

6.0L Diesel Talk LIVE



6.0L IDS Based Air Management Diagnostics

December 7, 2006

6.0L Diesel Talk LIVE



Helpdesk
(800) 790-4357
(HELP)

Diesel Talk Live

- **Today - 6.0L IDS Based Air Management Diagnostics**
- **Injector Spool Valve Sticking Reflash update.**
- **Fuel System Maintenance Review**
 - **Presentations will be available on Power Stroke Central**
 - **Links to streaming video will be available on Power Stroke Central**

Taped Rebroadcast Dates

Ford Dealer TV – Channel 11

<i>Topic</i>	<i>Date</i>	<i>Time (ET)</i>
6.0L IDS Based Air Management Diagnostics	12/12/06	9:00 – 11:00 AM
	12/13/06	8:00 – 10:00 PM
	12/14/06	6:00 – 8:00 PM
	12/19/06	3:00 – 5:00 PM
	12/20/06	5:30 – 7:30 PM
	12/21/06	8:00 – 10:00 AM

Injector Spool Valve Sticking

Symptom: Bad cold, OK hot

WHITE SMOKE, LACKS POWER, EXHAUST ODOR,
SURGES, RUNS ROUGH, OR NO START—6.0L

TSB 06-22-3

- To date, over **5000** repairs completed with Re-flash
- Sample of November 29th Repairs:
 - **44% did not follow TSB** (re-flash first)
 - 90% that re-flashed first needed **nothing** else
- Improved Re-flash in the works that will work even better at extreme cold temperatures

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TSB 06-22-3

1. Using IDS
 - Go to **Module Reprogramming**
 - Select **FICM**
2. Re-flash **first**, then check to see if the symptom is corrected before doing anything else

Fuel Pressure & Injectors

- 6.0L Injectors can be damaged by running the vehicle with low fuel pressure
- Proper diagnosis will help to fix it right the first time and avoid repeat repairs
- There are many potential causes for low fuel pressure

Some Common Causes for Low Fuel Pressure

Fuel System components:

- Restricted fuel filters
- Damaged or stuck pressure regulator
- Inoperative fuel pump
- Blockage or Restriction in fuel lines

Fuel Filter Maintenance

- **"Normal Service"**
 - Oil and oil filter: 7,500 miles (12,000km)
 - Fuel filter: 15,000 (24,000 km)
 - **Every other oil change**
- **"Special Operating Conditions"**
 - Oil and oil filter: 5,000 miles (8,000 km) or 200 hours of engine operation whichever comes first
 - Fuel filters: 10,000 miles (16,000 km) or 400 hours of engine operation whichever comes first
 - **Every other oil change**

Fuel Filter Maintenance - Severe

Examples of “Special Operating Conditions”

- Towing a trailer or using a camper or car-top carrier
- Extensive Idling and /or low-speed driving for long distances as in heavy commercial use such as delivery, taxi, patrol, or livery
- Operating in dusty conditions such as unpaved or dusty roads
- Off-road operation
- Short trip in cold operating conditions
- Use of Biodiesel, up to and including 5% Biodiesel (B5)

Field Communication dated 11/24/06

F-Series, E-Series, & Excursion 6.0L Maintenance Schedules

Normal Service Intervals:		Special Operating Intervals:	
Oil	7500	Oil	5000 / 200h *
Oil filter	7500	Oil filter	5000 / 200h *
Fuel Filter	15000	Fuel Filter	10000 / 400h **
Air Filter	Inspect minder/replace if necessary during oil change	Air Filter	Inspect minder/replace if necessary during oil change

* = Whichever comes first

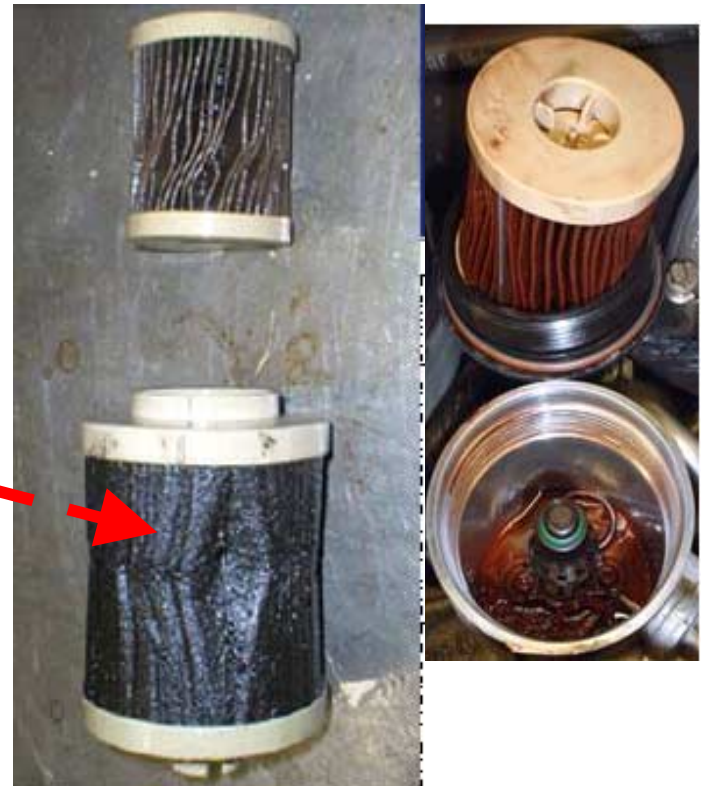
** =2003-2006 MY fuel filter change interval is 15000 Miles

Fuel Filter Examples

Debris in Fuel Tank

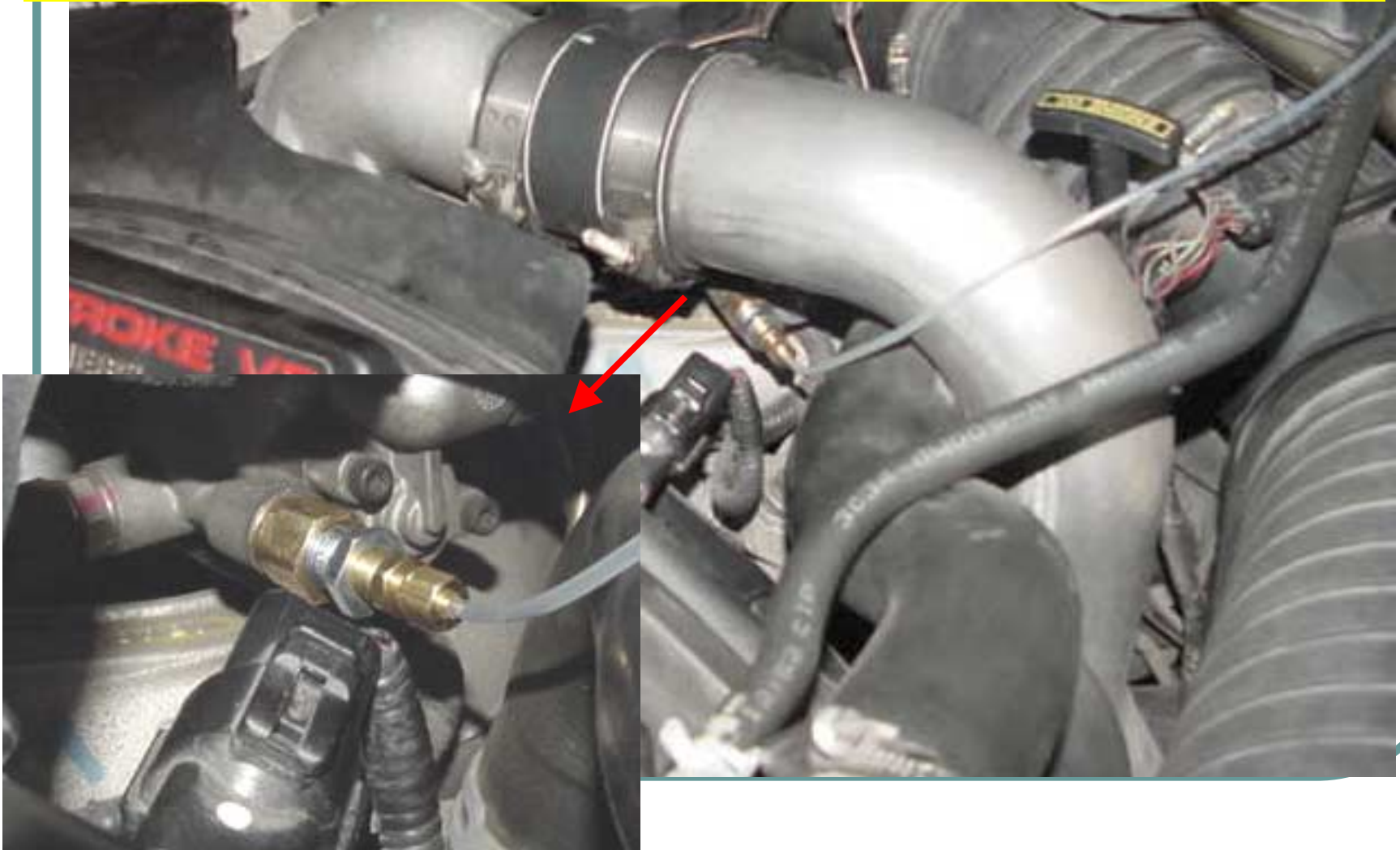


Particles end up in both filters and in housing



Correct Fuel Pressure Measurement Location

Test port located in secondary filter housing next to regulator



WOT Fuel Pressure Measurement

- Why 0-50 MPH WOT vs. in-bay WOT or idle measurement?

Brake torque WOT vs.

