



This Service Information bulletin supersedes SI B12 55 06 **dated January 2011**

NEW designates changes to this revision

SUBJECT

N54: Diagnosis for DME FC 29DC/29F2/2FBF and Extended High-pressure Fuel Pump (HDP) Warranty Coverage

MODEL

E90, E92 with N54 produced from 06/06

E93, E60, E61 with N54 produced from 03/07

E82, E88 with N54 from start of production

E71, X6 with N54 from start of production

E89, Z4 with N54 from start of production

F01, F02 with N54 from start of production

SITUATION I

The customer may complain of:

- Excessive cranking time before the engine starts (5-6 seconds) on a cold start or after a hot soak.

In most cases, diagnosis shows fault code 2FBF as the only fault stored in the DME with SES lamp illumination.

SITUATION II

The customer may complain of the following:

- “Vehicle loses power while driving” or “Vehicle runs poorly”.
- The Service Engine Soon lamp may be illuminated.

Diagnosis shows fault code 29DC (Cylinder injection cut-out, pressure too low in high-pressure system) and/or 2FBF (Fuel pressure on-release injection, pressure too low), and in some cases, also in conjunction with 29F1 (Fuel high-pressure, plausibility) and 29F2 (Fuel high-pressure, fuel pressure undershot).

In some cases, misfire faults for various cylinders (e.g., FC 20D1, 29CF, 29D2, 29CE, 29D0, 29CC) are also stored in MSD80/MSD81.

CAUSE

Possible causes may include:

- Sensitivity of injection pump (HDP) diagnostic software

- Internal failure of a High-pressure Injection Pump (HDP)
- Failure of an electric fuel pump or a clogged fuel filter
- Failure of the low or high-pressure sensors
- Defective fuel pressure check - valve/fuel pressure regulator
- Failure of a volume control valve
- Defective fuel injector
- Intermittent electrical connection problem (wire and/or connector) in the fuel delivery system.

CORRECTION FOR SITUATION I

For E90, E92, E93, E60, E61, E82, E88, and E71 vehicles where the customer complains of “Long Cranking Time” and fault code 2FBF is stored in the DME with the SES illuminated, proceed as follows:

1. Use the current ISTA diagnosis software (2.22 or higher).
2. While observing the fuel pressure, activate the electric fuel pump for 20 seconds, using ISTA and the diagnostic query function (after the vehicle test, select Control unit tree; DME; Call ECU functions; Diagnostic query; and Low pressure fuel pump with activation).
3. Immediately after electric pump activation, the pressure must reach at least **4.75 bars**.
4. If the minimum threshold of **4.75 bars** was not reached, further diagnose the low-pressure system using test module **B1214_DI KDR**, Fuel Pressure Control (possibly defective electric fuel pump or fuel filter/pressure regulator).
5. If the minimum threshold of **4.75 bars** was reached, reprogram the vehicle with the current ISTA P version (**ISTA/P 2.40.2** or higher). The target integration levels should be:

E90, E92 and E93 – E89x-10-12-503 or higher

E60 and E61 – E060-10-12-501 or higher

E82 and E88 – E89x-10-12-503 or higher

E71 – E070-12-501 or higher

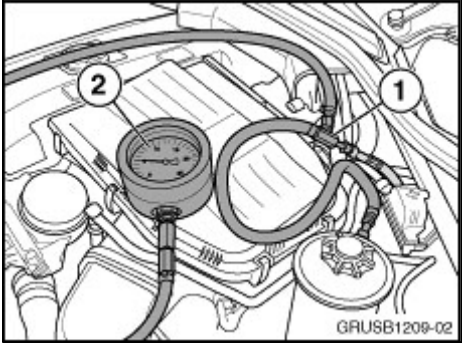
6. IMPORTANT:

When programming vehicles equipped with the MSD81 DME, make sure that the **DME control module is marked for programming** in the measure plan (yellow mark in the control module tree and a “P” symbol). If the DME is not marked, you have to select it manually for programming in the control module tree (click on the module and mark the “program” checkbox), and then determine the measures plan.

7. After programming the DME programmed number should be **“7626000”** or higher.
8. After programming, readapting the DME by means of a short test drive is recommended:
 - Bring the engine to the normal operating temperature.

