SI B13 07 12
Fuel Systems

January 2013
Technical Service

SUBJECT
N63 and S63 Engine: High-pressure Fuel Injector Replacement Procedures

MODEL
F01

F02

F04

F07

F10

F12

F13

E70

E71

SITUATION
The customer complains that one of the following scenarios has been encountered while operating the vehicle:

- During a cold start in the morning, the engine runs very roughly and the Service Engine Soon lamp is illuminated.
- During a hot start, the engine runs very roughly and the Service Engine Soon lamp is illuminated.
- While driving or idling, the engine will misfire and the Service Engine Soon lamp is illuminated.
- Various misfire faults are stored in DME fault memory.

CAUSE
An internal failure of the high-pressure fuel injector can lead to incorrect operation.

PROCEDURE
Always diagnose the vehicle using the misfire test plan “AT1214_DI8MISFIRE - Misfiring detection” first.

After completion of this test plan, repair the vehicle as directed before performing any other suggested engine or fuel system-related test plans, e.g., “AT1214_DI8KHDR - High-pressure fuel system”, “AT1214_DI_GEM - Mixture adaptation”, etc.

If applicable, injector test plans “B1214_DI8INJ1_4 – Injectors, cylinder 1-4” or “B1214_DI8INJ1_8 – Injectors, cylinder 5-8” state to perform service function “AS1214_DI8IGS (injector equalization),” when completed.

Note: Performing the injector equalization is not intended for vehicles with the N63 engine. This is a diagnostic software error that can be ignored. This error will be repaired in ISTA/D 2.35.

When the ISTA system message displays: Battery voltage only “XX.XX” V. Please connect charger. Please note the displayed battery voltage reading in the repair order comments section. This documentation is not necessary when part of an approved Technical Service repair procedure; the battery charger is required to be attached before performing the Vehicle Test.

Failure to diagnose the engine or fuel system issues in this order can cause an incorrect diagnosis and repeated repair attempts.

1. Terminate the diagnostic session and proceed to step 2.

2. Remove the spark plugs and inspect them for over-fueling; compare the color and smell.

    a. If at least **one of the spark plugs appears to be wet with fuel,** replace all eight (8) high-pressure fuel injectors.

    b. If **none of the spark plugs are wet with fuel,** proceed to the next step.

3. Perform the applicable test plan for the misfire fault stored.

    If a misfire fault is not stored but a reproducible customer complaint does exist (e.g., rough running shaking, loss of power, etc.), perform the misfire test plan “AT1214_D18MISFIRE – Misfiring detection”.

    Follow the procedure below to locate and start the Misfire test plan.

    Select “Function Structure.”

    Select “01 Engine.”

    Select “Engine electronics, quality control valve (MSV).”

    Select “Misfire Detection.”

    Select “Start search.”

    Select “AT1214_D18MISFIRE – Misfiring detection.”

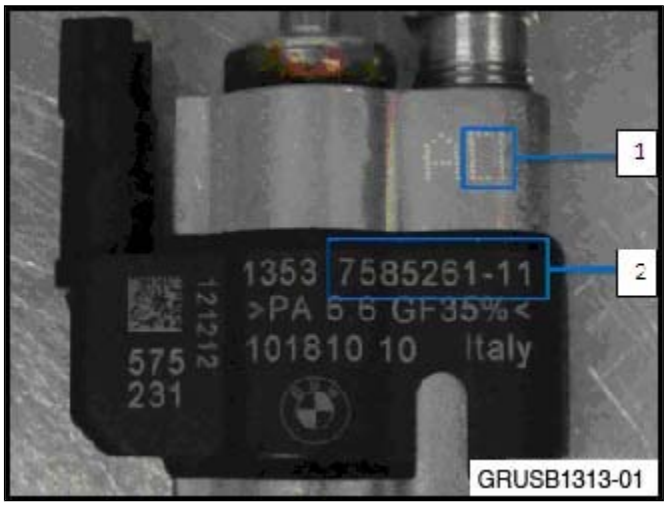
4. Perform each step of the test plan as directed.

