

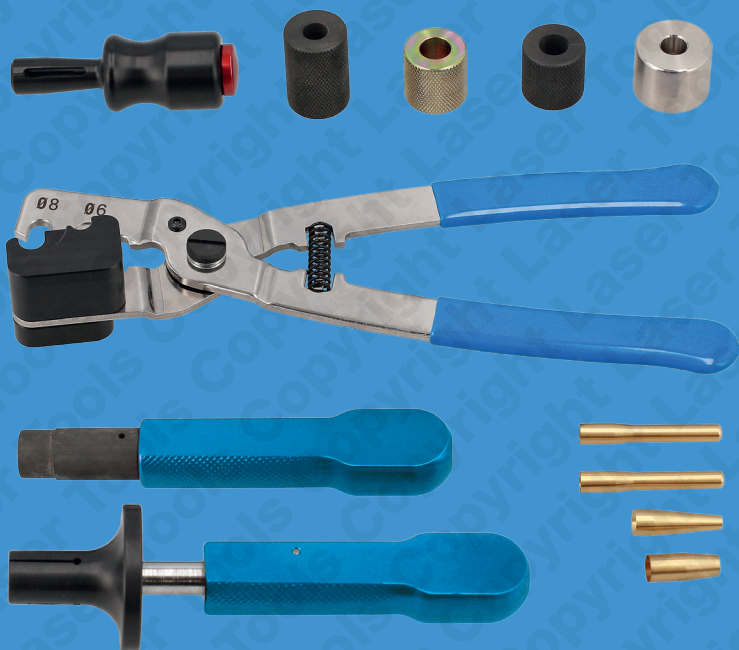
LASER®

Part No. 9095

Fuel Injector Seal Remover & Installer

for BMW

Instructions



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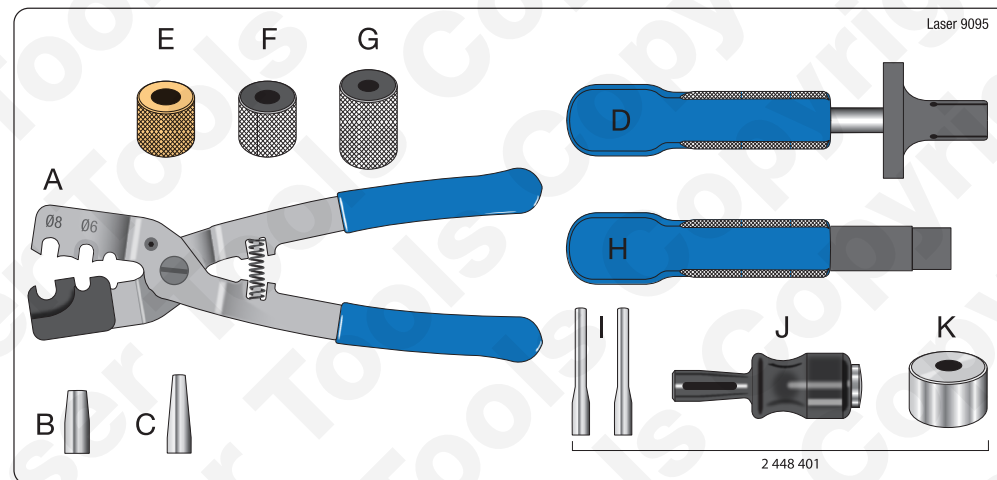
Introduction

A new and updated version of the Laser 7085 injector seal removal and installation kit. The Laser 9095 kit includes the latest updated seal cutting and removal pliers that ensure the injector is not damaged during seal removal. Allows the user to fit the PTFE seals (or rings) onto a BMW fuel injector and shrink them into position prior to refitting the fuel injector in the cylinder head. Coverage includes removing and installing the PTFE sealing rings on the injector HDEV5 and HDEV6.

Applications:

- Engine codes: N13, N14, N18, N20, N26, N43, N53, N54, N55, N63, N74, S55, S63, B38, B48 & B58.
- Equivalent to OEM refs: 2 452 959 (replaces 13 0 191), 2 448 401, 13 0 192, 13 0 193, 13 0 194, 13 0 195, 13 0 281, 13 0 282 & 13 0 283.
- The Teflon seal material is designed to expand once installed into the injector bore to enable an effective seal. Thus, the sealing ring also expands as it is fitted to the injector. Therefore, after fitting to the injector the seal needs to be shrunk down to “installation size” before the injector can be refitted. The tools provided allow the seal to be re-compressed into the seal groove on the injector.
- Three different methods of shrinking the PTFE seal, depending on the engine code reference and the type of injector fitted, are included. Use in accordance with OEM instructions.

