



SI B13 04 09
Fuel Systems

May 2013
Technical Service

This Service Information bulletin supersedes SI B13 04 09 **dated March 2013.**

NEW designates changes to this revision

SUBJECT

N54 Engine: Diagnosis of Cold Start Rough Running with Misfire Faults

MODEL

F01

F02

E82

E88

E89

E90

E92

E93

E60

E61

E71

SITUATION

The customer may complain that during the cold start in the morning, the engine runs very roughly and the Service Engine Soon lamp is illuminated.

Various misfire fault codes (e.g., 29CC, 29D2, 29D1, 29D0, 29C0, 29CF) may be stored in the DME control module.

The engine rough running complaint can be reproduced on a cold start in the workshop. During the course of diagnosis, the spark plugs, removed from the misfiring cylinders after the problem was reproduced, are found to be soaked (“wet”) with fuel, while the injector tips are covered with a layer of carbon deposit.

CAUSE

Possible cause: high-pressure injector failure (leakage or incorrect spraying pattern) due to internal wear or unfavorable stock of tolerances

IMPORTANT:

For comprehensive N54 drivability diagnostics, always refer to the “N54 Engine Diagnostic Fault Tree” file (the current version “02_14_13” is found as a PDF attachment to [SI B12 55 06](#)).

NEW CORRECTION

In the case of reproducible “cold start” rough engine running with corresponding misfire faults, replace all three high-pressure injectors on the bank that is faulted (1-3 or 4-6) using improved P/N 13 53 8 616 079 with index 11 or higher.

For example, if the engine has a misfire on cylinder 1, replace injectors for cylinders 1-3 if those **injectors are not already index 11 or higher**.

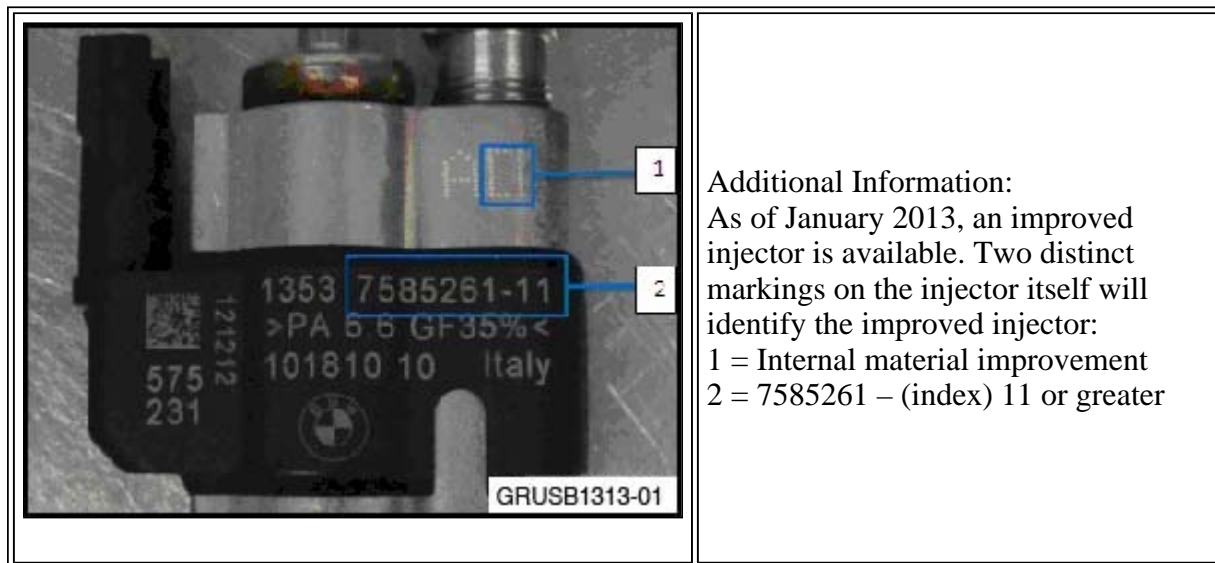
If the **injectors** on that bank are **already index 11 or higher**, only replace the injector on the faulty cylinder.

Use **P/N 13 53 8 616 079** when replacing the injector(s).

Follow Repair Instruction 13 53 310 for injector removal and installation. Additionally, the spark plugs from the misfiring cylinders which were found to be soaked (“wet”) with fuel should be replaced.

After injector replacement, perform the individual injector calibration (adjustment) with the DME control module, per [SI B12 26 08](#).

See the photo below to properly identify the index number.



IMPORTANT: Injectors with index 11 and higher have a different calibration and construction than injectors with index 10 and lower.

Due to this difference, the injectors with index 11 and higher and injectors with index 10 and lower cannot be mixed on the same engine bank (i.e., cylinders 1-3 or 4-6).

Once a bank of injectors is at index 11 or higher, the “bank set replacement” requirement no longer applies. For index 11 injector failures, only replace the failed injector.

Use the DCS Warranty Vehicle Inquiry: See the Repair History (Claims) section to review the prior

injector repairs, if applicable. Click on the “Claim Number” to review each claimed defect code and its corresponding line item details (labor, parts and sublet).

IMPORTANT NOTE:

For N54 misfire fault complaints during normal engine operation (misfire faults not related to the engine’s “cold start”), refer to the following Service Information bulletins:

- [B12 05 09](#) - N54 (E6x) Misfire Faults Due to DME Software Error
- [B12 06 09](#) - N54 (E9x) Misfire Faults Due to DME Software Error

NEW PARTS INFORMATION

Part Number	Description	Quantity
13 53 8 616 079	High-pressure injector (this part number is index 11 or greater)	As required, up to 6

WARRANTY INFORMATION

Not applicable.

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