

Technical training.
Product information.

G30 Introduction and Body



BMW Service

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Technical Training

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General information

Symbols used

The following symbol is used in this document to facilitate better comprehension or to draw attention to very important information:



Contains important safety information and information that needs to be observed strictly in order to guarantee the smooth operation of the system.

Information status and national-market versions

BMW Group vehicles meet the requirements of the highest safety and quality standards. Changes in requirements for environmental protection, customer benefits and design render necessary continuous development of systems and components. Consequently, there may be discrepancies between the contents of this document and the vehicles available in the training course.

This document basically relates to the European version of left hand drive vehicles. Some operating elements or components are arranged differently in right-hand drive vehicles than shown in the graphics in this document. Further differences may arise as the result of the equipment specification in specific markets or countries.

Additional sources of information

Further information on the individual topics can be found in the following:

- Owner's Handbook
- Integrated Service Technical Application.

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The information contained in this document forms an integral part of the BMW Group Technical Qualification and is intended for the trainer and participants in the seminar. Refer to the latest relevant information systems of the BMW Group for any changes/additions to the technical data.

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1. Introduction

1.1. Overview

In February 2017, the 7th generation of the BMW 5 Series G30 will be launched. The G30 contains a wealth of new technologies and design elements that have been further developed and refined. The closed radiator grill and the precise contours of the hood lend the front of the new BMW 5 Series a sporty character. The elegant lines of the side view are emphasized by the distinctive bead and the accentuated Hofmeister kink.

In terms of technology, the new BMW 5 Series is based on the G12. The topics listed below are described in the G12 Technical Reference Material “ST1501 G12 Complete Vehicle”.

Topic	“ST1501 G12 Complete Vehicle”
Doors	G12 Complete Vehicle
Lightweight support, door	G12 Complete Vehicle
Engine hood	G12 Complete Vehicle
Front end	G12 Complete Vehicle
Trunk	G12 Complete Vehicle
Switch, seat adjustment	G12 Complete Vehicle



BMW G30

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1. Introduction

1.2. History

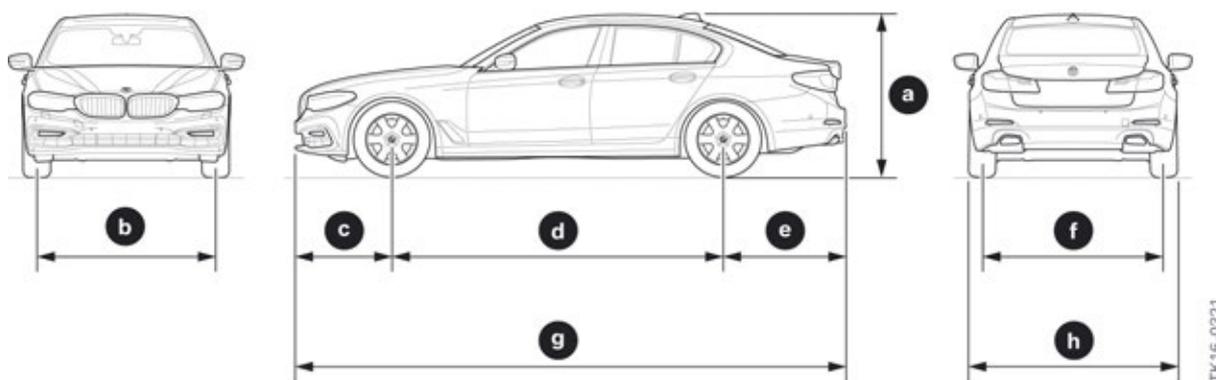


BMW 5 Series models – history

1st Generation	2nd Generation	3rd Generation	4th Generation	5th Generation	6th Generation	7th Generation
0.69 million units produced	0.73 million units produced	1.33 million units produced	1.49 million units produced	1.42 million units produced	2.39 million units produced	2.84 million units to be produced
E12 1972-1981	E28 1981-1987	E34 1987-1996	E39 1995-2003	E60/E61 2003-2010	F10/F11 2010-2016	G30 2016-2024