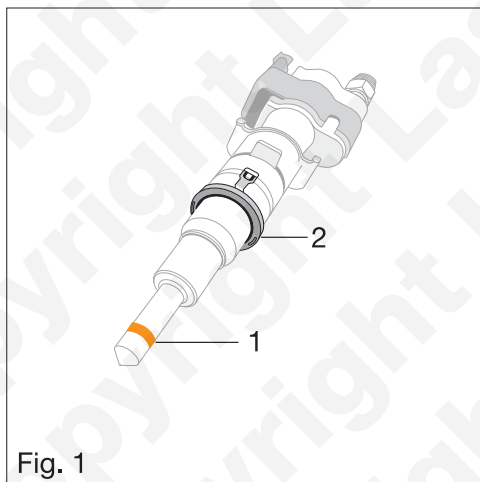
Components



Ref.	Description	OEM Ref.
A	Seal Removing Tool	2 452 959
B	Installation Cone	13 0 283
C	Installation Cone	13 0 195
D	Fitting Aid	13 0 281
E	Tapered Assembly Sleeve No. 1 (Cad Plated)	13 0 192
F	Tapered Assembly Sleeve No. 2 (Black)	13 0 193
G	Tapered Assembly Sleeve No. 3 (Black)	13 0 194
H	Tapered Assembly Tool	13 0 282
I	Installation Cones	2 448 401
J	Sliding Sleeve Seal Installer	
K	Tapered Assembly Sleeve No. 4 (Stainless Steel)	

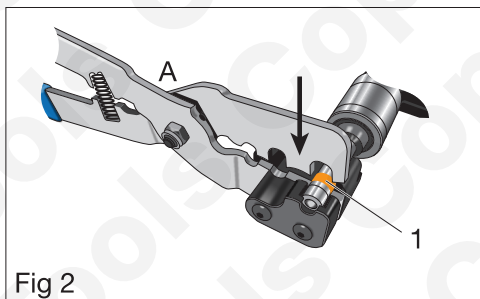
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Removing the existing Teflon seal:



Refer to Figure 1: Before refitting a fuel injector, replace the Teflon seal (1) and the decoupling element (2). **Note:** a Teflon seal which has been heated **once** by engine operation cannot be reused and must be replaced before the injector is refitted.

Caution: Before replacing the Teflon seal, your hands and the work surface must be clean and free of oil or other contaminants. **Avoid mechanical contact with the injector tip.**



Refer to Figure 2: Use the seal removing tool (A) to cut and remove the Teflon seal (1).

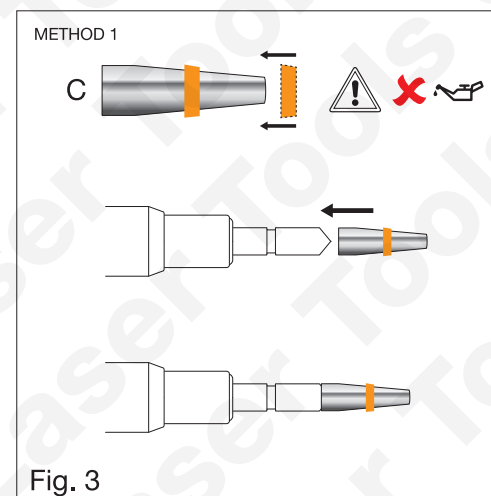
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Installing a new Teflon seal:



With the large range of engine codes covered by this set, please refer to the OEM data for your specific application to ascertain which components should be used. Use the following **Method 1**, **Method 2** or **Method 3**, depending on the engine code reference and the type of injector fitted.

Method 1:



Refer to Figure 3:

1. Push new Teflon seal onto the installation cone (C) using gentle finger pressure. Do not let your finger nails touch the new Teflon seal. **Note:** Do not use any lubrication.
2. Place the installation cone against injector taking care to avoid touching the injector tip.

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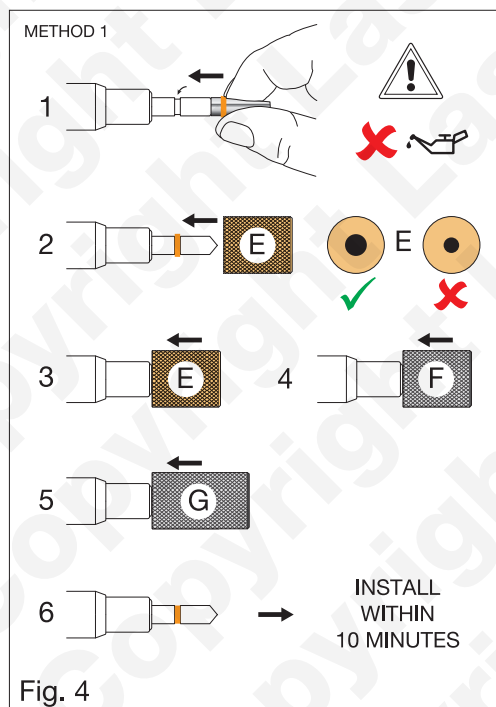


