EG GDI 缸内直喷 ECU软件

用户手册

LyanteGAS

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注意:

在进行校准之前,请确保EG INJECTO控制单元ECU已正确安 装。<mark>电线连接器应向下</mark>。建议将其放置在避免高温和湿度负 面影响的位置。<mark>严禁用水喷射ECU盒子或长时间与水接触。</mark>

正确安装ECU的方法如下图所示



ECU线束中的红白色+12V点火钥匙线需要连接到从点火钥 匙转到ACC位置时出现+12V电压的地方, 在发动机启动时电压不低于+9V,并在发动机工作期间保持 稳定。熄火后电压应迅速降至0V。

建议检查连接到车辆元件的电路在发动机工作期间不会暂时断电,如空调压缩机电源线。 +12点火钥匙红白线与从电池连接到红色+12V电源线的电 压差不应大于0.5V伏,否则可能导致汽油喷射器仿真问 题和汽油ECM中注册的DTC问题。

强烈建议将ECU线束中的+12V点火钥匙红白线 连接到原车的+12V点火钥匙电路。

| 1. The | main | window | v of the p | rogram | 程序的 | 的主窗 | | |
|--|--|---|---|--|----------|--------------------------|--|--|
| ♦EG Injecto ver 1.9.7 File Edit Ports Language Op | otions Help | | | 0 | 1 | | | - 🗇 x |
| Readings V Image: Engine RPM 0 Image: Petrol dose (mg) 0.00 Image: Gas time (ms) 0.00 Image: Margin dose (mg) 0.00 | Documentation F1 Shortcut keys F2 Remote support Report problem About us | OFF 0.00 _{mg} 0 0.00 _{ms} | OFF 0.00mg0 0.00ms | 0.00 _{mg} 0 0.00 _{ms} | Candra | 0FF 0.00mg0 0.00ms | PETR Petrol time Fuel consumpti 0 0 Petrol | COL s window |
| MAP press [bar] 0.00 Ø Gas press [bar] 0.00 Ø Rai press OUT [bar] 0.00 Ø Rai press OUT [bar] 0.00 Ø Rai press OUT [bar] 0.0 Gas temp. [C] 0.0 Ø Gas temp. [C] 0.0 Ø Gas VA Ø STeTUS DISCONNECTED Loop status 1 N/A Ø RTET [%] 0.0 □ TFT [%] 0.0 □ Ratio [A] 0.00 □ Ratio [A] 0.0 □ Ratio [Pess stt[bar] 0.0 □ Ratio [Pess stt[bar] 0.0 | secongs Petrol | Cas Cas | Engine Corrections Cylinders number v Rpm Collimation RPM source Coll Signal threshold [V] 0.0 Volinders per coil v High pressure sensor Sensor type Sensor type Analog v Pressure from OED (bar) 0.00 Calibration point 1 [V/bar] 0.00 / 0.0 Auto calibration correction Sensor manual calibration Sensor manual calibration | OBD Mode OFF V Protocol CAN 250k 11b V Petrol injectors Injection sequence detection Injection sequence 1 - 1 - 1 - 1 | Advanced | Scope | Petrol (%) (%) 0.0 0.0 Petrol Petrol (%) (%) 0.0 0.0 Conditions Conditions Conditions | eff excl (imit [X6]) 0.0 (imit [X6]) imit [X6] (imit [X6]) imit [X6] |
| Device: Injecto Disconnected Sta | p ID: 0x6FBE4138 (Injecto) | | | | | | Rail press. em | u. [x] 0.000 PCID: 5059-6AAC |

此文档和其他必要的说明可以在"<mark>帮助</mark>"选项卡下的"文档"文件夹中找 到,然后单击"<mark>文档</mark>"。我们可以使用键盘快捷键直接 进入文件夹。启动程序后按"<mark>F1</mark>"键即可。 <mark>软件调试窗口的第一排是主菜单,第二排是子菜单</mark>。

2. Basic parameter settings engine 基本参数设置引擎发动机

| EG Injecto ver 1.9.7 (Chevrolet) | t Malibu 1.5 turbo el.czujnik petrolgas _Injecto_221 | 5-20020_settings.eggc.crp) | | | | | | | - 🗇 🗙 |
|-----------------------------------|--|--------------------------------------|--------------------|-----------------------------|----------|-----------------|------------|--------------------|---------------|
| File Edit Ports Language Opti | | | | | | | | | |
| Readings 🗸 🗸 🗸 | ON | ON | | ON | | ON | | GAS | |
| Engine RPM 673 | 1 94-1 | 1 94 | -1 | 1 921 | | 1 931 | Pet | oltimes wind | dow |
| Petrol dose [mg] 1.94 | 2.94 | 2.77 | ig. | 2 77 | | 2 79 | Fuel cons | umption | ~ |
| ✓ Gas time [ms] 2.81 | 2.0 Ims | 2.11 | ns | 2.11 ms | | 2.1 O ms | 32 | 37 | 0 |
| MAP press. [bar] 0.29 | Settings Calibration | Petrol usage C | Corrections | OBD Se | ervice | Scope | | Petrol | Patrol |
| Gas press. [bar] 1.20 | Petrol | Gas | Change | lover | Advanced | | Petrol [%] | [%] | limit [%] |
| Rail press. OUT [bar] 29.5 | | - | | | | | | 0.3 | 6.2 |
| Reducer temp. [C] 83.4 | | | | | | | Petrol | Petrol averaged | Distance |
| Gas temp. [C] 81.4 | | | | | | | [l/100km] | [l/100km] | [km] |
| Advanced < | 1 | | | | | | | 13.4 | |
| OBD 🗸 | 1 | | | | | | Gas | averaged | |
| Status CONNECTED | | | | | | | [l/100km] | [l/100km] | |
| Errors Clear | | Engine | OBD | | | | | Clear | |
| Loop status 1 CLOSE | | Cylinders number 4 | Mode | ON Y | | | Condition | 15 | |
| ☑ RTFT [%] -7.8 | | Dam | Protocol | CAN 500k 11b V | | | Rail pres | s fall | |
| STFT [%] -1.5 | | Rpm | | | | | I | | |
| LTFT [%] -6.2 | | RPM source Coll | Petrol injec | tors | | | I | | |
| Engine RPM 6/8 | | Signal threshold [V] [3.0 | | njection sequence detection | | | I | | |
| Engine temp [C] 95 | | Cylinders per coll | 1 V Injection sequ | Ience 1 - 3 - 4 - 2 | | | I | | |
| MAP press. [bar] 0.19 | | High pressure sensor | Emulation typ | e standard | | | I | | |
| Rail press. [bar] 29.6 | | Sensor type Analog | g 🖌 | | | | I | | |
| Rail press. set [bar] 30.0 | | Pressure from OBD [bar] | 29.6 | | | | I | | |
| Cambda [v] 0.87 | | Sensor voltage [V] | 0.03 | | | | I | | |
| | | Calibration point 1 [V/bar] 0.00 | / 0.0 | | | | I | | |
| | | Calibration point 2 [V/bar] 0.03 / 2 | 206.3 | | | | I | | |
| | | Auto calibration correction ON | <u> </u> | | | | I | | |
| | | Sensor auto calibration | | | | | I | | |
| | | Sensor manual calibration | | | | | I | | |
| | | | | | | | I | | |
| | | | | | | | Gas corre | ctions | |
| | | | | | | | Petrol-co | rections | \rightarrow |
| | | | | | | | Railor | es IN [v] | 1 720 |
| | | | | | | | Rail pre | ss. OUT [x] | 1.720 |
| | | | | | | | 🗌 Rail pre | ss. emu. [x] | 1.000 |
| Device: Injecto Disconnected Stop | ID: 0x6FBE4138 (Injecto) | | | | | | | PCI | D: 5059-6AAC |
| | | | | | | | | | |

- 1. 在汽油选项卡中输入车辆所配备的引擎发动机基本数据。
- 2. 在"<mark>引擎</mark>"窗口中设置正确的气缸数。

3. 在RPM窗口中指示我们从哪里获取转速信号。通常这是一个点火线圈, 但也可以从曲轴位置传感器或凸轮轴位置传感器获取。

4. 在进行下一步编程之前,需要连接车辆的OBD。

| EG Injecto ver 1.9.7 (Chevrole) | et Malibu 1.5 turbo el.czujnik pe | trolgas_Injecto_2215-20020_se | attings.eggc.crp) | | | - @ × |
|-----------------------------------|-----------------------------------|-------------------------------|-------------------------|----------------|----------------|----------------------------|
| File Edit Ports Language Op | tions Help | | | | | |
| Readings 🗸 🗸 | | ON | ON | ON | ON | GAS |
| Engine RPM 673 | | 1 94 1 | 1 941 | 1 921 | 1 931 | Petrol times window |
| Petrol dose [mg] 1.94 | | 1.0-4mg* | 0.77 | 0.77 | 0.70 | Fuel consumption 🛛 🗸 |
| ✓ Gas time [ms] 2.81 | | 2.81 _{ms} | Z.11 ms | 2.77 ms | 2.78 ms | 32 37 0 |
| MAP press. [bar] 0.29 | Settings | Calibration F | etrol usage Corrections | OBD Service | Scope | Petrol |
| Gas press. [bar] 1.20 | Settings | Readings | | | | Petrol [%] [%] limit [%] |
| Rail press. OUT [bar] 29.5 | Second Second | w www. | | | | 0.3 6.2 |
| Reducer temp [C] 83.4 | Midde ON | ECUID KOTO | | | | Petrol |
| Gastemp. [C] 81.4 | Automatic disconnect ON | 0000728 | | | | [l/100km] [l/100km] [km] |
| Adversed (| Protocol CAN 500k-rro | VIN KL1ZA695 | 9LB304554 | | | 13.4 |
| Advanced | ECU addressing Physical | DTC number 0 / 0 | | | | Gas |
| OBD | Auto erase | | | | | [l/100km] [l/100km] |
| Status CONNECTED | DTC auto erase mode OFF | · · · · · | | | | Clear |
| Loop status 1 CLOSE | | | | | | Conditions |
| | | Read | | Clear | | Rail press fall |
| | Pending DTC | | | | | |
| LITET [%] -6.2 | NO ERRORS | | | | | |
| Engine RPM 678 | | | | | | |
| Engine load [%] 17 | | | | | | |
| Engine temp [C] 95 | | | | | | |
| MAP press. [bar] 0.19 | | | | | | |
| Rail press. [par] 29.0 | | | | | | |
| Lambda [V] 0.87 | | | | | | |
| Speed [km/h] 0 | | | | | | |
| | | | | | | |
| | Stored DTC | | | | | |
| | NO ERRORS | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | Gas corrections < |
| | | | | | | Petrol corrections 🛛 🗸 |
| | | | | | | Rail press. IN [x] 1.720 |
| | | | | | | Rail press. OUT [x] 1.720 |
| | | | | | | Rail press. emu. [x] 1.000 |
| Device: Injecto Disconnected Stop | p ID: 0x6FBE4138 (Injecto) | | | | | PCID: 5059-6AAC |