- Drive the vehicle at a speed of between 50-60 mph and engine speeds of 2,000-3,000 rpm for approximately 3 minutes (use manual gear shifting, if needed).
- Let the engine idle for approximately 5 minutes.
- If possible, to confirm repair effectiveness, let the vehicle sit overnight and cold start it the next morning. Then let it idle for approximately 5 minutes.

For E89 vehicles where the customer complains of “Long Cranking Time” and only the fault code 2FBF is stored in the DME with the SES illuminated, proceed as follows:

	<ol style="list-style-type: none"> 1. Install a calibrated manual fuel pressure gauge (e.g., P/N 83 30 0 491 260 pressure gauge from the K-L-Jetronic special tool kit P/N 83 30 0 491 259), connected with the three-way adapter tool 135 270, into the low-pressure fuel supply line as follows: <ul style="list-style-type: none"> #1 – Three-way adapter tool (135 270) #2 – Pressure gauge P/N 83 30 0 491 260
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2. Use the current ISTA diagnosis software (2.22 or higher).
3. While observing the fuel pressure on the gauge, activate the electric fuel pump for 20 seconds, using ISTA and the component activation function (after the vehicle test, select Control unit tree; DME; Call ECU functions; Component activation; and Fuel pump).
4. Immediately after electric pump activation, the pressure read from the manual gauge must reach at **least 4.75 bars**.
5. If the minimum threshold of **4.75 bars was not** reached, further diagnose the low-pressure system using test module **B1214_DI KDR**, Fuel Pressure Control (possibly defective electric fuel pump or fuel filter/pressure regulator).
6. If the minimum threshold of **4.75 bars was** reached, reprogram the vehicle with **ISTA/P 2.40.2** (or higher). The target integration level should be E89x-10-12-503 or higher

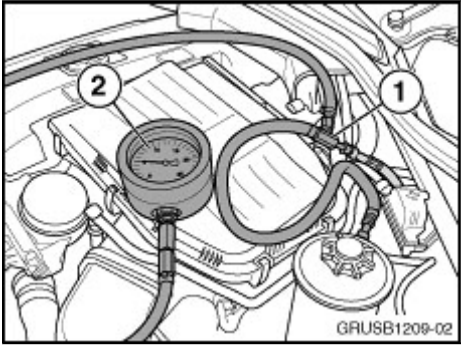
After programming, readapting the DME by means of a short test drive is recommended:

- Bring the engine to the normal operating temperature.
- Drive the vehicle at a speed of between 50-60 mph and engine speeds of 2,000-3,000 rpm for approximately 3 minutes (use manual gear shifting, if needed).
- Let the engine idle for approximately 5 minutes.
- If possible, to confirm repair effectiveness, let the vehicle sit overnight and cold start it the next morning. Then let it idle for approximately 5 minutes.

CORRECTION FOR SITUATION II

For E90, E92, E93, E60, E61, E82, E88, E89, and E71 vehicles where the customer complains of “Losing power when driving”, fault codes 29DC/2FBF and/or 29F1/29F2 are stored in the DME with the SES illuminated; proceed as follows:

1. Use the current ISTA diagnosis software. Perform test module **B1214_DI KDR** (Fuel Pressure Control).

	<ol style="list-style-type: none"> 2. IMPORTANT: perform this step ONLY FOR E89 (Z4) vehicles (not equipped with the low fuel pressure system sensor): Prior to execution of the High-pressure test module, install a calibrated manual fuel pressure gauge (e.g., P/N 83 30 0 491 260 pressure gauge from the K-L-Jetronic special tool kit P/N 83 30 0 491 259), connected with the three-way adapter tool 135 270, into the low-pressure fuel supply line as follows: #1. – Three-way adapter tool (135 270) #2. – Pressure gauge P/N 83 30 0 491 260
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3. Perform all applicable steps of the High-pressure Fuel test module B1214_DI KDR. Pay attention to all questions being displayed during diagnosis and answer them correctly. Important Note:

Important Note:

When comparing the measured fuel pressure with the engine running at idle speed, make sure to let the fuel pressure stabilize for approximately 60 seconds prior to the final reading. Otherwise, an implausible value (around 150 bars) is going to be entered into the test, resulting in inaccurate diagnosis (defective high-pressure pump).