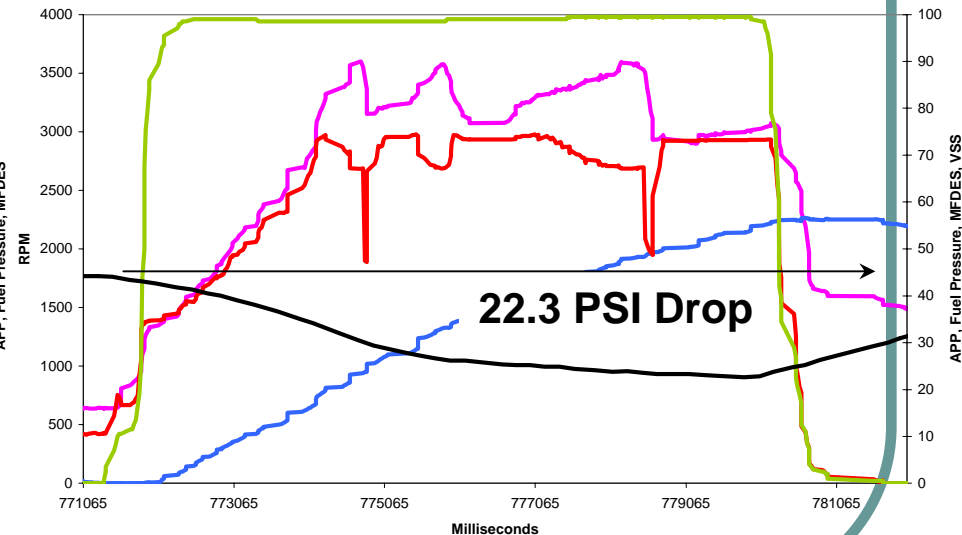
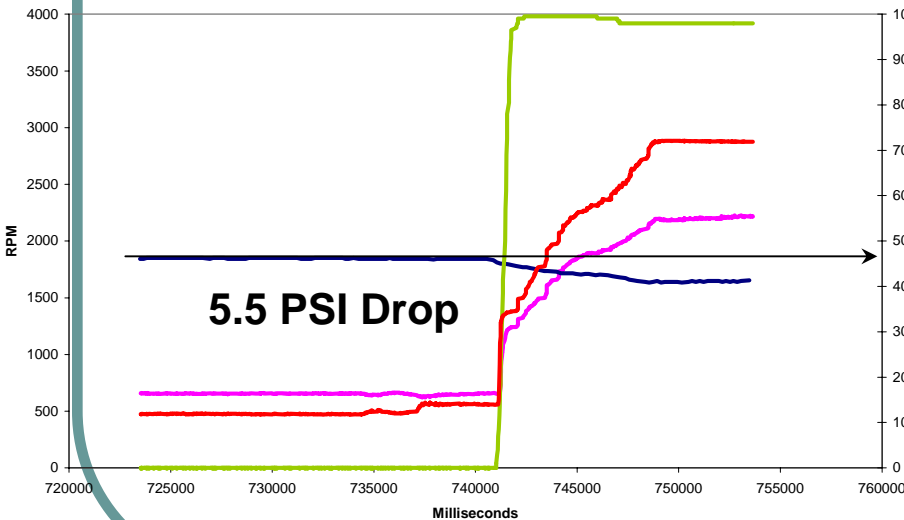
0-50 WOT

WDS Recording Fuel Pressure Test
Service Bay - 0 MPH - In Drive

WDS Recording Fuel Pressure Test 0-50 MPH
Before Fuel Pressure Fix

RPM # FuelP APP MFDES

RPM # VSS MFDES APP FuelP



DO NOT MEASURE FUEL PRESSURE IN-BAY!

IDS (v46) Based Air Management Diagnostics

New diagnostic tool available for IDS to test the air management system

- Will be available via IDS 46.7 P6
- An SSM with details will be released next week
- PC/ED has been updated to incorporate diagnostic