1.3. Dimensions and silhouette comparison

1.3.1. Dimensions G30



BMW G30 External dimensions

Index	Explanation	Unit	G30
a	Vehicle height, empty	[mm]	1479
b	Front track width, basic wheels	[mm]	1605
c	Front overhang	[mm]	869
d	Wheelbase	[mm]	2975
e	Rear overhang	[mm]	1099

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f	Rear track width, basic wheels	[mm]	1630
g	Vehicle length	[mm]	4943
h	Width excluding exterior mirrors	[mm]	1868

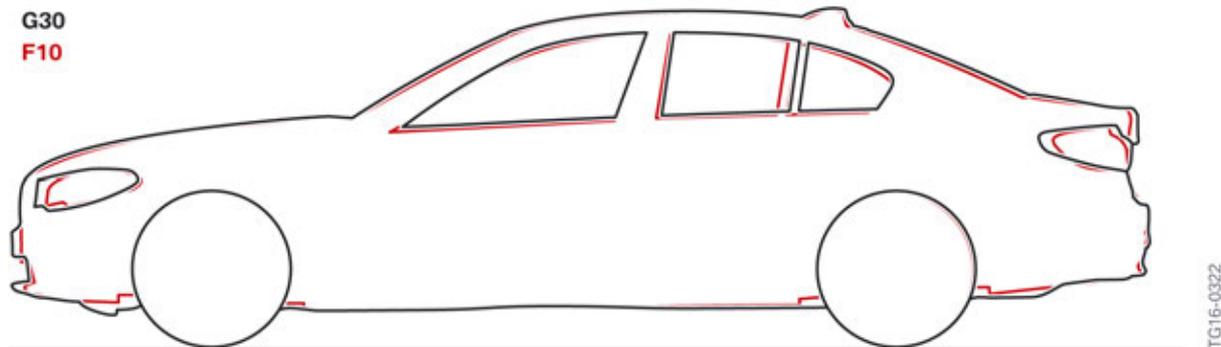
1.3.2. Comparison F10/G30

	Unit	F10	G30
Vehicle height, empty	[mm]	1464	1479
Front track width	[mm]	1600	1605
Front overhang	[mm]	832	869
Wheelbase	[mm]	2968	2975
Rear overhang	[mm]	1099	1099
Rear track width, basic wheels	[mm]	1627	1630
Vehicle length	[mm]	4899	4943
Width excluding exterior mirrors	[mm]	1860	1868
Overall width including exterior mirrors	[mm]	2094	2126
Shoulder room, front	[mm]	1480	1490
Shoulder room, rear	[mm]	1427	1420
Elbow room, front	[mm]	1518	1523
Elbow room, rear	[mm]	1485	1487
Luggage compartment capacity (without space saver spare wheel)	[l]	520	530

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1.3.3. Silhouette comparison



Silhouette comparison of G30/F10

1.4. Models

The G30 models will be available in 2017 with the following models.

Model	Engine	Displacement in cm ³	Power in kW (HP)	Torque in Nm (lb-ft)
BMW 530i / 530ix Drive	B46O 4-cylinder gasoline engine	1998	185 (248)	350 (258)
BMW 540i / 540i xDrive	B58M 6-cylinder gasoline engine	2998	250 (335)	450 (332)
BMW M550i xDrive*	N63R 8-cylinder gasoline engine	4398	340 (455)	650 (480)

* The BMW M550i xDrive will follow a few months after the launch of the 530i / 530ix Drive and 540i / 540i xDrive.

