DIAGNOSTIC FUNCTIONS OF THE TD5 ENGINE

All the diagnostic functions have to be performed whit the Ignition turned on to the second step and the engine may be running or stopped. The read write Map functions must be performed with the engine stopped.

FAULTS FUNCTIONS

The TD5 ecu has the READ FAULTS and CLEAR FAULTS to read and clear the fault codes. We don't give any faults explanation or suggestions, in order to avoid giving wrong information to the user, because we think that the faults codes must be collocated in the context of the car which they come from.

SETTINGS FUNCTIONS

The TD5 ecu has the READ SETTING and CLEAR SETTING to read and clear the setting.
The settings available on that ecu are the injectors codes and the accelerator type, 2or 3 track.
The injector codes are composed of 5 characters, 4 literal and 1 that can be numeric or literal. The first 4 characters are coupled two by two and the last one is single (for example NN FG 5).
The last character can be different because there are 3 types of injectors built from year 1999 up to now.

Type 1	Type2	Type3
C	M	0
A	E	1
B	F	2
C	G	3
*	H	4
*	J	5
*	K	6
*	L	7
*	M	8

The Nanocom shows all the 3 possibilities for the last character, but when you modify the code you have to write the code as it is printed on the injector; the Nanocom will automatically check the 5° code.
The type of accelerator has to be set according to the pedal mounted on the car. To know if the accelerator is 2 or 3 trak, you have to read the inputs and check if the 3° track changes his value when you move the pedal. Normally the euro 2 cars have the 2 track pedal and the euro 3 ones have the 3 track pedal.

The other values read as MAP TUNE ID or ECU PART NUMBER etc. are read only.

INPUTS FUNCTIONS

The TD5 ecu has the READ FUELLING and READ SWITCH functions to read dynamically the parameters.
The parameters can be analogue-numeric or digital-ON/OFF.

ENGINE SPEED(rpm)
ROAD SPEED(Km/h)
IDLE SPEED ERROR(rpm) – This is a calculated value that shows the difference between the idle speed and the real drive demand
ACCEL. WAY 1(V) - about 0.3V with the pedal released, about 4.7V with pedal to the maximum position
ACCEL. WAY 2(V) - about 4.7V with the pedal released, about 0.3V with pedal to the maximum position
ACCEL. WAY 3(V) – this track must have values very near to the second track.
ACCEL. SUPPLY(V) – this value must stay between 4.9 a 5.1
BATTERY(V)

AIR FLOW(gr/hr) – from 50 to 60 at 750 rpm (the value increases with the speed and the turbocharger load)
AMBIENT PRESSURE(Kpa) – This value must be 100Kpa at the sea level and decrease when the ground height increases. A decreasing of that value related to the acceleration should indicate that the air beyond the filter is less than required.
MANIFOLD TURBO PRESSURE(Kpa) – at idle speed must be equal to the ambient pressure 100Kpa and it goes up to 210 (Defender) or 230 (Discovery) at engine maximum load
AIR INLET TEMP.(c°) – This value shows the air temperature beyond the intercooler, but it depends also on the EGR modulator exhaust recirculation
COOLANT TEMP.(c°) –with ambient temperature up to 30° and engine at idle speed or with low load it should stay between 86° and 88°
FUEL TEMP.(c°) – about 10° less than the coolant temperature
EGR INLET(%)
EGR MODULATOR(%)
WASTEGATE MODULATOR(%) – (discovery only)
CYLINDER 1 BALANCE – CYLINDER 2 BALANCE – CYLINDER 3 BALANCE – CYLINDER 4 BALANCE – CYLINDER 5 BALANCE – from -4 to +4 with constant rpm. Higher values means that the relative injector doesn't work correctly
BRAKE SWITCH 1
BRAKE SWITCH 2 (Discovery only)
CLUTCH SWITCH
TRANSFER RATIO
GEAR BOX
CRUISE CONTROL
CRUISE RESUME
SET ACCELERATE
AC CLUTCH REQUEST
AC CLUTCH DRIVE
AC FAN REQUEST
ACFAN DRIVE

OUTPUTS TESTS

These functions activate the relative outputs for a few seconds allowing you to check them.
A/C CLUTCH
A/C FAN
MIL LAMP
FUEL PUMP
GLOW PLUGS
PULSE REV COUTER
WASTEGATE MODUL. (Discovery only)
TEMP GAUGE
EGR THROTTLE
INJECTOR 1-2-3-4-5

UTILITY FUNCTIONS

SECURITY CODE LEARN

This function allows the ECU to learn the security code generated by the AS10 alarm for Defender or VALEO BCU for Discovery (this function requires the use of valid key and fob)

SECURITY CODE STATUS
This function allows you to know if the ECU is immobilized or not in the time you run the function.

READ MAP TO ECU
This function reads the map file from ECU with flash memory (part number NNN000120 NNN500020) and stores it into the Nanocom's memory into a .map or .tun (if the data are protected) file

WRITE MAP TO ECU
This function writes original or tuned map files into the ecu.

WRITE TUNING MAP TO ECU
This function writes protected- tuned map files into the ecu. This function writes the map only if the ECU VIN and the Nanocom ID match with the VIN and ID of the .tun file.

1) **MODIFYING THE MAP FILES OF THE ECUs OF IS NOT LEGAL AND IT IS YOUR OWN RESPONSIBILITY IF YOU USE THESE FUNCTIONS**

2) **WRITING THE ECU's FIRMWARE IS A DANGEROUS OPERATION** BECAUSE THE MEMORY MUST BE CLEARED AND REWRITTEN. IT IS AT YOUR RISK AND RESPONSIBILITY IF YOU DO THAT. NANOCOM MANUFACTURERS DO NOT ANSWER OF ANY DAMAGE CAUSED TO ECUs.
REMEMBER TO SWITCH OFF ALL THE ELECTRONIC DEVICE INSIDE THE CAR DURING THE MAP FILE WRITING, TO PREVENT EVERY PROBLEM THAT CAN BE CAUSED FROM THE RF INTERFERENCES.

3) **MODIFYING THE MAP FILES OF ECUs MAY CREATE MECHANICAL PROBLEMS TO THE ENGINE AND TRANSMISSION OF THE VHEICLE**

HOW TO REPLACE THE ECU

1) Read the injectors codes directly from the injector or if it is possible from the old ECU by means of the READ SETTING function
2) Verify if the accelerator type is 2 or 3 track
3) Install the new or used ECU
4) Read the injectors codes from the ECU by means of the READ SETTING function, modify them, set the accelerator type and write these new data with WRITE SETTING function.
5) Perform the SECURITY CODE LEARN to synchronize the alarm with the new ECU
6) Write the appropriate map with the WRITE MAP function. You can generate the correct map file with the NANOCOM MAP WIZARD application included. The maps are grouped according to this information: vehicle type, ecu PART NUMBER and world region