

# 400 Body-General

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## GENERAL

This section covers system descriptions and general service information for the repair groups found in **4 Body** and **5 Body Equipment**.

When working or servicing cars equipped with SRS airbag(s), the following precautions must be observed to prevent injury.

### WARNING —

• Airbags are inflated by an explosive device. Handled improperly or without adequate safeguards, airbag units can be very dangerous. Special precautions must be observed prior to any work at or near the driver's side airbag, the passenger's side airbag (where applicable), or the side-impact airbags (where applicable). See **721 Airbag System (SRS)**.

• Always disconnect the battery and cover the negative (-) battery terminal with an insulator before starting diagnostic, troubleshooting or service work on cars fitted with SRS, and before doing any welding on the car.

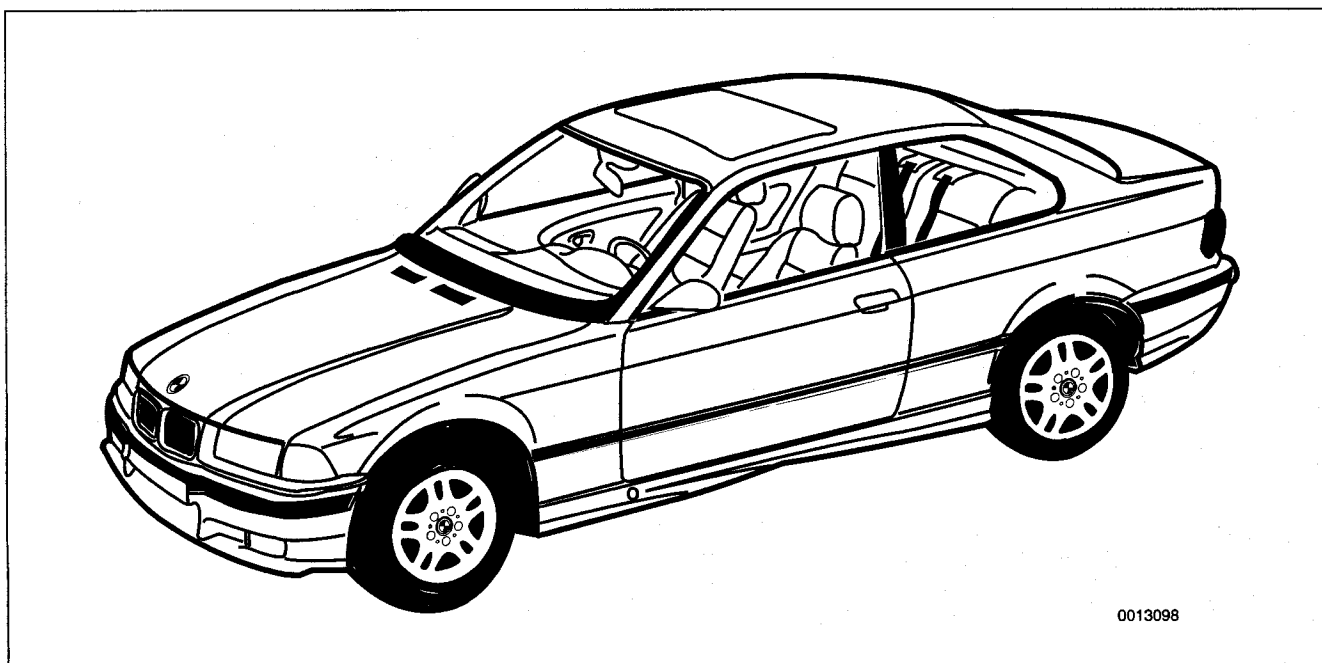


**Fig. 1.** The BMW E36 coupe.

GENERAL

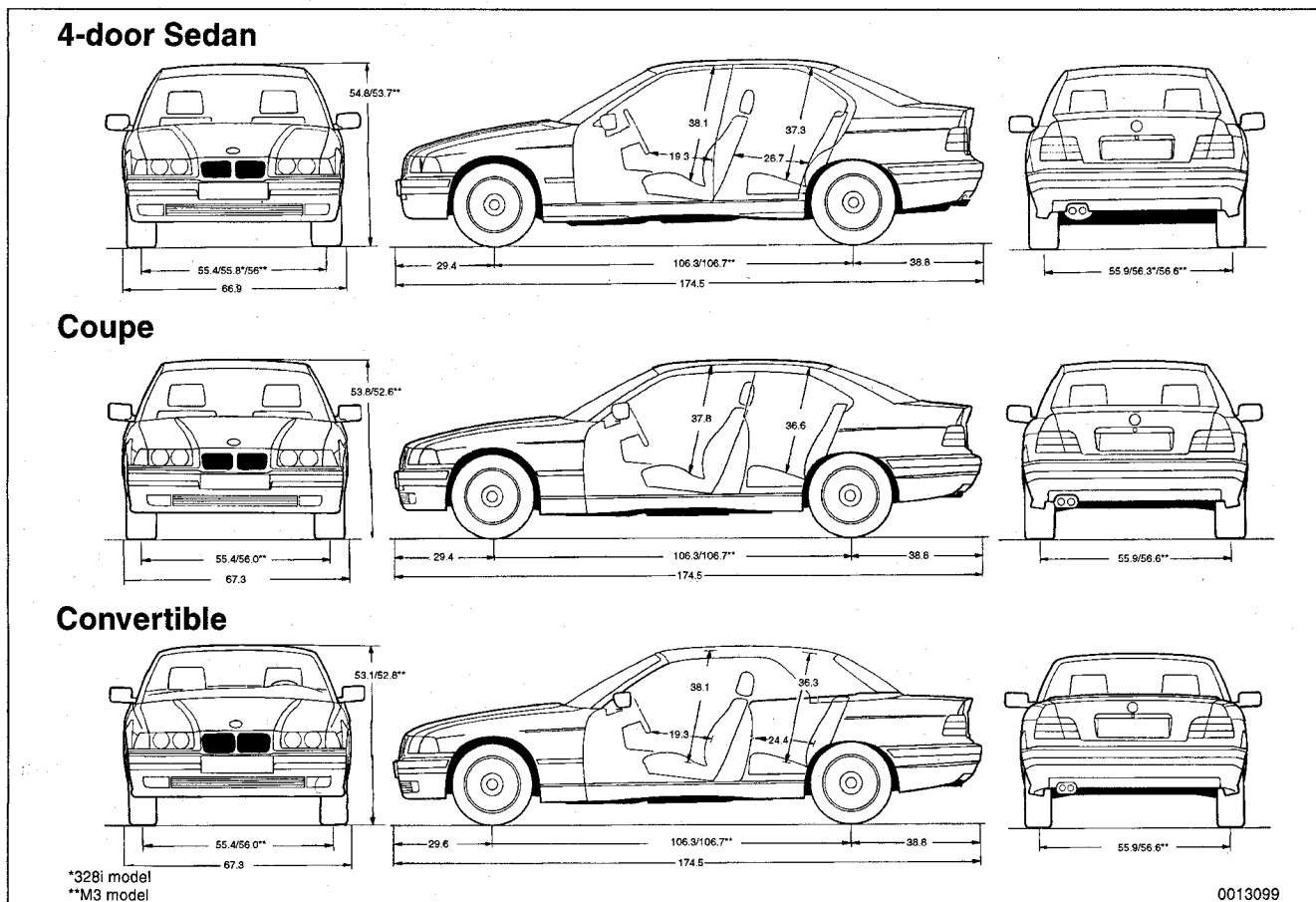


Fig. 2. E36 body dimensions.

## BODY ASSEMBLY

The BMW 3 Series chassis is a unibody design constructed of high strength steel. Attaching parts, such as the front fenders, rear quarter panels, doors, trunk lid and hood are also constructed of steel.

The body styles of E36 cars covered by this manual are the 4-door sedan, 2-door coupe and convertible. Body dimensions vary slightly between models. See Fig. 2.

## Exterior and Aerodynamics

The E36 can be immediately recognized as a typical BMW. With its traditional styling features, such as the BMW kidney grille, circular headlights behind a glass cover (for reasons of streamlining), and the "kick" in the rearmost roof pillar (C-pillar).

Windows bonded flush to the body and the guided flow of cooling air into the engine compartment provide a good coefficient of drag ( $C_D$ ). The E36 cars have a  $C_D$  of approximately 0.30 for the sedan and coupe models, and 0.35 for the convertible models.

The exterior panels are corrosion-resistant zinc coated steel. The front fenders are bolted on and easily replaceable. See **410 Fenders, Engine Hood**.

The front and rear bumpers use an aluminum framework with an overlaid high-impact, deformable plastic cover. This bumper system keeps damage to a minimum in head-on collisions of up to 10 m.p.h. (15 km/h). See **510 Exterior Trim, Bumpers**.

