball stud out of the top of the injector unit (if fitted). Undo the injector unit securing bolts using the special spline bit. Fit the Direct Overhead Grip (5) over the injector inserting the feet into the bolt holes on the injector unit. (Refer to diagram) Turn the puller spindle fig1A(A) down lightly onto the top of the injector unit to apply slight pressure.Then hand-tighten the lock nut fig.1A(B).Screw the shaft of the slide hammer onto puller Spindle fig.1A(A). Then pull injector unit upwards out of cylinder head with careful, steady use of the slide hammer.

6. OPERATION FOR PETROL

6.1. Technical Description

6.2. VS2083 FSi Injector Remover/Installer and Service Kit contains the specialised tools required for the removal and installation of the high pressure injectors from the current FSi/TFSi engines fitted in AUDI, SEAT, SKODA and VOLKWAGEN models.

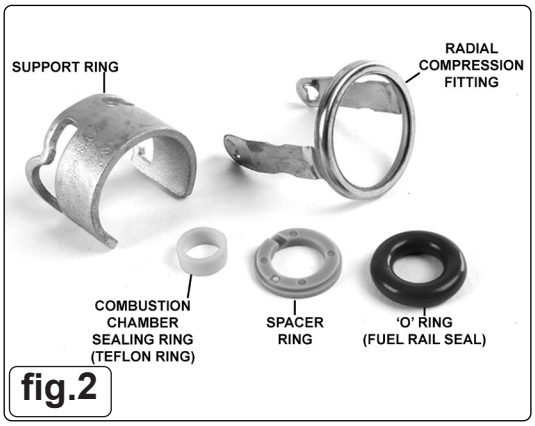
6.3. In addition the kit includes the special fitting and calibration tools required when fitting new seals and support rings on the injectors.

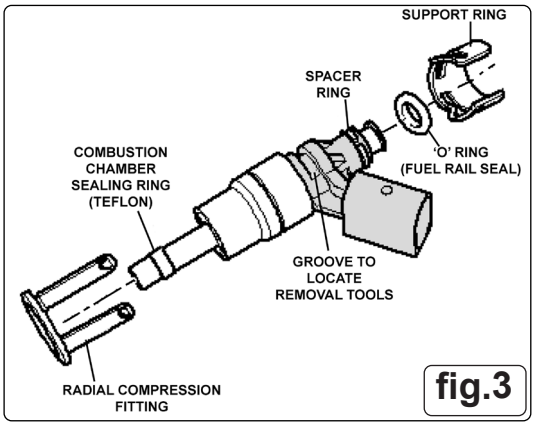
6.4. The tools within the kit are used in various combinations dependant on the engine and injector design. This instruction can only provide a guide on the use of the various tools and reference should always be made to the appropriate workshop instructions for the engine being worked on and a visual examination of the injector to establish the correct selection of tools from the kit, particularly with regard to replacement and fitting of new seals.

6.5. The technical instructions are divided into four sections:
Section 7 - Injector parts identification/assembly
Section 8 - Injector Removal
Section 9 - Seal Replacement.
Section 10 - Injector Installation.

7. PARTS ID / INJECTOR ASSEMBLY

❑ **WARNING! - FUEL SPILLAGE: Be prepared for residual fuel in the fuel rail to drain out as the fuel is removed. ENSURE NO SOURCE OF FLAME OR SPARK IS CLOSE BY AND CLEAN UP SPILLAGE IMMEDIATELY.**





(fig.2) Typical Injector Replacement Parts Set Example 2.0 FSi engine injector.

When this injector is fitted in the cylinder head, the assembly is as follows (fig.2).

7.1. FSi injectors are located in the cylinder head and fuel is supplied via a fuel rail which can be an intake manifold/fuel rail assembly. Injectors can only be accessed after removal of the manifold/fuel rail assembly and therefore some disassembly and hose disconnections are required.

