00 26 11 (731)

Brake fluid - Operating Fluids Specification

Situation: To provide permanent surface protection in the brake system, only low viscosity DOT4 brake fluids that have been approved by BMW may be used.

Vehicles concerned: All BMW, MINI and Rolls-Royce.

Procedure: The low viscosity DOT4 brake fluids currently approved by BMW can be viewed in the current ISTA version (operating materials - main group 34).

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00 12 11 (696)

Brake fluid service - extension of the first brake fluid interval to 36 months

Without US

Situation: Beginning with production date 03/2011, the 1st brake fluid interval is being extended from 24 months to 36 months in all current vehicle types. After the first brake fluid renewal, an interval of 24 months each applies.

New vehicle series introductions are already equipped with the extended 1st brake fluid interval (36 months).

Vehicles concerned: from 03/2011

- MINI R55, R56, R57 and R60
- BMW 1 Series E81, E82, E87 and E88
- BMW 3 Series E90, E91, E92 and E93
- BMW X1 E84
- BMW Z4 E89

from 04/2011

- BMW X5 E70, E71 and E72

from 07/2011

- BMW 6 Series F12 and F13

from 09/2011

- BMW 7 Series F01, F02, F03 and F04
- BMW 5 Series GT F07
- BMW 5 Series F10 and F11
- Rolls-RoyceRR4

from 10/2011

- BMW X3 F25
- BMW 5-SeriesF18

Procedure: The maintenance work must be carried out as shown in the Commercial Service Data and ISTA.

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00 06 10 (642)

Brake fluid service – "Bonnet gas strut" check with active pedestrian impact mitigation (SA8TF)

Situation: Thanks to the introduction of the technically enhanced generation of the pedestrian protection as of 03/2011, safety-related components are being installed in the vehicle. To reliably guarantee fulfilment of safety requirements in the long term, specific components have to be replaced regularly. The regular check and/or replacement of these components is carried out in the context of a maintenance visit.

In vehicles prior to the version (build date) specified no check is required or the gas pressure springs have to be replaced.

Vehicles affected: All vehicles with active pedestrian protection (SA8TF)

Measure: **Caution!**

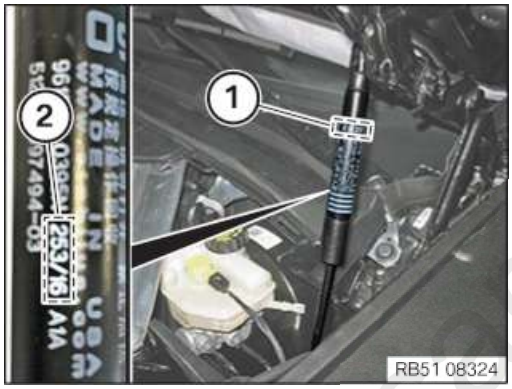
Check the pressure on gas pressure spring for bonnet:

With some gas-filled shock absorbers, the expiry date is printed on. For all others, only the production date is printed on. Regardless of the printing, both gas-filled shock absorbers of the hood must be regularly renewed as part of preventive service.

If necessary, check the expiry date of the gas pressure spring for bonnet (1).

If necessary, note the production date (days/year) (2).

Shelf life of the two gas pressure spring for bonnet must match with the date of the next brake fluid service (24 months). If the expiry is before that date, both engine compartment lid gas pressure springs (1) have to be replaced at extra charge.



Procedure: The procedure for replacing the front compartment lid gas pressure springs can be found in the repair instructions on ISTA.

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00 17 17 (475)

CBS general - Reset is lost

Situation: Field feedback has shown that a CBS reset carried out on the vehicle can be lost.

The fault occurred under the following conditions:

- When the vehicle goes into sleep mode there is an undervoltage
- Vehicle is programmed directly after CBS reset without going into sleep mode

Vehicles concerned: All

Procedure: Avoid the conditions specified above.

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00 10 20 (740)

Checking the antifreeze content and filling level of the washer fluid as part of the pre-delivery check

Situation: Due to the high worldwide demand for alcohol used in the production of disinfectants to combat the spread of the corona virus, the supplier of the cleaner concentrate currently is currently experiencing a bottleneck in supply as the cleaner concentrate contains alcohol.

The washer fluid, which is filled into the vehicles in the factories, consists of this cleaner concentrate to a certain extent.

As a temporary measure, the cleaner concentrate in the washer fluid is diluted more strongly with water in the factories, thus extending the range of the current delivery quantities and stocks of the cleaner concentrate. **This measure is limited in the factories until 30/09/2020**.

Vehicles affected: All series up to and including the production date of 30/09/2020, except the vehicles manufactured in China

Procedure: The concentration of the washer fluid must be checked as part of the pre-delivery check or at the latest before handing it over to the customer.

The antifreeze must be maintained at temperatures as low as -18°C.

The concentration of antifreeze may be increased as required.

Top up the fluid tank for the window washer system up to the maximum mark.

This measure is valid until 30/04/2021.

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00 47 14 (138)

Engine oil - varying colours/ smell after initial filling in the works

Situation: In engine works a few engines are subject to a hot test. To be able to detect possible oil leakages, fluorescent agent is mixed with the engine oil. This agent causes discolouration of the engine oil. Depending on the mixture ratio the engine oil can take a red colour or green/yellow colour and smell like automatic transmission fluid.

The addition of fluorescent agent has **no** impact on the consistency and the characteristics of the engine oil.

Since only engine oil may be kept exclusively in the engine works, a false filling cannot be possible from the technical side.

Vehicles concerned: BMW, MINI and Rolls-Royce

Procedure: The fluorescent agent remains in the engine and is washed out during the first engine oil change.

An engine oil change in connection with the above mentioned complaint is not allowed!

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00 15 16 (388)

Engine oil service - countries with higher levels of dust: Check the air filter element for contamination

Situation: To guarantee the customer's mobility, in countries with higher levels of dust the air filter element should be checked for contamination at each engine oil service.

Vehicles concerned: BMW

MINI

Rolls-Royce

Procedure: In countries with higher levels of dust:

Check the air filter element (intake silencer) for contamination at each engine oil service.

If there is significant contamination, the change interval must be accordingly reduced.

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00 14 16 (386)

Engine oil service - new scope of maintenance work: Replace the battery of the radio remote control

Situation: The battery capacity of the radio remote control lasts approx. 24 months. The battery of the radio remote control must therefore be regularly exchanged during the service to guarantee the customer's mobility. The battery exchange is retroactively included in the maintenance.

Vehicles concerned: BMW i

BMW: F15, F16, F85, F86

BMW: F45, F46, F48, F49 and the following new, imminent F-series

BMW: G11, G12 and the following new, imminent G-series

MINI: F54, F55, F56, F57 and the following new, imminent F-series

Procedure: The battery of the radio remote control must be renewed within the scope of the engine oil service.

ECE base interval:

SA8KA (30,000 km / 24 months) => at each engine oil service

Countries with reduced oil service interval:

SA8KH (20,000 km / 18 months) => at each engine oil service

SA8KK (15,000 km / 18 months) => at each engine oil service

SA8KL (15,000 km / 12 months) => at every second engine oil service

SA8KM (12,000 km / 12 months) => at every second engine oil service

SA8KP (8,000 km / 12 months) => at every second engine oil service

For I01 only:

The battery of the radio remote control must be renewed within the scope of the brake fluid service. => every 24 months

Perform the battery exchange of the radio remote control as described in the Owner's Handbook of the respective vehicle.

If available, also exchange the battery of the second radio remote control.

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00 29 11 (734)

Engine oil service/vehicle check service - procedure for resetting the service interval indicator

Situation: A new CBS system was introduced with the launch of the F-series. In this new CBS system, the vehicle check service is linked to the engine oil service.

Vehicles concerned: BMW and MINI:

All models of the F-series

Rolls-Royce:

All models from RR4.

Procedure: The following procedure must be followed if a service is due:

- Perform the engine oil service
- Reset engine oil service interval indicator
- Perform the vehicle check service
- Reset the vehicle check service interval indicator

Important!

First reset the engine oil service interval indicator, then the vehicle check service interval indicator.

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00 30 11 (735)

Final drive oil - new oil quality from 07/2011

Situation: In motor vehicles from production date 07/2011, the final drive oil SAF-XO is being replaced by the final drive oil Hypoid Axle Oil G1 (BOT448).

Vehicles concerned: All BMW without M models

All MINI

All Rolls-Royce

Procedure: In vehicles from production date 07/2011, use oil specification Hypoid Axle Oil G1 (BOT448) for oil filling/additions to the rear axle differential.

The final drive oils currently approved by BMW can be viewed in the current ISTA version (operating materials - main group 33).

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36 04 16 (367)

Handling fault messages / Check Control messages for Run Flat Indicator RDC (SA2VB)

Situation: Since 2014 the standard equipment of all new vehicles covers a tyre pressure display RDC (SA2VB) for each individual wheel. Sensors on all four wheels enable a precise and individual monitoring of the tyre pressure. In case of a pressure deviation, the driver is notified early. In order to not unsettle customers, three levels were created for the KOMBI messages. These appear as follows:



First level of message:

The first level is only information for the customer, that the tyre pressure has dropped due to natural diffusion. There are no technical problems and one can continue driving without any concerns. For this reason, only one information symbol can be seen in the KOMBI.

The Check Control message can appear as follows (example in German and English):





Second level of message:

The message of the second level takes place if the tyre pressure has dropped below the legal threshold value and limits the comfort and safety of the customer. Accordingly, a Check Control message and a yellow warning light can be seen in the KOMBI. However, one can continue driving moderately, but the tyre pressure should be corrected as soon as possible.

The Check Control message can appear as follows (example in German and English):





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Third level of message:

If the tyre pressure drops too much, the yellow warning light is displayed. The customer should perform a visual check of the tyres and correct the tyre pressure if possible.

Here is an example of the message for the front left tyre (example in German and English):



Vehicles concerned: BMW, MINI and Rolls-Royce with SA2VB

Procedure: All three Check Control messages are notices for the dropped tyre pressure. The RDC system thus works correctly and trouble-free. An OBD diagnosis is never necessary, as no fault memory (DTC) is created.

The customer is informed that only the tyre pressure should be corrected and reset via the CID.

For the second and third level, the tyre and valve must also be checked for tightness and damages, for this also see PuMA measure 60186974.

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00 41 11 (773)

Ignition key data tapping on CBS vehicles

Situation: In the interests of simplifying the service reception, the current vehicle data (e.g. CBS remaining values) are stored in the ignition key used last.

Note: The ignition key is overwritten with the current data during a journey at specific intervals. As this writing process is repeated only after a defined distance, the key data may differ at service reception slightly from the most up-to-date vehicle data.

If a spare key with an outdated data status is handed over to the Service Advisor, it must be updated in the vehicle before service reception.

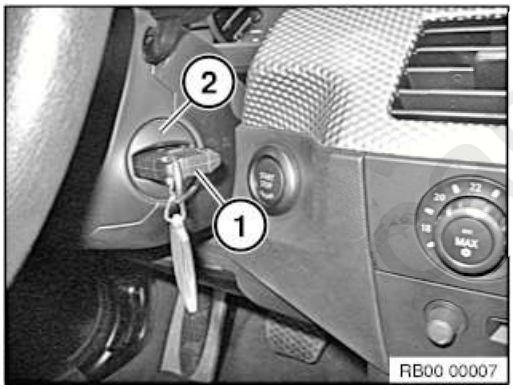
Procedure: The process for writing the current vehicle data to the ignition key can be activated manually in the vehicle.

Data tapping in vehicles with key slot (E Series and MINI):

Sit in the vehicle and closed the door.

Note:

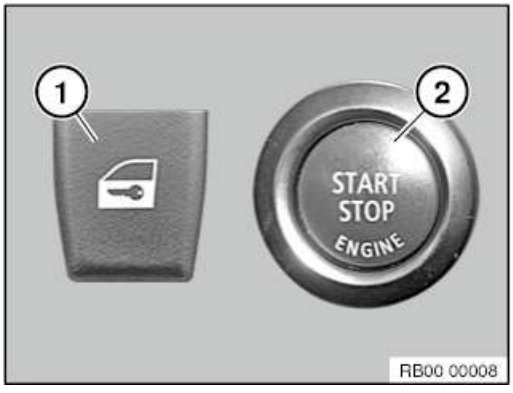
Check the currency of the date and time settings in the vehicle.



Insert the ignition key (1) into the ignition slot (2) until it is locked.

Note:

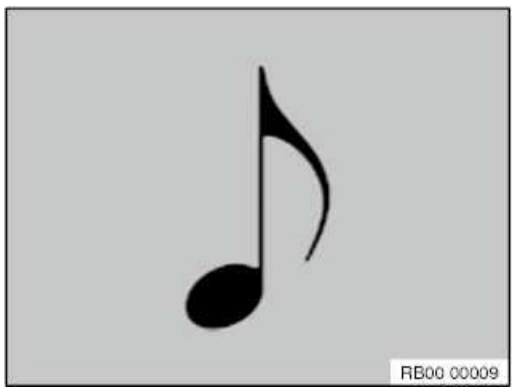
The vehicle displays turn on.



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Press button combination:

1. Press and hold down central locking (1).
2. Also press start/stop button (2).
3. Release start/stop button (2).
4. Release central locking (1).



An acoustic signal after approx. 10-15 seconds denotes the end of data transfer.

Note:

Acoustic signal immediately after data tapping indicates a fault message. The process must be repeated.

Data tapping in vehicles with no key slot (F Series):

Sit in the vehicle and closed the door.



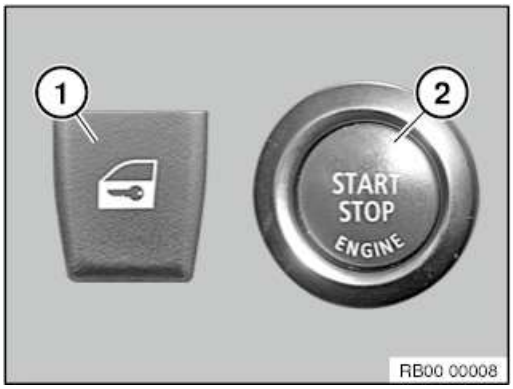
Press start/stop button (1) twice.

Note:

Make sure the display screen switches on.

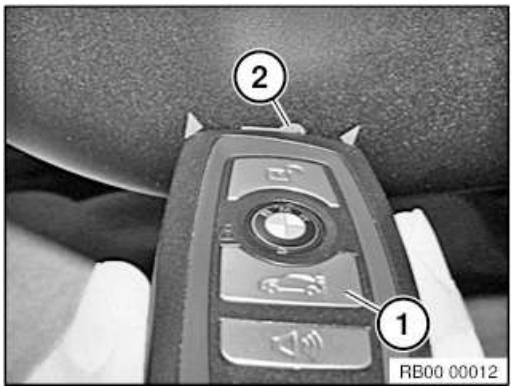
Check the currency of the date and time settings in the vehicle.

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Press button combination:

1. Press and hold down central locking (1).
2. Also press start/stop button (2).
3. Release start/stop button (2).
4. Release central locking (1).

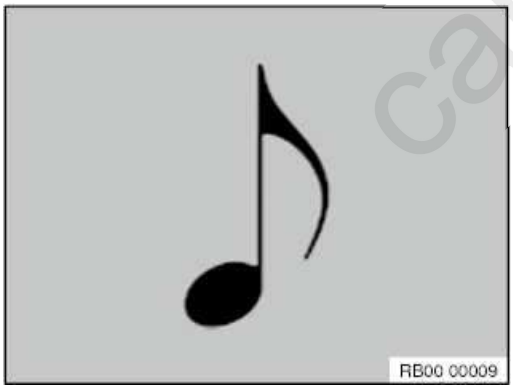


Hold the ignition key (1) directly to the key symbol (2) on the steering column.

Note:

Hold the ignition key without moving it.

The Check Control message "update of key data" appears.



A sounding of the acoustic signal two times and a disappearing of the triangle notice in the KOMBI signifies the end of the transfer.

Note:

No acoustic signal suggests faults during the data transfer. The process must be repeated.

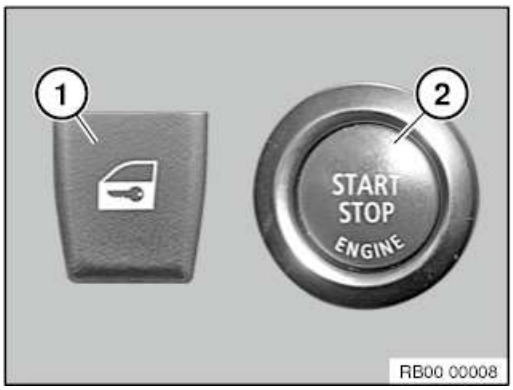
Data tapping in vehicles with no key slot (G Series):

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Sit in the vehicle and closed the door.

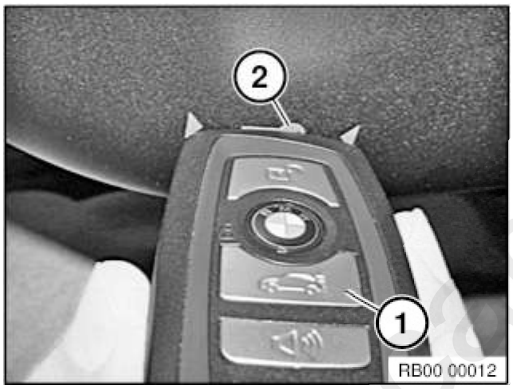
Note:

Check the currency of the date and time settings in the vehicle.



Press button combination:

1. Press and hold down central locking (1).
2. Also press the start/stop button (2) three times within 4 seconds.
3. Release central locking (1).

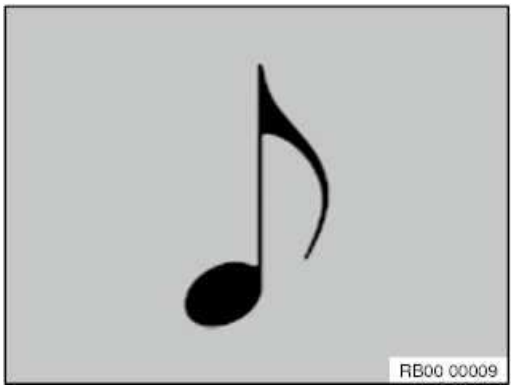


Hold the ignition key (1) directly to the key symbol (2) on the steering column within 10 seconds.

Note:

Hold the ignition key without moving it.

The Check Control message "update of key data" appears.



A sounding of the acoustic signal two times and a disappearing of the triangle notice in the KOMBI signifies the end of the transfer.

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Note:

No acoustic signal suggests faults during the data transfer. The process must be repeated.

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00 02 14 (064)

Inflation pressure measurement in vehicles with tyre pressure display RDC (SA2VB)

Situation: The standard equipment of all new vehicles will in future cover a tyre pressure display RDC (SA2VB) for each individual wheel. Sensors on all four wheels enable a precise and individual monitoring of the tyre pressure. The respective current tyre pressure is displayed on the control display or in the KOMBI, depending model and equipment. In the event of a pressure deviation, the driver is alerted to a potential danger with an early warning signal.

In order to prevent false warning messages in customer use, Service must ensure that the tyre pressure is correctly adjusted.

In the event of a tyre pressure loss of at least 20% or if pressure drops below the lower warning threshold value, the warning signal in the vehicle is activated. The lower warning threshold level takes account of the influencing factors and tolerances at a maximum of 1.8 bar.

The warning message can be affected by a range of influencing factors:

1. Low pressure difference between the setpoint value and the lower warning threshold value.
2. Temperature fluctuations during inflation pressure measurement/correction.
3. Tyre pressure losses when disconnecting the tyre inflator at the valve.
4. Pressure indicator tolerance on the tyre inflator.

Additional information on the tyre pressure display (RDC) can be found in the functional description "Tyre pressure control".

Vehicles concerned: BMW, MINI and Rolls-Royce with SA2VB

Procedure: There are number of influencing factors that must be considered when measuring inflation pressure in Service:

1. Avoid tyre pressure losses when disconnecting the tyre inflator at the valve.

   => In the event of tyre pressure loss, check the tyre pressure and adjust if required.

2. Observe the tolerance of the tyre inflator when measuring inflation pressure.

   => The indicated value of tyre pressure label must be increased by 0.1 bar to compensate the tolerance in the tyre pressure device.

   Attention!

   When compensating the tolerance, the maximum pressure value indicated on the tyres must not be exceeded.

Recommendation:

As described in the Owner's Handbook, customers must be made aware of the need to regularly check the air pressure in the tyres and to reset the tyre pressure indicator.

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00 29 18 (536)

Introduction of new service interval for ECE countries (RDE diesel fuel)

Situation: With cars enabled to meet modified emission limits, there can be increased dilution of the engine oil.

ECE diesel vehicles will gradually receive a new standard service interval (SA8KB => 25,000 km / 24 months) with qualification for RDE (Real Driving Emissions).

For vehicles with the modified service interval (25,000 km / 24 months), the combination of the scope of maintenance work for the fuel filter changes.

The remaining scopes of maintenance work are unchanged in accordance with the previous combinations (SA8KA).

Vehicles affected: Note: The following list of affected vehicles only includes derivatives of the product line L7.

For deviations in maintenance intervals with regard to SA8KB for all other derivatives, please refer to the respective derivative-specific service information.

Introduction date	Vehicle affected	Engine	Transmission
03/2019	**F22 / F23**	**B47**	**Manual gearbox**
	F32 / F33 / F34 / F36	**B47**	**Manual gearbox**
	F32 / F33 / F34 / F36	**B57**	**no restriction**

Procedure: For vehicles with the modified service interval (25,000 km / 24 months), the combination of the scope of maintenance work for the fuel filter changes.

The remaining scopes of maintenance work are unchanged in accordance with the previous combinations (SA8KA).

Fuel filter (diesel fuel)

with SA8KB (25,000 km / 24 months)

=> renew with each third engine oil change (approx. 75,000 km).

with SA8KA (30,000 km / 24 months)

=> renew with every 2nd engine oil change (approx. 60,000 km).

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00 07 20 (724)

Maintenance content/pre-delivery check content of BMW 4 Series Coupé (G22)

Situation: On the BMW 4 Series Coupé (G22), the due services are always displayed in the Condition Based Service (CBS).

Front/rear brake service: As soon as the brake pad wear sensor is sanded down, the vehicle calculates the remaining distance of the brake pads. For this purpose, the data collected since the last brake pad exchange is evaluated. In most cases, the remaining distance is between 1,000 and 5,000 km. After activation, the remaining distance data is transmitted to the ignition key. A display of the remaining distance or due date takes place at the Service reception. The CBS front/rear brake is not displayed in the CID menu "vehicle status/service requirements" before the grinding through of the brake pad wear sensor. The customer can call up the estimated remaining distance via the CID only after activating the CBS display.

Particulate filter service (diesel fuel): At a remaining distance of approx. 30,000 km, the remaining distance forecast is activated. After activation the remaining distance data is transmitted to the vehicle key. That means: A display of the remaining distance or due date takes place at the Service reception. CBS particulate filter is not displayed in the CID menu "vehicle status/service requirements" before the remaining distance. The customer can call up the remaining distance forecast via the CID only after activation of the CBS display (starting at approx. 30,000 km).

Particulate filter service (petrol): A petrol particulate filter can be installed in vehicles with a petrol engine depending on the market. At a remaining distance of approx. 30,000 km, the remaining distance forecast is activated. After activation the remaining distance data is transmitted to the vehicle key. That means: A display of the remaining distance or due date takes place at the Service reception. CBS particulate filter is not displayed in the CID menu "vehicle status/service requirements" before the remaining distance. The customer can call up the remaining distance forecast via the CID only after activation of the CBS display (starting at approx. 30,000 km).

Maintenance work carried out must be copied to the vehicle's service history.

Vehicles affected: BMW 4 Series Coupé (G22)

Procedure: Please refer to the repair instructions on ISTA (main group 0: Maintenance and general notes) for detailed descriptions of the servicing.

Pre-delivery check => complete before handover to customers.

Standard service scope => complete with each service:

Carry out **brake fluid service** => after the wear indicator appears after 36 months, then every 24 months

Carry out **front brake service** => after the wear indicator appears:

Carry out **rear brake service** => after the wear indicator appears:

Particulate filter service (diesel fuel) => carry it out after the CBS display appears, approximately every 300,000 km (depending on the driving style).

Particulate filter service (petrol) => carry it out after the CBS display appears, about every 240,000 km (depending on the driving style).

Carry out **engine oil service** => after the CBS display appears

The following interval details refer only to the basic SA8KA interval specified by the Economic Commission for Europe

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Component	Distance [*1000 km]	Time [Months]	Link
Engine oil	30	24	-
Vehicle check	60	48	Every 2nd engine oil change
Fuel filter (diesel fuel)	60	48	Every 2nd engine oil change
Microfilter	30	24	Every engine oil change
Spark plug (petrol)	60	48	Every 2nd engine oil change
Air filter	60	48	Every 2nd engine oil change

The following interval details refer only to the basic SA8KB interval specified by the Economic Commission for Europe for diesel vehicles

(Only in Europe; only B47TÜ1)

Component	Distance [*1000 km]	Time [Months]	Link
Engine oil	25	24	-
Vehicle check	50	48	Every 2nd engine oil change
Fuel filter (diesel fuel)	75	72	Every 3rd engine oil change
Microfilter	25	24	Every engine oil change
Air filter	50	48	Every 2nd engine oil change

The following interval details refer only to the SA8KH interval specified by the Economic Commission for Europe

Component	Distance [*1000 km]	Time [Months]	Link
Engine oil	20	18	-
Vehicle check	60	54	Every 3rd engine oil change
Fuel filter (diesel fuel)	60	54	Every 3rd engine oil change
Microfilter	20	18	Every engine oil change
Spark plug (petrol)	60	54	Every 3rd engine oil change
Air filter	60	54	Every 3rd engine oil change

The following interval details refer only to the SA8KK interval specified by the Economic Commission for Europe

Component	Distance [*1000 km]	Time [Months]	Link
Engine oil	15	18	-
Vehicle check	45	54	Every 3rd engine oil change
Fuel filter (diesel fuel)	60	72	Every 4th engine oil change
Microfilter	30	36	Every 2nd engine oil change
Spark plug (petrol)	45	54	Every 3rd engine oil change
Air filter	60	72	Every 4th engine oil change

The following interval details refer only to the SA8KL interval specified by the Economic Commission for Europe

Component	Distance [*1000 km]	Time [Months]	Link
Engine oil	15	12	-

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Vehicle check	**60**	**48**	**Every 4th engine oil change**
Fuel filter (diesel fuel)	**60**	**48**	**Every 4th engine oil change**
Microfilter	**30**	**24**	**Every 2nd engine oil change**
Spark plug (petrol)	**60**	**48**	**Every 4th engine oil change**
Air filter	**60**	**48**	**Every 4th engine oil change**

The following interval details refer only to the SA8KM interval specified by the Economic Commission for Europe - except in China

Component	Distance [*1000 km]	Time [Months]	Link
Engine oil	**12**	**12**	**-**
Vehicle check	**60**	**60**	**Every 5th engine oil change**
Fuel filter (diesel fuel)	**60**	**60**	**Every 5th engine oil change**
Microfilter	**24**	**24**	**Every 2nd engine oil change**
Spark plug (petrol)	**48**	**48**	**Every 4th engine oil change**
Air filter	**60**	**60**	**Every 5th engine oil change**

The following interval details refer only to the SA8KM interval specified by the Economic Commission for Europe - China

Component	Distance [*1000 km]	Time [Months]	Link
Engine oil	**12**	**12**	**-**
Vehicle check	**60**	**60**	**Every 5th engine oil change**
Fuel filter (diesel fuel)	**24**	**24**	**Every 2nd engine oil change**
Fuel filter (petrol)	**24**	**24**	**Every 2nd engine oil change**
Microfilter	**24**	**24**	**Every 2nd engine oil change**
Spark plug (petrol)	**24**	**24**	**Every 2nd engine oil change**
Air filter	**24**	**24**	**Every 2nd engine oil change**

Record maintenance work in the service history of the vehicle.

