



Service Memorandum

SM2201 Ford 7.3L PATS Module Familiarization Ford

Models Affected: All Blue Bird Vision Buses equipped with the Ford 7.3L engines (Gas or LP).

Subject: PATS Immobilizer Module: Purpose, Functionality, and Troubleshooting

WARNING: Always follow all Federal, State, Local and Shop safety standards and use proper safety equipment, and thoroughly read and understand all instructions before performing these procedures. Park bus on level surface, apply parking brake, turn off ignition key, and chock wheels.

Intent: The PATS (Passive Anti-Theft System) or SPM (Security PATS Module) is a new piece of required hardware that has not been used historically on Ford powered Blue Bird Vision Buses. The intent of this memo is to provide a basic overview of its function, purpose, and basic diagnostics.

Summary: The 7.3L PCM hardware requires a PATS handshake to enable engine crank. The PATS module, sometimes called an SPM, is paralleled to Ford CAN only and not to J1939. It's mounted above the MPX module (non-NEA) within the PDU (Figure 1) and on NEA models it is located on the ledge above the chassis PCB (Figure 2). The PATS module is purpose built for non-Ford VIN applications using the 7.3L engine. It is paired to the PCM via an IDS bi-directional function, to which one needs Ford PTS log in credentials for IDS access to the immobilizer database.

The same PATS module is used for both gasoline and propane, and is installed and paired to the PCM during buildup on the chassis line. If the PATS module is not paired to the PCM, the engine will not crank(gasoline) or will not enter Start in Progress (LP). There will be no fault codes either in continuous memory, or On-Demand if the PATS and PCM are not paired. The engine will simply not start. If the PATS is disconnected after the engine is started, there will be no DTC's and the engine will continue to run. The problem will be on the next engine start attempt.

Once the PATS is paired during manufacturing, it will stay like that. No maintenance is required. If the PATS module is removed from one bus, and installed in another, it will have to be paired to that PCM using the same method as manufacturing. Same is true for a PCM swap for diagnostic purposes, or for a service PCM replacement. A service PATS module will have to be unlocked and paired using IDS. The engine will not crank until the PATS module has been paired with the PCM. Use IDS to determine if the PCM flag for PATS is enabled, or disabled in the datalogger (Figure 6).

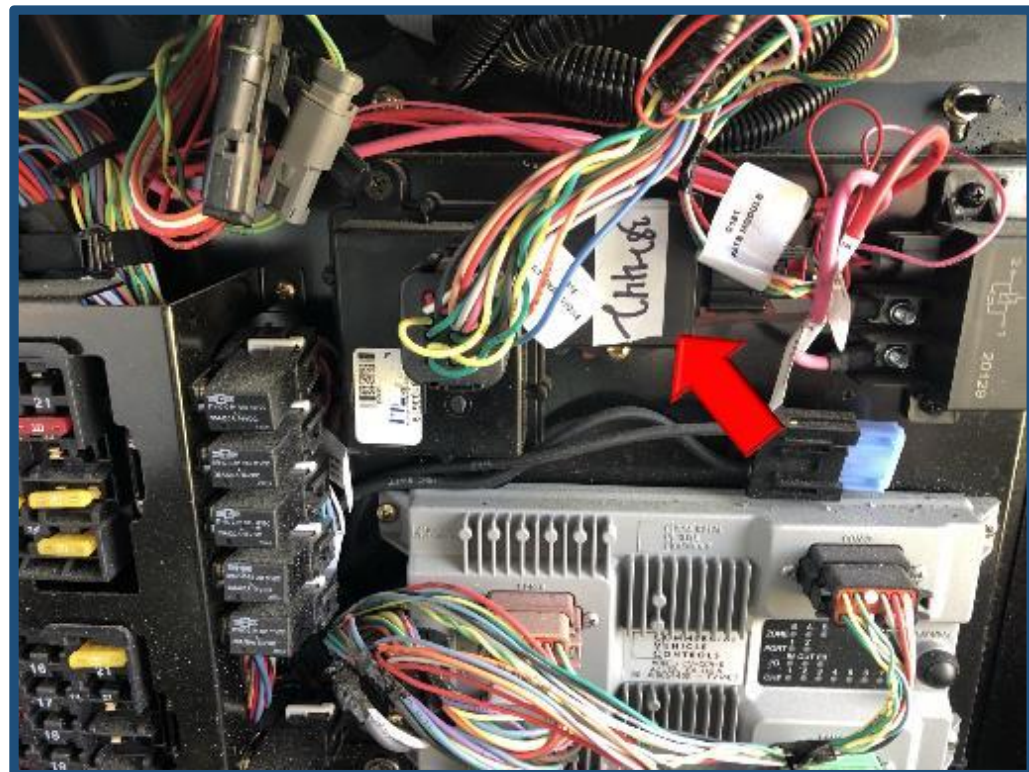


Fig 1



Fig 2

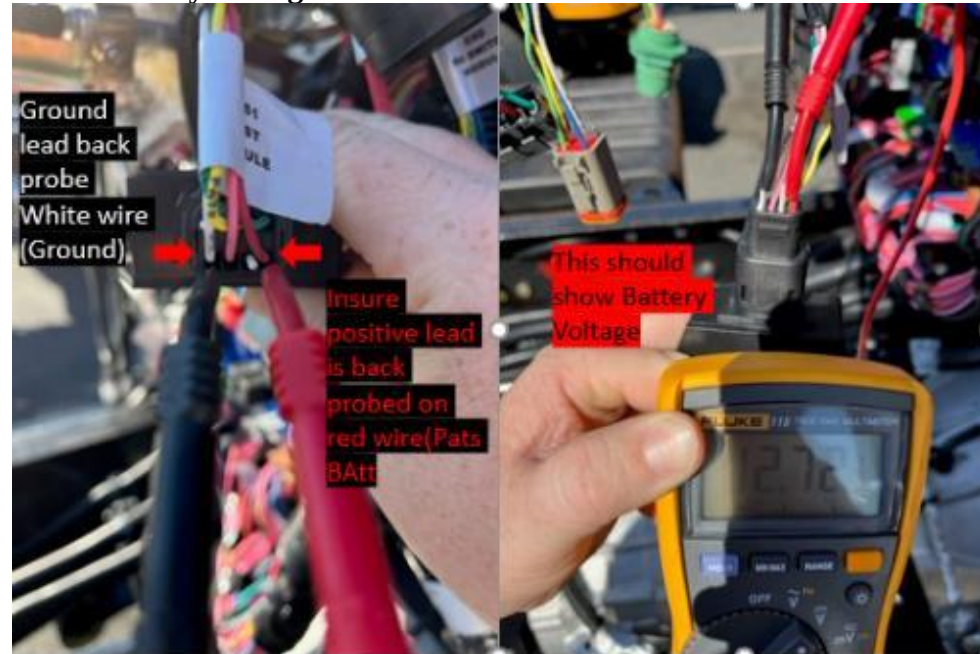


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Checking PATS module for correct voltage values.

