



# ETP Europe srl

## TECHNICAL ADVISE 01 / 2017

### **Concerning 753420-5005S and 49173-07506 Turbosuperchargers for PSA 1.6HDI TURBO S engines 2004+**

#### **CAUTION**

#### **READ CAREFULLY BEFORE INSTALLING THESE TURBO UNITS**

The PSA 1.6 HDi DV6TED4 engine is a highly complex diesel unit with low emissions and high power characteristics. This engine is employed in many different applications: Citroen, Ford, Mazda, Mini, Peugeot and Volvo.

As this engine has been designed to run at high temperature, the use of top quality lubricating oil is absolutely mandatory. Moreover, a filter and a heat exchanger integrated with this filter have been inserted in the oil inlet pipe in order to keep the oil characteristics at their best level. However, some disadvantages arise from this architecture. Some cases occurred which point out that, if the engine has been running with oil level below its normal threshold, high carbon concentration in the oil could occur. This can cause clogging of the filter in the oil inlet pipe, of the oil heat exchanger and of the main oil filter of the engine, resulting in turbo breaking. Also the oil suction pump could be affected by the same carbon deposits dirt.

Due to its very high rotation speed (up to 230.000 rpm) the turbo is the first equipment to be damaged. This can happen already since the vehicle's 40/50.000 km coverage, if the correct oil level has not been constantly kept, or if periodic maintenance replacement or correct procedures have not been duly performed.

Experience shows that carbon deposits in this type of engine are very difficult to be removed.

In order to avoid turbo breaking, the procedures which follow **MUST** be taken into account by the repair shop technicians in addition to the normal mounting instructions.

#### **ABSTRACT from PSA Technical Information about TURBOSUPERCHARGERS 753420-5005S and 49173-07506 for PSA 1.6Hdi engines**

On the engines that show carbon deposits due to gas leakages from the injectors at cylinder head level, before the oil rinsing procedure, the following operations have to be carried out:

- Remove the camshaft upper cap holders ,
- Clean the cylinder head to eliminate the most of deposits, which cannot be flushed away by oil rinsing,
- and restore/repair the engine sealing gaskets of the injectors and their sumps.

After the oil rinsing procedure, it is mandatory to check the engine oil pressure (please, consult Service Box or CITROEN Service for the method to be followed).

Replace the vacuum pump and the oil pump suction rose.

If the turbine nut is missing, it is mandatory to pick it out to prevent the risk of the nut being piped-in by the air suction circuit during the engine start-up.

If possible carry out the oil rinsing with the defective turbo installed. If a breaking risk is there (metal particles which could pass into the inlet or to the oil access towards the exhaust outlet), install the new turbo before the oil rinsing.

Make **a double oil rinsing** with the old suction rose in place, then remove the carter and replace the suction rose. Should rinsing be made with the new suction rose installed, this, on its turn, will have to be replaced again with a new one after the double oil rinsing.

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## **Engine Double Oil Rinsing Procedure:**

### **Step 1 of 3**

- Remove the oil discharge plug, the oil filling plug and the oil dipstick.
- Take down the oil filter.
- Leave the engine dripping for at least 15 minutes.
- Mount again the oil discharge plug with a new gasket.
- Install a new oil filter.
- Fill in **3 liters** of new engine oil of compatible type.
- Add **1 dose** (300 ml) of detergent and rinsing product PSA ref. **PR 9734.S0**.

### **CAUTION**

**It is MANDATORY that the oil + detergent be lower than the maximum admitted by the oil dipstick**

- Mount again the oil filling plug and the oil dipstick.

### **Step 2 of 3**

- Start up the engine and keep it running at 2000 rpm for 10 minutes.
- Let the engine reach a steady running for about 1 minute, and then switch the engine off.
- Remove the oil discharge plug, the oil filling plug and the oil dipstick.
- Take down the oil filter.
- Leave the engine dripping for at least 15 minutes.
- Mount again the oil discharge plug with a new gasket.
- Install a new oil filter.
- Fill in **3 liters** of new engine oil of compatible type.
- Add **1 dose** (300 ml) of detergent and rinsing product PSA ref. **PR 9734.S0**.

### **CAUTION**

**It is MANDATORY that the oil + detergent be lower than the maximum admitted by the oil dipstick**

- Mount again the oil filling plug and the oil dipstick.

### **Step 3 of 3**

- Start up the engine and keep it running at 2000 rpm for 10 minutes.
- Let the engine reach a steady running for about 1 minute, and then switch the engine off.
- Remove the oil discharge plug, the oil filling plug and the oil dipstick.
- Take down the oil filter.
- Leave the engine dripping for at least 15 minutes.
- Mount again the oil discharge plug with a new gasket.
- Install a new oil filter.
- Fill in the recommended oil type and quantity.
- Mount again the oil filling plug and the oil dipstick.

After the double oil rinsing of the engine, the **engine oil pressure must be verified**.

See the vehicle's technical documentation for engine oil pressure checking.

### **Additional Information:**

- 3 liters of engine oil plus 1 dose of detergent (300ml) = oil level at about  $\frac{3}{4}$  of the manual oil level indicator admitted range.

- After performing this procedure, the following engine oil is recommended:

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## **IMPORTANT NOTE**

**The following steps have to be carefully performed during the above procedure**

**1.** It is necessary to respect the 2000 rpm continuous engine running and the relevant 10 minutes of time waiting, in order to achieve a sufficient oil circulation and a correct temperature rise.

**2.** For the rinsing operation, all the oil types allowed for this engine (5W30 C2 / 5W40 A3/B4 / 10W40 A3/B4) can be used to limit the cost.

However, after carrying out the above procedure, before giving the vehicle back to its owner, it is always advisable to employ a 5W30 C2 engine oil.

**3.** Two new oil filters **must** be used in the two oil rinsings above said in order to remove the maximum quantity of dirt and depots.

## **COMPLETION PROCEDURE**

**Precautions to be taken before restoring the vehicle's operating conditions to prime again the oil circuit :**

1. Disconnect the camshaft sensor connector.

2. Make the engine turn by the starter motor for 15 seconds.

3. Reconnect the camshaft sensor connector.

4. Start up the engine: let it run at idle without accelerating for 5 minutes to allow correct pressure to be reached by the turbosupercharger bearings.

5. Shut off the engine and wait for 15 minutes.

6. Check the engine oil level and, if necessary, fill up as needed, without exceeding the correct level.

7. Cancel error codes by the vehicle's diagnostic equipment.

## **NOTE**

**Every turbo unit sent back under warranty claim will be submitted to a technical analysis.**