

Addition to special tools cabinet

All model series

Situation: At the beginning of 1997, the existing tools cabinet was equipped with new tools board sheets for improved clarity. The special tools were given a new order on the tools boards.

[Please refer to SI 1 12 97 \(202\).](#)

This concept should be retained and improved upon in the future. As the storage capacity on the existing tools boards is now exhausted, a new [2 x 1 m tools board](#) is available with immediate effect.

The storage locations on this tools board are identified, as in the past, with plastic sheets which are automatically updated to the current status of tool selection prior to delivery.

A smaller, separately rigged special tools cabinet will be offered for storing the tools boards. This is initially based on a basic frame which has to have two side panels screwed on. In the event of subsequent extension in the form of additional frames, these side panels only have to be moved.

The new special tools cabinet can also be used as a room partition. In this case, two rear panels are required, which have to be ordered separately. Also available as options are shelves and drawer blocks for individual storage of workshop equipment.

To summarise the benefits of extending the special tools cabinet:

- Continuation of the coordinates system for storage location identification
- Modular system allows unproblematic extension
- Setup as room partition or individual room design

Procedure: The extension to the special tools cabinet and the associated accessories are available on a stores basis,

[please refer to Enclosure 2.](#)

Workshop Equipment - Planning Documentation

Version 09/2002

Situation: 1.) The WEP CD (Workshop Equipment - Planning Documentation) has been revised. This CD version replaces the previous CD 08/2000.

2.) As pointed out in SWS2002-000202(877), workshop equipment has since 01.05.2002 been sold by the company Cartool. To this end Cartool offers a convenient way of ordering via the Cartool Internet Shop.

Procedure: 1.) You will automatically be sent the new WEP CD in the course of media allocation. Extra copies can be ordered where necessary from BMW Sales - Parts and Accessories (part number 01 69 0 026 085).

2.) For security reasons the Cartool Internet Shop can only be accessed by registered users with their name and password. Assignment of password: Please refer to Enclosure 1. The prices of the individual products are shown in the Internet Shop.

Note:

With regard to building and extending workshops, VS-23 can provide help and support in workshop and equipment planning.

The Service Information 0 02 00 (592) Workshop Equipment and Planning Documentation Version 08/2000 is no longer valid and must therefore be removed from the SI folder Special Tools and Equipment.

For a description of the WEP CD and the Cartool Internet Shop, [please refer to Enclosure 1.](#)

0 02 02 (877)

Workshop equipment sales

All

Situation: There will be a change in work equipment sales as from 01.05.2002. For harmonisation reasons we are combining the procedures and operations for special tools and workshop equipment. This means that, as is the case with special tools, advice, sales, order processing and invoicing will be handled by the Ingolstadt-based company Cartool, which has been working for BMW for around 30 years.

All the usual services, i.e. expert advice, complete handling such as shipping logistics, customs formalities, service in accordance with order processing, remain unchanged.

Procedure: Take advantage of our customary advice and place your order based on our Workshop Equipment CD (WEP 01 69 0 026 085) with Cartool at the familiar address:

CARTOOL GmbH Straußenlettenstr. 15D-85053 Ingolstadt

Contact: Claudia Ziesing, Tel.: +49-841/9650023 - Fax: +49-841/9610848 E-mail: C.Ziesing@cartool.de

Andreas Lang, Tel.: +49-841/9650024 - Fax: +49-841/9610848 E-mail: A.Lang@cartool.de

cardiagn.com

1 08 95 (965)

Release/pressing-off tool

From model year 94

Situation: Release and pressing-off tools are required for all the contact carriers and contacts fitted in the vehicle to enable repairs to the vehicle electrical system to be correctly carried out.

A tool kit, order no. 61 1 150, is presented and delivered by way of special offer for the first time with Service Information 1 03 89 (037).

[See repair instructions 61 13.](#)

The extended scope of electrical plug connections in the vehicle means that further tools are needed.

A new foam insert is available so that these tools can be arranged as a supplementary set in the tool box that has already been supplied.

Revised operating instructions are included with each supplementary set.

Procedure: Special offer tools are automatically dispatched in accordance with the present tools agreement.

[Please refer to Enclosure 1.](#)

cardiagn.com

1 11 95 (990)

Gauge 21 2 070

All Model Series

Situation: As a result of design modifications made in conjunction with the introduction of the S6S 420G transmission, it is no longer possible to use gauge 21 2 070 for checking clutch disk wear.

