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The E46/4 sedan and the E46/3 touring models introduced September 2002 have been given a redesign. The outer appearance of both of these models differs significantly from the previous models.



E46 facelift, side view and front view



E46 Facelift, side view, and rear view

The redesigned “facelift” includes:

- Engine hood with a wider “powerdome” and wider kidney grill
- Lamp unit with-signal flasher (new optics) and round front fog lights
- Front bumper trim and rear bumper trim (E46/4 Only)
- Side panels at the front left and right with new additional turn signals lights.
- Rear tail lights (E46/4 Only)
- Rear protective strip with park distance control (E46/4 Only)

Mechanical modifications apply to all E46 vehicles, body modifications apply only to the E46/4 and E46/3.

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## E46 Facelift

### Front Headlights

The headlights and turn signals are redesigned with a new appearance. The accentuated sweeping lines compared with its predecessor and the transparent turn-signal flashers that are drawn upwards give the car a contemporary look and feel.

The reshaped kidney grill, which is stretched in both directions to the front lamps and the modified contour of the hood powerdome, from the kidney grill to the A Pillar, reinforce the overall impression of the vehicle.

The new styling does not alter the way in which the front headlights are installed and removed. Bi-Xenon head lamps are available as a option only.

The hood's hinges and locks have not been changed and the fresh air duct to the radiator has not been altered.



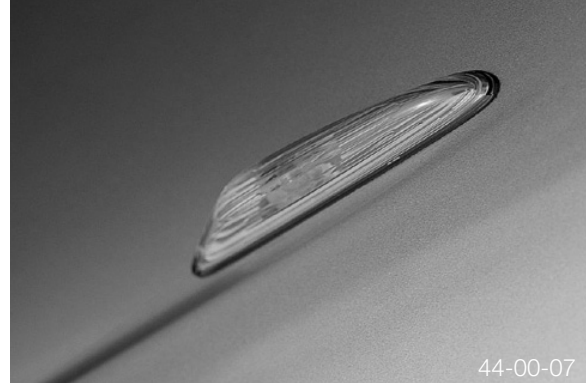
### Front Bumper Trim

The front bumper trim has significantly fewer horizontal lines and this result shows a flatter design.

The front bumper protective strip has a new side connection and the bumper has been redesigned to improve the gap dimensions.



## Front Fenders



The front fenders are redesigned with wings that bulge further upwards over the bead in the area of the wheel arch. The additional turn signal lights are now wedge-shaped. The seals for the additional turn-signals lights have been redesigned but the mounting of the turn signals remains unchanged.

## Rear Bumper

Similar to the front bumper, the rear bumper trim has fewer horizontal lines resulting in a flatter design.

Again the bumper is redesigned to improve the gap dimensions.

The protective strip is modified to integrate the 4 PDC sensors.



## Rear Tail Lights (E46/4 Only)

The shape of the rear lights has not changed but the light is sectioned in three parts.

The modified points in detail are:

- The brake light consists of one bulb for each vehicle side and is located in the upper compartment of the rear tail light.
- The turn signal consist of one bulb for each side and is located in the middle compartment of the rear tail light; the turn signal glass is routed around the reverse light in the trunk lid.



- The tail light is located in the lower compartment of the rear light. Two additional bulbs are added to each side, the inner-most of which is located in the trunk lid.
- All the bulbs in the rear lights are 21 watts, thus increasing the service life and reducing costs.



The rear lights are secured with turn-lock fasteners (no longer clipped into place) so that they are installed and removed in the same way as the previous version. In the event of a bulb fault, its failure is indicated in the instrument cluster. Substitute lighting is now used for light failure of the brake lights or turn signals. The outer tail light is substituted for a failed brake light circuit or a failed turn signal circuit. The tail light will continue to function normally as a tail light.

### Trunk Release

As a result of American legislation, the mechanical trunk release that already exists as special equipment will be adopted as a standard in E46/4 US and South African cars.

The trunk is opened with the aid of a separate handle which is secured to the inside of the trunk lid opposite the vehicle registration number. Vehicles with folding rear seats are not equipped with this release.



## 2002 Equipment modifications

### Hydraulic Convertible Top

The hydraulic unit of the E46 convertible-top module has been optimized starting September 1, 2001. The electric valve responsible for final deactivation of the hydraulic unit has been replaced by a hydraulically controlled valve.

The valve activation is performed automatically by the hydraulic pump. When the pump is on, it actuates the new valve hydraulically and the lines are pressurized. When the pump is deactivated, the valve depressurizes the lines automatically, which results in increased service life.