Diagnostic Hardware Setup

IDS

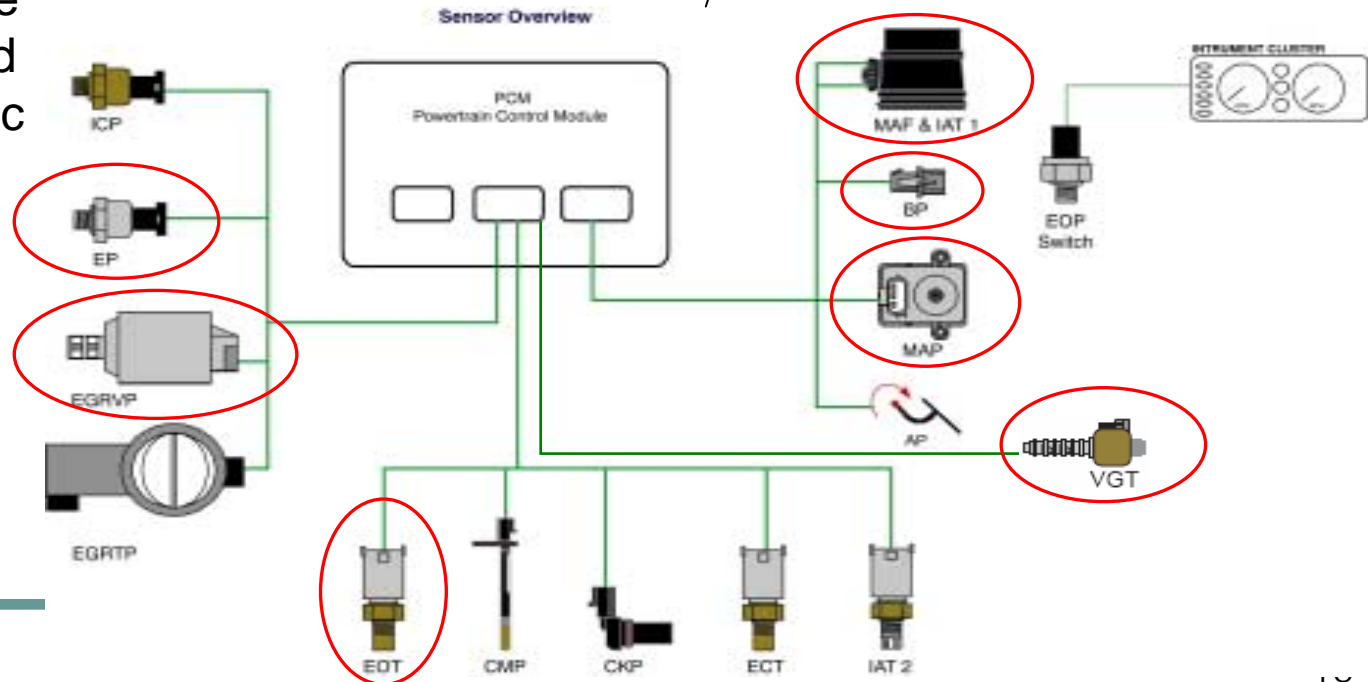


USB Cable



VCM Cable

Components circled in red are used / controlled by the diagnostic tool

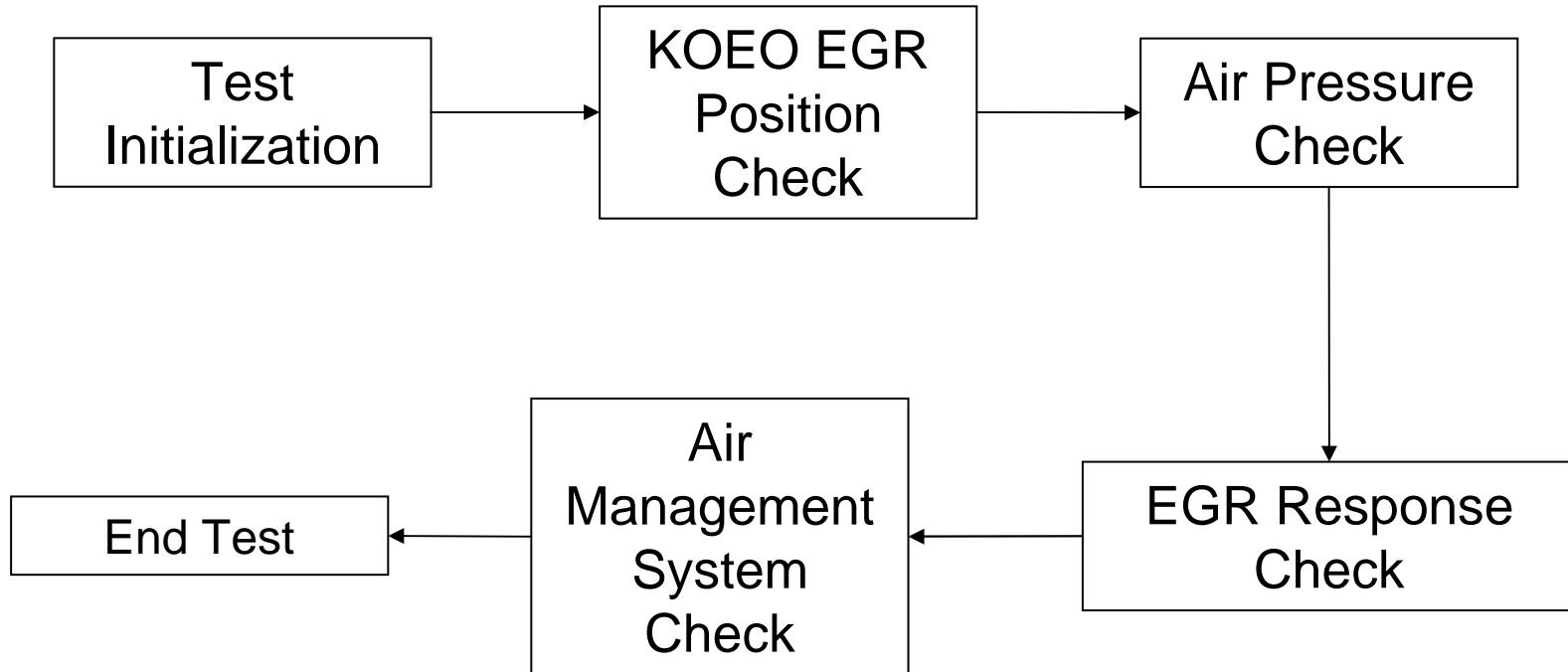


When to Run These Tests

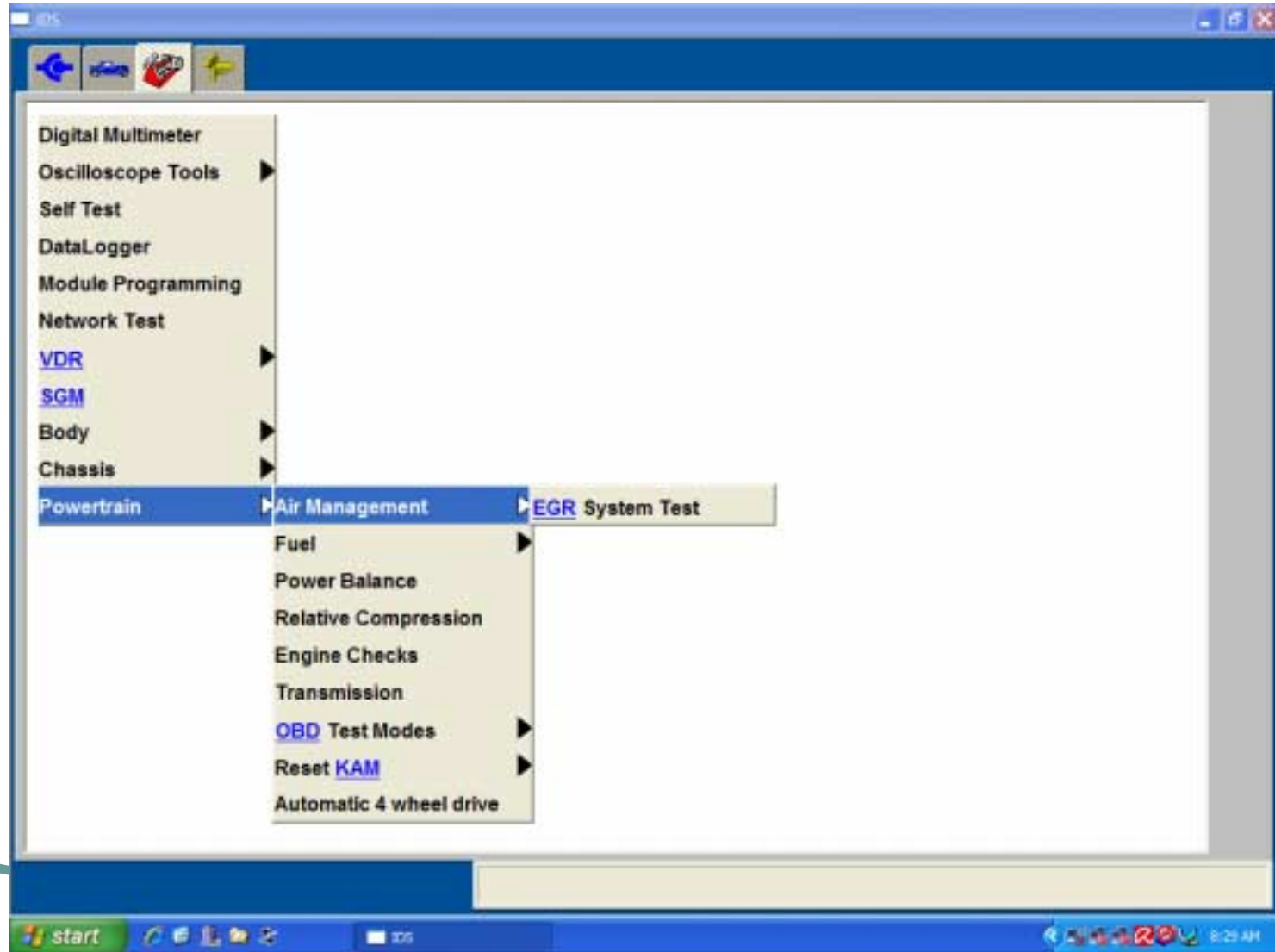
THESE DIAGNOSTIC PROCEDURES ARE INTENDED FOR **IN-BAY TESTING** ONLY. DO NOT USE ON-ROAD.

- Anytime air management components are being assessed:
 - DTC's such as P0401, P0402, P0404, P1335, P0299, etc.
 - When customers complain of lack of power, black smoke, overboosting, etc.
 - After encountering Inferred EBP learn issues.
 - Anytime Pinpoint Test W, X, or KA is called

Test Procedure



Accessing IDS Diesel EGR Tool



How to Run These Tests

The **EGR** system test is designed to check the EGR valve and related system pids during key on engine off **KOEO** and key on engine running **KOER** conditions. The test may help with the repair of DTC's P0299, P0401, P0402, P0403, P0404, P0405, P0406 and P1335. The **EGR** test requires certain conditions to be met before starting the test such as the key on and engine off, normal engine operating temperature and acceptable battery voltage.

For an overview of the tests performed, see the test descriptions that follow the setup instructions.

Ensure the following initial conditions are met:

- Apply the parking brake.
- Apply Neutral/Park gear position
- For accurate test results make sure engine temperature is greater than 185°F.
- Set ignition switch to ON (**KOEO**).
- The battery voltage must be above 11.5 volts.

Once all setup conditions are met, touch the tick button to begin the **EGR** test procedure.

- The first check is the **EGRVP** voltage measurement at closed position. The next test will check stationary air pressure pids of **BARO**, **MAP** and **EBP*** for comparable values. The final engine off check is to

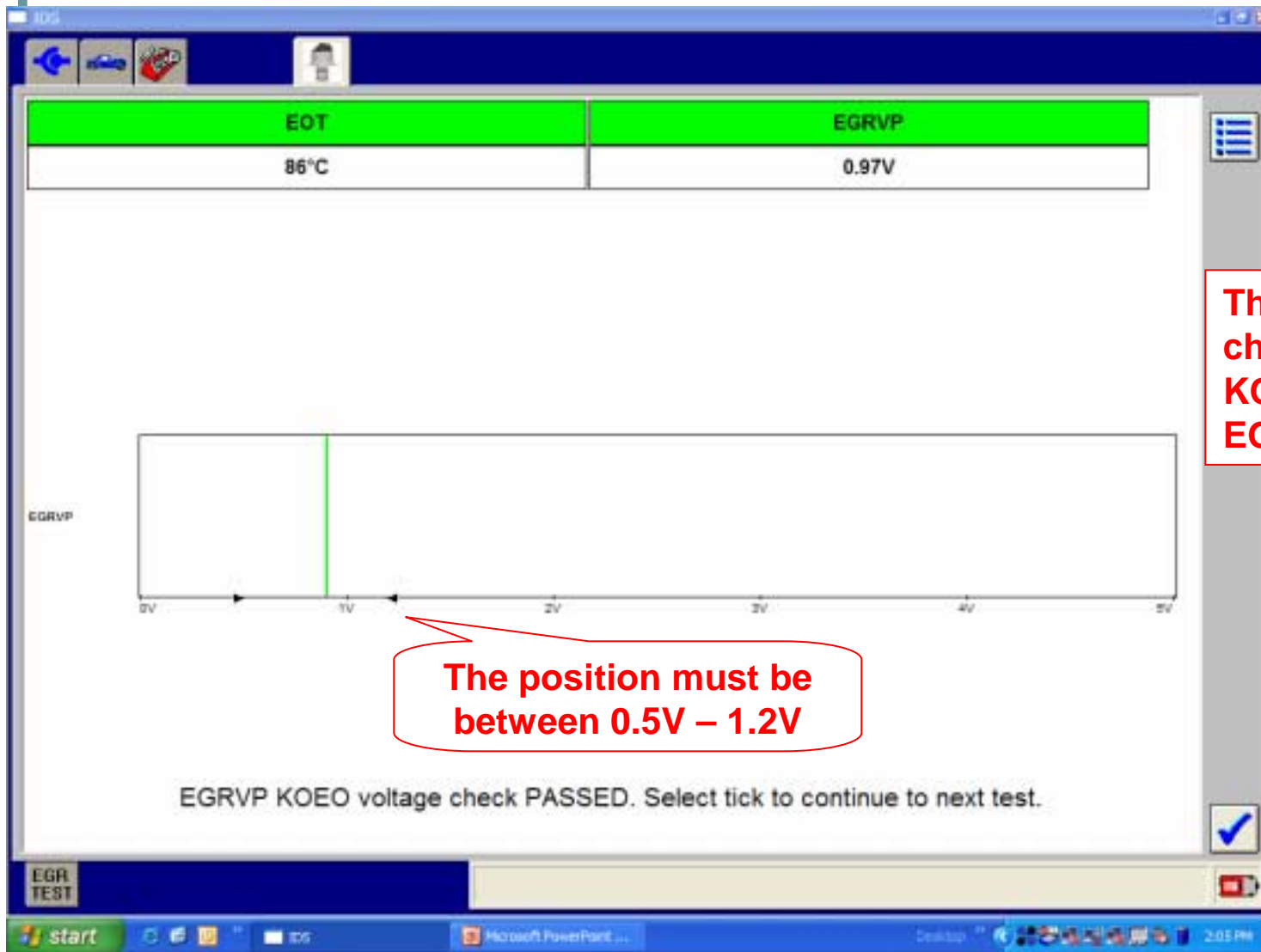
EOT	186.8°F
RPM	0RPM
VBAT	12.56V

EGR TEST

start | My Pictures | L:12 PM

- This test is to only be run with the engine hot:
- Hot is defined as Engine Oil Temp (EOT) greater than 85 °C (185 °F)