A modified version of the gauge is now available which can be used for all transmissions again.

[Please refer to Enclosure 1 for a list of special tools.](#)

Procedure: Offer tools will be supplied automatically in accordance with the current tools agreement.

cardiagn.com

2 04 00 (561)

Adapter cable for OBD socket

All series

Situation: Due to the discontinuation of the 20-pin BMW diagnosis socket in 06/2000 and 09/2000, an adapter cable will be required to connect the DIS (diagnosis system) and AU tester (emissions test) to the OBD socket (**O**n **B**oard **D**iagnosis).

[\(Please refer to Enclosure 1\).](#)

Procedure: The adapter cable will be supplied free of charge from calendar week 19/2000.
Additional requirements can be ordered at store price directly from the manufacturer.

cardiagn.com

2 10 95 (015)

Adapter cable, 3-pin

All series

Situation: Adapter cable 61 1 491 was introduced in 1987 with SI 2 05 87 (795). It has been modified and can therefore also be used for testing the idle actuator. The new version is identified by a yellow shrinkable hose.

As of immediately, only this modified version will be delivered; order No. 61 1 491.

Procedure: Store tools are intended for repair shops and only supplied to order.

cardiagn.com

2 08 95 (003)

Peripherals box, 26-pin

all models

Situation: Peripherals box 61 1 459 was introduced to the BMW dealer organisation in 1987 with SI 2 04 87 (783). As part of a technical update, high-quality, gold-plated measuring bushes have been introduced. This improvement now makes the peripherals box suitable for resistance measurements. The new peripherals box can be recognised from the green coloured ring on the measuring bushes.

With immediate effect, only the improved version will be supplied under order number 61 1 459.

Procedure: Store tools are intended for repair shops and are only supplied to order.

cardiagn.com

1 08 95 (965)

Release/pressing-off tool

From model year 94

Situation: Release and pressing-off tools are required for all the contact carriers and contacts fitted in the vehicle to enable repairs to the vehicle electrical system to be correctly carried out.

A tool kit, order no. 61 1 150, is presented and delivered by way of special offer for the first time with Service Information 1 03 89 (037).

[See repair instructions 61 13.](#)

The extended scope of electrical plug connections in the vehicle means that further tools are needed.

A new foam insert is available so that these tools can be arranged as a supplementary set in the tool box that has already been supplied.

Revised operating instructions are included with each supplementary set.

Procedure: Special offer tools are automatically dispatched in accordance with the present tools agreement.

[Please refer to Enclosure 1.](#)

cardiagn.com

11 00 Engine in general N57T1

Cylinder		6
Bore hole	mm	84
Stroke	mm	90
Effective displacement	cm ³	2993
Compression ratio	:1	16,5
Cutoff speed	rpm	5000
Permissible constant speed	rpm	4400
Compression pressure (of all cylinders roughly same value)	bar	>>16...

cardiagn.com

11 11 Engine block crankcase N57O1 / N57T1

Bore $\varnothing$ stage 0a)	mm	84,000+0,018
Bore $\varnothing$ stage 00 a)	mm	%
Bore $\varnothing$ stage 1 a)	mm	84,250+0,018
Permitted out-of-round of cylinder bore a)	mm	0,005
Permitted conicity of cylinder bore a)	mm	0,01
Permissible total wear tolerance between piston and cylinder (engine operated)	mm	0,15

a) *Newcondition or reworking*

cardiagn.com

11 12 Cylinder Head with Valve Seat Cover N57O1 / N57T1

Valve seat angle	°	45
Correction angle: outer Intake and exhaust	°	15
Correction angle: inner Intake	°	36
Correction angle: inner Exhaust	°	60
Valve seat width: Intake	mm	1,2 ±0,25
Valve seat width: Exhaust	mm	1,4 ±0,25
∅ Valve seat		
Valve seat surface: Outside dia. inlet	mm	25,9+0,1
Valve seat surface: Outside dia. exhaust	mm	23,2+0,1
Cylinder head height: Original dimension	mm	No machining possible
Machining limit, valve-inset clearance	mm	0,8 ± 0,1
Valve guides are not available as replacement parts.		
Inner diameter of installed valve guide Original	mm	5,0+0,15
Tilt clearance, maximum (wear between valve and valve guide)	mm	can't be measured