Fig. 4

Refer to Figure 4:

1. Slide the new Teflon seal over the installation cone and across the injector until it slips into the seal recess. Do not use any lubrication.
2. The tapered assembly sleeves (**E**, **F** and **G**) are used now to bring the expanded Teflon seal back to its installation dimension. Do not use any lubrication.
3. First, slide assembly sleeve **E** (large opening towards seal) onto the injector. Then remove **E**.
4. Now slide assembly sleeve **F** (large opening towards seal) onto the injector. Then remove **F**.
5. Now slide assembly sleeve **G** (large opening towards seal) onto the injector. Leave **G** fitted to the injector until you are ready to refit the injector into the cylinder head. Once **G** has been removed, the Teflon seal will start to expand, so you must install the injector within 10 minutes of removing **G**.

Instructions

Method 2:

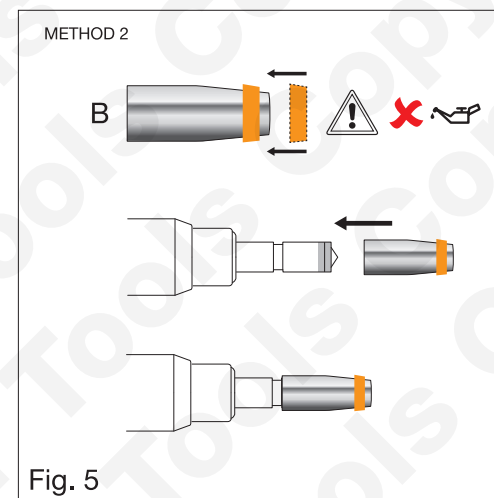
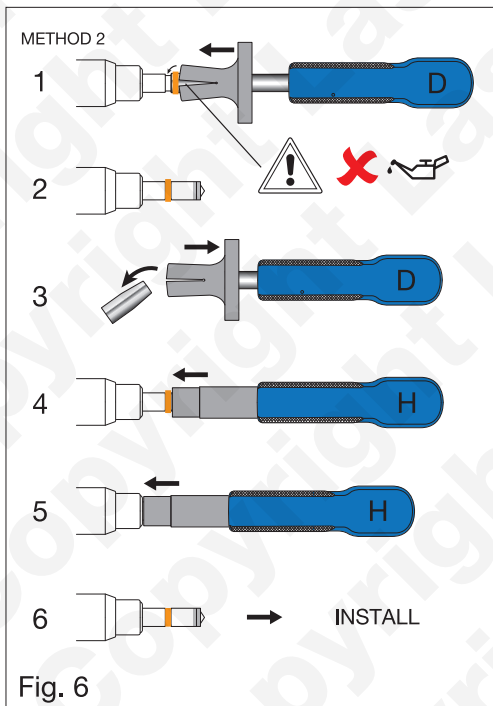


Fig. 5

Refer to Figure 5:

1. Push new Teflon seal onto the installation cone (**B**) using gentle finger pressure. Do not let your finger nails touch the new Teflon seal. **Note:** Do not use any lubrication.
2. Slide the installation cone **B** over the injector, taking care to avoid touching the injector tip. It will stop at the seal recess.

Instructions

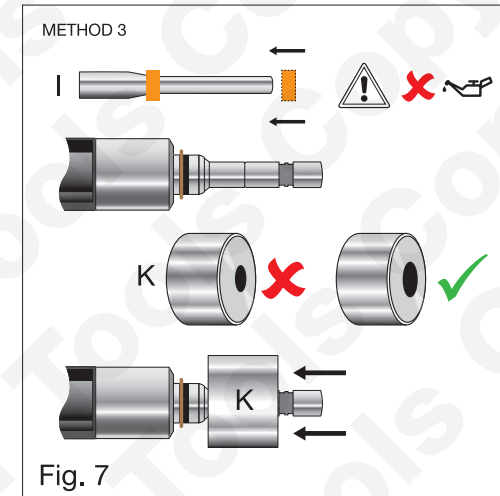


Refer to Figure 6:

1. Use the fitting aid (**D**) to push the Teflon seal into the recess on the injector shaft. Do not use any lubrication.
2. Withdraw the fitting aid **D**.
3. To release the installation cone, pull the collar of the fitting aid **D** back towards the handle.
4. To bring the expanded Teflon seal back to its installation dimension, use the tapered assembly tool (**H**). Do not use any lubrication.
5. Push **H** as far as it will go onto the injector.
6. Remove **H** then install the injector back into the cylinder head within 10 minutes.

