



This Service Information bulletin supersedes SI M12 02 10 **dated June 2010**.

NEW designates changes to this revision

SUBJECT

Cooper S with N14 – Diagnosis for Misfire Faults

MODEL

R55, R56, and R57 with the N14 engine

SITUATION

The Service Engine Soon (MIL) lamp is illuminated; the engine runs rough with any of the following misfire faults stored in the DME:

- 2771, 2772, 2773, 2775, 2776, 2777, 2779, 277A, 277B, 277D, 277E, 277F – "Combustion misfire, cylinder 1..4", together with
- 2781, 2782, 2783 – "Combustion misfire, multiple cylinders"

CAUSE

Multiple causes related to electrical and mechanical engine components.

Possible clogging of the injector tips is causing a disturbance of the fuel spaying pattern.

CORRECTION

1. Perform ISTA/D test plan "B1214_M_Misfiring detection".
2. In the first step of the Misfire Test Plan, when answering the question: "If this procedure was interrupted in order to carry out the testing procedures for VANOS, Fuel High Pressure System; should this testing procedure be resumed following a fault tree check?", select **"NO"**.
3. Follow all the diagnostic steps of the test plan. Perform necessary repairs as needed.
4. At the conclusion of the test plan, if the root cause of the misfire fault was not clearly indentified, follow the plan's final recommendation: "If the fault cause is not found with this testing procedure, restart **this testing procedure and skip the previous steps in the process**".
5. Start the "B1214_M_Misfiring detection" test plan again.

In the first step of the Misfire Test Plan, when answering the question: "If this procedure was interrupted in order to carry out the testing procedures for VANOS, Fuel High Pressure System; should this testing procedure be resumed following a fault tree check?", select **"YES"**.

6. Follow all diagnostic steps of the test plan. Perform necessary repairs, as needed.

7. Ignore the test recommendation to use the "Ultrasound injector cleaner".
8. Instead, perform the in-rail injection cleaning using the approved **"BMW Group Fuel Injection and Induction System Cleaner"**, following the attached procedure. The injection cleaning Application Kit (P/N 82 14 0 429 692) has been shipped via the Automatic Tool Shipment Program to every MINI dealer. Refer to SI M04 07 07 for complete details.

Note: Make sure to complete the "B1214_M_misfire detection" test plan, and include the diagnostic code generated by the test module into the warranty claim.

9. Advise the customer that it is necessary to add one bottle of the BMW Group Fuel System Cleaner Plus, P/N 82 14 0 413 341 (provided free of charge at the time of releasing the vehicle), with either TOP TIER Detergent Gasoline or premium fuel with a minimum octane rating of AKI 91, the next time the vehicle is refueled.

NOTE:

For optimum cleaning, advise the customer to add one bottle every 3,000 miles when refueling. Refer to SI M13 05 06, "BMW Fuel System Cleaner Plus", for a full explanation of the product benefits.

10. **NEW Important:** On vehicles equipped with **manual 6-speed transmissions ONLY**, after completion of the injection cleaning process, check the vehicle's integration level. If the integration level is R056-09-12-520 or lower, reprogram the complete vehicle using the current ISTA/P version (target integration level R056-10-03-500 or higher). The new DME calibration software includes optimized injection timing strategy as well as an increased operating pressure (up to 100 bar), improving the injector's operation.

NOTE:

Currently, **do not conduct the reprogramming step on Cooper S/Clubman S vehicles equipped with the ASIN F21 automatic transmissions**. The updated DME software with drivability improvements will be released in the near future.

11. After the repairs are completed, perform a function check and clear the fault memory entries.

IMPORTANT NOTE:

The in-rail injection cleaning is covered under warranty only in the case of existing drivability problems (misfires with rough running and SES light illuminated).

Additionally, MINI USA recommends that this service be performed yearly (on a customer-pay basis) on N14 vehicles which currently do not exhibit the negative harmful effects of carbon build-up, to maintain MINI's dynamic performance and maximize fuel economy.

NEW IMPORTANT DIAGNOSTIC HINT:

If the misfire faults and engine rough running during cold start occur on N14 vehicles with relatively low mileage (below 6,000 miles), it is highly unlikely that carbonization of the injectors is the root cause of the problem.

Make sure to carefully evaluate the misfire faults' environmental conditions from the ISTA/D diagnosis, paying close attention to the HPP fuel high-pressure readings. Excessively low fuel pressures recorded in misfire faults' environmental conditions (below 1 MPa) would indicate an intermittent failure of the High-pressure Pump, which may not be detected when using the current ISTA/D HPP fuel high-pressure system test plan.

PARTS INFORMATION

Part Number	Description	Quantity
82 14 0 428 376	Fuel injection and induction system cleaner concentrate	1
82 14 0 413 341	BMW Group Fuel System Cleaner Plus	1

* See Warranty sublet information

WARRANTY INFORMATION

Covered under the terms of the MINI New Vehicle Limited Warranty, or the MINI Next Certified Pre-Owned Program.

Defect Code: 13 53 22 48 00

Labor Operation:	Labor Allowance:	Description:
13 99 000	10	Cleaning the injectors and the combustion chambers

NEW For Cooper S/Clubman S vehicles with manual 6-speed transmissions ONLY, if reprogramming is required:

In cases where ISTA requires the replacement of control modules or additional programming because certain control modules failed to program correctly, print out the Measures Plan and Final Report and attach these reports to the RO in the vehicle file. This additional work should be claimed under the defect code listed in this bulletin, using the labor operation and labor allowance from the KSD2.

Labor Operation: Labor allowance to reprogram/recode vehicle

Refer To KSD2** Refer to KSD2

Sublet code 4*

* Reimbursement may be charged to sublet code 4 for 300 ml of the concentrated cleaner (P/N 82 14 0 428 376) and one bottle of Fuel System Cleaner PLUS (P/N 82 14 0 413 341) required to perform this repair. Claiming for more than the amount listed above or claiming outside of sublet code 4 will result in a delayed or denied claim payment.

**Main Work - use this labor operation number when this is the only repair being performed, or if this is the main repair when performed along with other repairs at the same time. If this is not the main repair, refer to KSD for the associated (+) labor operation code.

ATTACHMENTS

view PDF attachment

M120210_N14_Direct_Injection_and_Combustion_Chamber_Cleaning_Procedure.

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