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1.5. Exterior equipment

1.5.1. Exterior



G30 Exterior highlights

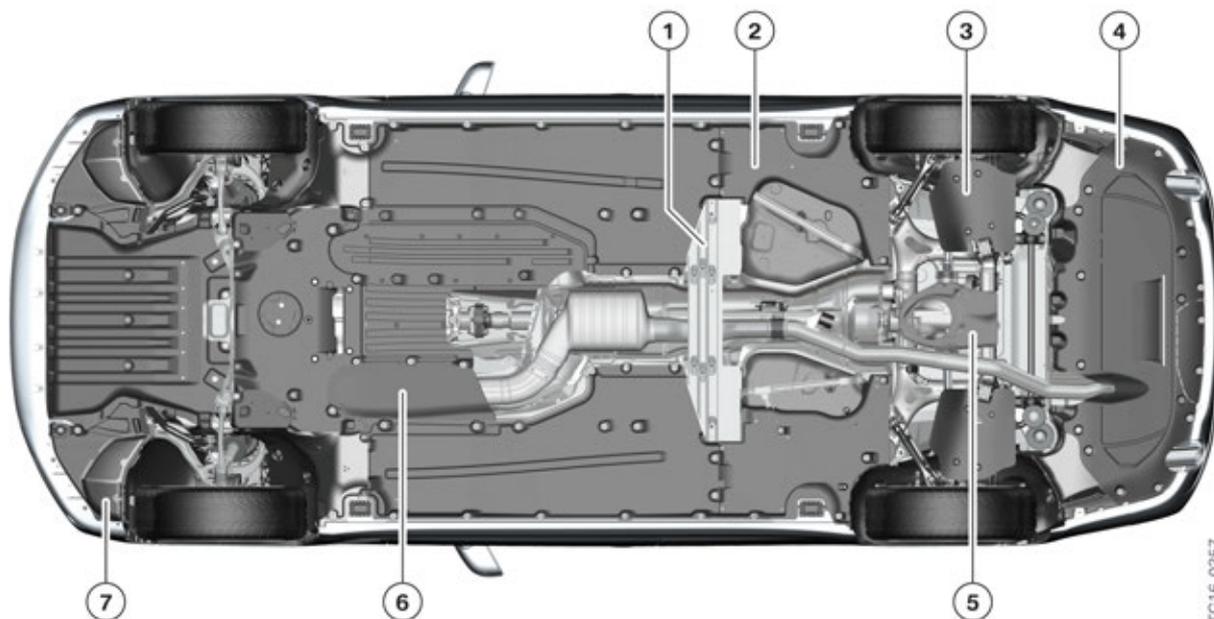
Index	Explanation
1	Air flaps in the radiator grill
2	Air Breather
3	Headlights extend to the radiator grill
4	Adjustable housing for rear lights

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1. Introduction

1.5.2. Underbody

The almost fully closed vehicle underbody plays an important role in the aerodynamics. The acoustics in the vehicle are also significantly improved as a result. In the front section, the air flow is directed past the front wheels by the displacers (7). In this way, the airflow on the front wheel is reduced. In the rear area, the 2 wind deflectors (3) on the axle and the cover of the rear axle differential (5) contribute to optimized underbody flow together with the rear diffuser (4), which is adapted for each drivetrain design.