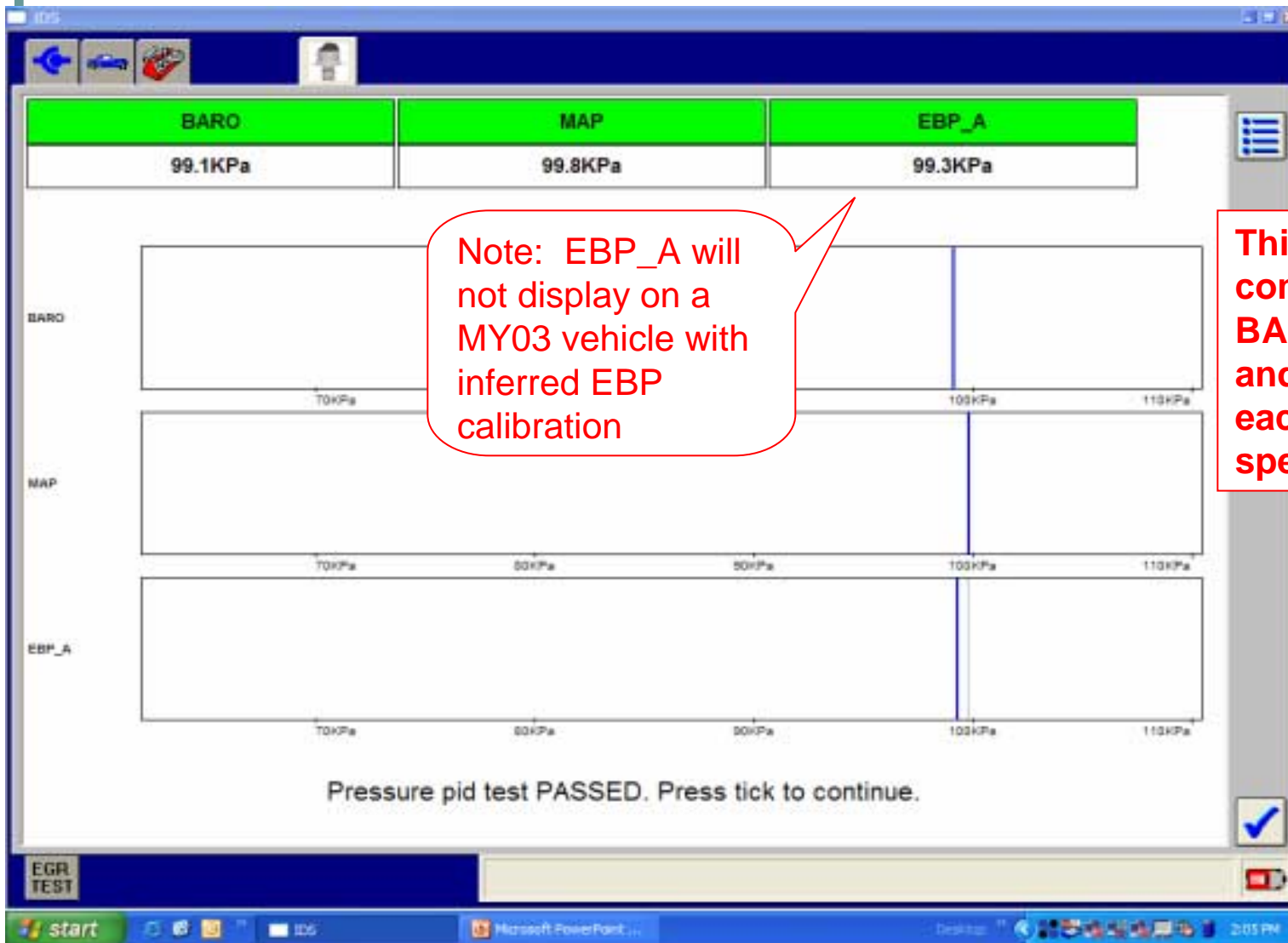
KOEO EGR Position Test



This test checks the KOEO initial EGR position

The position must be between 0.5V – 1.2V

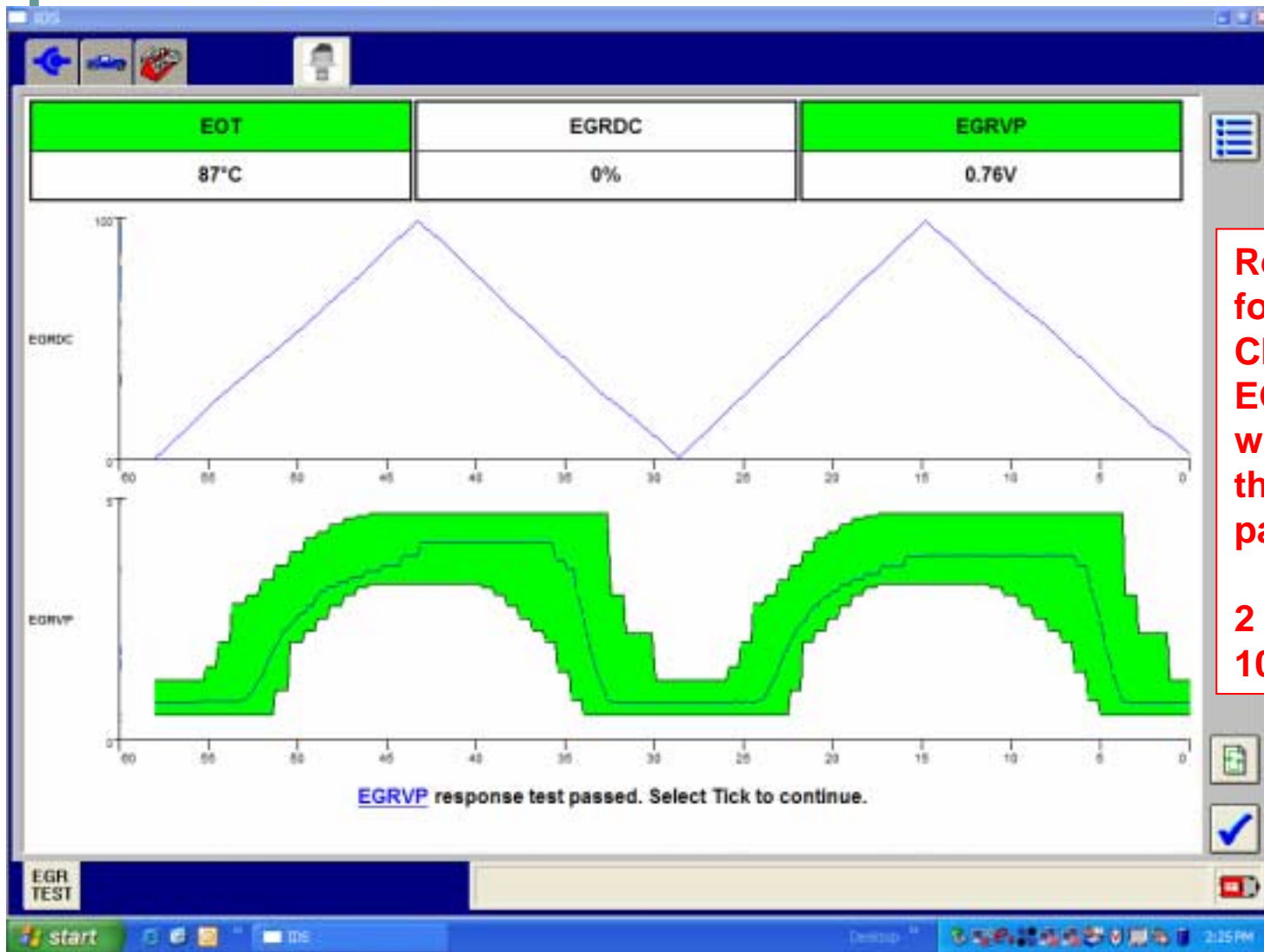
Air Pressure Test



Note: EBP_A will not display on a MY03 vehicle with inferred EBP calibration

This test compares the BARO, MAP, and EBP_A to each other & a specification

EGR Response Test



Response check for the EGR valve. Checks EGRDC vs. EGRVP. Must be within green for the entire test to pass

2 cycles from 0% - 100% DC

Air Management System Test

Operator Action

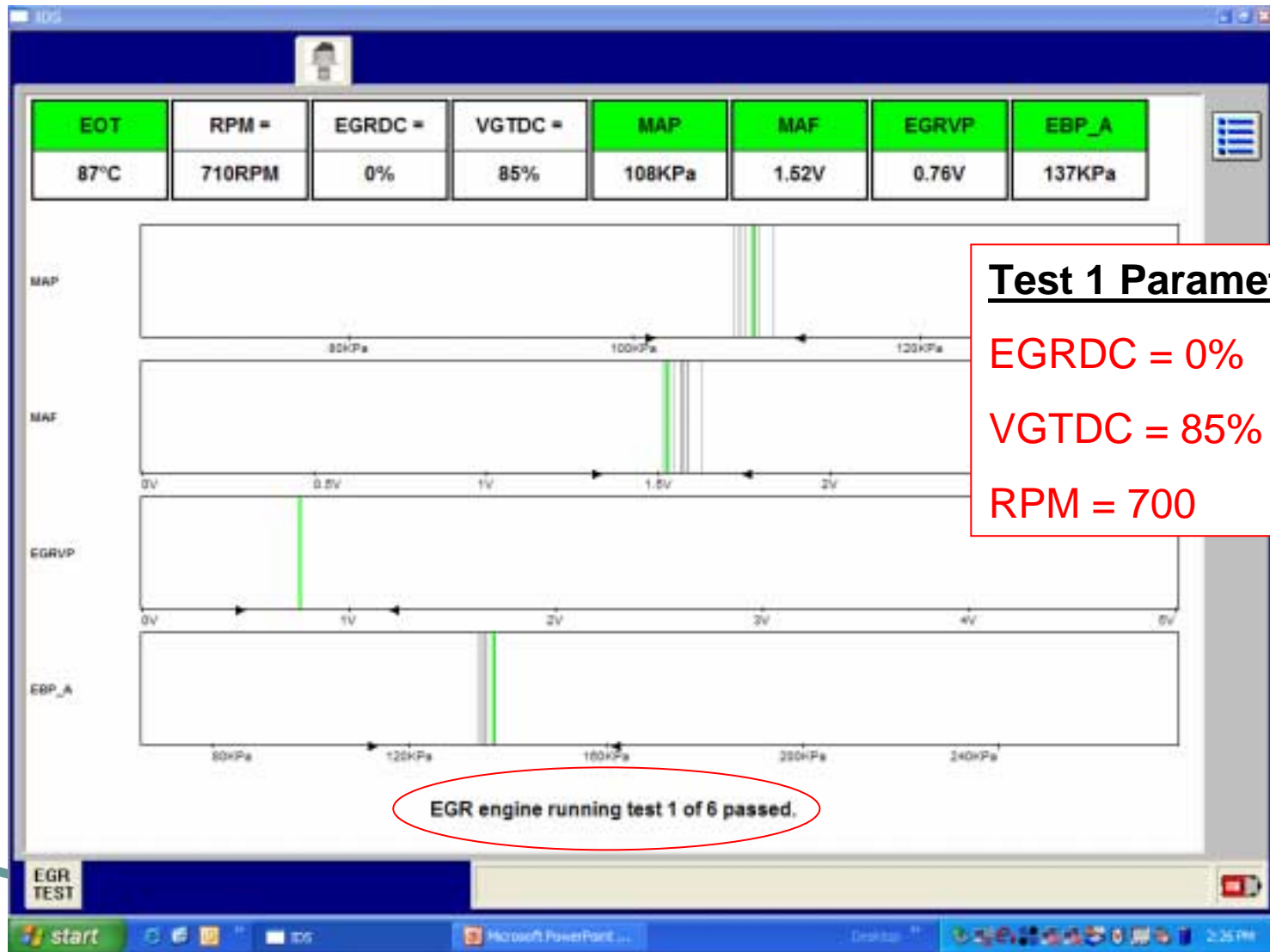
Start engine and allow to idle.
Do not depress the accelerator pedal during this test.
Select Tick to continue or X to exit the tool.

X

**Action required by the technician.
Start engine for next test (KOER)**

Air Management System Tests check components against varying RPM, EGRDC, & VGTDC inputs