5. 进入"OBD"选项卡,在"OBD设置"组中将"模式"切换为"开启"。

6. 连接应自动建立。否则,我们尝试通过选择其他协议而不是

"CAN 500k 11b" (最常见的)来建立通信。

2.1 Calibration of the high pressure sensor 高压油压传感器校准

| EG Injecto ver 1.9.7 (| Chevrolet | t Malibu 1.5 turbo el.czujnik petrolgas _Injecto | _2215-20020_settings.eggc.crp) | | | | | | | | | • 🗗 🗙 |
|---------------------------|---------------|--|--|----------------|----------------|----------------------|--------------|---------|----------------------|------------|--------------------|--------------|
| File Edit Ports Langu | age Opti | | | | | | | | | | | |
| Readings | ~ | ON | | ON | | 0 | 4 | | ON | | GAS | |
| C Engine RPM | 673 | 1 94 | .1 | 1 94 | | 1 92 | . 1 | 1 | 931 | Pet | roltimes wind | dow |
| Petrol dose [mg] | 1.94 | 2.94 | · | 2.77 | | 2.77 | -mg 7 | | 70 | Fuel cons | sumption | ~] |
| Gas time [ms] | 2.81 | 2.01ms | 5 | 2.11 ms | | 2.11 | ms | 4 | L. / O _{MS} | 32 | 37 | 0 |
| MAP press. [bar] | 0.29 | Settings Calibration | Petrol usage | Correc | tions | OBD | Service | | Scope | | Petrol | Patrol |
| 🗹 Gas press. [bar] | 1.20 | Petrol | Gas | | Changeov | er | A | dvanced | | Petrol [%] | [%] | limit [%] |
| 🗹 Rail press. OUT [ba | 3 29.5 | | | | | | | | | 1 | 0.3 | 6.2 |
| Reducer temp. [C] | 83.4 | | | | | | | | | Petrol | Petrol averaged | Distance |
| Gas temp. [C] | 81.4 | | | | | | | | | [l/100km] | [l/100km] | [km] |
| Advanced | < | | | | | | | | | | 13.4 | |
| OBD | ~ | | | | | | | | | Gas | averaged | |
| Status CONN | ECTED | | | | | | | | | [l/100km] | (ly100km) | |
| Errors | Clear | | Engine | | OBD | | | | | | Clear | |
| Loop status 1 | LOSE | | Cylinders number | 4 ~ | Mode | ON | ~ | | | Condition | ns | |
| 🗹 RTFT [%] | -7.8 | | Bam | | Protocol | CAN | N 500k 11b 🗸 | | | Rail pres | s fall | |
| STFT [%] | -1.5 | | DDM source | Coll | Detroliniester | | | | | | | |
| Engine RPM | -6.2 679 | | Cignel threehold D./ | | Petrotinjecto | 5 | | | | | | |
| Engine load [%] | 17 | | Signal the should [v] | 3.0 + | Inje | consequence dececcio | 1 3 4 2 | | | | | |
| Engine temp [C] | 95 | | Cylinders per coll | 1 | Emulation type | Je Standard | 1-3-4-2 | | | | | |
| MAP press. [bar] | 0.19 | | High pressure senso | r | Emplation type | Junuara | | | | | | |
| Rail press. [bar] | 29.6 | | Sensor type | Analog 🖌 | | | | | | | | |
| L ambda [V] | 0.87 | | Pressure from OBD [ba | r] 29.6 | | | | | | | | |
| Speed [km/h] | 0.07 | | Sensor voltage [V] | 0.03 | | | | | | | | |
| | | | Calibration point 1 [V/b Calibration point 2 D//b | ar] 0.00 / 0.0 | | | | | | | | |
| | | | Auto solibration correct | | | | | | | | | |
| | | | Senses sub- sub- | ibration | | | | | | | | |
| | | | Consorradio can | the street | | | | | | | | |
| | | | Sensor manual c | libration | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | Gas corre | actions | < |
| | | | | | | | | | | Petrol co | rrections | ~ |
| | | | | | | | | | | Rail pre | əss. IN [x] | 1.720 |
| | | | | | | | | | | Rail pre | ess. OUT [x] | 1.720 |
| | | | | | | | | | | Rail pre | əss. emu. [x] | 1.000 |
| Device: Injecto Disconnec | ted Stop | ID: 0x6FBE4138 (Injecto) | | | | | | | | | PCIE | D: 5059-6AAC |

 在首次启动汽车和程序时,有必要正确选择高压油压传感器的 类型(模拟电压式或者数字式信号)并校准它,以便传感器的读 数与从车辆的0BD 读取的压力值一致。

注意:**如果是在数字式传感器的情况下,黄线和黄黑线 不应连接到** <mark>高压油泵的电路中。</mark> 因为OBD会读取数字信号。

(0.8V- 2.7V)若电压正常,其压力值保持稳定。 OBD压力值 0.25 Bar.

如果无法从车辆的OBD读取汽油压力值,应使用外部OBD扫描仪手动校准传 感器。我们按照程序中显示的步骤逐步执行该过程。

<u>注意: 加速踏板应迅速踩下并立即释放,否则校准可能会报告完成</u> 高压油压传感器校准的问题!

| ◆EG Injecto ver 1.9.7 (kia sport | | | | | | | | _ | |
|----------------------------------|-------------------------|---------------------------------|---------------------------|------------------------|----------|--------------------|-----------------|--------------|-----------|
| File Edit Ports Language | Options Help | | | | | | | | |
| Readings 🛛 🗸 🗸 | ON | | | ON | | ON | F | ETROL | |
| Engine RPM 664 | 2.47 1 | 23 | 5 1 | 2 / 2 1 | | 2 36 1 | Petro | l times wind | low |
| Petrol dose [mg] 2.47 | 2.47 mg. | 2.0 | Smg. | ZZmg. | | 2.30 mg. | Fuel consu | mption | ~ |
| Gas time [ms] 0.00 | 0.00 _{ms} | 0.0 | O ms | 0.00 _{ms} | | 0.00 _{ms} | 100 | 31 | 0 |
| MAP press. [bar] 0.35 | Settings Calibration | Petrol usage | Corrections | OBD Se | rvice | Scope | | Petrol | |
| Gas press. [bar] 1.38 | Petrol | Gas | Changeg | over | Advanced | | Petrol [%] | [%] | limit [%] |
| Rail press. OUT [bar] 39.5 | | | | | | | | 5.0 | 2.1 |
| Reducer temp. [C] 79.5 | | | | | | | Petrol | Petrol | Distance |
| Gas temp. [C] 30.1 | | | | | | | [l/100km] | [l/100km] | [km] |
| Advanced < | 1 | | | | | | | 14.4 | |
| OBD V | 1 | | | | | | Gas Ulacolum | averaged | |
| Status CONNECTED | | | | | | | [VIOORM] | Clear | |
| Errors Clear | | Engine | re sensor celibration | × | | | Con distant | | |
| Loop status 1 CLOSE | | Cylinders numbe | o sonsor carbradon | v | | | Condicions | | |
| ✓ RTFT [%] -9.3 | | Rom | | 1 500k 11b Y | | | Petrol mod | 16 | |
| STFT [%] 6.2 | | RPM source | | | | | | | |
| Ratio [x] 0.99 | | Signal threshold | Calibration is complete b | out the result is poor | | | | | |
| Engine RPM 663 | | Cylinders per cei | | 1.3.4.2 | | | | | |
| Engine load [%] 25 | | Cymuora por cor | | <u> </u> | | | | | |
| Engine temp [C] 87 | | High pressure : | UN | | | | | | |
| MAP press. [bar] 0.34 | | Sensor type | iarug - J | | | | | | |
| Speed [km/h] 0 | | Pressure from OBD [bar] | 38.6 | | | | | | |
| Fuel dose [mg] 5.50 | | Calibration point 1 D/(barl 0.9 | 0.93 | | | | | | |
| Consumption [Vh] 0.60 | | Calibration point 2 [V/bar] 1.1 | 7 / 57.5 | | | | Gas correc | tions | × |
| | | Auto calibration correction | OFF V | | | | | P [x] | 1.000 |
| | | Sensor auto calibration | | | | | Gas pre | ss fx] | 1.152 |
| | | Sensor manual calibration | | | | | Gas tem | p. [x] | 0.991 |
| | | | | | | | Global () |] | 1.272 |
| | | | | | | | 🗌 Inj. dead | time (ms) | 0.48 |
| | | | | | | | U Inj. open | time [ms] | 1.91 |
| | | | | | | | Petrol cor | rections | × |
| | | | | | | | Rail pres | is. IN [x] | 1.983 |
| | | | | | | | Rail pres | is emu [x] | 1.981 |
| | | | | | | | Contain prot | 0.000 | 2020 5200 |
| Device: Injecto connected Reco | 10:0x86138364 (Injecto) | | | | | | | PCID: | 1020-1199 |

或者,您可以在手动模式下校准,只需在空闲和满载时设置值。



注意:

如果缺少OBD连接,应手动校准两个校准点。它们的电气高压传感器 信号值[V]应在空闲和负载下使用外部OBD扫描仪分配给汽油压力[bar]