TG16-0357

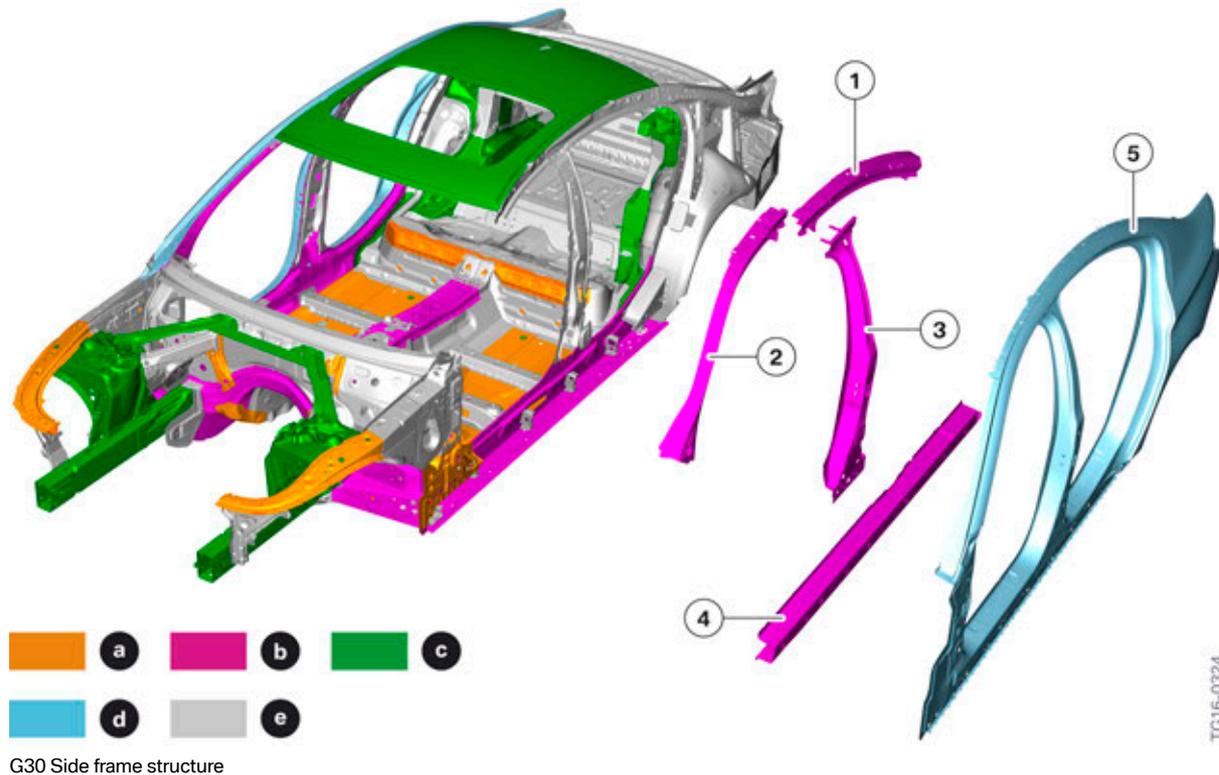
G30 Underbody trim

Index	Explanation
1	Cross-member with wind deflector
2	Tank cover with wind deflector
3	Wind deflector, rear axle
4	Rear diffuser
5	Cover, rear axle differential
6	Cover, exhaust system
7	Displacer

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2. Bodyshell

2.1. Body overview



Index	Explanation
a	Multiphase steel (> 300 N/mm ²)
b	Ultra-high-strength steel (> 900 N/mm ²)
c	Aluminum
d	Deep-drawing steel (< 300 N/mm ²)
e	Other steel grades
1	Inner roof frame
2	Roof frame reinforcement
3	B-pillar reinforcement
4	Side sill reinforcement plate
5	Outer side frame (deep-drawing steel)