Air Management System Test



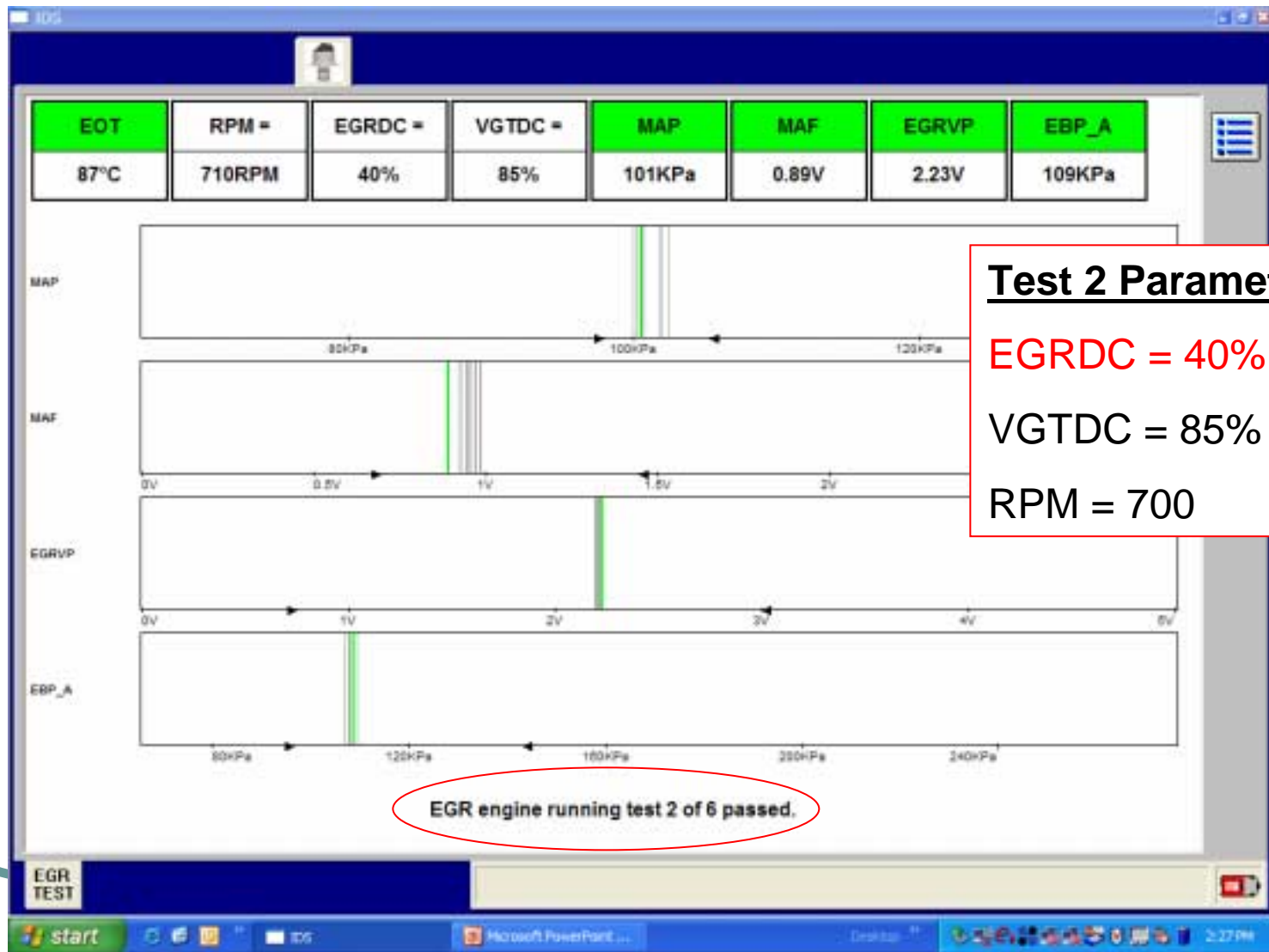
Test 1 Parameters

EGRDC = 0%

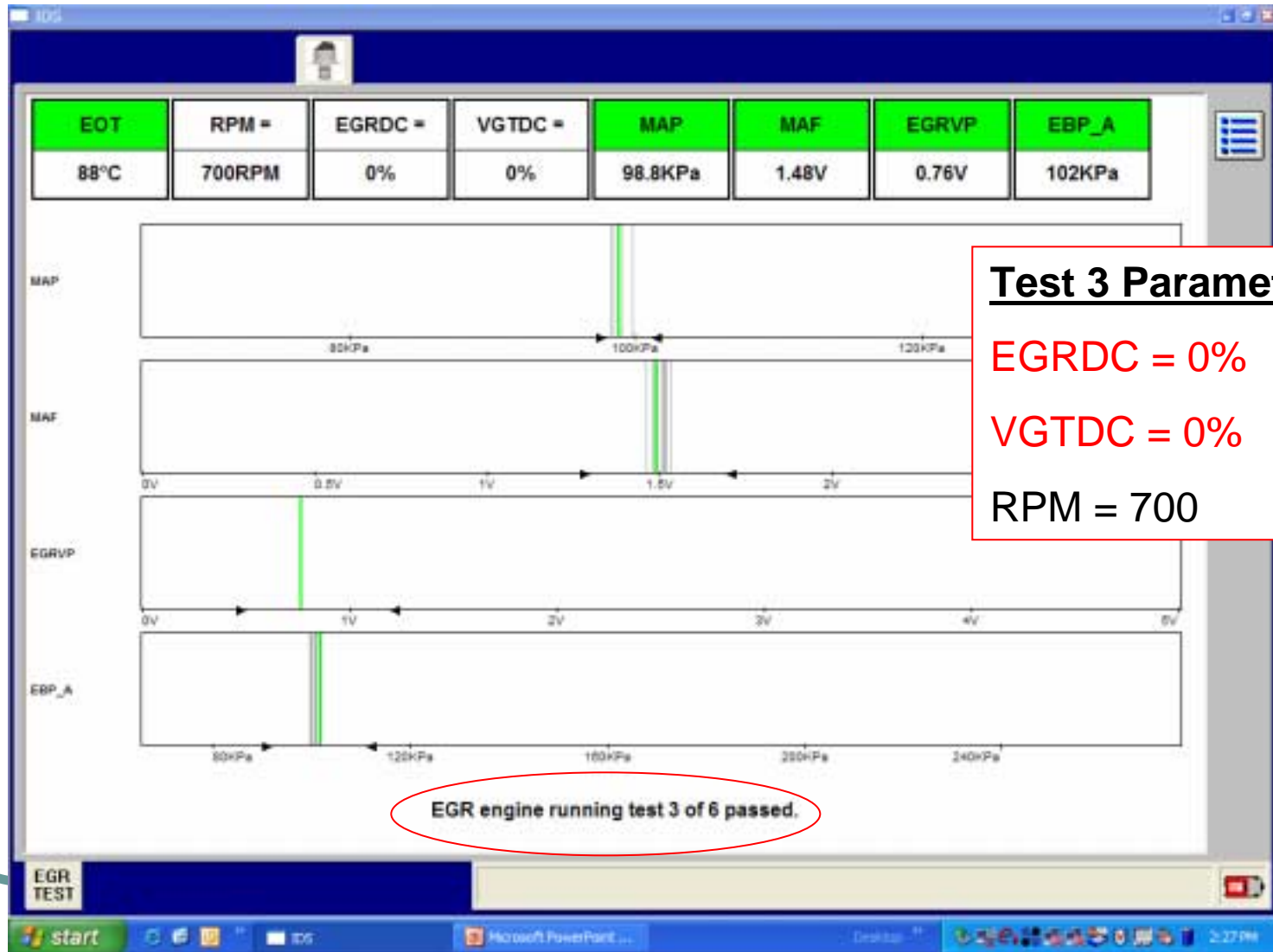
VGTD = 85%

RPM = 700

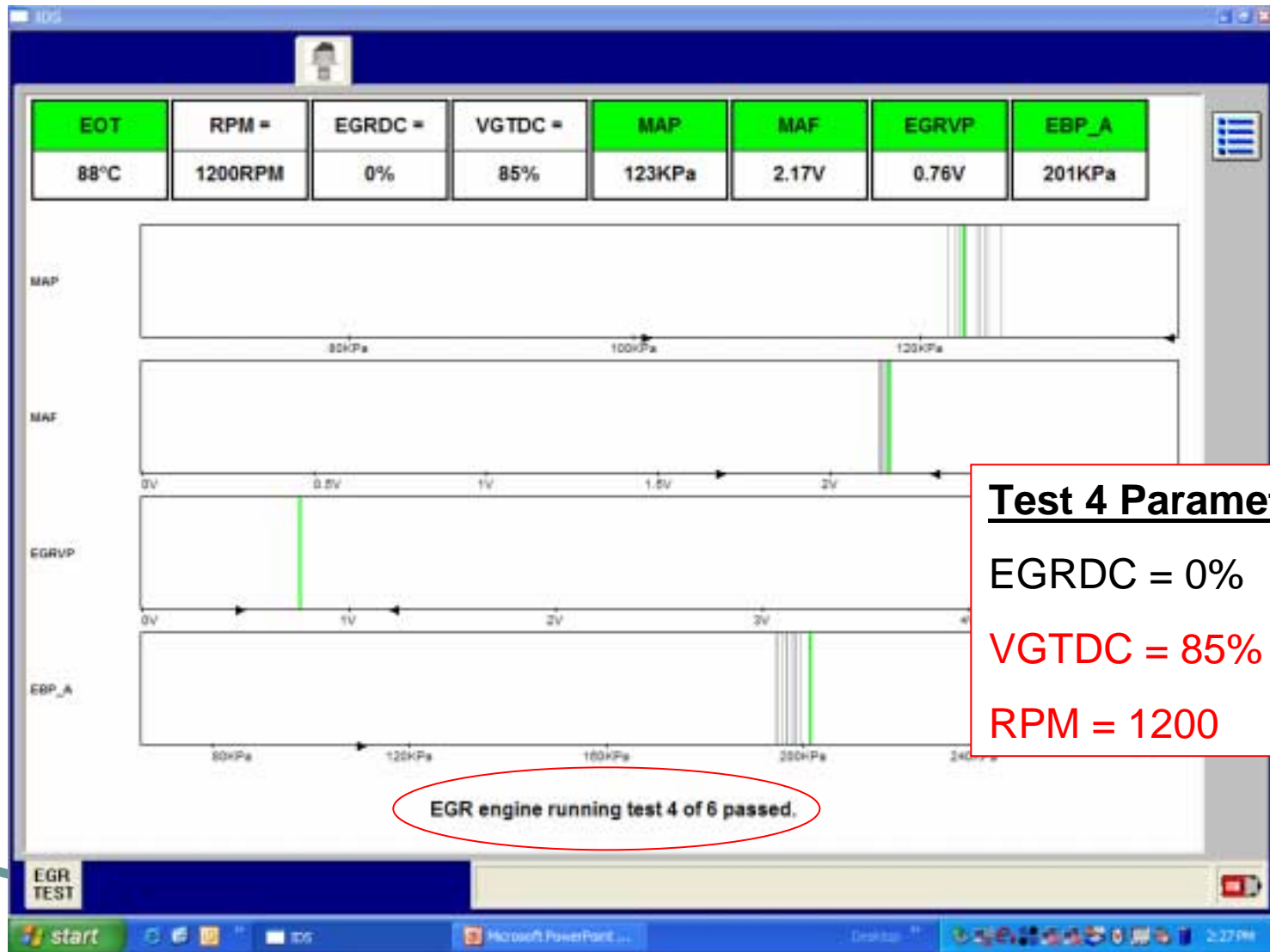
Air Management System Test



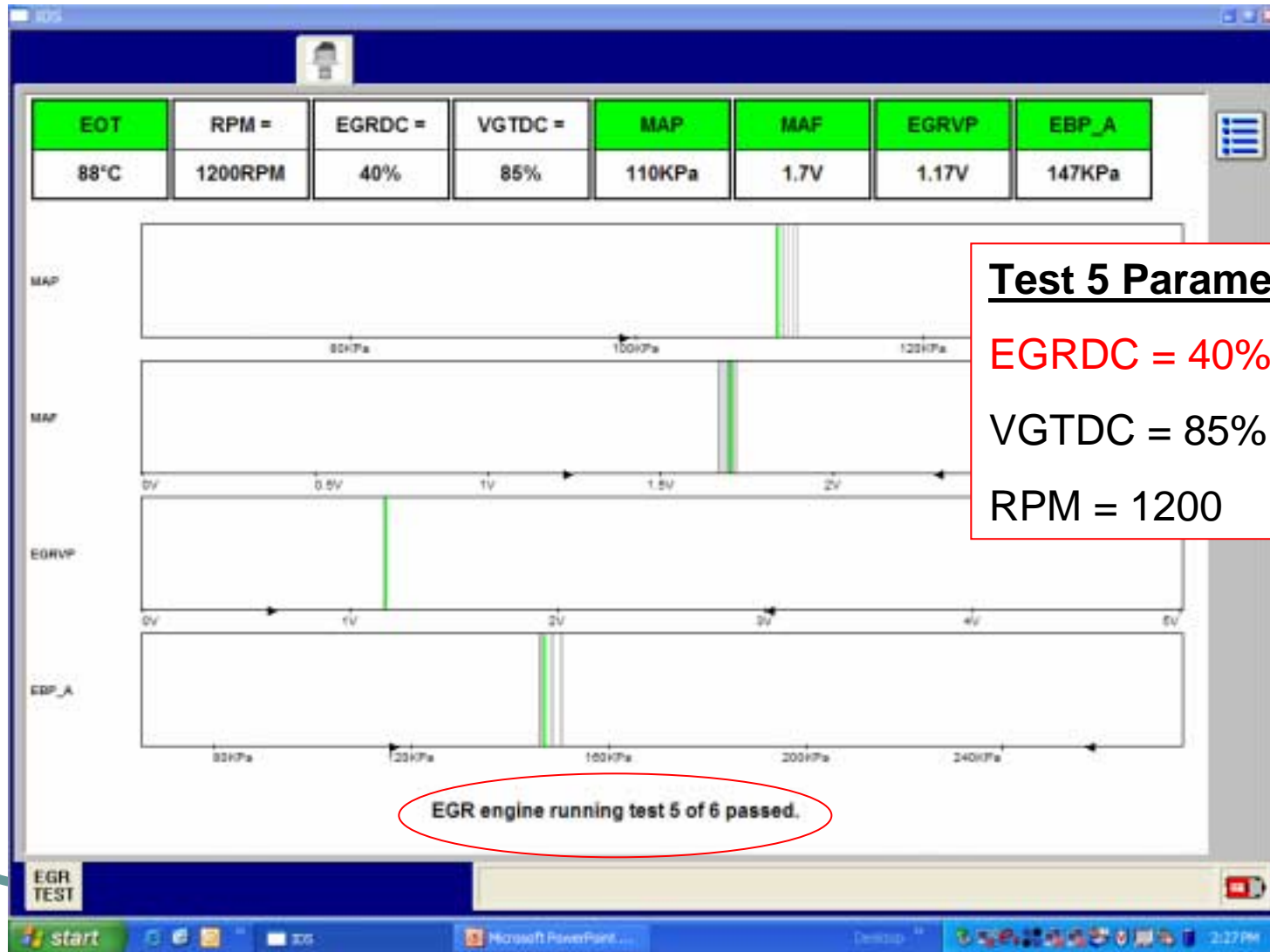
Air Management System Test



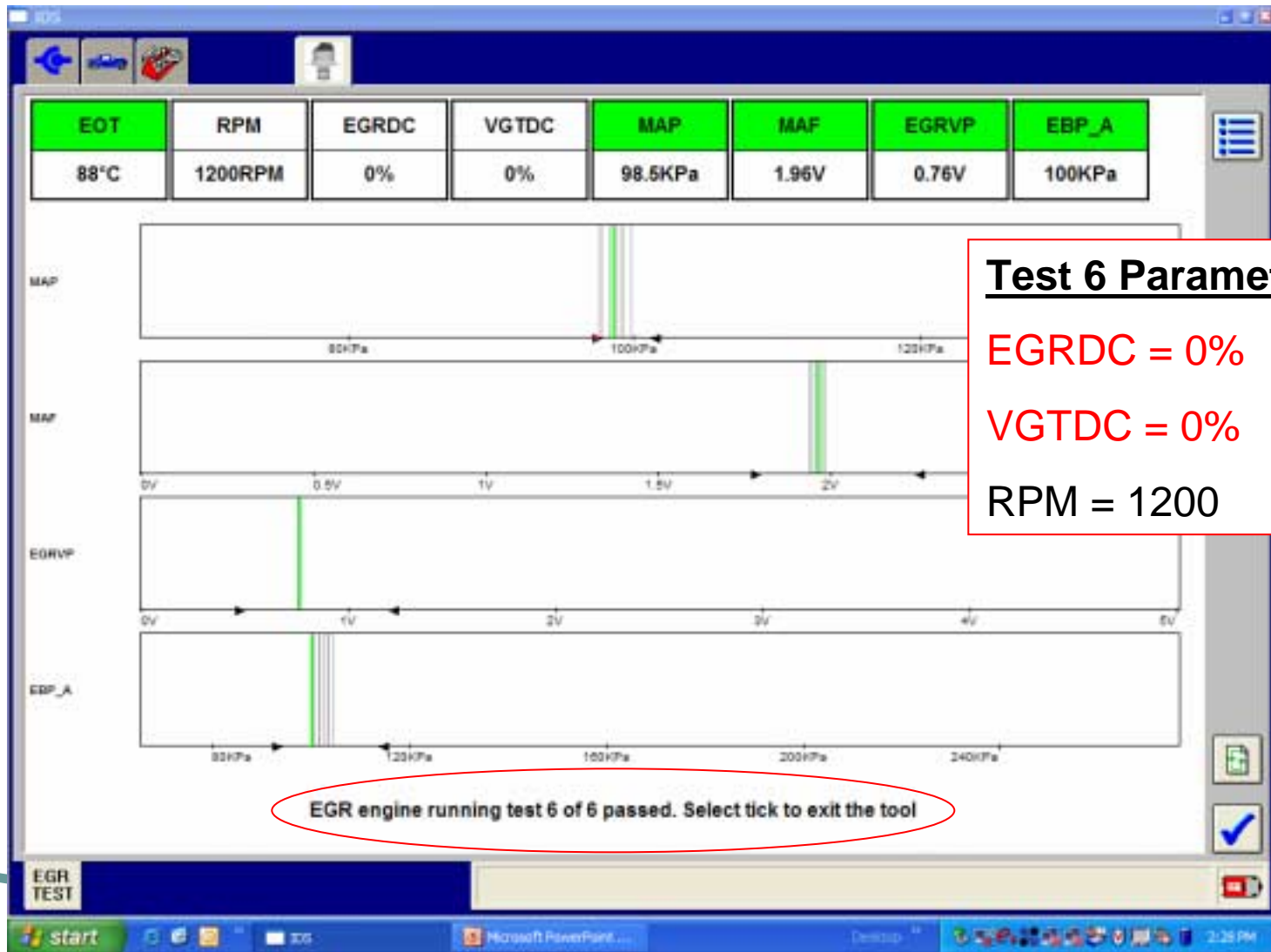
Air Management System Test



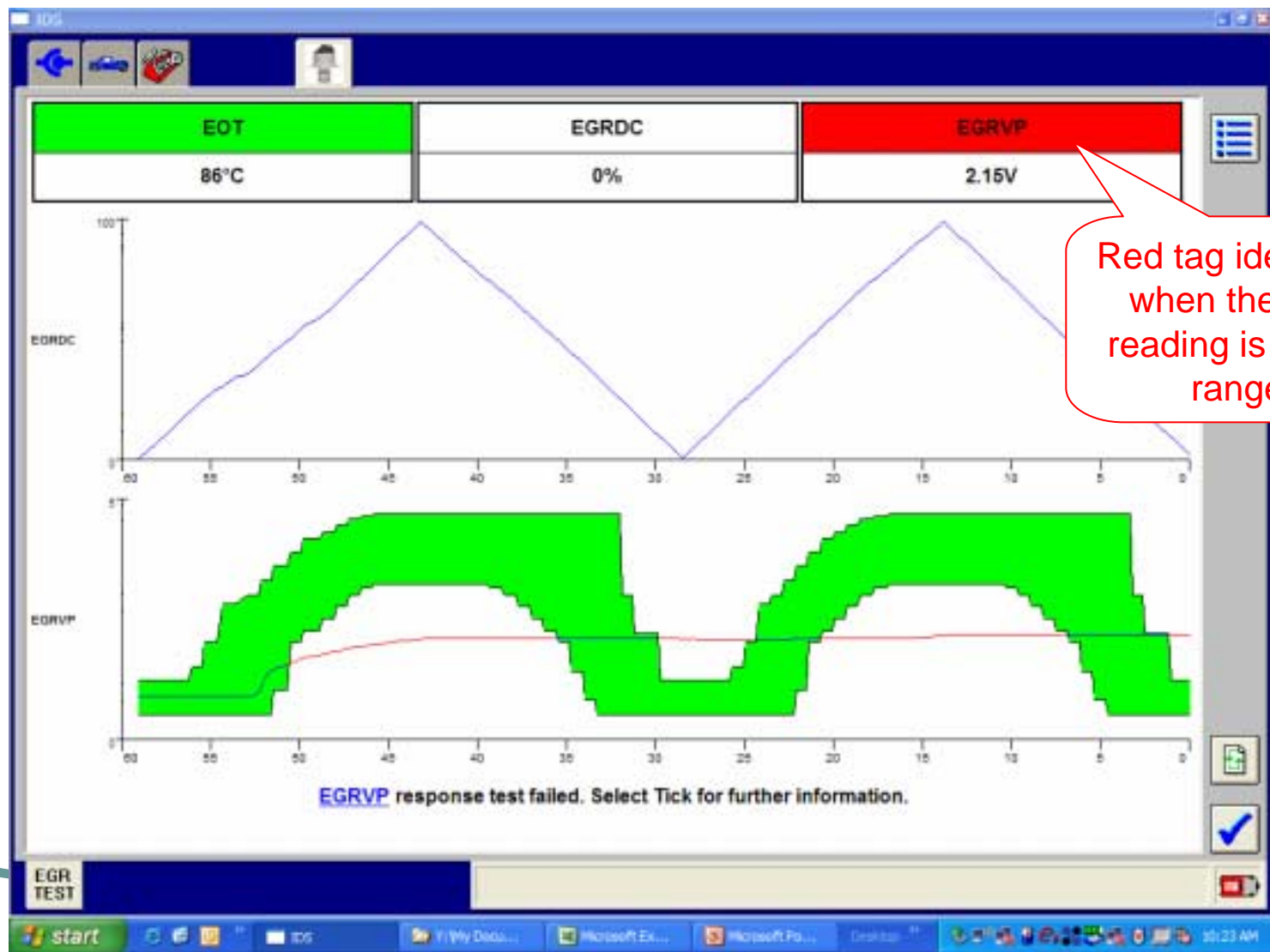
Air Management System Test



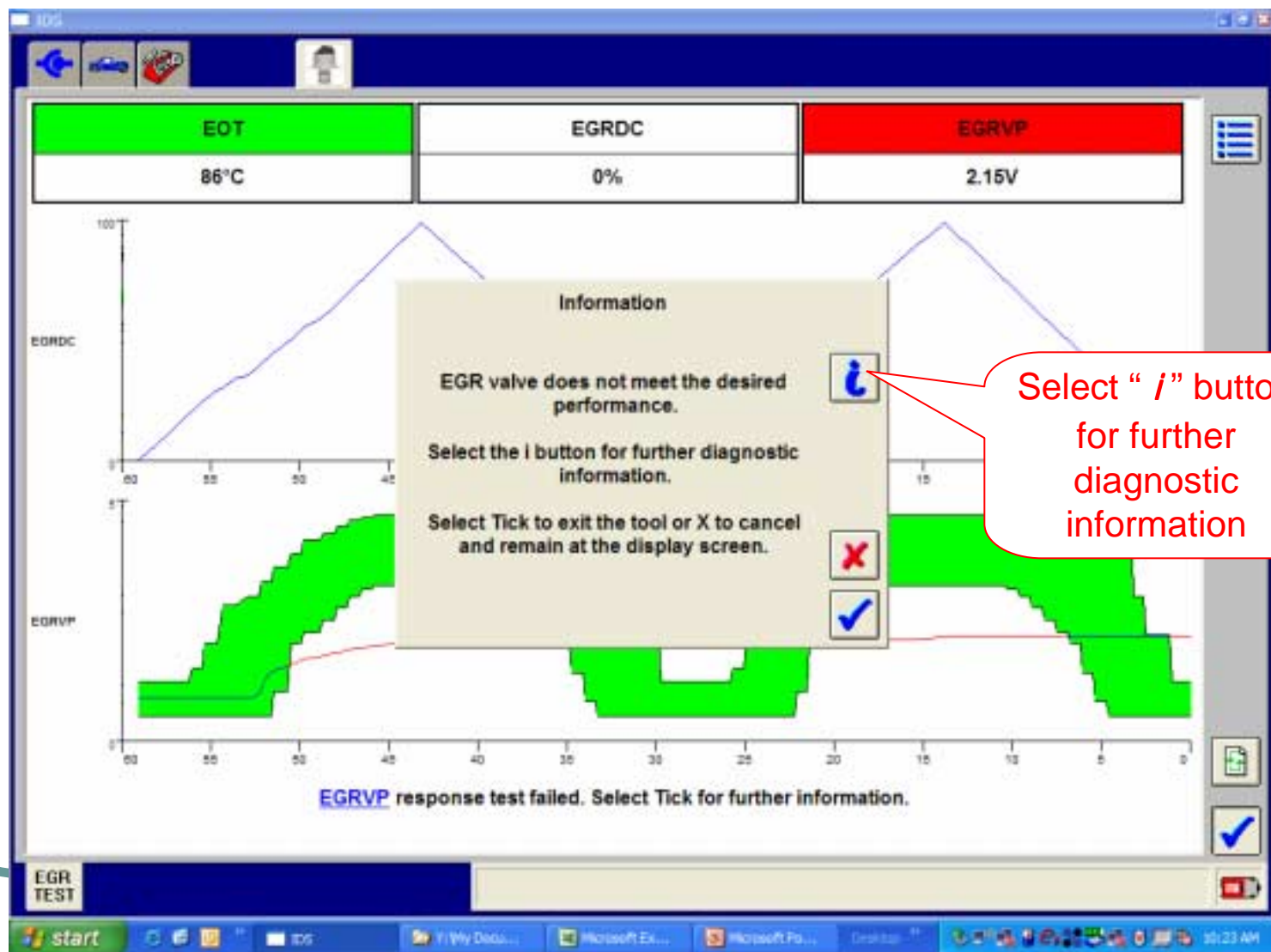
Air Management System Test



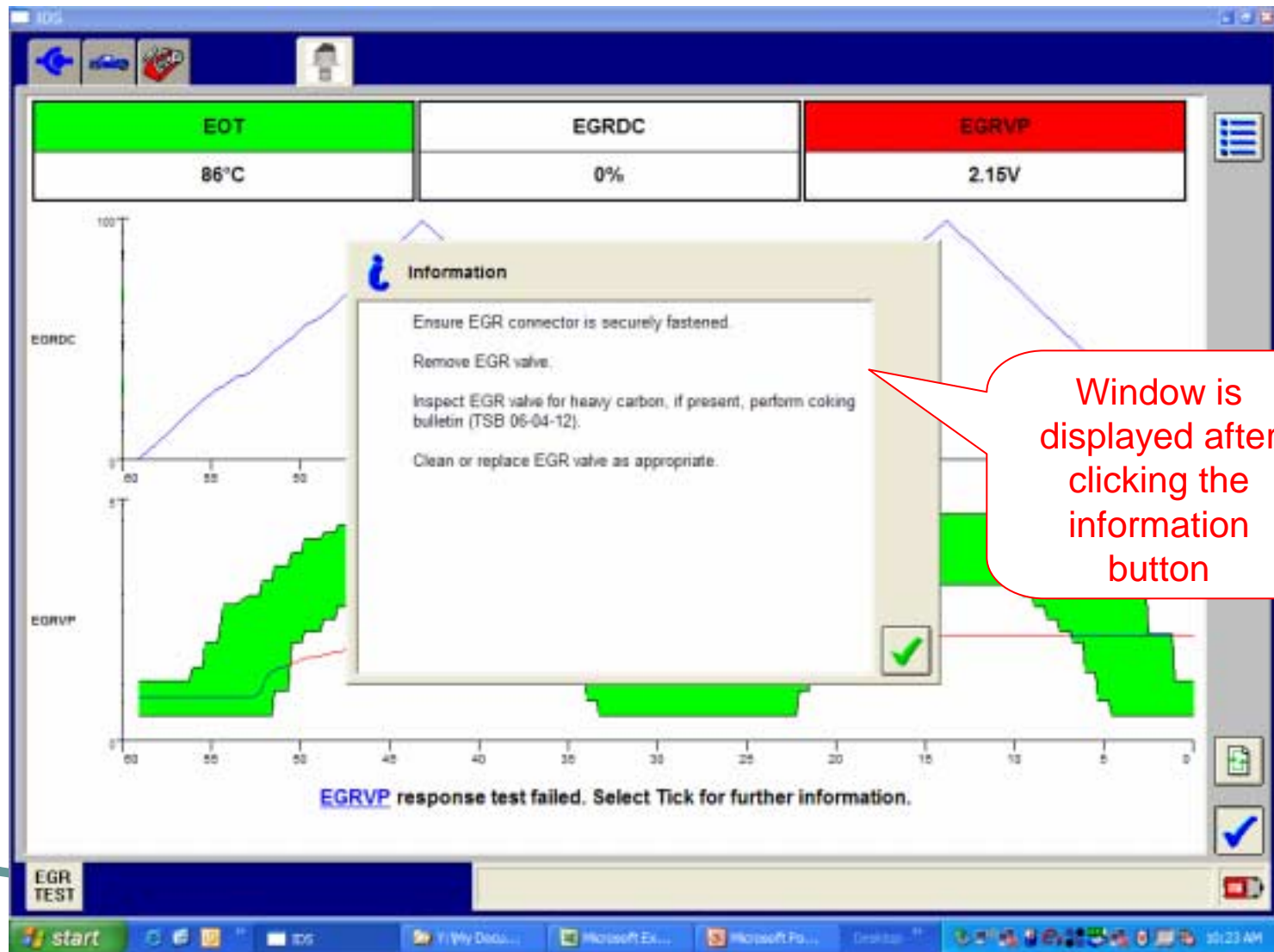
EGR Response Test - Failures



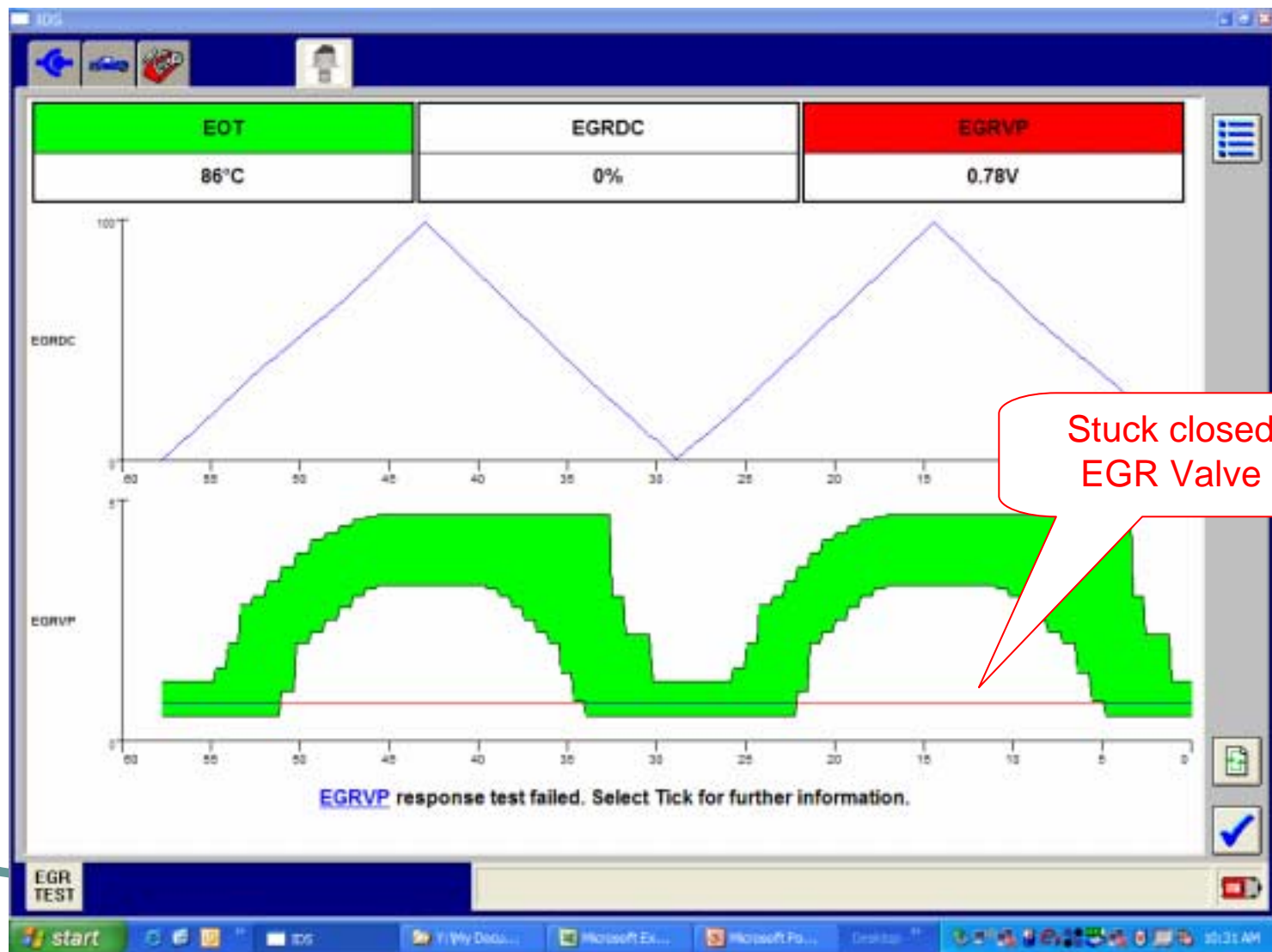
EGR Response Test - Failures