2.2 Detection of the petrol injection sequence 汽油喷射顺序检测



| ♦EG Injecto ver 1.9.7 (kia sport | tage firmowa.eggc.crp) | | | | | | | E | - 🗗 x |
|----------------------------------|--|---|-------------------------|----------------------|----------|---------------------------------|---------------------|-------------------------------|-----------|
| File Edit Ports Language (| Options Help | | | | | | _ | | |
| Readings | ON | | ON | ON | | ON | | PETROL | |
| Potrol doso [ma] 2.44 | 1 (C) 1 2.41 mg ¹ | | 2.37 _{mg} 1 | 2.47 _{mg} 1 | | 2.42 _{mg} ¹ | Fuel con | | 20W |
| Gestime [ms] 0.00 | 0.00 _{ms} | | 0.00 _{ms} | 0.00 _{ms} | | 0.00 _{ms} | 100 | 27 | |
| MAP press [bar] 0.35 | Settings Calibration | Petrol usage | Corrections | OBD | Service | Scope | 100 | Petrol | I |
| Gas press. [bar] 1.32 | Petrol | Gas | Chang | eover | Advanced | | Petrol [%] | averaged [%] | limit [%] |
| Rail press. OUT [bar] 39.2 | | | | | | | | 7.1 | 2.2 |
| Reducer temp. [C] 80.2 | | | | | | | Petrol | averaged | Distance |
| Gas temp. [C] 36.2 | | | | | | | [l/100km] | [l/100km] | [km] |
| Advanced < |] | | | | | | | Gas | |
| OBD V | | | | | | | Gas [l/100km] | averaged [l/100km] | |
| Status CONNECTED | | | | | | | | Clear | |
| Loop status 1 CLOSE | | Engine Seque | nce scanning | × | | | Conditio | ns | |
| ✓ RTFT [%] -4.7 | | Cylinders numbe | | | 2 | | Petrol m | ode | |
| STFT [%] 2.3 | | Rpm | | VOUKTID | 2 | | | | |
| LTFT [%] -7.0 | | RPM source |) Sequence detection co | mpleted successfully | _ | | | | |
| Rato [X] 1.00 Engine RPM 675 | | Signal threshold | ~ | n a a a | | | | | |
| Engine load [%] 24 | | Cylinders per col | | 1-3-4- | á | | | | |
| Engine temp [C] 87 | | High pressure : | OK | | | | | | |
| Rail press [bar] 0.33 | | Sensor type | Criming . | | | | | | |
| Speed [km/h] 0 | | Pressure from OBD [bar] Sensor voltage [V] | 38.6 | | | | | | |
| Fuel dose [mg] 5.42 | | Calibration point 1 [V/bar | 0.93 / 38.9 | | | | Gat carr | ctions | |
| Consumption [Vh] 0.60 | | Calibration point 2 [V/bar | 1.17 / 57.5 | | | | RPMA | | 1.000 |
| | | Auto calibration correction | n OFF 💙 | | | | Doser | eplace [x] | 1.020 |
| | | Sensor auto calibr | ation | | | | Gas pr | ess. [x] | 1.191 |
| | | Sensor manual calib | ration | | | | Global | mp. [x] [v] | 1.001 |
| | | | | | | | Inj. dea | id time (ms) | 0.39 |
| | | | | | | | 🗌 Inj. ope | n time [ms] | 1.90 |
| | | | | | | | Petrol co | rrections | ~ |
| | | | | | | | Rail pr | ess. IN [x] | 1.989 |
| | | | | | | | Rail pr Rail pr | ess. oUT [x] ess. emu. [x] | 1.989 |
| Device Injustry Connected Reco | ID: 0=R472R544 (Inteste) | | | | | | | DCID | 7020 5799 |

成功检测到喷射顺序后,我们必须选择仿真模式。从下拉列表中 选择安装在车上的引擎发动机代码。 <mark>(新的发动机型号,选择标准模式)</mark>

注意:在没有欧洲气体支持部门监督的情况下 , <mark>不建议设置"自定义"仿真</mark> 。因仿真电流参数设置错误而导致的任何损坏将不在保修范围内。

如果对新车仿真设置的正确性有任何疑问,请联系技术支持部门。

| Engine | OBD |
|--|--------------------------------|
| Cylinders number 4 | Mode ON |
| Rpm | Protocol CAN 500k 11b |
| RPM source Coil 🗸 | Petrol injectors |
| Signal threshold [V] 3.0 V | Injection sequence detection |
| Cylinders per coil | Injection sequence 1 - 3 - 4 - |
| | Emulation type Standard |
| Sensor type Analog Y | Standard Without current |
| Pressure from OBD [bar] 29.6 | BMW 1.6I 181HP N18B16 |
| Sensor voltage [V] 0.03 | |
| Calibration point 1 [V/bar] 0.00 / 0.0 | FORD 1.6L150HP JQMA |
| Calibration point 2 [V/bar] 0.03 / 206.3 | FORD 2.0I 150HP U4JL |
| Auto calibration correction ON - | FORD 2.0I 240HP CJ5E |
| Sensor auto calibration | |
| Sensor manual calibration | |

<mark>选择与紫黑色</mark>(和紫色)线连接的类型。它可以用于仿真:

LPS-连接到汽油低压传感器-紫黑色和紫色串联连接到信号LPS线。

HPP-连接到汽油高压油压传感器阀门-紫黑色和紫色并联连接到HPP阀 门信号线(在汽油压力高时减少汽油消耗并避免DTCs)。

接线图选项1,只需连接<u>紫黑双色</u>电线, (紫色不连) 到高压油泵 HPP 信号线,切勿连接LPS。

在点击"保存"之前,请使用"读取数据"按钮检查汽油压力信号。

| Engine | OBD |
|--|--|
| Cylinders number 4 🗸 | Mode ON ~ |
| Rpm | Protocol CAN 500k 11b 🗸 |
| RPM source Coil 💙 | Petrol injectors |
| Signal threshold [V] 2.5 V | Injection sequence detection |
| Cylinders per coil 1 🗸 | Injection sequence 1 - 3 - 4 - 2 |
| High pressure sensor | Emulation type Custom 🗸 |
| Sensor type Analog V | Low pressure sensor / High pressure pump |
| Pressure from OBD [bar] 38.9 | LPS IN signal connection |
| Sensor voltage [V] 0.93 | LPS |
| Calibration point 1 [V/bar] 0.93 / 38.9 | HPP |
| Calibration point 2 [V/bar] 1.71 / 106.5 | |
| Auto calibration correction OFF 🗸 | |
| Sensor auto calibration | |
| Sensor manual calibration | |

3. Gas controller 燃气GAS气体控制器设置

| File Edit Ports Language | Options Help | | | | | | | | | | |
|---------------------------------|----------------------------|-------------|--------------------------|---------------------------|---------------------|---------------------|----------|--------|------------------|----------------------------|------------|
| Readings 🗸 🗸 🗸 | | ON | | ON | | ON | | ON | F | REPAR | E |
| Engine RPM 677 | | 2.06ma1 | | 2.05.1 | | 2.08ma1 | | 2.04.1 | Pet | oltimes win | dow |
| Petrol dose [mg] 2.06 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | Fuel cons | umption | ~ |
| ✓ Gas time [ms] 0.00 | | 0.00ms | _ | 0.00ms | _ | 0.00ms | | 0.00ms | 100 | 37 | 0 |
| MAP press. [bar] 0.29 | Settings | Calibration | Petrol usage | Corrections | OBD | Servio | e | Scope | | Petrol averaged | Petrol |
| Gas press. [bar] 1.23 | Petrol | Gas | s | ci | angeover | | Advanced | | Petrol [%] | [%] | limit [%] |
| Rail press. OUT [bar] 30.5 | | | | | | | | | | 0.2 | 6.2 |
| Reducer temp. [C] 82.1 | | | | | | | | | Petrol | averaged | Distance |
| Gas temp. [C] 79.6 | | | | | | | | | [U100km] | 12 2 | [km] |
| Advanced < |] | | | | | | | | | Gas | |
| OBD V | | | | | | | | | Gas [l/100km] | averaged [l/100km] | |
| Status CONNECTED | | | | | | | | | | Clear | |
| Errors Clear | | | | | | | | | Condition | 15 | |
| | | (| Gas injectors | | Gas level senso | r | | | Petrol mo | de | |
| | | 1 | Fuel type | PG | Sensor type | 0-5V * | | | | | |
| LTFT [%] -3.9 | | 1 | Gas injector type | AC W01 2.0 Ohm | Gas level [V] | 0.03 | | | | | |
| Engine RPM 673 | | 1 | Nozzle diameter [mm] | C W02 1.9 Ohm | Gas level max [V] | 2.40 V Set | | | | | |
| Engine load [%] 18 | | 1 | Temperature senso | G2000 1.9 Ohm | Diode #5 [V] | 2.20 ~ | | | | | |
| MAP press (bar) 0.17 | | | Gas temp. sensor type | G2000+1.9 Ohm | Diode #4 [V] | 1.80 V Calculate | | | | | |
| Rail press. [bar] 30.5 | | | Reducer temp. sensor in | G7 Dakota 2.0 Ohm | Diode #3 [V] | 1.40 • | | | | | |
| Rail press. set [bar] 30.0 | | | Switch | lagic FX 1.6 Ohm | Diode #2 [V] | | | | | | |
| Cambda [V] 0.76 | | | Switch huno | Aatrix HSF.211.20 2.0 Onm | Gas level min [V] (| 0.80 V Set | | | | | |
| C Speed [kinin] | | | Color | | - | | | | | | |
| | | | Brightness level | | กี | | | | | | |
| | | | Dugtor fraguancy (1/Uz) | 4 | ลี | | | | | | |
| | | | Duzzel frequency [ki iz] | 4 | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | Gas corre | ctions | <u> </u> |
| | | | | | | | | | Petrol co | rrections | ~ |
| | | | | | | | | | Rail pre | ss. IN [x] | 1.746 |
| | | | | | | | | | Railpre | ss. oor [x] ss. emu [v] | 1.746 |
| Dente black Disease in the | | | | | | | | | Cittanpro | | 5050 (110 |
| Device: Injecto Disconnected Vi | w ID: 0x6F664138 (Injecto) | | | | | | | | | PCID | :0009-6AAC |