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00 01 08 (483)

New ”Maintenance Records” service booklet and maintenance documentation

All models

Situation: At this time, a service booklet accompanies each vehicle as a means of providing the customer with information about scope of maintenance and as maintenance documentation, the record of the vehicle's maintenance history. The service booklets differ in the description of the maintenance system, the maintenance overview and language. In all, there are considerably more than 100 different service booklets.

The service booklet will be radically revised for all vehicles as of model year 2009 (production as of 08/08 or 09/08, as applicable). For the sake of simplification, customer information has been moved from the service booklet to the owner's handbook for the vehicle. This, in turn, reduces the scope of the information in the service booklet to the maintenance documentation, the record documenting the vehicle's maintenance history. Symbols are now used, simplifying the use of the maintenance documentation and enabling the new booklet **”Maintenance Records”** to be used independently of natural languages.

In future, there will be only one **Maintenance Records** booklet used for all BMW models. Similarly, there will be a single 'Maintenance Records for M Vehicles booklet for all M vehicles. The old-style service booklets will remain available for ordering as spare parts for vehicles manufactured prior to 09/08. The changeover for MINI vehicles will probably take place in 12/08.

Procedure: The procedure for documentation remains the same, but the boxes for the entries have been changed.

1. Enter the Vehicle Identification Number (VIN): Page 3
2. Enter date of pre-delivery check in day/month/year form: Page 9.
3. Document maintenance records: Page 12ff.

- Enter maintenance item as

”X” for not checked

”Tick” for checked

It is not permissible to leave a box blank.

The meanings of the symbols are explained on Pages 6-8; they correspond as far as possible to the symbols used in the vehicle.

- Odometer reading / date

Enter odometer reading in kilometres/miles

Enter date of maintenance in day/month/year form

- Confirm entries:

Confirm entries by company stamp and signature.

It is also possible to glue in certificates for accident repairs, for example, on Page 2.

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00 21 13 (967)

Parking brake function check - new procedure in the standard service scope/rear brake service

Situation: The different procedures for the check of the parking brake during a service have been standardised for all BMW and MINI models.

Vehicles concerned: All BMW CBS vehicles

All MINI CBS vehicles

Procedure:

Standard scope of service

New check point: Parking brake function check without brake test stand.

=> When the vehicle is brought into the workshop the parking brake must be checked for correct function.

Engine oil service / Brake fluid service

All scopes of inspection for the parking brake are deleted (parking brake/Automatic Hold brake).

Service - rear brakes

Changed check point: Parking brake function check on brake test stand.

=> It is no longer necessary to remove the brake discs during the parking brake function check.

=> If the parking brake (with parking brake shoes) malfunctions, the brake disc is to be disassembled and the parking brake repaired. Calculation of the invoicing is carried out separately.

Carry out maintenance work as described in ISTA and Commercial Service Data.

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00 04 21 (813)

Repair on the gear selector switch

Situation: Damage to the gear selector switch, for example to the buttons, the display or the panels do not necessarily have to be repaired by replacing the complete gear selector switch.

A repair kit is available for this in the Electronic Parts Catalogue.

Vehicles affected: All BMW G-series

Procedure: Take damaged components from the repair kit.

Perform the repair, for this, refer to: Repair instructions.

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00 02 10 (661)

Service intervals for countries with low fuel grade (SA988/SA8KE, SA8KM, SA984, SA8KK, SA8KL, SA8KH, SA8KP)

BMW and MINI

Situation: To ensure mobility, various service intervals (poor-fuel intervals) are targeted ex-works (depending on country requirements).

Vehicles affected: BMW and MINI

Measure: Note:

In countries with higher levels of dust, the air cleaner should be checked for contamination at every engine oil service. If there is significant contamination, the change interval must be accordingly reduced.

Oil service interval SA988 (petrol):

Carry out engine oil change approx. every 12,000 km (24 months).

Change intervals that are linked with the engine oil service:

For vehicles built up to 09/2008:

- Replace the microfilter at every 2nd engine oil change
- Replace the air filter at every 6th engine oil change
- Replace the spark plugs at every 6th engine oil change

For vehicles built up to 03/2009:

- Replace the microfilter at every 2nd engine oil change
- Replace the air filter at every 6th engine oil change
- Replace the spark plugs at every 5th engine oil change

For vehicles built from 03/2009:

- Replace the microfilter at every 2nd engine oil change
- Replace the air filter at every 5th engine oil change
- Replace the spark plugs at every 5th engine oil change

For M vehicles (E6x, E8x and E9x):

- Replace the microfilter at every 2nd engine oil change
- Replace the air filter at every 5th engine oil change
- Replace the spark plugs at every 6th engine oil change
- Replace the final drive oil at every 6th engine oil change
- Replace manual gearbox oil or SMG transmission oil (clean SMG transmission oil filter) at every 6th engine oil change

  Caution: Not for twin-clutch gearbox!

Carry out vehicle check after 48 months, at the latest.

Oil service interval SA8KE:

Carry out engine oil change approx. every 12,000 km (24 months).

Change intervals that are linked with the engine oil service:

- Replace the microfilter at every 2nd engine oil change
- Replace the air filter at every 5th engine oil change
- Replace the spark plugs at every 5th engine oil change
- Only for M-vehicles (F1x):

  Replace the final drive oil at every 7th engine oil change
- Only in hybrid cars (F01H, F02H, F10H and F30H)

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Replace automatic transmission fluid at every 5th engine oil change.

Until 06/2019 for BMW, or until 10/2019 for MINI:

Carry out vehicle check at each fifth engine oil service or after 48 months, at the latest.

From 07/2019 for BMW, or from 11/2019 for MINI:

Carry out vehicle check at every 2nd engine oil service, after 48 months at the latest.

Oil service interval SA8KM:

Carry out engine oil change approx. every 12,000 km (12 months).

Change intervals that are linked with the engine oil service:

- Replace the microfilter at every 2nd engine oil change
- Replace the air filter at every 5th engine oil change

  Only for **F15/F16 with engine N63**: Replace air cleaner during every engine oil change
- Replace the spark plugs at every 4th engine oil change

  Only for **I12** and **MINI John Cooper Works (R55, R56, R57, R58, R59, R60, R61)**:

  Replace spark plugs at every 2nd engine oil change
- Renew fuel filter (diesel) with every 5th engine oil change
- M vehicles only:

  Replace the final drive oil at every 7th engine oil change
- Only in hybrid cars (F01H, F02H, F10H and F30H)

  Renew automatic transmission fluid at every 5th engine oil change
- I12 only:

  Check bolting of door hinge at every 2nd engine oil change

  Renew gas pressure spring of front door at every 4th engine oil change

  Build date up to and including version 02/2015: Renew drive belt at every 5th engine oil change

Until 06/2019 for BMW, or until 10/2019 for MINI:

Carry out vehicle check at each fifth engine oil service or after 48 months, at the latest.

From 07/2019 for BMW, or from 11/2019 for MINI:

Carry out vehicle check at each fifth engine oil service or after 60 months, at the latest.

Oil service interval SA984 (diesel fuel):

Carry out engine oil change approx. every 15,000 km (24 months).

Change intervals that are linked with the engine oil service:

<u>For vehicles built up to 03/2009:</u>

- Replace the microfilter at every 2nd engine oil change
- Replace the air filter at every 6th engine oil change
- Replace the fuel filter at every 6th engine oil change

<u>For vehicles built from 03/2009:</u>

- Replace the microfilter at every 2nd engine oil change
- Replace the air filter at every 4th engine oil change
- Replace the fuel filter at every 4th engine oil change

Carry out vehicle check after 36 months, at the latest.

Oil service interval SA984 (petrol):

Carry out engine oil change approx. every 24,000 km (24 months).

Change intervals that are linked with the engine oil service:

<u>For vehicles built up to 09/2008:</u>

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- Replace microfilter at every engine oil change
- Replace the air filter at every 4th engine oil change
- Replace the spark plugs at every 4th engine oil change

For vehicles built up to 03/2009:

- Replace microfilter at every engine oil change
- Replace the air filter at every 4th engine oil change
- Replace the spark plugs at every 3rd engine oil change

For vehicles built from 03/2009:

- Replace microfilter at every engine oil change
- Replace the air filter at every 3rd engine oil change
- Replace the spark plugs at every 3rd engine oil change

Carry out vehicle check after 48 months, at the latest.

Oil service interval SA8KK:

Carry out engine oil change approx. every 15,000 km (18 months).

Change intervals that are linked with the engine oil service:

- Replace the microfilter at every 2nd engine oil change
- Replace the air filter at every 4th engine oil change

  Only for **F15/F16 with engine N63**: Replace air cleaner during every engine oil change
- Replace the spark plugs at every 3rd engine oil change

  Only for **I12** and **MINI John Cooper Works (R55, R56, R57, R58, R59, R60, R61)**:

  Replace spark plugs at every 2nd engine oil change
- Renew fuel filter (diesel) with every 4th engine oil change
- M vehicles only:

  Replace the final drive oil at every 6th engine oil change
- Only in hybrid cars (F01H, F02H, F10H and F30H)

  Replace automatic transmission fluid at every 4th engine oil change.
- I12 only:

  Check bolting of door hinge at every engine oil change

  Renew gas pressure spring of front door at every 2nd engine oil change

  Build date up to and including version 02/2015: Renew drive belt at every 4th engine oil change

Until 06/2019 for BMW, or until 10/2019 for MINI:

Carry out vehicle check at each fourth engine oil service or after 36 months, at the latest.

From 07/2019 for BMW, or from 11/2019 for MINI:

Carry out vehicle check at each third engine oil service or after 54 months, at the latest.

Oil service interval SA8KL:

Carry out engine oil change approx. every 15,000 km (12 months).

Change intervals that are linked with the engine oil service:

- Replace the microfilter at every 2nd engine oil change
- Replace the air filter at every 4th engine oil change

  For countries with higher levels of dust: Check the air cleaner for contamination and reduce the change interval if applicable!
- Replace the spark plugs at every 4th engine oil change
- Renew fuel filter (diesel) with every 4th engine oil change
- M vehicles only:

  Replace the final drive oil at every 6th engine oil change

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- Only in hybrid cars (F01H, F02H, F10H and F30H)

  Replace automatic transmission fluid at every 4th engine oil change.

Carry out vehicle check at each fourth engine oil service or after 48 months, at the latest.

Oil service interval SA8KH:

Carry out engine oil change approx. every 20,000 km (18 months).

Change intervals that are linked with the engine oil service:

- Replace microfilter at every engine oil change
- Replace the air filter at every 3rd engine oil change

  For countries with higher levels of dust: Check the air cleaner for contamination and reduce the change interval if applicable!
- Replace the spark plugs at every 3rd engine oil change
- Renew fuel filter (diesel) with every 3rd engine oil change
- M vehicles only:

  Replace the final drive oil at every 4th engine oil change
- Only in hybrid cars (F01H, F02H, F10H and F30H)

  Replace automatic transmission fluid at every 3rd engine oil change.

Until 06/2019 for BMW, or until 10/2019 for MINI:

Carry out vehicle check at each third engine oil service or after 36 months, at the latest.

From 07/2019 for BMW, or from 11/2019 for MINI:

Carry out vehicle check at each third engine oil service or after 54 months, at the latest.

Oil service interval SA8KP (petrol):

Carry out engine oil change approx. every 8,000 km (12 months).

Change intervals that are linked with the engine oil service:

- Replace the microfilter at every 2nd engine oil change
- Replace the air filter at every 7th engine oil change

  For countries with higher levels of dust: Check the air cleaner for contamination and reduce the change interval if applicable!
- Replace the spark plugs at every 7th engine oil change

Until 06/2019 for BMW, or until 10/2019 for MINI:

Carry out vehicle check at each 7th engine oil service or after 48 months, at the latest.

From 07/2019 for BMW, or from 11/2019 for MINI:

Carry out vehicle check at each fifth engine oil service or after 60 months, at the latest.

Procedure: The change intervals that are due at the Service visit and the corresponding links for microfilters, air filters, spark plugs, fuel filters and the vehicle check are displayed correctly via ISPA depending on the service interval coding.

Country-specific deviations of the change intervals are possible depending on market requirements. This is manually controlled in each market.

The maintenance work must be carried out as shown in the Commercial Service Data and ISTA.

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00 01 07 (343)

Service Sheets - Condition-based Service/Pre-delivery Check (ISTA, ISPA, Commercial Service Data)

BMW, MINI

Situation: The information **"Condition-based Service - Service Sheets"** is generally available via **ISPA** and **Commercial Service Data** for Condition-based Service and service interval indicator vehicles, which must be printed within the framework of the order preparation.

ISPA offers the advantage of only showing the due scopes of service work on a vehicle-specific basis.

Technical information is available in **ISTA**.

Procedure:

- Service sheets:

The service sheet is printed out with ISPA or Commercial Service Data in the course of the service consultation.

a. ISPA: Read in ignition key -> Scopes of service work are selected/Select -> Menu Job order basis -> Print service sheet
b. ISPA: Open key data application -> Menu Job order basis -> Print manual service sheet -> Vehicle identification (17-character vehicle identification number) -> Print service sheet
c. KSD: Vehicle identification -> Maintenance (Inspection Sheets) -> Condition-based Service

Note: Country-specific deviations of the intervals shown on the Inspection Sheet are possible. Observe maintenance requirement in ISPA!

The engine oil top-up quantity can alternatively be determined via ISTA, EPC or KSD (Commercial Service Data).

a. ISTA. Vehicle identification -> Product structure -> Technical data -> 11 Engine -> 11 40 Oil supply / 11 00 Overview of Technical Data
b. EPC: Vehicle identification (vehicle identification number) -> Additional information -> Capacities
c. KSD: Vehicle identification (vehicle identification number) -> Packages -> Maintenance -> Service engine oil

or

KSD: Vehicle identification (vehicle identification number) -> Maintenance (Inspection Sheets) -> Condition-based Service -> Service engine oil

Additional information on the scopes of maintenance work is available in ISTA:

Product structure -> Repair instructions -> 0 Maintenance and general information

- Pre-delivery check:

The pre-delivery check is printed out with ISPA, ISTA or Commercial Service Data in the course of the service consultation.

a. ISPA: Read in ignition key with due pre-delivery check -> Menu Job order basis -> Print pre-delivery check
b. ISTA: Vehicle identification -> Product structure -> Repair instructions -> 0 Maintenance and general information -> Pre-delivery check
c. KSD: Vehicle identification -> Maintenance (Inspection Sheets) -> Pre-delivery check

- Further information:

ISTA: Vehicle identification -> Product structure -> Repair instructions -> 0 Maintenance and general information

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00 16 20 (759)

Service vehicle check falls due after CBS reset of engine oil service

Situation: Engine oil service is detected as due in the display systems during the Service Consultation after the key data have been read in. The service vehicle check is displayed as not due.

The service vehicle check falls due after the CBS reset of the engine oil service.

The reason for this is different links between engine oil service and service vehicle check regarding time and distance travelled in the vehicle.

Under certain circumstances (e.g. odometer reading during the engine oil service, average vehicle mileage/kilometrage, etc.) the vehicle may, following a CBS reset of the engine oil service, detect through calculations that the remaining time or the remaining distance of the service vehicle check will no longer be enough until the next forecast engine oil service.

For this reason the service vehicle check falls due after the CBS reset of the engine oil service.

Vehicles affected: All vehicles up to build level:

- BMW: 07/2019
- MINI: 11/2019
- Rolls-Royce: 07/2020

Furthermore, only vehicles with one of the following items of engine oil optional equipment are affected:

- SA8KE (12,000 km / 24 months)
- SA8KH (20,000 km / 18 months)
- SA8KK (15,000 km / 18 months)
- SA8KM (12,000 km / 12 months)
- SA8KP (8,000 km / 12 months)

Procedure: In this case, consult the customer without delay.

Explain the issues to the customer.

Furthermore, recommend to the customer that they have the service vehicle check carried out straight away as otherwise in a later case it might not be possible to bring forward warranty claims.

The vehicle must not under any circumstances be handed over to the customer with a service vehicle check due.

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00 15 19 (674)

Standard scope of service - Reduction of the work scope in electrified vehicles

Situation: As part of the standard scope of service, the charging of the high-voltage battery unit as well as the setting of the customer-specific charging current setting are no longer necessary.

Vehicles concerned: All electrified vehicles

Procedure: Detailed description on servicing must be taken from the maintenance manual 00 00 105 - Standard scope of service.

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00 13 11 (697)

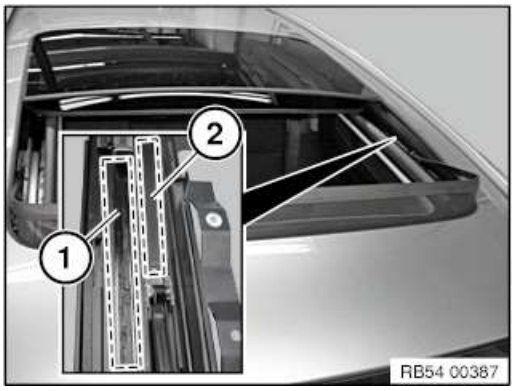
Standard work scope - expansion of work scope (with slide/tilt sunroof and panorama glass roof)

Check guide rails and water drain channels in slide/tilt sunroof or panorama glass roof for dirt contamination

Situation: During a regular workshop visit in the course of maintenance (standard service scope), the guide rails and water drain channels in slide/tilt sunroof or panorama glass roof must be checked for dirt contamination.

Vehicles concerned: All BMW, MINI and Rolls-Royce with slide/tilt sunroof and panorama glass roof.

Procedure:



Glass slide/tilt sunroof panel fully open.

Check guide rail (1) and water drain channel (2) on left and right for dirt contamination. In the case of dirt contamination, guide rail (1) and water drain channel (2) on left and right must be cleaned against separate charge.

Check the spare wheel well and luggage compartment side boxes for moisture. If moisture is found, note the procedure of the respective vehicle-specific Product and Measures Management Aftersales (PuMA) measure.

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00 20 20 (764)

Wiring harness repair on exterior mirror

Situation: In situations where the mirror glass on an exterior mirror is stolen and force has been used, it is frequently the case that the vehicle wiring harness and the plug connections will have suffered damage.

To repair the plug connections and the wiring harness, it had generally been necessary in the past to renew the mirror electronics.

From now on this is no longer necessary in most cases because a wiring harness repair kit for this very purpose is available in the Electronic Parts Catalogue.

Vehicles affected: All BMWs and MINI F Series, G Series, I Series and Rolls-Royce Series.

Procedure: Take the missing or damaged plug connections from the wiring harness repair kit.

Perform the wiring harness repair, refer to: Repair instructions.

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00 05 09 (608)

Emergency Services (BMW/MINI) from issue September 2009

new OSS address

Situation: An update of the Emergency Services is no longer available on the Aftersales Assistance Portal (ASAP). A current version of the Emergency Services now only at the online Service System for BMW Service and MINI Service (OSS) at the following Internet address:

- **https://oss.bmw.de/index.jsp**

Affected vehicles: BMW and MINI

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61 03 98 (387)

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

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61 03 98 (387)

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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

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00 02 06 (296)

Drawbar load sign omitted

All with options 235 and 3AC

Situation:	There have been new vehicle documents since 2005-10-01.
	Beginning with this production date, vehicles no longer need to be equipped with the trailer hitch drawbar load sign.
	Corresponding information on the options is provided in the vehicle documents.
	The regulation pertains to all series.

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41 02 09 (521)

New repair methods ”Gluing / Riveting” on steel bodies

BMW/MINI

Situation: Advance technical developments in the field of adhesives and equipment technology have made modified repair methods possible. This procedure has been tested and approved following exhaustive endurance runs and corrosion tests in the Development division.

Similar to the procedure for the tail panel on the F01/F02, the repair methods "welding/soldering" will change to "gluing/riveting" on various outer skin and structural components of steel bodies from the launch of the E89 and R57. This procedure has already been introduced for repair work on the reduced-weight aluminium front end (GRAV) of the E60.

The repairs can be performed by all workshops that have participated in a GRAV or the current bonding and riveting training, in combination with the training video.

Another positive point of this method is the significantly improved corrosion protection resulting from the wide-area bonding of the spare part coating (KTL).

Procedure: Essentially, the following components are affected:

- Rear side wall
- Tail panel
- Boot floor
- Roof outer skin
- engine carrier
- support carrier

Model series affected:

- MINI (R55, R56, R57)
- BMW 1 Series (as of E8x)
- 3 Series (as of E9x)
- 5 Series (as of E60)
- X1 (E84)
- X5 (E70)
- X6 (E71)
- Z4 (E89)
- 7 Series (as of F01)

And all future series.

Necessary workshop equipment:

- Punch riveting tool
- Blind riveting tongs
- Cartridge gun for body glue
- Universal collet (for roof ducts)
- Infrared lamp

For more information on the required tools, see Service Information.

Parts required:

The new parts and consumables required for the respective scope of repair work are listed in the Electronic Parts Catalogue (EPC).

In addition, vehicle-specific service repair packages are also offered. Here, the vehicle identification number is to be entered in KSD2, the corresponding "Packages" button selected and the required job item selected in main group 41.

Repair instructions:

The repair instructions have been revised to take account of the new repair method:

To differentiate the individual repair methods, the repair stage is inserted in the repair instructions.

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- Repair stage 1: All repairs that only provide for replacement of screwed/bolted components and planishing operations.
- Repair stage 2: Repairs that are carried out by bonding and riveting without the use of a straightening bench.
- Repair stage 3: Repairs that are carried out by bonding and riveting with the use of a straightening bench or welding.

Training video for bonding and riveting:

The new methods, for example "punch riveting", have been described on a training video that will be distributed to National Sales Companies.

Please make sure the training video is made available to the staff who will be performing this work and, if you do not perform body repair in your own workshop, to the staff of your specialist body workshop.

The BMW paint brochure can be ordered via the usual parts-related channel under the BMW parts number 01 69 0 037 577.

Time allowances:

Time allowances (flat rates) have been revised to take account of the new repair methods and shall apply retrospectively.

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31 01 12 (833)

Visible corrosion on vehicle add-on parts

Situation: Since the market introduction of the E65/66 the engine compartment and underbody preservation has successively been dropped from all series for environmental protection reasons. This may result in visible corrosion of machined surfaces such as, for example, on chassis/suspension components, machined screwing/bolting points, screw connections, or on surfaces such as, for example, the joints and drive shafts!

To prevent or re-treat this surface corrosion, the dealer organisation should use the corrosion protection with BMW part number 83 19 2 317 997.

Vehicles concerned: All BMW, MINI series

Procedure: Apply a thin coating of corrosion inhibitor (using only a brush) to the affected areas.

Warning!

Risk of fire!

Do not apply any corrosion inhibitor to the engine or the exhaust system!

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00 12 07 (381)

Arguments pertaining to engine oil consumption

BMW, MINI

Subject matter

Customers are often unsure when it comes to the subject of engine oil consumption. Is an engine allowed to consume oil? What are the most important causes of engine oil consumption?

The following explanations are intended to provide an aid to argumentation. They are aimed at all dealership staff who have contact with customers.

Functions of engine oil

Engine oil is one of the most important operating fluids in a combustion engine. The engine cannot work properly without engine oil. The main functions of engine oil are:

- Lubrication
- Cooling
- Prevention of corrosion and sedimentation

Lubrication

The lubricating film or the engine oil is exposed to a wide range of demands. The viscosity of the engine oil should not be too high at low temperatures so as to ensure optimum lubrication already at cold engine temperatures (e.g. cold starting). On the other hand, the engine oil should not be too thin-bodied at high temperatures as this can break down the lubricating film and nullify the lubricating effect entirely.

The most important function of the engine oil is to minimise friction between metal surfaces. This function is effected by a lubricating film which builds up during operation between the surfaces of the moving engine components. The thin oil film reduces friction significantly, which translates into lower wear and lower heat generation. As well as preventing piston seizures and bearing damage, it extends the service life of all the relevant engine components and reduces fuel consumption.

Another function of the oil film is to seal the combustion chamber against the crankcase via the piston rings.

, cooling

The pistons already reach their operating temperature shortly after the engine is started. It can take a few minutes, depending on the ambient temperature, the engine design and the driving style adopted, for the engine block and thus the cylinder walls to reach their operating temperature. The engine needs a fully functioning cooling system to stop it from exceeding the operating temperature. Aside from the two classic cooling components - air and coolant - engine oil is often underestimated or even forgotten as a crucial cooling component. The engine oil is responsible for a significant degree of cooling inside the engine. Specifically to cool the piston crowns, virtually all BMW engines have oil spray nozzles which moisten the piston crowns with engine oil.

Prevention of corrosion and sedimentation

Last but not least, it is the job of the engine oil to protect the engine against corrosion and sedimentation. Aggressive combustion residues are neutralised by the lubricating oil and appropriate additives. The remaining combustion residues are carried by the oil circuit to the oil filter, where they are filtered, or settle in the oil sump.

Engine oil consumption

Engine oil consumption is dictated above all by the structural design of the individual assemblies or systems. Every combustion engine has a system-dictated consumption of lubricating oil. Decisive causes of engine oil consumption are:

- Pistons with piston rings
- Valve stem seals
- Crankcase ventilation

The surface topography used of cylinder barrel and piston ring is the primary variable which directly influences engine oil consumption, since the piston rings do not constitute a perfect seal, but instead act as a metering unit. With regard to design, there is a conflict of interests between engine oil consumption and friction loss. The letter has a direct effect on power and fuel consumption. In each piston stroke tiny quantities of engine oil are left on the cylinder walls and this oil is essential for lubricating the piston rings and the piston skirt (see above, lubricating film). During the piston downstroke the engine oil deposited on the cylinder wall takes part in the combustion close to the wall and is discharged with the combustion gases. The higher the engine speed, the greater the effect, since more combustion cycles per unit of time take place. For this reason, engines with a high rpm concept (BMW M engines)

tend to have a higher engine oil consumption than other BMW engines. The same applies to the lubricating film on the valve stems.

