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SECTION: 303-04 (Engine management system - 12)

Discovery Td5 - Incorrect Engine ECU Replacements

AFFECTED VEHICLE RANGE:

Discovery Series II (LT) Engine: Td5

MARKETS:

All

CONDITION SUMMARY:

Situation: Incorrect replacement of Diesel Engine Management electronic control units (ECU).

Cause: Mis-diagnosis of faulty ECU.


Action: This bulletin outlines the procedures and checks to do **before** changing a Td5 engine management ecu.

SERVICE INSTRUCTION:

- 1 Refer to current Warranty Prior Approval (WPAp) information for Td5 Engine Management ECU replacements. (see attached table)
- 2 There is a known error with the current version of the T4 testbook disc. This will be corrected with the next release of the disc. T4 states on a Discovery II Td5 Manual that the incorrect hardware (NNN000120 or NNN500020) is fitted and recommends the use of NNN500250. NNN500250 should **ONLY** be used on a Discovery II Td5 Manual Euro specification with Non Cooled EGR. Please contact Land Rover Technical Hotline to request a gold copy of the latest T4 diagnostic CD to enable the correct Td5 Engine Management ECU to be programmed.
- 3 Replacing ECUs for lack of power without a current testbook error being reported will not correct the fault. If it is deemed to have corrected the fault the original ECU should be replaced and re tested. The re-installation of the ECU connectors may sometimes remove minor corrosion/dirt from the connectors and correct any faults.
- 4 If the vehicle exhibits poor cold starting, ensure that all glow-plugs are operating correctly. The ECU can only diagnose the glow-plug relay, not the glow-plugs themselves.
- 5 For diagnostic communication issues, ensure that the diagnostic connector is correctly fitted. If the system still cannot communicate, remove the ECU connectors for 30 seconds, replace and re-attempt communication.
- 6 For non-start issues, ensure that the engine management ECU and engine immobilization codes match and attempt a re-learn of the security code.
- 7 For poor drivability issues, ensure that the Clutch Switch is operating correctly and that the HI/LOW Range Switch remains in the correct state when the engine is running/being revved. Occurrences have been detected where the HI/LOW Range Switch can flick between ON/OFF states due to vibration, which will modify the throttle pedal map and cause an apparent misfire/jerk)
- 8 For poor fuel consumption issues, ensure that the air intake/boost system, air filter, air intake and boost pipes are clear from obstructions. Ensure that the intercooler hoses are serviceable and that no damage to the pipes is visible.

Discovery (LT) Td5 Diesel Engine Questions and Answers

Failure	Question	Answer
Non Start	<ul style="list-style-type: none"> • Has Testbook diagnosed Faulty ECU? 	Record Diagnosis and testbook disc version. Record ECU part number, software and calibration id.
	<ul style="list-style-type: none"> • Is immobilisation state of ECU 	Ensure that ECU is mobilised to correct

	correct?	immobiliser code.
	<ul style="list-style-type: none"> Has Testbook been used to monitor engine speed during crank? 	 NOTE: Ensure battery is in a serviceable condition prior to checking crank speed. Engine crank speed should be 250 RPM+. If intermittent RPM is seen, possibility of crank sensor or starter motor issue.
ECU Connector Oil Ingress	<ul style="list-style-type: none"> Has technical bulletin (ENGINE MISFIRE - ENGINE HARNESS OIL CONTAMINATION) been considered? For additional information, refer to TSB L8616bu/2000. 	Bulletin dictates cleaning of ECU NOT replacement.
	<ul style="list-style-type: none"> Has testbook diagnosed a faulty ECU? 	Has dealer followed above bulletin before clearing all faults and re assessing? If yes, record testbook diagnosis, disc version ECU part number, software and calibration id.
Misfire	<ul style="list-style-type: none"> Has technical bulletin (ENGINE MISFIRE - ENGINE HARNESS OIL CONTAMINATION) been considered? For additional information, refer to TSB L8616bu/2000. 	Bulletin dictates cleaning of ECU NOT replacement.
	<ul style="list-style-type: none"> Has testbook diagnosed a faulty ECU? 	Has dealer followed above bulletin before clearing all faults and re assessing?. If yes, record testbook diagnosis, disc version ECU part number, software and calibration id.
	<ul style="list-style-type: none"> Has technical bulletin (ENGINE MISFIRE - FUEL INJECTOR CONNECTOR) been considered? For additional information, refer to TSB L8592bu/2000. 	Bulletin dictates confirmation of injector fault latch NOT replacement of ECU.
	<ul style="list-style-type: none"> Has testbook diagnosed a faulty ECU? 	Has dealer followed above bulletin before clearing all faults and re assessing?. If yes, record testbook diagnosis, disc version ECU part number, software and id.
	<ul style="list-style-type: none"> Does Check Engine light illuminate? 	Record Faults from testbook, disc version software and calibration id. Check turbo wastegate controller wiring for chafing on air-conditioning compressor and head.
	<ul style="list-style-type: none"> Has technical bulletin ('CHECK ENGINE' LIGHT (MIL) ILLUMINATED) been considered? For additional information, refer to TSB L8570bu/1999. 	Bulletin dictates confirmation of throttle pedal connector fitted correctly.
Shunt/Stall/Poor drivability	<ul style="list-style-type: none"> Has technical bulletin (SURGE / SHUNT OR STALL AT LOW ENGINE SPEED) been considered? For additional information, refer to TSB L8545bu/2000. 	Bulletin dictates change of ECU, ONLY if ECU has part number MSB101170 or MSB101183
	<ul style="list-style-type: none"> Is Part MSB101170? 	See above.
	<ul style="list-style-type: none"> Is Part MSB101183? 	See above.

