

**Bulletin BPI 02-10**

**Subject:** Misleading ABS Codes from Improper Voltage

**Vehicle Involved:** Vehicles equipped with Anti-lock Brake Systems (ABS).

**Condition:** ABS diagnostic codes often set as a result of insufficient or excessive alternator output, weak/poor battery condition, and voltage drops in the electrical system.

Many anti-lock brake systems may set codes relating to open circuits or ABS control motors shorted to ground. It is common for the EBCM to set multiple codes, sending the technician down the long and arduous road of system diagnostics.

In many systems the Anti-Lock EBCM is sensitive to periods of low voltage, triggering codes related to, but not necessarily the cause of the code. The misleading codes randomly appear as the EBCM is running through self-tests. The available voltage is sometimes unable to close relay contacts causing the misleading codes to set. The diagnostic trouble tree would have the technician perform a series of voltage and resistance checks, if conditions were right, replacement of the motor pack or EBCM may be the outcome from these tests. In fact charging, load testing, and replacing the battery may have solved the cause of the misleading codes. Even vehicle specific service manuals pre-diagnostic inspection procedures do not suggest charging system circuit tests.

**ABS Diagnostic Hints:** Begin ABS Diagnostic Procedures with a complete charging system check, and battery load test. Intermittent conditions are caused by faults with electrical connections or wiring. Check circuits for:

- Poor mating of connector halves
- Terminals backed out
- Improperly formed or damaged terminals
- Poor terminal-to-wire connections

Circuits that could cause intermittent operation of the amber ABS light include:

- Wheel speed sensor circuits-low or intermittent output
- Low fluid/low pressure switches
- Main relay circuit-interruption in coil or contact power
- Low charging system voltage

Specific diagnostic procedures are found in the appropriate service manual.