Note:

For BMW spark-ignition and diesel engines, the maximum permissible engine oil consumption is 0.7 l/1000 km.

Because of their increased power output and torque, M engines have a maximum permissible oil consumption of 1.5 l/1000 km.

The measurable result of an engine oil consumption is overridden by the quality of the fuel used and of the driving profile. If, for example, in winter a lot of short distances are driven (= high fuel entry since the vaporisation temperature is for the most part only briefly achieved) and then a longer distance is driven (fuel can now vaporise), a significant drop in the engine oil level is encountered on this trip. This does not constitute engine oil consumption, but instead merely a different engine oil level on account of the fuel content in the engine oil. Customer complaints can often be put down to this fact. The situation can arise where the engine oil level drops over a few 100 km by around 1 litre. Added to this is some engines is a degree of uncertainty of up to 0.3 litres by the relevant measuring system (oil dipstick/QLT).

Even the oil mist particles entrained via the crankcase ventilation (separation efficiency technically never 100 %) take part with the intake air in the combustion process. The design is particularly problematic here. On the one hand, engine oil should be separated as fully as possible; on the other hand; crankcase pressure requirements must be satisfied. Moreover, conventional separation systems function to optimum effect only with a specific gas flow rate; the separation effect decreases with lower or higher gas quantities.

Summary

Every internal combustion engine has a technically necessary engine oil consumption. The level of engine oil consumption is clearly influenced by the driveability and by the fuel used.

Oil consumption measurement

The level of engine oil consumption that may arise with a particular engine can be determined by the customer only from the amount of engine oil he or she tops up with. As soon as the engine oil level falls below the maximum mark on the dipstick, many customers top up the engine oil without paying attention to a number of basic rules, such as the vehicle must be standing on level ground, a certain period of time must be left to allow the oil to flow back to the sump. In such cases, the available container sizes (e.g. 1-litre can) make it easy to top up above the maximum mark. Excess engine oil can cause engine damage and is consumed more quickly due to the effects of splash.

For this reason, it is advisable to let the engine oil level drop as far as the minimum mark and only then to add the required volume of engine oil. The difference between the two marks is approximately 1.0 to 1.5 litres.

The procedure for checking the oil level is given in the Owner's Handbook for the vehicle concerned.

The service delegates will only deal with claims made under warranty if exact measurements by weighing are available (see SBS 11 07 96 138, Enclosure 12).

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00 26 11 (731)

Brake fluid - Operating Fluids Specification

Situation: To provide permanent surface protection in the brake system, only low viscosity DOT4 brake fluids that have been approved by BMW may be used.

Vehicles concerned: All BMW, MINI and Rolls-Royce.

Procedure: The low viscosity DOT4 brake fluids currently approved by BMW can be viewed in the current ISTA version (operating materials - main group 34).

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00 30 11 (735)

Final drive oil - new oil quality from 07/2011

Situation: In motor vehicles from production date 07/2011, the final drive oil SAF-XO is being replaced by the final drive oil Hypoid Axle Oil G1 (BOT448).

Vehicles concerned: All BMW without M models

All MINI

All Rolls-Royce

Procedure: In vehicles from production date 07/2011, use oil specification Hypoid Axle Oil G1 (BOT448) for oil filling/additions to the rear axle differential.

The final drive oils currently approved by BMW can be viewed in the current ISTA version (operating materials - main group 33).

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00 03 10 (663)

Annual vehicle inspection in compliance with labour protection and accident prevention according to Operating Safety Ordinance BGV D 29 and BBG 916

Germany only

Situation: In order to comply with European and German legislation on labour protection and the occupational safety of employees, it is necessary to observe the guidelines and directives drawn up by the German Social Accident Insurance Institution within the framework of accident prevention regulations:

1. German Social Accident Insurance Institution ordinance BGV D 29 "Accident prevention regulation - vehicles"

Accordingly an employer must have all vehicles which are used for commercial purposes by himself or by employees, regardless of whether they are officially registered or not, inspected to ascertained their operationally safe condition at least once per year.

Excluded from this requirement are private vehicles used for business or social purposes and test vehicles.

2. German Social Accident Insurance Institution principle BGG 916 "Inspection of vehicles by experts"

This inspection - as contemplated by the accident prevention regulations - can be conducted by an officially recognised specialist or inspector within the framework of a §29 inspection or also by an expert.

Experts as contemplated by this ordinance are persons who, as a result of their specialist training and experience, have knowledge in the field of automotive engineering and of the relevant labour protection and accident prevention regulations. These include in the automotive trade all skilled workers and workshop foremen.

The scope of inspection for "Operating Safety" must cover all matters pertaining to roadworthiness and occupational safety.

The inspection in accordance with BGV D 29 in conjunction with BGG 916 focuses on:

- Equipment required by law – warning triangle, first-aid kit
- High-visibility jacket
- Documents to be carried – car registration papers, Owner's Handbook, acceptance report, etc.
- Type approval of non-standard modifications, fittings, etc.
- View/windows – heating – mirrors – electrical equipment
- Moving add-on parts and body components
- Securing of loads – load area nets, lashing points, roof boxes
- Trailer tow hitch
- Grab handles, head restraints, seats, seat belts

Vehicle condition check:

- Passenger compartment, general condition
- Rims and tyres, type approval, condition, damage
- Lights, auxiliary headlamps
- Vehicle condition - exterior, underbody, loose parts
- Vehicle chequebook

The inspection is to be documented in the form of an inspection record, which is to be kept until the next inspection due.

Vehicles concerned: All BMW Group vehicles (cars and motorcycles), i.e. BMW, MINI, Rolls-Royce and BMW Motorrad and vehicles of other manufacturers in the company in question.

Procedure: If the inspection is not conducted on the basis of a §29 inspection, it can be conducted for passenger vehicles (vehicle category M1 up to 3.5 t permitted vehicle weight) by working through the inspection lists of the vehicle manufacturers provided that all the matters relevant to occupational safety and roadworthiness are taken into consideration. In practice the "large" inspection lists contain all the safety-relevant test points.

BMW vehicles with service interval indicators are covered in each case by the current Inspection Sheet II (see example in Appendix 2). These are all BMW vehicles up to and including E46 as well as E83 and E85 and MINI R50, R52 and R53.

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Vehicles with CBS (Condition Based Service) are covered in each case by the current “Condition Based Service” list (see example in Appendix 3). These are all BMW vehicles from E65 and higher (but not including E83 and E85) as well as MINI from R56 and higher and Rolls-Royce.

Note: Changing service fluids, filters and spark plugs is not necessary in this respect and is dependent solely on the specified BMW service intervals.

In addition to the test specifications in the inspection lists it is also necessary to check for the **presence of first-aid kits and high-visibility jackets**. In the case of vehicles used for commercial purposes which in accordance with EC Regulation 3821/85/EC must be fitted with a **digital recording device** (“tachograph”) in order to record driving times/rest periods and working hours, this requirement also covers checking for the presence and correct function of the recording device.

An inspection in accordance with the ordinance at hand is only then positively concluded if there no defects/deficiencies.

When the inspection has been completed an inspection record as shown in the appendix complete with details of the object inspected, e.g. vehicle identification number, and the inspection date must be drawn up and initialled by the person inspecting. It is useful for this record also to be initialled by the relevant employer or his authorised person or representative.

A printed specimen of the inspection record is attached as Appendix 1 to this Service Information bulletin. Forms for the inspection results can be purchased from Carl Heymanns Verlag under the title “Prüfbefund über die regelmäßige Prüfung von Fahrzeugen durch den Sachkundigen”.

For the sake of completeness the inspection sheet applicable to the vehicle to be inspected or a copy of the §29 inspection report should be attached to the inspection record.

An inspection badge as shown in the graphic can be attached to the vehicle on a voluntary basis; this is usually done only in the case of technical tools/work equipment or if the same vehicle is used for commercial purposes over a period of several years.



This badge can be obtained from for example the relevant German Social Accident Insurance Institution or the Internet: www.prüfplakette.com.

Notes: This vehicle inspection prescribed for occupational safety law reasons does not for vehicles with number plates replace the general inspections at the corresponding inspection intervals prescribed in accordance with the German road traffic legislation §29 StVZO.

It is also recommended to contact the German Social Accident Insurance Institution for the metalworking industry (BGM) or the vehicle operating trades (BGF) for information on the current ordinances and principles.

These vehicle inspections can also be offered as a service to external customers using vehicles for commercial purposes.

Reimbursement: No BMW flat rate units or defect codes are specified for this inspection since this scope cannot be invoiced through the warranty channel.

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00 04 06 (268)

Changed emissions test indicator

BMW Condition Based Service

Situation: The emissions test indicator in the CBS can be activated and deactivated. The default encoding for the emissions test indicator depends on the market concerned.

Procedure:

- Start diagnosis system
- Perform vehicle identification
- In diagnosis, change to fault pattern analysis and activate function selection
- Select service functions
  - Maintenance
- CBS vehicle data correction
- Select testing schedule
- Start CBS vehicle data correction SCBS_6004
  - Select CBS correction operations (point [2])
  - Select general inspection (point [3]) or emissions test (point [4])
  - Activate or deactivate indicator
- If activating, select and enter new date

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00 18 12 (864)

General and legal information on performing the periodic exhaust-gas (emissions) test in EU countries

BMW vehicles built between 1968 and 03/2012, MINI as from R50 and
Rolls Royce as from RR01

Situation: **I.** Due to updates on the part of the EU to the reqgulations* for the regular vehicle roadworthiness tests of which the exhaust emissions test is part, * = last version: 2010/48/EC of 05.07.2010

- and the proportionate adoption of EU-valid minimum emissions test inspection specifications by the German Ministry of Transport for the periodic motor vehicle inspection (§29_StVZO) as from mid-2012,
- and the easier comprehensibility and improved overview, e.g. division into EU specifications and specifications only applicable to Germany

the BMW Service Information bulletins pertaining to the exhaust-gas test which have been in circulation since 1993 are updated, restructured and divided into:

1. General and legal emissions test information

2. Emissions test instructions for BMW Group vehicles with petrol engines

3. Emissions test instructions for BMW Group vehicles with diesel engines

4. Emissions test instructions for BMW Group vehicles with alternative drives

II. Within the framework of this restructuring and updating the **General and legal information** on the exhaust-gas test will be set out in this Service Information bulletin.

1. EU considerations (applicable in part to other ECE markets as well)**:**

An exhaust emissions test at regular intervals was introduced from March 1998 at the latest in all EU countries for all passenger cars, trucks and buses. The exhaust emissions test forms part of the overall technical motor vehicle inspection. The basis for this is EU Directive 96/96/EC of 20.12.1996 together with its exhaust-related updates 2001/9/EC and 2003/27/EC. The currently applicable version is EU Regulation 2010/48/EC of July 2010. The testing scopes specified in the above-mentioned regulations are minimum requirements which, however, may be extended or made stricter in particular countries depending on the EU Member State or particular reasons such as high levels of air pollution, high traffic volumes, etc.

The inspection intervals vary, depending on the country, for privately used vehicles between 2 and 4 years for the first inspection, and then repeated every 2 years. An annual interval applies to all commercially used hire vehicles and passenger vehicles as well as to goods vehicles starting at 3.5 to in weight.

With regard to the inspection contents, a distinction is made between the type of drive:

- all vehicles with engines with externally supplied ignition or petrol engines from 1968
- all diesel-engine vehicles from 1980

For vehicles with alternative drives, e.g. hybrid systems, the vehicle manufacturer can, in line with the above-mentioned 2 main groups and further to approval by the relevant national authorities, draw up type-specific inspection specifications.

The EU and German exhaust emissions directives also contain, in addition to the scopes of inspection and inspection procedures and the maximum permitted exhaust gas limit values, further specifications for the test equipment (type approval, calibration) and the test environment such as e.g. for authorised inspectors, equipment at the inspection site, etc.

2. Germany:

In Germany the special exhaust emissions test (“Abgas-Sonder-Untersuchung” - ASU) had already been introduced on 01.04.1985 for passenger cars with petrol engines without closed-loop-controlled exhaust gas aftertreatment systems, i.e. vehicles as from model year 1968.

From 01.12.1993 this periodic exhaust emissions test was extended under the name “Abgasuntersuchung” (AU)

(exhaust emissions test) to all passenger cars, i.e. also petrol vehicles with closed-loop-controlled exhaust gas reduction systems ("U-Kat" or "G-Kat") and all vehicles with diesel engines (passenger cars, commercial vehicles and buses). From 01.04.2006 motorcycles as from model year 1980 were also incorporated into the exhaust emissions test.

The statutory basis for this is provided by §29 and §47a and b of the German road traffic licensing regulations (StVZO). From 01.04.2006 the hitherto separate exhaust emissions test became an integral part of the technical motor vehicle inspection (§29), but may also continue to be carried out as a separate element by recognised workshops.

Vehicles affected: BMW vehicles: Petrol engine as from model year 1968; with diesel fuel as from MY 1983

MINI as from R50 and Rolls-Royce as from RR01

Procedure:

1. In the performance of the exhaust emissions test required by law, which constitutes an sovereign act, the EU- and the **country-specific administrative regulations** must be observed.

2. The **technical details of the testing scopes** and type-specific particular features can be obtained from the Service Information bulletins listed below:

- Emissions test instructions for BMW Group vehicles with petrol engines
- Emissions test instructions for BMW Group vehicles with diesel engines
- Emissions test instructions for BMW Group vehicles with alternative drives

3. Furthermore, primarily the manufacturer- and type-specific specified values, or if these are not available, the statutory maximum limit values must be applied to the exhaust emissions test. These specified values, which in part also contain setting instructions, are set out specifically for each type in the **collection of BMW emissions test nominal values**.

Notes:

These emissions test nominal values are called up, depending on the user, via the Intranet or Extranet of the BMW Aftersales Portal or for "third-party users", via the Internet from the BMW web portal Technical Parts Information System: "ASAP", module - emissions test nominal values, at the web addresses:

http://www.parts.bmwgroup.com

or

http://www.aftersales.bmwgroup

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These emissions test nominal values are for the most part - also in the course of the next due maintenance on the BMW emission testers - loaded by the BMW-approved equipment manufacturers into the test equipment memories.

Moreover, these data can also be obtained from the data catalogues of the open-market repair data publishers (e.g. DAT, Eurotax, Autodata, etc.) once their publications have been updated.

The current database contains the nominal data for all vehicles of the BMW Group as well as MINI and Rolls-Royce, i.e. produced between 1968 and 03-2012. Updates are usually issued in April and October every year.

Remarks:

If you find that vehicles are either not listed in this database, or that a listing is incomplete or faulty, you are advised to:

- copy the reply sheet attached in Enclosure 1 of this Service Information bulletin,
- get the testing personnel to complete/correct it
- if necessary, send together with a copy of the vehicle's official registration papers or of the printout of the nominal values to BMW AG Central Service - Repair Information, Dept. UA-72 by fax (no.: +49 89 382 4 17 88) or by e-mail to the address **AU-Soll-Daten@bmw.de**.

We will then amend or correct accordingly in the next update.

4. Officially specified test categories:

EU-wide and covering all engine designs:

- **Vehicle identification** (number/license plate, km reading/mileage and vehicle identification number)
- **Visual inspection** of all exhaust-relevant components for existence, absence of change and damage; on vehicles with exhaust on-board diagnosis (EOBD): check of exhaust-relevant fault entries
- **Setting checks** (idle speed and increased idle speed, if necessary ignition; diesel fuel: maximum speed)
- **Effective check by means of exhaust tailpipe measurement** on:

Petrol engines:

- without catalytic converter: CO at idle;
- with closed-loop-controlled catalytic converter: CO, lambda

Diesel engines:

- Exhaust gas opacity when revving the engine from idle up to maximum speed (no load)
- **Documentation of the test results and their evaluation** (not OK or OK)

5. There are also **regulations for type approval and regular calibration of emission testers**. A wide range of emission testers is tested and recommended by BMW in the interests of complying with its own service conditions (integration in BMW workshop network, flat rate units, adaptation to BMW vehicles, etc.) and published in the Workshop Equipment and Planning Catalogue (WEP).



Fig.: Examples of BMW-recommended emission testers.

6. Additional legal requirements in Germany:

The exhaust emissions test must be carried out with PC-based **"operator prompting"** installed in the emission testers. This signifies a legally required test sequence and the associated automatic recording of the test components. This is intended to eliminate the risk of tampering to the greatest possible extent.

For the purpose of certification the testing personnel must attend an initial training course and then a refresher training course every 3 years.

Workshops that carry out the exhaust emissions test must be certified by the state authorities or on behalf of them by

the automotive trade guide with regard to the safety, suitability and completeness of the emissions test equipment.

Since 2006 it has been required for the emissions test results, equipment maintenance and training courses to be centrally recorded within the framework of a quality system.

7. General – across all engine types

Note on EU exhaust emissions standard

The figure according to the European exhaust emission standard is the figure applicable at start of production of the vehicle. The vehicle registration certificate may show other figures depending on the actual production date of the vehicle.

Exhaust emissions test on vehicles with automatic transmissions

Vehicles with automatic transmissions may suffer failure of their multidisc clutches during exhaust emissions test if the test steps take up too much time at higher engine speeds.

This concerns in diesel engines primarily the checking of the “maximum speed at no load” if it takes longer than 1.5 seconds and in petrol-engine vehicles with oxygen sensor emissions control (closed-loop-controlled catalytic converter) if the conditioning phase of 3 minutes is applied at n => 3000 rpm.

This damage is caused by the high pressure in the hydraulic fluid circuit at engine speeds above approx. 2500 rpm, which results in a pressurisation of the clutch discs by way of leaks due to operation or wear. The linings of these clutches are subject to increased wear with the selector lever in position “P” or “N” and the output shaft or rear wheels stationary.

Effect: Primarily in the ZF type 4HP22 automatic transmission under the currently specified test conditions the disc set of the “A” clutch may be detrimentally affected to such an extent that forward travel is no longer possible after the exhaust emissions test has been completed.

Measure: With the vehicle stopped (selector lever in position “P”) and with the ZF 4HP22 automatic transmission the following operating points (engine speed/time) must not be exceeded:

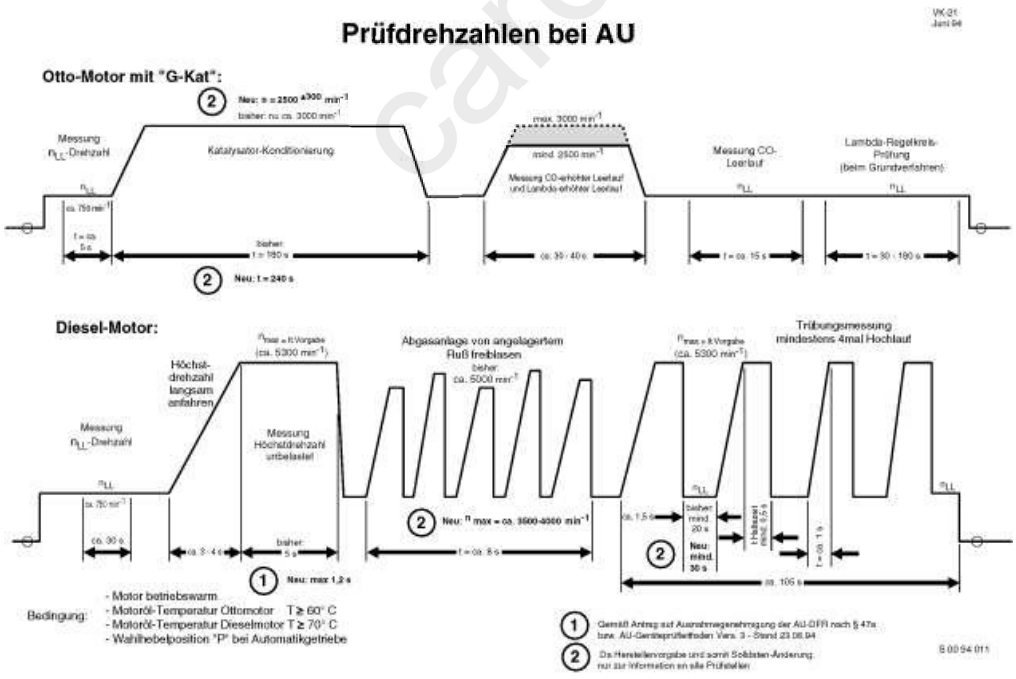
nengine = 2500 rpm --> max. 15 minutes

nengine = 3000 rpm --> max. 60 seconds

nengine = 5000 rpm --> max. 1.2 seconds

In the case of other automatic transmissions, the dwell time at higher engine speeds

(> 3000 rpm) must be limited to the absolutely necessary level.



00 03 04 (091)

Master document for vehicle-specific Service Information bulletins

All model series up to Model Year 2004

Situation: The constantly increasing range of different models has now grown to a degree that makes it logical to allow vehicle-specific data to be called up concisely from a single document.

Procedure: Call up publications concerning vehicle-specific data via the following hotspots:

Service Information bulletins, ordered by year of publication:

Year of publication	Title	Affected model series
1995	Sealing rings for expansion tank	E36 M50, M52 with ASC+T
1995	Overview 1996	E31, E34, E36, E38, E39
1995	Natural-gas-driven vehicles (CNG)	316 g, 518 g
1997	Chip tuning on diesel engines	M41, M51, M47, M57, M67
1997	Support tower in oil-filter housing	E31, E32, E34, E38 M60/1, M60/2, M70, M73
2000	Transpack	E52, E53
2001	Emissions test, alternative procedure	BMW, MINI EUR only
2001	Checking V-belt ribs	E53 M54, M57, M62
2001	Towing characteristics E65	E65
2002	Oil filter change	R50, R53
2002	Transport mode	E39, E46, E53, E65, E66
2002	Diesel flushing agent discontinued	M47, M47TU, M57, M57TU, M67, M41, M51, M21 Not USA, Canada
2002	Transmission damage during emissions test	BMW with automatic transmission EUR only

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2002	Cleaning painted hardtop mounting surface	E52
2002	Checking the electro-mechanical parking brake during periodic vehicle inspection	E65, E66, E67
2002	Body protection film	R50, R53 Not United Kingdom
2003	Testing of four-wheel drive vehicles using brake test and performance test stands	E30, E34, E46, E53, E83
2003	Airbag: Repair Instructions for belt tensioner and/or side airbag triggering circuit	E36, E36/7, E38, E39, E46, E53, R50, R53
2003	Towing	E53, E83

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00 02 04 (090)

Master document for workshop literature/workshop equipment

All series until model year 2004

Situation: The constantly growing range of different models has now grown to a degree that makes it logical to allow data relevant to workshop literature/workshop equipment to be called up concisely from a single document.

Procedure: Call up publications concerning workshop literature/workshop equipment data from the following hotspots:

Service Information bulletins, ordered by year of publication:

Year of publication	Title	Affected model series
1996	Check accessories kit	BMW
1997	Handling special damaged components	BMW, MINI Germany only
1998	CBT Manager, software update of the SIP management program	BMW, MINI
1998	MoDiC 3 diagnostic head update	BMW, MINI
1999	Deletion of microfiches	BMW
1999	Remote operation using MoDiC 3	BMW, MINI
1999	Accelerated delivery of CDs	BMW, MINI
1999	New delivery address for CD recycling	BMW, MINI
1999	Rescue manual	BMW, MINI
2000	Handling "Q-I components"	BMW, MINI Germany only
2000	Technical Information for authorised third parties	BMW, MINI Europe only
2001	TIS Hotline	BMW, MINI
2002	KSD CD 05/2002	BMW

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2002	Online publication of type approval numbers for original BMW brake pads	BMW from E36/7, MINI Excluding USA, C
2004	Support Service for GT1	BMW, MINI

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00 03 09 (528)

Supplement for target exhaust emission data from 04/2007 to 03/2009 Test procedure for lean-mix petrol engines. Amended test procedure and flat rate units for exhaust emission inspection on vehicles as from initial registration (EZ) 01.01.2006 or test procedure according to Exhaust Emission Guidelines No. 4

1 / E81 - E87; 3 / E90-E93; 5 / E60 - E61; 6 / E63 and E64; X3 / E83; X5 / E70, X6 / E71, Z4 / E85 and E86, MINI / R55, R56

Situation: 1. Type-specific target data for the exhaust emission inspection have been compiled for BMW models introduced in the period from 04/2007 to 03/2009. Changes/additions have in part been made to data records already published for earlier vehicles.

2. German legislation has adapted the testing procedure for all vehicles as from initial registration (EZ) 01.01.2006 to the technical advancement of these vehicles, e.g. EURO-4. This means only the OBD data need to be read and evaluated as part of the exhaust emission inspection. An exhaust emission measurement is to be additionally carried out only in rare cases where not all OBD readiness tests return a positive result, e.g. after clearing fault code memory.

For this purpose, the exhaust emission operator prompting has been adapted to the Exhaust Emission Guideline No. 4 which is compulsory for these vehicles as from 01.12.2008.

3. The flat rate units have also changed in line with the amended test procedure.

Affected vehicles: BMW and MINI petrol and diesel engine vehicles, initial registration from 04/2006 to 03/2009

E81-E87, E90-E93, E60-E61, E63-E64, E70-E71, E83, E85-E86. E65 and F01, F02. MINI / R55, R56

Procedure: **1.** The newly compiled or revised, indices manufacturer's data (target exhaust emission inspection data) are to be used while conducting the exhaust emission inspection on the indices BMW or MINI vehicles.

Note:

These data will be loaded in the tester menu by the BWM-approved tester manufacturer: AVL and MAHA as part of the next maintenance procedure on the BMW exhaust emission testers.

Since introducing the exclusive online provision data -user-dependent-, these data can be retrieved on the Intranet, Internet or Extranet from the BMW Web-Portal, Technical Parts Information System: ASAP", module - exhaust emission target data, under the web addresses:

http://www.parts.bmwgroup.com

or

http://www.aftersales.bmwgroup.com

Moreover, these data can also be obtained from the data catalogues of the open-market repair data publishers (e.g. DAT, Eurotax, Autodata, etc.) once their publications have been updated.

Note:

If you find that vehicles are either not listed, or that a listing is incomplete or faulty, you are advised to:

- copy the Reply forms provided in Enclosure 1 to this SI
- get the testing personnel to complete/correct it
- if necessary, send by fax to BMW's Central Service - Repair Information, Dept. VS-35 together with a copy of the car's official registration papers or of the printout of the nominal values. (fax No.: 089 -382-4 17 88

  We will then correct accordingly in the next update.

2. Using the new test procedure conforming to Guideline 4:

A. Reading and evaluation of OBD data.
   - If the status of the function indicator lamp is "MIL-Off",
   - there are no fault codes in Mode 3 **and**
   - and if all available test readiness codes are set positive, the exhaust emission inspection is passed and can be concluded with a printout of the test certificate or test verification.

     The exhaust emission inspection is not passed at MIL-On or if fault codes are set.