11 21 Crankshaft and Bearings N57O1 / N57T1

Grinding stages, crankshaft guide bearing		
Original	mm	25,00 $+0,020$ $+0,053$
Level 1	mm	25,20 $+0,020$ $+0,053$
Stage 2	mm	25,40 $+0,020$ $+0,053$
Crankshaft side clearance	mm	0.060 ... 0.250

cardiagn.com

11 21 Crankshaft and Bearings N57O1 / N57T1

Grinding stages connecting rod bearing journals		
Original 0	mm	50,00 -0,009 -0,025
Level 1	mm	49,75 -0,009 -0,025
Stage 2	mm	49,50 -0,009 -0,025
Radial connecting-rod bearing play	mm	0,015 ... 0,050

cardiagn.com

11 21 Crankshaft and Bearings N57T1

Grinding stage of main bearing journals		Main bearing journal / guide bearing journal
Stage 0 K1 (colour Yellow)	mm	54,984 ... 54,990
Stage 0 K2 (colour Green)	mm	54,977 ... 54,983
Stage 0 K3 (colour White)	mm	54,971 ... 54,976
Grinding stage 1 K1 (colour Yellow)	mm	54,734 ... 54,740
Grinding stage 1 K2 (colour Green)	mm	54,727 ... 54,733
Grinding stage 1 K3 (colour White)	mm	54,721 ... 54,726
Grinding stage 2 K1 (colour Yellow)	mm	54,484 ... 54,490
Grinding stage 2 K2 (colour Green)	mm	54,477 ... 54,483
Grinding stage 2 K3 (colour White)	mm	54,471 ... 54,476
Crankshaft bearing clearance, radial	mm	0,023 ... 0,054
Crankshaft bearing clearance, axial	mm	0,060 ... 0,210
Maximum crankshaft friction coefficient, bearing section bolted	Nm	Â 2

11 23 Vibration damper N57T1

Max. permitted radial runout	mm	0,40
Max. permitted lateral runout	mm	0,40

cardiagn.com

11 24 Connecting Rods and Bearings N57O1 / N57T1

∅ Large connecting rod eye (without bearing)	mm	53,600 ... 53,619
Conrod bush: Inner diameter	mm	31,700 ^{+0,05} _{-0,05}
Permissible total deviation of connecting rods in one engine (without bearing shells)	g	± 4

cardiagn.com

11 25 Pistons with Rings and Pins N57O1 / N57T1

1. Groove		
End clearance	mm	0,20...0,30
Side clearance	mm	0,13...0,17
2. Groove		
End clearance	mm	0,30 ... 0,45
Side clearance	mm	0,08 ... 0,12
3. Groove		
End clearance	mm	can't be measured
Side clearance	mm	can't be measured

cardiagn.com

11 25 Pistons with Rings and Pins N57O1 / N57T1

Piston and pin are paired to each other - replace together only.		
Piston diameter at measuring point "A"	mm	17
Original (new dimension)	mm	83,960±0,009
Repair stage (new dimension)	mm	%
Oversize (new dimension)	mm	84,210±0,009
Piston installation clearance (piston new)	mm	0.031 ... 0.167
Piston installation clearance (piston worn)	mm	0,20...0,250
Permissible total wear tolerance between piston and cylinder (engine operated)	mm	0,25

cardiagn.com

11 31 Camshaft N57O1 / N57T1

Radial runout	mm	0,047 ... 0,068
Side clearance	mm	0,033... 0,150

cardiagn.com

11 34 Valves with Springs N57O1 / N57T1

Plate dia.		
Intake	mm	27,2 ±0,1
Exhaust	mm	24,6 ±0,1
Shaft diameter		
Intake	mm	4,92 ±0,2
Exhaust	mm	4,92 ±0,2

cardiagn.com

11 41 Oil pump with strainer and motor N57O1 / N57T1

Oil pressure at idle speed with engine at operating temperature	min bar	1,1
Control pressure with engine at operating temperature	bar	3,2... 6,0

cardiagn.com

17 00 Coolant, Cooling System Test F32 / F33 / F36 / N57 D30 O/T 1

Model series	F32	F33	F36
Model designation	430d, 430d xDrive, 435d xDrive	430d, 430d xDrive, 435d xDrive	430d, 430d xDrive, 435d xDrive
Coolant quantity on vehicles with manual gearbox			
Coolant quantity on vehicles with automatic transmission	7,2 l	7,2 l	7,2 l
Top-up quantity of coolant in the event of repair with disconnected coolant hoses. Observe the mixture ratio and filling level!	2,0 l	2,0 l	2,0 l
Test pressure for cooling system excess pressure (in bar)	1,5	1,5	1,5

