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BMW 3-Series 320i & 320xi (12-14), 325i, 325xi, 330i & 330xi (06) & 328i & 328xi (07-14) Haynes Online Manual

1 General information and precautions

The engine electrical system consists mainly of the charging and starting systems. Because of their engine-related functions, these components are covered separately from the body electrical devices such as the lights, instruments, etc (which are covered in [Chapter 12](#)).

The electrical system is of the 12 volt negative-ground type.

The battery is of the low maintenance or maintenance-free (sealed for life) type and is charged by the alternator, which is belt-driven from the [crankshaft](#) pulley.

The starter motor is of the pre-engaged type incorporating an integral [solenoid](#). On starting, the solenoid moves the drive [pinion](#) into engagement with the ring gear on the flywheel/driveplate before the starter motor is energized. Once the engine has started, a one-way [clutch](#) prevents the motor armature being driven by the engine until the pinion disengages from the flywheel/driveplate.

Precautions

Always observe the following precautions when working on the electrical system:

- A. Be extremely careful when servicing engine electrical components. They are easily damaged if checked, connected or handled improperly.
- B. Never leave the ignition switched on for long periods of time when the engine is not running.
- C. Never disconnect the battery cables while the engine is running.
- D. Maintain correct polarity when connecting battery cables from another vehicle during jump starting - see the "Jump starting" Section at the front of this manual.
- E. Always disconnect the cable from the negative battery terminal before working on the electrical system, but read the battery disconnection procedure first (see [Section 3](#)).

It's also a good idea to review the safety-related information regarding the engine electrical systems located in the *Safety first!* Section at the front of this manual before beginning any operation included in this Chapter.

If an audio unit with a built-in security code is installed, observe the following precautions: If the power source to the unit is cut, the anti-theft system will activate. Even if the power source is immediately reconnected, the audio unit will not function until the correct security code has been entered. Therefore, if you do not know the correct

security code for the audio unit, do not disconnect the negative terminal of the battery or remove the audio unit from the vehicle.

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