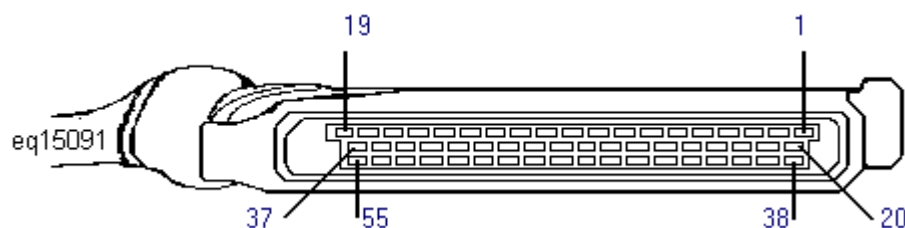


Number of ECM pins: 55



| Pin | Connection                     | Test condition   | Volts/Duty Cycle etc  |                      |
|-----|--------------------------------|--|---|----------------------|
| 1   | coil negative: t1              | ignition on<br>cranking/running<br>dynamic volt drop   | nbv<br>200 min<br>2.0 max   |                      |
| 2   | earth                          | ignition on/running  | 0.25 max  |                      |
| 3   | relay driver: t85b             | ignition on<br>cranking/running  | nbv<br>1.25 max   |                      |
| 4   | ISCV: t1                       | ignition on<br>engine running (variable)   | nbv   |                      |
|     |                                | Cold:  | 6.0 to 6.5  | Duty cycle 56 to 58% |
|     |                                | Hot:   | 7.0 to 9.0  | 40 to 44%            |
| 5   | CFSV: t1                       | ignition on<br>snap accelerate   | nbv<br>1 to 99% (approx 15 hZ)  |                      |
| 6   | 4 WD unit: t2/AT control unit  |  |   |                      |
| 7   | AFS signal: t2                 | Ignition on<br>Idle<br>2000 rpm<br>3000 rpm<br>Snap accelerate<br>Fully open (off load)          | 0.20 to 0.30<br>0.50 to 1.50<br>1.75 to 2.25<br>2.00 to 2.50<br>3.00 to 4.50<br>4.50+ |                      |
| 8   | unused                         |  |   |                      |
| 9   | VSS                            |  |   |                      |
| 10  | OS return                      | engine running   | 0.25 max  |                      |
| 11  | unused                         |  |   |                      |
| 12  | AFS supply: t3, TPS supply: t2 | ignition on/running  | 5.0 ± 0.1   |                      |
| 13  | diagnostic socket: tB          |  |   |                      |
| 14  | earth                          | ignition on/running  | 0.25 max  |                      |
| 15  | unused                         |  |   |                      |
| 16  | injector pulse, bank number 1  | ignition on<br>cranking cold<br>running cold<br>cranking hot<br>running hot<br>snap acceleration | nbv<br>11.0 to 12.0 ms<br>3.0 to 3.5 ms<br>4.0 to 4.5+ ms<br>2.0 to 2.8 ms<br>6.0+ ms |                      |
| 17  | injector pulse, bank number 2  | ignition on<br>cranking cold<br>running cold<br>cranking hot<br>running hot<br>snap acceleration | nbv<br>11.0 to 12.0 ms<br>3.0 to 3.5 ms<br>4.0 to 4.5+ ms<br>2.0 to 2.8 ms<br>6.0+ ms |                      |
| 18  | battery positive: t30          | ignition off/on/running  | nbv   |                      |
| 19  | earth (main ECM)               | ignition on/running  | 0.25 max  |                      |
| 20  | coding earth (non-cat)         | ignition on/running  | 0.25 max  |                      |
|     | (cat)                          | ignition on/running  | 5.0 ± 0.1   |                      |
| 21  | coding earth (AT)              | ignition on/running  | 0.25 max  |                      |
|     | (MT)                           | ignition on/running  | 5.0 ± 0.1   |                      |
| 22  | SD warning lamp                | ignition on/running<br>lamp off, no fault :<br>lamp on, fault present:                           | nbv<br>0.25 max   |                      |
| 23  | unused                         |  |   |                      |
| 24  | earth                          | ignition on/running  | 0.25 max  |                      |

