

ENGINE OIL SERVICE

CAUTION—

- Use BMW specified oil to top off engine between oil changes.
- Do not use engine oil additives.

BMW recommends the following engine oils. The recommendation is based on average ambient temperature.

Engine oil specification	
Gasoline engines (N20, N26, N55) BMW high performance synthetic, SAE 5W - 30	BMW Longlife-01 (LL-01) ACEA: C3
Diesel engine (N47) BMW high performance synthetic, SAE 5W - 30	BMW Longlife-04 (LL-04) ACEA: C3

Engine oil, checking level

On gasoline engines, there is no engine oil dipstick. Engine oil level is monitored electronically during driving and shown on the central information display. If the oil level reaches the minimum level, a check control message will be displayed.

NOTE —

- Diesel engine is equipped with a traditional dipstick. Engine oil level can also be checked at the dipstick after waiting a few minutes with the engine off.

Monitoring engine oil level electronically ensures that the oil does not reach critically low levels. Overfilling the engine with oil can cause leaks; a corresponding warning is therefore given.

Oil level is measured in two stages:

- Static oil level measurement while vehicle is stationary.
- Dynamic oil level measurement during vehicle operation.

Static oil level

Static oil level measurement (engine OFF) is a reference measurement. Static oil level measurement checks whether there is sufficient engine oil for a safe and reliable engine start.

Dynamic oil level

Dynamic oil level is measured when the engine is running and at operating temperature. Start up engine and drive approximately 30 minutes. Once oil is fully warmed up, oil level may be displayed while driving or while the vehicle is at a standstill on a level surface with the engine running.

➤ To check oil level:

With vehicle parked on horizontal surface, start engine and use iDrive controller to access vehicle info menu:

1. Vehicle Info
2. Vehicle status
3. Measure engine oil level

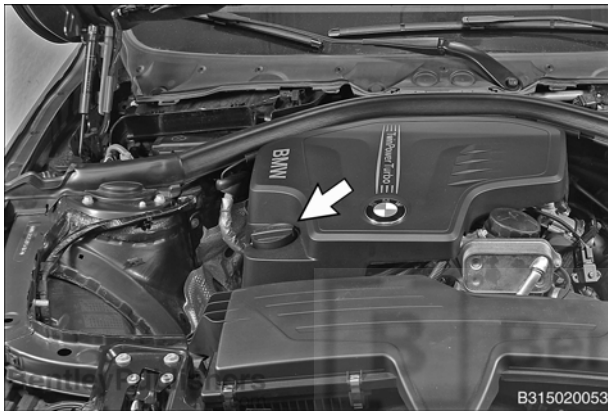




Central Information Display (CID) will prompt you through the measurement process.

NOTE —

- On diesel models, run engine at operating temperature for about 3 minutes with increased engine speed (approx. 1100 rpm) when checking oil level.



If oil level is low, add oil at oil filler (**arrow**). N20 engine shown, other engines are similar. Use correct viscosity and grade oil.

Engine oil and filter, changing

CAUTION—

- When changing the oil, make sure the engine oil drain plug is started and torqued using hand-tools. Power tools can strip the threads of the plug and the oil pan.

A complete oil change requires new oil, a new filter insert kit and a new drain plug sealing washer. Run engine for a few minutes to warm engine oil. Switch engine OFF.

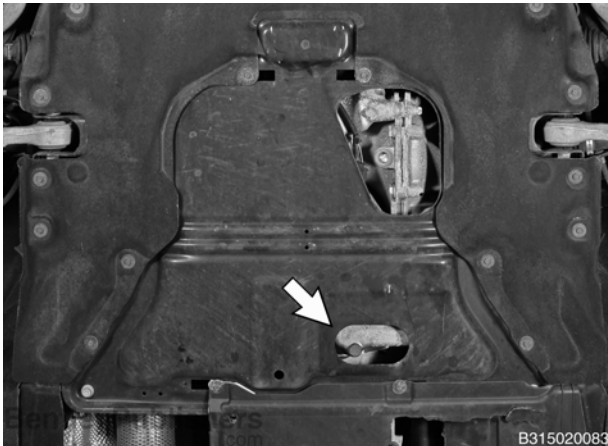
Use oil filter cap wrench to loosen and remove oil filter housing cover (**arrow**). Remove filter cartridge and discard O-ring.