17 11 Radiator with mounting F30 / F31 / F32 / F33 / F34 / F36 / N47 D20 K/U/O/T 1 / N57 D30 O/T 1

Cap for cooling system		
Pressure relief valve opens when the pressure exceeds the ambient pressure.	bar	1,4 +0,1 _ 0,2
Electric changeover valve must open at latest when the pressure is lower than the ambient pressure	bar	0,1
Test radiator pressure (excess pressure)	bar	1,5

cardiagn.com

23 00 Transmission in general S7S 47BG

Oil grade, refer to Operating Fluids		
Oil fill quantity for oil change	Litres	2.55
Oil fill quantity for initial fill or replacement transmission	Litres	2.75

cardiagn.com

23 23 Synchronization GS6-53DZ

Distance between synchronizer ring and clutch body		
New condition		
1st/2nd gear	mm	2.70 ... 3.50
3rd/4th gear	mm	2.40 ... 3.10
5th/6th gear	mm	1.75 ... 2.10
Max. wear limit size	mm	
Reverse gear		
New condition	mm	2.70 ... 3.25
Max. wear limit size	mm	

cardiagn.com

24 00 Transmission filling capacities Fxx GA8HP45Z GA8HP70Z

Code letters / code on type plate or label:		
Refer to Electronic Parts Catalogue.		
Total oil volume (transmission and torque converter drained)	Ca. ltr.	8,5

cardiagn.com

31 00 Front axle - ride height F32 Alpina / 4WD

Ride height in normal position		
Attach tape measure to bottom middle of rim flange and measure to lower edge of wheel arch		
Tolerance ride height in		
- Normal position maximum 10 mm		
- Design position maximum 2 mm		
Difference ride height between left/right in		
- normal position 10 mm		
- Design position 2 mm		
Series		
20" wheel rim	mm	639

cardiagn.com

31 00 Front axle - ride height F32 / 4WD

Ride height in normal position		
Attach tape measure to bottom middle of rim flange and measure to lower edge of wheel arch		
Tolerance ride height in		
- normal position max. 10 mm		
- Design position max. 2 mm		
Difference ride height between left/right in		
- normal position 10 mm		
- Design position 2 mm		
Series		
17" wheel rim	mm	617
18" wheel rim	mm	629
19" wheel rim	mm	642
20" rim	mm	654
M Sports suspension settings		
17" wheel rim	mm	617
18" wheel rim	mm	629
19" rim	mm	642
20" rim	mm	654
Series production Japanese market version		
17" rim	mm	617
18" rim	mm	629
19" rim	mm	642
20" rim	mm	654

31 00 Front axle - ride height F33 / 4WD

Ride height in normal position		
Attach tape measure to bottom middle of rim flange and measure to lower edge of wheel arch		
Tolerance ride height in		
- normal position max. 10 mm		
- Design position max. 2 mm		
Difference ride height between left/right in		
- normal position 10 mm		
- Design position 2 mm		
Series		
17" wheel rim	mm	617
18" wheel rim	mm	629
19" wheel rim	mm	642
20" rim	mm	654
M Sports suspension settings		
17" wheel rim	mm	617
18" wheel rim	mm	629
19" wheel rim	mm	642
20" rim	mm	654
Series production Japanese market version		
17" rim	mm	617
18" rim	mm	629
19" rim	mm	642
20" rim	mm	654

31 00 General - Track Width / Wheelbase F32 Alpina

Track width for normal position and rim offset (ET)		
Rear-wheel drive		
- Rim offset 36	mm	1552
Four-wheel drive		
- Rim offset 36	mm	1551
- Wheelbase	mm	2810

cardiagn.com

31 00 General - Track Width / Wheelbase F32 / 4WD

Track width for normal position and rim offset (ET)		
- ET 34	mm	1550
- ET 36	mm	1546
- ET 37	mm	1544
Wheelbase	mm	2810

cardiagn.com

31 00 Front axle - ride height F32 / 4WD

Ride height in normal position		
Attach tape measure to bottom middle of rim flange and measure to lower edge of wheel arch		
Tolerance ride height in		
- normal position max. 10 mm		
- Design position max. 2 mm		
Difference ride height between left/right in		
- normal position 10 mm		
- Design position 2 mm		
Series		
17" wheel rim	mm	617
18" wheel rim	mm	629
19" wheel rim	mm	642
20" rim	mm	654
M Sports suspension settings		
17" wheel rim	mm	617
18" wheel rim	mm	629
19" rim	mm	642
20" rim	mm	654
Series production Japanese market version		
17" rim	mm	617
18" rim	mm	629
19" rim	mm	642
20" rim	mm	654

