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This Service Information bulletin supersedes SI B12 20 08 **dated June 2008**.

**NEW** designates changes to this revision

#### **SUBJECT**

**N54 - Various Complaints Caused by Aftermarket "Tuning Kits"**

#### **MODEL**

E90, E92, E93 with N54 engine

E60, E61 with N54 engine

E82, E88 with N54 engine

E71 with N54 engine

#### **SITUATION I**

The customer may complain about an excessive muffler noise; "backfiring" into the intake manifold; high (increased) engine oil/fuel consumption; illumination of the "Service Engine Soon Light"; or an excessive battery draw.

**NEW** Fault codes 2D18 or 2D25, "Manipulation protection, max air mass", may be stored in the DME, indicating an implausible airflow. To prevent possible engine mechanical damage due to increased turbocharging pressure, the DME will limit the maximum available torque to the nominal torque value of 400Nm.

#### **SITUATION II**

The customer may complain that the vehicle couldn't pass the state emissions inspection, where scanning of the OBD readiness codes is part of the inspection procedure. The GT1/DIS or aftermarket testing equipment indicates that the EVAP system is a "not supported" function of the vehicle's OBD control system.

Also, various complaints regarding the cruise control being inactive; the battery draw message displayed in the Control Display; or incorrect muffler flap operation may be encountered.

#### **CAUSE I**

An aftermarket engine performance tuning kit, "turbo-tuner control module" (piggyback box), is (or was) installed in the vehicle. Depending on the manufacturer, these modules are plugged directly into the TMAP (Temperature / Manifold Ambient Pressure) sensor or into the DME harness in the E-box. The modified (erroneous) air intake pressure signal supplied to the DME causes an increased turbo boost. In some cases, these modifications also include alteration to the waste-gate vacuum plumbing, which may cause various vacuum supply problems.

#### **CAUSE II**

The vehicle's DME was reprogrammed with an aftermarket "N54 performance software calibration".

As a result, various DME OBD II-relevant diagnostic functions are inoperative, or their functionalities are limited. Examples include diagnostic of the purge system; map-cooling thermostat; engine temperature sensor; oxygen sensors; and the functionality of the evaporation system and exhaust flaps.

#### **INFORMATION**

With the integration level of E89X-08-03-530 or higher (introduced with Progman V29.02.00), any alteration to the TMAP sensor signal ("piggyback box") is detected by setting the DME fault codes **NEW** 2D25/2D18 ("Manipulation

protection, max air mass signal plausibility"). In such a case, the maximum engine torque cannot exceed 400 Nm.

Aftermarket N54 DME software modifications usually do not change either programmed or basic DME part numbers, so it is not possible to identify this alteration via DME identification pages.

In certain cases, the MSD80 DME software modifications can be detected by executing test module "S1214 NG6OBDII/Read codes" (reading of the OBD readiness codes). If the readiness code for the "Fuel Tank Ventilation" shows "XXX" (instead of "yes" or "no"), this is an indication that evaporation system function is not supported by the DME and the original BMW software was altered.

(In this situation, when using the aftermarket scanning tool for checking readiness monitors, the Evaporation System status would be displayed as "Not Supported".)

In such a case, the vehicle is not compliant with the federal (EPA) and state (CARB) emissions anti-tampering laws.

#### **WARRANTY INFORMATION**

Any repair or diagnostic cost incurred by a component and/or system failure as a result of an "N54 aftermarket engine tuning kit" installation is not covered by the terms of the BMW New Vehicle Limited Warranty.

Moreover, modification of the vehicle or installation of any non-approved performance accessories or components attached to the vehicle, which alters the original engineering and/or operating specifications, or which results in damage to the other original components, voids the warranty coverage on the affected original **Drivetrain and Emission Control components**.

In general terms, the BMW warranty on **Drivetrain and Emission Control components** is void due to a modification where the modification, alteration or installation of a non-approved aftermarket part was responsible for the failure.

Please make sure to inform BMW customers considering the purchase of an aftermarket "N54 Engine Tuning" kit of the above legal, technical and warranty implications.