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B. Supplementary exhaust emission measurement:

If not **all** available test readiness codes are set to positive, e.g. after previously clearing the fault code memory, the previously standard exhaust emission measurement must be **additionally** carried out.

Petrol engines:

- Determining CO content at idle speed and elevated idle speed*
- Lambda at elevated idle speed*
- Carrying out Lambda_Regelkreis test by means of substitute procedure, i.e. measuring the oxygen sensor current with the generic scan tool*

Diesel engines:

- Measurement of idle speed and maximum engine speed*
- Measurement of exhaust gas opacity*

*= see type-specific exhaust emission target data

Note:

The following deviations in the additional exhaust emission measurement that may be necessary apply to BMW vehicles with lean-mix petrol engines such as the N43 and N53 that are equipped with a DeNOx storage catalytic converter:

Lambda: 0.97 **-2.30**

Current of lambda control sensors: -0.115 - **+1.325 mA**

The exhaust emission measurement must be repeated if regeneration of the DeNOx storage catalytic converter, which takes max. 10 sec and leads to lambda values substantially lower than 0.97 or CO values higher than 3 vol.-%, is initiated by the DME control unit during the exhaust emission measurement.

3. New flat rate units for the exhaust emission inspection **for vehicles with first registration** as from **01.01.2006:**

		Petrol engines:	**Diesel engines**
00 00 128	**§ Exhaust emission inspection only with OBD data**	**3 FRUs**	**3 FRUs**
00 00 528	**§ Exhaust emission inspection only with OBD (for inspection)**	**1 FRU**	**1 FRU**
00 00 850	**Supplementary exhaust emission measurement**	**2 FRUs**	**2 FRUs**

The previous FRUs are to be used for vehicles built before initial registration date 01.01.2006, i.e. general implementation of exhaust emission measurement.

Where applicable, other requirements relating to the exhaust emission inspection stipulated by national authorities which do not permit the use of manufacturer or type-specific data must be observed.

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00 05 11(686)

Supplement for target exhaust emissions inspection data of BMW and MINI vehicles from 04/2009. Modified test specifications for petrol lean-mixture engines N43 and N53. Test procedure for hybrid vehicles

1 / E81 - E87; 3 / E90-E93;5 / F10 - F11,F18; GT5 / F07; X1 / E84; X3 / F25;
X5 / E70, X6 / E71 - E72, Z4 / E89; MINI / R55 - R57, R60;

Situation: The type-specific target exhaust emissions inspection data has been issued for the BMW models introduced from 04 / 2009. Changes/additions have in part been made to data records already published for earlier vehicles, in particular with N43 lean-mixture N53engines.

Vehicles concerned: BMW and MINI petrol and diesel-engine cars, first registration from 04/2009

E81-E89, E90-E93, E70-E72, F01-F07, F10 – F18;F25; MINI / R55 - R57, R60; Rolls-Royce RR04;

Procedure: **1.** The newly compiled or revised type-specific manufacturer data (target exhaust emission inspection data) are to be used while conducting the exhaust-gas test on the BMW or MINI vehicles.

Note:

This data will be loaded for next maintenance in the tester menu by the BMW approved equipment manufacturer: AVL and MAHA as part of the next maintenance procedure on the BMW exhaust emission testers.

Since introducing the exclusive online provision data -user-dependent-, these data can be retrieved on the Intranet, Internet or Extranet from the BMW web portal, Technical Parts Information System: ASAP", module - emissions test nominal values, under the web addresses:

http://www.parts.bmwgroup.com

or

http://www.aftersales.bmwgroup.com

Moreover, these data can also be obtained from the data catalogues of the open-market repair data publishers (e.g. DAT, Eurotax, Autodata, etc.) once their publications have been updated.

Note:

If you find that vehicles are either not listed, or that a listing is incomplete or faulty, you are advised to:

- copy the Reply forms provided in the enclosure to this SI
- get the testing personnel to complete/correct it
- if necessary, send by fax to BMW AG Central Service - Repair Information, Dept. VH-54 together with a copy of the vehicle's official registration papers or of the printout of the nominal values. (fax No.: +49 89 382 4 17 88).

We will then correct accordingly in the next update.

2. Change of speed and lambda sensor specifications for lean mixture engines N43 and N53

2.1 Lambda sensor change for N43 and N53:

If necessary in the case of the additional exhaust test on the end pipe, if the readiness codes of the OBD are not positively set or are incomplete, the following lambda sensor values apply for BMW vehicles with petrol lean-mixture engines such as N 43 and N 53 for idle speed and increased idle speed:

0,7 - 4,0

Relevant current value range of the lambda control sensors:

- 1.60 to + 1.82 mA.

The exhaust emission measurement must be repeated if regeneration of the NOx catalyst storage converter, which takes max. 10 sec and leads to air ratios substantially lower than 0.97 or CO values higher than 3 vol.-%, is initiated by the DME control unit during the exhaust emission measurement.

2.2 Behaviour of the "increased" idle speed only for N43:

The engine control system MSD80 and MSD81 contains a time- and speed-dependent component protection function to avoid thermal damage to the N43 engines.

This means that for a stationary vehicle (v = 0 km/h) and acceleration, e.g. to bring the engine to the operating

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temperature quicker, after 150 seconds the increased idle speed is limited to a max. 2000 rpm. At the same time the engine warning light (EML) is controlled and a fault code (0x2F91) entered in the shadow memory (ScanTool-Mode 7).

For the performance of the emissions measurement in the legally required test step CO and lambda sensor measurement at increased idle speed, this means:

- To achieve the operating temperature the engine cannot be operated in a stationary position at an engine speed greater than 1900 rpm.
- Then the test step "CO and lambda sensor measurement at increased idle speed", according to BMW specification 2300 – 2700 rpm, can be performed **within a max. 150 seconds**.

3. Exhaust emissions inspection for BMW hybrid vehicles BMW 7-series Active Hybrid (F04) and BMW X6 Active Hybrid (E72).

The exhaust emissions must be inspected according to the two-stage test procedure valid for vehicles from 01.01.2006:

1. **Reading and evaluation of OBD data**

   MIL function; P codes in Mode 3; status of the readiness codes (RC)

   If all vehicle-specific relevant readiness codes (RCs) are not positively set, i.e. the OBD system is not ready for testing, then the next step must also be performed.

2. **Exhaust gas end pipe inspection with the following test criteria:**

- Petrol engine with G-cat:

- CO in idle state > max. 0.3 Vol-%
- CO increased idle state > max. 0.2 Vol-%
- Lambda 0.97-1.03 in increased idle state (n = 2300 – 2700 rpm)
- Closed loop test i.a.w. replacement procedure: i.e. current measurement of the lambda control sensors as per manufacturer specifications in idle state.

- Diesel engine:

- Check the idle state and maximum speed with no load; values as per manufacturer specifications
- Smoke density at free acceleration: K value according to manufacturer specifications or for vehicles with controlled particulate filter (PM-5) max. 0.5 m-1

Special features: Operation of the combustion engine at V = 0 km/h. Perform exhaust emissions inspection if step 2 = emission measurement required:

1. **For the BMW 7-Series Active Hybrid** the combustion engine can be operated in a stationary state without additional intervention due to the mild hybrid concept.
2. **For the BMW X6 Active Hybrid** on account of the full hybrid concept: "Start-up generally in electric motor mode" the following steps must be performed for the operation of the combustion engine in a stationary state:

I. Required operating mode: "Detection of driver present"; i.e. driver's door must be open and driver's seat belt not used!
II. Engine start by pressing Start button
III. Gearbox selector lever in position N!
IV. Gas pedal for idle state emission measurement not activated. Note: Depending on the state of charge of the high-voltage battery (HV) an increased load can be effected for the battery charge also in idle operation.
V. Press the gas pedal for increased idle state measurement at n-mot = 2300 - 2700 rpm and hold for prescribed measurement period (30 sec).

Where applicable, other specifications relating to the exhaust-gas test stipulated by national authorities which do not permit the use of manufacturer or type-specific exhaust emissions data must be observed.

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Test instructions for the exhaust gas test (AU) on BMW vehicles with diesel engines from European emission classification "EURO 6"

BMW and MINI diesel vehicles with exhaust emission stage "EURO 6" and from vehicles: EU exhaust gas code "W" or German emission key number "36W0". Depending on the model introduced from production 07/2014.

Situation: 1. The European parliament and the EU Council have adopted new test specifications for periodic vehicle inspection with the **guideline 2014/45/EU** in April 2014. Objective was to implement new findings in traffic conditions and to adapt the test according to the technical state of the vehicles.

The implementation regulations according to Enclosure I, section 8.2.2.2 of this guideline allow the exhaust emission behaviour for vehicles from EURO 6 to be classified by reading/evaluating the on-board diagnosis data (OBD) **and associated vehicle manufacturer's specifications**.

The BMW/MINI vehicles from the exhaust emission stage "EURO 6_Klasse W" contain extended and stringent OBD test criteria and are, thus, as a rule to be checked by evaluating the OBD data and observing the additional manufacturer's instructions. This test method corresponds to the state of the technology installed in these vehicles.

2. The German Department of Transport, in September 2014 by publishing the "**Guideline for the implementation of the exhaust gas test**", has adopted the minimum requirements of the above-mentioned EU Directive and has modified them slightly according to the field experiences in Germany. The previous procedure, for all vehicles from first registration 01.01.2006, that is, from exhaust emission stage EURO 4, the two-stage procedure is retained for the time being:

Stage 1: Reading and evaluation of OBD data;

Stage 2: If not **all** readiness codes are set to positive, then in addition an exhaust tailpipe measurement has to be carried out, in this case opacity measurement, under free acceleration and evaluation of the "Official sticker value" using certified exhaust emission devices. This applies until further notice even for EURO 6 vehicles until renewed findings equivalent to "OBD vs.. Exhaust gas measurement" are available.

Vehicles concerned: BMW and MINI diesel vehicles with exhaust emission stage "**EURO 6**" and from vehicles: **EU exhaust gas code "W"** or German emission key number "36**W**0". Depending on the model introduced from production 07/2014.

Procedure: **Official test scopes**

1. EU wide test scopes (without Germany):

- Vehicle and vehicle documents match;
- Recording vehicle data for verification certificate;

1.2 Exhaust gas classification test:

Check whether the vehicle corresponds to the exhaust emission stage/code "EURO 6 W" or "36W0". To do this, read out corresponding data from the certificate of acceptance part 1 (vehicle registration papers) in line 14 or in field 14.1.

1.3 Check by reading and evaluating the OBD data:

Connect one of a Generic ScanTool corresponding to the current OBD standards on the vehicle diagnosis interface. (Use ScanTools with printer output only.)

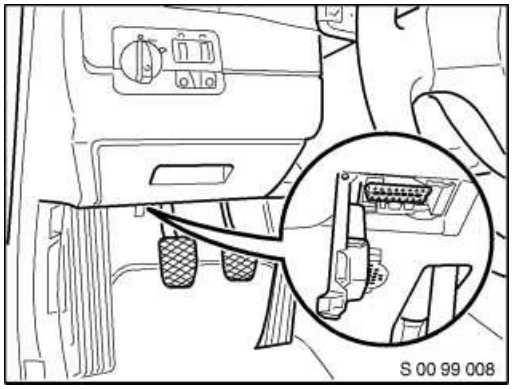
1.3.1 Functional test of the interface connecting ScanTool to the EOBD of the drive-control units

Display: **Type of the OBD report and the number of emission-relevant control units**

- See Enclosure 1: Graphics of all ScanTool modes or services

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- Please refer to Enclosure 2: ScanTool read out and results to diesel vehicle



OBD diagnosis connection in the vehicle

1.3.2 Malfunction indicator lamp check (MIL = malfunction indicator lamp)

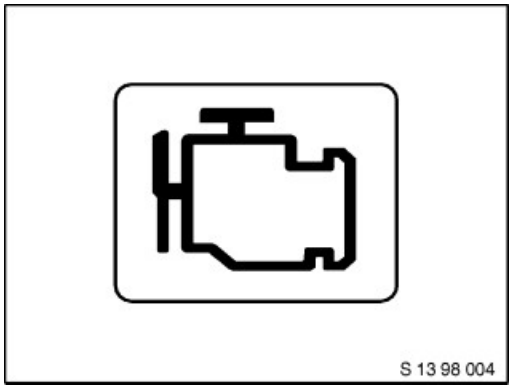


Figure of the malfunction indicator lamp (MIL)

- **Visual inspection of the function of malfunction indicator lamp** (MIL)
  - Ignition on – engine off - MIL lit = OK
  - Ignition on – engine off - MIL not lit = not OK
  - Ignition on – engine running - MIL off = OK
  - Ignition on – engine running - MIL lit = not OK
- **Reading the status of the MIL from the ScanTool in Mode 1-**
  - If the ScanTool output is "MIL Off": = OK
  - If the ScanTool output is "MIL On": = not OK

1.3.3 Status and evaluation of OBD readiness test (Readiness codes) **in the ScanTool mode 1**

Read out and evaluate individual readiness test codes in the two OBD categories:

- **Group B: Continuous monitoring**
- **Group C: Non-continuous monitoring**

Note: In the ScanTool, following selection is necessarily applicable:

"Delete readiness test for fault code"!

Here, the Readiness tests from several driving cycles are displayed and the probability is highest that all supported RCs are set to positive. When selecting "Readiness test of this cycle", the supported RCs are usually not set to positive.

Generally, immediately before the exhaust-gas test without a wilful occasion, for example, if no drivability complaints have been made by the customers, **the fault memory should not be deleted**, because this will also delete all readiness test codes, in addition to the error codes.

Only within the scope of service review or for customer complaints, the fault memory should be viewed in mode 3 with regard to possible repeatedly confirmed errors shortly before the exhaust-gas test. If errors exist that would lead to a failure of the exhaust-gas test, carry out a repair and then delete the fault memory. Then 2-3 driving cycles*

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should be carried out in which the readiness of the individual systems can be reset.

* = Engine start, acceleration phases, constant-speed driving, overrun phase, idle operation and stopping the engine

Readiness tests (Readiness codes) **Diesel engine**

Continuous monitoring	Non-continuous monitoring
- Byte B data -	**- Byte C data -**
0 misfire	**0 NMHC catalytic converter**
1 Fuel system	**1 Nitrogen oxide catalytic converter/SCR system**
2 Components	**2 -Free-**
3 -Free- (if necessary O-/D monitoring)	**3 Charging pressure**
	4 -Free- (if necessary air conditioning)
	5 Exhaust gas sensor
	6 Particulate filter
	7 Exhaust gas recirculation system

Table: Designations of the Readiness Codes

Manufacturer's specifications for Readiness Code - Evaluation:

In **the group B "continuous Überwachung_Data byte B", all parametrised and supported RCs must be set to positive**. that is, the electrical check of the sensors/actuators has lapsed in all functions; to do this usually a 1-2 minute engine operation in idle position is sufficient. **If one of these RCs is not set to positive even when the engine is running** (also referred to as "test not carried out"), **then the exhaust-gas test shall be evaluated as failed**.

In the Group C, "non-continuous Überwachung_Data byte C" all, but at least 4, parametrised or supported RCs should be checked to be positive. Few "long-time needed" RCs cannot yet **be set to positive!** (also referred to as "test not carried out").

Reason: Their fault set conditions require a longer journey with different load conditions, speeds and specific atmospheric conditions after fault memory deletion.

For BMW and MINI diesel fuel engines from exhaust emission stage EURO 6, the following 3 RCs: Nitrogen oxide/SCR system, particle filter, exhaust gas sensor may be exempted from RC evaluation, that is, not yet set to positive or Display bit 1.

Note:

The set result by a binary indication of the individual RCs is:

- 0 = checked at least once or diagnosis not supported
- 1 = Components displayed as not yet fully checked. The figure below shows the

Evaluation matrix:

Readiness Codes

Continuous testing_ Byte B data- Data: Petrol and diesel-engine vehicles

Bit		Supported/bit	Test carried out/ bit	Permissible bit values of the performed RCs for the exhaust-gas test evaluation at OK or passed
0	**Misfire**	**Yes = 0 / No = 1**	**Yes = 0 / No = 1**	**0**

1	**Fuel system**	**Yes = 0 / No = 1**	**Yes = 0 / No = 1**	**0**
2	**General components**	**Yes = 0 / No = 1**	**Yes = 0 / No = 1**	**0**
3	**Free- (if necessary O-D monitoring)**	**Yes = 0 / No = 1**	**Yes = 0 / No = 1**	**0 if implied; Otherwise even 1**

Non-continuous tests _ Data byte C/D data: Only **diesel vehicles**

Bit				
0	**NMHC catalytic converter**	**Yes = 0 / No = 1**	**Yes = 0 / No = 1**	**0**
1	**Nitrogen oxide catalytic converter/SCR system**	**Yes = 0 / No = 1**	**Yes = 0 / No = 1**	**0 or 1**
2	**free**	**Yes = 0 / No = 1**	**Yes = 0 / No = 1**	**0**
3	**Charging pressure**	**Yes = 0 / No = 1**	**Yes = 0 / No = 1**	**0**
4	**Free- (if necessary air conditioning)**	**Yes = 0 / No = 1**	**Yes = 0 / No = 1**	**0 or 1**
5	**Exhaust gas sensor**	**Yes = 0 / No = 1**	**Yes = 0 / No = 1**	**0 or 1**
6	**Diesel particulate filter**	**Yes = 0 / No = 1**	**Yes = 0 / No = 1**	**0 or 1**
7	**Exhaust gas recirculation system**	**Yes = 0 / No = 1**	**Yes = 0 / No = 1**	**0**

Graphic: Evaluation matrix of the readiness test bits

1.4 Record status of the fault memory in ScanTool mode 3*

(* = Mode 3 means storage of errors which have been confirmed over multiple driving cycles).

- **If** standardised **Powertrain codes**, for example, P0 xyz, P2 uvw or manufacturer-specific Powertrain codes, e.g P1 xyz, P3 uvw, **are stored**: Test = not OK
- **If no Powertrain codes are stored: Test = OK**

1.5 Identity check of the chassis number (VIN) according to the comparison via ScanTool Mode 9:

Read out chassis number (VIN = Vehicle Identification Number) from ScanTool Mode 9 and compare it with the vehicle type plate:

If the VINs deviate from each other: Test = not OK

1.6 OBD final evaluation:

If the:

- MIL - function check and MIL - status are OK,
- the RC evaluation, taking into account "long-time RCs" not relevant to the set, is positive
- no errors are stored in mode 3,
- the VIN comparison: Vehicle to ScanTool -Mode 9- information is identical,

then the exhaust-gas test is to be concluded as "passed".

If one of the aforementioned points is not OK, the exhaust-gas test via OBD is considered failed.

The OBD data MIL and RC status from Mode 1; Error codes from Mode 3 and VIN from Mode 9 are to be printed on the verification certificate.

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Note: If data communication is not possible in the event of several connection attempts between the ScanTool and the vehicle-side interface (OBD socket), the emissions test is classed as “not passed” and the vehicle is to be repaired.

2. Test scopes for exhaust-gas test on EURO 6 diesel vehicles in Germany:

In Germany, at present, the two-stage test procedure for all vehicles of categories M (passenger cars) and N (trucks) from the date of first registration 01.01.2006* is applicable even for EURO 6 vehicles with obligatory exhaust-gas test operator prompting. (* = from EURO 4 / IV) In addition, the exhaust-gas test may be performed on these vehicles from **01.06.2015** only with the operator prompting according to "Exhaust-gas test - devices user guide 5".

2.1. Level 1 = OBD - check:

Read out and evaluate the OBD data, as described in section 1.1 - 1.6, but with the following changes:

- **Section 1.2 Exhaust emission classification check on EURO 6 omitted** because all vehicles from first registration 01.01.2006 (from EURO 4) are primarily checked via the OBD.
- **In section 1.3.3, all continuous and all non-continuous supported readiness codes must be set to positive (bit = 0).**
- **If the readiness codes of the OBD system operated by the engine control unit are not or not completely set to positive,** that is, the OBD system itself is not yet ready for testing, for example, because the fault memory was deleted shortly before, **an opacity measurement must additionally be carried out according to Section 2.2.**

2.2. Level 2 = Exhaust gas opacity measurement as additional check under the following precondition:

Note: The following procedure generally also applies to all diesel vehicles before the first registration 01.01.2006. See also the BMW Service Information "Test instructions for the exhaust-gas test on BMW vehicles with diesel engines" from 04/2012.

2.2.1 Visual inspection of emission-relevant components:

Note: This test step will be deleted from the new version of §29_StVZO in accordance with 47th amendment regulation as from 01.07.2012, as the visual inspection is an integral part of the technical vehicle inspection and thus the same components are not inspected twice.

2.2.2 Setting check: Idle position and maximum speed unloaded according to the manufacturer's specification. See also BMW exhaust-gas test nominal data.

2.2.3 Effective check:

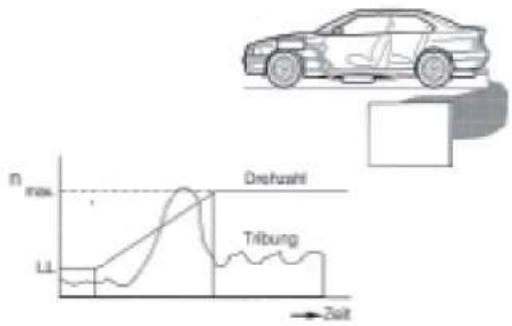
Determining the exhaust gas opacity at the exhaust system tailpipe during “free acceleration” at operating temperature, i.e. with engine oil temperature at minimum 60 °C with selector lever position in “Neutral”. Free acceleration is defined as revving the engine from idle up to maximum speed at no load in response to a swift opening of the throttle. The accelerator pedal must be depressed quickly and continuously within max. 1 second from the idle stop to the full load stop. To determine the actual opacity state (opacity coefficient k in m-1), it is necessary to create the arithmetical mean from three engine start-ups. If the opacity value of 1st engine start-up is at least 30 % below the limit value, further start-ups can be omitted.

Caution!

In few cases, under certain circumstances, it could lead to a state where the DME activates an engine speed limitation to 2000 rpm for the reason of component protection. After the terminal change, this protective function is automatically deactivated again.

Graphic: Opacity characteristic during engine start-up = free acceleration

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2.2.4 Opacity limit values:

For **all** diesel vehicles, since the publication of the German Implementing Directive only the "**Sticker value**" indicated on the vehicle type plate applies according to EU Directive 72/306/EEC.

BMW type plate with “sticker value” 0.51 in the small rectangle



If sticker value is not available or cannot be used on technical grounds, the following applies:

- for vehicles which were brought in the market for the first time before 1 October 2006: maximum 2.5 m-1, based on measuring mode B;
- for vehicles which were brought in the market for the first time from 1 October 2006 and before 1 September 2015: maximum 1.5 m-1, based on measuring mode B;
- for vehicles from emission key 36xx or 66xx: (= EURO 6) maximum 0.5 m-1, based on measurement mode B.

Note: In Germany it is possible to select the mode for determining the opacity coefficient, i.e. its measuring circuit time constant, in the emission tester:

- Mode A: = “unfiltered”, i.e. < 0.050 sec
- Mode B: = “filtered”, i.e. 0.90 – 1.10 sec

Generally mode B is to be used for BMW vehicles throughout the EU and in Germany in line with EU Directive 72/306/EEC.

General notes:

The manufacturing stage emissions test nominal values, for example, engine speed ranges; opacity threshold values are shown in the **BMW emissions test nominal data acquisition** related to the type.

These emissions test nominal values are called up, depending on the user, via the Intranet or Extranet of the BMW Aftersales Portal and for “third-party users”, via the Internet from the BMW web portal Technical Parts information system: ASAP”, module - emissions test nominal values

at the web addresses: http://www.parts.bmwgroup.com

Updates are usually issued in April and October every year.

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Moreover, these data can also be obtained from the data catalogues of the open-market repair data publishers (e.g. DAT, Eurotax, Autodata, etc.) once their publications have been updated.

Incidentally, in Germany, the new "Guidelines for conducting exhaust gas test on vehicles according to Section 6.8.2 of Enclosure VIlla German road traffic licensing regulations (StVZO) from 30.09.2014" are applicable.

Country-specific specifications of other countries must be given priority in any case to this SI specifications.

Enclosure 1 "ScanTool services"

Reading and display functions of the OBD - Generic ScanTools

	Select scan tool connected to OBD functions interface	
	Detect the EOBD or US OBD-2 diagnosis report	**Example: Society of Automotive Engineers J 1850, International Organization for Standardisation 9141-2, International Organization for Standardisation 14230-4 (= Key Word Protocol-2000 Fast), International Organization for Standardisation 15765-4 (= CAN);**
Service 01	**Malfunction indicator lamp status; Readiness code; Number of stored errors; call-up of current engine data (e.g.: n-mot; temperatures; load conditions etc.)**	**Listing of all supported systems/functions;**
Service 02	**Calling-up "Freeze Frame" data to stored error codes, for example, to P0 100:for n = 1,200 revolutions per minute; Tw = 22°C; Partial load= 10%, v = 0 km/h, etc.**	**Marginal conditions in which error codes were set**
Service 03	**Calling-up all set error codes. g. P0100 "Air flow circuit malfunction"**	**Listing of all fault codes that make the malfunction indicator lamp light up ; faults that are confirmed over multiple driving cycles**
Service 04	**Deleting the OBD error codes, Freeze Frame and all other data**	**Only permissible for test purposes after repair or if renewed driving cycle occurs**
Service 05	**Monitoring of oxygen sensors, for example, sensor 1: 0.35 <--> 0.87 volts**	**Checking the current control voltage - Engine must be running**
Service 06	**Call-up of the shadow fault memory, e. g. P0410 "Secondary air feed malfunction"**	**Not continuously monitored functions, for example, only 1 x after each engine start**
Service 07	**Call-up of the shadow fault memory, for example, P0133 oxygen sensor 1 = slow response**	**Continuous monitoring; fault codes stored here must not yet lead to the lighting up of malfunction indicator lamp**
Service 08	**System or components, for example, valve actuation for fuel tank ventilation system**	**Only required for in-depth diagnosis steps in Service**
Service 09	**Vehicle identification (chassis number control units number; mileage with malfunction indicator lamp ON)**	**for example, for documentation; as well as data for official field monitoring**
Service $0A	**Display permanent error codes**	**for example, non-deletable NOx codes**

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Test instructions for the exhaust gas test (AU) on BMW vehicles with petrol engines from European emission classification "EURO 6"

BMW, BMW i, BMW M, MINI and Rolls Royce petrol engine vehicles with exhaust emission stage "EURO 6“ and from EU-exhaust gas-code "W“ , or German emission key number"36W0". Depending on the model introduced from production 07/2014.

Situation: 1. The European parliament and the EU Council have adopted new test specifications for periodic vehicle inspection with the **guideline 2014/45/EU** in April 2014. Objective was to implement new findings in traffic conditions and to adapt the test according to the technical state of the vehicles.

The implementation regulations according to Enclosure I, section 8.2.2.2 of this guideline allow the exhaust emission behaviour for vehicles from EURO 6 to be classified by reading/evaluating the on-board diagnosis data (OBD) **and associated vehicle manufacturer's specifications**.