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|    |  |   |  |
|----|--|---|--|
| 25 | unused                                       |   |  |
| 26 | sensor return: AFS, ATS,<br>CO, CTS, OA, TPS | ignition on/running   | 0.25 max                                 |
| 27 | ignition switch: t15                         | ignition on/running   | nbv                                      |
| 28 | OS signal : t3                               | ignition Key On   | 0.4 to 0.5                               |
|    |  | engine running  | 200 to 1000 mv                           |
|    |  | throttle fully-open   | 1.0 v constant                           |
|    |  | fuel cut-off  | 0 v constant                             |
|    |  | switching frequency   | 1 sec intervals (approx)                 |
| 29 | unused                                       |   |  |
| 30 | unused                                       |   |  |
| 31 | unused                                       |   |  |
| 32 | on board computer: t24                       | engine running  | switching waveform, 0 to 10v             |
| 33 | unused                                       |   |  |
| 34 | engine load signal                           | engine running  | MT 1.6 to 2.4 ms<br>AT 1.8 to 2.5 ms     |
| 35 | unused                                       |   |  |
| 36 | relay driver: t85                            | ignition off  | nbv                                      |
|    |  | ignition on/running   | 1.25 max.                                |
| 37 | nbv supply from relay: t87                   | ignition on/running   | nbv                                      |
| 38 | unused                                       |   |  |
| 39 | unused                                       |   |  |
| 40 | A/C cut-off switch                           | ignition on   | inactive : 0.25 max.                     |
|    |  | engine at idle speed<br>and operating temperature<br>vehicle interior warm,<br>actuate A/C switch, switch<br>thermostat to cold and then<br>briefly accelerate the engine | inactive : 0.25 max.<br><br>active : nbv |
| 41 | A/C pressure switch                          |   |  |
| 42 | earth connection (MT)                        | MT  | 0.25 max                                 |
| 42 | or P/N switch (AT)                           | AT in P/N<br>AT engaged (R,D,2,1)   | 0.25 max<br>nbv                          |
| 43 | CO - non-Cat (AFS: t1)                       | ignition on/running   | 2.5 ± 0.5                                |
| 44 | ATS (AFS: t5)                                | ignition on/running   | 20°C 3.50 to 3.75<br>80°C 1.25 to 1.50   |
| 45 | CTS signal: t2                               | ignition on/running   | 20°C 3.00 to 3.75<br>80°C 1.00 to 1.30   |
| 46 | octane adjuster: tA                          | ignition on/running   |  |
|    |  | 95 octane (brown)   | 0.9                                      |
|    |  | 98 octane (brown)   | 1.6                                      |
| 47 | earth (4x4 only)                             | ignition on/running   | 0.25 max                                 |
| 48 | CAS return: t2                               | engine running  | 0.25 max                                 |
| 49 | CAS signal: t1                               | idle speed  | 8.0 volts AC, peak to peak               |
| 50 | unused                                       |   |  |
| 51 | AT control unit: t13 (torque control)        | MT  | inactive                                 |
|    |  | AT at idle  | inactive                                 |
|    |  | AT driving & automatically<br>shifting  | active                                   |
| 52 | unused                                       |   |  |
| 53 | TPS signal: t3                               | ignition on/running   |  |
|    |  | Closed  | 0.35 to 0.87 (range 0.12 to 1.22)        |
|    |  | Fully open  | 4.25 + (range 3.90 - 4.95)               |
| 54 | oil temperature switch<br>(transmission)     | ignition on/running   | inactive nbv                             |
|    |  | idle speed  | inactive nbv                             |
|    |  | 4 x 4 vehicles  | active 0.25 max                          |
| 55 | diagnostic socket: tG                        |   |  |