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## Workshop Hints

The change results in a modification of the software for the hydraulic unit. The new hydraulic units will be used starting September 1, 2001 as a spare part, this must be taken into account when making repairs. The new software and additionally optimized coding data must be imported to the convertible-top module with the aid of the GT1 or DISplus.

A further change relates to the wiring harness. The modified valve has made it necessary to convert the plug of the hydraulic pump from 8 to 12 pins. In the event of repairs, a suitable adapter must be fitted when the new hydraulic unit is installed.

*As of 3/02 both old and new style pumps are being stocked under the same part number. When ordering a replacement part be sure to indicate which is needed. The adapter wiring harness is available through parts, however at this time vehicles with the old unit cannot be reprogrammed to operate with the new unit.*

## Tank -Leak Diagnosis (DMTL)

All DMTL pumps starting September 09, 2001 are heated in the tank-leak diagnosis module. A heating element is used in the DM-TL pump.

The heating element is activated during the driving cycle in order to prevent moisture in the pump. Moisture previously caused the tank-leak diagnosis to be terminated. The pump current could not be measured accurately under these conditions.

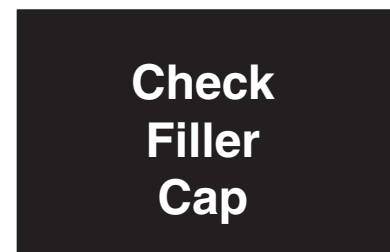
The heating pill is activated by the DME. The DM-TL connector has been changed from 3 pin to 4 pin electrical connector.

## Check Filler Cap

A new indicator lamp for tank-leak diagnosis has also been incorporated in the instrument cluster.

The lamp lights up yellow and bears the caption "Check Filler Cap." It is activated as a measuring error.

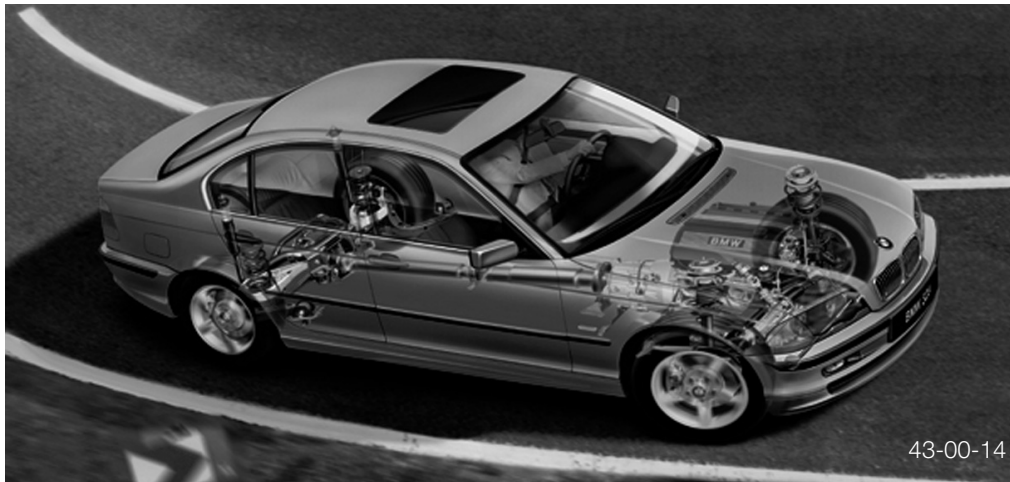
This lamp will be activated if change in fuel volume as read by the fuel level sensors precedes a failed Evap System test.



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## Chassis and Suspension



A new standard suspension is used for all E46 models. The new suspension, which increases driving dynamics, consists of the following components:

- Redesign of spring/damper tuning (E46/2/4 )and additional sport chassis and suspension tuning with lowering of the vehicle by approximately 15mm.
- Redesign of the steering gear with an 11-12% quicker steering ratio. In order to achieve a harmonious precise steering performance with a quicker gear ratio, the flexible steering disc has been hardened.
- Use of harder front and rear axle carrier mounts.

### **DSC MK60:**

The DSC system Mk60 has been further developed with regard to certain functions.

The yaw-rate sensor and the transversal-acceleration sensor will be one component and will be called the sensor cluster. The sensor cluster is installed in the same position as the yaw rate sensor. It is operated at 5 volts and has a separate CAN connection to the control unit.