The BMW/MINI vehicles from the exhaust emission stage "EURO 6_Klasse W" contain extended and stringent OBD test criteria and are, thus, as a rule to be checked by evaluating the OBD data and observing the additional manufacturer's instructions. This test method corresponds to the state of the technology installed in these vehicles.

2. The German Department of Transport, in September 2014 by publishing the "**Guideline for the implementation of the exhaust gas test**", has adopted the minimum requirements of the above-mentioned EU Directive and has modified them slightly according to the field experiences in Germany. The previous procedure, for all vehicles from first registration 01.01.2006, that is, from exhaust emission stage EURO 4, the two-stage procedure is retained for the time being:

Stage 1: Reading and evaluation of OBD data;

Stage 2: If not **all** readiness codes are set to positive, then in addition an exhaust tailpipe measurement has to be carried out, in this case opacity measurement, under free acceleration and evaluation of the "Official sticker value" using certified exhaust emission devices. This applies until further notice even for EURO 6 vehicles until renewed findings equivalent to "OBD vs.. exhaust gas measurement" are available.

Vehicles affected: BMW, BMW i, BMW M, MINI and Rolls Royce petrol engine vehicles with exhaust emission stage "EURO 6“ and from EU-exhaust gas-code "W“ , or German emission key number"36W0". Depending on the model introduced from production 07/2014.

Procedure: **Official test scopes**

1. EU wide test scopes (without Germany):

- Vehicle and vehicle documents match;
- Recording vehicle data for verification certificate;

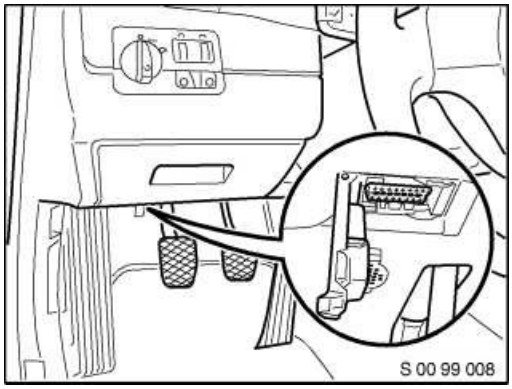
1.2 Exhaust gas classification test:

Check whether the vehicle corresponds to the exhaust emission stage/code "EURO 6 W" or "36W0". To do this, read out corresponding data from the certificate of acceptance part 1 (vehicle registration papers) in line 14 or in field 14.1.

1.3 Check by reading and evaluating the OBD data:

Connect one of a Generic ScanTool corresponding to the current OBD standards on the vehicle diagnosis interface. (Use ScanTools with printer output only.)

OBD diagnosis connection in the vehicle



1.3.1 Functional test of the interface connecting ScanTool to the EOBD of the drive-control units

Display: **Type of the OBD report and the number of emission-relevant control units**

- See Enclosure 1: Graphics of all ScanTool modes or services
- Please refer to Enclosure 2: ScanTool read out and results to diesel vehicle

1.3.2 Malfunction indicator lamp check (MIL = malfunction indicator lamp)

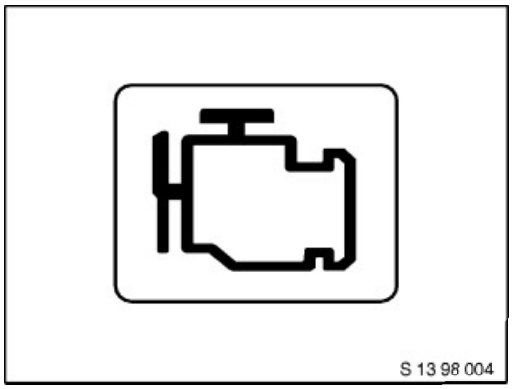


Figure of the malfunction indicator lamp (MIL)

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- **Visual inspection of the function of malfunction indicator lamp** (MIL)
  - Ignition on – engine off - MIL lit = OK
  - Ignition on – engine off - MIL not lit = not OK
  - Ignition on – engine running - MIL off = OK
  - Ignition on – engine running - MIL lit = not OK
- **Reading the status of the MIL from the ScanTool in Mode 1-**
  - If the ScanTool output is "MIL Off": = OK
  - If the ScanTool output is "MIL On": = not OK

1.3.3 Status and evaluation of OBD readiness test (Readiness codes) **in the ScanTool mode 1**

Read out and evaluate individual readiness test codes in the two OBD categories:

- **Group B: Continuous monitoring**
- **Group C: Non-continuous monitoring**

Note: In the ScanTool, following selection is necessarily applicable:

"Delete readiness test for fault code"!

Here, the readiness tests from several driving cycles are displayed and the probability is highest that all supported RCs are set to positive. When selecting "Readiness test of this cycle", the supported RCs are usually not set to positive.

Generally, immediately before the exhaust-gas test without a wilful occasion, for example, if no drivability complaints have been made by the customers, **the fault memory should not be deleted**, because this will also delete all readiness test codes, in addition to the error codes.

Only within the scope of service review or for customer complaints, the fault memory should be viewed in mode 3 with regard to possible repeatedly confirmed errors shortly before the exhaust-gas test. If errors exist that would lead to a failure of the exhaust-gas test, carry out a repair and then delete the fault memory. Then 2-3 driving cycles* should be carried out in which the readiness of the individual systems can be reset.

* = Engine start, acceleration phases, constant-speed driving, overrun phase, idle operation and stopping the engine

Readiness tests(Readiness codes) **Petrol engine**:

Continuous monitoring	Non-continuous monitoring
- Byte B data -	**- Byte C data -**
0 misfire	**0 Catalytic converter**
1 Fuel system	**1 Catalytic converter - heating**
2 Components	**2 Fuel tank ventilation system/EVAP**
3 -Free- (if necessary O-/D monitoring)	**3 Secondary air system**
	4 -Free- (if necessary air conditioning/refrigerant)
	5 Oxygen sensor
	6 Oxygen sensors heating
	7 EGR and/or Valvetronic system

Table: Designations of the Readiness Codes

Manufacturer's specifications for Readiness Code - Evaluation:

In **the group B "continuous monitoring data byte B", all parametrised and supported RCs must be set to positive**. that is, the electrical check of the sensors/actuators has lapsed in all functions; to do this usually a 1-2 minute engine operation in idle position is sufficient. **If one of these RCs is not set to positive even when the engine is running** (also referred to as "test not carried out"), **then the exhaust-gas test shall be evaluated as failed**.

In the group C "non-continuous monitoring data byte C" all, but at least 5, parametrised or supported RCs should be checked to be positive. Few "long-time needed" RCs cannot yet **be set to positive!** (also referred to as "test not carried out").

Reason: Their fault set conditions require a longer journey with different load conditions, speeds and specific atmospheric conditions after fault memory deletion.

For BMW and MINI diesel fuel engines from exhaust emission stage EURO 6, the following 2 RCs: Catalytic converter and secondary air may be exempted from RC evaluation, that is, not yet set to positive or Display bit 1.

Note:

The set result by a binary indication of the individual RCs is:

- 0 = checked at least once or diagnosis not supported
- 1 = Components displayed as not yet fully checked. The figure below shows the

Readiness Codes

Continuous testing data byte B - Data: Petrol and diesel-engine vehicles

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Bit		Supported/bit	Test carried out/ bit	Permissible bit values of the performed RCs for the exhaust-gas test evaluation at OK or passed
0	Misfire	Yes = 0 / No = 1	Yes = 0 / No = 1	0
1	Fuel system	Yes = 0 / No = 1	Yes = 0 / No = 1	0
2	General components	Yes = 0 / No = 1	Yes = 0 / No = 1	0
3	Free- (if necessary O-D monitoring)	Yes = 0 / No = 1	Yes = 0 / No = 1	0 if parametrised; Otherwise even 1

Non-continuous tests data byte C/D data: Only diesel vehicles

Bit		Supported/bit	Test carried out/ bit	Permissible bit values of the performed RCs for the exhaust-gas test evaluation at OK or passed
0	Catalytic converter	Yes = 0 / No = 1	Yes = 0 / No = 1	0 or 1
1	Catalytic converter - heating	Yes = 0 / No = 1	Yes = 0 / No = 1	0
2	Fuel tank ventilation system/EVAP	Yes = 0 / No = 1	Yes = 0 / No = 1	0
3	Secondary air system	Yes = 0 / No = 1	Yes = 0 / No = 1	0 or 1
4	Free- (if necessary air conditioning)	Yes = 0 / No = 1	Yes = 0 / No = 1	0
5	Oxygen sensor	Yes = 0 / No = 1	Yes = 0 / No = 1	0
6	Oxygen sensor heating	Yes = 0 / No = 1	Yes = 0 / No = 1	0
7	EGR/Valvetronic	Yes = 0 / No = 1	Yes = 0 / No = 1	0

Figure: Evaluation matrix of the readiness test bits

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1.4 Record status of the fault memory in ScanTool mode 3*

(* = Mode 3 means storage of errors which have been confirmed over multiple driving cycles).

- **If** standardised **Powertrain codes**, for example, P0 123, P2 456 or manufacturer-specific Powertrain codes, e.g P1 789, P3 123, **are stored**: Test = not OK
- **If no Powertrain codes are stored: Test = OK**

1.5 Identity check of the chassis number (VIN) according to the comparison via ScanTool Mode 9:

Read out chassis number (VIN = Vehicle Identification Number) from ScanTool Mode 9 and compare it with the vehicle type plate:

If the VINs deviate from each other: Test = not OK

1.6 OBD final evaluation:

If the:

- MIL - function check and MIL - status are OK,

- the RC evaluation, taking into account "long-time RCs" not relevant to the set, is positive
- no errors are stored in mode 3,
- the VIN comparison: Vehicle to ScanTool -Mode 9- information is identical,

then the exhaust-gas test is to be concluded as "passed".

If one of the aforementioned points is not OK, the exhaust-gas test via OBD is considered failed.

The OBD data MIL and RC status from Mode 1; Error codes from Mode 3 and VIN from Mode 9 are to be printed on the verification certificate.

Note: If data communication is not possible in the event of several connection attempts between the ScanTool and the vehicle-side interface (OBD socket), the emissions test is classed as “not passed” and the vehicle is to be repaired.

2. Test scopes for exhaust-gas test on EURO 6 with petrol engine and closed-loop catalytic converter and OBD in Germany: :

In Germany, at present, the two-stage test procedure for all vehicles of categories M (passenger cars) and N (trucks) from the date of first registration 01.01.2006* is applicable even for EURO 6 vehicles with obligatory exhaust-gas test operator prompting. (* = from EURO 4 / IV) In addition, the exhaust-gas test may be performed on these vehicles from **01.06.2015** only with the operator prompting according to "Exhaust-gas test - devices user guide 5".

2.1. Level 1 = OBD - check:

Read out and evaluate the OBD data, as described in section 1.1 - 1.6, but with the following changes:

- **Section 1.2 Exhaust emission classification check on EURO 6 omitted** because all vehicles from first registration 01.01.2006 (from EURO 4) are primarily checked via the OBD.
- **In section 1.3.3, all continuous and all non-continuous supported readiness codes must be set to positive (bit = 0).**
- **If the readiness codes of the OBD system operated by the engine control unit are not or not completely set to positive,** that is, the OBD system itself is not yet ready for testing, for example, because the fault memory was deleted shortly before, **a exhaust gas tailpipe measurement must be carried out additionally according to Section 2.2.**

2.2. Level 2 = Exhaust gas opacity measurement as additional check under the following precondition:

Note: The following procedure generally also applies to all petrol vehicles with closed-loop catalytic converter before the first registration 01.01.2006. See also the BMW Service Information "Test instructions for the exhaust-gas test on BMW vehicles with petrol engines" from 04/2012.

2.2.1 Visual inspection of emission-relevant components:

Note: This test step will be deleted from the new version of Section 29 of the German road traffic licensing regulations in accordance with 47th amendment regulation as from 01.07.2012, as the visual inspection is an integral part of the technical vehicle inspection and thus the same components are not inspected twice.

2.2.2 Effective check using emission measurement* at the exhaust tailpipe at operating temperature, that is, at minimum 60°C engine oil temperature.

Emissions threshold values at increased idle and idle position:

a. Increased speed in idle position°, that is, at least n = 2500 rpm and CO according to nominal data, otherwise CO to EURO 3: max. 0.3 vol %; CO from EURO 4: max. 0.2 vol % plus Lambda determination*: min. 0.97 – max. 1.03.

b. Idle position speed according to type-specific manufacturer's specifications: CO according to exhaust gas nominal data, otherwise CO to EURO 3: max. 0.5 vol %; CO from EURO 4: max. 0.3 vol %.

* = determined from CO, CO2, O2 and HC according to Brettschneider formula

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* = engine speed range for all BMW vehicles: n = 2300 - 2700 rpm

Note: For catalytic converter conditioning reasons it is necessary both throughout the EU and in Germany to carry out the CO and lambda measurement first at increased engine speed and only then at idle.

Figure: Opacity characteristic during engine start-up = free acceleration

2.2.3 Oxygen sensor control circuit check:

For BMW "closed-loop catalytic converter" vehicles from first registration in around 1996, the oxygen sensor control circuit check is carried out via the so-called "Replacement method". The oxygen sensor emissions control check is carried out by measuring the voltage excursion for oxygen-bistable sensors or the current for broadband oxygen sensors of control sensors installed at the catalytic converter inlet.

Measurements are made in idle position using usual diagnosis tools (for example, EOBD ScanTool integrated in the exhaust-gas test diagnosis tester) at an adequate lambda value from 0.97 to 1.03.

BMW examples:

Sensor type bistable sensor: voltage excursion delta min. 0/3 V

Sensor type broadband oxygen sensor: current from -0.115 to + 0.077 mA

For BMW vehicles with the "Magermix" engines N43 and N53, due to large lambda range current values from: - 1.60 to + 1.82 mA apply

For detailed engine-specific information, see BMW emissions test nominal values.

Note: In Germany it is possible to select the mode for determining the opacity coefficient, i.e. its measuring circuit time constant, in the emission tester:

- Mode A: = “unfiltered”, i.e. < 0.050 sec
- Mode B: = “filtered”, i.e. 0.90 – 1.10 sec

Generally mode B is to be used for BMW vehicles throughout the EU and in Germany in line with EU Directive 72/306/EEC.

General notes:

The procedure described in this service information also applies to the BMW vehicles with petrol engines from exhaust emission stage EURO 6 and plug-in hybrid technology, for example, BMW X5_F15-PHEV, BMW 225xe_F45-PHEV, BMW 330e_F30-PHEV and BMW i3_I01 with Range Extender or BMW i8_I12.

Note: In Germany, the operator authorised to conduct exhaust-gas test on high-voltage vehicles according to the specifications of the employers' liability insurance association/Statutory Accident Insurance "BGI/GUV-I 8686" must have successfully completed at least one approximately 1 hour-long "Briefing on working on intrinsically safe high voltage vehicles"

The manufacturing stage emissions test nominal values, for example, engine speed ranges; CO and oxygen sensor limit values including their current values are shown in the **BMW emissions test nominal data acquisition** related to the type.

These emissions test nominal values are called up, depending on the user, via the Intranet or Extranet of the BMW Aftersales Portal and for “third-party users”, via the Internet from the BMW web portal Technical Parts information system: “ASAP”, module - emissions test nominal values, at the web addresses: http://www.parts.bmwgroup.com or

Moreover, these data can also be obtained from the data catalogues of the open-market repair data publishers (e.g. DAT, Eurotax, Autodata, etc.) once their publications have been updated.

Incidentally, in Germany, the new "Guidelines for conducting exhaust gas test on vehicles according to Section 6.8.2 of Enclosure VIIIa German road traffic licensing regulations (StVZO) from 30.09.2014" are applicable.

Country-specific specifications of other countries must be given priority in any case to this SI

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specifications.

Enclosure 1 "ScanTool services"

Reading and display functions of the OBD - Generic ScanTools

	Select scan tool connected to OBD functions interface	
	Detect the EOBD or US OBD-2 diagnosis report	Example: Society of Automotive Engineers J 1850, International Organization for Standardisation 9141-2, International Organization for Standardisation 14230-4 (= Key Word Protocol-2000 Fast), International Organization for Standardisation 15765-4 (= CAN);
Service 01	Malfunction indicator lamp status; Readiness code; Number of stored errors; call-up of current engine data (e.g.: n-mot; temperatures; load conditions etc.)	Listing of all supported systems/functions;
Service 02	Calling-up "Freeze Frame" data to stored error codes, for example, to P0100: for n = 1,200 revolutions per minute; Tw = 22°C; Partial load= 10%, v = 0 km/h, etc.	Marginal conditions in which error codes were set
Service 03	Calling-up all set error codes. g. P0100 "Air flow circuit malfunction"	Listing of all error codes that make the malfunction indicator lamp light up ; Faults that are confirmed over multiple driving cycles
Service 04	Deleting the OBD error codes, Freeze Frame and all other data	Only permissible for test purposes after repair or if renewed driving cycle occurs
Service 05	Monitoring of oxygen sensors, for example, sensor 1: 0.35 <--> 0.87 volts	Checking the current control voltage - engine must be running
Service 06	Call-up of the shadow fault memory, e. g. P0410 "Secondary air feed malfunction"	Not continuously monitored functions, for example, only 1 x after each engine start
Service 07	Call-up of the shadow fault memory, for example, P0133 oxygen sensor 1 = slow response	Continuous monitoring; fault codes stored here must not yet lead to the lighting up of malfunction indicator lamp
Service 08	System or components, for example, valve actuation for fuel tank ventilation system	Only required for in-depth diagnosis steps in Service
Service 09	Vehicle identification (chassis number control units number; mileage with malfunction indicator lamp ON)	for example, for documentation; as well as data for official field monitoring
Service $0A	Display permanent error codes	for example, non-deletable NOx codes

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00 30 11 (735)

Final drive oil - new oil quality from 07/2011

Situation: In motor vehicles from production date 07/2011, the final drive oil SAF-XO is being replaced by the final drive oil Hypoid Axle Oil G1 (BOT448).

Vehicles concerned: All BMW without M models

All MINI

All Rolls-Royce

Procedure: In vehicles from production date 07/2011, use oil specification Hypoid Axle Oil G1 (BOT448) for oil filling/additions to the rear axle differential.

The final drive oils currently approved by BMW can be viewed in the current ISTA version (operating materials - main group 33).

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00 12 07 (381)

Arguments pertaining to engine oil consumption

BMW, MINI

Subject matter

Customers are often unsure when it comes to the subject of engine oil consumption. Is an engine allowed to consume oil? What are the most important causes of engine oil consumption?

The following explanations are intended to provide an aid to argumentation. They are aimed at all dealership staff who have contact with customers.

Functions of engine oil

Engine oil is one of the most important operating fluids in a combustion engine. The engine cannot work properly without engine oil. The main functions of engine oil are:

- Lubrication
- Cooling
- Prevention of corrosion and sedimentation

Lubrication

The lubricating film or the engine oil is exposed to a wide range of demands. The viscosity of the engine oil should not be too high at low temperatures so as to ensure optimum lubrication already at cold engine temperatures (e.g. cold starting). On the other hand, the engine oil should not be too thin-bodied at high temperatures as this can break down the lubricating film and nullify the lubricating effect entirely.

The most important function of the engine oil is to minimise friction between metal surfaces. This function is effected by a lubricating film which builds up during operation between the surfaces of the moving engine components. The thin oil film reduces friction significantly, which translates into lower wear and lower heat generation. As well as preventing piston seizures and bearing damage, it extends the service life of all the relevant engine components and reduces fuel consumption.

Another function of the oil film is to seal the combustion chamber against the crankcase via the piston rings.

, cooling

The pistons already reach their operating temperature shortly after the engine is started. It can take a few minutes, depending on the ambient temperature, the engine design and the driving style adopted, for the engine block and thus the cylinder walls to reach their operating temperature. The engine needs a fully functioning cooling system to stop it from exceeding the operating temperature. Aside from the two classic cooling components - air and coolant - engine oil is often underestimated or even forgotten as a crucial cooling component. The engine oil is responsible for a significant degree of cooling inside the engine. Specifically to cool the piston crowns, virtually all BMW engines have oil spray nozzles which moisten the piston crowns with engine oil.

Prevention of corrosion and sedimentation

Last but not least, it is the job of the engine oil to protect the engine against corrosion and sedimentation. Aggressive combustion residues are neutralised by the lubricating oil and appropriate additives. The remaining combustion residues are carried by the oil circuit to the oil filter, where they are filtered, or settle in the oil sump.

Engine oil consumption

Engine oil consumption is dictated above all by the structural design of the individual assemblies or systems. Every combustion engine has a system-dictated consumption of lubricating oil. Decisive causes of engine oil consumption are:

- Pistons with piston rings
- Valve stem seals
- Crankcase ventilation

The surface topography used of cylinder barrel and piston ring is the primary variable which directly influences engine oil consumption, since the piston rings do not constitute a perfect seal, but instead act as a metering unit. With regard to design, there is a conflict of interests between engine oil consumption and friction loss. The letter has a direct effect on power and fuel consumption. In each piston stroke tiny quantities of engine oil are left on the cylinder walls and this oil is essential for lubricating the piston rings and the piston skirt (see above, lubricating film). During the piston downstroke the engine oil deposited on the cylinder wall takes part in the combustion close to the wall and is discharged with the combustion gases. The higher the engine speed, the greater the effect, since more combustion cycles per unit of time take place. For this reason, engines with a high rpm concept (BMW M engines)

tend to have a higher engine oil consumption than other BMW engines. The same applies to the lubricating film on the valve stems.

Note:

For BMW spark-ignition and diesel engines, the maximum permissible engine oil consumption is 0.7 l/1000 km.

Because of their increased power output and torque, M engines have a maximum permissible oil consumption of 1.5 l/1000 km.

The measurable result of an engine oil consumption is overridden by the quality of the fuel used and of the driving profile. If, for example, in winter a lot of short distances are driven (= high fuel entry since the vaporisation temperature is for the most part only briefly achieved) and then a longer distance is driven (fuel can now vaporise), a significant drop in the engine oil level is encountered on this trip. This does not constitute engine oil consumption, but instead merely a different engine oil level on account of the fuel content in the engine oil. Customer complaints can often be put down to this fact. The situation can arise where the engine oil level drops over a few 100 km by around 1 litre. Added to this is some engines is a degree of uncertainty of up to 0.3 litres by the relevant measuring system (oil dipstick/QLT).

Even the oil mist particles entrained via the crankcase ventilation (separation efficiency technically never 100 %) take part with the intake air in the combustion process. The design is particularly problematic here. On the one hand, engine oil should be separated as fully as possible; on the other hand; crankcase pressure requirements must be satisfied. Moreover, conventional separation systems function to optimum effect only with a specific gas flow rate; the separation effect decreases with lower or higher gas quantities.

Summary

Every internal combustion engine has a technically necessary engine oil consumption. The level of engine oil consumption is clearly influenced by the driveability and by the fuel used.

Oil consumption measurement

The level of engine oil consumption that may arise with a particular engine can be determined by the customer only from the amount of engine oil he or she tops up with. As soon as the engine oil level falls below the maximum mark on the dipstick, many customers top up the engine oil without paying attention to a number of basic rules, such as the vehicle must be standing on level ground, a certain period of time must be left to allow the oil to flow back to the sump. In such cases, the available container sizes (e.g. 1-litre can) make it easy to top up above the maximum mark. Excess engine oil can cause engine damage and is consumed more quickly due to the effects of splash.

For this reason, it is advisable to let the engine oil level drop as far as the minimum mark and only then to add the required volume of engine oil. The difference between the two marks is approximately 1.0 to 1.5 litres.

The procedure for checking the oil level is given in the Owner's Handbook for the vehicle concerned.

The service delegates will only deal with claims made under warranty if exact measurements by weighing are available (see SBS 11 07 96 138, Enclosure 12).

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11 03 04 (156)

BMW Quality Longlife-04

All

Situation: The launch of the E90 and E87 with diesel particulate filter, makes a new engine oil BMW Longlife-04 absolutely essential. The function of the diesel particulate filter and low fuel consumption can only be guaranteed for the vehicle's entire service life if BMW Longlife-04 engine oil is used.

Effect: A new type of additive in the engine oil means that less ash is formed during combustion and thus prevents the diesel particulate filter from becoming blocked with ash deposits.

Affected vehicles: This engine oil is unambiguously specified for diesel engines with diesel particulate filter. However, it also satisfies the requirements of spark-ignition engines. Longlife-04 engine oil specifications include the requirements of Longlife-01 and Longlife-98.

Longlife-04 oils are only approved for spark-ignition engines in Europe (EU plus Switzerland, Norway and Liechtenstein). They must not be used outside this area.

Procedure: For further information, please refer to BMW Operating Fluids Service Information bulletin ”Specified engine oils for BMW Group engines” (Enclosure 3) .

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16 01 06 (250)

Accidental refuelling with petrol

All diesel vehicles

Situation: Vehicle has been accidentally refuelled with petrol.

Petrol does not have any lubricity. Consequently, operating the common rail system with petrol will cause considerable damage to the entire fuel system.

Vehicles concerned: All diesel vehicles with common rail system

Procedure: Where accidental refuelling with petrol is concerned, 4 scenarios are envisaged which should be responded to as follows:

Case 1: Vehicle has not been started (according to the customer)

Drain the fuel tank completely. Check the surge tank in the fuel tank for magnetic swarf (with a magnet). If magnetic swarf (not abraded brass particles) is present in the fuel tank, proceed as described in Case 2.

Note!

Very fine abraded brass particles in the fuel tank originate either from the fuel level sensor or the fuel pump. However, they do not affect the service life of the components.

If there is no magnetic swarf in the fuel tank, fill the intake side of the fuel tank with 5 litres of diesel fuel.

Then re-install the fuel level sensors. Flush the fuel system thoroughly with diesel fuel as far as the high pressure pump (feed line and return line). This ensures that petrol cannot get into the high pressure pump or the high-pressure fuel system.

To do this, activate the fuel pump by using the control unit function in the diagnosis system for the fuel system.

Note!

If the customer states that the ignition has **not** been switched on since refuelling with the wrong fuel, then draining the fuel tank completely is sufficient (provided that there is no magnetic swarf present).

Case 2: Vehicle has been started and driven (e.g. after refuelling at the filling station)

Drain the fuel tank completely. Check the surge tank in the fuel tank for magnetic swarf (with a magnet). The strainer of the fuel quantity control valve in the high pressure pump and the strainer of the rail pressure regulating valve must be removed and also checked for magnetic swarf.

Note!

By checking the fuel quantity control valve and the rail pressure regulating valve, it is possible to ascertain relatively quickly and with minimal effort whether swarf is already present in the fuel system.

If no magnetic swarf is found in the fuel system, proceed with draining and flushing the fuel system as described in Case 1. In this case, the high pressure pump must be renewed as well as the fuel filter.