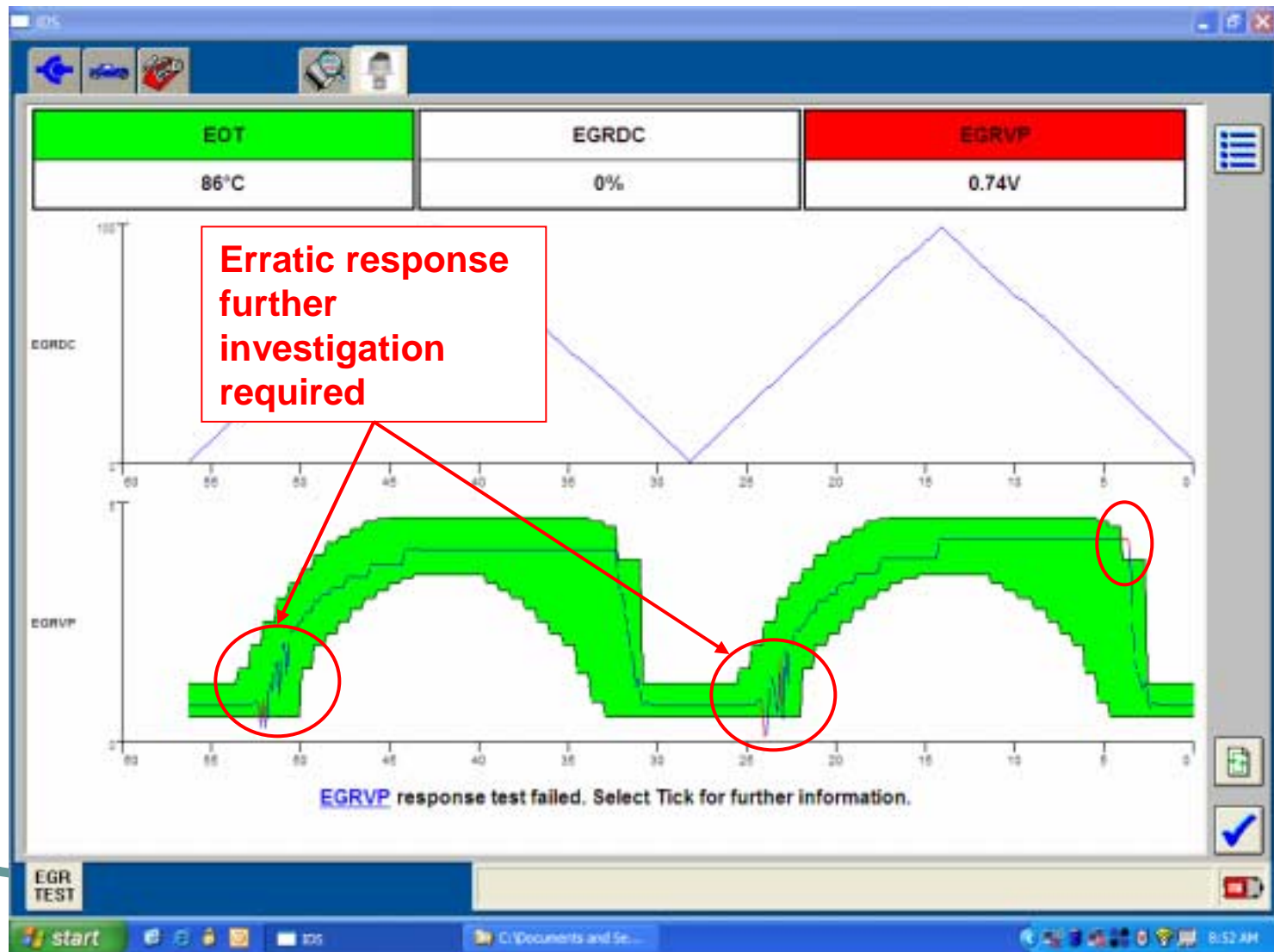
EGR Response Test - Failures



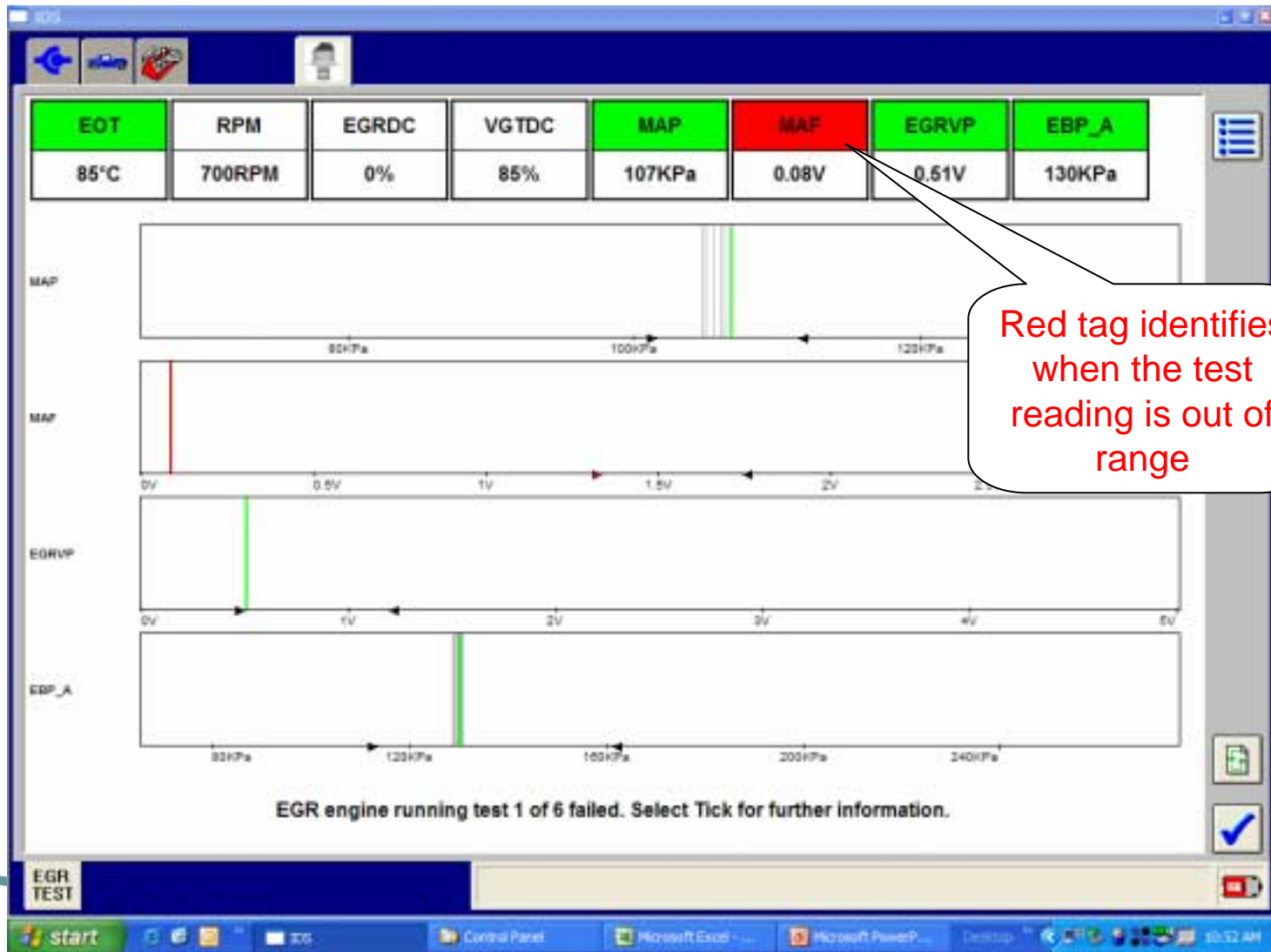
EGR Response Test - Failures



EGR Response Test - Failures



Air Management System Test - Failure



Air Management System Test - Failures

EOT	RPM	EGRDC	VG TDC	MAP	MAF	EGRVP	EBP_A
85°C	700RPM	0%	85%	107KPa	0.08V	0.51V	130KPa

Information

Failed air management diagnostic.
MAF outside threshold.

Select the i button for further diagnostic information.

Select Tick to exit the tool or X to cancel and remain at the display screen.

EGR engine running test 1 of 6 failed. Select Tick for further information.

Select "i" button for further diagnostic information