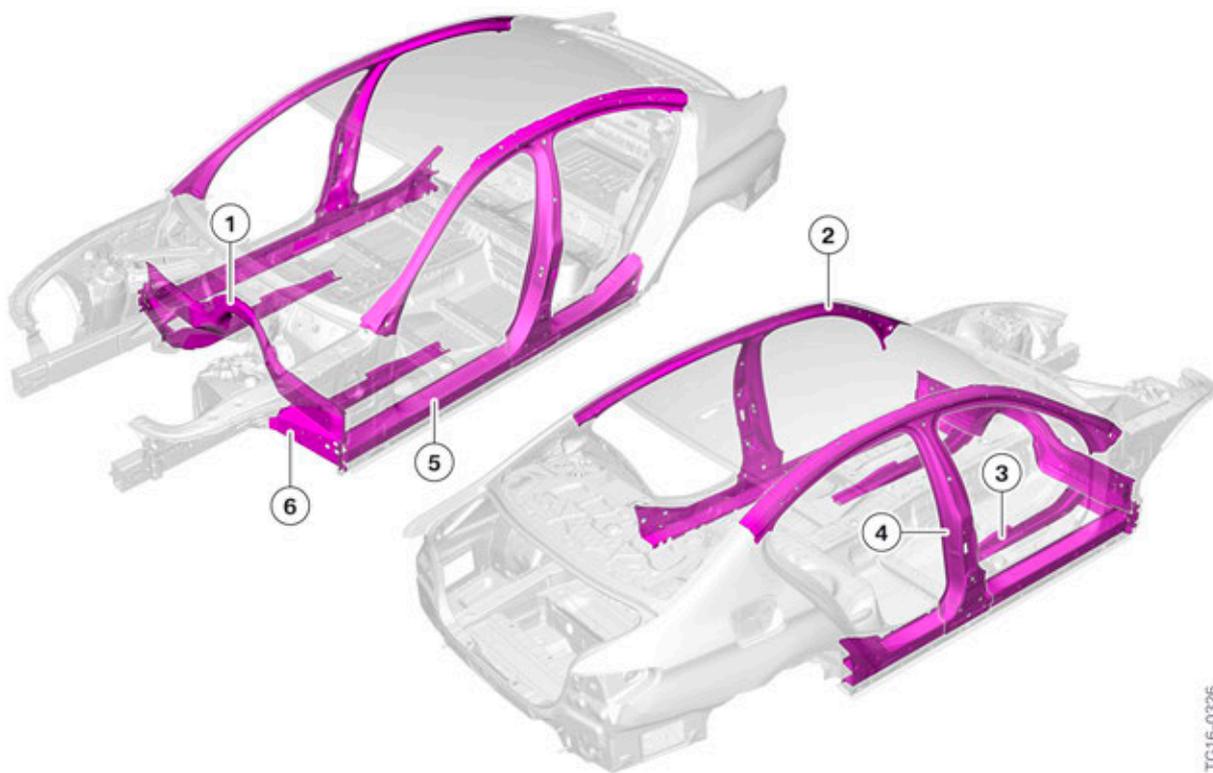
G30 Introduction and Body

2. Bodyshell

2.2. Body structure

The lightweight body construction concept of the G30 comprises high-strength steel and Aluminum components. There is no Carbon Core used in the construction of the G30 body like in the G12. The use of die-cast Aluminum components has increased significantly. Thanks to the material mix, the materials are able to contribute their specific strengths to the vehicle in the best possible way. As a result of the strict lightweight construction philosophy, the weight of the body has been reduced by around 46 kg / 101 lbs over the predecessor F10, but crash safety has been further improved.

2.2.1. Steel



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G30 Ultra-high-strength steels in the body structure

Index	Explanation
1	Carrier support, bulkhead
2	Inner side frame
3	Engine support extension
4	Reinforcement plate, B-pillar
5	Side sill reinforcement plate
6	Outer connecting plate

