

specifications. Whether you're a professional or a do-it-yourself BMW owner, this manual helps you understand, care for and repair your 3 Series.

The do-it-yourself BMW owner will find this manual indispensable as a source of detailed maintenance and repair information. Even if you have no intention of working on your vehicle, you will find that reading and owning this manual makes it possible to discuss repairs more intelligently with a professional technician.

Features:

1. 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.
2. Front-to-rear fluid and lubricant service, including xDrive transfer case fluid and ATF.
3. Cylinder head cover gasket and crankshaft seal replacement.
4. Cooling system, thermostat and radiator service.
5. Gasoline fuel and ignition system diagrams and explanations for turbo-valvetronic-direct injection (TVDI) engines.
6. Diesel fuel injection system diagrams and explanations for turbo-direct injection (TDI) engine management systems.
7. Service and repair information on BMW EfficientDynamics technology, such as Valvetronic, xDrive, TwinPower turbo, and DSC (dynamic stability control).
8. Twin scroll (gasoline) and variable vane (diesel) turbocharger removal and installation.
9. Step-by-step variable camshaft timing (VANOS) service.
10. Suspension repairs, including wheel bearing replacement.
11. Brakes, steering and ABS troubleshooting and repair.
12. Heating and air-conditioning repair, including A/C component replacement.
13. Body and hood repairs and adjustments.
14. Electrical system service, with an easy-to-use illustrated component locator section.
15. Comprehensive wiring schematics, including fuses and grounds.
16. BMW OBD II diagnostic trouble codes, SAE-defined OBD II P-codes, as well as basic scan tool operation.
17. BMW factory tolerances, wear limits, adjustments and tightening torques.

Engines (Gasoline):

18. N20 engine: 320i, 328i, including xDrive
19. N26 (SULEV) engine: 328i including xDrive
20. N55 engine: 335i, including xDrive

Engines (Diesel):

21. N47 engine: 328d, including xDrive

Manual transmissions (remove, install, external service):

22. GS6-17BG (4-cylinder models)
23. GS6-45BZ (6-cylinder models, RWD)
24. GS6X-45BZ (6-cylinder models, with xDrive)

Automatic transmissions (remove, install, external service):

25. ZF GA8HP45Z

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