31 00 Front axle - ride height F33 / 4WD

Ride height in normal position		
Attach tape measure to bottom middle of rim flange and measure to lower edge of wheel arch		
Tolerance ride height in		
- normal position max. 10 mm		
- Design position max. 2 mm		
Difference ride height between left/right in		
- normal position 10 mm		
- Design position 2 mm		
Series		
17" wheel rim	mm	617
18" wheel rim	mm	629
19" wheel rim	mm	642
20" rim	mm	654
M Sports suspension settings		
17" wheel rim	mm	617
18" wheel rim	mm	629
19" wheel rim	mm	642
20" rim	mm	654
Series production Japanese market version		
17" rim	mm	617
18" rim	mm	629
19" rim	mm	642
20" rim	mm	654

32 00 Chassis/wheel alignment - normal position F32

Car loaded down to normal position	Vehicle with complete equipment for normal operation with: 2 x 68 kg on the front seats (seats in centre position); 1 x 14 kg in luggage compartment (centre) and full fuel tank.
--	---

cardiagn.com

32 00 Wheel Alignment F32 Alpina / 4WD

Observe test conditions!		
Front axle:		
Total toe-in		0° 10' ± 12'
Total toe-in adjustment*		0° 10' ± 4'
Toe difference** single wheel between left/ right		max. 12'
Camber (Difference between left/right maximum 30')		- 0° 50' ± 30'
Camber adjustment*		- 0° 50' ± 25'
Toe difference angle (difference between left/right max. 30')		- 1° 26'
Castor angle		(difference between left/right max. 30')
Front wheel offset		0° ± 15'
Maximum steering angle		
- Inner cornering wheel	Ca. °	38° 06'
- Outer cornering wheel	Ca. °	32° 18'
Rear axle:		
Total toe-in		0° 18' ± 12'
Total toe-in adjustment*		0° 18' ± 4'
Camber (difference between left/right max. 30')		-1° 50' ± 25'
Camber adjustment*		-1° 50' ± 5'
Geometrical driving axis		0° ± 12'
*Note: To minimise adjusting errors (measuring inaccuracies), use a narrower tolerance for adjusting toe/camber.		
**Note: Toe difference front axle = criterion for steering wheel inclination		

32 00 Wheel Alignment F32 / 4WD M Sports suspension settings

Observe test conditions!		
Front axle:		
Total toe-in		0° 14' ± 12'
Total toe-in adjustment*		0° 14' ± 4'
Toe difference** single wheel between left/ right		max. 12'
Camber (difference between left/right max. 30')		- 0° 20' ± 30'
Camber adjustment*		- 0° 20' ± 25'
Toe difference angle (difference between left/right max. 30')		- 1° 26'
Castor angle		(difference between left/right max. 30')
Front wheel offset		0° ± 15'
Maximum steering angle		
- Inner cornering wheel	Ca. °	38° 08'
- Outer cornering wheel	Ca. °	32° 18'
Rear axle:		
Total toe-in		0° 18' ± 12'
Total toe-in adjustment*		0° 18' ± 4'
Camber (difference between left/right max. 30')		-1° 23' ± 25'
Camber adjustment*		-1° 23' ± 5'
Geometrical driving axis		0° ± 12'
*Note: To minimise adjusting errors (measuring inaccuracies), use a narrower tolerance for adjusting toe/camber.		
**Note: Toe difference front axle = criterion for steering wheel inclination		

