



This Service Information bulletin supersedes SI B61 08 00 **dated January 2014.**

NEW designates changes to this revision

SUBJECT

Closed-circuit Current Measurement

MODEL

All

NEW SITUATION

Closed circuit current needs to be measured.

Excessive closed-circuit currents may occur continuously or intermittently, and may cause the battery to discharge prematurely.

NEW CAUSE

The increase in closed-circuit current may be caused by a faulty control unit, or by the installation of a non-approved accessory.

NEW INFORMATION

In a situation where a vehicle has broken down due to a discharged battery, for diagnostic purposes it is important to not disconnect the battery. This is because a control unit will be reset if the battery is disconnected. Following a reset, the faulty control unit may start functioning correctly again, making accurate diagnosis impossible.

To correctly measure closed-circuit current, the 50-amp clip-on probe (previously used with the IMIB) or the 100-amp clip-on probe can now be used in conjunction with the IMIB (Integrated Measurement Interface Box) to properly diagnose closed-circuit current problems over an extended period of time. Connect the amp clip-on probe directly to the IMIB Measurement input 3 (green socket).

NEW PROCEDURE

Note: It is very important that any “Power management” faults stored be diagnosed and corrected, and the “Energy Diagnosis” test plan carried out before the following procedure is performed. Only perform this procedure if closed-circuit current violations are listed in the “Most Likely Cause” list.

1. Check and test the battery using the BMW Battery Tester. Refer to SI B 04 25 02 for information about the BMW Battery. Refer to [SI B61 02 11](#) for vehicles equipped with advanced onboard battery diagnostics that do not require the BMW Battery Tester. If necessary, recharge or replace the battery.
2. **If the battery is installed in the trunk**, open the trunk and turn the lock to the locked position, using a screwdriver or similar (simulates the trunk lid being closed). **The hood must be closed.****If the battery is installed in the engine compartment**, open the hood and

pull the front lid contact switch fully up, and lock in this position (workshop position, simulates the front lid being closed). **The trunk must be closed.**

3. With the exception of the trunk/hood above, all other doors/lids must be closed.
4. In order to simulate normal closed-circuit conditions:
 - Turn the ignition on and activate all electrical consumers, including any accessories. Turn the ignition off. In some cases, a drive cycle may need to be carried out in order to duplicate a closed-circuit current problem.
 - Open and close the driver's door (simulates somebody getting out).
 - Lock the car, arming the DWA if this is installed.
5. Measure closed circuit current.

In general, closed-circuit current consistently over 50mA must be investigated. Depending on the vehicle's equipment, closed-circuit current by vehicle model is approximately as follows:

E31	50 milliamps after 16 minutes
E32	50 milliamps after 16 minutes
E34	40 milliamps after 16 minutes
E36, Z3	30 milliamps after 16 minutes
E38	50 milliamps after 16 minutes
E39	40 milliamps after 16 minutes
E46	40 milliamps after 16 minutes
E60, E61, E63, E64	40 milliamps after 60-70 minutes
E65, E66	40 milliamps after 60-70 minutes
E53	40 milliamps after 16 minutes
E70, E71, E72	40 milliamps after 60-70 minutes with TCU (30 minutes without TCU)
E83	40 milliamps after 16 minutes
E82, E84, E88	40 milliamps after 60-70 minutes with TCU (30 minutes without TCU)
E90, E91, E92, E93	40 milliamps after 60-70 minutes with TCU (30 minutes without TCU)
E85	40 milliamps after 16 minutes
E89	40 milliamps after 60-70 minutes with TCU (30 minutes without TCU)
E52	50 milliamps after 16 minutes

All F-Series vehicles	9-22 milliamps after 30 minutes
NEW G12	9-22 milliamps after 8 minutes Refer to ISTA FUB-FB-610011-K15 for specific testing procedures

6. If the nominal milliamp reading is not achieved after the appropriate time, refer to the attached troubleshooting charts.

Note: On 2005 MY vehicles equipped with BMW ASSIST, there are additional current fluctuations as high as 500ma that last for approximately 2 minutes. The fluctuations occur every 15 minutes for up to 14 hours after key off. This is considered normal operation of the TCU, and should not be considered a fault. This also applies to 2005 TCUs that are installed into earlier production vehicles as replacement parts.

- E60, E63, E64 Closed-Circuit Current Troubleshooting E6x up to 9/05 production
- E60, E61, E63, E64 Closed-Circuit Troubleshooting E6x from 9/05 production
- E65, E66 Closed-Circuit Current Troubleshooting up to 3/04 production
- E65, E66 Closed-Circuit Current Troubleshooting from 3/04 production
- Normal closed-circuit current values for E65, E70, E60, E61, E63, and E64

CLOSED-CIRCUIT CURRENT MEASUREMENT WITH THE IMIB:

Note: This technique with an IMIB is particularly suitable for extended measurements, and provides a graphical readout of recorded measurements over time. It is recommended for situations where the use of a multimeter provided insufficient information for problem diagnosis.

1. The IMIB can be accessed from any ISID within the workshop.
2. Select “Activities”.
3. Select “Measuring devices”.
4. Select from the “Level 1” column, “Measuring devices”, and then “OK”.
5. From the “Connection manager” screen, select the free IMIB and “Set up connection”.
6. The “Measures devices” screen opens on the “Multimeter” tab.
7. Select the “Oscilloscope” tab.
8. Highlight the “CH1” tab to activate channel 1.
9. Under channel 1, “Source,” scroll with the arrows to select “Clip-on probe 50A” or “Clip-on probe 100A.”
10. Make sure that the clip-on probe is not connected to the battery cable, and acknowledge the pop-up message with “OK.” The calibration of the clip-on probe is very important, and must be as close to 0 as possible. If the clip-on probe cannot be calibrated, it must be replaced in order to ensure a proper measurement. Refer to the Parts Information section of this Service Information bulletin for the latest clip-on probe part number.

11. Change the “A/Div” setting to “1A”.
12. Under the “Time” selection box, change the “Time/Div” setting based on the number of measurements needed (5 ms to 200 s). The longer times should be selected when performing the measurement over an extended period.
13. Select “CH 1” under “Cursor” to monitor the actual readings.
14. Select “Record” if performing long term measurements.
15. After performing the measurement, select “Record” again; the display will change to “Compress” and display the recorded data on the 1 screen.

PARTS INFORMATION

Part Number	Description	Quantity
81 38 0 431 590	Clip-on probe 100A	1

WARRANTY INFORMATION

Not applicable.

ATTACHMENTS

View PDF attachment [B610800 Troubleshooting E6x from 9 2005.](#)

View PDF attachment [B610800 Troubleshooting E65 from 3 2004.](#)

View PDF attachment [B610800 Troubleshooting E6x up to 9 2005.](#)

View PDF attachment [B610800 Troubleshooting E65 up to 3 2004.](#)

View PDF attachment [B610800 Normal Closed Circuit Current Values.](#)

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