CODE 16 - FUEL INJECTOR CIRCUIT

HF & Si

1. Turn ignition off. Remove HAZARD fuse in the under-hood relay box for 10 seconds to reset ECU. Attempt to start engine. If engine does not start, go to step 3). Verify if CHECK ENGINE light is on and if LED is flashing Code 16. If LED is flashing Code 16, go to next step. If LED is not flashing Code 16, problem is intermittent. Check connectors at injectors, injector resistor and related circuits.
2. Using a stethoscope, check for clicking sound at each injector while engine is idling. If all injectors click, substitute a known good ECU. If condition is corrected, replace original ECU.
3. Turn ignition off. If engine does not start, check resistance of all injectors. If engine does start, check resistance of injectors which did not click. If resistance value is not 1.5-2.5 ohms, replace injector(s). If resistance values are within specification, turn ignition on. Measure voltage between ground and Red/Black wire at injector.
4. If battery voltage is not present, go to step 8). If battery voltage is present, measure voltage between the following terminals.
   - Injector No. 1 - Red/Black (positive) and Brown (negative)
   - Injector No. 2 - Red/Black (positive) and Red (negative)
   - Injector No. 3 - Red/Black (positive) and Light Blue (negative)
   - Injector No. 4 - Red/Black (positive) and Yellow (negative)

   If battery voltage is not present, go to step 5). If battery voltage is present, disconnect 17-wire connector from ECU. If battery voltage is present, repair short in wire between ECU terminals A1 (injector 1), A3 (injector 2), A5 (injector 3) or A7 (injector 4) and fuel injectors. If battery voltage is not present, substitute a known good ECU. If condition is corrected, replace original ECU.

5. Reconnect injector connector(s). Turn ignition off. Connect ECU Test Harness between ECU and ECU connector. See **Fig. 2**. Turn ignition on. Measure voltage between negative terminal A2 and the following positive terminals.
   - Injector No. 1 - A1
   - Injector No. 2 - A3
   - Injector No. 3 - A5
   - Injector No. 4 - A7
6. If battery voltage is present, go to next step. If battery voltage is not present, individually measure voltage on terminals A2 and A4. If voltage is more than one volt, repair open in wire between ECU terminals A1 (injector 1), A3 (injector 2), A5 (injector 3) or A7 (injector 4) and fuel injectors. If voltage is less than one volt, repair open in Black wires between ECU terminals A2, A4 and ground G151.
7. If battery voltage is present, substitute a known good ECU. If condition is corrected, replace original ECU.
8. Turn ignition off. Disconnect injector resistor 6-wire connector. Turn ignition on. Measure voltage between ground and Yellow/Black wire terminal. If battery voltage is present, repair open in Red/Black wire between 2-wire connector and injector resistor. If wire is good, replace injector resistor. If battery

voltage is not present, repair open in Yellow/Black wire between injector resistor and main relay.

Engine Will Not Start

1. Remove HAZARD fuse in main fuse box for 10 seconds to reset ECU. Crank engine for at least 15 seconds to reproduce trouble code in ECU memory. Verify if CHECK ENGINE light is on and if trouble code(s) is present. If light is not on and trouble codes are not present, perform SPARK test in **F - BASIC TESTING** article.
2. If CHECK ENGINE light is on and LED is flashing Code 16, turn ignition off. Disconnect 2-wire connector from auxiliary injector. Check resistance between the injector terminals. Resistance should be 6-10 ohms. If resistance is not 6-10 ohms, replace auxiliary injector.
3. If resistance was okay, turn ignition switch on. Measure voltage between auxiliary injector connector Yellow wire and ground. If about 10 volts is present, go to step 4). If about 10 volts are not present, repair open or short in Yellow wire between auxiliary injector and ECU terminals A1 and A3. If wire is okay, substitute a known good ECU and retest. If specified voltage is now available, replace original ECU.
4. Disconnect 2-wire connector from main injector. Measure voltage between main injector's Red wire and ground. If about 10 volts is present, go to step 5). If about 10 volts are not present, repair open or short in Red wire between main injector and ECU terminals A5 and A7. If wire is okay, substitute a known good ECU and retest. If specified voltage is now present, replace original ECU.
5. Turn ignition off. Connect voltmeter positive lead to Yellow/Black wire of auxiliary injector and voltmeter negative lead to ground. Turn ignition on. If battery voltage is present for 2 seconds, substitute a known good ECU and retest. If specified voltage is now present, replace original ECU. If battery voltage is not present for 2 seconds, go to step 6).
6. Turn ignition off. Connect ECU Test Harness between ECU and ECU connector. See **Fig. 2**. Jumper ECU terminals A18, A12 and A14 to each other. Turn ignition on. Check for battery voltage at Yellow/Black wire of auxiliary injector connector.
7. If battery voltage is not present, check and repair open in Black/Yellow wire between auxiliary injector and main relay or Green/Black wire between main relay and ECU terminals A12 and A14. If wires are okay, replace main relay.
8. If battery voltage was present from step 6), repair Black wire between ground on thermostat housing and ECU terminals A2 and A4. If wire is okay, substitute a known good ECU and retest. If specified voltage is now present, replace original ECU.