<u>注意:这些参数必须严格按照安装的设备进行设置。</u> 系统在整个校准过程中依赖于这些数据。

1. 设置燃料类型(CNG)。

2. 从下拉列表中选择安装的气体喷射器类型(<mark>要求2 欧姆喷轨</mark>)。

3. 我们设置了气体喷射器喷嘴钻孔的直径 (喷嘴口径毫米MM)。

4. 气体和减压器温度传感器(减压阀到喷轨D12管道长度米M)。

5. 在开关选项卡中,设置安装在汽车上的开关类型。我们设置声音 的音调和亮度级别,并且在RGB开关中,我们还可以将开关的颜色与 汽车内的照明配对。

CNG压力表默认型号: CNGUAGE MT206E-F3

<u>注意</u>: 在操作PETROL汽油喷射器剂量时, 燃油以毫克MG为单位的燃油喷射 时间</u>与燃油压力的近似比率是被测量的。

GAS气体喷射器的指示值保持不变,燃气GAS以毫秒MS为单位。

基于这一点,在使用GAS天然气时,汽油喷射器的操作数值可能超过气体 喷射器的数值—这是正常的,不应将其视为喷嘴直径过小的信号。

| EG Injecto ver 2.0.0 So | ftware un | | Do not distribute! (kia sportage firmowa.) | | | | | | | | | E | |
|-------------------------|-----------|-----------|--|-----|-----------|-----------------|----------------------|---------|----------|----------------------|---------------------|-----------------------|------------------|
| File Edit Ports Langu | age Opt | ions Help | | | | | | | | | | | |
| Readings | ~ | | ON | | 10 | 1 | ON | | | ON | | GAS | |
| Engine RPM | 669 | 🗈 🍙 i I | 2.25 _{mg} 1 | | 2.21 | ma ¹ | 2.24 _{ma} 1 | | 2 | 2.22 _{ma} 1 | Petr | ol times wind | low |
| Petrol dose [mg] | 2.25 | | 3.61 | | 3.55 | | 3.60 | | | 3.57 | Fuel cons | umption | ~ |
| Gas time [ms] | 3.61 | | | | | | | _ | | 1115 | 7 | 17 Retrol | 0 |
| Gas press. [bar] | 0.33 | Settings | Calibration | Pet | trolusage | Corrections | OBD | Service | | Scope | Debeel FM 1 | averaged | Petrol |
| Rail prace OLIT (bar) | 20.5 | Petrol | | ias | | Change | ver | | Advanced | | Petrot [%] | 0.0 | 24 2 |
| Rail press. IN [bar] | 39.5 | | | | | | | | | | | Petrol | 24.2 |
| Reducer temp. [C] | 78.3 | | | | | | | | | | Petrol [l/100km] | averaged [l/100km] | Distance [km] |
| Gas temp. [C] | 21.8 | | | | | | | | | | | 6.6 | |
| | | | | | | | | | | | | Gas | |

| 4. Chang | eover se | ettings ' | 纺视 | 1A | | | |
|---|--|---|--|---------------------|----------------------------------|--|---|
| ◆EG Injecto ver 1.9.7 (Chevrolet Malibu 1.5 turbo e | el.czujnik petrolgas _Injecto_2215-20020_setti | ngs.eggc.crp) | | | | | - 🖻 × |
| Readings | CN 1.94mg1 2.81ms Calibration Pet Cas T M M C P S S T M G S V V V V | ON 1.944mg1 2.777ms rol usage Corrections Char o GAS Temp tinimum reducer temp. (C) 32 RP44 tinimum engine RPM Soo Minim Palay atter valve ON (S) 2.0 Vent att and Stop system CFF Gas i OFETROL Arimum gas pressure (bal) (7.2 Ven first changeover Ven first changeover Ven gas back after delay Ven | CN 1.92 _{mg} 1 2.77 _{ms} oaD oaD oaD oaD oaD oaD oaD oaD | Service Advanced | CN 1.93mg1 2.78ms Scope | GAS Petrolimest Fuel consumption 32 37 Petrol Petrol 0,3 Petrol 0,3 Petrol 0,4 Cos 0,3 Petrol 0,4 Cos 0,3 Petrol 0,4 Cos 0,3 Petrol 0,4 Cos 0,3 Petrol 0,3 Petrol 0,3 Petrol 0,3 Petrol 0,4 Cos 0,3 Petrol 0,4 Cos 0,3 Petrol 0,4 Cos 0,3 Petrol 0,4 Cos 0,4 Cos 0,4 Cos 0,4 Cos 0,4 Petrol 0,4 Cos 0,4 Petrol 0,4 Cos 0,4 Petrol 0,4 Cos 0,4 Petrol 0,4 Cos 0,4 Petrol 0,4 Cos 0,1 Cos 0,1 Cos 0,1 Cos 0,1 Cos 0,1 Cos 0,1 Cos 0,1 Cos 0,1 Cos 0,1 Cos 0,1 Cos 0,1 Cos 0,1 Cos 0,1 Cos 0,1 Cos 0,1 Cos 0,1 Cos 0,1 Cos 0 Cos 0 Cos 0 Cos 0 C Cos 0 C Cos 0 C Cos 0 C Cos 0 C Cos 0 C Cos 0 C C C C C C C C C | ndow O Petrol Jimit (%) 6.2 Distance |
| | | | | | | Petrol corrections Petrol correction Rail press. IN [x] Rail press. OUT [Rail press. emu | s × 1.720 X 1.720 |
| | | | | | | | |

4.1 To Gas 设置"转换到燃气"

- 1. 设置减压器开启天然气的温度
- 2. 最低发动机转速
- 3. 阀门打开后,用于填充软管的延迟时间
- 4. 缸之间的切换延迟
- 5. 启动停止选项

To petrol 设置"转换到燃油"

- 1. 切换到汽油的最低天然气压力
- 2. 天然气压力下降的出错时间控制

燃料重叠(在切换时重叠汽油循环)

- 1. 在第一次切换时
- 2. 当"后延迟"功能被打开时

4.2 Temporarily to Petrol 设置"临时用油"

临时切换到汽油的转速

- 范围 1. 燃气最低转速
 - 2. 燃气最大转速

| To GAS | | | |
|-------------------|--------------|-----|---|
| Minimum reduce | er temp. [C] | 32 | ~ |
| Minimum engine | e RPM | 500 | ~ |
| Delay after valve | e ON [s] | 2.0 | ~ |
| Per cylinder tim | e [s] | 0.5 | ~ |
| Start and Stop s | system | OFF | ~ |

| To PETROL | | | |
|------------------|----------------|------|---|
| Minimum gas | pressure [bar] | 0.72 | ~ |
| Gas pressure | error time [s] | 1.0 | ~ |

Fuel overlapping When first changeover

When gas back after delay



| RPM range | |
|--------------------|-------|
| Minimum RPM on gas | OFF 🗸 |
| Maximum RPM on gas | OFF 🗸 |

10 / 23

Minimum GAS time 设置 "最小燃气使用时间"

1. **气体喷射器打开时间(MS)** - 根据您选择的喷油器、喷 嘴和对汽油喷射的分析来设置开启时间程序。

2. **高于打开时间的偏移量(MS)**-根据程序设置的时间, 增加或减少喷油器相对于程序设置时间的开启时间。

3. 滞后(MS) - 喷油器从偏移位置退出所需的额外时间

Back delay after minimum gas time 设置"最小气体时间后的反向延迟"

This option used at the moment of braking, when the car can stall at the moments of the minimum opening time of the gas injector.

To do this, the car switches to gasoline depending on the given conditions. 这个选项用于制动时,

当汽车可能在最低气体喷射器开放时间时熄火的时刻。 为此,汽车根据给定的条件切换到汽油模式。

- 1. 气体回流延迟- 设置时间,
- 选择参数后将保持开启多长时间的选项。
- 2. 延迟仅低于RPM。
- 3.延迟仅低于车速(km/h)。

When open loop 设置"开环策略"

1. 模式。在"开环"(开:关)的时间内。 2. 仅低于RPM。

| When open loop | |
|----------------|-------|
| Mode | OFF 🗸 |
| Only below RPM | OFF 🗸 |

| l | Minimum gas time | |
|---|-----------------------------|---------|
| l | Gas injector open time [ms] | 2.44 |
| 1 | Offset above open time [ms] | -0.50 🗸 |
| l | Hysteresis [ms] | 0.10 🗸 |

| Back delay after minimum | gas time |
|-------------------------------|----------|
| Gas back delay [s] | OFF 🗸 |
| Delay only below RPM | 1000 🗸 |
| Delay only below speed [km/h] | OFF 🗸 |

5.1 Calibration. Autocalibration at idle. 校准 总速自动校准。

| EG Injecto ver 1.9.7 (Chevrolet) | | | | | | - 🗗 × |
|----------------------------------|---------------------------|-------------------------------|------------------------|--------------------|--------------------|------------------------------------|
| File Edit Ports Language C | Options Help | | | | | |
| Readings 🗸 🗸 🗸 | | ON | ОМ | ON | ON | PREPARE |
| Engine RPM 677 | | 2.06ma1 | 2.05ma1 | 2.08 ma1 | 2.04 ma1 | Petrol times window |
| Petrol dose [mg] 2.06 | | 0.00 | 0.00 | 0.00 | 0.00 | Fuel consumption 🔷 🗸 |
| ☑ Gas time [ms] 0.00 | | 0.00ms | 0.00 _{ms} | 0.00 _{ms} | 0.00 _{ms} | 100 37 0 |
| MAP press. [bar] 0.29 | Settings | Calibration | trol usage Corrections | OBD Service | Scope | Petrol averaged Petrol |
| Gas press. [bar] 1.23 | Fuel maps | Injection | advance HPS e | mulation Ma | ximum gas time | Petrol [%] [%] limit [%] |
| Rail press. OUT [bar] 30.5 | Corrections | Auto calibration Manning cond | itions | | | 0.2 6.2 |
| Reducer temp. [C] 82.1 | Scalo M 141 Y | Idle Road RPM too low | | | | Petrol Petrol averaged Distance |
| Gas temp. [C] 79.6 | Offect [mo] 0.70 M | | | | | [l/100km] [l/100km] [km] |
| Advanced < | | | | | | 13.2 Gas |
| OBD V | Fuel maps and dose | e multiplier | | | Multiplier | Gas averaged |
| Status CONNECTED | 1.5 | | | | 50 Calculate | Clear |
| Errors Clear | | | | | Clear | Condition |
| Loop status 1 CLOSE | 1.4 | | | | 40 Petrol map | Datastancia |
| ✓ RTFT [%] -1.5 | | | | | points 🕑 | Petrol mode |
| STFT [%] 2.3 | 1.3 | | <u>a</u> | | | |
| Engine RPM 673 | | | () Clear calibration | parameters? | line 🕑 | |
| Engine load [%] 18 | 1.2 | | ~2⁄ | | 20 Clear | |
| Engine temp [C] 96 | | | | | Gas map | |
| MAP press. [bar] 0.17 | 1.1 | | Yes No (| Cancel | 10 points 🕑 | |
| Rail press. [bar] 30.0 | | | | | field | |
| Lambda [V] 0.76 | 1.0 0.00: 1.00) | • | | | 0 Clear | |
| Speed [km/h] 0 | • | | | | | |
| | 0.9 | | | | | |
| | | | | | | |
| | 0.8 | | | | | |
| | 0.0 | | | | 20 | |
| | 0.7 | | | | 30 | |
| | 0.7 | | | | 500 | Gas corrections |
| | 0.0 | | | | 40 | Petrol corrections |
| | 0.0 | | | | 140 | Rail press. IN [x] 1.746 |
| | | | | | 50 | Rail press. OUT [x] 1.746 |
| | 1 2 | 2 3 4 5 6 | 7 8 9 10 11 | 12 13 14 15 16 17 | 18 19 20 mg | Rail press. emu. [x] 1.000 |
| Device: Injecto Disconnected Vie | ew ID: 0x6FBE4138 (Inject | to) | | | | PCID: 5059-6AAC |