Then the vehicle must be filled up with fresh diesel fuel.

If magnetic swarf is present in the fuel system, proceed as described in Case 3.

Case 3: Vehicle has been driven, magnetic swarf in the system

The entire fuel system, including the fuel tank, must be renewed. Only the rigid feed and return lines can remain in the vehicle (flush through in the opposite direction to the direction of flow of the fuel).

The cone of the high pressure pump must be checked for friction seizure. If early signs of seizure are evident, the engine timing must be checked. Then the vehicle must be filled up with fresh diesel fuel.

If the extent of the damage is greater than expected, proceed as described in Case 4.

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Case 4: Vehicle has been driven, high pressure pump has seized up, camshafts fractured, timing chain(s) broken.

The cone of the high pressure pump must be checked for friction seizure. If there are visible traces on the cone, the lower chain and the sprocket of the high pressure pump must be replaced.

If the camshafts cannot be turned, a damage analysis of the engine mechanics on the cylinder head must be carried out (lower chain broken, rocker arm fractured, camshaft fractured, piston damaged, etc.).

If the rocker arms are fractured, they must be renewed and the oil circuit cleaned.



Attention!

Search for and remove from the oil circuit all needles of the faulty bearings on the older design rocker arms. Do not forget the oil pump.

If the camshafts are fractured, the cylinder head, together with all destroyed mounted parts, both chains and the sprocket of the high pressure pump must be renewed. In this case, you should check whether an exchange engine would be a cost-neutral option (for the customer). Or even whether it is more cost-effective than repairing the engine.

The entire fuel system, including the fuel tank, must be renewed. Only the rigid feed and return lines remain in the vehicle (flush through in the opposite direction to the direction of flow of the fuel).

Then the vehicle must be filled up with fresh diesel fuel.



Attention!

It must be pointed out to the customer that if a repair is carried out which deviates from this measure, then warranty claims ensuing from any subsequent damage will not be acknowledged.

The cost of repairing subsequent damage resulting from incorrect refuelling will not be borne by the warranty.

If the customer insists on a repair which deviates from this measure, the vehicle data must be transferred to BMW AG via PuMA.

Special notice regarding bacterial contamination of the fuel system - also known as the "diesel bug"

On very rare occasions, (predominantly) in coastal regions due to the higher air humidity, the fuel system may suffer from a bacterial contamination - also known as the "diesel bug".

This causes the fuel to become a jelly-like mass which clogs the fuel filters.

It can initially lead to a lack of power and ultimately to the engine stopping altogether.

As in Case 1, this requires the fuel system to be drained and flushed. The fuel filter must also be renewed in this case. Then the vehicle must be filled up with fresh diesel fuel.

If the fault reoccurs, a PuMA case together with explanatory images must be created and the National Sales Company contacted.

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16 01 02 (890)

Diagnosis of fuel tank systems with fuel tank leak diagnosis module (DMTL)

All US models

Situation: Since model year 1994, all US models have been equipped with a diagnosis-compatible system that checks the fuel supply system for leaks.

A leaking fuel supply system causes increased pollutant emissions and, according to American legislation, must be repaired immediately. The ”Service Engine Soon” indicator lamp lights up to alert the driver.

Systems for leak detection are tank systems with leak diagnosis pump (LDP) and fuel tank leak diagnosis module (DMTL). These differ principally in the details listed in Table 1.

LDP	DMTL
Diaphragm pump	**Vane pump**
Vacuum line necessary for operation of the diaphragm	**Compression system**
Leak detection from ⌀ 1 mm	**Leak detection from ⌀ 0,5 mm**
Leak detection at fuel tank by means of external pressure application	**Leak detection at fuel tank via test module and/or service function**

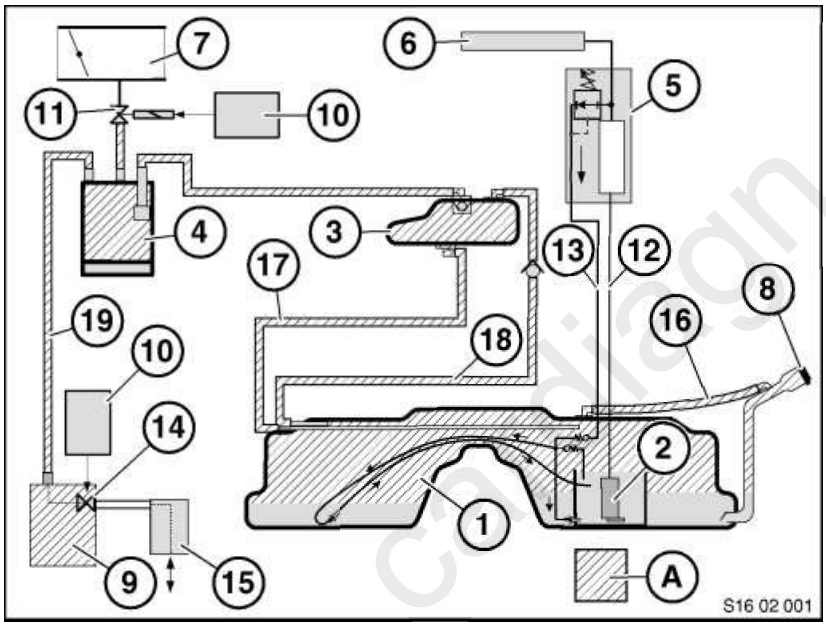


Figure 1: Block diagram of leak check

A	Pressurised components	10	DME control module
1	Tank	11	Fuel evaporation control valve
2	Fuel pump	12	Feed line
3	Expansion tank	13	Return line
4	Activated carbon filter	14	Solenoid valve in DMTL
5	Fuel filter with pressure regulator	15	Dust filter
6	Injection rail	16	Charge/vent line
7	Intake manifold	17	Fuel tank vent line I
8	Fuel filler cap	18	Fuel tank vent line II
9	LDP / DMTL	19	Fuel tank vent line III

1. Leakage test with leak-diagnosis pump (LDP)

US vehicles have an AKF cutoff valve and a tank pressure sensor that are used by the tank vent system diagnosis to

enable the DME control unit to detect leaks > 1 mm in the tank and tank vent system.

With this system, a vacuum is formed and used to detect a leak. From Model Year 1998 (US 05.97), the vacuum system was replaced by a compression system.

The depression or compression is generated by a leak diagnosis pump bolted to the activated charcoal filter and is approx. 25 hPa. Leak diagnosis takes approx. 100 seconds, depending on the individual vehicle and is performed after nearly every cold start. The air filter at the LDP inlet is also new.

Note:

If this filter becomes extremely soiled, you may encounter problems when refuelling the vehicle. Diagnosis is guaranteed on the complete system (fuel circuit, leak diagnosis pump and reed contact).

1.1 Function description of pressure-leak diagnosis

When the DME control unit performs leak diagnosis, the DME control unit actuates the solenoid valve in the LDP unit. The intake manifold vacuum not reaches the level of the upper pump chamber (6, Fig. 2) and pulls the diaphragm (7, Fig. 2) up against the springs (3, Fig. 2).

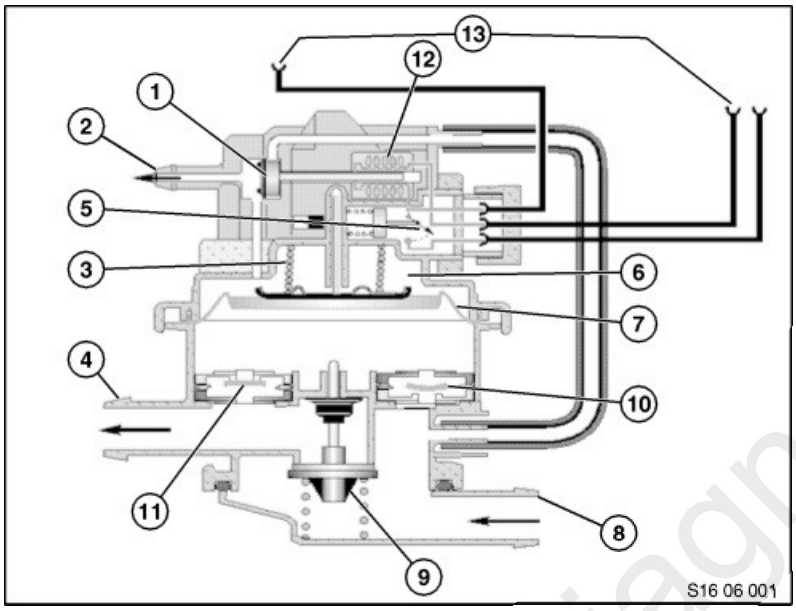


Figure 2: Leak-diagnosis pump (LDP)

1	Vacuum valve	8	Connection to atmosphere via filter
2	Connection to intake manifold vacuum	9	Open/closed valve (mechanical)
3	Spring	10	Intake valve
4	Connection to activated charcoal filter	11	Pressure valve
5	Reed contact	12	Solenoid valve coil
6	Upper pump chamber	13	Electrical connections
7	Diaphragm		

When the diaphragm (7, Fig. 2) is pulled up, a suction or pump effect is created under the diaphragm. Suction/pressure valves allow the oscillations of the diaphragm to create a pressure of approx. 25 hPa in the tank vent system, through the activated charcoal filter to the fuel filler cap. The oscillations of the diaphragm, i.e. the frequency, is measured by the reed contact (5, Fig. 2). The principle of pressure leakage diagnosis is based on a measurement of the repumping frequency needed by the leak diagnosis pump:

- Repumping frequency greater than nominal value: System **leaking**
- Repumping frequency less than nominal value: System **not leaking**

2nd leakage check in OBD II (on-board diagnosis) with fuel tank leak diagnosis module (DMTL)

This test procedure is able to detect leaks as small as > 0.5 mm in the fuel supply system. It thus constitutes a significant improvement in terms of protecting the environment.

Start criterion	Start condition
Engine	**OFF**

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Last engine standstill	**> 5 h**
Duration of current journey	**> 10 min**
Fuel level	**> 15 % and < 85 %**
Ambient temperature	**> 4 °C and < 35 °C**
Altitude above mean sea level	**< 2500 m**
Battery voltage	> 11.0 V and < 14.5 V

Table 2: Start conditions for diagnosis

2.1 Function description of fuel tank leak diagnosis module check

Once all start conditions listed in Table 2 are satisfied, the DMTL will automatically start a tank leak measurement (OBD diagnosis).

The actual tank leak measurement comprises two phases: **reference leak measurement** and **tank leak measurement**.

2.1.1 Reference leak measurement

During the reference leak measurement, the vane pump blows air through the so-called reference leak (⌀ 0.5 mm).

The power intake of the pump is measured and serves as the reference current during subsequent leak diagnosis. The strength of this pump current is approx. 20 mA to 30 mA.

This initial procedure takes place within the DMTL only and no other parts are affected. This phase serves as a self-test for the DMTL.

If the current for the reference leak measurement is outside a certain tolerance, the DMTL will be detected as faulty and the fault memory entry shown in Table 3 will be stored in the DME as an **internal DMTL fault**.

DME variant	Manufacturer	Fault in plain text
MS43	**Siemens**	**142 "Module fault DMTL"**
MS45	**Siemens**	**27CD "Module fault DMTL"**
MSV70	**Siemens**	**2A17 "DMTL system fault"**
MSV80	**Siemens**	**2A17 "DMTL system fault"**
MSD80	**Siemens**	**2A17 "DMTL system fault"**
ME9.2.2	**Bosch**	**2A17 "DMTL system fault"**
MED9.2.2	**Bosch**	**2A17 "DMTL system fault"**
ME9.2.3	**Bosch**	**2A17 "DMTL system fault"**
MSS65	**Siemens / BMW**	**2776 "DMTL pump"**

Table 3: Internal DMTL fault during reference leak measurement

2.1.2 Tank leak measurement

Fig. 1 shows the components of the fuel supply system, to which pressure is applied.

Pressure is applied to the components of the fuel supply system during the tank leak measurement procedure.

- The internal solenoid valve in the DMTL (14, Fig. 1) closes the line to the atmosphere
- The DMTL pump is activated

As a result, the fuel supply system is now a closed system (from the DMTL valve up to the fuel evaporation control valve) and the pressure is increased in the entire fuel system.

During the tank leak measurement,the pump's current draw is measured. An algorithm in the DME control unit compares the power intake of the reference leak measurement and of the tank leak measurement.

If the current draw during the tank leak measurement is lower that that recorded during the reference leak measurement, the fuel supply system is detected as free of leaks. A leak of > 0.5 mm must be present for the DME to store a fault.

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DME variant (engine)	Minor leak error > 0.5 mm (fault in plain text)	Major leak error > 1,0 mm (fault in plain text)
MS43	8F "Fuel tank leak diagnosis with DMTL"	
MS45	27CC "DMTL: leak	
MSV70	2A16 "Extremely minor leak"	2A15 "Minor leak"
MSV80	2A16 "Extremely minor leak"	2A15 "Minor leak"
MSD80	2A16 "Extremely minor leak"	2A15 "Minor leak"
ME9.2.2	2A16 "Extremely minor leak"	2A15 "Minor leak"
MED9.2.2	2A16 "Extremely minor leak"	2A15 "Minor leak"
ME9.2.3	2A16 "Extremely minor leak"	2A15 "Minor leak"
MSS65	27C3 "DMTL leak detection"	2779 "DMTL leak detection"

Table 4: Fault in tank leak measurement

Note:

Diagnosis will be interrupted if you start refuelling while diagnosis is in progress.

If the faults listed in Tables 2 and 3 are diagnosed twice in succession, an entry will be stored in the DME. The "Service Engine Soon" indicator light comes on, prompting the customer to drive to a workshop for diagnosis and leak detection.

A fault relating to fuel tank leak detection very often occurs in connection with the fuel filler cap not fitted or closed correctly.

The so-called **"Check Filler Cap" or "Check Gas Cap"** function has been introduced to prompt the customer to check the fuel filler cap.

3. Check Filler Cap / Check Gas Cap function

The Check Filler Cap / Check Gas Cap function is a prompt to the driver in the event that the fuel filler cap was not replace or closed properly after refuelling.

This function usually runs after every refuelling and gives a warning message in the instrument cluster. This gives the driver the opportunity to close the fuel filler cap correctly before the system starts a leak check.

The key difference between this function and the OBD II leak check is that with the CFC / CGC, the MIL indicator light (or "Service Engine Soon" indicator light) is not actuated.

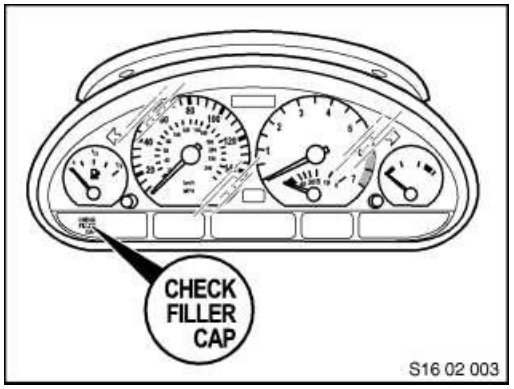


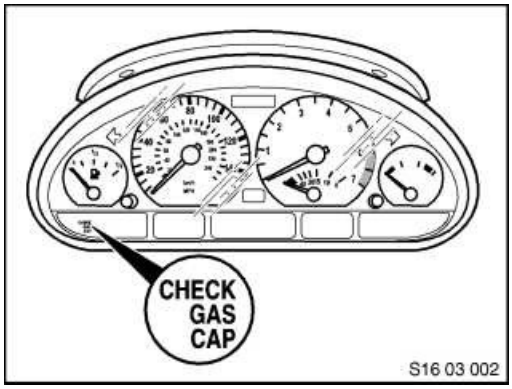
Figure 3:

"Check Filler Cap" indicator lamp.

Phase-in September 2001

Figure 4:

"Check Filler Cap I" indicator lamp.



Phase-in September 2003

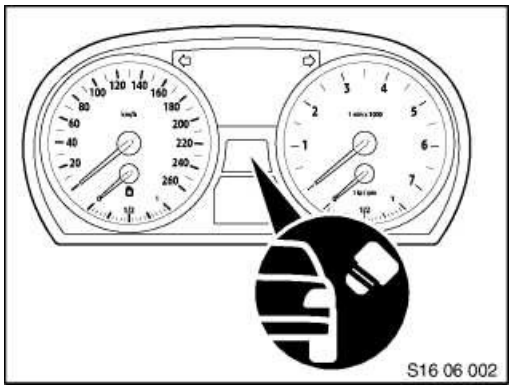


Figure 5:

”Check filler cap II” indicator lamp.

Phase-in September 2004

Procedure: **Case 1. Internal DMTL fault (see Table 3)**

Proceed as follows if such an internal DMTL fault is stored in the fault memory:

1. Clear the fault memory
2. Check whether the fuel filler cap is fitted correctly
3. Work through test module:
   - Complete vehicle
   - Drive
   - Engine control
   - Fuel tank system test
   - Fuel tank leak diagnosis module (DMTL)

This test module carries out a reference measurement and a fuel tank measurement and simultaneously checks the function of the DMTL pump.

If the fault is stored again in the fault memory after this test module, the DMTL must be replaced, please refer to Repair Instructions RA 16 13 015.

Important:

On no account open the DMTL!

Note:

Do not use lubricants during assembly.

After replacing the DMTL, clear the fault memory and once again work through the test module specified above.

If the repair has been carried out correctly, the test module will not store a fault entry.

If, after replacing the DMTL, a leak is detected in the system, it is highly likely that a leak was caused during the replacement procedure.

Note:

It is recommended to work through the above test module after **all** repairs to the fuel supply system.

Case 2. Fault during tank leak detection (see Table 4)

Fuel tank faults indicate a leak in the fuel supply system or incorrect operation of the fuel filler cap.

Important:

The most common causes of a fuel tank leak fault are:

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- Fuel filler cap fitted crooked or not correctly
- Fuel filler cap not turned as far as it will go to the end stop (the end stop is indicated by a clearly audible ”click”)
- Retaining strap for fuel filler cap trapped between the filler cap itself and the fuel filler neck

Note:

Also refer to Service Information SI 16 02 99 (501) with regard to the fault patterns listed above.

Proceed as follows if a tank leak fault is stored in the fault memory:

1. Clear the fault memory
2. Check whether the fuel filler cap is fitted correctly
3. Work through test module:
   - Complete vehicle
   - Drive
   - Engine control
   - System diagnosis
   - DMTL system test
   - For further details, please refer to Repair Instructions 16 00 102 (M54).

If a leak is detected in the fuel supply system on completion of the test module this leak will be caused by the fuel filler cap not being closed correctly.

Important:

The costs in connection with the above causes are not incurred by any technical defects in the system and no warranty claims for reimbursement will be accepted.

A **fuel tank leak test** must be carried out if the fuel supply system is found to be leaking.

Case 3. Tank leak search

The fuel tank leak test procedure is described in Repair Instructions 16 00 510.

With the ”DMTL pump actuation” service function, the internal solenoid valve (14, Fig. 2) in the DMTL closes the line to atmosphere and the DMTL pump is subsequently activated.

As a result, the fuel supply system is a closed system and pressure is built up.

The leak can now be found with the aid of a leak detector.

Important:

1. **External pressure must not** be applied to systems with DMTL because, in this case, the DMTL valve is not closed and a leak will inevitably be detected.
2. During the above service function, the DMTL pump runs uninterrupted for **approx. 15 minutes**. After this, the DME switches the DMTL pump off. If necessary, the test module can be repeated after a short waiting period.

Probable leak points:

- Fuel filler cap screwed on crooked or not up to the stop (8, Fig. 2)
- Fuel level sensor left or right leaking (replace sealing ring)
- Connection between fuel filler pipe and fuel tank
- Connections of filler vent line or of fuel tank vent lines I and II (16, 17, 18, Fig. 2)

Unlikely but possible leak points:

- DMTL solenoid valve
- Fuel evaporation control valve
- Connection between DMTL and activated carbon filter (19, Fig. 2)
- Pressure relief valve in the fuel filler cap
- Mating between fuel cap and fuel filler neck

Note:

If a repair was previously carried out on the fuel supply system, the leak will probably be at the repair location.

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Important:

1. The **pressure relief valve** in the fuel filler cap can only be checked as described in Repair Instructions RA 16 11 130.
2. If the **mating between the fuel cap and the fuel filler neck** is leaking, the fuel cap and the fuel filler pipe (both!) must be replaced.

Case 4. Leak detector

The following devices can be used for leak detection purposes:

- Devices that respond to ultrasound
- Devices that respond to hydrocarbon hydrates

Part number of the device recommended by BMW (responds to hydrocarbon hydrates): 81 34 0 144 422.

Important:

Since, during normal vehicle operation, the vent line and the fuel evaporation control valve are subjected to fuel vapours (fuel residue remains on the line and valve), **leaks at the fuel evaporation control valve** cannot be detected effectively with devices that react to hydrocarbon hydrates.

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31 01 12 (833)

Visible corrosion on vehicle add-on parts

Situation: Since the market introduction of the E65/66 the engine compartment and underbody preservation has successively been dropped from all series for environmental protection reasons. This may result in visible corrosion of machined surfaces such as, for example, on chassis/suspension components, machined screwing/bolting points, screw connections, or on surfaces such as, for example, the joints and drive shafts!

To prevent or re-treat this surface corrosion, the dealer organisation should use the corrosion protection with BMW part number 83 19 2 317 997.

Vehicles concerned: All BMW, MINI series

Procedure: Apply a thin coating of corrosion inhibitor (using only a brush) to the affected areas.

Warning!

Risk of fire!

Do not apply any corrosion inhibitor to the engine or the exhaust system!

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Enclosure 1 to SI 32 01 88 (828)

Concerns steering gear, steering column and steering shaft of:

Vehicle: _____ Vehicle identification number:_____

Accident repair of: _____ Customer: _____

Dealer: _____ Dealer no.: _____

According to the manufacturer's instructions, the steering gear must be replaced after incurring accident damage if one or more of the following points apply.

Damage, permanent deformation or fractures to:

- O Wheel rims in the event of a negative result from the wheel alignment check
- O Spring struts, steering stubs and wheel carriers
- O Wishbones
- O Struts or trailing links or anti-roll bar with this function
- O Body-side screwing/attachment points for wheel guide/control components
- O Front axle support
- O Pitman arms
- O Track rods
- O Steering box fixtures
- O Steering Column
- O Visible or noticeable damage to the steering box
- O Unacceptable torque increase and jamming when the steering box is turned from limit position to limit position (without hydraulic assistance)
- O Permissible tolerances exceeded during wheel alignment check

The points marked with a cross have been identified as subsequent damage from the accident specified above.

According to the manufacturer's instructions, the steering column/steering shaft must be replaced after incurring accident damage if one or more of the following points apply:

- O Visible or noticeable damage, deformation or breakage of the steering column or steering shaft
- O Damage, permanent deformation or breakage of the track rod
- O Unacceptable torque increase and jamming when the steering column is cranked from limit position to limit position (without hydraulic/electrical assistance)
- O Permissible tolerances exceeded after wheel adjustment and wheel alignment (include alignment record with invoice/report if necessary)
- O Positive check for activated crash system of the steering column

The points marked with a cross have been identified as subsequent damage from the accident specified above.

Important!

The vehicle's operating licence will be invalidated whenever the function of any of its safety components is compromised!

The customer or the insurance company, contrary to the manufacturer's instructions, refuses to have the steering gear replaced and thereby assumes responsibility for subsequent use of the steering gear/steering shaft/steering column in the vehicle specified above and for the technical and legal consequences arising from such use.

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Stamp/ Signature (Customer or Insurance Company)

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Enclosure 1 to SI 32 01 88 (828)

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31 01 12 (833)

Visible corrosion on vehicle add-on parts

Situation: Since the market introduction of the E65/66 the engine compartment and underbody preservation has successively been dropped from all series for environmental protection reasons. This may result in visible corrosion of machined surfaces such as, for example, on chassis/suspension components, machined screwing/bolting points, screw connections, or on surfaces such as, for example, the joints and drive shafts!

To prevent or re-treat this surface corrosion, the dealer organisation should use the corrosion protection with BMW part number 83 19 2 317 997.

Vehicles concerned: All BMW, MINI series

Procedure: Apply a thin coating of corrosion inhibitor (using only a brush) to the affected areas.

Warning!

Risk of fire!

Do not apply any corrosion inhibitor to the engine or the exhaust system!

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00 30 11 (735)

Final drive oil - new oil quality from 07/2011

Situation: In motor vehicles from production date 07/2011, the final drive oil SAF-XO is being replaced by the final drive oil Hypoid Axle Oil G1 (BOT448).

Vehicles concerned: All BMW without M models

All MINI

All Rolls-Royce

Procedure: In vehicles from production date 07/2011, use oil specification Hypoid Axle Oil G1 (BOT448) for oil filling/additions to the rear axle differential.

The final drive oils currently approved by BMW can be viewed in the current ISTA version (operating materials - main group 33).

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31 01 12 (833)

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Warning!

Risk of fire!

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34 03 09 (594)

Instruction for replacement brake pads/ brake discs

(BMW/MINI)

Situation: The following procedures must absolutely be followed for professional and proper repairs.

Affected vehicles: BMW and MINI

Procedure: The following components are additionally absolutely required for a replacement of the **brake pads**:

- Brake pad sensor
- Brake block paste

For vehicles older than 48 months the following additional replacement is recommended:

- Spring retainer

The following components are additionally absolutely required for a replacement of the **brake discs**:

- Brake pads
- Brake pad sensor
- Brake block paste

For vehicles older than 48 months the following additional replacement is recommended:

- Spring retainer

The exact procedure should be taken from the vehicle-specific repair instructions.

The Electronic Parts Catalogue is supplemented with the additional instructions.

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34 02 09 (561)

Modified wear limit for brake disc / brake pad replacement

(BMW/MINI)

Situation: The wear limit of the minimum brake disc thickness (MIN TH) is modified analogue to the M-vehicles from 'greater than or equal to' (â‰¥) to 'greater than' (>).

Affected vehicles: all BMW and MINI starting model year 2009

Procedure: The exact procedure for brake pad replacement is to be taken from the revised repair instructions.

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36 0106 (251)

Inflating tyres with nitrogen (N2)

All series

Situation: The question is regularly asked, whether inflating the tyres with nitrogen instead of air has any benefit with respect to a ”gradual loss of tyre pressure”. This process is also known as diffusion (diffusion is the movement of miniscule particles, especially atoms or molecules).

Statement

Some companies regard inflating the tyres with nitrogen as a way of selling the customer a feature that has no practical benefit whatsoever with respect to diffusion. As nitrogen has larger molecules, it would indeed be logical to argue in favour of inflating the tyres with nitrogen instead of with air. However, the improvement achieved is only marginal because air is anyway made up of about 78 % nitrogen.

