



This Service Information bulletin supersedes SI B61 13 05 **dated April 2011.**

**NEW** designates changes to this revision

#### **SUBJECT**

**NEW** **Discharged Battery: Energy Diagnosis Must Be Performed**

#### **MODEL**

**NEW** .

E82

E88

E89

E90

E91

E92

E93

E60

E61

E63

E64

E70

E71

E72

E65 produced from 3/2004

E66 produced from 3/2004

#### **SITUATION**

**NEW** The electrical system of BMW vehicles has been subject to an ongoing development process over the last few years. This has led to increased demands being placed on the battery. This document covers

important information for the dealer on how to handle “discharged battery” complaints.

**NEW** A discharged battery can have various causes, most of which do not concern the battery itself. A failed battery is often the symptom and not the cause. A fully serviceable battery fails when an electrical component causes the battery to discharge; the battery becomes internally damaged and must be replaced. For more information, refer to [www.batteryuniversity.com/parttwo-42B.htm](http://www.batteryuniversity.com/parttwo-42B.htm) For this reason, replacing the battery is not usually a permanent repair. The cause of the discharged battery must be analyzed in order to guarantee a proper repair.

**In order to properly repair the vehicle the first time in the workshop, it is very important that the diagnostic test plans are performed to completion with all results taken into consideration. The procedure as outlined below contains information that will guide the technician into properly repairing the vehicle and getting paid for a warranty claim.**

### CAUSE

Refer to the “Procedure” section of this Service Information for details.

### PROCEDURE

**NEW** With the introduction of ISTA 2.33 or later, the Energy Diagnosis test plan will now indicate if the battery is “aged” (**This only applies to vehicles equipped with the IBS - Intelligent Battery Sensor**).

**NEW** If Energy Diagnosis indicates the “Most likely cause - battery is aged,” the test plan:

- **NEW** Will prompt you to replace the battery; and
- **NEW** Provide the applicable DIAGCODE.

**NEW** In this case, a Midtronics’ Battery Tester printout **is not** needed.

**NEW** For all other cases, the Energy Diagnosis test plan will always provide a DIAGCODE based on the **results** of the diagnosis.

**NEW** Vehicles that **do not have** IBS:

- **NEW** Still **require** an Energy Diagnosis procedure **and** the Midtronics Battery Tester to test the battery.
- **NEW** The Energy Diagnosis will **not** provide a “specific battery” replacement DIAGCODE. However, the test plan will provide the technician a “Most likely cause” result for why the battery was discharged.

**NEW** **Please do not submit diagnosis feedback information for these non-IBS equipped vehicle cases.**

The two exceptions to the DIAGCODE rule are:

- Battery damage and leakage
- Use of mobile service and battery replacement to restore customer drivability as soon as possible. In the case of a battery replacement during a roadside repair, a subsequent service appointment

needs to be scheduled for the customer, in order to perform an energy diagnosis to locate and address the cause of the battery failure, as well as to register the replacement battery.

**NEW** Only use the latest diagnostic software when diagnosing discharged battery complaints.

For F10 vehicles and later models with advanced on-board battery diagnostics please refer to [SIB61 02 11](#).

**NEW** For all other models, “Energy Diagnosis” must be performed on all discharged battery complaints. At the conclusion of the “Energy Diagnosis” test plan, a diagnostic code is generated. **The exceptions are for “Exhaustive Battery discharge” test plan results or “Terminal 30g-f shutdown due to start capability limit,” which are displayed for informational purposes only and would not display a diagnostic code. In these cases, the most likely cause is a faulty battery, and this can be determined by the Midtronics battery tester.**

**NEW** In order to get paid for a defective battery claim, the “Energy Diagnosis” test plan must be completed in its entirety. The results of the test plan provide the reason for a discharged battery and show a **DIAGCODE** at the conclusion of the test plan; this code must be included in the "Comments" section when submitting a warranty claim.

## 1. Fault analysis (Energy Diagnosis)

There are currently two paths to access the energy diagnosis test plan:

- If a power management fault is stored, ISTA will select the energy diagnosis test plan automatically.
- The test plan can also be selected manually: “Function structure>Body>Power supply>Energy Diagnosis”.

Note: The vehicle must have a discharged battery before Energy Diagnosis can be performed. Also, fault codes must not be deleted.

Once the test plan has finished the number [1] “**Most Likely Cause**” is automatically displayed if any are calculated by the test plan. Finish the test plan by processing all the “Most Likely Causes”, starting from [1]. For purposes of diagnosis and warranty, the number [1] cause should be diagnosed and the other listed causes should be used for informational purposes. This is because the stored energy history is calculated over the last 3,000 kilometers, and the most recent cause of a discharged battery is listed under [1]. If no “Most Likely Causes” are calculated, the results screen will be displayed: “Most Likely Cause (0)”, diagnostic code is undetermined.

