

Battery charge state

All models

Situation:

Due to the battery self-discharging and the vehicle's off-load current (if the battery has not been disconnected from the vehicle circuit), the vehicle's battery will slowly but continuously discharge.

If a long time passes without the battery being recharged, it will eventually result in concealed damage. This will lead to early battery failure.

To prevent damage to the battery, measures are being taken throughout the entire distribution chain (transport mode, battery charging calendar, etc.) to ensure that the battery always has a sufficient charge state.

With the new power management system from vehicle F01, the following battery charge state displays will be generated in the instrument cluster (Check-Control message) when transport mode is set:



Vehicle battery OK.

Continue to recharge the battery on store and compound vehicles regularly in accordance with the battery charging calendar.

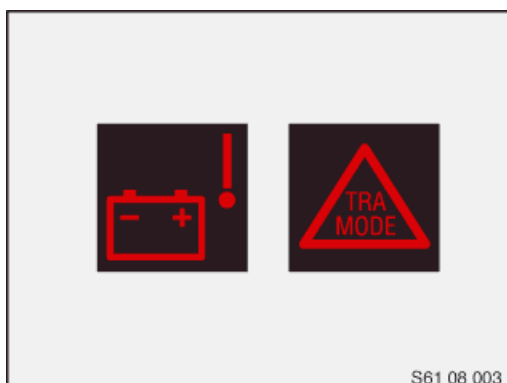


Battery charge state insufficient.

Recharge the battery without delay.

Important!

If a new vehicle is delivered through distribution chain with this display, this must be recorded in the truck delivery note and/or haulier handover report.



Vehicle battery damaged.

During the pre-delivery check before the vehicle is handed over to the customer renew the battery in accordance with instructions given by the BMW diagnosis system and register the battery replacement with the corresponding service function.

Important!

If a new vehicle is delivered through distribution chain with this display, this must be recorded in the truck delivery note and/or haulier handover report.

Important!

Determine the cause of the fault with the BMW diagnosis system and perform test module energy diagnosis promptly:

- If a fault is detected in the vehicle electrical system (preventing sleep mode, unauthorised reactivation, off-load current violation, alternator fault): reimbursement via warranty.

- If a handling error is determined (side lights / parking lights left on, terminal 15 on): reimbursement in the same way as for transport damage.

Reimbursement via warranty is fundamentally not possible if a handling error is determined. For this reason, vehicles must be checked on handover through the distribution chain.

Battery master document

All model series

Situation: 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 summarises all important information about how the battery should be handled in the dealership.

Procedure: The complaint "flat battery" can have various causes, most of which do not concern the battery itself. For that reason, replacing the battery will only very rarely provide a permanent solution to the problem. The cause must be properly analysed in order to perform a repair that actually rectifies the cause.

Below you will find list of the available auxiliary materials. These must be worked through step-by-step to investigate the problem. The documents listed can be accessed via hotspots.

1. Fault (cause) analysis (energy diagnosis)

Fundamentally, the following causes are possible for a breakdown resulting from a flat battery or problems in the vehicle's electrical power supply:

Vehicle faults

- Battery defective / alternator fault
- Vehicle does not "go to sleep"
- Vehicle keeps being woken up
- Excessive standby current

Operating error

- Side lights/parking lights/hazard warning flashers left on too long
- Terminal R/15 left on too long

Unreasonable driving/usage profile

An unreasonable driving profile (e.g. extremely short distances) or an unreasonable usage profile (.e.g. too long immobilisation period, use of auxiliary consumers) represents a very frequent cause of running down the battery without there being a fault with the vehicle or battery.

If in these cases the battery is not charged sufficiently during driving, a charger must be connected during the immobilisation period (recommended chargers with cable permanently connected to battery, see BMW Group Parts).

Attention!

Do not connect the chargers to the 12 V charging socket on the vehicle side. The vehicle electrical system is thus prevented from "going to sleep" and the battery from being discharged.

The installation of a larger battery or an AGM battery can be used to rectify this (if an AGM battery has not yet been installed).

Customers who have no option to connect a charger to their vehicle during the immobilisation period are recommended, as the only alternative in reaching a state of charge that is too low, to travel distances of at least 10 km.

For the following vehicles the energy diagnosis test module must be worked through in the event of the complaint "flat battery":

- 03 Body
- Voltage supply
- Energy diagnosis

Note:

The aim of energy diagnosis is to identify the most probable cause for a breakdown caused by a flat battery or for problems in the vehicle's electrical power supply. The causes listed above are stored in energy diagnosis.

To enable the applicant to use the correct defect code, make sure that both the customer's statement and the diagnosis results are adequately documented. These must be made available to the applicant.

An on-board diagnosis is available to evaluate the battery condition of vehicles with intelligent battery sensor (IBS) or battery electronics (lithium ion battery):.

