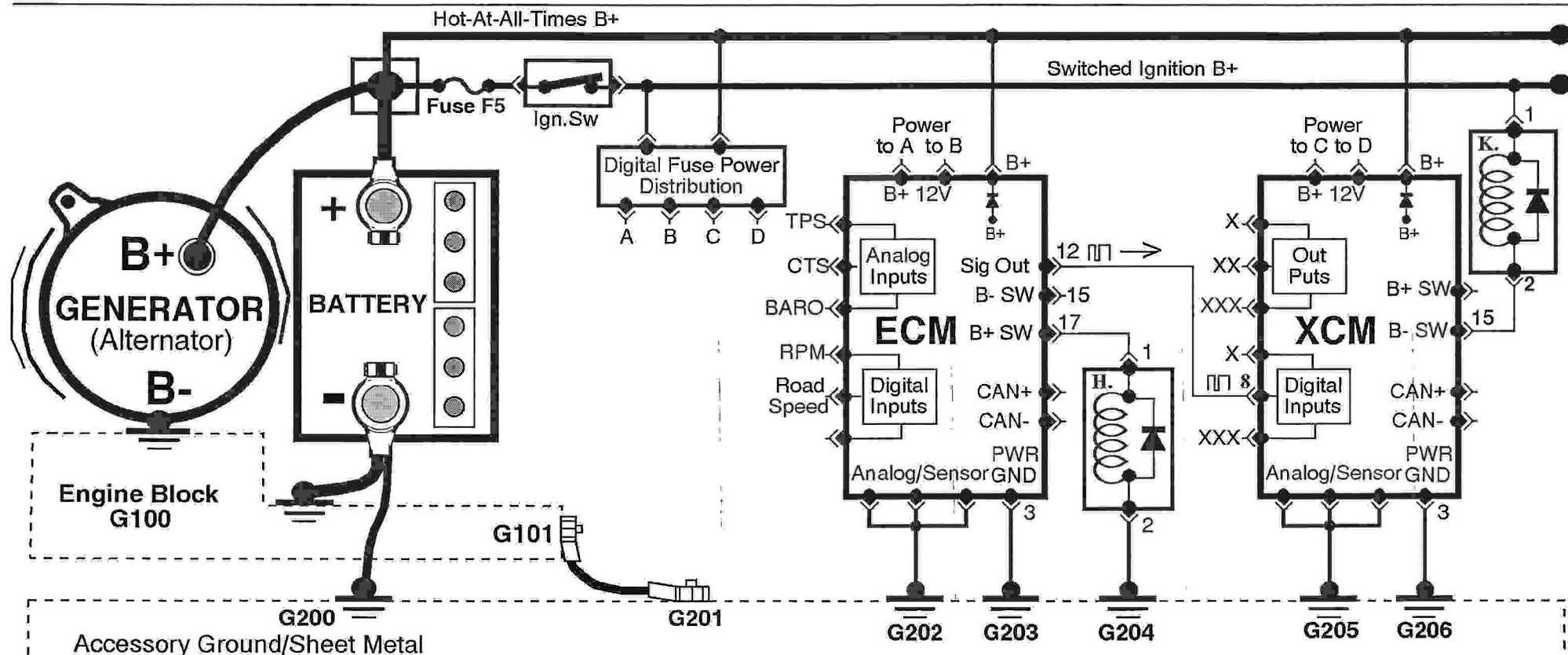


Essential Driveability System Diagnosis



❶ The term "driveability" addresses how efficiently, cleanly and economically a gasoline powered engine performs under all driving conditions. When a poor driveability issue arises, a systematic testing and troubleshooting approach that considers all possible reasons should be followed. No possible cause should be left out of the initial evaluation and testing process. Unfortunately many technicians do not have an all inclusive test procedure to follow which results in possible causes being ignored. In this article we address often ignored possible causes of poor driveability.

The Schematon at the top deserves your close study because it incorporates all major components that must be considered when diagnosing a driveability issue. At the left is the primary circuit providing all electrical power to operate the vehicle. The battery connects to the electrical system providing battery voltage (B+) to all circuits when the engine is not running. The battery is connected in parallel to the alternator/generator providing operating B+ voltage to all vehicle circuits during engine run.

❷ In every poor driveability issue, the electrical power provided by the alternator/generator during engine run, must **first** be verified to exist in the proper voltage range of 13.50V-14.50V **and** be free of excessive voltage ripple (electrical noise) caused by a defective generator rectifier diode.

Charging voltage value is verified with a DMM connected to the battery terminals during engine run because the battery terminals are usually easy to access and the charging voltage appears there during engine run to recharge the battery. "Rev" the engine several times to confirm the charging voltage does not vary more than ± 1.00 volt as engine rpm varies. Our book **"Vehicle Electrical Troubleshooting SHORTCUTS"** explains testing the charging voltage in Section 6.

Testing Generator for electrical noise in the charging voltage is found in our **"Lab Scope Book."** It explains testing DC voltage for voltage spikes on Pages 4-3, 4-4. The DC Voltage trace line should be flat and not display any positive or negative voltage spikes which will affect normal vehicle computer operation. Read more in the next issue, Page #10.

Figure 09-2026 "Essential Driveability System Diagnosis"