1. "Calibration" tab 点击"校准" 选项卡页面" 燃油图表 "

The car should run on gasoline at idle speed, with a constant load and reach a temperature of 70 degrees Celsius (engine temperature reading from OBD) and be in closed loop conditions. If possible, load the engine, e.g. by switching on the heated rear window.

汽车在怠速时应以汽油运行,负载恒定,并达到<u>70</u>摄氏度的温度 (从<mark>OBD</mark>读取的发动机温度),并处于闭环条件下。如有可能 ,加载发动机,例如打开加热后窗。

3. start the Autocalibration with the "Start" button.

请开始使用"**开始**"按钮进行自动校准。

4. "Corrections" window , it is possible to set the multiplier ("Scale [x]") and the injection time ("offset [ms]") . These parameters are set during auto-calibration

<mark>在"校正"窗口中,</mark> 可以设置燃料图表乘数(["]比例[x]")和喷射燃气GAS时间 (["]偏移[ms] ")。这些参数在自动校准过程中设置。

5. We wait until the progress indicator reaches 100% and the auto-calibration is finished. 我们等待进度指示器达到100%,然后自动校准完成。

| EG Injecto ver 1.9.7 (Chevrole File Edit Ports Language | t Malibu 1.5 turbo el.czujn Options Help | nik petrolgas _Injecto_22 | 5-20020_settin | gs.eggc.crp) | | | | | | | | | | | - 0 × | | |
|--|---|---------------------------|----------------|-----------------|--------------------|--------|--------------------|--------|---------|--------------------|------------------|------------|---------------------|---------------|------------------|--------------------|--------|
| Readings 🗸 🗸 | | ON | | | ON | | | ON | | | ON | | IDLE | CALIBRA | | | |
| Engine RPM 657 | | 1 59 1 | | | 1 56 1 | | | 1.61 1 | | | 1 56 | | Pet | roltimes win | dow | | |
| Petrol dose [mg] 1.59 | - (| 1.33mg | | 1.50mg. 1.01mg. | | | | | | | Fuel consumption | | | | | | |
| Gas time [ms] 2.29 | | 2.29 ms | | | 0.00 _{ms} | | 0.00 _{ms} | | | U.UU _{ms} | | | 100 | 45 | 0 | | |
| MAP press. [bar] 0.23 | Settings | Calibration | Petr | ol usage | Correcti | ions | OBD | | Service | | Scope | | Scope | | | Petrol averaged | Petrol |
| Gas press. [bar] 1.22 | Fuel maps | | Injection ad | vance | | HPS en | ulation | | Maxir | num gas time | | | Petrol [%] | [%] | limit [%] | | |
| Rail press. OUT [bar] 29.0 | Corrections | Auto calibration M | apping condit | ions : | | | | | | | | 1 | | 0.0 Petrol | 2.9 | | |
| Reducer temp. [C] 82.5 | Scale [x] 1.48 V | Stop R | PM too low | | | | | | | | | | Petrol [1/100km] | averaged | Distance [km] | | |
| Gas temp. [C] 77.2 | Offset [ms] -0.65 V | 98 % | | | | | | | | | | | | 16.2 | frend | | |
| Advanced < | First many and days | | | | | | | | | | | Mulhislins | Car | Gas | | | |
| OBD V | Fuel maps and dose | multiplier | | | | | | | | | [%] | Multipuer | [l/100km] | [l/100km] | | | |
| Status CONNECTED | 1.5 | | | | | | | | | | 150 | Calculate | | Clear | | | |
| Loop status 1 CLOSE | | | | | | | | | | | | Clear | Condition | 15 | | | |
| ☑ RTFT [%] 0.0 | 1.4 | | | | | | | | | | 40 | Petrol map | Rail pres | s fall | | | |
| STFT [%] -4.6 | | | | | | | | | | | | points 🗹 | | | | | |
| LTFT [%] 4.6 | 1.3 | | | | | | | | | | 30 | | | | | | |
| Engine RPM 669 | | | | | | | | | | | | Clear | | | | | |
| Engine temp [C] 96 | 1.2 | | | | | | | | | | 120 | Gas map | | | | | |
| MAP press [bar] 0.14 | | | | | | | | | | | | points 🗹 | | | | | |
| Rail press. [bar] 29.0 | 1.1 | | | | | | | | | | 110 | field | | | | | |
| Lambda (V) 0.89 | 0.00:1.85 | | | | | | | | | | | line 🗹 | | | | | |
| Speed [km/h] 0 | 1.0 | | | | | | | | | | 0 | Clear | | | | | |
| | | | | | | | | | | | 10 | | | | | | |
| | 0.9 | | | | | | | | | | .10 | | | | | | |
| | 0.8 | | | | | | | | | | 20 | | | | | | |
| | 0.0 | | | | | | | | | | -20 | | | | | | |
| | 0.7 | | | | | | | | | | | | | | | | |
| | 0.7 | | | | | | | | | | | | Gas corre | ctions | ~ | | |
| | 0.6 | | | | | | | | | | 40 | | Petrol co | rrections | ~ | | |
| | 0.0 | | | | | | | | | | | | Rail pre | ess. IN [x] | 1.702 | | |
| | | | | | | | | | | | .50 | | Rail pre | ess. OUT [x] | 1.702 | | |
| | 1 2 | 3 4 | 5 6 | 7 8 | 9 10 | 11 | 12 13 | 14 15 | 16 17 | 18 19 | 20 (mç | | Rail pre | ess. emu. [x] | 1.000 | | |
| Device: Injecto Disconnected V | ew ID: 0x6FBE4138 (Inject | :o) | | | | | | | | | | | | PCID: | 5059-6AAC | | |

7. In the case of information about too small or too large nozzles, change them according to the recommendations displayed in the program and change the **"Nozzle diameter [mm]" value** to the correct one in the **"Settings-> Gas" tab.**

如果收到关于喷嘴太小或太大的信息,请根据程序中显 示的建议更换喷嘴,并在<mark>"设置->燃气"选项卡中将"喷</mark> 嘴直径[mm]"值更改为正确值。

5.2 Calibration in road conditions 在路试状况下进行校准。

6

1. After completing the auto-calibration, the following message will be displayed.

1. <mark>完成自动校准后,将显示以下消息。</mark>

| EG Injecto ver 1.6.0 Software under construction. Do not distributel | | | | | | | | | | | | | | E | D X | | | | |
|--|----------------------------|-------------------------|----------|--------------------|----------|----------|-----------------|----------|--------------------|----------------------|---------|------------------|-------------------|------------------------|-------------|-------|-------------------|-------------------|---------------|
| Plik Edycja Porty La | anguage Opcje Pomoc | | | | | | | | | | | | | | | | _ | | |
| | ON | | | | | ON | | | | | | | 01 | 4 | | | GAZ | | |
| | 1.87, | mg ¹ | | | 1 | 1.92, | ng ¹ | | | 1.54 _{mg} 1 | | | | | | 15% | 92 % | 0% | |
| | 5.01 | ms | | 5.10 _{ms} | | | | | 4.15 _{ms} | | | | | | | | | | |
| Ustawienia | Kalibracja | Użycie benzyny | | Korekcje | | | OBD | | | Se | rwis | | | Oscylo | ikop | | Aktualne | Średnie | Limit |
| Mapy paliw | | Maksymalov czas gazu | | | | _ | _ | | Em | ulacja HF | s | | | | | | Waguski | wyczysc | \rightarrow |
| Corrections | Auto kalibracia War | unki manowania | _ | _ | _ | _ | _ | _ | _ | - | _ | _ | _ | _ | | | 895 | 1.8ma | 5.0ms |
| Skala [x] 1.54 V | St | I sa nickio | | | | | | | | | | | | | | × | Obroty silnika | Dawka benzyny | Czas gazu |
| | | | | | | | | | | | | | | | | |).27bar | 0.96bar | 5.0ms |
| Mapy paliw i mnożnik | Mapy paliw i mnożnik dawki | | | | | | | | | | | Ciśnienie MAP | Ciśnienie gazu | Czas gazu wyliczony | | | | | |
| 1.5 | (\tilde{n}) | Kalibracja na biegu jał | owym zak | ończona. A | by dokoń | iczyć ka | alibrację | , wykona | j jazdę w | / stabilny | ch waru | nkach w | zaznac | zonym oł | szarze obci | ążeń. | 104bar | 104bar | 12.5V |
| 1.4 | | | | | | | | | | | | | | | | | išň. istwy WY | Ciśń. listy WE | Akumulator |
| 1.2 | | | | | | | Þ.C | Cancel | | | | | | | | | 31.3C | 49.6C | |
| 1.1 | | | | | | | | | + | | | | + | 10 | linia | | reduktora | Temp. gazu | J |
| 1.0 | | | | | _ | _ | _ | _ | _ | _ | - | _ | _ | - | Wyczy | ŧŧ | OBD | | × |
| 0.9 | | | | | | | | | | | | | | | Mapa gas | tu | Status pet | 61 FO | CLOSE |
| 0.8 | | | | | | | | | | | | | | | punkty | | 14.8% | 1.5% | 13.2% |
| 0.7 | | | | | | | | | | | | | | | pote | | AVEX | | |
| 0.6 | | | | | | | | | | | | | | 40 | Wyczy | ιć) | 103.9 bar | 89C | 17% |
| 1 2 | 3 4 5 | 6 7 8 | 3 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | | | | Ciśń. listwy | Temp. silnika | Obciążenie |
| Urządzenie: Injecto Połąca | zony Nagrywanie ID: 0x0 | 018E77D1 (Injecto) | | | | | | | | | | | | | | | | PCI | D: 3B21-1D18 |
| | | | | | | | | | | | | | | | | | | | |