The following criteria are analysed to evaluate state of charge:

- Capacity loss
- Charge balance
- Complete discharges
- Operational energy capacity through automatic engine start-stop function (MSA)
- Water loss

For vehicles with automatic engine start-stop system, if this function is not fully available:

Important!

The prerequisite for invoicing a battery through the warranty channel is to work through the test module.

Energy diagnosis through to the diagnosis result:

- Displaying of cause
- Displaying of help instructions
- Displaying of corresponding diagnosis code

Exceptions are:

- Obvious battery damage and leakage
Use the correct defect code in such situations (61 21 00 49 or 61 21 00 01).
- Use of BMW Group Mobile Service and battery replacement on site to restore customer mobility as quickly as possible.

2. Measure standby current.

Perform [closed-circuit current test of the 12 V battery](#) under the following path:

- Body
- Voltage supply
- Standby current

3. Check alternator.

Perform alternator test under following path:

- Complete vehicle
- Power train
- Voltage and current control
- Voltage and current generation

4. Battery replacement

Only the AGM battery may be installed.

New battery must be registered via the diagnosis system.

Important!

If the new battery is not registered, incorrect readings may appear in the display of the on-board computer due to previous data in the power management system (check control message "Recharge battery" appears even though the battery is new).

5. Battery charging

5.1. AGM battery charging

- The battery may only be recharged by means of chargers that have been approved by BMW and that have a constant charging voltage of **14.8 V**.
- If possible, the battery temperature should be between 15 °C and 25 °C during charging. Under these preconditions, the battery is adequately charged when the charge current drops below 2.5 amps.
- If the battery is recharged at lower temperatures, the process should not be ended until the charge current drops below 1.5 amps.
- On vehicles with IBS, recharging the battery directly at the battery terminals could lead to a misinterpretation of the battery condition and even unwanted Check Control messages or fault entries.
- If the battery is recharged while it is installed, it must be recharged using the jump start terminal points, whenever jump start terminal points are provided in the engine compartment. Only then can you be sure that recharging is correctly recognised by the vehicle electronics on vehicles with intelligent battery sensor (IBS).

5.2 Charging the lithium ion battery

Important!

The charging voltage that is generated by existing chargers that are designed for the lead-acid or AGM battery is too high for the lithium ion battery.

This excessive charging voltage may **in some cases** result in that **the separating switch** of the lithium ion battery **will be opened**. **This does not damage the lithium ion battery**. The separator switch will close again when a charging voltage of < 14 V is applied at the battery terminals.

[Before charging a lithium ion battery, adjust the charging voltage of existing charger adapters once.](#)

- The battery may only be recharged by means of chargers that have been approved by BMW and that have a constant charging voltage of **14.0 V**.
- If possible, the battery temperature should be between 15 °C and 25 °C during charging. Under these preconditions, the battery is adequately charged when the charge current drops below 2.5 amps.
- Do not charge lithium ion battery when temperature is below 5 °C!
- The lithium ion battery can be charged via **the jump start terminal points** in the engine compartment **as well as directly on the battery terminals**.

6. Charging the high-voltage battery

[Notes on charging the high-voltage battery on standing vehicles \(new and used cars\)](#) PHEV

7. Additional publications of the subject of "Batteries"

[AGM battery - brief component description](#)

[Notes on AGM battery](#)

[Information on intelligent battery sensor \(IBS\)](#)

[Notes on lithium ion battery](#)

[Notes on battery electronics \(lithium ion battery\)](#)

[Battery recharging intervals for stationary vehicles, battery charging calendar and battery tag](#)

12-V battery, high-voltage battery unit

[Battery log form](#) (not for USA)

[{Battery Log Form}](#) (for USA only)

Battery recharging intervals for booth vehicles, battery charging calendars and battery tags (12-V battery, high-voltage battery unit)

All models

Situation: Due to the self-discharging of the battery (12-V battery, high-voltage battery unit) and vehicle standby current (if the battery was not disconnected from the vehicle electrical system), the vehicle battery will be discharged slowly, but continuously.

If the battery is not charged up for an extended period of time, it will be damaged. This will result in a premature battery failure.

Measure: It is necessary to regularly recharge these batteries to maintain the quality of batteries of warehouse or standing vehicles.

Procedure: Recharging intervals:

12 V battery

All vehicles:

- 12-V battery connected to the vehicle electrical system: **6 weeks**

All vehicles without Plug-in Hybrid (Plug-in Hybrid Electric Vehicle):

- Continuous disconnection of the 12-V battery from the vehicle electrical system by removal of the ground cable to the 12 V battery or by switching off of the fitted battery master switch, if installed:
12 weeks

High-voltage battery units:

- Plug-in-hybrid (PHEV): [as required](#)

The recharging intervals follow the battery charging calendar.

