ООО «Сервис Топливных Систем»

# Diagnostic Device
# PSG5 TOOL

## User Manual

Minsk, 2024

# Table of Contents

# 1. Description and Main Characteristics

## 1.1 Device Purpose

The PSG5 TOOL is designed for use with high-pressure fuel pumps (VP44) equipped with the PSG5 electronic control unit (ECU).

High-Pressure Fuel
Pump Assembly (VP44)

Electronic Control
Unit (ECU) PSG5

## 1.2 Device Functionality

**The functionality includes:**

- ECU Identification (displays the pump number).
- Displaying Self-Diagnosis Report (PSG Status).
- Reading, modifying, and recording the dPhi° coefficient (adjusts the timing of the cam onset, significantly affecting the amount of fuel injected at idle and low load conditions, to a lesser extent at medium and high load conditions, as well as fuel consumption).
- Reading, Modifying, and Recording the dPI$^{uS}$ Coefficient (affects the operation of additional fuel injection in Audi (starting with number 0470506016), Opel (0470504015, 0470504016), Ford (0470004009, 0470004013, 0470504021, 0470504024, 0470504035, 0470504036)).
- Resetting the Immobilizer Flag in Ford Fuel Pumps for subsequent installation and automatic "binding" to the vehicle.

## 1.3 Advantages of Use

 **The main advantages of using the device are:**
- Rapid Diagnosis of the fuel pump ECU.
- Fast (about 5 seconds) Immobilizer Reset in Ford fuel pumps.
- Ease of Use**.**
- Reliability**.**
- Autonomy – the device does not require additional equipment for operation, only a power supply is needed.

## 1.4 Device Description



Diagnostic Device PSG5 TOOL
1 – Device Enclosure. 2 – LCD Display. 3 – Self-Diagnosis LED. 4 – "Up" Button.
5 – "OK" Button. 6 – "Down" Button. 7 – "EXT" Button. 8 – Power and ECU Connector
Cable. 9 – Red Power Connection Cable "+". 10 – Black Power Connection Cable "-". 11
– ECU Connector.

## 2. Preparation for Operation

1. Disconnect the vehicle's connector from the pump ECU.
2. Connect the device to the ECU connector.
3. Apply external power (ensure a minimum of 12V power supply).

*Caution! Connect and disconnect the device from the ECU connector only when the power is off. Avoid "reverse polarity," as it may damage the ECU.*

## 3. Working with the Device
### 3.1 Turning On the Device

After turning on, the device will display the pump number, the ECU self-diagnosis report, and the LED will light up.
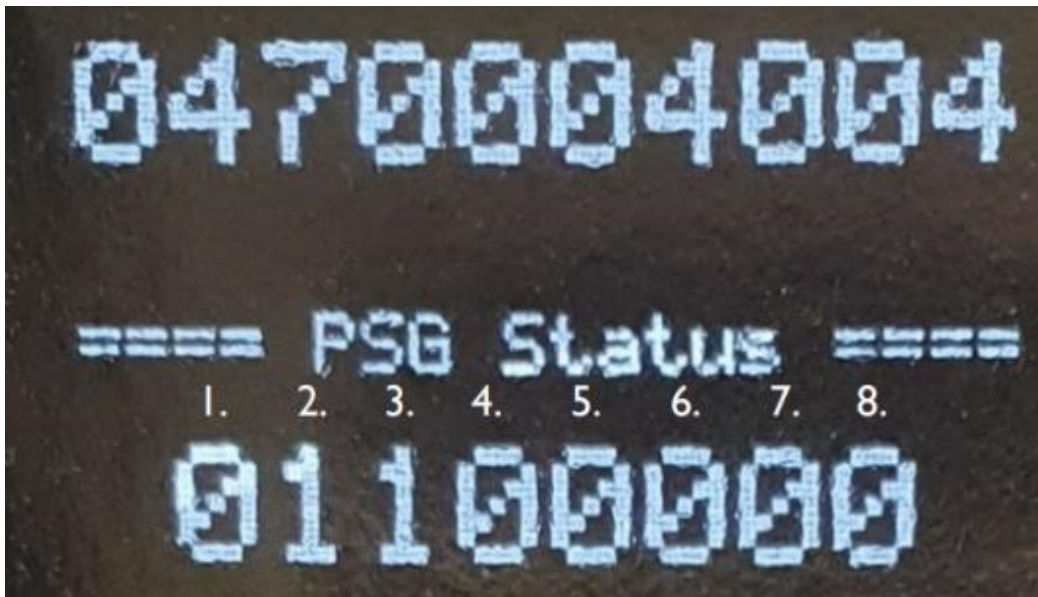
LED Operation Modes:
 - Green – No errors detected.