The ADB function is further improved in DSC by Dynamic Traction Control (DTC). The differential effect is brought about here by active brake intervention and DSC monitoring. The yaw moment is taken into consideration which eliminates the danger of the car swerving as it corners. The DTC is activated by pressing the DSC button. The active DTC system is indicated by the DSC warning light in the instrument cluster.

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Starting September 1, 2001 DTC will be combined with overrun differential control (SDR). In the event of engine drag-torque control (MSR) while the car is cornering and oversteering, SDR performs a brake intervention at the driving wheel furthest from the bend. The brake intervention at the rear axle does not require any countersteering by the driver, thereby increasing driving safety.

In the event of a total ABS/ASC/DSC malfunction, this will be indicated not only by the established warning lamps but also by the acoustic transmitter in the instrument cluster.

### **Hill Decent Control (HDC)**

Hill Decent Control will be available for E46/16 4WD Models.

16" wheels and tires are now standard on the 325XI models (205/55 R16).



### **RPA Tire Defect Indicator**

43-00-16

The tire defect indicator (RPA; also known as Deflation Detection System (DDS), is integrated in the DSC control unit.

RPA is used with runflat tires and indicates a tire failure based on speed comparisons of the individual wheels.

### **LSZ**

The central light switch (LSZ) in the E46 is redesigned with new electronic modules. The following points are changed:

- The voltage for the vehicle lighting is output with a pulse-width-modulated signal at a fixed frequency of 80 Hz.
- The LSZ has separate outputs for additional rear brakes lights and bi-xenon equipment.
- LSZ contains a separate switch position for driving light control (RLS).





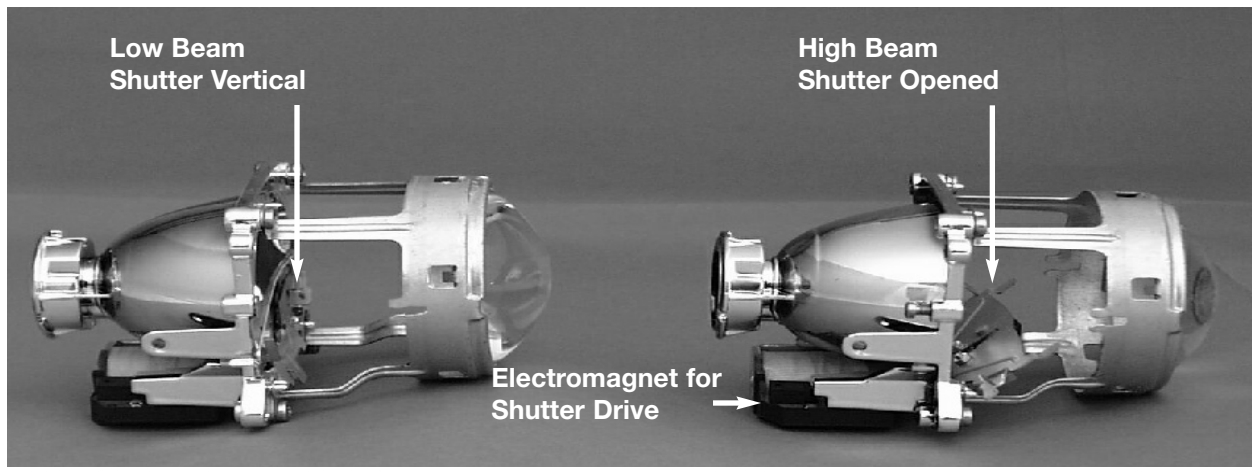
## Bi-Xenon Lights

A significant advance has been achieved with Bi-Xenon Lighting. Drivers are able to see longer distances. Generation IV Xenon lights are used.