Recharge when the colour of the calendar week on the battery calendar matches the colour of the battery tag. Battery tags are located on all new vehicles' interior mirror.

N.B.:

1. Since different systems are used by distribution channels for documentation, it is not always clear whether the battery was actually recharged during the week that is indicated. Therefore all recharge procedures must also be documented on the battery tag on the interior mirror (write date of recharge with a smudge-proof pen and confirm that the work has been carried out with your signature next to the date). The battery tag remains in the vehicle until the vehicle is handed over to the customer and is then filed with the vehicle records.
2. Dealers who store the vehicles externally (e.g. at freight forwarding businesses) are responsible for making sure that the batteries for these vehicles are recharged according to the battery charging calendar.
3. For vehicles in show rooms, the battery tags must be placed in the glove box. In the case of an increased draw on the charge (e.g. when doors are opened, the radio is turned on, electrical seat adjustment is operated), much shorter recharging intervals are required on these vehicles (e.g. every night) so that a total battery discharge is reliably avoided. It is however better to provide for charge compensation by means of a permanent support charge in the showroom.

[Trickle charger](#)

Parts:

[Battery log form](#) (not just for USA)

[{Battery Log Form}](#) (for USA only)

Description

Part number

Quantity

Battery tag, coloured

whisky	01 89 9 781 424	as needed
sun yellow	01 89 9 781 425	as needed
emerald	01 89 9 781 426	as needed
california blue	01 89 9 781 427	as needed
brick red	01 89 9 781 428	as needed
Grey	01 89 9 781 429	as needed

Automatic engine start-stop function

Automatic transmission, twin-clutch gearbox

Situation: As a "BMW EfficientDynamics" measure, the automatic engine start-stop function (development code: Automatic Engine Start-Stop = MSA) helps to reduce fuel consumption and CO₂ emissions. The combustion engine is switched off and on automatically under certain conditions.

Vehicles concerned: The automatic engine start-stop function will be phased in as from 04/2010 in connection with the twin-clutch gearbox in the M3 (E9x) and automatic transmission in the F04.

Note:

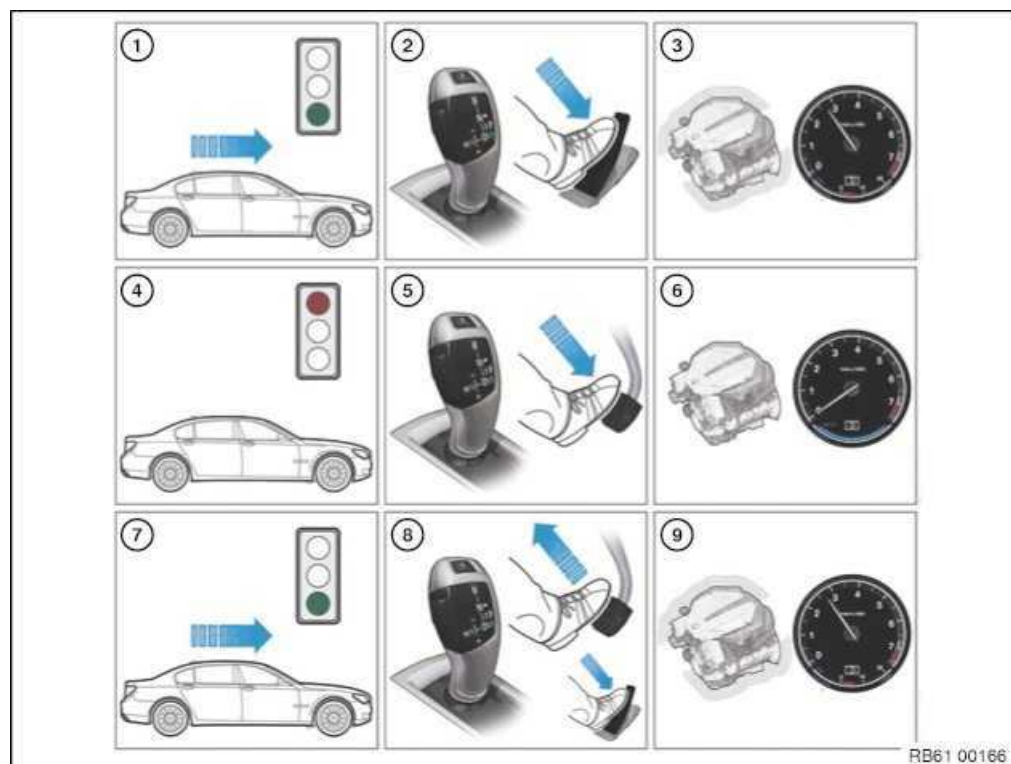
The automatic engine start-stop function is also installed as standard on these vehicles.