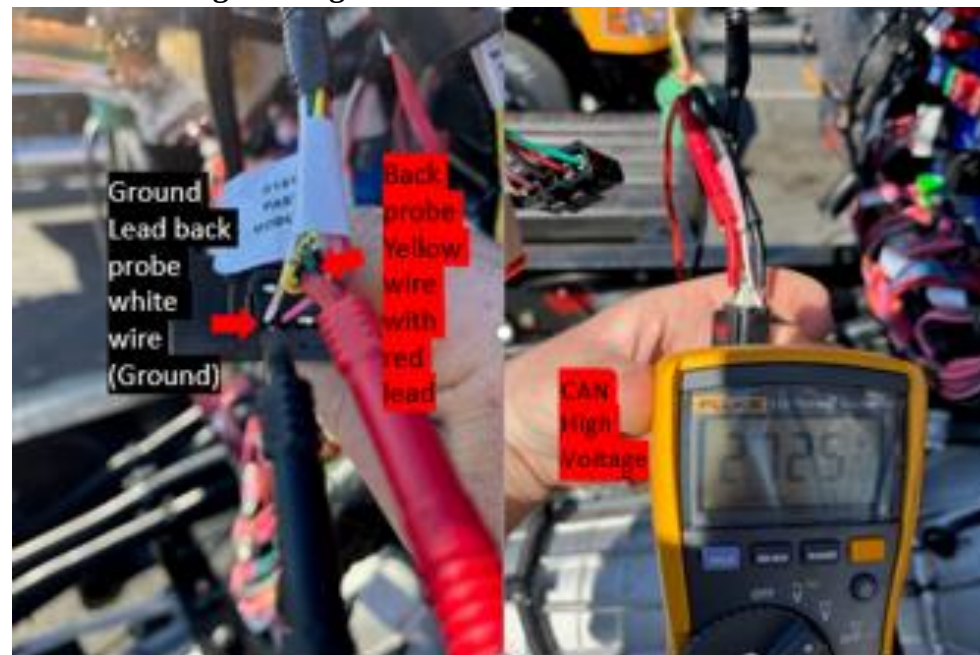
PATS Battery Voltage



PATS Ignition Power Voltage- KOEO



PATS CAN High Voltage KOEO >2.4 volts



PATS CAN Low Voltage KOEO <2.4 volts





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Troubleshooting:

Step 1: Connect IDS using manual vehicle ID. Use BBCV for a tear tag

Step 2: Select the red tool box icon in the upper left and double click on “DataLogger” (Figure 3)

Step 3: Select “Modules” and then “PCM” (Figure 4)

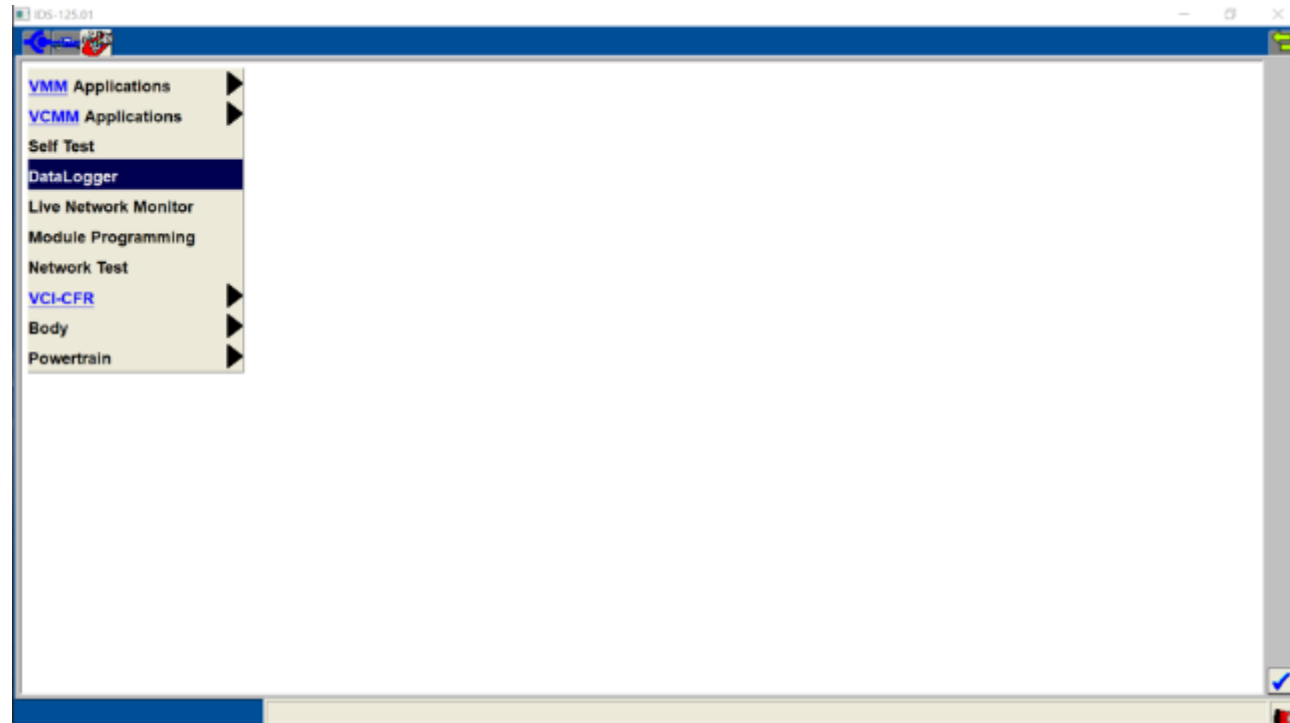


Fig 3

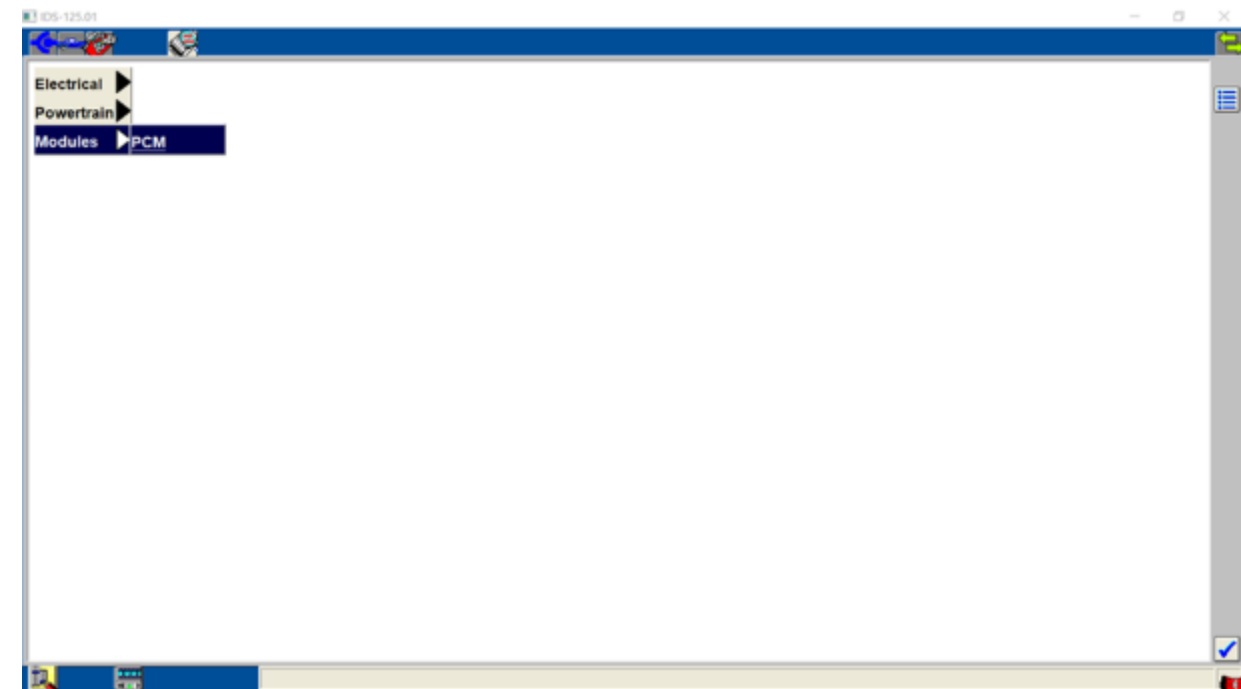


Fig 4

Step 4: Select the two PIDS identified below and select the blue check mark in the lower right-hand corner. Figure 5