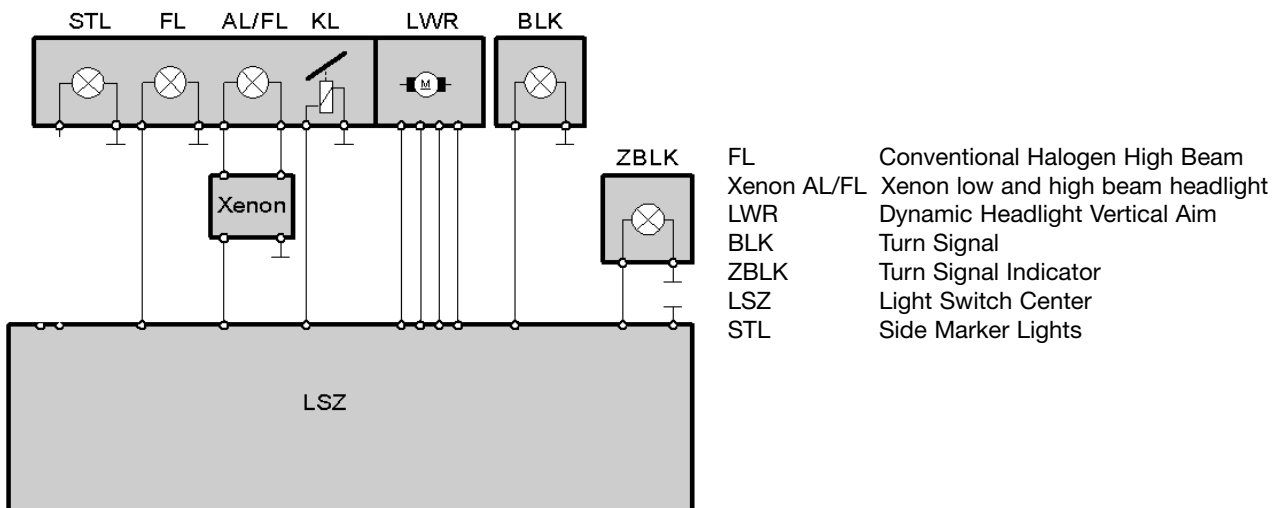
The Bi-Xenon light consists of a moving light distribution screen activated in the ellipsoid module of the low beam headlight with the aid of a solenoid. The screen then exposes the cone of light in the same direction as the high beams.

With the bi-xenon headlight switched to low beam, the lower part of the xenon light beam is blocked out by means of a shutter directly in front of the reflector, shutter in rest position. An electromagnet is activated in the xenon headlight to swivel the shutter forward, thus making available the lower part of the light beam for high beam. The conventional high beam lights are not activated during normal light operation.

The steering column stalk switch activates the conventional high beam lights for flash to pass signaling.



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## Rain/Driving-Light Sensor (RLS)



The driving lights are turned on and off automatically with the RLS depending on the outside light conditions around the car.

Two additional optical sensors have been integrated in the housing of the Automatic Interval Control (AIC) for the RLS. The AIC controls the wiper intervals.

The two sensors have the following function.

- Sensor number 1 is a surrounding-light sensor that records the light intensity in a wide angle above the vehicle.
- Sensor number 2 is a frontal-light sensor that records the light intensity in a narrow angle in front of the vehicle. A processor measures and determines which sensor is switched on.

The following conditions are monitored by the (RLS):

- Dawn/dusk
- Darkness
- Driving through a tunnel
- Precipitation such as rain or snow

### **Note:**

When the wiper switch is in the intermittent position, The RLS knows the switch is on by the frequency of the windshield wipers. ( The frequency for the intermittent wipers is 15 wiping cycles per minute. If the wiper switch is in position I or II the RLS knows the wipers are switched on permanently.

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If wiper switch condition is on, The RLS in the E46 transmits the information thru the K-bus to the central light switch. (LSZ).

If the RLS switch position on the LSZ has been selected, the exterior and instrument lights are activated by the LSZ under the following conditions:

- One of the above RLS conditions is satisfied.
- The front fog lights are switched on.

**Note:**

If the LSZ front fog light is switched on and one of the above mentioned RLS conditions is satisfied, the exterior lights will only go out after the front fog lights have been turned off.

In addition, the lights are switched on in the event of the following malfunctions.

- The RLS has detected a sensor fault.
- Communication between the RLS and the LSZ is disturbed.

The following lights are switched by the LSZ:

- Terminal R turns on the parking light, the low beam headlight, the license plate light and the instrument lights.
- Terminal 15 turns on the parking light, the low beam headlights, the license plate light. In order to switch the parking light on the LSZ switch must be set to parking light position on.
- With the ignition switch in the “0” position, the exterior and instrument lights are switched off.

The sensitivity of the RLS can be adjusted by means of the car memory function.

**Safety Notice**

During bad weather and fog the driver must switch on the fog lights manually. The automatic driving-light control will not turn the fog lights on during bad weather conditions.



**LSZ in RLS Position**

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## Instrument Cluster

In the event of an ASC/DSC system malfunction, the acoustic transmitter in the instrument cluster will be activated and the warning lamps in the instrument cluster will be activated by the DSC control unit from the CAN bus.

The tire defect indicator (RPA, RDW, DDC) will be integrated into the DSC control unit. The warning lamps in the instrument cluster will be activated by the DSC control unit via the CAN Bus and not by a separate wire.