Procedure: *Note:*

The following description only deals with variations and special features compared to the automatic engine start-stop function already known for the manual gearbox. Further detailed information on the automatic engine start-stop function can be found in the following documents:

- [Safety information](#) for working on vehicles with automatic engine start-stop system (MSA)
- Service Information "Automatic engine start-stop function (manual gearbox)", [SI number 610107335](#)
- Functional description [Automatic engine start-stop function \(MSA\), 2nd generation](#)

Functional sequence ASSF (automatic engine start-stop function)



Index	Explanation	Index	Explanation	Index	Explanation
1	Vehicle moving.	2	Gear selector switch in position "D". Driver presses accelerator pedal.	3	Combustion engine running.
4	Vehicle is decelerated down to standstill.	5	Gear selector switch remains in position "D". Driver presses the brake pedal to decelerate and bring the vehicle to a standstill.	6	Combustion engine is switched off after 1 second. Rev counter shows "0".

7	The driver wishes to resume the journey.	8	Gear selector switch remains in position "D". Driver takes foot off brake pedal and then presses the accelerator pedal.	9	Combustion engine starts up.
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Prerequisites of an automatic engine shutdown

The automatic engine start-stop function will only stop or start the engine if certain prerequisites are met.

Engine shutdown

The engine is switched off when:

- The vehicle is stationary (speed < 0 km/h).
- The engine speed is virtually at idle speed.
- The vehicle has been driven at > 10 km/h since the engine was last shut down.
- The vehicle has been driven at 10 km/h since the last change at terminal 15.
- The brake is pressed.
- Steering wheel movement is not moved. Steering wheel must be aligned straight.

Engine start

The engine is started automatically when:

- Brake pedal is released or the accelerator pedal is pressed.

Note:

The aforementioned criteria apply only to the automatic engine start-stop function, in other words, not if the engine has been switched off with the SST (START-STOP button).

Switch-off inhibitors and switch-on prompts

Besides its main function of propelling the vehicle, the internal combustion engine has to provide other auxiliary functions.

These auxiliary functions are necessary for maintaining operating safety and convenience functions and complying with emissions requirements.

Certain prerequisites are therefore governed by switch-off inhibitors and switch-on prompts, either preventing the engine from being shut down or prompting an engine restart.

Note:

The customer should be alerted to possible switch-on prompts (engine starts without customer's intervention)!

Switch-off inhibitors

The engine continues running although the vehicle is at standstill and held with the brake pedal.

The following preconditions act as switch-off inhibitors and prevent the engine from shutting down:

- Engine adaptation (e.g. cylinder adjustment)
- Regeneration of the diesel particulate filter
- Carbon canister needs purging
- Insufficient knock resistance of fuel
- Engine fault
- Engine coolant temperature
 - below a defined value (depending on engine version approx. 20 - 60 °C)
 - above a defined value (depending on engine version approx. 100 - 130 °C)
- Automatic transmission not ready
 - Gearbox adaptation active
 - Drive position "S", "M", "N", "R"
- Driving surface incline too great
- Assist system active (Active Cruise Control, Parking Assist, Hill Descent Control)
- Stop-and-go driving
- Last MSA stop was too long

- Air conditioning requirements:
 - Automatic air conditioning: MAX AC button pressed
 - Automatic air conditioning: Defrost button pressed (request to defrost the windscreen)
 - Air conditioning system: high blower speed and low blower temperature, compressor button pressed
 - Air conditioning system: high blower speed and air distribution directed to windscreen, compressor actuated
 - Ambient temperature $\leq 3\text{ }^{\circ}\text{C}$
- Engine speed $> 1200\text{ rpm}$
- Battery condition:
 - State of charge too low
 - Measured battery state of charge not plausible
 - Battery temperature too high (approx. $50\text{ }^{\circ}\text{C}$)
 - Starting voltage drop from previous ASSF start too low
- Vehicle rolling

Hybrid cars:

- High voltage power management: Temperature too low or too high
- Load on vehicle electrical system too high
- High-voltage battery unit: State of charge too low or too high
- Hybrid system fault

Switch-on requesters

The following preconditions result in an engine start:

- Vehicle starting to roll
- Steering wheel turned
- Switching the drive position (to "S", "M", "N", "R" with automatic transmission; "S", "D", "N", "R" with DKG; "N", "R" with DKG M3 US version)
- Power management: State of battery charge too low, battery temperature too high, power requirement of active electrical loads too high
- Air conditioning requirements - cooling
- Partial vacuum in brakes not low enough

Hybrid cars:

- High voltage power management: Temperature too low or too high
- Load on vehicle electrical system too high
- High-voltage battery unit: State of charge too low or too high
- Hybrid system fault

Safety requirements

Following preconditions **deactivate** the automatic engine start-stop function:

- Engine compartment lid is raised.
- Driver leaves vehicle: Secured by door contact, seat belt buckle and brake pedal
- Vehicle towed away
- Ignition key is no longer detected
- MSA button
- Battery not learned (battery data may be lost after changing the battery, disconnecting the battery or programming the engine control)

Note:

Renewed starting is always possible via the start/stop button.