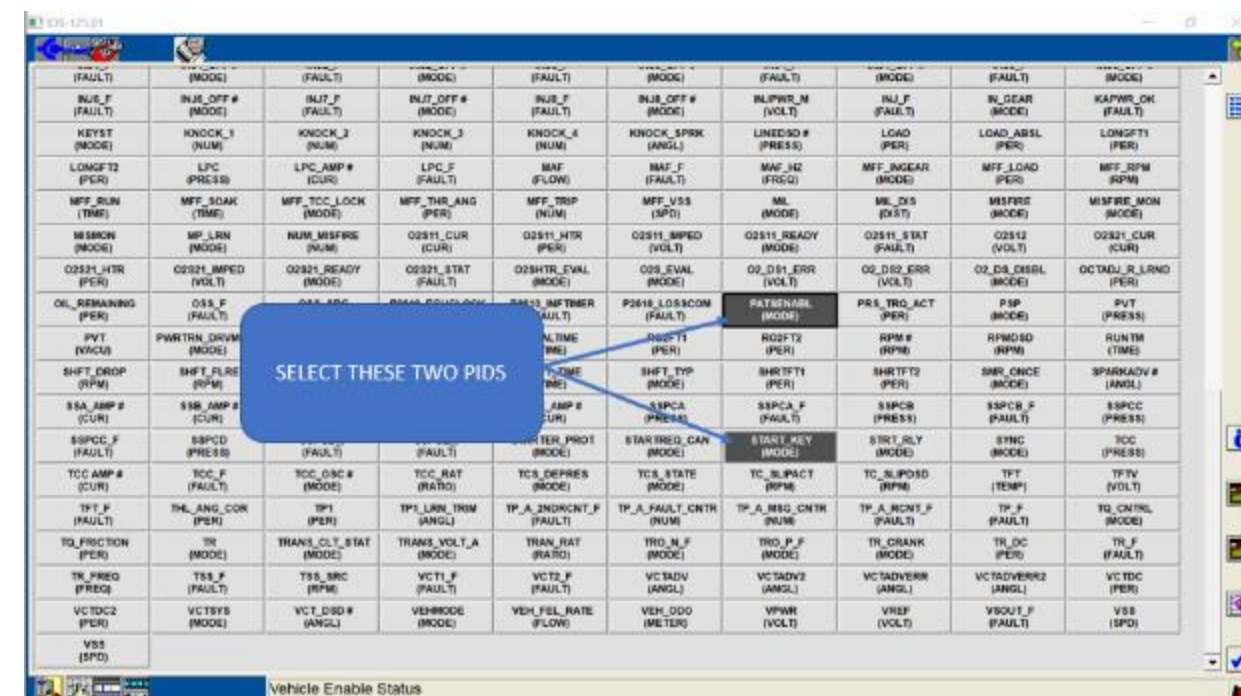


Fig 5



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Step 5: Verify PATSENABL shows “enabled”. If showing “Disabled”, proceed to pair the PATS to the PCM per the below instructions. If a general error message is observed, and voltage inputs are appropriate, replace the PATS module.

Step 6: If PATS is enabled, and Start Key shows “On” when key is held in the start position, and the engine still won’t crank, verify the presence of P06E9 in CMDTC status. T/S starter performance. See Figure 6. If Start Key shows off when the key is turned to crank position, T/S the MPX/NEA system for omitted OTS(one touch start) input to the PCM (12v) circuit.