Air Management System Test - Failures

The screenshot displays a diagnostic software interface for an air management system test. At the top, a data table shows various sensor readings. Below this, a graph area shows real-time data for MAP, MAF, EGRVP, and EBP_A. An information window is overlaid on the graph, providing troubleshooting steps for a failed test. A red callout box points to this window.

EOT	RPM	EGRDC	VG TDC	MAP	MAF	EGRVP	EBP_A
85°C	700RPM	0%	85%	107KPa	0.08V	0.51V	130KPa

Information

Ensure MAF connector is securely fastened.
Perform MAF PC/ED Pinpoint Test J.

Possible causes: Intake air leak, MAF sensor contamination, EGR o-ring or gasket leak, or aftermarket air intake system.

EGR engine running test 1 of 6 failed. Select Tick for further information.

EGR TEST

start | Control Panel | Microsoft Excel | Microsoft PowerP... | Desktop | 10:52 AM

Window is displayed after clicking the information button. Provides information specific to failed sensor(s)

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Q & A

Question 1

- Do I need to run Power Balance before re-flashing the FICM for Injector Spool Valve Sticking?
 - A. Yes
 - B. No

Question 2

- Do you believe the new EGR IDS test is an improvement over the previous diagnostic?
 - A. Yes
 - B. No

Question 3

- Have you used the EGR Valve cleaning procedure?
 - A. Yes
 - B. No