Important!

Even if the seat belt is not fastened and the bonnet is open, the engine can still start if the vehicle's speed exceeds 5 km/h .

ASSF button

Note:

No Start/Stop button is fitted in the F04. On this vehicle, the automatic engine start-stop function is an integral part of the high voltage system.

New generation ASSF button:



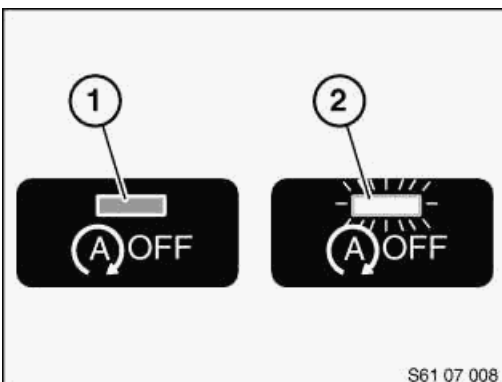
The ASSF button (2) is arranged below the Start/Stop button.

The automatic engine start-stop function can be deactivated manually with the ASSF button (2). The automatic engine start-stop function is activated with every terminal change (terminal 15 on) and with the engine stationary or if the ASSF button (2) is pressed repeatedly.

ASSF button on the M3 (E9x):



On the M3, the ASSF button (1) is integrated in the centre console control panel (2).



Pressing the ASSF button:

ASSF button not pressed (1) - LED off

ASSF button pressed (2) The Auto Start Stop function is deactivated at the customer's request - LED on.

The Auto Start Stop function is active each time the engine has been restarted.

Notes for Service department

The Auto Start Stop function will only operate in certain conditions.

The function includes an automatic feature that examines the safety and comfort-based conditions that govern an engine start or engine stop.

Note:

In the event of customer queries, always check these prerequisites against the [Checklist in](#)

Battery charge state

All models

Situation:

Due to the battery self-discharging and the vehicle's off-load current (if the battery has not been disconnected from the vehicle circuit), the vehicle's battery will slowly but continuously discharge.

If a long time passes without the battery being recharged, it will eventually result in concealed damage. This will lead to early battery failure.

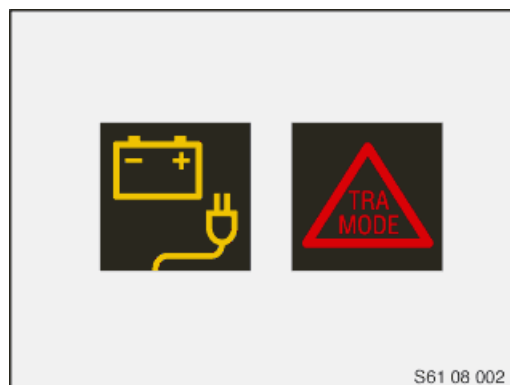
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With the new power management system from vehicle F01, the following battery charge state displays will be generated in the instrument cluster (Check-Control message) when transport mode is set:



Vehicle battery OK.

Continue to recharge the battery on store and compound vehicles regularly in accordance with the battery charging calendar.



Battery charge state insufficient.

Recharge the battery without delay.

Important!

If a new vehicle is delivered through distribution chain with this display, this must be recorded in the truck delivery note and/or haulier handover report.



Vehicle battery damaged.

During the pre-delivery check before the vehicle is handed over to the customer renew the battery in accordance with instructions given by the BMW diagnosis system and register the battery replacement with the corresponding service function.

Important!

If a new vehicle is delivered through distribution chain with this display, this must be recorded in the truck delivery note and/or haulier handover report.

Important!

Determine the cause of the fault with the BMW diagnosis system and perform test module energy diagnosis promptly:

- If a fault is detected in the vehicle electrical system (preventing sleep mode, unauthorised reactivation, off-load current violation, alternator fault): reimbursement via warranty.

- If a handling error is determined (side lights / parking lights left on, terminal 15 on): reimbursement in the same way as for transport damage.

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All model series

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1. Fault (cause) analysis (energy diagnosis)

Fundamentally, the following causes are possible for a breakdown resulting from a flat battery or problems in the vehicle's electrical power supply:

Vehicle faults

- Battery defective / alternator fault
- Vehicle does not "go to sleep"
- Vehicle keeps being woken up
- Excessive standby current

Operating error

- Side lights/parking lights/hazard warning flashers left on too long
- Terminal R/15 left on too long

Unreasonable driving/usage profile

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If in these cases the battery is not charged sufficiently during driving, a charger must be connected during the immobilisation period (recommended chargers with cable permanently connected to battery, see BMW Group Parts).

