



This Service Information bulletin supersedes SI B18 03 10 **dated August 2010.**

NEW designates changes to this revision

SUBJECT

M57Y - Fault Code 480A or 481A, No Regeneration of the Diesel Particulate Filter (DPF)

MODEL

E90 and E70 with M57

SITUATION

The Service Engine Soon lamp is illuminated. FC 480A or 481A for particulate filter system blockage is stored in the DDE.

CAUSE

1. Faults with the exhaust system that affect the monitoring of the DPF by the DDE
2. Unfavorable recent driving profile

INFORMATION

During normal driving, there is a continuous regeneration of the diesel particulate filter that takes place at exhaust-gas temperatures between 280 and 350° C (slower oxidation process). The soot particles can only be burned off when the required exhaust-gas temperature has been reached. Under certain driving conditions (i.e., prolonged short trips or an exhaust system which never reaches soot burn-off temperatures), the DPF can become restricted.

The DDE will initiate periodic regeneration automatically, at the latest after 600 miles. In vehicles making many short distance journeys, periodic regeneration takes place after only 250-500 miles.

- The Digital Diesel Electronics control unit evaluates the time for periodic regeneration from the following values:
 - average distance driven
 - average driving speed
 - temperature in the diesel particulate filter
 - values from the exhaust pressure sensor

The DDE initiates the regeneration process by decreasing incoming air by the throttle valve, and one or two post injections are executed. This heats the exhaust-gas temperature to approx. 600°C. When the exhaust temp reaches this point:

- The soot is burned off with the residual oxygen.
- The periodic regeneration is carried out at all speeds.
- Regeneration is most efficient under the following conditions:
 - Speeds above about 60 km/h (approx. 38 mph).

- Constant speed for over 20-30 minutes.

This regeneration of the DPF can also be started through Service Functions in ISTA/D (Test Plan B1363_D7CSFREG-CSF DDE 7.x Service function, regeneration).

Important: Periodic regeneration can only be triggered via the ISTA service functions, if fault codes 480A and 481A are "not present".

Note: The DDE measures the distance travelled since the last regeneration in meters (i.e., 21,670 m corresponds to 21.67 kilometers, or 13.5 miles).

If DPF regeneration cannot be performed successfully, the DPF can become blocked with soot particles restricting exhaust flow. When this restriction happens, fault code 480A (Diesel particulate filter is blocked; exhaust-gas pressure is high) can be stored. Fault code 481A (Diesel particulate filter – filter is heavily blocked, exhaust gas pressure is above maximum) can be stored if prolonged driving occurs after FC480A is stored.

PROCEDURE 1

If it is determined that the faults were not caused by the driving profile, the following points need to be checked.

Induction system:

- Air intake hose - inspect for leak-tightness.
- Charge-air hose - inspect for leak-tightness.
- Air mass system test
- Swirl flaps and exhaust gas recirculation valve; function test

Diesel particulate filter:

- • Exhaust-gas pressure hose to the diesel particulate filter - inspect for leak-tightness/damage.
- • Check the plausibility of the temperature sensors: compare the exhaust temperature sensor upstream of the diesel particulate filter with the exhaust temperature sensor of the catalytic converter. When the exhaust gases are cold, both values should be the same.
- • Check the plausibility of the exhaust pressure sensor (test module).

PROCEDURE 2

Frequent short trips with low speed city-type driving, where the exhaust does not get up to operating temperature, will result in insufficient regeneration. If this prolonged driving profile continues, it will cause the DPF to clog with particulate matter and, eventually, store fault code 480A. If driven further, it will store fault code 481A. A DPF regeneration must be executed via ISTA/D.

Periodic regeneration via the ISTA service function is only enabled under the following conditions:

- Fault codes 480A and 481A have the status "currently not present".
- Engine temperature $>75^{\circ}\text{C}$ (normal operating temperature).
- Exhaust-gas temperature upstream of the diesel particulate filter $>240^{\circ}\text{C}$.
- Sufficient fuel present (fuel reserve lamp is not lit).

- Regeneration is aborted if the fuel reserve lamp lights up.
- No fault code concerning air, exhaust gas, or sensors stored in the DDE.
- A constant travelling speed above approx. approx. 38 mph; a travelling speed above approx. approx. 55 mph is ideal for regeneration. The exhaust-gas temperature increases to above 600° C.
- Successful regeneration takes place at an exhaust-gas temperature above 500° C.

To set FCs 480A or 481A to “currently not present“ the following driving conditions need to be carried out.

- Drive the vehicle for approx. 45 minutes at a constant speed of above approx. 55 mph.
 - 30 minutes for continuous regeneration
 - 15 minutes for periodic regeneration
- In addition, switch on electrical consumers, so that the exhaust-gas temperature remains between 280-350° C.

This allows continuous regeneration to take place because the ideal exhaust-gas temperature will be reached. Continuous regeneration takes place and relieves the diesel particulate filter. The exhaust-gas pressure drops. When the exhaust-gas pressure drops, the fault codes 480A and 481A receive the status "currently not present".

As soon as the fault codes receive the status 480A and 481A "currently not present", automatic, periodic regeneration can take place.

Important:

As soon as regeneration is complete, the distance covered since the last regeneration is reset to 0000000 m. This status is an evidence of a successful regeneration.

Measure the exhaust-gas pressure at the diesel particulate filter after regeneration is completed.

The actual value must correspond with the specified value.

WARRANTY INFORMATION

NEW Covered under the terms of the BMW New Vehicle/SAV Limited Warranty as applicable.

Defect Code:	18 30 00 14 00	
Labor Operation:	Labor Allowance:	Description:
00 00 006*	Refer to KSD2	Performing Vehicle Test
NEW +18 99 000	10 FRU	Perform DPF regeneration

NEW *Main Work – Only one main labor operation (ending with 000-499) may appear on any claim or group of claims (warranty, maintenance or campaigns) that are generated from the same repair visit.

NEW All other labor operations on the same line or other lines must be claimed using plus code labor operations (KSD2 labor operations that have a (+) prefix and the last three digits are 500 or a higher number).

NEW +Associated Work - In this case labor code +18 99 000 only includes the time necessary to complete the specific task(s); it is therefore not considered a main labor operation.