2. Click OK and go to on-the-road calibration.

2. 点击 "OK 确定" 并进行路况校准。

| EG Injecto ver 1.9.7 (Chevrole) | t Malibu 1.5 turbo el.czujnik p | petrolgas _Injecto_2215-20020_set | ings.eggc.crp) | | | | | | | - 🗇 × | |
|----------------------------------|---------------------------------|-----------------------------------|----------------|------------------|--------------------|---------|--------------------|------------|----------------------|----------------|--|
| File Edit Ports Language C | Options Help | | | | | | | | | | |
| Readings 🗸 🗸 🗸 | | ON | | ON | ON | | ON |] | ROAD CALI | BRATION | |
| Engine RPM 670 | | 1 581 | 1 | 57-1 | 1 541 | | 1 55 | | Petroltimes | window | |
| Petrol dose [mg] 1.58 | | 0.00 | | mg. | 0.00 | | 1.00mg | | Fuel consumption 🛛 🗸 | | |
| ☑ Gas time [ms] 0.00 | | U.UU ms | 0. | UU _{ms} | 0.00 _{ms} | | 0.00 _{ms} | | 100 45 | 0 | |
| MAP press. [bar] 0.24 | Settings | Calibration | trol usage | Corrections | OBD | Service | Scope | | Petrol | ed Petrol | |
| Gas press. [bar] 1.22 | Fuel maps | Injection | advance | HPS em | ulation | Maxim | num gas time | | Petrol[%] [%] | limit [%] | |
| Rail press. OUT [bar] 29.6 | | Nuto calibration Manning con | litions | | | | | | 0.0 | 2.9 | |
| Reducer temp. [C] 82.5 | Corrections | Stop PPM top low | | | | | | | Petrol averag | ed Distance | |
| Gas temp. [C] 77.3 | Scale [x] 1.17 ▼ | No gas inject | on | | | | | | [l/100km] [l/100k | m] [km] | |
| Advanced < | Offset [ms] -0.55 Y | 0 70 | | | | | | | 16.4 | | |
| OBD V | Fuel maps and dose mu | ultiplier | | | | | | Multiplier | Gas averag | ed | |
| Status CONNECTED | [x] 1.5 m | | | | | | [%] | Calculate | [U TOOKIM] [U TOOK | | |
| Errors Clear | | | | | | | | Clear | Constitutions and | | |
| Loop status 1 CLOSE | 1.4 | Drive in this area | L | | | | 40 | Petrol map | Condicions | | |
| ☑ RTFT [%] -3.1 | | RPM 1300-3000 | | | | | | noints 🔽 | Rail press fall | | |
| STFT [%] -6.2 | 1.3 | | | | | | 30 | field | | | |
| LTFT [%] 3.1 | | | | | | | | line 🗹 | | | |
| Engine load [%] 13 | 1.2 | | | | | | 20 | Clear | | - | |
| Engine temp [C] 97 | | | | | | | | Gas map | | | |
| MAP press. [bar] 0.15 | 1.1 | | | | | | 10 | points 🗹 | | | |
| Rail press. [bar] 29.6 | | 1 A 4 | | | | | | field | | | |
| Lambda [V] 0.09 | 1.000; 1.00 | | | | | | 0 | line 🗹 | | | |
| Speed [km/h] 0 | • | | | | | | | Clear | | | |
| | 0.9 | | | | | | -10 | | | | |
| | | | | | | | | | | | |
| | 0.8 | | | | | | -20 | | | | |
| | | | | | | | | | | | |
| | 0.7 | | | | | | -30 | | | | |
| | | | | | | | | | Gas corrections | < | |
| | 0.6 | | | | | | -40 | | Petrol correctio | ins 🗸 🗸 | |
| | | | | | | | | | Rail press. IN () | (1.720 | |
| | 1 2 | 3 4 5 6 | 7 8 | 9 10 11 ' | 2 13 14 15 | 16 17 | 18 19 20 Imc | | Rail press. 00 | 1.720 | |
| Device, Injecto, Disconnected Vi | | | | | | | | | | CID. 7030 5700 | |

While driving, try to keep the green indicator within the orange area designated by the program.At the same time, we draw your attention to information on unfulfilled map collection conditions in the **"Mapping Conditions" window.**

3. 行驶时,尽量将绿色指示器保持在程序指定的

<mark>橙色区域内</mark>。同时 , 注意 " 映射条件 " 窗口中关于未 满足地图收集条件的信息。

We keep the car load constant in the range of the orange field until it reaches 100%in

the auto-calibration window.

4. 我们将汽车负载保持在橙色区域范围内 ,

直到自动校准窗口中的进度达到100%。

The "Scale [ms]" and "Offset [ms]" parameters will be corrected . We can go to the collection of gasoline and gas maps.

5. "比例[ms]"和"偏移[ms]"参数将被校正。 我们可以进行汽油和燃气地图的收集。

<u>Note:, try to drive a car smoothly, change gear to highest for increasing</u> vacuum and take a attention on "conditions of mapping". Calibration occurs only when all conditions are met.

注意:尽量平稳驾驶汽车,换到最高档以增加真空,并注意 "映射条件"。只有当所有条件都满足时才会进行校准。

6. Collecting gasoline dose maps on gasoline and gas. (燃油图表)修正汽油和燃气剂量

| ✤ EG Injecto ver 1.9.7 (lexus_do File Edit Ports Language C | bre_ustawienia_ust_hls. Options Help | eggc.crp) | | | | | | | E | σx |
|--|---|---------------------------------------|------------------|---------------------------|----------------------|------------------|-------------------|------------------|-----------------------|---------------------|
| Readings 🗸 🗸 🗸 | | ON | | ON | ON | | ON | | GAS | |
| Engine RPM 806 | | 2 90 1 | | 0.02 1 | 2 93 1 | | 2 92 1 | | | dow |
| Petrol dose [mg] 2.90 | | 2.00 _{mg} . | | | 2.00 _{mg} . | | J∠mg [.] | Fuel cons | umption | ~ |
| ✓ Gas time [ms] 5.24 | | 5.24 _{ms} | | 5.22 _{ms} | 5.19 _{ms} | 5.) | 21 _{ms} | 0 | 58 | 0 |
| ■ MAP press. [bar] 0.37 Gas press. [bar] 1.20 | Settings | Calibration | etrol usage | Corrections | OBD Ser | vice Sc | ope | Petrol [%] | averaged [%] | Petrol limit [%] |
| Rail press. OUT [bar] 60.2 | Fuelmaps | Injecti | on advance | HPS emu | lation | Maximum gas time | | | | 0.0 |
| Reducer temp. [C] 76.4 | Corrections | Auto calibration | Mapping conditio | ns | | | | Petrol | Petrol averaged | Distance |
| Gas temp. [C] 62.4 | Scale [x] 1.26 🗸 | Idle Road | RPM too low | | | | | [l/100km] | [l/100km] | [km] |
| Advanced < | Offset [ms] -0.10 🗸 | | | | | | | | Gas | |
| OBD V | Fuel maps and dose | e multiplier | | | | | Multiplier | Gas [l/100km] | averaged [l/100km] | |
| Status CONNECTED | M | | | | | [%] | Calculate | | Clear | |
| Loop status 1 CLOSE | 1.5 | | | | | 50 | Clear | Condition | 15 | |
| ✓ RTFT [%] 13.2 | 1.4 | | | | | 40 | Petrol man | Dual inje | ction mod | te |
| STFT [%] 3.9 | 1.3 | | | | | | | MPI injec | tions | |
| LTFT [%] 9.3 | 1.2 | | | | | 20 | field | | | |
| Engine RPM 807 | 1.1 | 6 | | | | 10 | line 🗸 | | | |
| Engine load [%] 21 | (0.00; 1.00) | · · · · · · · · · · · · · · · · · · · | · · · · | | | | Clear | | | |
| Engine temp [C] 91 | | •••• | 10° - | | | Ĩ | Gas map | | | |
| Rail press. set [bar] 40.0 | 0.9 | | | | | -10 | | | | |
| Speed [km/h] 0 | 0.8 | | | | | | field | | | |
| | 0.7 | | | | | | line 🗸 | | | |
| | 0.6 | | | | | | Clear | | | |
| | | | | | | -50 | | Gas corre | ctions | < |
| | 1 2 | 3 4 5 6 | 7 8 9 | 10 11 12 1 | 3 14 15 16 17 | 18 19 20 [mg] | | Petrol co | rrections | < |
| Device: Injecto Connected Rec | ord ID: 0x6FBE4138 (Injecto |) | | | | | | | PCI | D: D873-1B70 |

1.Fuel maps " tab . Our goal is to collect RTFT value points (sums of LTFT and STFT) in the full range of gasoline dose [mg].

1."Fuel maps"选项卡。我们的目标是在整 <mark>个汽油剂量范围内收集RTFT值点</mark> (LTFT和STFT之和)。

2. We drive the car in the **PETROL mode**, keeping the load constant, so that the background of the map area turns green. At this point, points are collected on thepetrol map (marked in red on the chart). The map is collected so that the line isdrawn in the full range of loads.