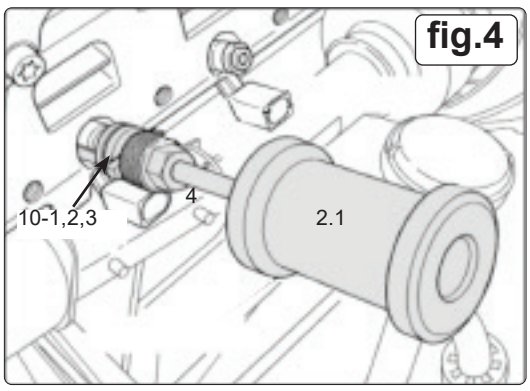
7.2. Having gained access to the injectors unplug the electrical connections from the injectors.

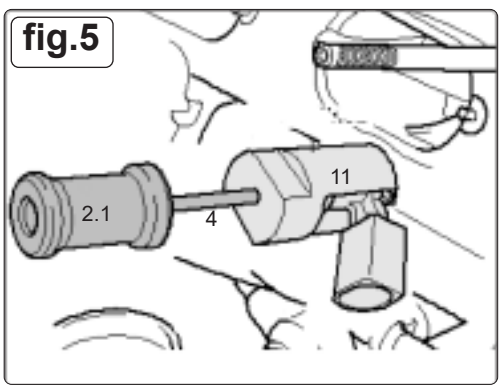
7.3. Removal Tools - Injector

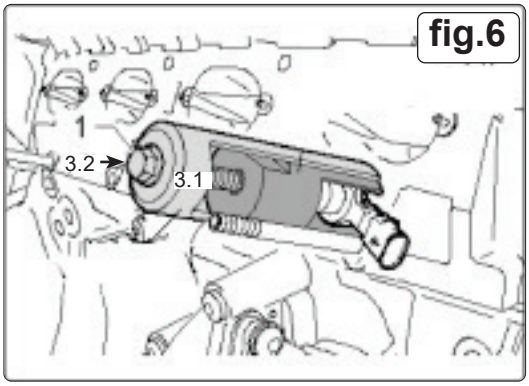
7.4. If the complete injector assembly cannot be removed from the cylinder head easily by hand and there is a need to use Removal Tools, the injector support ring must be removed in order to fit the appropriate Removal Adaptor into the groove in the injector.

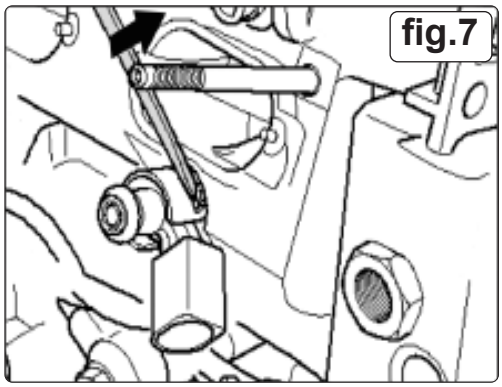
7.5. The injector removal tools available with the kit are listed as follows:

a) VS2083.10.1, 10.2,10.3 Remover 2 Leg - use in conjunction with VS2083.10.4 (fig.4)
b) VS2083.2-1, 2-2, Remover Adaptor - use in conjunction with VS2083.04 (fig.5) or VS2083.3-1, 3-2 (fig.6).
c) VS2083.2-1, 2-2 Slide Hammer.
d) VS2083.8 Remover Adaptor - use in conjunction with VS2083.2-1,2-2.
e) VS2083.9 Remover Adaptor - use in conjunction with VS2083.2-1, 2-2, 4.
f) VS2083.3-1, 3-2 Remover Bridge.









7.6. REMOVING INJECTOR

7.7. When the injector is fitted in the cylinder head the radial compensation fitting is 'clipped' onto the support ring and must be detached. A suitable screwdriver can be used to lever the tags of the radial compensation fitting out of the support ring in order that it can be pulled off the injector (fig.7). It is not unusual for these tags to break during release, or for the radial compensation fitting to be destroyed during removal of a stubborn injector, and therefore this fitting will require replacement.

7.8. Remove the support ring off the injector, select the appropriate combination of removal tools from the VS2083 kit and fit them on to the injector in the groove position provided.

Note: When using the slide hammer, use 'restrained' impact action. Heavy blows should not be necessary.