The addition of the "Check Filler Cap" message.

The central coding key formerly stored in the instrument cluster is replaced by the FA code.

## Air Conditioning

The automatic air-condition panel has been redesigned for 2002.

The interior temperature sensor will no longer be fitted with a fan. The rocker switches for blower and temperature control will be replaced by individual buttons.



43-00-25

## Heated Rear Window

In order to ensure an optimal view out of the rear window at all times, the heated rear window will be automatically activated at an outside temperature of less than 3.5°C while the engine is running.

## General Service Functions

### Production/Transport/Workshop Mode, PTW

PTW prevents unnecessary use of electrical and electronic components of the vehicle electrical system.

These control units will be affected by PTW: general module V, audio system, communication systems, instrument cluster, IHKA, central light switch and RPA. In order to prevent the battery from being drained certain control units and their specific functions are cutoff.

To reactivate these functions, the PTW mode must be reset with the aid of the GT-1 or DISplus before the car is delivered to the customer.

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## **Vehicle Order**

Vehicles will no longer be identified by the central coding key (ZCS) but rather by the vehicle order or FA code.

The ZCS is no longer contains enough information to describe the vehicle with its option packages. Control units that are coded and their data recorded to each vehicle have become to extensive to be satisfied by the ZCS.

### **Purpose Of Vehicle Order**

The vehicle order has to fulfill the following purposes:

- Description of the vehicle using a product description code
- Storage of the vehicle data in 2 control units (instrument cluster and EWS control unit) and in a central database (DOM) in the manufacturing plant.
- Determination of the control units with diagnostic capacities fitted in the vehicle with the aid of the code numbers.
- Documentation of coding and diagnosis-relevant changes over the life cycle of a vehicle.

### **Content Of Vehicle Order**

The vehicle order contains the following:

- Version of vehicle order
- Type designation code, identification of model and national variant.
- Model series of vehicle to be identified
- Special Equipment
- Assembly numbers, 3 numbers (2 engine, 1 gearbox) which are entered at the plant and cannot be changed at the dealership.

### **Effects On Workshop/Garage Sequences**

There are no significant changes for the users of diagnostics and vehicle identification. The relevant information will be calculated and displayed with the GT-1 and DISplus diagnostic tester.

The vehicle order can be stored in the tester and printed out. The GT-1 or DISplus will list the control units installed in the car.

If necessary, the vehicle order will be automatically expanded by means of programming, coding or car key memory to include the new special equipment. Identification of the control units is guaranteed by this amended vehicle order.

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## NG Radios with Wide Screen Monitors

A change has been made in the method of selecting the service mode in the MY2002 NG Radios with widescreen monitor.

To enter service mode:

- Key on
- Radio On
- Scroll to “Settings” on Menu but do not open setting page
- Press and Hold “Select” (SEL)  
The screen will switch to the select menu and back to the settings menu after 8 seconds
- Release “Settings” button (SEL)
- Roll the BM control knob one position, this will open the service mode  
The screen will now show the serial number of the radio
- Use the Station Search (<>) buttons to select the desired function (Serial #, GAL, etc.)

### Note:

When selecting the country please push the station preset #1 repeatedly until the desired country is shown on the screen.

When selecting GAL level please use station presets #1-6 to select level.

### Shop Hint:

If the Station Search (<>) function is not finding stations then the country setting is not set to USA.

Refer to **SIB 65-10-01**.

## 3 Series Mid Year Changes

The 3 Series received some minor changes beginning with March production. The tilt function has been added to enable a greater range of seat adjustments. Power seats will now be 8-way power on sedans, sport wagons and coupes. Convertibles have standard 10-way power seats. (A 2-way power headrest is only available on the convertibles.)

The coupes and convertibles only will also receive a minor cosmetic change. The front spoiler on both the coupe and convertible will have more body color below the bumper. Prior to the change a significant portion of the spoiler was flat black.

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## Review Question

1. How are the E46 Coupe and Convertible affected by the “facelift” ?  
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2. What must be done when replacing a convertible hydraulic unit in a MY 2001 vehicle?  
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3. What is the purpose of the heating element in the DMTL? \_\_\_\_\_  
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4. Which E46 models are available with HDC? \_\_\_\_\_  
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5. During what driving times are the conventional halogen high beams active?  
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6. How does the driver activate/deactivate the RLS system? \_\_\_\_\_  
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7. In what location is the Vehicle Order stored? \_\_\_\_\_  
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