Attention!

Do not connect the chargers to the 12 V charging socket on the vehicle side. The vehicle electrical system is thus prevented from "going to sleep" and the battery from being discharged.

The installation of a larger battery or an AGM battery can be used to rectify this (if an AGM battery has not yet been installed).

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For the following vehicles the energy diagnosis test module must be worked through in the event of the complaint "flat battery":

- 03 Body
- Voltage supply
- Energy diagnosis

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The aim of energy diagnosis is to identify the most probable cause for a breakdown caused by a flat battery or for problems in the vehicle's electrical power supply. The causes listed above are stored in energy diagnosis.

To enable the applicant to use the correct defect code, make sure that both the customer's statement and the diagnosis results are adequately documented. These must be made available to the applicant.

An on-board diagnosis is available to evaluate the battery condition of vehicles with intelligent battery sensor (IBS) or battery electronics (lithium ion battery):.

The following criteria are analysed to evaluate state of charge:

- Capacity loss
- Charge balance
- Complete discharges
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- Water loss

For vehicles with automatic engine start-stop system, if this function is not fully available:

Important!

The prerequisite for invoicing a battery through the warranty channel is to work through the test module.

Energy diagnosis through to the diagnosis result:

- Displaying of cause
- Displaying of help instructions
- Displaying of corresponding diagnosis code

Exceptions are:

- Obvious battery damage and leakage
Use the correct defect code in such situations (61 21 00 49 or 61 21 00 01).
- Use of BMW Group Mobile Service and battery replacement on site to restore customer mobility as quickly as possible.

2. Measure standby current.

Perform [closed-circuit current test of the 12 V battery](#) under the following path:

- Body
- Voltage supply
- Standby current

3. Check alternator.

Perform alternator test under following path:

- Complete vehicle
- Power train
- Voltage and current control
- Voltage and current generation

4. Battery replacement

Only the AGM battery may be installed.

New battery must be registered via the diagnosis system.

Important!

If the new battery is not registered, incorrect readings may appear in the display of the on-board computer due to previous data in the power management system (check control message "Recharge battery" appears even though the battery is new).

5. Battery charging

5.1. AGM battery charging

- The battery may only be recharged by means of chargers that have been approved by BMW and that have a constant charging voltage of **14.8 V**.
- If possible, the battery temperature should be between 15 °C and 25 °C during charging. Under these preconditions, the battery is adequately charged when the charge current drops below 2.5 amps.
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5.2 Charging the lithium ion battery

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The charging voltage that is generated by existing chargers that are designed for the lead-acid or AGM battery is too high for the lithium ion battery.

This excessive charging voltage may **in some cases** result in that **the separating switch** of the lithium ion battery **will be opened. This does not damage the lithium ion battery.** The separator switch will close again when a charging voltage of < 14 V is applied at the battery terminals.

[Before charging a lithium ion battery, adjust the charging voltage of existing charger adapters once.](#)

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- The lithium ion battery can be charged via **the jump start terminal points** in the engine compartment **as well as directly on the battery terminals**.

6. Charging the high-voltage battery

[Notes on charging the high-voltage battery on standing vehicles \(new and used cars\)](#) PHEV

7. Additional publications of the subject of "Batteries"

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[Notes on AGM battery](#)

[Information on intelligent battery sensor \(IBS\)](#)

[Notes on lithium ion battery](#)

[Notes on battery electronics \(lithium ion battery\)](#)

[Battery recharging intervals for stationary vehicles, battery charging calendar and battery tag](#)

12-V battery, high-voltage battery unit

[Battery log form](#) (not for USA)

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Battery recharging intervals for booth vehicles, battery charging calendars and battery tags (12-V battery, high-voltage battery unit)

All models

Situation: Due to the self-discharging of the battery (12-V battery, high-voltage battery unit) and vehicle standby current (if the battery was not disconnected from the vehicle electrical system), the vehicle battery will be discharged slowly, but continuously.

If the battery is not charged up for an extended period of time, it will be damaged. This will result in a premature battery failure.

Measure: It is necessary to regularly recharge these batteries to maintain the quality of batteries of warehouse or standing vehicles.

Procedure: Recharging intervals:

12 V battery

All vehicles:

- 12-V battery connected to the vehicle electrical system: **6 weeks**

All vehicles without Plug-in Hybrid (Plug-in Hybrid Electric Vehicle):

- Continuous disconnection of the 12-V battery from the vehicle electrical system by removal of the ground cable to the 12 V battery or by switching off of the fitted battery master switch, if installed:
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High-voltage battery units:

- Plug-in-hybrid (PHEV): [as required](#)

The recharging intervals follow the battery charging calendar.

Recharge when the colour of the calendar week on the battery calendar matches the colour of the battery tag. Battery tags are located on all new vehicles' interior mirror.

