An ISO 9001:2000 Registered Company

Technical Service Bulletin

TSB # T2008-02 08/27/08

Product: All products manufactured by InterMotive Vehicle Controls.

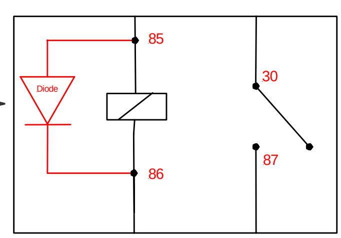
Vehicle: All vehicles with an InterMotive product installed.

Issue: The use of a relay without diode clamped Transient Voltage Suppression (TVS) may cause very high voltage spikes when the relay coil is deactivated. These voltage spikes may cause damage or intermittent behavior to on-board vehicle control modules. It is recommended that only relays with diode clamped coils be used. Resistors and other methods of clamping are not as effective and are not recommended.

Action: Install only relays with diode clamped Transient Voltage Suppression on vehicles to improve the vehicle's electronic system reliability.

Additional information: The coil of a relay is an inductor which can create large voltage spikes when it's current is quickly reduced (think of an spark plug ignition coil). The collapsing magnetic field will send a large voltage spike back into the driving circuit which can propagate throughout the associated electronics, causing damage and/or intermittent behavior. Relays are readily available with a clamping diode, which will prevent high transient voltages from damaging solid state devices which are increasingly used in modern vehicles. Relays with ***resistor*** Transient Voltage Suppression are not as effective in clamping high voltages, and are therefore not recommended. Instead, use ***diode*** clamped relays. Most relays have a printed diagram on the case, which indicates if the relay has diode Transient Voltage Suppression.

A relay with diode Transient Voltage Suppression (shown in red)



Recommended technical article:
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Technical inquiries – InterMotive Technical Support (530) 346-1801

986 South Canyon Way
Colfax, CA 95713
www.intermotive.net
Phone: (530) 346-1801
Fax: (530) 346-1812
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