Composition of air:

- 78 % nitrogen (N2)
- 21 % oxygen (O2)
- <1 % inert gases
- 0.03 % carbon dioxide (CO2)

The reduced rate in the drop in pressure inside the tyre is just a few hundredths of a bar over several months. Inflating the tyres with nitrogen does not relieve the driver from his duty (described in the Owner's Handbook) to check the tyre pressures regularly. Nitrogen is used in aviation and in motor racing because, in the event of an accident and the associated risk of fire, no additional oxygen should be fed from the tyres.

Affected vehicles: All series

Procedure: Recommendation

BMW does not recommend inflating tyres with nitrogen. Should individual customers wish to have their tyre inflated with nitrogen, their wishes may be accommodated.

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36 02 06 (279)

Repairing runflat tyres

All models

Situation: The question is regularly asked whether a repair should be performed on runflat tyres after a loss of pressure.



Runflat tyres
(also known as ”tyres with emergency running characteristics”) can be recognised by a circular symbol on the side wall bearing the letters RSC (Runflat System Component).

Note:

As a general rule, BMW has never recommended repairs on tyres. However, should individual customers wish to have their tyre repaired, their wishes may be accommodated.

A list of tyre manufacturers who approve or disapprove of repairs to runflat tyres can be found in the section headed ”Procedure”.

Procedure:

1. Contact the local representative of the tyre manufacturer concerned.
2. Please note the following when naming the nearest authorised tyre dealer for runflat tyres:

Tyre manufacturers who **approve** of repairs on runflat tyres (under certain conditions):

- Michelin
- Dunlop
- Goodyear
- Bridgestone

Tyre manufacturers who **disapprove** of repairs on runflat tyres:

- Pirelli
- Continental

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41 03 09 (537)

Min/max tolerance sample catalogue for paintwork and corrosion damage

All

Situation: Min/max tolerance samples are available to enable improved pinpointing of paint and corrosion damage. They are a supplement to the BMW Paintwork publication announced in Service Information 41 01 08 (452) and published in October 2008.

Vehicles that are older than three years after the first registration date may only be repaired by replacing components if the damage exceeds a defined extent (see min/max tolerance samples). With immediate effect, certain paint damage patterns attributed to incipient corrosion may only be repaired by means of spot repairs as small as possible.

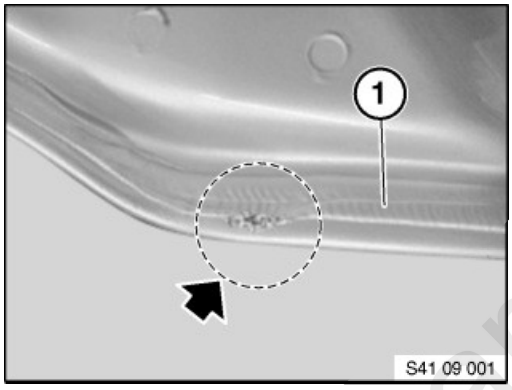
There are currently five max/min tolerance samples:

- **Paintwork damage with min/max tolerance sample A** (critical damage pattern)
- **Paintwork damage with min/max tolerance sample B** (minor damage pattern)
- **Paintwork damage with min/max tolerance sample C** (scrape marks)
- **Paint damage with tolerance sample D** (rubber grommets)
- **Paint damage with min/max tolerance sample E** (vehicle underbody)

All customer complaints are to be classified based on these additional min/max tolerance samples.

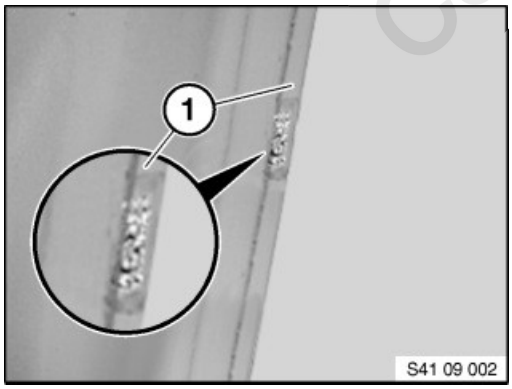
1. Min/max tolerance sample A (critical paintwork damage)

General appearance: Rust is visible without scratching the surface.



Sample A1:

Visible rusting on fold and its seal (1).



Sample A2:

Bubbling on outside (1) of fold seal.

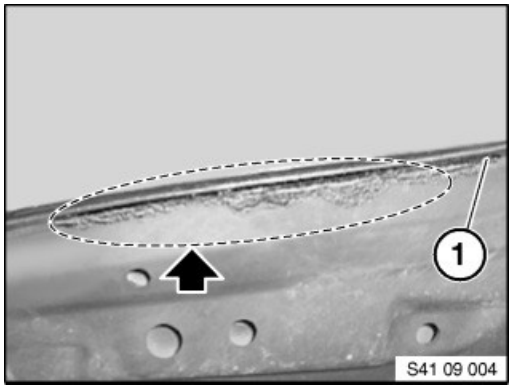
Note:

Bubbling between fold seal and outer edge. The fold seal covers an approx. 5 mm wide strip at the edge of the component.

Sample A3:

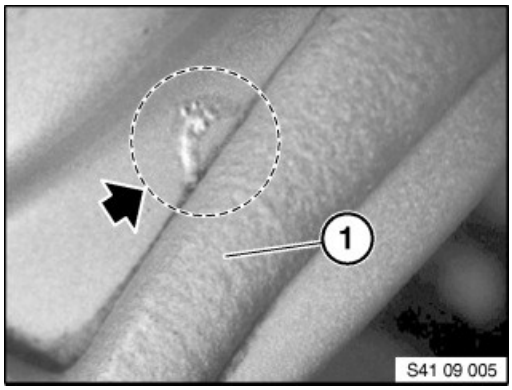
Bubbling on the inside of the fold seal (1) is more extensive than the width.

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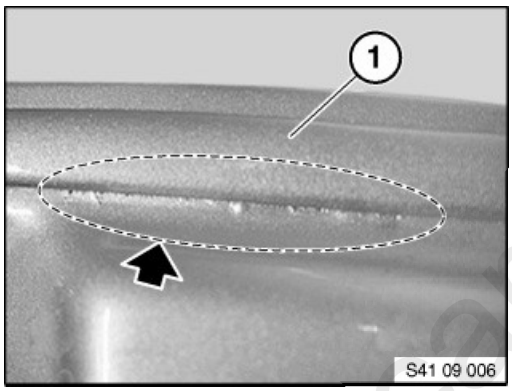
2. Min/max tolerance sample B (minor paintwork damage)

General appearance: Rust is **NOT** visible without scratching the surface.



Sample B1:

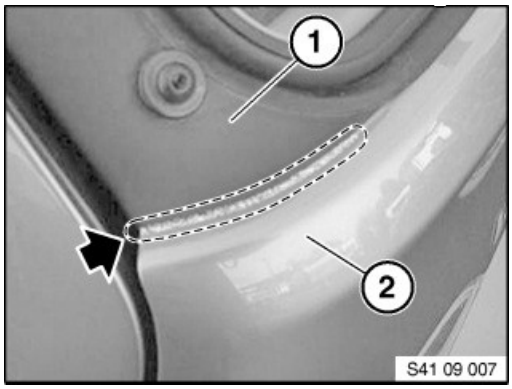
Bubbling on the inside of the fold seal (1) is less extensive than the width. Lengthwise distribution is less than the width of the fold seal (1).



Sample B2:

Bubbling on the inside of the fold seal (1) is less extensive than the width. Lengthwise distribution is greater than the width of the fold seal (1).

3. Min/max tolerance sample C (scrape marks)



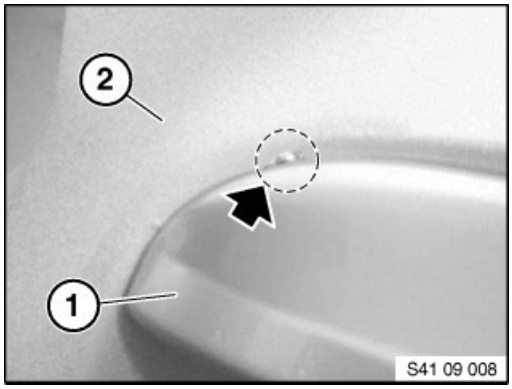
Sample C1:

Scrape marks on paint surface of the tailgate (2) by plastic trim (1) (only Touring).

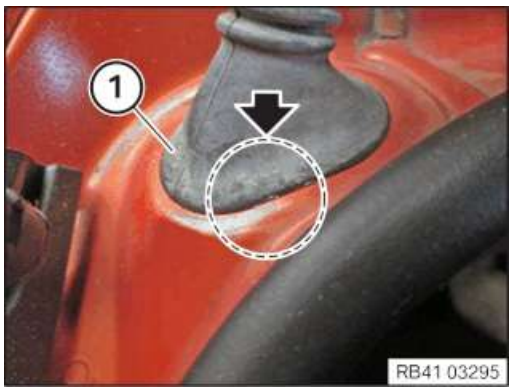
Sample C2:

Chafe marks on paint surface caused by tailgate handle strip (1) on tailgate (2).

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3. Tolerance sample D (rubber grommets)



Formation of blisters is not visible without lifting the rubber grommet (1).

3. Min/max tolerance sample E (vehicle underbody)



Visible red rust formation originating from an edge or a spot-weld.

Procedure: The damage patterns are now differentiated based on min/max tolerance samples. The following extended warranty applies:

Not for damage caused by customer	Period in years First registration after 1.1.2004	Selection of the repair method
Min/max tolerance sample A	12	Component replacement if feasible in terms of time
Min/max tolerance sample B	3	Component replacement
Min/max tolerance sample B	from 3	NO part exchange permitted. The approval regulations of the local market must be observed at all times.
Min/max tolerance sample C	12	Paint

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Tolerance sample D	**12**	**Paint**
Min/max tolerance sample E	**12**	**Seal and preserve.**

The paint structure must be built up as specified in the ColorSystem painting handbook.

Attention!

The repair is only carried out in justified case of customer complaint.

In the case of rust damage and paint damage, all mounted parts must be retained wherever possible and remounted as part of the repair procedure.

In contentious cases, e.g. repeated repairs, the advise of the respective Warranty department should be sought in order to clarify the procedure.

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41 01 98 (374)

Dent repairs without damaging paintwork

All

Situation: Light dents have previously only been repaired through conventional means such as Multispot and filling followed by repainting.

However, methods of rectifying parking and hailstone damage that do not damage the paintwork are becoming increasingly common.Vehicle insurers are fully supportive and endorse this approach.

This procedure involves pressing out damage from the inside of sheet metal panels using levers followed by polishing. The total outlay is much lower than for conventional dent repairs with subsequent repair painting. It is to be noted here that some areas of damage cannot be reached on account of reinforced or bonded body components. For safety reasons, no additional holes may be drilled to improve accessibility.

The size of the dent should not exceed a diameter of 80 mm.

This procedure can also be used during general workshop repair processes, such as:

- Preparing for painting (reduction in filling work)
- Rectifying any damage following repair painting.

Based on this background as well as environmental aspects and the positive effect on insurance coverage classification, this method of repairing dents without paintwork damage is approved for BMW vehicles. This approval only applies to dents that do not have visible paintwork cracks.

Procedure: Repairing dents without damaging the paintwork requires continuous practice and a high degree of skill. In order to cater for the relevant situation at all contractual partners, two application methods for optimum use are offered.

1. In the same way as professional body and paintwork shops are already used, it is also possible in this case to commission qualified contractors for the purpose of conducting dent repairs without paintwork damage.
2. Purchase of a BMW pressing-out tool set for dent repairs.

   The form and materials of this set have been carefully selected for BMW vehicles. It consists of a standard set (for approx. 80 % of the outer body skin that can be reached) and an extension set (for the remaining 20 %).

Training is recommended so that the tool set can be used effectively. This training is offered by external companies and can be conducted locally (e.g. for Germany the company Ur-Form).

See Service Information 5 04 98 (328).

Note:

Make sure that the training provider does not conduct training under the prerequisite of purchasing his particular set of pressing-out tools.

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41 01 08 (452)

New BMW paint brochure

All

Presentation of BMW paint brochure:

The existing BMW paint brochure has been thoroughly revised and in its new form provides good reference for assessing all kinds of paint and corrosion damage.

The examples and detailed descriptions contained in the brochure are intended to find a standard language for identifying paint and corrosion damage. Unambiguous descriptions of damage mean that misinterpretations can be largely ruled out when assessing a possible warranty claim. Communication between the customer and the authorised BMW dealer during assessment on the vehicle is also made greatly easier.

If for example the following damage is unambiguously identified on the paint surface, this will always be considered to be the responsibility of the customer, and warranty will be ruled out:

- Mechanical influences on the paint surface (e.g. scratches)
- Damage to the paint surface caused by chemical or biological influences (e.g. animal droppings)

The new BMW paint brochure complements the BMW paint handbook when eliminating paint and corrosion damage. This means that the repair procedures described in the BMW paint handbook are adapted unambiguously and purposefully to the fault pattern.

Subsequent orders for BMW paint brochure:

The BMW paint brochure can be ordered via the usual parts-related channel under the BMW parts number 01 29 2 148 332.

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41 02 09 (521)

New repair methods ”Gluing / Riveting” on steel bodies

BMW/MINI

Situation: Advance technical developments in the field of adhesives and equipment technology have made modified repair methods possible. This procedure has been tested and approved following exhaustive endurance runs and corrosion tests in the Development division.

Similar to the procedure for the tail panel on the F01/F02, the repair methods "welding/soldering" will change to "gluing/riveting" on various outer skin and structural components of steel bodies from the launch of the E89 and R57. This procedure has already been introduced for repair work on the reduced-weight aluminium front end (GRAV) of the E60.

The repairs can be performed by all workshops that have participated in a GRAV or the current bonding and riveting training, in combination with the training video.

Another positive point of this method is the significantly improved corrosion protection resulting from the wide-area bonding of the spare part coating (KTL).

Procedure: Essentially, the following components are affected:

- Rear side wall
- Tail panel
- Boot floor
- Roof outer skin
- engine carrier
- support carrier

Model series affected:

- MINI (R55, R56, R57)
- BMW 1 Series (as of E8x)
- 3 Series (as of E9x)
- 5 Series (as of E60)
- X1 (E84)
- X5 (E70)
- X6 (E71)
- Z4 (E89)
- 7 Series (as of F01)

And all future series.

Necessary workshop equipment:

- Punch riveting tool
- Blind riveting tongs
- Cartridge gun for body glue
- Universal collet (for roof ducts)
- Infrared lamp

For more information on the required tools, see Service Information.

Parts required:

The new parts and consumables required for the respective scope of repair work are listed in the Electronic Parts Catalogue (EPC).

In addition, vehicle-specific service repair packages are also offered. Here, the vehicle identification number is to be entered in KSD2, the corresponding "Packages" button selected and the required job item selected in main group 41.

Repair instructions:

The repair instructions have been revised to take account of the new repair method:

To differentiate the individual repair methods, the repair stage is inserted in the repair instructions.

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- Repair stage 1: All repairs that only provide for replacement of screwed/bolted components and planishing operations.
- Repair stage 2: Repairs that are carried out by bonding and riveting without the use of a straightening bench.
- Repair stage 3: Repairs that are carried out by bonding and riveting with the use of a straightening bench or welding.

Training video for bonding and riveting:

The new methods, for example "punch riveting", have been described on a training video that will be distributed to National Sales Companies.

Please make sure the training video is made available to the staff who will be performing this work and, if you do not perform body repair in your own workshop, to the staff of your specialist body workshop.

The BMW paint brochure can be ordered via the usual parts-related channel under the BMW parts number 01 69 0 037 577.

Time allowances:

Time allowances (flat rates) have been revised to take account of the new repair methods and shall apply retrospectively.

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41 02 07 (377)

Repair of corrosion damage

All

Situation: A paint brochure is available for the evaluation and repair of body components relating to corrosion damage.

It contains examples for the definition of paint and corrosion damage and provides information on remedies and repairs. Details on contents and distribution were published in the Service Information (bulletin) 41 01 08 (452).

The procedure for chafe marks (e. g. tailgate repair) is described in detail in the vehicle-specific Service Information (bulletin).

Chafe mark on a painted surface generally are not considered to justify a part replacement.

Procedure: **Important!**

Repair of corrosion damage only if there is a specific customer complaint!

To the extent that the design allows, all add-on parts must be retained and converted.

Always adhere to the following procedure when dealing with corrosion damage:

1. Establish the fault pattern of the damaged area with the aid of the new paint brochure and use this as a basis to determine the repair measures.
2. Remove the partial area of the body as specified in the repair instructions.
3. Repair the partial area affected by corrosion in accordance with the repair instructions and the BMW paint manual.
4. Reassemble the vehicle using the removed add-on parts.

Note:

Only the following repairs of the body components may be invoiced.

- Replacement of the corroded body component (only in case of rust damage without partial repair)
- Paint
- Conversion of add-on parts
- Cavity preservation

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31 01 12 (833)

Visible corrosion on vehicle add-on parts

Situation: Since the market introduction of the E65/66 the engine compartment and underbody preservation has successively been dropped from all series for environmental protection reasons. This may result in visible corrosion of machined surfaces such as, for example, on chassis/suspension components, machined screwing/bolting points, screw connections, or on surfaces such as, for example, the joints and drive shafts!

To prevent or re-treat this surface corrosion, the dealer organisation should use the corrosion protection with BMW part number 83 19 2 317 997.

Vehicles concerned: All BMW, MINI series

Procedure: Apply a thin coating of corrosion inhibitor (using only a brush) to the affected areas.

Warning!

Risk of fire!

Do not apply any corrosion inhibitor to the engine or the exhaust system!

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51 02 02 (834)

Cleaning and care of leather in vehicles

All model series

Situation: The leather used by BMW is a high-quality natural product prepared using state-of-the-art processing techniques.

As it is a genuine natural product, its specific characteristics and peculiarities must be taken into account in its use and care.

Lengthy periods in direct sunlight (for convertibles) may lead to slight bleaching and loss of softness in the leather.

Regular cleaning and care are necessary, for dust and dirt from the road (leather's arch enemy) can penetrate the pores and folds, causing the leather to lose its visual appeal.

Affected vehicles: All BMW vehicles with leather finish

Action: As dirt and grease slowly attack the protective coating of the leather finish on a vehicle, treatment with BMW's premium leather care agent is needed once or twice a year, depending on the degree of soiling.

Here, the precleaned leather surfaces of the seats, door trims and dashboard can be cleaned and cared for in a **single work cycle**.

Procedure:

1. Preclean the leather surface with a microfibre cloth.
2. Thinly apply BMW's premium leather care agent with a soft, clean sponge (by-pack) (shake well before use). Rub into soiled areas more intensively.
3. Allow to dry and the rub down with a clean cloth (by-pack).

Note:

BMW premium leather care agent:

High-quality oils maintain the natural characteristics of the leather. The typical smell of leather is refreshed.

This product provides UV protection (combined leather cleaning and care agent). It was presented in September 1999 and has been available from BMW Parts Service since January 2002 in two different containers.

Important!

Work using BMW premium leather care agent cannot be reimbursed through warranty as this is a cleaning and care operation.

Parts:

Part number	Description	Quantity
83 12 0 411 413	Leather care kit with UV protection	1

Note:

Current contents and range of parts can be found in the spare parts catalogue.

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51 01 00 (530)

Front licence plate holder

All models

Situation: Most BMW dealers use a licence plate backing panel with their company name for fitting the rear licence plate.

The same backing panel is also frequently used for the front licence plate.

Effect: Fitting such a backing panel to the front bumper is a contravention of licencing regulations 74/483 EEC as it does not meet the specification for protecting pedestrians.

Extract from EC Directive 74/483: "No protruding section of the exterior surface of the vehicle shall have a rounding-off radius of less than 2.5 mm".

The consequence is the invalidation of the German Federal Vehicle Homologation Approval and serious disadvantages for the BMW dealer in the event of litigation.

Moreover, the name of the dealership on the licence plate backing panel adjusts the height of the licence plate, so impeding the cooling air inlet and negatively affecting the cooling efficiency of the engine at high loads.

Affected vehicles: All models.

Procedure: Do not install a separate licence plate backing panel on the front bumper. The licence plate backing panel fitted **at the factory** corresponds to **all** requirements regarding safety, operation and styling.

Important! To prevent rattling noises being caused by the licence plate, the foam-rubber strips in the by-pack kit must be used as backing and attached double-sided to the licence plate and to the vehicle.

All necessary securing screws and white or coloured cover flaps can be found in the by-pack kit.

Parts: Standard licence plate backing panels and mounting components are listed according to model in the Electronic Parts Catalogue and can be ordered via the customary parts ordering channels.

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Note:

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51 01 09 (551)

Measures for leather complaints (seats)

All model series

Situation: The leather used by BMW is a high-quality, state-of-the art processed natural product, whose quality level lasts for years with the appropriate care. Follow the instructions in the Service Information (bulletin) 51 02 02 (834) and the instructions in the Owner's Handbook on BMW Premium Leather Care. The BMW approved leather cleaners and care sets are to be used.

To maintain the high-qualtity leather prepared by BMW even after damage without replacement of the complete seat cover or the interior covering, BMW offers a leather repair kit. To perform leather repairs the ”BMW appearance repair/ interior repair" Aftersales training is recommended.

Advantages for the customer:Part replacement can be avoided with cost-effective repairs of minor damage.

Advantages for the BMW dealer:Professional leather repair can increase the value of a vehicle. A repair is possible in approx. 60 to 80 minutes. Restrictions on the repair are with damages to seams.

Caution!

The marked ”airbag seam” must not be repaired!

Despite very good results, new part quality can not be achieved. For damages which are the fault of the customer, it is advisable to exclude the warranty claims for this repair before applying the leather repair.

A repair is only carried out in justified case of customer complaint.

Note:

The leather repair requires permanent training and a high degree of manual dexterity. In order to meet the situations in all BMW Service authorised workshops, there are two application variants offered for optimal use:

1. Just as bodyshops and paint shops are used for body damages, there is also the possibility here, to engage a qualified local supplier for the leather repair.

   POS Polsterservice GmbH is recommended in Germany.

   Contact data:

   POS Polsterservice GmbH

   Mühlenpfad 2-4

   53547 Hausen-Solscheid

   Telephone: +49 (0) 2638 / 921-700 (for German, Austria and Switzerland)

   Telephone: +49 (0) 5828 / 80755 (for Netherlands, Belgium and Luxembourg)

   E-mail: vertrieb@polsterservice.de

   E-mail: jvanderveen@polsterservice.de (for the Netherlands, Belgium and Luxembourg)

   Internet: http://www.polsterservice.de

2. Use of the BMW leather repair set and its application after participating in the recommended Aftersales training **”BMW appearance repair/ interior repair”.**

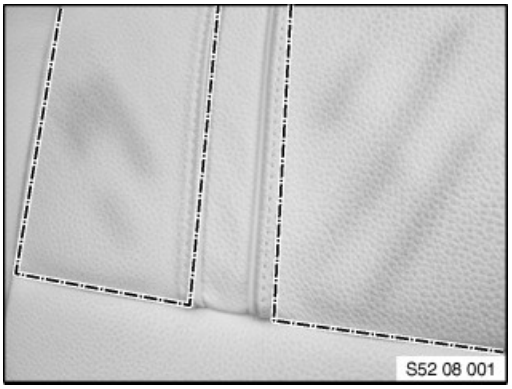
The following fault patterns belong to the most frequent complaints for leather upholstery:

1. Discolouration and dirt contamination
2. Wear
3. Scratches
4. Tears and cuts
5. Open seams
6. Ripples
7. Creasing (with and without rollover)
8. Leatherette crack

Affectedvehicles: All BMW and MINI vehicles with leather option

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Measure:



1. Discolouration and dirt contamination

Clothing (especially jeans and leather clothing in damp condition) can bleed colours onto the leather. Especially subject to this are special light coloured interior options

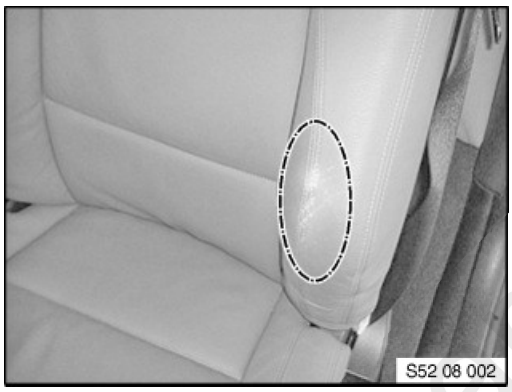
To prevent the leather from discolouration and dirt contamination, regular leather care is required (also refer to SI 510202834 and notes in the Owner's Handbook on leather care).

Using the care and cleaning set approved by BMW, these discoulorations and dirt contaminations can be removed in most cases. If is no longer the case, because it is at an advanced stage, the dirt contamination has already penetrated into the leather.

Caution!

Work using BMW leather care kit is not reimbursed by the warranty as this is a cleaning and care operation.

Discolouration and dirt contamination resulting from lack of care are not a case of defect of the leather. In case of a customer complaint defective material must be proven and if necessary the part replaced.



2. Wear

Wear marks, e.g. on the seat bead, can occur by continual mechanical stress and the used geometries.

Regular care keeps the leather soft and protects from wear.

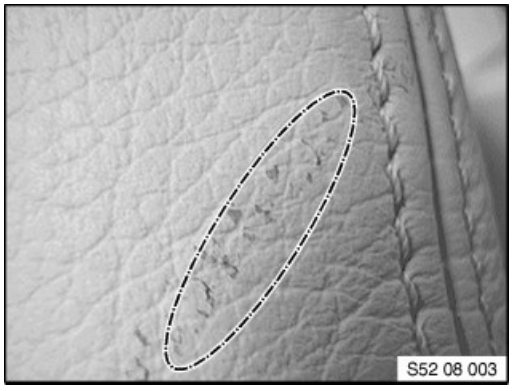
The effected location can be repaired with the aid of the BMW leather repair kit.

Only for repeated customer complaints is the effected part to be replaced.

Caution!

If again waiting for a repair is not successful, in case of repeated customer complaints the effected part must be repaired. The invoicing is to the warranty.

See billing procedures!

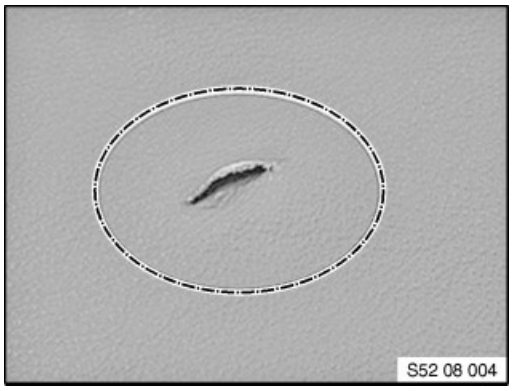


3. Scratches

The leather surface is like scales. Obvious damages to the leather surface caused by pointed objects such as, belt, buttons, keys or zippers.