N.B.:

1. Since different systems are used by distribution channels for documentation, it is not always clear whether the battery was actually recharged during the week that is indicated. Therefore all recharge procedures must also be documented on the battery tag on the interior mirror (write date of recharge with a smudge-proof pen and confirm that the work has been carried out with your signature next to the date). The battery tag remains in the vehicle until the vehicle is handed over to the customer and is then filed with the vehicle records.
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[Trickle charger](#)

Parts:

[Battery log form](#) (not just for USA)

[{Battery Log Form}](#) (for USA only)

Description

Part number

Quantity

Battery tag, coloured

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emerald	01 89 9 781 426	as needed
california blue	01 89 9 781 427	as needed
brick red	01 89 9 781 428	as needed
Grey	01 89 9 781 429	as needed

IHKA control panel: LED in A/C button flashes

All models with integrated automatic heating and air conditioning (option 534)

Complaints: After a new IHKA control panel has been installed, the LED in the A/C button flashes.

Cause: The flashing of the LED in the A/C button indicates that the automatic air-conditioning system is in the compressor protection mode. This protective function is intended to ensure an adequate refrigerant distribution the first time the air conditioner is operated (in the vehicle factory), before the engine is revved up.

The spare part is identical to the IHKA control panel used in series production. For this reason, the said protection mode is always active the first time a new IHKA control panel is installed. The LED in the A/C button will then flash continually until the A/C compressor has been engaged for about 90 seconds at an engine speed of less than 1500 rpm.

Affected vehicles: All models with integrated automatic heating and air conditioning (option 534)

Procedure: After a new IHKA control panel has been installed, the air conditioner must be run continually with the engine at idling speed until the LED in the A/C button stops flashing.

Under certain marginal conditions (e.g. very low ambient temperatures), it is possible that the A/C compressor is not permanently active. In such cases, the LED in the A/C button can continue flashing for several minutes.

Musty odour from heating and air conditioning system, evaporator cleaning

All model series

- Complaint:** When operating the heating and air conditioning system, a musty odour briefly occurs in the vehicle. This occurs mostly immediately after starting the engine with the air conditioning switched on or after switching off the air conditioning while driving.
- Cause:** The cause for the customer complaint is not a fault in the air conditioning of the vehicle. The formation of odour is due to environmental factor during the operating period of the heating and air conditioning system.

The constant condensation of air humidity at the evaporator over a long operating period of the heating and air conditioning system creates a favourable environment for bacteria and other micro-organisms.

Together with dirt contamination brought in by the fresh air, this may cause microbiological growth on the evaporator and consequently a musty odour.

Regularly changing the microfilter may reduce the entry of dirt contamination and therefore delay or prevent the development of aforementioned customer complaint.

Replacement of the evaporator has no continuous effect as microbiological organisms may redevelop.

Invoicing as warranty is not justifiable as there is no technical fault.

Vehicles concerned: All series with air conditioning (IHKR) or automatic air conditioning (IHKA).

Procedure: 1. Evaporator cleaning with spray lance

The most efficient and lasting method of eliminating the musty odour from the air conditioning is to clean the evaporator with the aid of a spray lance. With this procedure, the disinfectant is sprayed with high pressure directly on the evaporator.

Description of the operations:

For the detailed description of the procedure for the following series, please see the respective repair instructions:

- E39/E53 with air conditioning (IHKR): [Cleaning evaporator](#)
- E39/E53 with automatic air conditioning (IHKA): [clean evaporator \(automatic air conditioning\)](#)
- E46 with air conditioning (IHKR): [Cleaning evaporator](#)
- E46 with automatic air conditioning (IHKA): [clean evaporator \(automatic air conditioning\)](#)
- E65/E66: [Cleaning evaporator](#)
- E60/E61/E63/E64: [Cleaning evaporator](#)
- E85/E86: [Cleaning evaporator](#)
- E81/E82/E87/E88/E90/E91/E92/E93: [Cleaning evaporator](#)
- E70/E71/E72: [Cleaning evaporator](#)
- F01/F02/F03/F04/F06/F07/F10/F11/F12/F13/F18: [Cleaning evaporator](#)
- F20/F21/F22/F23/F30/F31/F32/F33/F34/F35/F36/F80/F82/F83/F87: [Cleaning evaporator](#)
- I01t: [Cleaning evaporator](#)
- F45/F46/F48/F49: [Cleaning evaporator](#)
- F54/F55/F56/F57/F60: [Cleaning evaporator](#)
- G05/G06/G07/G11/G12/G14/G15/G16/G30/G31/G32/G38/F90/F91/F92/F93/F95/F96: [Cleaning evaporator](#)
- G01/G02/G08/G29: [Cleaning evaporator](#)

2. Cleaning with the evaporator cleaning device "Aircomatic"

As an alternative, the evaporator can be cleaned using the "Aircomatic" cleaning system made by WYNN'S. For this purpose, use the "Airco-Clean" cleaning agent made by the same company.