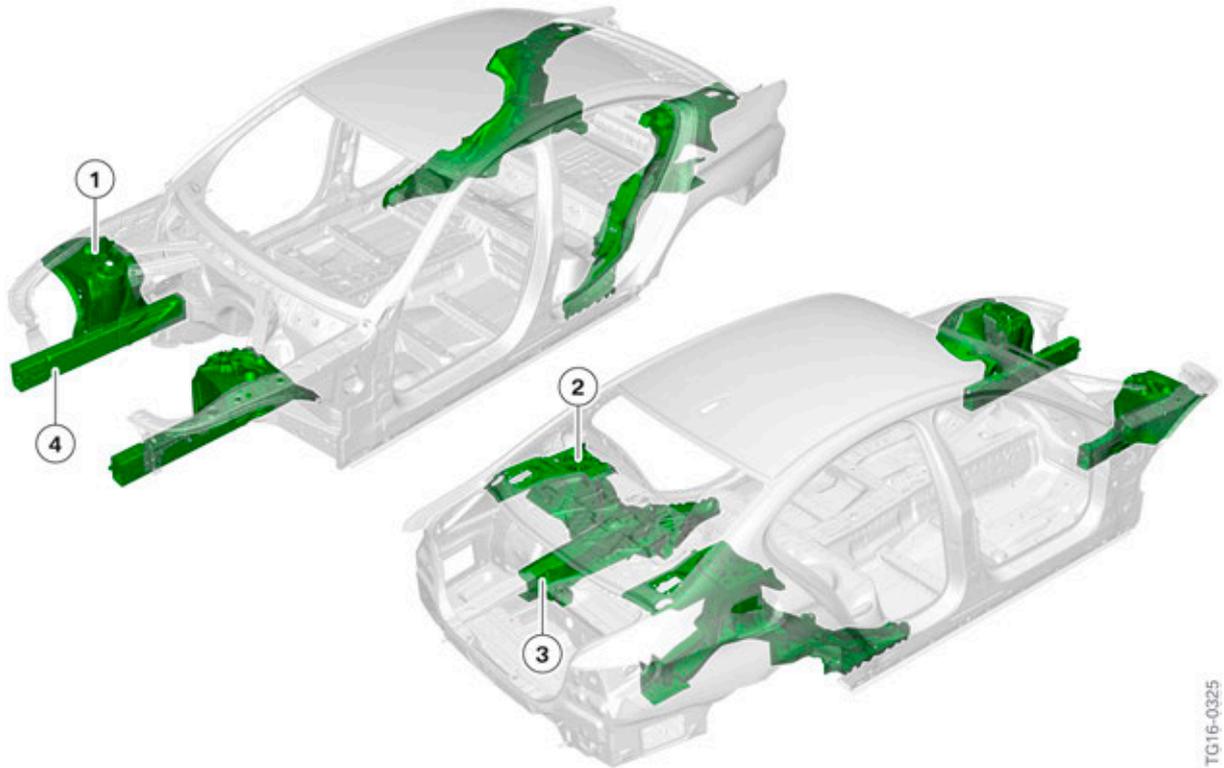
G30 Introduction and Body

2. Bodyshell

2.2.2. Aluminum

The use of Aluminum extruded profiles and complex die-cast Aluminum parts accounts for a rigid body along with low weight. All requirements relating to passive safety are also met.

The spring strut domes on the front, and for the first time also on the rear, are manufactured using the Aluminum pressure die casting process. As is already familiar from the G12, the side members at the rear are now also made as die-cast Aluminum components. This contributes to excellent weight distribution in the body structure. New Aluminum cast alloys were also developed in order to increase the crash safety of these components.



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G30 Aluminum in the body structure

Index	Explanation
1	Front spring strut dome
2	Rear spring strut dome
3	Side member
4	Engine support

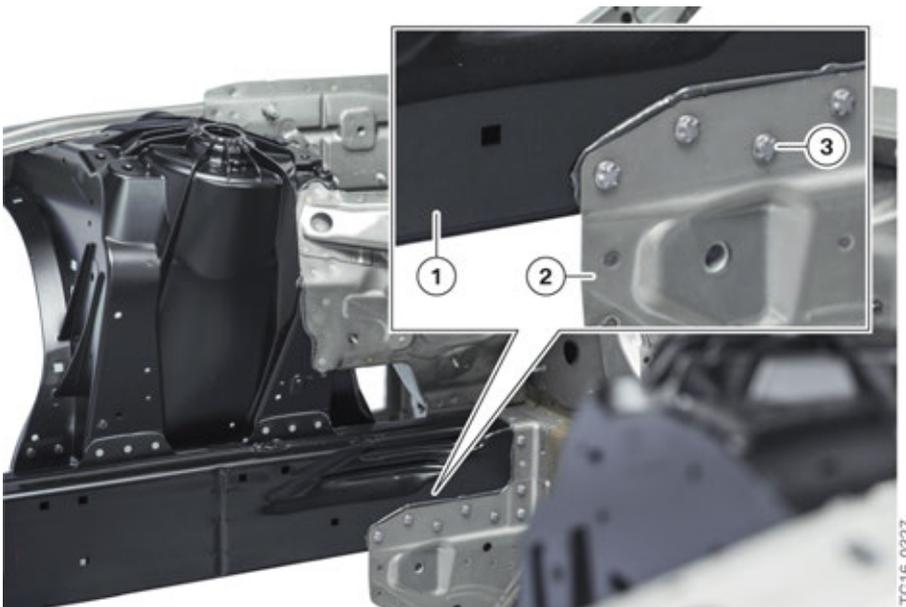
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2. Bodyshell

