



TECHNICAL RECONSTRUCTION ATTACHMENT

Vehicle Specifications Report Mercedes

Phoenix, Arizona

HWY21MH008

(4 pages)

ERIC GREGSON

NTSB - OFFICE OF HIGHWAY SAFETY

490 L'ENFANT PLAZA EAST SW

WASHINGTON DC 20594

4/28/2022

2018 MERCEDES BENZ C300 4MATIC 4 DOOR SEDAN

Curb Weight: lbs. kg.
 Curb weight Distribution - Front: % Rear: %
 Gross Vehicle weight Rating: lbs. kg.
 Number of Tires on Vehicle:
 Drive wheels:

Horizontal Dimensions

	Inches	Feet	Meters
Total Length	<input type="text" value="184"/>	<input type="text" value="15.33"/>	<input type="text" value="4.67"/>
wheelbase:	<input type="text" value="112"/>	<input type="text" value="9.33"/>	<input type="text" value="2.84"/>
Front Bumper to Front Axle:	<input type="text" value="33"/>	<input type="text" value="2.75"/>	<input type="text" value="0.84"/>
Front Bumper to Front of Front Well:	<input type="text" value="19"/>	<input type="text" value="1.58"/>	<input type="text" value="0.48"/>
Front Bumper to Front of Hood:	<input type="text" value="1"/>	<input type="text" value="0.08"/>	<input type="text" value="0.03"/>
Front Bumper to Base of windshield:	<input type="text" value="53"/>	<input type="text" value="4.42"/>	<input type="text" value="1.35"/>
Front Bumper to Top of windshield:	<input type="text" value="81"/>	<input type="text" value="6.75"/>	<input type="text" value="2.06"/>
Rear Bumper to Rear Axle:	<input type="text" value="39"/>	<input type="text" value="3.25"/>	<input type="text" value="0.99"/>
Rear Bumper to Rear of Rear Well:	<input type="text" value="26"/>	<input type="text" value="2.17"/>	<input type="text" value="0.66"/>
Rear Bumper to Rear of Trunk:	<input type="text" value="5"/>	<input type="text" value="0.42"/>	<input type="text" value="0.13"/>
Rear Bumper to Base of Rear Window:	<input type="text" value="19"/>	<input type="text" value="1.58"/>	<input type="text" value="0.48"/>

Width Dimensions

Maximum width:	<input type="text" value="71"/>	<input type="text" value="5.92"/>	<input type="text" value="1.80"/>
Front Track:	<input type="text" value="62"/>	<input type="text" value="5.17"/>	<input type="text" value="1.57"/>
Rear Track:	<input type="text" value="61"/>	<input type="text" value="5.08"/>	<input type="text" value="1.55"/>

Vertical Dimensions

Height:	<input type="text" value="57"/>	<input type="text" value="4.75"/>	<input type="text" value="1.45"/>
Ground to -			
Front Bumper (Top)	<input type="text" value="18"/>	<input type="text" value="1.50"/>	<input type="text" value="0.46"/>
Headlight - center	<input type="text" value="25"/>	<input type="text" value="2.08"/>	<input type="text" value="0.64"/>
Hood - top front:	<input type="text" value="27"/>	<input type="text" value="2.25"/>	<input type="text" value="0.69"/>
Base of Windshield	<input type="text" value="39"/>	<input type="text" value="3.25"/>	<input type="text" value="0.99"/>
Rear Bumper - top:	<input type="text" value="26"/>	<input type="text" value="2.17"/>	<input type="text" value="0.66"/>
Trunk - top rear:	<input type="text" value="39"/>	<input type="text" value="3.25"/>	<input type="text" value="0.99"/>
Base of Rear Window:	<input type="text" value="42"/>	<input type="text" value="3.50"/>	<input type="text" value="1.07"/>

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Interior Dimensions

	Inches	Feet	Meters
Front Seat Shoulder width	55	4.58	1.40
Front Seat to Headliner	37	3.08	0.94
Front Leg Room - seatback to floor (max)	42	3.50	1.07
Rear Seat Shoulder width	55	4.58	1.40
Rear Seat to Headliner	37	3.08	0.94
Front Leg Room - seatback to floor (min)	33	2.75	0.84
Seatbelts:	3pt - front and rear		
Airbags:	FRONT SEAT AIRBAGS + SIDE AIRBAGS		

Steering Data

Turning Circle (Diameter)	444	37	11.28
Steering Ratio:	:1		
Wheel Radius:	13	1.08	0.33
Tire Size (OEM):	P225/45R17		

Acceleration & Braking Information

Brake Type:	ALL DISC
ABS System:	ALL WHEEL ABS

Braking, 60 mph to 0 (Hard pedal, no skid, dry pavement):

$$d = 108.0 \text{ ft} \quad t = 2.5 \text{ sec} \quad a = -35.8 \text{ ft/sec}^2 \quad G\text{-force} = -1.11$$

Acceleration:

0 to 30mph	t =		sec	a =		ft/sec ²	G-force =	
0 to 60mph	t =	6.4	sec	a =	13.8	ft/sec ²	G-force =	0.43
45 to 65mph	t =		sec	a =		ft/sec ²	G-force =	

Transmission Type: AUTOMATIC

Notes:

Federal Bumper Standard Requirements:	2.5	mph
This vehicles Rated Bumper Strength:	2.5	mph

N.S.D.C = 2015 - 2018

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Other Information

Tip-Over Stability Ratio =
NHTSA Star Rating (calculated)

1.38

Stable

Center of Gravity (No Load):

	Inches	Feet	Meters
behind front axle	50.40	4.20	1.28
in front of rear axle	61.60	5.13	1.56
from side of vehicle	35.50	2.96	0.90
from ground	22.37	1.86	0.57
from front corner	90.64	7.55	2.30
from rear corner	106.68	8.89	2.71
from front bumper	83.40	6.95	2.12
from rear bumper	100.60	8.38	2.56

Moments of Inertia Approximations (No Load):

	lb*ft*sec ²	kg*m*sec ²
Yaw Moment of Inertia	2495.82	345.06
Pitch Moment of Inertia	2409.06	333.06
Roll Moment of Inertia	496.92	68.70

Front Profile Information

Angle Front Bumper to Hood Front	83.7	deg
Angle Front of Hood to windshield Base	13.0	deg
Angle Front of Hood to windshield Top	19.3	deg
Angle of windshield	29.7	deg
Angle of Steering Tires at Max Turn	28.9	deg

First Approximation Crush Factors:

Speed Equivalent (mph) of Kinetic Energy (KE) used in causing crush of indentation may be evaluated using the following formula, the appropriated Crush Factor (CF), and Maximum Indentation Depth (MID), in feet:

$$V(\text{mph}) = \sqrt{(30 * CF * MID)}$$

KE Equivalent Speed (Front/Rear/Side) = 21 CF

Bullet vehicle IMPACT SPEED estimation
based on TARGET VEHICLE damage ONLY = 27 CF
(Tested for Rear/Side Impact only)

These CF values are based upon analysis of NHTSA Barrier Crash data, and from over 1000 vehicle accidents where independent evaluation of speed was possible. (These are NOT 'A', 'B', 'C', or 'G' values)

The rear Impact data with more than 2-3 inches of crush damage should be looked at carefully, since some vehicles have very weak trunk & fender strength. Therefore, on some cars, especially GM, you estimate from the rear crush data may be high by as much as 4-5 mph (on a crush of 18 inches).