## Coupe Models

The E36 coupe is similar to the 4-door sedan, but has a more stretched and sleeker appearance. Thus, with the same wheelbase and identical length, it looks different but still familiar.

The 2-door variant differs from the 4-door sedan by a 3.12 inch (8 cm) longer front end, a flatter hood line with air slits, and a roof almost 1.2 inches (3 cm) shorter. Additional differences include wider doors with frameless windows, glass-covered door-posts (B-pillars) and a shorter and lower luggage compartment lid.

## Convertible Models

The E36 convertible is an all-season vehicle with a high level of functionality, excellent interior comfort, and acoustic refinement. Interior materials and colors, the soft top and the light-alloy wheels have been carefully matched.

Various versions of manual and automatic soft tops have been used, with the fully automatic convertible roof being installed beginning in the 1997 model year.

A hard-top in body color with heated rear window is available as an option for the cold season.

The convertible body structure includes many passive safety refinements over its fixed-top counterparts. Some of the enhancements include:

- More rigid underbody.
- Transverse seat members.
- Reinforced windshield frame with bonded windshield, and tubular door reinforcements.
- Rollover protection system, which is tripped into position in a fraction of second. This is available as optional equipment (standard on the 1998 328iC) and may be fitted to earlier convertible models. With this feature, two bars fully independent of each other come up behind each rear-seat backrest when the vehicle is in danger of turning over.

A convertible body normally flexes and vibrates, transferring oscillations to the luggage compartment. In the E36 convertible, BMW utilizes a special battery in the luggage compartment, in conjunction with a unique battery tray, as a vibration dampening system to counteract this oscillation.

### CAUTION —

*The E36 convertible requires a special battery which is designed for constant vibration.*

Information for the convertible top and its related mechanisms can be found **541 Convertible Top**.

## INTERIOR EQUIPMENT

E36 interiors have a unique character, with a combination of sporty features and innovative design. All body versions were made in a wide choice of interior and exterior colors. New colors with matching leather and/or fabric upholstery were introduced for each model year, including light-alloy wheels in new designs.

Driving comfort is enhanced by power steering, tilt steering wheel (optional), height-adjustable front seats, and electrically adjustable and heated rear-view mirrors. Inside the car there are reading lights at four seating positions.

### Seats and Seat Belts

Anatomically-correct seats are constructed from polyurethane foam containing areas or "zones" of different firmness. The seat bases have steel springs for added support and strength. The power seats are provided with conveniently located switches along the outside edge of the seat. Heated seats are an option in all models. See **520 Seats** for more details.

The M3 sport seat is shown in Fig. 3.

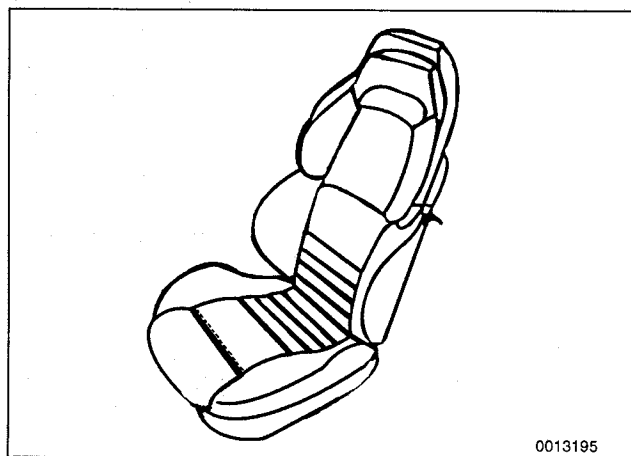


Fig. 3. M3 sport seat.

The early E36 cars are equipped with a single (driver side) airbag in the steering wheel. Starting with the 1994 models, a dual airbag Supplemental Restraint System has been standard equipment. Side-impact airbags in the front doors are optional in 1997 4-door cars and standard equipment in all 1998 models.

Through 1996, E36 seatbelts were equipped with BMW's original-design spring tensioners. In 1997, the seat base design was modified to accommodate a pyrotechnic (explosive charge) seatbelt tensioner. Both types of tensioners are designed to automatically tension the belts by about 2 inches (55 mm) in the event of a collision.

#### NOTE —

*The seat base used on cars with pyrotechnic seatbelt tensioners is not interchangeable with the earlier seat base.*

### Instruments and Controls

Everything in the interior passenger compartment essential to the driver is logically grouped and easy to reach. All instruments and controls have been arranged ergonomically and are fully integrated into the overall design of the vehicle.