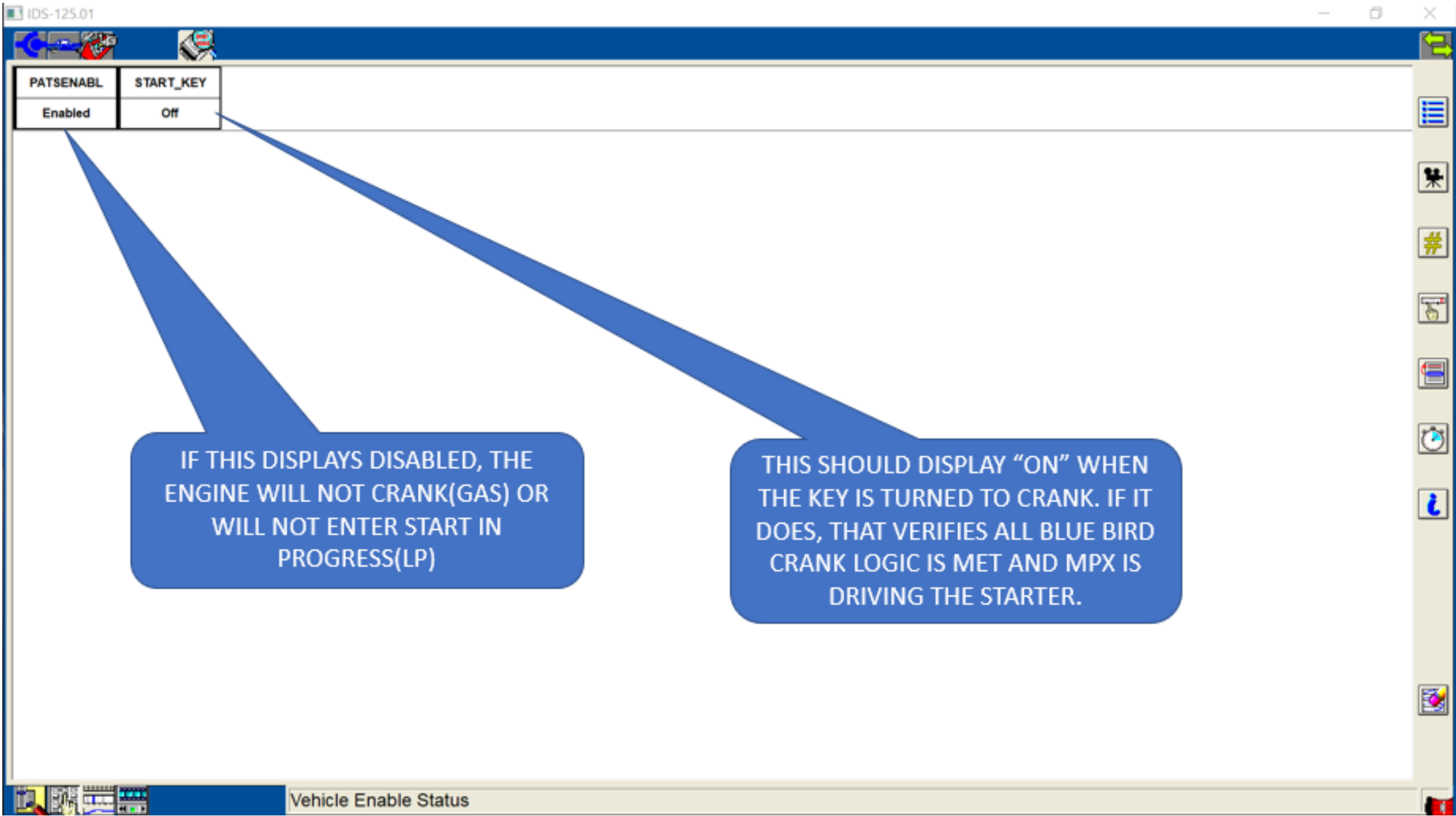


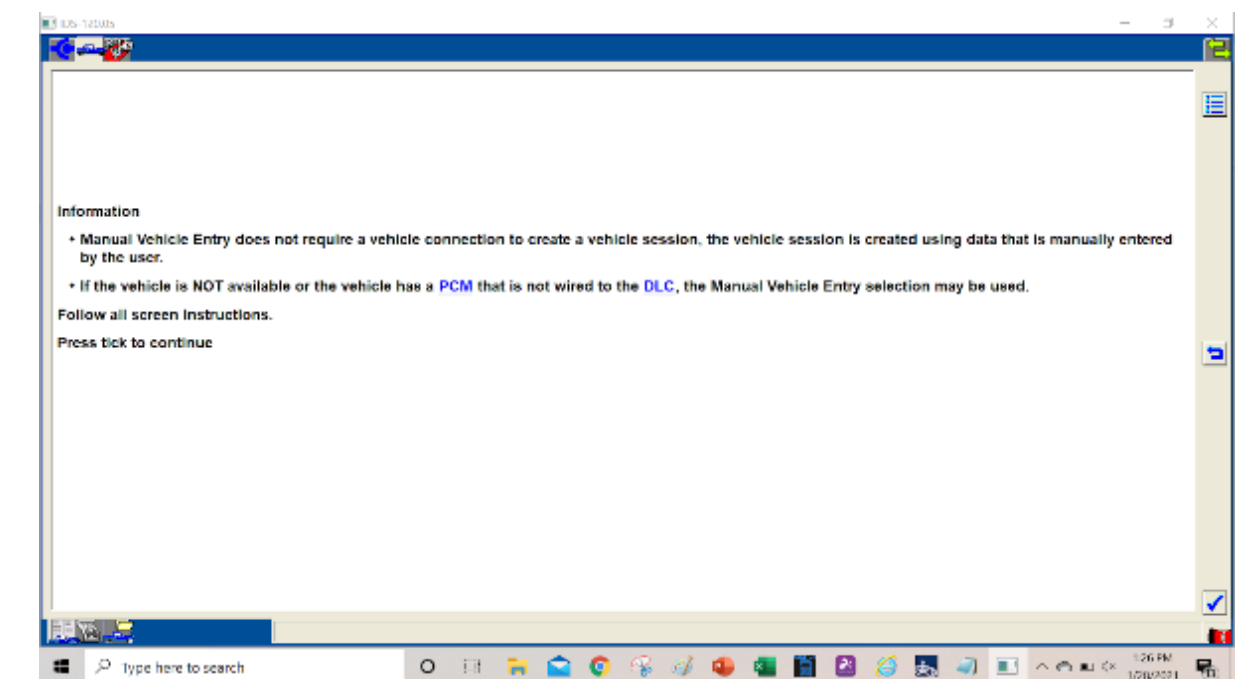
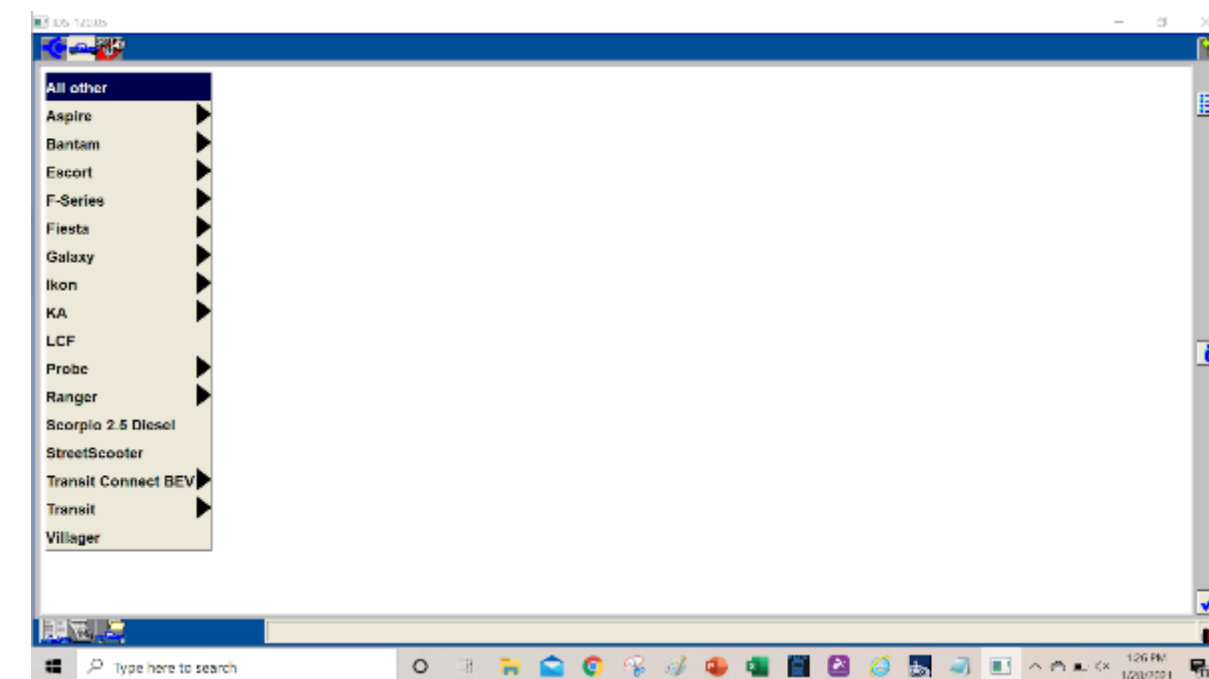