 - Red – Defect in the power section of the ECU.

 - Blinking Red – EEPROM memory defect.



Navigation in the menu is controlled using the "Up" and "Down" buttons.

## 3.2 Interpreting Self-Diagnosis Errors (PSG Status)



1 - CAN Bus ID.
2 - Electrical Circuit - Injection Valve.
3 - Electrical Circuit - Injection Valve Control Transistor.
4 - CAN RAM Error.
5 - Fuel Map Not Programmed.
6 - Analog-to-Digital Converter Error.
7 - EEPROM Hardware.
8 - EEPROM Checksum Error.

## 3.3 Working with the dPhi° Coefficient

In this menu section, the actual value of the dPhi° coefficient (adjustment of the cam onset timing, affecting fuel dosing) is read. To adjust the value, press and hold the up button (to increase) or the down button (to decrease). After entering the value, hold the "OK" button for 2-3 seconds. A message "wr-ok" will appear on the screen indicating successful recording.
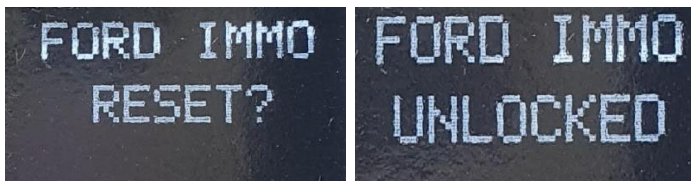
## 3.4 Working with the dPI$^{uS}$ Coefficient

In this menu section, the actual dPI$^{uS}$ coefficient value is read (adjusts the timing of the pre-injection). To adjust the value, press and hold the "Up" button (to increase) or the "Down" button (to decrease). After entering the value, hold the "OK" button for 2-3 seconds, and a message "wr-ok" will appear on the screen indicating successful writing.



## 3.5 Ford Immobilizer Reset Function

In this menu section, the FORD immobilizer reset function is available. To reset, press the "OK" button. After successful activation, a sound signal will be emitted, and the screen will display "IMMO Unlocked" while the unit will restart. The reset (immobilizer flag clearing) occurs within 5 seconds.



Procedure for Binding the Fuel Pump to the Vehicle:
1. Install and connect the fuel pump.
2. Turn on the ignition for 10-15 seconds without starting the vehicle.
3. Turn off the ignition for 10-15 seconds.
4. Turn on the ignition again (the immobilizer light should go out) and start the vehicle.

## 3.6 Device Reset

To complete the coefficient adjustments, the ECU needs to be reset. To do this, hold the "EXT" button for 2-3 seconds – a reset will occur.

# 4. Package Contents

1. PSG5 Tool Diagnostic Device with ECU and power connection cable – 1 unit.

# 5. Operation Information and Warranty Obligations

### 5.1 Storage

The device should be stored in a dry place, at an ambient temperature of -40°C to +40°C and relative humidity up to 85%.

### 5.2 Transportation

The device can be transported by any means at an ambient temperature of -40°C to +50°C, provided it is protected from mechanical damage and atmospheric precipitation.

### 5.3 Warranty

1. The manufacturer guarantees the device's functionality for 12 months from the date of sale.
2. The warranty period for connection cables and adapters is 3 months from the date of sale.
3. The manufacturer does not cover warranty obligations for mechanical damage, misuse, improper transportation, or storage.
4. The consumer assumes all responsibility and any damage resulting from using the device contrary to the requirements of this manual.

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