32 00 Wheel Alignment F32 / 4WD Series

Observe test conditions!		
Front axle:		
Total toe-in		0° 14' ± 12'
Total toe-in adjustment*		0° 14' ± 4'
Toe difference** single wheel between left/ right		max. 12'
Camber (difference between left/right max. 30')		- 0° 20' ± 30'
Camber adjustment*		- 0° 20' ± 25'
Toe difference angle (difference between left/right max. 30')		- 1° 26'
Castor angle		(difference between left/right max. 30')
Front wheel offset		0° ± 15'
Maximum steering angle		
- Inner cornering wheel	Ca. °	38° 06'
- Outer cornering wheel	Ca. °	32° 18'
Rear axle:		
Total toe-in		0° 18' ± 12'
Total toe-in adjustment*		0° 18' ± 4'
Camber (difference between left/right max. 30')		-1° 23' ± 25'
Camber adjustment*		-1° 23' ± 5'
Geometrical driving axis		0° ± 12'
*Note: To minimise adjusting errors (measuring inaccuracies), use a narrower tolerance for adjusting toe/camber.		
**Note: Toe difference front axle = criterion for steering wheel inclination		

32 00 Wheel Alignment F32 / 4WD Standard suspension Japan

Observe test conditions!		
Front axle:		
Total toe-in		0° 14' ± 12'
Total toe-in adjustment*		0° 14' ± 4'
Toe difference** single wheel between left/ right		max. 12'
Camber (Difference between left/right maximum 30')		- 0° 20' ± 30'
Camber adjustment*		- 0° 20' ± 25'
Toe difference angle (difference between left/right max. 30')		-1° 26'
Castor angle		(difference between left/right max. 30')
Front wheel offset		0° ± 15'
Maximum steering angle		
- Inner cornering wheel	Ca. °	38° 06'
- Outer cornering wheel	Ca. °	32° 18'
Rear axle:		
Total toe-in		0° 18' ± 12'
Total toe-in adjustment*		0° 18' ± 4'
Camber (difference between left/right max. 30')		-1° 33' ± 25'
Camber adjustment*		-1° 33' ± 5'
Geometrical driving axis		0° ± 12'
*Note: To minimise adjusting errors (measuring inaccuracies), use a narrower tolerance for adjusting toe/camber.		
**Note: Toe difference front axle = criterion for steering wheel inclination		

33 00 General - track width F32 Alpina

Track width for normal position and rim offset (ET)		
Rear-wheel drive		
- Rim offset 47	mm	1576
Four-wheel drive		
- Rim offset 47	mm	1576

cardiagn.com

33 00 General - track width F32 / 4WD

Track width for normal position and rim offset (ET)		
Series		
- ET 34	mm	1596
- ET 36	mm	1592
- ET 37	mm	1590
- ET 47	mm	1570
Japanese market version		
- ET 34	mm	1596
- ET 36	mm	1592
- ET 37	mm	1590
- ET47	mm	1570

cardiagn.com

33 00 Rear axle - ride height F32 Alpina / 4WD

Ride height in normal position (attach tape measure to bottom middle of rim flange and measure to lower edge of wheel arch)		
Tolerance ride height in - Normal position maximum ± 10 mm - Design position maximum ± 2 mm		
Difference ride height between left/right in - normal position 10 mm - Design position 2 mm		
Series		
20" wheel rim	mm	633

cardiagn.com

33 00 Rear axle - ride height F32 / 4WD

Ride height in normal position (attach tape measure to bottom middle of rim flange and measure to lower edge of wheel arch)		
Tolerance ride height in - normal position max. ± 10 mm - Design position max. ± 2 mm		
Difference ride height between left/right in - normal position 10 mm - Design position 2 mm		
Series		
17" wheel rim	mm	608
18" wheel rim	mm	621
19" wheel rim	mm	633
20" rim	mm	646
M Sports suspension settings		
17" wheel rim	mm	608
18" wheel rim	mm	621
19" wheel rim	mm	633
20" rim	mm	646
Japanese market version		
17" rim	mm	608
18" rim	mm	620
19" rim	mm	633
20" rim	mm	646

34 .. Specifications for brake performance testing as part of regular periodic vehicle inspections as prescribed in § 29 StVZO German Motor Vehicle Safety Standards F32

Model series	F32
Base model	416i
Remarks	Coupé
Approved gross vehicle weight (kg)	1935 kg
Maximum brake pedal force to achieve a deceleration rate of 58 % in (N)	170 N
Minimum front axle brake force ratio in %	48,1 %
Minimum proportion of rear axle braking force in %	23,9 %
Test area for brake pedal force (N)	70 – 150 N

