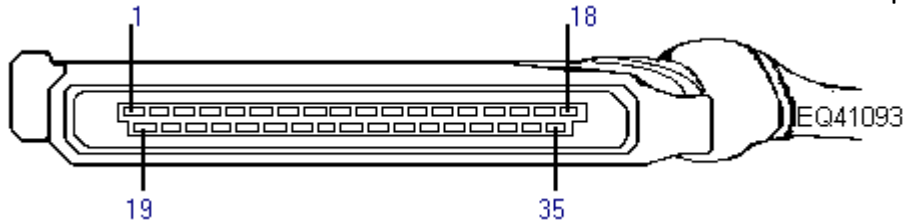


Number of ECM pins: 35



| Pin | Connection                        | Test condition                                     | Volts/Duty Cycle etc               |
|-----|-----------------------------------|--|------------------------------------|
| 1   | Main ECM earth                    | ignition on/engine running                         | 0.25 max                           |
| 2   | battery positive: t30             | ignition off/running                               | nbv                                |
| 3   | unused                            |  |                                    |
| 4   | unused                            |  |                                    |
| 5   | HES: t2                           | engine running                                     | 5.0 to 7.0                         |
|     |                                   | ignition on (disconnected)                         | 5.0 to 10.0                        |
|     |                                   | ignition on (trigger vane cut out space in airgap) | less than 700 mv.                  |
|     |                                   | ignition on (trigger vane diverting hall voltage)  | 5.0 to 10.0                        |
| 6   | HES supply voltage: t3            | ignition on/engine running                         | minimum 9.0 volts                  |
| 7   | unused                            |  |                                    |
| 8   | sensor return (CTS,ATS,TPS: t1)   | ignition on/running                                | 0.25 max                           |
| 9   | unused                            |  |                                    |
| 10  | CTS signal: t2                    | ignition on/running                                | 20°C 2.5 to 3.0<br>80°C 0.3 - 0.6  |
| 11  | earth                             | ignition on/running                                | 0.25 max                           |
| 12  | fuel pump relay driver: t85       | ignition on  | nbv                                |
|     |                                   | cranking/running                                   | 1.25 max                           |
| 13  | ignition amplifier/coil: t2       | engine running                                     | switching 0 to nbv                 |
| 14  | unused                            |  |                                    |
| 15  | manifold heater relay driver: t85 | engine running                                     |                                    |
|     |                                   | engine cold - 55°C                                 | 1.25                               |
|     |                                   | engine hot + 65°C                                  | nbv                                |
| 16  | stepper motor: t2                 | actuated   | 5.0 volts                          |
| 17  | CFSV: t1                          | ignition on  | nbv                                |
|     |                                   | engine running, active                             | variable                           |
| 18  | earth, final stage drivers        | ignition on/engine running                         | 0.25 max                           |
| 19  | ignition switch supply: t15       | ignition on/engine running                         | nbv                                |
| 20  | unused                            |  |                                    |
| 21  | unused                            |  |                                    |
| 22  | SD connector                      |  |                                    |
| 23  | SD connector                      |  |                                    |
| 24  | TPS supply: t5                    | ignition on/running                                | 5.0 ± 0.1                          |
| 25  | TPS signal: t2                    | ignition on/running                                |                                    |
|     |                                   | throttle closed                                    | 1.0                                |
|     |                                   | throttle fully open                                | 4.50 approx                        |
| 26  | TPS signal: t4                    | ignition on/running                                |                                    |
|     |                                   | throttle closed                                    | 0.0                                |
|     |                                   | throttle fully open                                | 4.00 approx                        |
| 27  | ATS signal: t2                    | ignition on/running                                | 20°C 2.5 to 3.0<br>80°C 0.3 to 0.6 |
| 28  | OS signal: t3                     | ignition key on                                    | 0.4 to 0.5 volts                   |
|     |                                   | engine running                                     | 200 to 1000mv                      |
|     |                                   | throttle fully open                                | 1.0v constant                      |
|     |                                   | fuel cut-off                                       | 0 volt constant                    |
|     |                                   | switching frequency                                | 1 sec intervals (approx)           |
| 29  | unused                            |  |                                    |
| 30  | stepper motor: t3                 | ignition on/running                                |                                    |
|     |                                   | closed   | 0.25                               |
|     |                                   | open   | nbv                                |

31 warning lamp controller  
 32 unused  
 33 unused  
 34 stepper motor: t1

35 injector: t1

|                   |               |
|-------------------|---------------|
| engine running    |               |
| actuated          | 5.0           |
| cranking cold     | 3.0 to 4.0 ms |
| running cold      | 3.0 to 4.0 ms |
| cranking warm     | 1.5 to 2.5 ms |
| running warm      | 1.5 to 2.5 ms |
| 2000 rpm          | 1.5 to 2.5 ms |
| 3000 rpm          | 1.5 to 2.5 ms |
| snap acceleration | 10 to 15      |
| deceleration      | zero          |

< END >