

Changes

On the E33, Relay 1 Pin 86 originally connects to the ignition key. This wire must now be changed to connect directly to Battery+. In the diagram, the red wire shows this connection. You can jump it to Pin 30, which is connected to battery positive. The rest of the wiring remains the same.

Reason

This modification ensures that the relay receives continuous power, even when the ignition is switched off. This allows the ECU to properly shut down the coils and injectors before the battery is disconnected, eliminating the negative voltage spike caused by inductive loads. This change is crucial, particularly if the clean power relay isn't implemented, to prevent damage—especially for the Venus3 ECU.

Orion2 and Mercury3 models have a clean power relay that provides power to the positive drivers. In these cases, when the ignition is turned off, the ECU can maintain the relay's power until the engine RPM reaches zero, then shut down. However, when the clean power relay is not required and isn't connected, parasitic power from capacitors can keep the relay on just long enough for a safe shutdown.

Note: On older models like Titan, Venus, and Venus2, this harness modification will prevent the ECU from shutting down properly.