- Raise vehicle and support safely.

WARNING —

- Be sure vehicle is stable and well supported at all times. Use a professional automotive lift or jack stands. A floor jack is not adequate support.





Working underneath engine, locate opening at back of engine splash shield where drain plug is exposed (**arrow**).

- Place drain pan under oil drain plug. Using a socket or box wrench, loosen drain plug. Remove plug by hand and let oil drain into pan.

WARNING —

- Pull the loose plug away from the hole quickly to avoid being scalded by oil. It will run out quickly when the plug is removed. Use gloves to protect your hands. Wear eye protection.

- When oil flow has diminished to an occasional drip, reinstall drain plug.
 - On plastic sump engines (gas RWD), use a new drain plug.
 - On metal sump engine (diesel and AWD), use a new metal sealing washer and torque plug.

NOTE —

- Plastic drain plugs: check to make sure drain plug is correctly seated and locked in place. If the specified torque fails to lock the oil drain plug in place, it is not installed correctly. The drain plug locking flanges must align with the openings in the oil sump.

Tightening torque

Engine oil drain plug to oil pan	
Plastic sump (gas RWD) (use new plastic drain plug)	8 Nm (6 ft-lb)
Aluminum sump (diesel and AWD) (use new sealing gasket)	25 Nm (18 ft-lb)

Lubricate and install new oil filter O-ring and new filter cartridge in oil filter housing cover. Install and tighten housing cover.

Tightening torque

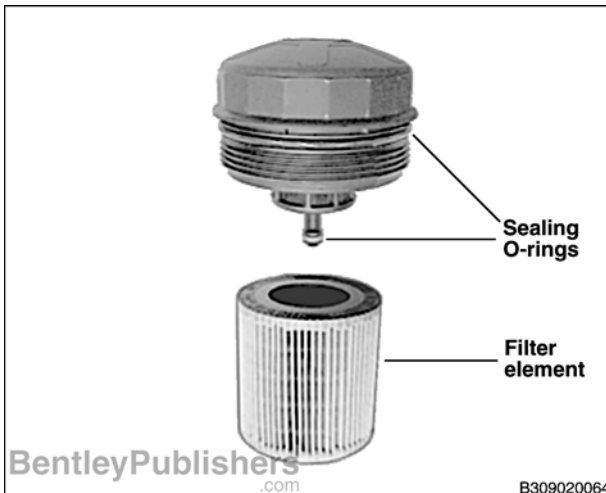
Cover to oil filter housing	25 Nm (18 ft-lb)
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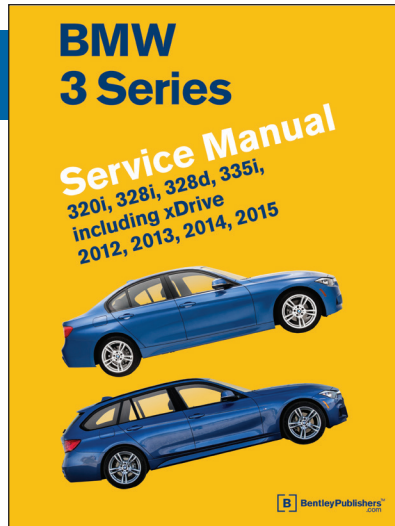
- Refill crankcase with oil. Approximate oil capacity is listed in **Table g**.