cardiagn.com

34 11 Front Brake F32

Important! Installation of new brake pads is approved only provided that the brake disc thickness exceeds the specified dimension for "MIN TH" (see table). Brake discs must be replaced when they reach the nominal thickness (see table) minus 2.4 mm! (Not applicable to perforated brake discs and M vehicles) . Applies only to M vehicles and perforated ventilated brake discs: The brake discs must be replaced once they wear to the nominal specified thickness (see table) minus 1.6 mm! . Depending on: - Engine type - Transmission version - Equipment specification (e.g. maximum load increase, chassis official-use, national version, etc.) different brake discs can be fitted The brake discs must always be assigned by way of the relevant vehicle identification number and the Electronic Parts Catalogue!		
Different thicknesses on brake linings	Max. mm	0,01
Nominal size (diameter x thickness)	mm	300x22
(MIN TH) is stamped in brake disc chamber	mm	20,4
Nominal size (diameter x thickness)	mm	312x24
(MIN TH) is stamped in brake disc chamber	mm	22,4
Nominal size (diameter x thickness)	mm	340x30
(MIN TH) is stamped in brake disc chamber	mm	28,4
Wear warning from residual lining thickness	mm	3,7

34 21 Rear Brake Discs F32

Important! Installation of new brake pads is approved only provided that the brake disc thickness exceeds the specified dimension for "MIN TH" (see table). Brake discs must be replaced when they reach the nominal thickness (see table) minus 2.4 mm! (Not applicable to perforated brake discs and M vehicles) . Applies only to M vehicles and perforated ventilated brake discs: The brake discs must be replaced once they wear to the nominal specified thickness (see table) minus 1.6 mm! . Depending on: - Engine type - Transmission version - Equipment specification (e.g. maximum load increase, chassis official-use, national version, etc.) different brake discs can be fitted The brake discs must always be assigned by way of the relevant vehicle identification number and the Electronic Parts Catalogue!		
Different thicknesses on brake linings	Max. mm	0,01
Nominal size (diameter x thickness)	mm	300x20
(MIN TH) is stamped in brake disc chamber	mm	18,4
Nominal size (diameter x thickness)	mm	330x20
(MIN TH) is stamped in brake disc chamber	mm	18,4
Wear warning from residual lining thickness	mm	3,7

36 10 Wheels One-part alloy wheels

Max. radial runout of tire	max. mm	1.1
Rim with tire		
Max. axial runout of tire	max. mm	1.3
Rim with tire		
Max. radial runout out rim	max. mm	0.3
Max. axial runout of rim	max. mm	0.3
Max. imbalance for each side (before balancing)	max. g	90 for clamp weights 120 for stick-on weights
Permissible residual imbalance for each side (after balancing)	max. g	4
Elimination of imbalance: Up to 60 g with one weight or more than 60 g with two weights		

cardiagn.com

36 10 Wheels Steel and aluminium strip wheels

Max. radial runout of tire	max. mm	1.6
Rim with tire		
Max. axial runout of tire	max. mm	1.8
Rim with tire		
Max. radial runout out rim	max. mm	0.8
Max. axial runout of rim	max. mm	0.8
Max. imbalance for each side (before balancing)	max. g	90 for clamp weights 120 for stick-on weights
Permissible residual imbalance for each side (after balancing)	max. g	4
Elimination of imbalance: Up to 60 g with one weight or more than 60 g with two weights		

cardiagn.com

36 10 Wheels Two-part alloy wheels

Max. radial runout of tire	max. mm	1.3
Rim with tire		
Max. axial runout of tire	max. mm	1.5
Rim with tire		
Max. radial runout out rim	max. mm	0.5
Max. axial runout of rim	max. mm	0.5
Max. imbalance for each side (before balancing)	max. g	90 for clamp weights 120 for stick-on weights
Permissible residual imbalance for each side (after balancing)	max. g	4
Elimination of imbalance: Up to 60 g with one weight or more than 60 g with two weights		

cardiagn.com

61 71 Windscreen washer system All F-series

Filling capacity, fluid reservoir, windscreen washer system F15,F16,F85,F86	Liter	5.5
Filling capacity, fluid reservoir, windscreen washer system F01,F02,F03,F04,F06,F07,F10,F11,F12,F13,F18,F25,F25	Liter	5.0
Filling capacity, fluid reservoir, windscreen washer system F20,F21,F22,F23,F30,F31,F32,F33,F34,F35,F36,F80,F82,F83,F87	Liter	3.0

cardiagn.com

63 12 Headlight F30,F31,F32,F33,F34,F35,F36,F80,F82,F83

Xenon headlight bulb	Xenon bulb with ignition unit,D1 12V 35W
Daytime driving lights/side lights, xenon headlight	LED module
Light bulb - turn indicator (halogen headlight/Xenon headlight)	12V 21W
.	PSY 24 W
Driving light / daytime riding light / side light (LED headlight)	LED module
Light bulb - turn indicator (LED headlight)	LED module
Bulb - low-beam headlight (halogen headlight)	H7/55W , Longlife 12V 55WH7
Light bulb - high-beam headlight (halogen headlight)	H7/55W , Longlife 12V 55WH7
Bulb - side lights (halogen headlight)	6W Halogen
Bulb - daytime driving lights (halogen headlight)	PW 24W
Bulb - Fog lights	H8 12V 35W