The padded dashboard houses the instrument cluster and the ventilation and heating system. The instrument cluster uses large easy-to-read analog instruments and is removable as a unit without removing the dashboard. The Service Interval Indicator (SII) will remind the driver when the car requires service. See **620 Instruments**.

The Multi-Information Display (MID) unit in the center of the dashboard comes in a variety of four configurations, the most advanced being the On-Board Computer (OBC). See Fig. 4.

All versions of the MID have a clock and calendar. In addition, different versions are equipped with a "check control," display for fuel-economy information and system warnings. Consult the owner's manual for full operating instructions.

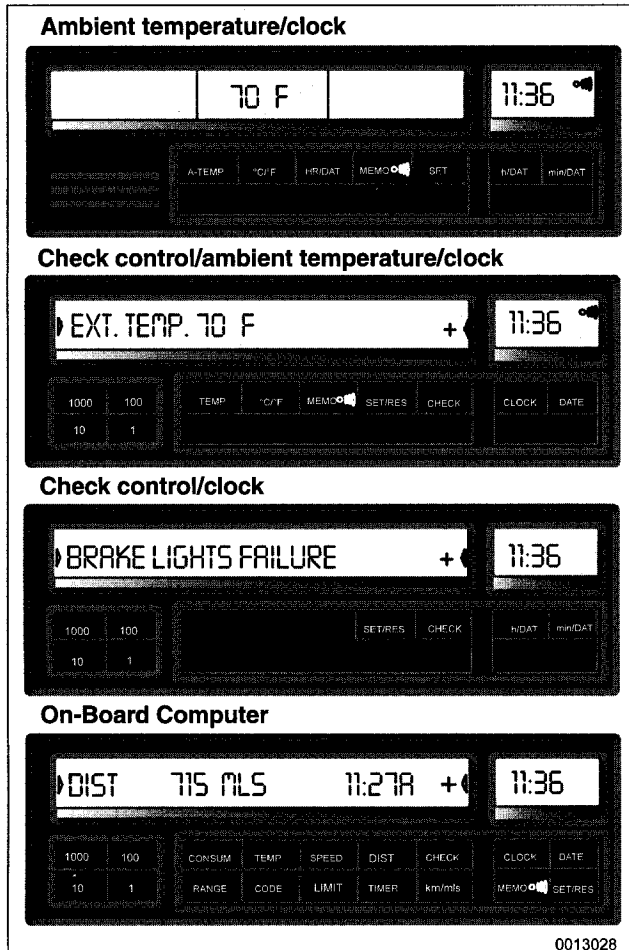


**Fig. 4.** Different versions of Multi-information Display (MID) installed in E36 cars.

## Central Body Electronics

The E36 cars are equipped with a sophisticated centralized body electric/electronics plan. The system is self-diagnostic and incorporates many functions into a single control module. The consolidation of several systems into a single control module minimizes power requirements and the incorporation of the diagnostic link results in more efficient and accurate troubleshooting.

Self-diagnostic codes are accessible electronically through the data-link connector in the engine compartment. See **610 Electrical Component Locations**.

Two versions of central body electronics are used depending on model year.

1992 and 1993 models are equipped with a central locking module (ZVM) which incorporates control of the following systems:

- Interior lighting
- Central locking with double lock feature
- Output relays for power windows and sunroof
- Electronic power protection

E36 cars since the 1994 model year are equipped with ZKE IV. This is an electronic comfort and convenience system that includes the following additional features:

- One touch up/down power window operation
- Power window and sunroof closure from driver or passenger door lock
- Vehicle locking or unlocking from the trunk lock.

Other features of the system are discussed in **515 Central Locking and Anti-Theft**.

## Electronic Immobilization System

Beginning in model year 1994, all E36 vehicles incorporate a driveaway protection system regardless of whether the vehicle is equipped with a BMW Alarm System or an On-Board computer. Two types of factory systems were installed, depending on vehicle production date.

On the early system (model year 1994 up to January 1995), the ignition and fuel injection functions are disabled whenever the vehicle is locked in the double lock mode. This is referred to as EWS or EWS I.

Beginning in January 1995, the driveaway protection system was upgraded to a more sophisticated system, called EWS II. This system uses a wireless communication link between a transponder chip in the ignition key and the ring antenna surrounding the ignition switch. The EWS II control module blocks the starting of the vehicle unless the correct coded ignition key is used.