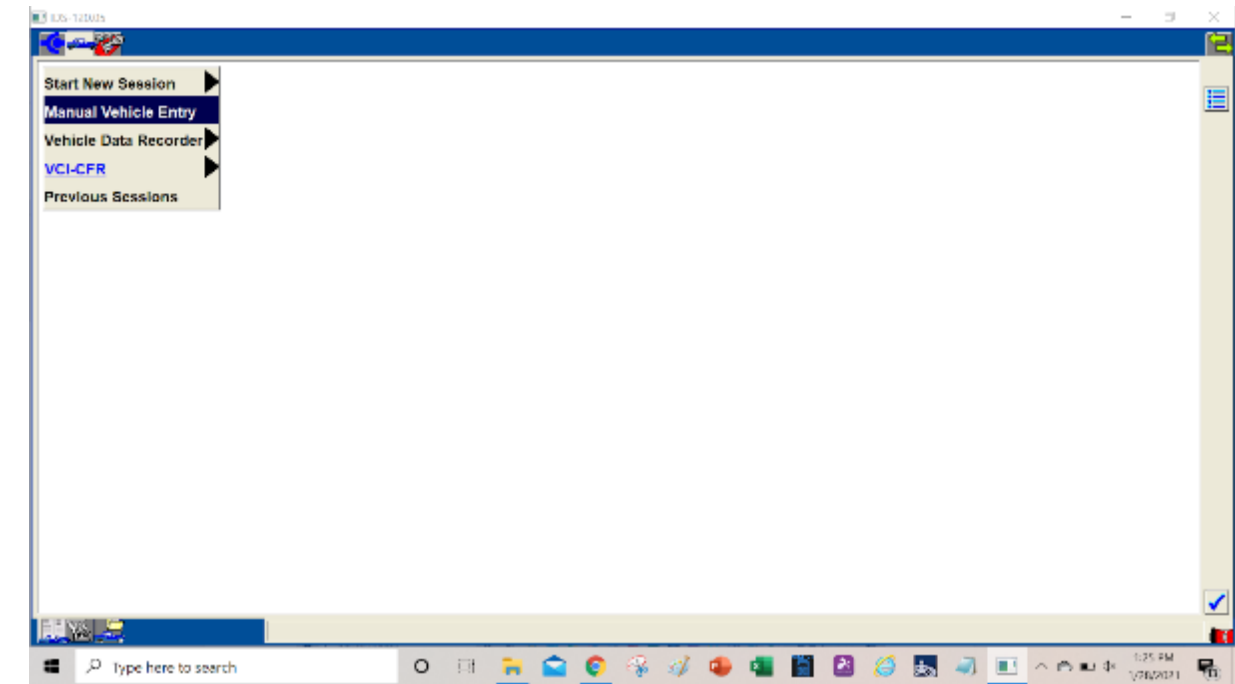
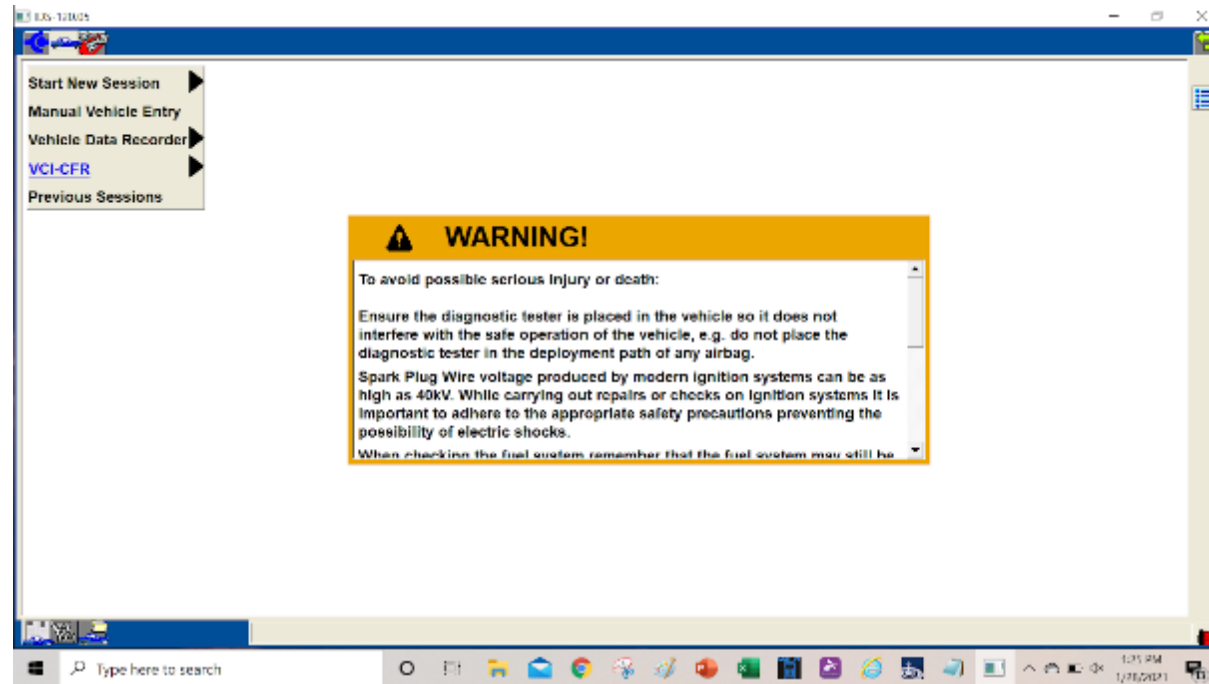
Fig 6