WYNN'S describes this procedure as "Ultrasound procedure".

The cleaning power using the "ultrasound procedure" is lower as compared to cleaning with a spray lance.

If the "ultrasound procedure" does not bring long-term success due to very severe dirt contamination of the evaporator, clean the evaporator using a spray lance and the heating and air conditioning system cleaning agent.

Note:

This procedure is to be used for vehicles for which no spray lance is offered.

Description of the operations:

- Remove microfilter (replace with new filter after cleaning)
- Start the vehicle
- Switch on air conditioning
- Set temperature control to lowest value
- For automatic air conditioning (IHKA): Switch off automatic air distribution/supply
- Select the lowest fan speed
- Set ventilation to upper body area
- Adjust air supply to air recirculation function
- Shake the "Airco-Clean" bottle well
- Place the ultrasound device upside down
- Screw in the "Airco-Clean" bottle with its opening facing upwards into the device
- Return ultrasound device to initial position allowing the contents of the bottle to partially flow into the device
- Place the ultrasound device in the footwell on the passenger's side
- Connect the atomisation hose to the device
- Place the atomisation hose so that the recirculated air system can take in the emitted vapour well

Do not kink the hose!

- Connect the ultrasound device using the included cable
- Atomisation starts!
- Close vehicle doors and side windows

Attention:

No one must remain in the vehicle during treatment!

- Treatment is complete after approx. 20 minutes and the ultrasound device stops
- After treatment, open doors and air the vehicle for approx. 5 minutes
- After treatment pour out the residual liquid in the ultrasound device
- Briefly rinse the ultrasound device with water

Parts required: 1. Cleaning with spray lance

<u>Spray lance</u>	<u>Order/part number</u>	<u>Quantity</u>
-E39/E46/E53/E83	64 1 450	1
- E65/E66/E67 (left-hand drive vehicle)	64 1 280	1
- E65/E66/E67 (right-hand drive vehicle)	64 1 290	1
-E60/E61/E63/E64	64 1 480	1
- E85/E86 (left-hand drive vehicle)	64 1 490	1
- E85/E86 (right-hand drive vehicle)	64 1 250	1
- E81/E82/E87/E88/E90/E91/E92/E93 (left-hand drive vehicle)	64 1 260	1

- E81/E82/E87/E88/E90/E91/E92/E93 (right-hand drive vehicle)	64 1 270	1
- E70/E71/E72 (left- and right-hand drive vehicle)	64 1 300	1
- F01/F02/F03/F04/F06/F07/F10/F11/F12/F13/F18 (left-hand drive vehicle)	83 30 2 222 502	1
G01/G02/G08/G29 (left-hand drive vehicle)		
- F01/F02/F03/F04/F06/F07/F10/F11/F12/F13/F18 (right-hand drive vehicle)	83 30 2 364 733	1
G01/G02/G08/G29 (right-hand drive vehicle)		
-F20/F21/F22/F23/F30/F31/F32/F33/F34/F35/F36/F80/F82/F83/F87 (left hand drive vehicle)	83 30 2 344 001	1
-F20/F21/F22/F23/F30/F31/F32/F33/F34/F35/F36/F80/F82/F83/F87 (right- hand drive vehicle)	83 30 2 289 613	1
-I01	83 30 2 413 653	1
-F45/F46/F48/F49	83 30 2 413 653	1
-F54/F55/F56/F57/F60	83 30 2 413 653	1
-G05/G06/G07/G11/G12/G30/G31/G32/G38/F90 (left-hand drive vehicle)	83 30 2 411 757	1
-G05/G06/G07/G11/G12/G30/G31/G32/G38/F90 (right-hand drive vehicle)	83 30 2 414 999	1

Spray gun

SATA spray pistol	81 45 9 429 217	1
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Heating and air conditioning system cleaning agent

Heating and air conditioning system cleaning agent (<u>only for cleaning with spray lance!</u>)	83 19 2 180 507	1
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Heating and air conditioning system cleaning agent is used undiluted. No rinsing required.

The spray lance spray gun can be obtained from the special tools online catalogue; the heating and air conditioning system cleaning agent can be obtained directly from BMW Group Parts.

2. Cleaning with the evaporator cleaning device "Aircomatic"

(Valid for all series)

<u>Description</u>	<u>Part number</u>	<u>Quantity</u>
Heating and air conditioning system cleaning agent	83 19 2 409 611	1

Heating and air conditioning system cleaning agent is used undiluted.

The "Aircomatic" cleaning device and the "Airco-Clean" cleaning agent can be obtained directly from BMW Group Parts.