As an example:

Most Likely Causes listed

[1] Closed-circuit current is too high

[2] Terminal 30g-f shutdown due to start capability limit

[3] Side Lights/Parking lights left on too long

In this example, “closed-circuit current too high” should be diagnosed and the other 2 causes should be used for informational purposes. Even though an operating fault is listed under number [3], the most likely cause is listed as a vehicle fault.

Possible “Most Likely Causes” are:

### Some examples of vehicle faults

- **NEW** Battery fault (aged battery – only on IBS-equipped vehicles)
- Alternator fault
- Vehicle is not entering sleep mode
- Vehicle is constantly awoken from sleep mode
- Closed-circuit current is too high
- Exhaustive battery charge (**for information only**)
- Terminal 30g-f shutdown due to start capability limit (**for information only**)
- Undetermined

### Some examples of operating faults

- Lights/hazard warning lamps left on for too long
- **Terminal R/15 left on for too long (this fault may also be set when the vehicle is in the workshop)**

**Except for the vehicles listed below, the fault is set when the engine is off and terminal 15/R is left on for more than 30 minutes; and the power supply drops below 11.5 volts for at least 2 minutes. The amount of time that terminal 15/R is left on is accurate.**

- E65 and E66 (7 Series)
- E90, E91, and E92 (3 Series) prior to 3/07
- E60 and E61 (5 Series), vehicle integration level prior to E060-07-09-500
- E63 and E64 (6 Series), vehicle integration level prior to E060-07-09-500
- E70 (X5) prior to 3/07
- Vehicle parked for too long

A functional description of Energy Diagnosis and terminal control, together with troubleshooting information, can be found in the Energy Diagnosis test module.

On certain vehicles (E70 and E71 vehicles produced prior to 6/30/2009), general information is displayed at the end of the energy diagnosis test plan, prompting to physically check the battery.

The message displayed is as follows: **“The 90 Ah AGM battery which was originally fitted in the factory may have lost capacity prematurely. The following vehicles are affected: European national-market version, production date before 31.03.2009 US national-market version, production date before 30.06.2009. Do the letters "US" appear after the manufacturer's number (see example below) on the battery label? Example of serial number and manufacturer's number on the battery label: BMW S: 61 21 7 551 331158 558-10”.**

After checking the battery, complete the test plan recommendations. If the battery needs to be replaced after inspecting the battery label, note the DIAGCODE. This special situation is considered a warranty matter, regardless of the energy diagnosis results or Midtronics print-out.

## 2. Closed circuit current measurement

Refer to [SI B61 08 00](#), Closed Circuit Current Measurement, for the procedure and troubleshooting hints.

Refer to the ISTA functional description for further information. Use the following path to access this information:

- All except E65 and E66: Function structure>Body>Power supply>Deactivation, closed circuit current violation
- E65 and E66: Function structure>Body>Power supply>Voltage and current monitoring>Closed-circuit current performance>Closed-circuit current diagnosis.

## 3. Checking the charging system

Refer to SI B04 25 02 for information on how to test the charging system.

## 4. Checking the battery condition

Refer to [SI B61 11 09](#) for information on how to test the battery.

Refer to the ISTA functional description for further information. Use the following path to access this information: Function structure>Body>Power supply>Alternator.

## 5. New battery registration

Registration of the new battery is necessary, using the ISTA service function. If the new battery is not registered, erroneous messages (check control) may appear.

Use the following path to register the new battery: “Service function>Body>Power supply>Battery>Register battery change”. Follow the test plan instructions.

**NEW** If a new battery is installed, the “Energy Diagnosis” test plan should be completed prior to registering the new battery. When the battery is registered, the stored energy history is deleted. This may cause the vehicle to return if the root cause of the discharged battery is not determined.

## 6. Recharging the battery

Refer to [SI B61 11 09](#) for information on how to recharge the battery.

### **NEW** WARRANTY INFORMATION

In order to claim an eligible faulty battery either under the BMW New Vehicle/SAV Limited Warranty or the BMW Original Parts Warranty (In-center workshop repairs), the Energy Diagnosis test plan must be performed to completion.

When required, a Midtronics' Battery Test procedure must also be performed. The Midtronic battery tester printout(s) must be retained with the repair order.

To assist you in determining the warranty coverage on a battery, please refer to the following guidelines:

#### **Covered under warranty,**

- A diagnostic code is generated for a vehicle fault
- A diagnostic code is undetermined
- A diagnostic code is generated for an operating fault such as unfavorable driving profile (e.g., driven extremely short distances) and the Midtronics battery tester or Energy Diagnosis results indicate the battery needs to be replaced.

A "Stand-alone" faulty battery is claimed using the battery defect code listed in KSD2.

#### **Other Repairs**

If it is determined that some other **covered** vehicle fault and repair caused the battery to fail, the failed battery is to be claimed under the KSD2 defect code that applies to the failed (casual) component or repair (e.g. Alternator, permanent failure).

#### **Not covered under warranty,**

- A diagnostic code is generated for an operating fault such as leaving the lights on, vehicle parked too long, battery not maintained etc.

[ Copyright © 2012 BMW of North America, LLC ]