2.3. Screw connections

Some of the Aluminum-steel connections in the G30 body structure are produced using a new body joining technique: flow drill screws. These include, for example, the connection between the engine support (Aluminum extruded profile) and the bulkhead carrier support (ultra-high-strength hot-formed steel).

Flow drill screws are driven directly into the body structure. When this happens, the specially shaped tip produces a flow hole and a thread is then cut. This joining technique is used **exclusively** in production.



G30 Screw connection of engine support/bulkhead

Index	Explanation
1	Engine support
2	Engine support connection
3	Flow drill screw



Once a flow drill screw connection has been loosened, it must not be re-joined using flow drill screws. Otherwise this will lead to a considerable reduction in strength.

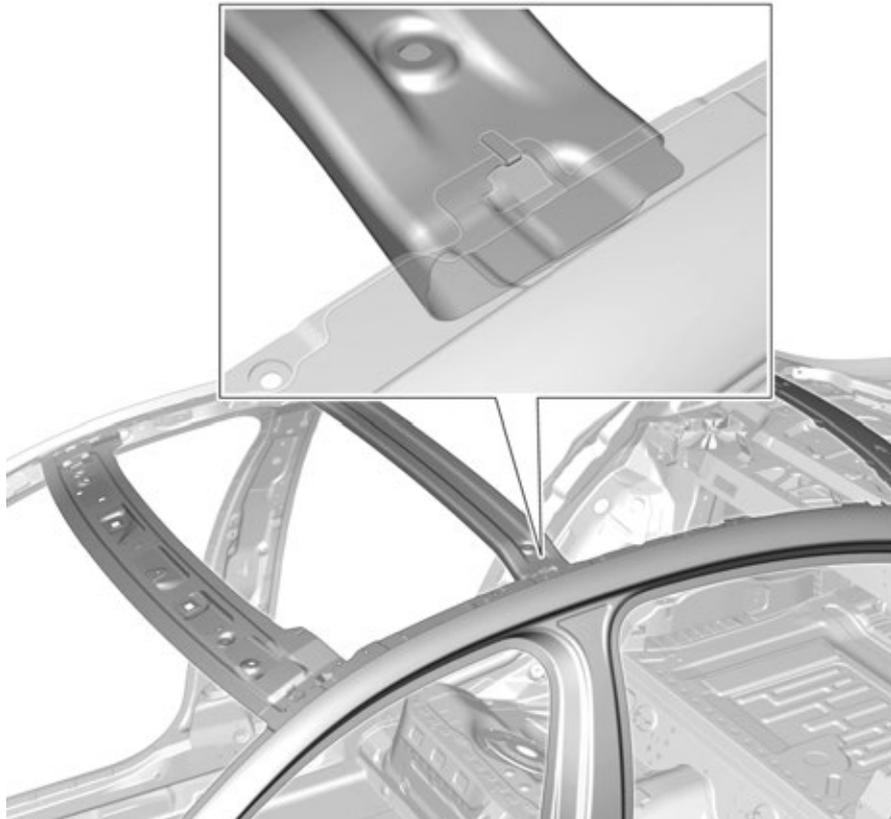
In the event of a repair according to Body Repair Level 2 and 3, the flow drill screws are replaced by blind rivets.

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2. Bodyshell

2.4. Roof support

The G30 body structure has a hydroformed roof support made of steel. This is welded to the roof side frame in line with the B-pillar. By using a hydroformed section it has been possible to reduce the vehicle weight along with increasing the stiffness of the body. On vehicles with a slide/tilt sunroof or panorama glass roof the reinforcement is incorporated in the relevant roof frame.



G30 Hydroformed roof bow