

4-18 DRIVEABILITY AND EMISSIONS CONTROLS

the use of a Breakout Box, a device that connects into the EEC-IV harness and provides testing ports for the 60 wires in the harness. Direct testing of the harness connectors at the terminals or by backprobing is not recommended; damage to the wiring and terminals are almost certain to occur.

Other necessary tools include a quality tachometer with inductive (clip-on) pickup, a fuel pressure gauge with system adapters and a vacuum gauge with an auxiliary source of vacuum.

Reading Codes

Diagnosis of a driveability problem requires attention to detail and following the diagnostic procedures in the correct order. Resist the temptation to begin extensive testing before completing the preliminary diagnostic steps. The preliminary or visual inspection must be completed in detail before diagnosis begins. In many cases this will shorten diagnostic time and often cure the problem without electronic testing.

VISUAL INSPECTION

This is possibly the most critical step of diagnosis. A detailed examination of all connectors, wiring and vacuum hoses can often lead to a repair without further diagnosis. Performance of this step relies on the skill of the technician performing it; a careful inspector will check the undersides of hoses as well as the integrity of hard-to-reach hoses blocked by the air cleaner or other components. Wiring should be checked carefully for any sign of strain, burning, crimping or terminal pull-out from a connector.

Checking connectors at components or in harnesses is required; usually, pushing them together will reveal a loose fit. Pay particular attention to ground circuits, making sure they are not loose or corroded. Remember to inspect connectors and hose fittings at components not mounted on the engine, such as the evaporative canister or relays mounted on the fender aprons. Any component or wiring near a fluid leak or

spillage should be given extra attention during inspection.

Additionally, inspect maintenance items such as belt condition and tension, battery charge and condition and the radiator cap carefully. Any of these very simple items may affect the system enough to set a fault.

ELECTRONIC TESTING

If a code was set before a problem self-corrected (such as a momentarily loose connector), the code will be erased if the problem does not reoccur within 80 warm-up cycles. Codes will be output and displayed as numbers on the handheld scan tool, such as 23. If the codes are being read on an analog voltmeter, the needle sweeps indicate the code digits. code 23 will appear as two needle pulses (sweeps) then, after a 1.6 second pause, the needle will pulse (sweep) three times.

Service Codes	Quick Test Mode
11—System pass	O/R/C
12—Rpm unable to reach upper test limit	R
13—DC motor movement not detected	O
13—Rpm unable to achieve lower test limit	R
13—DC motor did follow dashpot	C
14—PIP circuit failure	C
15—ECA read only memory test failed	O
15—ECA keep alive memory test failed	C
16—Idle rpm high with ISC off	R
16—Idle too low to perform EGO test	R
17—Idle rpm low with ISC off	R
18—SPOUT circuit open or spark angle word failure	R
18—IDM circuit failure or SPOUT circuit grounded	C
19—Failure in ECA internal voltage	O
19—CID circuit failure	C
19—Rpm dropped too low in ISC off test	R
19—Rpm for EGR test not achieved	R
21—ECT out of self-test range	O/R
22—BP sensor out of self-test range	O/C
22—BP or MAP out of self-test range	O/R/C
23—TP out of self-test range	O/R
23—TP out of self-test range	O/R/C
24—ACT sensor out of self-test range	O/R
25—Knock not sensed during dynamic test	R
26—VAF/MAF out of self-test range	O/R
28—VAT out of self-test range	O/R
29—Insufficient input from vehicle speed sensor	C
31—PFE, EVP or EVR circuit below minimum voltage	O/R/C
32—EPT circuit voltage low (PFE)	R/C
32—EVP voltage below closed limit	O/R/C
32—EGR not controlling	R
33—EGR valve opening not detected	R/C
33—EGR not closing fully	R
34—Defective PFE sensor or voltage out of range	O
34—EPT sensor voltage high (PFE)	R/C
34—EVP voltage above closed limit	O/R/C
34—EGR opening not detected	R
35—PFE or EVP circuit above maximum voltage	O/R/C
35—Rpm too low to perform EGR test	R
38—Idle tracking switch circuit open	C
39—AXOD lock up failed	C
41—HEGO sensor circuit indicates system lean	R
41—No HEGO switching detected	R
42—HEGO sensor circuit indicates system rich	R
42—No HEGO switching detected—reads rich	C
43—HEGO lean at wide open throttle	C
44—Thermactor air system inoperative—ride side	R
45—Thermactor air upstream during self-test	R
45—Coil 1 primary circuit failure	C
46—Thermactor air not bypassed during self-test	R
46—Coil 2 primary circuit failure	C
47—Measured airflow low at base idle	R
48—Coil 3 primary circuit failure	C
48—Measured airflow high at base idle	R
49—SPOUT signal defaulted to 10°BTDC or SPOUT open	C
51—ECT/ACT reads -40°F or circuit open	O/C
52—Power steering pressure switch circuit open	O
52—Power steering pressure switch always open or closed	R

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EEC-IV trouble codes—(1 of 3)

Service Codes	Quick Test Mode
53—TP circuit above maximum voltage	O/C
54—ACT sensor circuit open	O/C
55—Keypower circuit open	R
56—VAF or MAF circuit above maximum voltage	O/C
56—MAF circuit above maximum voltage	O/R/C
57—Octane adjust service pin in use	O
57—AXOD neutral pressure switch circuit failed open	C
58—Idle tracking switch circuit open	O
58—Idle tracking switch closed/circuit grounded	R
58—VAT reads -40°F or circuit open	O/C
59—Idle adjust service pin in use	O
59—AXOD 4/3 pressure switch circuit failed open	C
59—Low speed fuel pump circuit open—Battery to ECA	O/C
59—AXOD 4/3 pressure switch failed closed	O
61—ECT reads 254°F or circuit grounded	O/C
62—AXOD 4/3 or 3/2 pressure switch circuit grounded	O
63—TP circuit below minimum voltage	O/C
64—ACT sensor input below test minimum or grounded	O/C
65—Never went to closed loop fuel control	C
66—MAF sensor input below minimum voltage	C
66—VAF sensor below minimum voltage	O/C
66—MAF circuit below minimum voltage	R/C
67—Neutral/drive switch open or A/C on	O
67—Clutch switch circuit failure	C
67—Neutral/drive switch open or A/C on	O/R
68—Idle tracking switch closed or circuit grounded	O
68—Idle tracking switch circuit open	R
68—AXOD transmission temperature switch failed open	O/R/C
68—VAT reads 254°F or circuit grounded	O/C
69—AXOD 3/2 pressure switch circuit failed closed	O
69—AXOD 3/4 pressure switch circuit failed open	C
70—ECA DATA communications link circuit failure	C
71—Software re-initialization detected	C
71—Idle tracking switch shorted to ground	C
71—Cluster control assembly circuit failed	C
72—Insufficient MAF / MAP change during dynamic test	R
72—Power interrupt or re-initialization detected	C
72—Message center control assembly circuit failed	C
73—Insufficient throttle position change	O
73—Insufficient TP change during dynamic test	R
74—Brake on/off switch failure or not actuated	R
75—Brake on/off switch circuit closed or ECA input open	R
76—Insufficient VAF change during dynamic test	R
77—No WOT seen in self-test or operator error	R
79—A/C or defrost on during self-test	O

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EEC-IV trouble codes—(2 of 3)