For further information about drive away protection systems, see **515 Central Locking and Anti-Theft**.

### Heating and Air Conditioning

The electronically controlled heating and air conditioning system uses an extra large, infinitely variable radial blower motor for good distribution of air. Fresh air enters through the grille below the engine hood and into the passenger compartment via the dashboard and footwell vents. See Fig. 5.

Repair information for the heating and air conditioning system is covered in **640 Heating and Air Conditioning**.

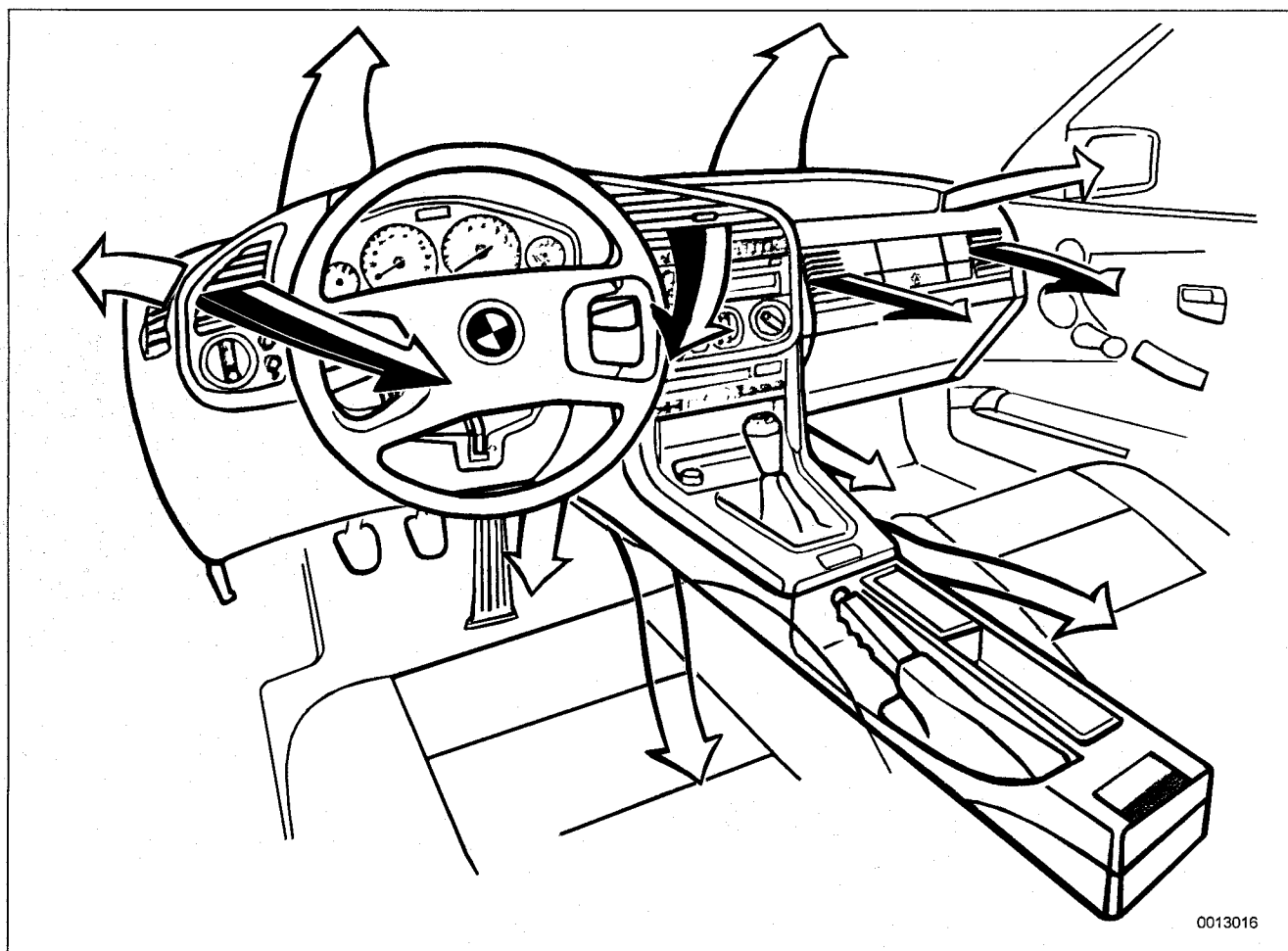


**Fig. 5.** Heating and air conditioning ventilation plan.