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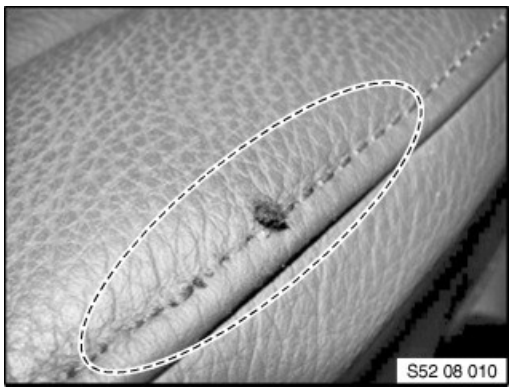
The fault pattern presents no product defect. The effected location can be repaired with the aid of the BMW leather repair kit.



4. Tears and cuts

Obvious completely cut leather caused by sharp objects, such as keys or knives.

The fault pattern presents no product defect. Replacement of cover necessary.



5. Open seams

Open seams -general

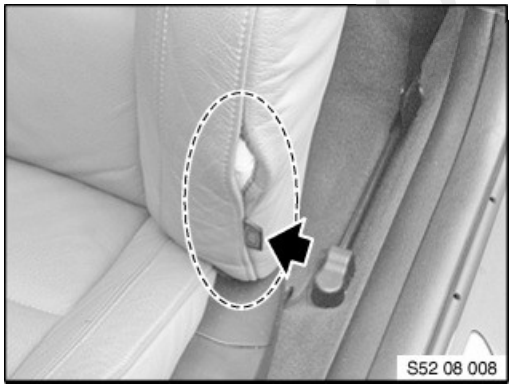
Damaged or open seams caused by pointed or sharp objects.

The effected spot can be repaired more economically by an external service provider.

Caution!

For damaged airbag seams (sewed in) on the cover of the seat backrest or the door trim panel, the effected part must be replaced.

See billing procedures!



Open "airbag seam"

Caution!

The marked ”airbag seam” must not be repaired!

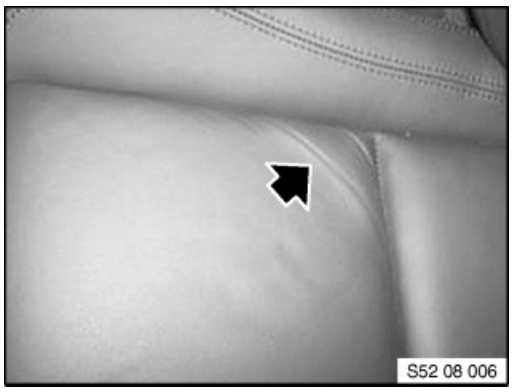
6. Ripples

A ripple in the surface is completely desired to emphasise the natural character of the leather. The ripples in the leather can change due to fluctuations in temperature and humidity.

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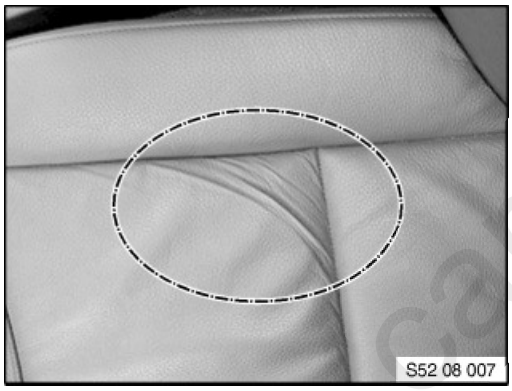
In case of customer complaints, the customer should be advised of the natural character and design of the leather upholstery. A treatment of the effected spot has no purpose.



7. creasing

Creasing without rollover of material

Depending on the cover design, the natural leather qualities (stretch) and the individual type of entering the vehicle, permanent creasing (without rollover of the material) of the seat cover can occur on the seat surface



Creasing with rollover of material

Heavy creasing (with rollover of material) on the seat surface is caused by extreme stress.

Caution!

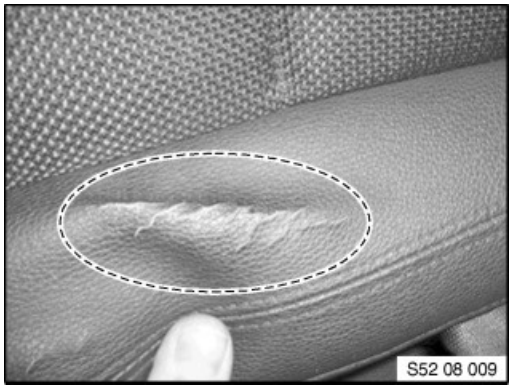
a. Creasing without rollover of material is not a defect of the leather. Part replacement on warranty is not justified.
b. For creasing with rollover of material, in the case of customer complaint the effected part must be replaced on warranty.

   To compensate for possible colour variations, the adjacent leather surfaces must be treated with the leather care kit.

8. Leatherette crack

Surface cracks in leatherette.

The underlying fabric structure is visible.



In case of customer complaints the effected part is to be replaced on warranty.

Pro-cedure: Effective immediately measures for leather complaints will be decided based on damage images.

1. In case of customer complaint, check if the leather surface can be repaired by care measures.

   For the procedure, refer to Service Information (bulletin) 51 02 02 (834).

2. If there is damage of the leather in the case of customer complaint, for warranty claims convincing digital photos with the following contents must be made (similar to a paint complaint).

   - **Total image of the damage location**
   - **Detail image of the damage location**
   - **Display the scale for size of damage spot with a ruler or a coin as reference**

   Diagram and description of the damage location is retained in the vehicle records.

   Acceptance of warranty costs depends on the evaluation of the leather damage.

3. Repair damaged spots according to the recommendations in the BMW appearance repair/interior repair Aftersales training or by a qualified service provider.

Billing procedures:

Caution!

The fault pattern 1 (Dirt contamination, discolouration), 3 (Scratches), 4 (Tears and cuts) and 6 (Ripples) are not a product defect of the leather. Part replacement on warranty is not justified.

Warranty

For leather repair work in case of warranty (e.g. wear) the invoicing is made according to working time (AZ) under the following job numbers:

BMW appearance repair passenger compartmentJob number: 52 99 010

MINI appearance repair passenger compartmentJob number: 52 99 020

Material and labour costs incurred can be claimed through the usual warranty channels subject to current warranty terms.

Parts:

Part number	Description	Quantity
83 12 0 411 413	Leather care kit with UV protection	1
83 12 0 411 371(USA only)	Leather care kit	1
83 12 0 415 497(Canada only	BMW Premium Leather Care	1
83 12 9 407 907	Leather cleaning foam	1
83 19 2 162 184	Leather repair kit	1

Note:

Current contents and range of parts can be found in the spare parts catalogue.

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61 01 08 (492)

Battery charge state

All models

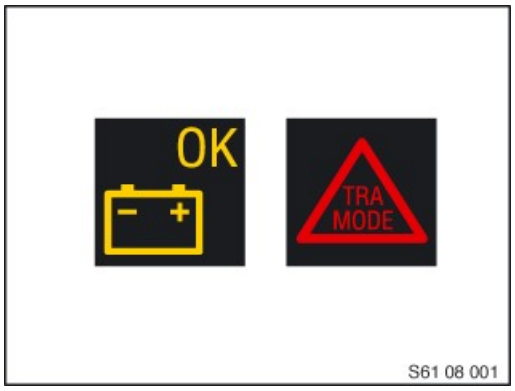
Situation:

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.

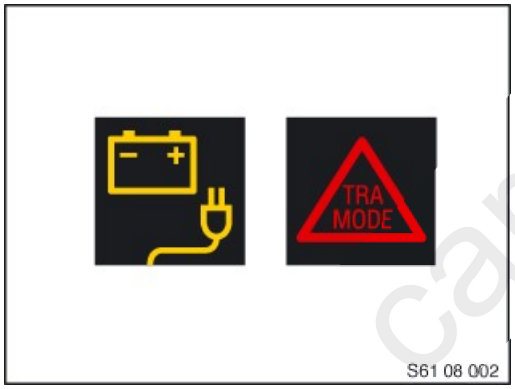
To prevent damage to the battery, measures are being taken throughout the entire distribution chain (transport mode, battery charging calendar, etc.) to ensure that the battery always has a sufficient charge state.

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.

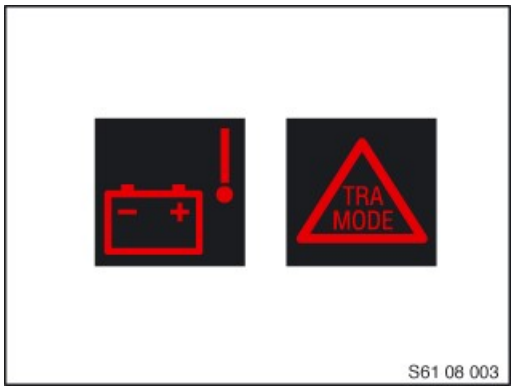


Battery charge state insufficient.

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.

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- 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.

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61 07 02 (875)

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.

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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).

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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)	

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61 03 98 (387)

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

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61 01 07 (629)

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 CO_2 emissions. The combustion engine is switched off and on automatically under certain conditions.

Vehicles concerned: The automatic engine start-stop function in 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:

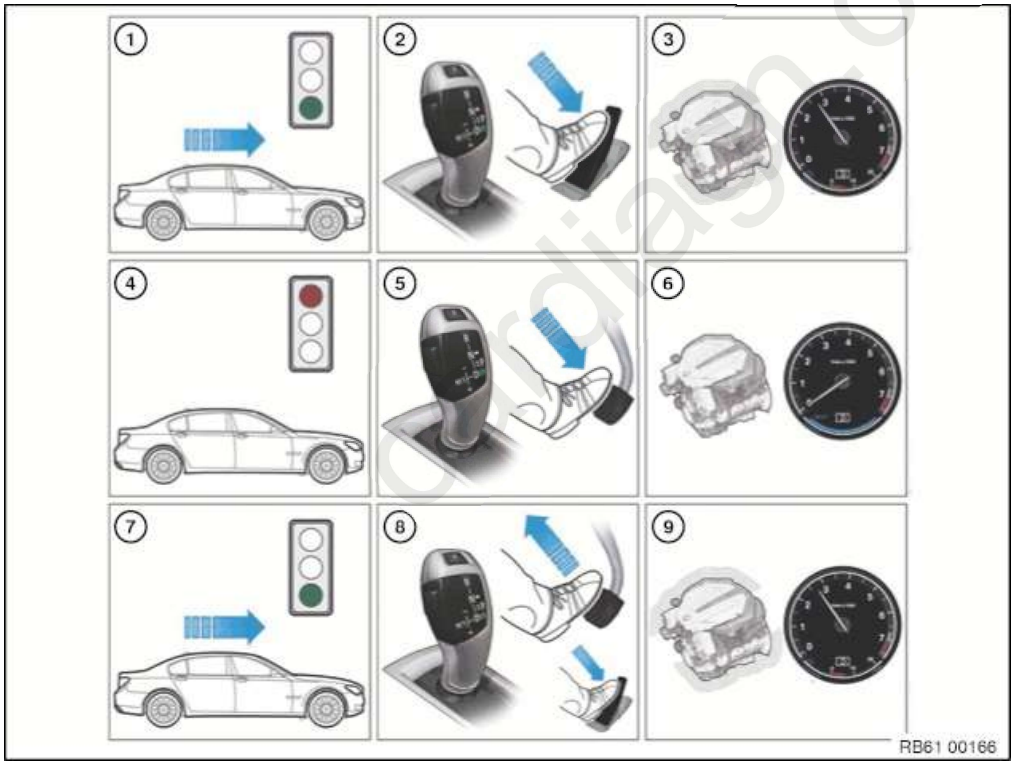
The automatic engine start-stop function is also installed as standard on these vehicles.

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.**

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 kmh).
- 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)!

<u>Switch-off inhibitors</u>

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

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- 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 ≤ 3 °C
- Engine speed > 1200 rpm
- Battery condition:
  - State of charge too low
  - Measured battery state of charge not plausible
  - Battery temperature too high (approx. 50 °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

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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.

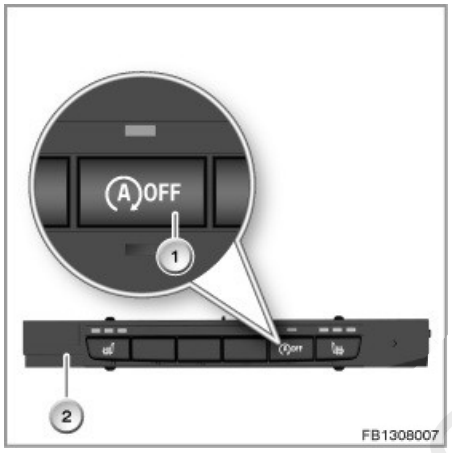
New generation ASSF button:



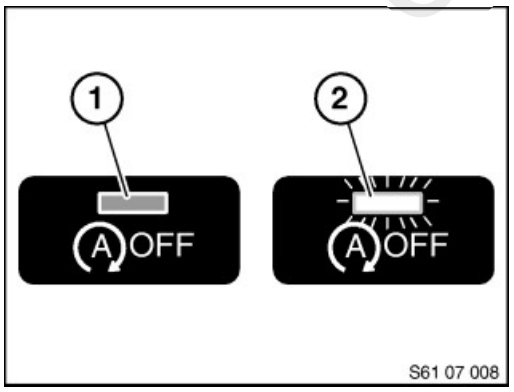
The ASSF button (2) is arranged below the Start/Stop button.

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 Annex 1.

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61 01 08 (492)

Battery charge state

All models

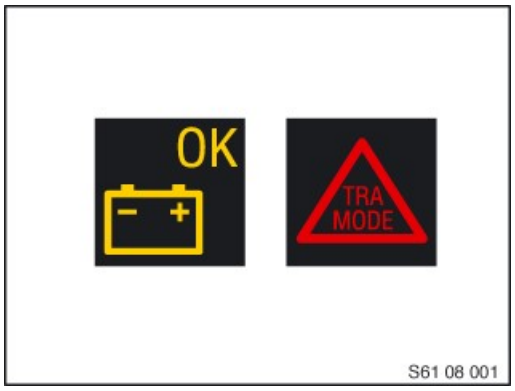
Situation:

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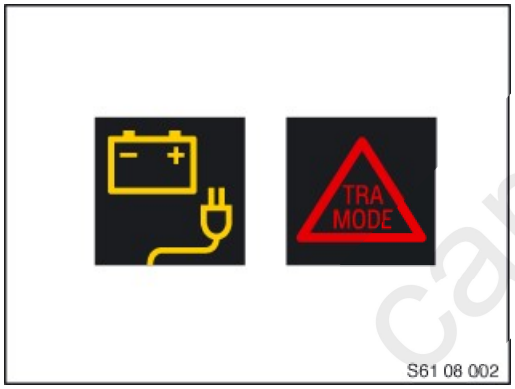
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With the new power management system from vehicle F01, the following battery charge state displays will be generated in the instrument cluster (Check-Control message) when transport mode is set:



Vehicle battery OK.

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

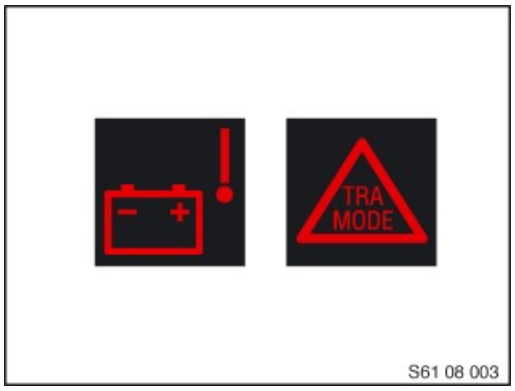


Battery charge state insufficient.

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.

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- 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.

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61 07 02 (875)

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.

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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).

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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)	

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61 03 98 (387)

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

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64 02 00 (553)

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.

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64 08 00 (645)

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 affected: 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
- I20t: 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".

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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

Spray lance	Order/part number	Quantity
-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

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- 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) G01/G02/G08/G29 (left-hand drive vehicle)	83 30 2 222 502	1
- F01/F02/F03/F04/F06/F07/F10/F11/F12/F13/F18 (right-hand drive vehicle) G01/G02/G08/G29 (right-hand drive vehicle)	83 30 2 364 733	1
-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
-I20	83 30 5 A4F DE5	1
Spray gun		
SATA spray pistol	81 45 9 429 217	1
Heating and air conditioning system cleaning agent		
Heating and air conditioning system cleaning agent (only for cleaning with spray lance!)	83 19 2 180 507	1

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)

Description	Part number	Quantity
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.

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65 13 00 (641)

Deactivating and reactivating airbags/acoustic seat belt reminder

Starting from G-series

Situation: If expressly desired by the customer and at the customer's responsibility, the following airbags can be deactivated and reactivated depending on the vehicle type:

- Front passenger airbag

Important note when travelling with children:

Children younger than 12 years of age or smaller than 150 cm may only travel if they are secured in suitable child restraint systems. Child restraint systems may only be used on the front passenger seat when the airbag is deactivated, as otherwise there is a substantial risk of injury to the children if the airbag is deployed, even if they are seated in a child restraint system. If it cannot be prevented that children lean out of their seat in the direction of the door trim panel, the side airbag in the rear should be deactivated. Otherwise, there is a risk of considerable injury if the side airbag deploys.

Procedure: **Deactivating / reactivating airbags**

- BMW G-series:

In these vehicles, deactivation/activation of the airbags is only possible using a factory-installed key switch.

The key switch cannot be retrofitted!

It is not possible to deactivate/activate the airbags by means of conversion.

Deactivation/reactivation of acoustic seat belt warning

Deactivate and reactivate the acoustic seat belt warning for the driver and front passenger by conversion with the diagnosis system.

Note:

Deactivating the acoustic seat belt warning is not permitted in Japan.

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65 01 05 (236)

New audio test CD for complaints about sound system playback

All series

Situation: In case of customer complaints about sound quality when playing CDs or DVDs, it can be extremely difficult to diagnose whether it is a problem with the drive or a problem with the disc itself.

This is in part because customers are increasingly using discs of poorer quality (e.g. self-recorded CDs), which either cannot be played or can only be played poorly.

To help you distinguish, an audio test CD is now available.

This audio test CD should be used to analyse the following complaints on the customer's vehicle:

- CD/DVD not accepted
- CD/DVD jumps
- CD/DVD cannot be read
- CD/DVD operation interrupted permanently or intermittently

Note:

The audio test CD contains a track with built-in faults, but which the sound system should play back correctly.

Affected vehicles: All model series with original BMW/MINI audio systems with CD/DVD drive or CD/DVD changer.

Procedure: Insert the audio test CD in the drive for which the customer has complained about the sound quality.

Important:

The audio test CD provides a sensitive reference.

For this reason, comply with the following guidelines:

- Do not touch the CD on the playing surface, only on the edge.
- Do not stick labels or write on the CD's surface.
- Do not expose the CD to direct sunlight or high temperatures.
- Only remove the CD from its protective cover for immediate use.

Play track 12 of the audio test CD and then perform the following fault analysis:

- If no faults can be detected in the sound quality, there is no fault in the audio system. Replacing parts will therefore not achieve the desired result and must not be performed.
- Check whether the disc used by the customer is the cause of the complaint.
- If there is interference or if the CD jumps when track 12 is being played, the audio system / drive must be replaced.

Note:

The new audio test CD 01 99 00 33 475 does not supersede audio test CD 01 59 0 004 055 (please refer to SI 65 03 98 381).

The other tracks on audio test CD 01 99 00 33 475 are of no relevance to the analysis and can be ignored.

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65 05 04 (109)

Problems with audio/navigation CDs/DVDs

All series

Situation: In recent years, the actions of the customers with regard to audio and navigation CDs and DVDs used in the vehicle has changed greatly. Customers are increasingly using not only purchased, pre-recorded CDs/DVDs, but also data carriers that they have recorded themselves, and which could cause problems when used in a vehicle. Purchased data carriers may also have a copy-protect function.

The following complaints may occur when such data carriers are used:

1. A CD is in the drive but is not recognised / cannot be played.
2. Reproduction is distorted.
3. The CD jumps, there are gaps in the sound when music tracks are played.
4. The CD always played correctly in the past, but not any more.
5. Not all CD tracks are played (home-recorded CDs).
6. The CD plays without any problem on indoor equipment (e.g. stereo system), but not in the car.
7. Problems when installing navigation software
8. Problems with the readability of the navigation road map.

Procedure: If one or more such complaints occur, the CDs/DVDs used by the customer should be checked for the following criteria:

- Are home-recorded or copy-protected data carriers being used?
- Are the CDs/DVDs heavily worn, scratched or dirty?

If this check indicates that the problem is caused by the media used by the customer, **no parts are to be replaced - this is not a problem relevant to warranty.**

Replacing the radio, CD changer or navigation computer will not bring about a lasting solution, the complaints will occur again. In such cases, the customer should be approached with the arguments laid out in the points below.

Note:

The CD drives installed in BMW and MINI vehicles are able to play any and all CDs available on the market that comply with the recognised standard for audio CDs/DVDs (the so-called ”Red Book Standard”). Home-recorded CD-R and CD-RW can also be played without problem, providing they meet certain minimum quality requirements (the so-called ”Orange Book Standard”).

Explanatory information about the complaints described by the customer

Concerning complaints 1 to 5 and 7, 8:

The quality of the burned media is determined by various factors:

- Quality of the blanks used (coating)

  Depending on the quality of the blanks used, home-recorded media age relatively quickly, a process that is often not visible from the outside. Cheap blanks can often no longer be played after just 1 - 2 years.

- The writing speed selected for burning

  The faster poor quality blanks are recorded, the poorer the result will be

- Sensitivity of home-recorded CDs to scratches and dirt

  The reverse (with a label) is the actual medium onto which the data is burned. Damage such as scratches caused by the customer's own labelling of the CD can thus have a direct negative effect on readability.

- Reading error

  It is of course possible for reading errors to occur on original CDs. Scratches, dirt etc. also attach their surfaces.

Concerning complaints 1 to 4

- Unfortunately, not all manufactures of data carriers adhere to the recognised standards for the quality of the basic media and data organisation. In the case of the known copy-protection mechanisms, the manufacturers actually violate them deliberately.

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BMW permanently strives to ensure that all regularly available media can be played. In individual cases however, not every violation of standards can be provided for.

- Claims arising from copy-protected CDs that cause reading errors should be submitted to the CD dealer. These problems cannot be attributed to BMW AG, but rather solely to the CD manufacturers who do not adhere to agreed audio CD standards.

Concerning complaint 5:

- Depending on the computer performance, quality of blanks used, etc., problems may develop meaning that not all data are fully and correctly recorded on the data carrier during the burning process.

  The consequence of this is that only a fraction of the data needed can be reproduced (e.g. the tracker only finds the first two of a series of recorded CD tracks).

Concerning complaint 6:

- The requirements of equipment concerning temperature range, sensitivity to vibrations and dirt that are needed for use in motor vehicles cannot always be achieved despite maximum efforts. For this reason, a certain limitation in function compared to indoor equipment must be accepted.

Concerning complaint 7:

- Please refer to Service Information bulletin 65 13 02 (910).

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00 02 06 (296)

Drawbar load sign omitted

All with options 235 and 3AC

Situation:	There have been new vehicle documents since 2005-10-01.
	Beginning with this production date, vehicles no longer need to be equipped with the trailer hitch drawbar load sign.
	Corresponding information on the options is provided in the vehicle documents.
	The regulation pertains to all series.

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65 13 00 (641)

Deactivating and reactivating airbags/acoustic seat belt reminder

Starting from G-series

Situation: If expressly desired by the customer and at the customer's responsibility, the following airbags can be deactivated and reactivated depending on the vehicle type:

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Important note when travelling with children:

Children younger than 12 years of age or smaller than 150 cm may only travel if they are secured in suitable child restraint systems. Child restraint systems may only be used on the front passenger seat when the airbag is deactivated, as otherwise there is a substantial risk of injury to the children if the airbag is deployed, even if they are seated in a child restraint system. If it cannot be prevented that children lean out of their seat in the direction of the door trim panel, the side airbag in the rear should be deactivated. Otherwise, there is a risk of considerable injury if the side airbag deploys.

Procedure: **Deactivating / reactivating airbags**

- BMW G-series:

In these vehicles, deactivation/activation of the airbags is only possible using a factory-installed key switch.

The key switch cannot be retrofitted!

It is not possible to deactivate/activate the airbags by means of conversion.

Deactivation/reactivation of acoustic seat belt warning

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Procedure: **Deactivating / reactivating airbags**

- BMW G-series:

In these vehicles, deactivation/activation of the airbags is only possible using a factory-installed key switch.

The key switch cannot be retrofitted!

It is not possible to deactivate/activate the airbags by means of conversion.

Deactivation/reactivation of acoustic seat belt warning

Deactivate and reactivate the acoustic seat belt warning for the driver and front passenger by conversion with the diagnosis system.

Note:

Deactivating the acoustic seat belt warning is not permitted in Japan.

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65 13 00 (641)

Deactivating and reactivating airbags/acoustic seat belt reminder

Starting from G-series

Situation: If expressly desired by the customer and at the customer's responsibility, the following airbags can be deactivated and reactivated depending on the vehicle type:

- Front passenger airbag

Important note when travelling with children:

Children younger than 12 years of age or smaller than 150 cm may only travel if they are secured in suitable child restraint systems. Child restraint systems may only be used on the front passenger seat when the airbag is deactivated, as otherwise there is a substantial risk of injury to the children if the airbag is deployed, even if they are seated in a child restraint system. If it cannot be prevented that children lean out of their seat in the direction of the door trim panel, the side airbag in the rear should be deactivated. Otherwise, there is a risk of considerable injury if the side airbag deploys.

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00 02 06 (296)

Drawbar load sign omitted

All with options 235 and 3AC

Situation:	There have been new vehicle documents since 2005-10-01.
	Beginning with this production date, vehicles no longer need to be equipped with the trailer hitch drawbar load sign.
	Corresponding information on the options is provided in the vehicle documents.
	The regulation pertains to all series.

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41 01 08 (452)

New BMW paint brochure

All

Presentation of BMW paint brochure:

The existing BMW paint brochure has been thoroughly revised and in its new form provides good reference for assessing all kinds of paint and corrosion damage.

The examples and detailed descriptions contained in the brochure are intended to find a standard language for identifying paint and corrosion damage. Unambiguous descriptions of damage mean that misinterpretations can be largely ruled out when assessing a possible warranty claim. Communication between the customer and the authorised BMW dealer during assessment on the vehicle is also made greatly easier.

If for example the following damage is unambiguously identified on the paint surface, this will always be considered to be the responsibility of the customer, and warranty will be ruled out:

- Mechanical influences on the paint surface (e.g. scratches)
- Damage to the paint surface caused by chemical or biological influences (e.g. animal droppings)

The new BMW paint brochure complements the BMW paint handbook when eliminating paint and corrosion damage. This means that the repair procedures described in the BMW paint handbook are adapted unambiguously and purposefully to the fault pattern.

Subsequent orders for BMW paint brochure:

The BMW paint brochure can be ordered via the usual parts-related channel under the BMW parts number 01 29 2 148 332.

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