在此时,<mark>收集汽油地图上的点(在图表上标为</mark> <mark>红色</mark>)。地图的收集要确保在整个负载范围内 绘制线条。

| EG Injecto ver 1.9.7 (I | kia sportag | e firmowa.eggc.crp) | | | | | | | | | | | | | | - 🗇 🗙 |
|--------------------------|-------------|--------------------------|-----------------------|-----------------|------|----------------------------|--------|----------|----------|---------|----------------|--------|------------|---------------------|-----------------------|------------|
| File Edit Ports Lang | guage Op | tions Help | | | | | | | | | | | | | | |
| Readings | ~ | | ON | | C | NC | | | ON | | | ON | | | GAS | |
| 🗹 Engine RPM | 2512 | | 11.38 _{ma} 1 | | 11.5 | 5 5 ma ¹ | | | 11.73mg | | 11./ | 49 | ,1 | Petrol times window | | |
| Petrol dose [mg] | 11.38 | | 10.56 | | 10.4 | 53 | | 11 10 | | | 10.46 | | | Fuel consumption | | ~ |
| 🗹 Gas time [ms] | 10.56 | | 10.30 _{ms} | _ | 10 | Joms | _ | | TT. TOms | | 10. | 40ms | 5 | 15 | 33 | 1 |
| MAP press. [bar] | 1.02 | Settings | Calibration | Petrol u | iage | Corrections | _ | OBD | | Service | Sco | pe | | | Petrol averaged | Petrol |
| 🗹 Gas press. [bar] | 1.30 | Fuel maps | | Injection advan | ce | | HPS en | nulation | | Ма | ximum gas time | | | Petrol [%] | [%] | limit [%] |
| Rail press. OUT [ba | 225.5 | Corrections | Auto calibration Mapp | oing condition | 5 | | | | | | | | | 3.0 | 5.7 | 3.7 |
| Reducer temp. [C] | 73.0 | Scale [x] 1.14 V | Idle Road | - | | | | | | | | | | Petrol | averaged | Distance |
| Gas temp. [C] | 47.0 | Offset [ms] -0.02 V | | | | | | | | | | | | [l/100km] | [(/100km] | [km] |
| Advanced | < | Evel even and days | | | | | | | | | | | Mulhisling | 25.2 | 14./ Gas | |
| OBD | ~ | x | emutcipuer | | | | | | | | | [%] | Multiplier | Gas [l/100km] | averaged [l/100km] | |
| Status CON | NECTED | 1.5 | | | | | | | | | | 150 | Catculate | | Clear | |
| Errors | Clear | | | | | | | | | | | | Clear | Condition | 15 | |
| | AC | 1.4 | | | | | | | | | | - 40 | Petrol map | Mapping | | |
| | 4.6 | | | | | | | | | | | | points 🗹 | | | |
| U TET [%] | -3.1 | 1.3 | | | | | | | | | | - 30 | field | | | |
| Ratio [x] | 1.00 | | | | | | | | | | | | Clear | | | |
| Engine RPM | 2375 | 1.2 | | | | | | | | | | - 20 | | | | |
| Engine load [%] | 98 | | | | | | | | | | | | Gas map | | | |
| MAP press. [bar] | 1.01 | 1.1 | | | | | | | | | | 10 | fold | | | |
| Rail press. [bar] | 248.7 | 0.000 - 0.00 | | | | | | | | | | - | | | | |
| Speed [km/h] | 50 | 1.0 | | | | | · | | | | | -0 | Clear | | | |
| Fuel dose [mg] | 28.70 | | · · · · · · · · · | | | | | | | | | | | Gas corre | ctions | ~ |
| | 11.50 | 0.9 | | | | | | | | | | | | RPM/N | AP [x] | 1.000 |
| | | | | | | | | | | | | | | Dose n | eplace [x] | 1.029 |
| | | 0.8 | | | | | | | | | | -20 | | 🗌 Gas pr | ess. [X] | 0.858 |
| | | 1 A 1 | | | | | | | | | | | | Gas ter | np. [x] | 1.018 |
| | | 0.7 | | | | | | | | | | | | Ini. dea | d time (ms) | 0.60 |
| | | | | | | | | | | | | | | 🗌 Inj. ope | n time (ms) | 2.12 |
| | | 0.6 | | | | | | | | | | -40 | | Petrol co | rrections | ~ |
| | | 0.0 | | | | | | | | | | | | Rail pre | ss. IN [x] | 4.742 |
| | | | | | | | | | | | | -50 | | Rail pre | ess. OUT [x] | 4.741 |
| | | 1 2 | 2 3 4 5 | 6 7 | 8 9 | 10 1 | 11 1 | 12 13 | 14 15 | 16 17 | 18 19 | 20 (mç | | Rail pre | ess. emu. [x] | 1.000 |
| Desides Intents Connects | ad Desered | ID 0 DCTODEC4 (Internet) | | | | | | | | | | | | | 0.010 | DOD O CROO |

After collecting the gasoline map, switch to gas and start collecting the gas map. We drive the car in the **GAS mode**, keeping the load constant, so that the background of the map area turns green. At this point, the gas map is collected (marked in blue on the chart). We collect the map in conditions similar to those during which we collected the gasoline map, so that the line was drawn in the full range of loads.

收集完汽油地图后,切换到GAS燃气模式开始收集燃气地图。

在GAS燃气模式下驾驶汽车,保持负载恒定,使地图 区域的背景变成绿色。





7. Setting the multiplier 设置乘数



After collecting both the gas and petrol maps, click the " **Calculate**" option in the " **Multiplier**" window.

<u>1.在收集完燃气和汽油地图后,在<mark>"</mark>乘数"窗口中</u> 点击<mark>"计算"选项</mark>

The program automatically corrects the multiplier depending on the deviation of the collected petrol and gas maps.

2. 程序会根据收集到的汽油和燃气地图的偏差 自动调整乘数。

We collect the gas map once more in similar road conditions as before. 3.我们在类似的路况下再次收集燃气地图。

In the event of any discrepancies, we can make appropriate corrections manually by shifting the appropriate points of the multiplier. In the case of small discrepancies, if the car drives correctly, we do not have to correct the multiplier line.

4. 如果出现任何差异,我们可以通过移动乘数的适当点 来进行手动修正。对于小的差异, 如果汽车驾驶正常,我们无需更正乘数线。

Attention: Maps "petrol / gas" are drawn depending on the dosage of fuel and the totality of corrections. Reference maps are directly drawn lines. Accordingly, to enrich the mixture, the multiplier goes down! And to lean the mixture, raise the multiplier up!

注意:

地图PETROL汽油/GAS燃气"根据燃料剂量和所有校正的总和绘制。 基准地图是直接绘制的线条。

因此,为了富化混合物,乘数减少! 而为了稀释混合物,乘数增加!



7.1 Gas injection advance 燃气"提前喷射"

Used at the moment of "twitching" and "failures" when gaining power.

For some engines need possibility for change of gas injection advance for better mixture combustion.

在发动机出现 " 抖动 " 和 " 失效 " 时 , 用于调整GAS燃气提前喷射 , 以改善混合物燃烧的可能性。

| EG Injecto ver 1.9.7 (Chevr | olet Malibu | 1.5 turbo el.czujnik petrolgas _Injecto | _2215-20020_settings.egg | c.crp) | | | | | l | - 🗇 🗙 |
|------------------------------|---------------|---|--------------------------|------------------------------------|----------------|---------|----------------|------------|-------------------------------|-----------|
| File Edit Ports Language | e Options | Help | | | | | | | | |
| Readings | ~ | ON | | ON | ON | | ON | | GAS | |
| Engine RPM 68 | 31 🗖 🖉 | 1 97 | .1 | 1 961 | 1 97-1 | | 1 971 | Pet | rol times win | dow |
| Petrol dose [mg] 1.9 | 97 | 2 97 |). | 2.04 | 2 04 | | 2.05 | | umption | ~ |
| Gas time [ms] 2.8 | 37 | 2.01 m | S | 2.0 I ms | 2.04 ms | | 2.0J ms | 29 | 37 | 0 |
| MAP press. [bar] 0.2 | 28 Setting | s Calibration | Petrol usage | e Corrections | OBD | Service | Scope | | Petrol | Patrol |
| Gas press. [bar] 1.2 | 20 Fuelm | aps | Injection advance | HP | S emulation | Max | imum gas time | Petrol [%] | [%] | limit [%] |
| Rail press. OUT [bar] 30. | .2 | | | Gas injection advance | | | | | 0.2 | 6.2 |
| Reducer temp. [C] 83. | .0 | | | Injection advance method | Constant | | | Petrol | Petrol averaged | Distance |
| Gas temp. [C] 80. | .7 | | | Injection advance memory Injection | 115 ¥ | | | [l/100km] | [l/100km] | [km] |
| Advanced | < | | | Injection advance moment [/o | Fod V | | | | 13.2 Gas | |
| OBD | $\overline{}$ | | | Regin injection protection | | | | Gas | averaged | |
| Status CONNECTE | D | | | Begin injection protection | | | | [U100Km] | Clear | |
| Errors Clear | Chart | of injections during the cycle p | period | 50 | 75 | | 100 (9/1 | | Ctear | |
| Loop status 1 CLOS | E - | | 25 | 50 | /5 | | 100 [76] | Conditio | ns | |
| ☑ RTFT [%] -3. | .9 | | | Petrol inject | ions | | | | | |
| STFT [%] -1 | .5 | | | | | | | | | |
| Engine RPM 65 | 90 | • | | | | | | | | |
| Engine load [%] | 18 | | | Cos injecti | | _ | | | | |
| Engine temp [C] | 97 | | | oas njecu | JIIS | | | | | |
| MAP press. [bar] 0.1 | 16 | 0 | 180 | 360 | 540 | | 720 [1 | | | |
| Rail press [bar] 29 | 0.8 | | | | | | | | | |
| Lambda [V] | 85 | | | | | | | | | |
| Speed [km/h] | 0 | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | Gas corr | eccions | |
| | | | | | | | | Petrol co | rrections | 4 700 |
| | | | | | | | | | ess: IN [X] ess: OL IT [V] | 1.726 |
| | | | | | | | | Rail pr | ess. emu. [x] | 1.000 |
| Device: Injecto Disconnected | View ID: 0: | <6FBE4138 (Injecto) | | | | | | | PCID | 5059-6AAC |