4. After completion of all diagnostic steps, end the test module and enter the “fault feedback” screen. Enter the result of a diagnosis process into the Diagnosis Code dialog box and obtain a “Diagnostic Code”. In case no failure can be currently detected in the high-pressure fuel system, enter the last option “No fault found” into the dialog box.

IMPORTANT DIAGNOSTIC HINT:

In certain cases, the HDP fault may be reproduced only when the engine is under load. In order to replicate the complaint, it may be necessary to road-test vehicle with the manual fuel pressure gauge installed. The excessive low-pressure fuel fluctuation (between 5.0 and 7.0 bars) would indicate incorrect operation of the fuel delivery system.

5. **NEW** For additional comprehensive N54 drivability diagnostic information, refer to the “**N54 Engine Diagnostic Fault Tree**” (the current version “05_03_13” is attached to this bulletin).
6. Make sure that **FASTA data is transmitted** after the completion of all appropriate test modules.

7. **IMPORTANT:**

Starting on November 1st, 2010, TC authorization is NOT required for the HDP pump replacement. For details related to the “N54 Fuel System TC Action”, refer to SI B13 08 09.

8. If the High-pressure Fuel Pump needs to be replaced, use the updated part P/N 13 51 7 613 933, which incorporates the latest improvements to internal sealing. For the pump replacement procedure, refer to REP 13 51 017.

Note:

The repair instructions have been updated with the release of the special tool P/N 83 30 0 496 939. The special tool accommodates easy removal of the engine harness block, located under the intake manifold. Consequently, the removal of the intake manifold is no longer necessary when replacing the HDP on the N54 engine.

9. After replacement, clear the adaptation values of the high-pressure flow control valve in the DME by selecting the path:
 - Activities / Service Functions
 - Drive
 - Motor Electronics
 - Adjustment Programs
 - Delete Adaptations / variants, and then Test plan
 - Reset adaptive values.

10. **IMPORTANT NOTE:**

In addition, vehicles which have had the HDP pump replaced have to be reprogrammed afterwards with **ISTA/P 2.40.2 (or higher)**. The target integration levels should be:

E60 and E61 – E060-10-12-501 or higher

E82, E88, E89, E90, E92, and E93 – E89x-10-12-503 or higher

E71 – E070-10-12-501 or higher

IMPORTANT:

When programming vehicles equipped with the MSD81 DME, make sure that the **DME control module is marked for programming** in the measure plan (yellow mark in the control module tree and a “P” symbol). If the DME is not marked, you have to select it manually for programming in the control module tree (click on the module and mark the “program” checkbox), and then determine the measures plan. After programming, the DME programmed number should be **“7626000”** or higher.

11. After programming, readapting the DME by means of a short test drive is recommended:

- Bring the engine to the normal operating temperature.
- Drive the vehicle at a speed of between 50-60 mph and engine speeds of 2,000-3,000 rpm for approximately 3 minutes (use manual gear shifting, if needed).
- Let the engine idle for approximately 5 minutes.
- If possible, to confirm repair effectiveness, let the vehicle sit overnight and cold start it the next morning. Then let it idle for approximately 5 minutes.

PARTS INFORMATION

Part Number	Description	Quantity
13 51 7 613 933	HDP High-pressure Fuel Pump	1
13 53 7 582 770	ASA bolt M8x17.5	1

NEW WARRANTY INFORMATION

FOR SITUATION I (Long crank with FC 2FBF) corrected with programming (no HDP replacement is required):

Covered under the terms of the BMW New Vehicle Limited Warranty, or the Certified Pre-Owned Program for the causes listed above except those that result from a clogged fuel filter.

Defect Code:	10 11 00 06 00	
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

E60, E61, E71, E82, E88, E89, E90, E92 and E93

Labor Operation:	Labor Allowance:	Description:
61 00 710	Refer to KSD2	Programming / encoding control unit(s) (not including CAS)
or		
61 00 720	Refer to KSD2	Programming / encoding control unit(s) (with CAS)

or

F01 and F02

Labor Operation:	Labor Allowance:	Description:
61 00 730	Refer to KSD2	Programming/encoding control unit(s)

Additionally for E89 (Z4)

Labor Operation:	Labor Allowance:	Description:
13 99 000	8 FRUs	Work time for the fuel pressure test, including installation of the mechanical pressure gauge

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.