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Pairing procedure:





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IDS 12015

To enable diagnostic tester to identify the **PCM**, please enter One of the following on the next screen:

- **PCM** part number or
- Calibration number (7, 10, or 15 digits) or
- Tear tag number (4 digits)

Type here to search



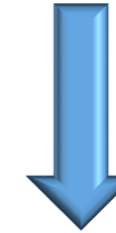
IDS 12015

PCM Part Number: -12A850V
Calibration Number:
Tear Tag: BBCV

Q W E R T Y U I O P
A S D F G H J K L
Z X C V B N M . , -

1 2 3
4 5 6
7 8 9
0 #

Type here to search



IDS 12015

VIN: F314465
RO:
Odometer: 113

Q W E R T Y U I O P
A S D F G H J K L
Z X C V B N M . , -

1 2 3
4 5 6
7 8 9
0

Type here to search



IDS 12015

Vehicle Specification

Vehicle: Blue Bird C-Class Vision
Engine Type: 2V
Capacity: 7.3L
Fuel Type: Gasoline
Model Year: 2020 MY
Is this correct?

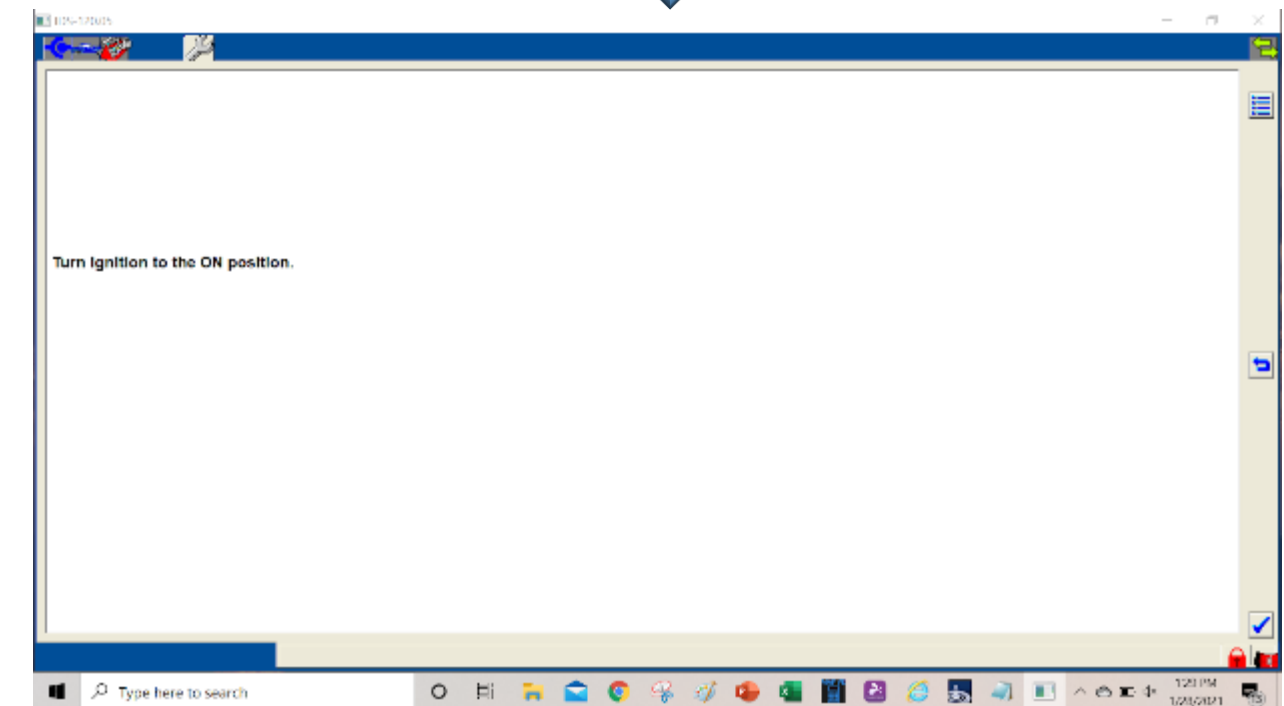
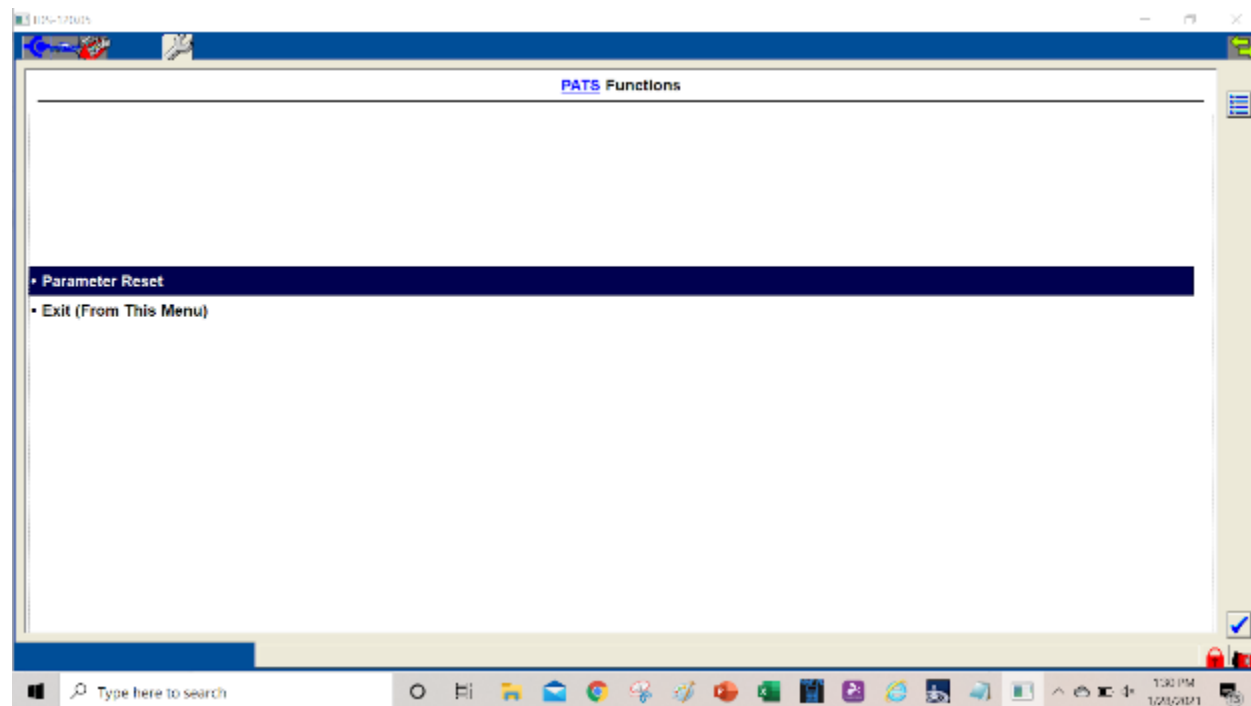
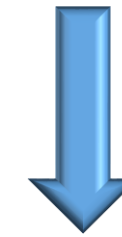
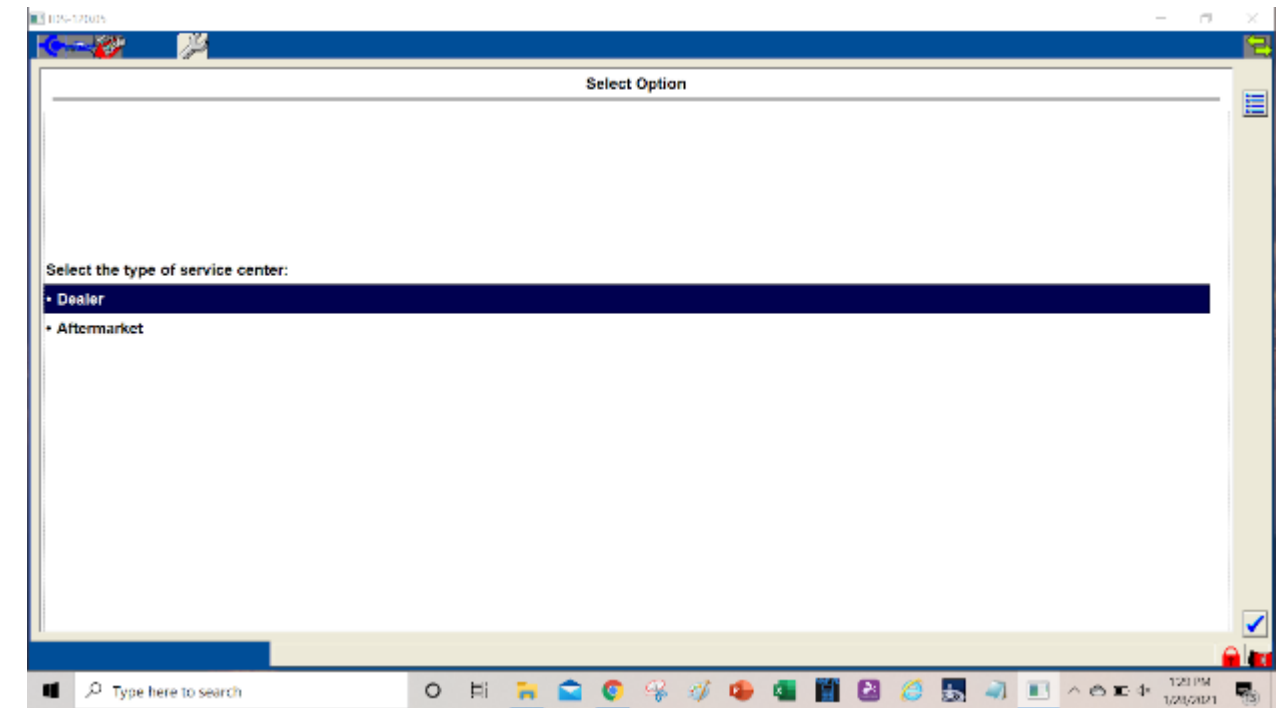
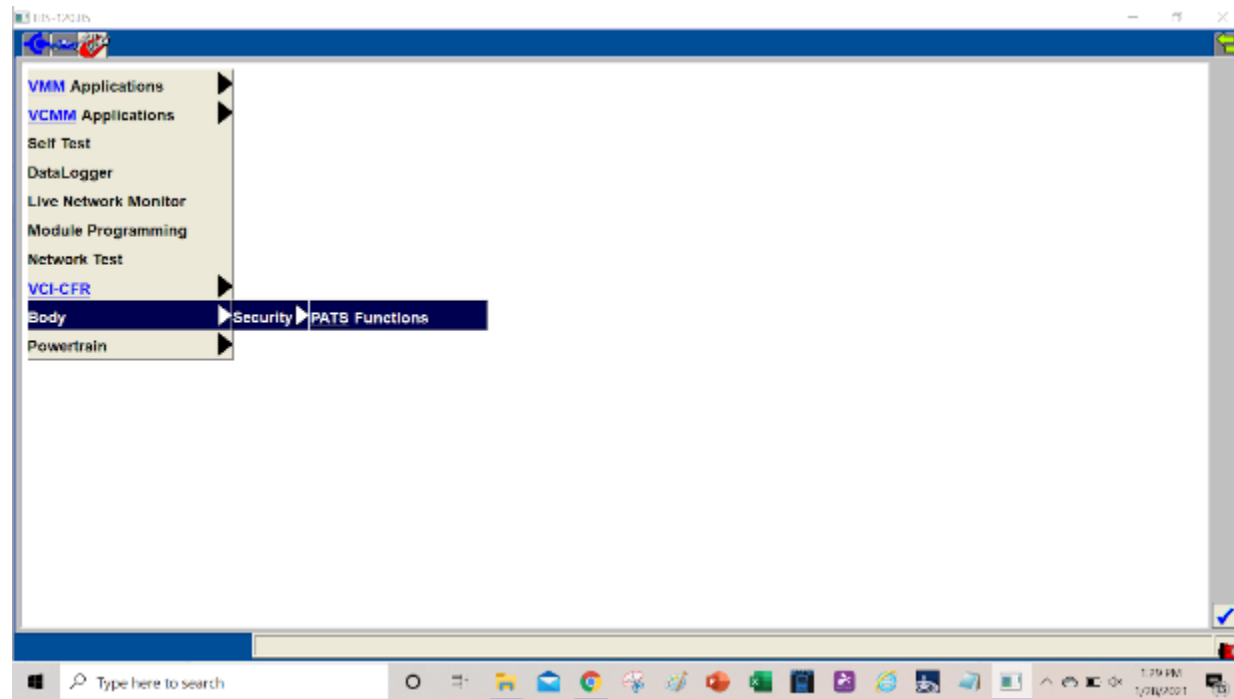
NO YES