	<ul style="list-style-type: none"> • Has technical bulletin (POOR PERFORMANCE DURING LOW SPEED MANOEUVRES) been considered? For additional information, refer to TSB L8825bu/2002. 	Bulletin dictates software download to correct shunt issue. ECU should NOT be changed to correct shunt.
	<ul style="list-style-type: none"> • Has Software download cured problem? 	Has testbook diagnosed faulty ECU? If so. record ECU part Number, disc version, fault codes, ECU part number and software/calibration id.
Lack of Power	<ul style="list-style-type: none"> • Has technical bulletin ('CHECK ENGINE' LIGHT (MIL) ILLUMINATED) been considered? For additional information, refer to TSB L8570bu/1999. 	Bulletin dictates confirmation of throttle pedal connector fitted correctly.
	<ul style="list-style-type: none"> • Is poor drivability related to excessive smoke? Has technical bulletin (LOSS OF ENGINE POWER AND OR BLACK SMOKE FROM EXHAUST) been considered? For additional information, refer to TSB L8695bu/2002. 	Possibility of stuck EG modulator/valves of collapsed turbo inlet hose, or intercooler hose.
	<ul style="list-style-type: none"> • Is fuel pressure correct? 	Faulty pump could cause low fuel pressure and poor drivability.
	<ul style="list-style-type: none"> • Have all above shunt/stall questions been considered? 	Lack of power may also fall into above category for shunt/stall etc.
No Communication with ECU	<ul style="list-style-type: none"> • Is ECU main fuse intact? 	If ECU main fuse is not intact, ECU will have no power therefore no communication.
	<ul style="list-style-type: none"> • Can testbook communicate with any other ECUs? 	If testbook cannot communicate with other ECUs then testbook or lead is suspect.
	<ul style="list-style-type: none"> • Does the engine run? 	If the engine runs it is likely that the ECU is ok and there is a harness issue/testbook issue.
	<ul style="list-style-type: none"> • Are both connectors mated correctly to the ECU? 	Loose connectors could allow engine to operate although the K line (diagnostic line) may be intermittent enough to prevent communication.
Gearbox defaults to 3rd Gear	<ul style="list-style-type: none"> • Has technical bulletin (CONTROLLER AREA NETWORK (CAN) TIME-OUT CAUSES THE MANUAL AND SPORTS LAMP TO ILLUMINATE AND THE TRANSMISSION DEFAULTS TO 3RD GEAR) been considered? For additional information, refer to TSB L8786bu/2002. 	Bulletin dictates that software download should be performed to rectify.
	<ul style="list-style-type: none"> • Is VIN out of range of above bulletin? 	If outside of this VIN (earlier) it may be necessary to investigate more and replace ECU?
Other Faults	<ul style="list-style-type: none"> • Has Testbook Diagnosed Faulty ECU? 	Has testbook diagnosed faulty unit?, if so record testbook diagnosis disc version, ECU software ID and calibration id.
	<ul style="list-style-type: none"> • Is ECU Software Downloadable? 	If unit is reflashable and there are no faults flashing, the latest software for that vehicle may remove any customer shunt complaints etc. For list of software downloadable parts see