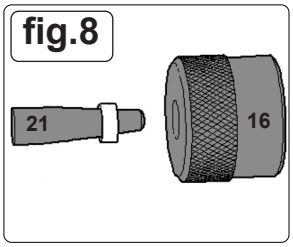
8. SEAL REPLACEMENT

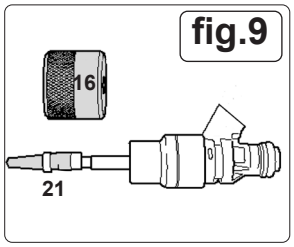
NOTE: The combustion chamber sealing ring (Teflon ring) **MUST ALWAYS** be replaced - **DO NOT** grease or apply any lubricant to the new seal during installation on the injector or when fitting the injector to the cylinder head.

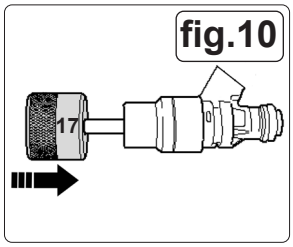
8.1. Seal Replacement Tools - Combustion Chamber Sealing Ring (Teflon Ring).

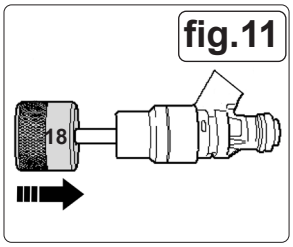
8.2. The installation tools required for the combustion chamber sealing ring are listed as follows:

a) VS2083.05 Assembly Cone
b) VS2083.06 Assembly Sleeve (No.1)
c) VS2083.07 Calibration Sleeve (No.2)
d) VS2083.08 Calibration Sleeve (No.3)
e) VS2083.11 Spacer Sleeve









8.3. REMOVING OLD RING

8.3.1. Carefully remove the old teflon ring (cut with razor blade or lever off with suitable screwdriver), and check that the groove for the ring and the continuous ridge at the bottom of the groove, are not damaged.

NOTE: The injector must be replaced if the groove is damaged.

8.3.2. Clean off any combustion residue in the groove or on the injector shaft using a clean cloth only.

8.3.3. RING INSTALLATION

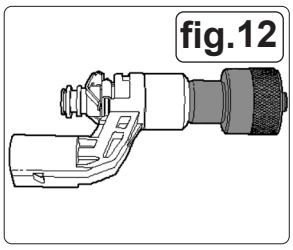
8.3.4. Push the new teflon ring onto VS2083.05 Assembly Cone using VS2083.06 Assembly Sleeve (No.1) with the knurled side of the Sleeve facing towards the ring (fig.9).

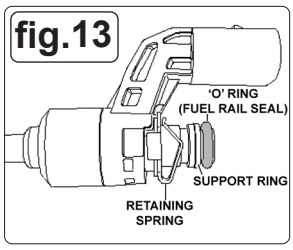
8.3.5. Now turn the sleeve around (knurled side facing away from the ring) and use it to slide the ring smoothly off the cone into the groove in the injector. **DO NOT** use any lubricants (fig.10).

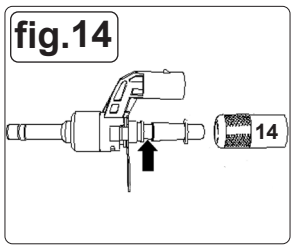
8.3.6. The teflon ring is expanded as it is installed on the Assembly Cone and fitted into the groove, and therefore must be compressed in a two stage procedure, after it is fitted in the groove.

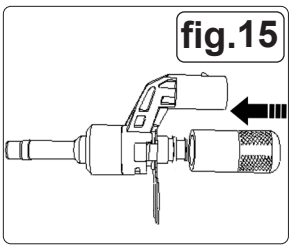
8.3.7. Stage 1 - Using VS2083.07 Calibration Sleeve (No.2), slide the Sleeve over the injector shaft whilst simultaneously rotating it 180°, inserting it as far as it will go applying moderate force only. Then pull the Sleeve back, again rotating it 180° (fig.11).

8.3.8. Stage 2 - Using VS2083.08 Calibration Sleeve (No.3), slide the Sleeve over the injector shaft whilst simultaneously rotating it 180°, inserting it as far as it will go applying moderate force only. Then pull the Sleeve back, again rotating it 180° (fig.12).