Type here to search



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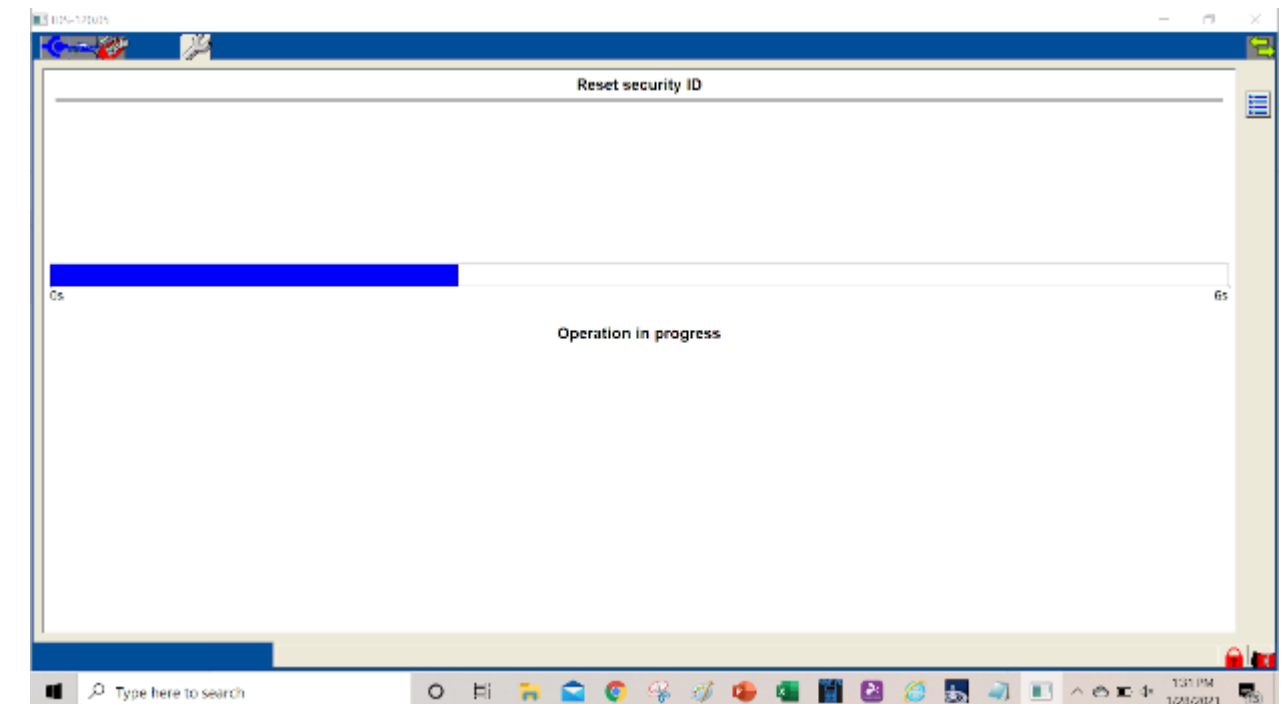
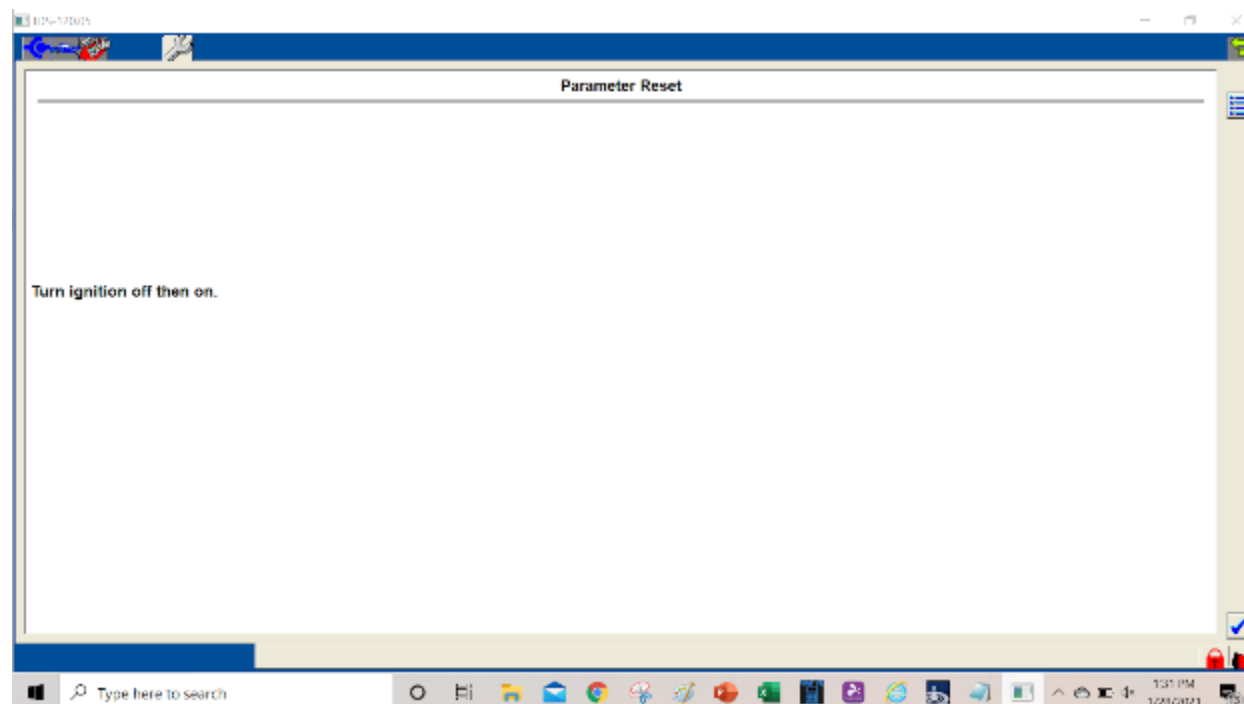
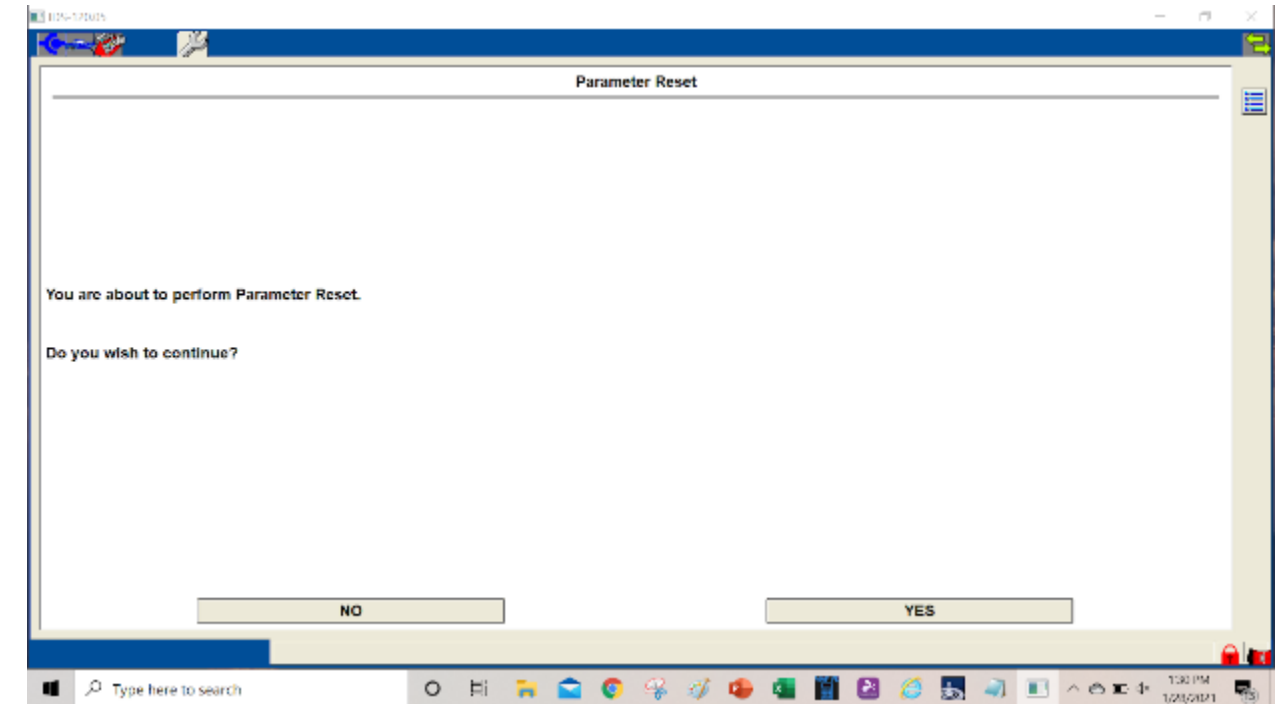
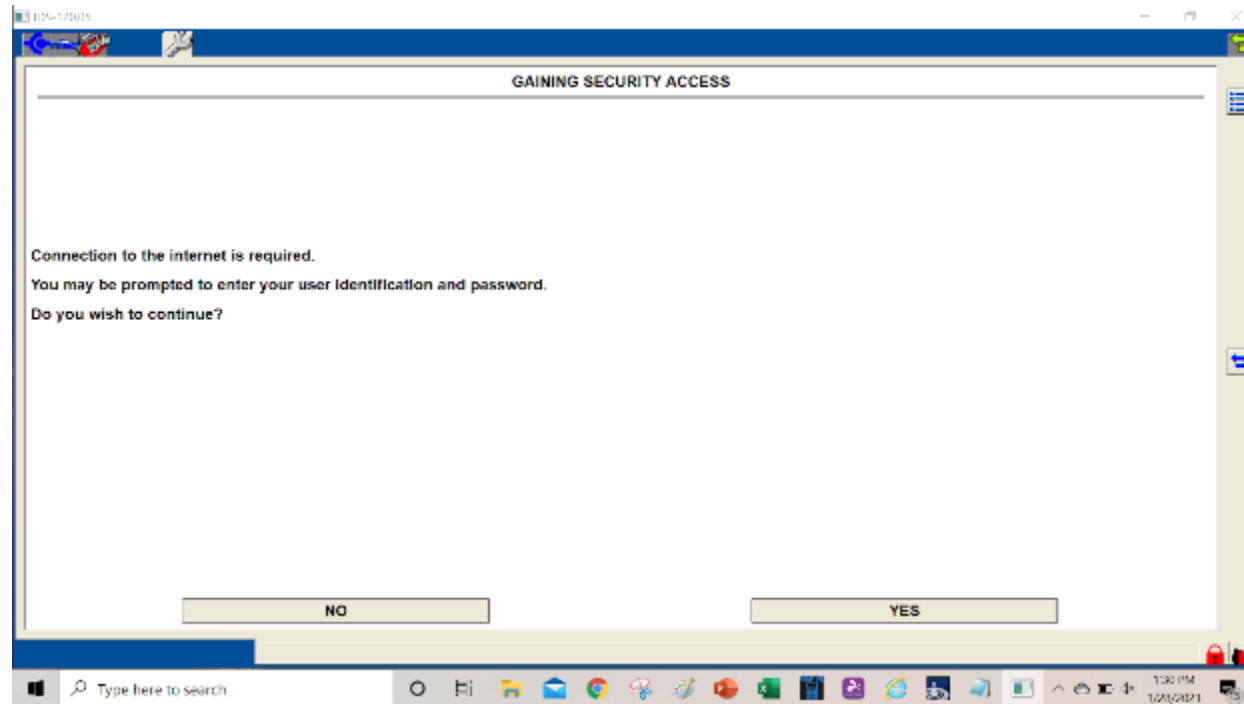
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