63 21 Rear light cluster F32 / F33 / F36 / F82 / F83

Light bulb - turn indicator	P21W, 12V 21W
Light bulb - brake light	H21W, 12V 21W
Bulb â€” rear light	LED
Light bulb - rear fog light	H21W, 12V 21W
Light bulb - reversing light	PW16W, 12V 16W
Bulb - 3rd Brake light	LED

cardiagn.com

63 26 Number plate light F-series

LED number plate light	LED
------------------------	-----

cardiagn.com

63 31 Interior lighting F01 / F02 / F03 / F06 / F07 / F10 / F11 / F12 / F13 / F18 / F20 / F21 / F22 / F23 / F25 / F30 / F31 / F32 / F33 / F34 / F35 / F36 / F80 / F82 / F83 / F87

Interior light, front	W6 W 12 V 6 W xenon
Reading light, front	W6 W 12 V 6 W xenon
Interior light, rear	W6 W 12 V 6 W xenon
Reading light, rear	W6 W 12 V 6 W xenon
Interior light, side	12 V 5 W
Vanity mirror light	T5 12 V 2.3 W
Luggage compartment light	12 V 10 W festoon
.	W8W 12 V 8 W
Tailgate light	12 V 10 W festoon
Glove box	W5 W 12 V 5 W
Footwell, front	W5 W 12 V 5 W
Footwell, rear	W5 W 12 V 5 W
Door entry lighting	W5 W 12 V 5 W
Rear vanity mirror light	12 V 10 W festoon
Interior LED technology lights can only be replaced completely! .	

cardiagn.com

64 50 air conditioning, refrigerant amounts F20, F21, F22, F23, F30, F31, F32, F33, F34, F35, F36, F54, F55, F56, F57, F80, F82, F83, F87

F20, F21, F22, F23, F30 without hybrid 3/PHEV, F31, F32, F33, F34, F35, F36, B37 / B38 /B47	Refrigerant capacity (The data on the type plate in the engine compartment is definitive) Sourcing reference for refrigerant in Electronic Parts Catalogue	g	500±10
F20, F21, F22, F23, F30 without hybrid 3/PHEV, F31, F32, F33, F34, F35, F36, B48/B58	Refrigerant capacity (The data on the type plate in the engine compartment is definitive) Sourcing reference for refrigerant in Electronic Parts Catalogue	g	540±10
F20, F21, F22, F23, F30 without hybrid 3/PHEV, F31, F32, F33, F34, F35, F36, F80, F82, F83, F87 Other motorisation	Refrigerant capacity (The data on the type plate in the engine compartment is definitive) Sourcing reference for refrigerant in Electronic Parts Catalogue	g	550±10
F30 hybrid 3/PHEV	Refrigerant capacity (The data on the type plate in the engine compartment is definitive) Sourcing reference for refrigerant in Electronic Parts Catalogue	g	740±10
F54, F55, F56, F57	Refrigerant capacity (The data on the type plate in the engine compartment is definitive) Sourcing reference for refrigerant in Electronic Parts Catalogue	g	490±10

64 51 Heating and air-conditioning unit (evaporator), switching elements

Resistance as a function of temperature	°C/kΩ	-5/11.4 ... 11.9 0/8.8 ... 9.2 5/6.8 ... 7.2 10/5.3 ... 5.6 15/4.2 ... 4.5 20/3.3 ... 3.6 25/2.6 ... 2.9 30/2.1 ... 2.3 35/1.7 ... 1.9
---	-------	--

cardiagn.com

64 51 Heating and air-conditioning unit (expansion valve), switching elements

Inlet pressure (excess pressure)	bar	14
Outlet pressure (excess pressure)	bar	1.8
Leak test with detector at excess pressure	bar	1 ... 2

cardiagn.com