8.3.9. Some engine applications use the VS2083.11 Spacer Sleeve in conjunction with the VS2083.07 and VS2083.08 Calibration Sleeves during the teflon ring compression stages - Example 1.4FSi and 3.6 V6 FSi Engines (fig.13).Seal Replacement Tools - Spacer Ring and 'O' Ring (fuel rail seal).

8.3.10. Replacement of the Spacer Ring and 'O' Ring are very straightforward on many injectors.

NOTE: Apply a thin coating of clean engine oil on the new fuel rail 'O' Ring prior to installing it on to the injector.

8.3.11. Some injectors have a retaining spring and special tools from the VS2083 Kit (as listed below) are required to fit the support ring to the correct depth - Example 3.6 V6 FSi engines (fig.14).
a) VS2083.12 Locking Plate.
b) VS2083.13 Assembly Cone.
c) VS2083.14 Calibration Sleeve (Single Knurl).
d) VS2083.17 Calibration Sleeve (Double Knurl).

8.3.12. Fit Locking Plate VS2083.12 in place of the retaining spring. Push the new support ring on to VS2083.13. Assembly Cone and fit the Assembly Cone onto the injector. Using VS2083.14 (with the knurled end facing the support ring) push the ring into the first groove (fig.15).

8.4. **REMOVE THE ASSEMBLY CONE.**

8.4.1. Remove and turn around the Calibration Sleeve (knurled end facing away from the support ring) and push the support ring until it contacts the VS2083.12 Locking Plate (fig.16).

8.4.2. Remove the Calibration Sleeve and Locking Plate.
NOTE: Always use a new retaining spring if injectors are removed.

8.4.3. Fit the retaining spring, apply clean engine oil to the new 'O' Ring (fuel rail seal) and fit against the support ring.

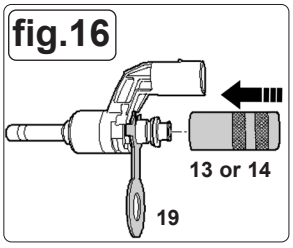


fig.16

8.4.4. Some injectors require the use of VS2083.17 Calibration Sleeve in place of the VS2083.14 Sleeve to set the support ring to the correct installation depth - Example 1.4FSi engines (fig.17).
NOTE: Always ensure you consult the workshop instructions for the specific engine being worked on, to identify the appropriate tools required.

9. INJECTOR INSTALLATION

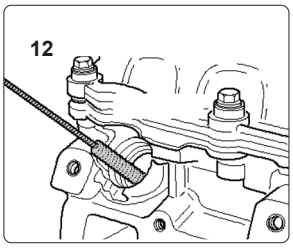


fig.17

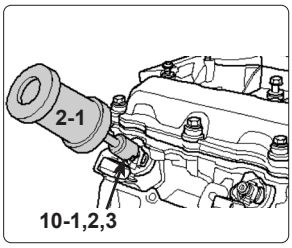


fig.18

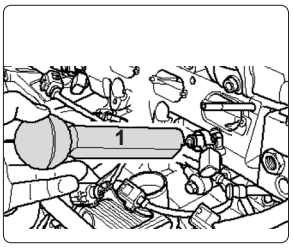


fig.19

9.1. INSTALLING INJECTORS

9.1.1. Initially install injectors by hand into the cylinder head. **DO NOT** use grease or oil and ensure there is no cleaning or lubrication fluid in the bores.

9.1.2. Ensure that the injectors are seated properly and if necessary use VS2083.09 Installer (fig.20).
IMPORTANT! It is vital to ensure that the ridge in the base of the electrical connector seats into the cut-out in the cylinder head. It should not be possible to rotate the injectors more than 5° if they are seated correctly.

ENVIRONMENT 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 and requires disposal, drain any fluids (if applicable) into approved containers and dispose of the product and fluids 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 is required for any claim.

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Sealey Group, Kempson Way, Suffolk Business Park, Bury St Edmunds, Suffolk. IP32 7AR
01284 757500 **sales@sealey.co.uk** **www.sealey.co.uk**