Table g. Engine oil capacity

N20, N26 engine	
• AWD	5.1 US qt (4.8 liters)
• RWD	5.3 US qt (5.0 liters)
N47 engine	5.5 US qt (5.2 liters)
N55 engine	6.9 US qt (6.5 liters)

- Start and run engine briefly. Shut engine off and wait a few minutes, then and check for correct oil level:
 - Park on horizontal surface.
 - Run engine until it reaches operating temperature. Increase engine speed to 1100 rpm and maintain for 3 minutes.
 - Read engine oil level using instrument cluster display. See **Engine oil, checking level** in this repair group.





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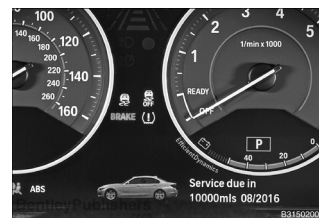
BMW 3 Series (F30, F31, F34) Service Manual: 2012-2015 320i, 328i, 328d, 335i, including xDrive

Bentley Stock Number: B315
 Publication Date: 2016-02-16
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 1,078 pages, 1,546 photos, illustrations and diagrams

The **BMW 3 Series (F30, F31, F34) Service Manual: 2012-2015** is a comprehensive source of service information and specifications for the BMW 3 Series from 2012 to 2015. The aim throughout this manual has been simplicity, clarity and completeness, with practical explanations, step-by-step procedures and accurate specifications. Whether you're a professional or a do-it-yourself BMW owner, this manual will help you understand, care for and repair your car.

Features:

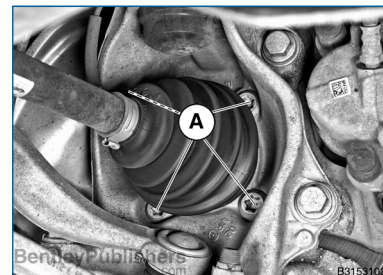
- Maintenance procedures from changing the cabin microfilter to replacing and registering a new battery. This manual tells you what to do and how and when to do it.
- Front-to-rear fluid and lubricant service, including xDrive transfer case fluid and ATF.
- Cylinder head cover gasket and crankshaft seal replacement.
- Cooling system, thermostat and radiator service.
- Gasoline fuel and ignition system diagrams and explanations for turbo-valvetronic-direct injection (TVDI) engines.
- Diesel fuel injection system diagrams and explanations for turbo-direct injection (TDI) engine management systems.
- Service and repair information on BMW EfficientDynamics technology, such as Valvetronic, xDrive, TwinPower turbo, and DSC (dynamic stability control).
- Twin scroll (gasoline) and variable vane (diesel) turbocharger removal and installation.
- Step-by-step variable camshaft timing (VANOS) service.
- Suspension repairs, including wheel bearing replacement.
- Brakes, steering and ABS troubleshooting and repair.
- Heating and air-conditioning repair, including A/C component replacement.
- Body and hood repairs and adjustments.
- Electrical system service, with an easy-to-use illustrated component locator section.
- Comprehensive wiring schematics, including fuses and grounds.
- BMW OBD II diagnostic trouble codes, SAE-defined OBD II P-codes, as well as basic scan tool operation.
- BMW factory tolerances, wear limits, adjustments and tightening torques.



Learn how to reset condition-based service (CBS) intervals using iDrive.
020 Maintenance



Direct fuel injection service, including replacing and resetting injector quantity compensation.
130 Fuel Injection
 (N20, N26, N55 engine)



Drive axle, driveshaft and wheel bearing service.
260 Driveshafts,
310 Front Suspension,
330 Rear Suspensions

Engines covered:

Gasoline: N20 engine: 320i, 328i, including xDrive
 N26 (SULEV) engine: 328i including xDrive
 N55 engine: 335i including xDrive
Diesel: N47 engine: 328d, including xDrive

Transmissions covered (remove, install, external service):

Manual: GS6-17BG (4-cylinder models)
 GS6-45BZ (6-cylinder models, RWD)
 GS6X-45BZ (6-cylinder models, with xDrive)
Automatic: ZF 8A8HP45Z