Instructions

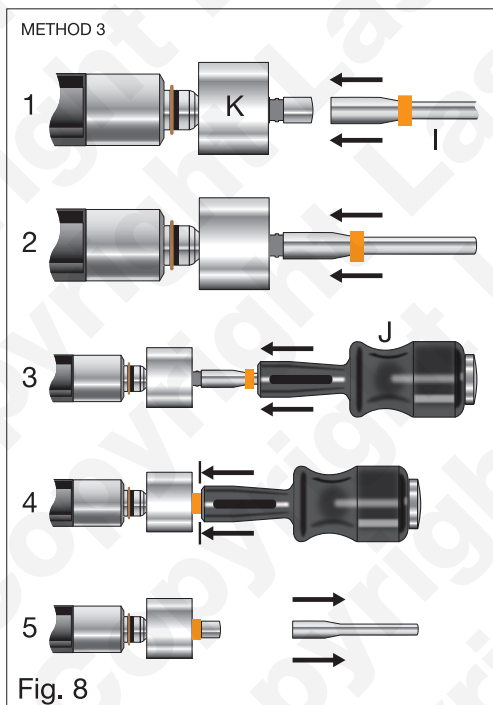
Method 3:



Refer to Figure 7:

1. Push new Teflon seal onto the installation cone (**I**) using gentle finger pressure. Do not let your finger nails touch the new Teflon seal. **Note:** Do not use any lubrication.
2. Place the tapered assembly sleeve No 4 (**K**) onto injector taking care to avoid touching the injector tip. **Note:** the correct installation position — the larger diameter of the sleeve must be facing out, towards the injector tip. If the tapered assembly sleeve No 4 (**K**) is installed incorrectly, the new Teflon seal will be damaged.

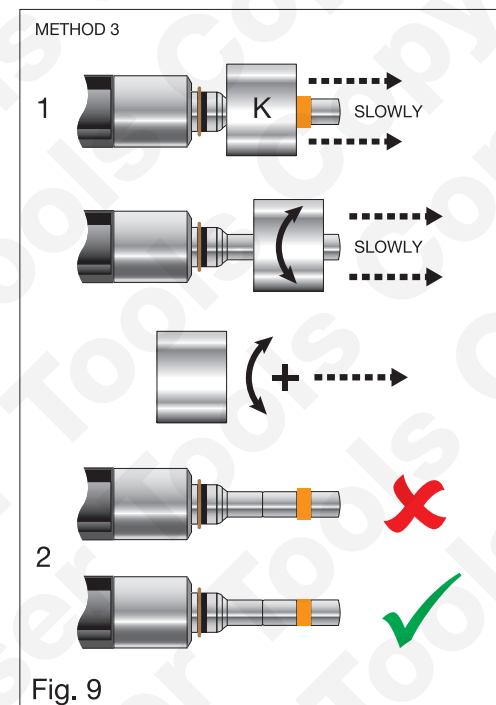
Instructions



Refer to Figure 8:

1. Slide the installation cone (I) over the injector, taking care to avoid touching the injector tip.
2. It will stop at the seal recess.
3. Use the sliding sleeve seal installer (J) to push the new Teflon seal into the seal recess.
4. The sliding sleeve seal installer will stop at the recess placing the new Teflon seal in position.
5. Remove the sliding sleeve seal installer (J) and the installation cone (I).

Instructions



Refer to Figure 9:

1. Check that the new Teflon seal is seated correctly in the recess and can rotate freely. Then, to bring the expanded Teflon seal back to its installation dimension, slowly start to pull off the tapered assembly sleeve No 4 (K), simultaneously rotating the assembly sleeve left-to-right through 180° as it is pulled. Continue in this manner until the assembly sleeve is removed.
2. Check the correct installation of the new Teflon Seal. Install the injector within 10 minutes of removing K.

Precautions

- Refer to manufacturer's guidelines and recommendations for injector installation.
- When fitting a new Teflon seal to the injector, avoid mechanical contact with the injector tip.
- Do not use any lubrication when installing a new Teflon seal.
- Do not use fingernails to slide Teflon seal on.
- When reassembling, it is essential to adhere to screwing sequences and manufacturer's specified tightening torques. Refer to the manufacturer's service documentation.
- Once a Teflon seal has been installed, it may not be re-used.
- Work to conditions of absolute cleanliness when carrying out repair work on a high-pressure fuel system.
- Do not allow any dirt particles or other contamination to get into the system.
- Remove all traces of dirt or contamination before removing fuel lines or other components; clean off the injector shafts.
- Use only lint-free cloths (risk of contamination).
- Seal all fuel system openings with protective plugs or caps.



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