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.

Even though work time labor operation code 13 99 000 ends in “000,” it is not considered a Main labor operation.

If a control module was working properly and/or had no related faults stored prior to vehicle programming and it fails to program correctly or requires initialization, this additional work must be claimed with separate labor operations under the defect code listed above; refer to KSD2.

FOR SITUATION II (HDP replacement and where reprogramming may also be required): Starting on November 1st, 2010, TC Part Replacement Authorization is NOT required for the HDP pump replacement.

IMPORTANT:

As a commitment to our customers and to demonstrate confidence in our product, BMW will extend the emissions warranty of the High-pressure Fuel Pump (HDP) of MY 2007, MY 2008, MY 2009 and MY 2010 E60, E61, E90, E92, E93; MY 2008, MY 2009 and MY 2010 E82 and E88; MY 2009 and MY 2010 E89 and E71 vehicles equipped with the N54 engine from 4 years or 50,000 miles to 10 years or 120,000 miles, whichever comes first (refer to [SI B13 03 09](#)).

The High-pressure Fuel Pump (HDP) 10 year/120,000 mile warranty supersedes any applicable coverage provided under the BMW Certified Pre-Owned program or any BMW Group Vehicle Service Contract in effect.

This component’s warranty extension applies to the **below-listed models only** and is transferable. It is applicable to eligible vehicles that are registered and operated in all 50 states and Puerto Rico.

The existing warranty coverage for all other parts **has not** changed.

BMW is informing all affected owners of their extended High-pressure Fuel Pump warranty.

The following Warranty information should be used if High-pressure Fuel Pump (HDP) replacement becomes

necessary on **MY 2007, MY 2008, MY 2009 or MY 2010 E90, E92, E93, E60, E61, E82, E88, E89 or E71** vehicles equipped with N54 engines as outlined above:

The first performance of an eligible High-pressure Fuel Pump (HDP) repair is to be submitted as outlined below (defect code and labor operations).

All subsequent repairs are then covered either by:

- The remaining time of the BMW Original Parts Warranty (24 month) coverage period (refer to KSD2 for the defect code and labor operations); or
- The remaining time or mileage of the extended coverage period (whichever occurs first, for repairs beyond the BMW Original Parts Warranty (24 month) coverage period. Submit as outlined in the Warranty Information section below (defect code and labor operations).

Defect Code:	13 51 90 12 00	
Labor Operation:	Labor Allowance:	Description:
00 58 272	Refer to KSD2	Diagnose and replace HDP pump. Delete DME fault codes/adaption values.

Labor operation code 00 58 272 is a Main labor operation. If you are already using a Main labor code for another repair; use the Plus code labor operation 00 58 912 instead.

Programming and Encoding Vehicle

If reprogramming with **ISTA/P 2.40.2 (or higher)** after HDP replacement is also required:

Labor Operation:	Labor Allowance:	Description:
00 59 005	Refer to KSD2	Diagnose and replace HDP pump. Delete DME fault codes/adaption values. Reprogram vehicle (without CAS)

Labor operation code 00 59 005 is a Main labor operation. If you are already using a Main labor code for another repair; use the Plus code labor operation 00 50 531 instead.

or

Labor Operation:	Labor Allowance:	Description:
00 59 006	Refer to KSD2	Diagnose and replace HDP pump. Delete DME fault codes/adaption values. Reprogram vehicle (with CAS)

Labor operation code 00 59 006 is a Main labor operation. If you are already using a Main labor code for another repair; use the Plus code labor operation 00 50 532 instead.

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.

If a control module was working properly and/or had no related faults stored prior to vehicle programming and it fails to program correctly or requires initialization, this additional work must be claimed with separate labor operations under the defect code listed above, refer to KSD2.

ATTACHMENTS

View PDF attachment [**B125506 N54 Engine Diagnostic Fault Tree 05 03 13.**](#)

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