5. In order to bypass the fuel system test plans you must answer **“YES”** to the following question in the Misfire test plan:

    “Has troubleshooting on the following function or component group been conducted in response to a misfire fault?”

6. At the conclusion of the test plan the following question may be displayed “Have injectors already been replaced due to misfires within the last 4 months? Select **“NO”** and continue.

7. The following screen will advise the replacement of all 8 injectors. Use P/N 13 53 8 616 079 when replacing all 8 injectors.



Additional Information:
As of January 2013, an improved injector is available. Two distinct markings on the injector itself will identify the improved injector.
1 = Internal material improvement
2 = 7585261 – (Index) 11 or greater
The injector improvements consist of an internal filter and a optimized thermal compensating oil.

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 in the same engine.

PARTS INFORMATION

Part Number	Description	Quantity
13 53 8 616 079	Piezo injector	8
Refer to EPC	Spark plugs	8 (when applicable)

WARRANTY INFORMATION

Covered under the terms of the BMW New Car/SAV Limited Warranty or the BMW Certified Pre-Owned Program.

Specific eligible repairs **may** also be covered by the terms of the Federal, State or BMW Emissions Warranty.

To determine if any **applicable** Federal, State or BMW Emissions Warranty coverage applies **prior** to performing repairs, please see SI B01 02 11 for “Emissions Warranty Coverage” and refer to the “Glossary of Emission Coverage” attachment for more information.

The BMW Certified Pre-Owned Limited Warranty applies to BMW CPO vehicles that are still within the BMW Certified Pre-Owned Limited Warranty, but beyond Emissions Warranty coverage that applies.

Defect Code:	**13 53 22 15 00**	**Procedure Step 6A and 6B**
	or	
	13 53 22 48 00	**Procedure Step 2A Only**

Note: Please ensure to select and use the correct corresponding defect code listed above to avoid claim processing delays.

Labor Operation:	Labor Allowance:	Description:

00 00 006	Refer to KSD2	Performing “vehicle test” (with vehicle diagnosis system – checking faults)
and if necessary, also		
61 21 528	Refer to KSD2	Charging battery
and		
61 00 006	Work Time	Performing vehicle diagnosis – test module.

Labor operation code 00 00 006 is a main labor operation. If you are using a main labor code for another repair, use the plus code labor operation 00 00 556 instead.

Even though work time labor operation code 61 00 006 ends in “006,” it is not considered a Main labor operation.

Work time (WT) labor operation 61 00 006 requires an individual punch time.

and

Performing Procedure Steps # 1 and #2 (The misfire” test plan advises you to perform any “fuel system” test plans)

Labor Operation:	Labor Allowance:	Description:
12 12 521	Refer to KSD2	Replacing all spark plugs (to inspect their condition as outlined in Procedure Steps # 2A/2B)

and

E70, E71, F01 and F02

Labor Operation:	Labor Allowance:	Description:
13 53 585	Refer to KSD2	Removing and installing or replacing all fuel injectors in the injection system injectors.

or

F04, F07, F10, F12 and F13

Labor Operation:	Labor Allowance:	Description:
13 53 719	Refer to KSD2	Replacing all fuel injectors in the injection system.

Refer to KSD2 for the corresponding flat rate unit (FRU) allowance. Enter the Chassis Number, which consists of the last 7 digits of the Vehicle Identification Number (VIN). Click on the “Search” button, and then enter the applicable flat rate labor operation in the FR code field.

Other Repairs

If performing other ISTA diagnostics and their related test plans results with **eligible and covered work,** claim this work with the applicable defect code and labor operations listed in KSD2.

Note: Please follow any TeileClearing (TC) or Diagcode (DC) requirements that may apply to this additional work.