It is possible for changing advancing according RPM. 可以根据发动机转速(RPM)调整燃气提前喷射规则。



Or depend on RPM\MAP: 或者根据发动机转速(RPM)和进气歧管绝对压力(MAP) 进行调整燃气提前喷射规则。

| EG Injecto ver 2.0.0 Software un | nder construction. Do not distrib | utel (kia sportage firmowa.eggc.crp) | | | | | |
|----------------------------------|---|--------------------------------------|----------------------------|-----------------------|-------------|--------------------|---|
| File Edit Ports Language Op | tions Help | | | | | | |
| Readings 🗸 🗸 🗸 | | ON | ON | 01 | | ON | ГАЗ |
| Engine RPM 669 | | 2 25 1 | 2 21 1 | 2 24 | | 2 22 1 | Petrol times window |
| Petrol dose [mg] 2.25 | - 🤍 🖌 | 2.20mg | 2.2 Img. | 2.24 | 'mg' | Z.ZZmg. | Fuel consumption 🛛 🗸 🗸 |
| ✓ Gas time [ms] 3.61 | | 3.61 _{ms} | 3.55 _{ms} | 3.60 | ms | 3.57 _{ms} | 7 17 0 |
| MAP press. [bar] 0.33 | Settings | Calibration Pet | rolusage Corrections | OBD | Service | Scope | Petrol Retrol |
| Gas press. [bar] 1.31 | Fuel mans | Injection as | lyance | HPS emulation | Maximum nar | time | Petrol [%] [%] limit [%] |
| Rail press. OUT [bar] 39.5 | | | | | | | 0.8 24.2 |
| Rail press. IN [bar] 39.5 | | | Gas injection advance | | | | Petrol Petrol averaged Distance |
| Reducer temp. [C] 78.3 | | | Injection advance method | Depend on RPM / MAP V | | | [l/100km] [l/100km] [km] |
| Gas temp. [C] 21.8 | | | Injection advance edge | End | | | 6.6 |
| Advanced 🗸 🗸 | 1 | | Begin injection protection | ON -1 V | | | Gas averaged |
| Cycle period [ms] 180 | Chart of injections during | the cycle period | | | | | [(/100km] [(/100km] |
| Emulation delay [ms] 0.02 | | 0 | 25 5 | 0 | 75 | 100 [%] | 25.4 0.1 Price |
| Gas time calc. [ms] 3.61 | | | Petrol in | jections | | | Price average [*/100km] [*/100km] Cost [*] |
| Gas inj. advance [%] 19 | | | | | | | Clear |
| Gas press. abs. [bar] 1.65 | | | | | | | Candibiana |
| Rail press. drop [%/s] 0.0 | | | Gas inj | Gas injections | | | Condicions |
| Ignition [V] 12.28 | I — — — — — — — — — — — — — — — — — — — | 0 | 180 36 | 30 | 540 | 720 [1 | |
| OBD 🗸 | Injection advance RPM / | MAP | | - | | | |
| Status ПОДКЛЮЧЕН | ξ | 8 | 8 | 8 | 8 | | |
| Errors Clear | MAP | | | R | 40 | 20 | |
| Loop status 1 3AKPHITH | 20 | 15 | 15 | 20 | 20 | 20 | |
| ✓ RTFT [%] -7.0 | 0.40 | • | | | | | |
| STFT [%] 0.0 | 0.60 | 15 | 15 | 20 | 20 | 20 | |
| Ratio [v] -7.0 | 20 | 15 | 15 | 20 | 20 | 20 | |
| Engine RPM 666 | 20 | 15 | 15 | 20 | 20 | 20 | |
| Engine load [%] 25 | 1.20 | | | | | | |
| Engine temp [C] 90 | 20 | 45 | 15 | 20 | 20 | 20 | |
| Rail press. [bar] 38.9 | 20 | 15 | 15 | 20 | 20 | 20 | |
| Speed [km/h] 0 | 1.80 | | | | | | |
| Fuel dose [mg] 5.02 | | | | | | | |
| Consumption [/h] 0.55 | 20 | 15 | 15 | 20 | 20 | 20 | |
| | 2.50 | | | | | • | |
| | | | | | | 0 | |
| Device: Injecto Disconnected Sto | p ID: 0xD70844A0 (Injecto) | | | | | | PCID: 702C-F799 |

7.2 HPS emulation. HPS 高压油压传感器仿真。

Used only in available analog sensor (optional). One of the ways of decreasing petrol consumption is emulation of high pressure sensor to reduce the fuel pressure in the rail.

仅用于模拟信号传感器(可选1)。

降低汽油消耗的方法之一是模拟仿真高压传感器来 降低轨道中的燃料压力。

| EG Injecto ver 1.9.7 (lexus_dobr | e_ustawienia_ust_hls.eggc.crp) | | | | | | | - | σx | | |
|--|-----------------------------------|----------------------|--------------------|--------------|------------------------|---------------------------|---------------------|-----------------------|------------------|--|--|
| File Edit Ports Language Op | tions Help | | | | | | | | | | |
| Readings 🗸 🗸 🗸 | | | ON | | 01 | | | GAS | | | |
| Engine RPM 1474 | | | 0.30 | | 20 1 | | Petrol times window | | | | |
| ✓ Petrol dose [mg] 2.28 | | 8 _{mg} | 2.32 mg | 2. | . 30 _{mg} 1 | 2.31 _{mg} | Fuel const | umption | ~ | | |
| ✓ Gas time [ms] 4.52 | 4.5 | 2 _{ms} | 4.51 _{ms} | 4. | .54 _{ms} | 4.56 _{ms} | 19 | 44 | 0 | | |
| MAP press. [bar] 0.31 | Sattings | Rateol us | Corrections | | Service | Scana | | Petrol averaged | Petrol | | |
| Gas press. [bar] 1.16 | Campación | | | | Jervice | scope | Petrol [%] | [%] | limit [%] | | |
| Rail press. OUT [bar] 194.7 | Fuelmaps | Injection advan | ice H | PS emulation | Max | cimum gas time | | Petrol | 0.0 | | |
| Rail press. IN [bar] 154.0 | Emulation ON/OFF slope | s Emulation | conditions | | | | Petrol | averaged | Distance [km] | | |
| Reducer temp. [C] 73.4 | Mode ON 🗸 Rising [s] 15.0 | Pressure | falling | | | | [t] rooking | | [mil] | | |
| Gastemp. [C] 60.9 | Falling [s] 4.0 | ~ | | | | | | Gas | | | |
| Advanced < | Periodicity OFF | ~ | | | | | Gas [l/100km] | averaged [l/100km] | | | |
| OBD V | Advanced | | | | | | Clear | | | | |
| Status CONNECTED | Always possibility to increase OF | FV | | | | | Condition | 5 | | | |
| Loop status 1 CLOSE | Calaulaka | | | | Class min (may prove | | Dual inje | ction mod | e | | |
| ✓ RTFT [%] -18.7 | Deilessense seis | induction parameters |)(| | citear min y max press | | MPI injec | tions | | | |
| STFT [%] -7.8 | (%) | | | | | | Rail pres | s raii | | | |
| LTFT [%] -10.9 | 200 | | | | | | | | | | |
| Ratio [x] 0.93 Engine RPM 1496 | 180 | | | | | | | | | | |
| Engine load [%] | 160 | | | | | | | | | | |
| Engine temp [C] 90 | 140 | | | | | (450 0: 130 0) | | | | | |
| Rail press. [bar] 195.6 Rail press. set [bar] 0.0 | 130 | | | | | | | | | | |
| Speed [km/h] | 110 | | | | | | | | | | |
| | | | | | | | | | | | |
| | 70 | | | | | | | | | | |
| | 50 25 50 75 | 100 125 15 | 0 175 200 225 | 250 275 3 | 00 325 350 | 375 400 425 450 [bar | Gas corre | ctions | < | | |
| | | | | | | | Petrol con | rections | | | |
| Device: Injecto Connected Recor | d ID: 0x6FBE4138 (Injecto) | | | | | | | PCIE |): D873-1B70 | | |

7.2 Maximum gas time. 最大GAS燃气喷射时间。

This is an assistant to the performance of gas injectors and the diameter of the nozzles, which is based on measuring the gas injection time and comparing it with gasolin





8. Additional options for fine tuning (optional) 额外的微调选项(可选)"汽油使用量"

| EG Injecto ver 1.9.7 (Chevrole | et Malibu 1.5 turbo el.czujnik petrolgas _lnjecto_2215-20020_se | ttings.eggc.crp) | | | | |
|---|---|--------------------------------|-------------------|----------------|---------------------------|--------------------|
| File Edit Ports Language | Options Help | | | | | |
| Readings 🗸 🗸 🗸 | ON | ОМ | ON | ON | GAS | |
| Engine RPM 698 | 2 70ml | 2 71 _{m-1} | 2 62-1 | 2 62-1 | Petrol times win | 1dow |
| Petrol dose [mg] 2.70 | 2.94 | 3.92 | 3.67 | 2.04 | Fuel consumption | |
| Gas time [ms] 3.81 | 3.01 ms | 3.02 ms | 3.07 ms | 3.01 ms | 27 41 | 0 |
| MAP press. [bar] 0.30 | Settings Calibration F | etrol usage Corrections | OBD Service | Scope | Petrol | Petrol |
| Gas press. [bar] 1.24 | Settings | Rail press/RPM limit [%] | MAP/RPM limit [% |] | Petrol [%] [%] | limit [%] |
| Rail press. OUT [bar] 38.4 | | | | | 0.0 0.0 | 4.9 |
| Reducer temp. [C] 73.3 | | | | | Petrol Petrol averaged | Distance |
| Gas temp. [C] 77.2 | | | | | [l/100km] [l/100km] | [km] |
| Advanced < | 1 | | | | 5.8 13.2 | |
| OBD 🗸 | 1 | | | | Gas averaged | |
| Status CONNECTED | | | | | | <u> </u> |
| Errors Clear | | | | | Creat | $ \longrightarrow$ |
| Loop status 1 CLOSE | | | | | Conditions | |
| ☑ RTFT [%] 15.6 | | | | | Rail press fail | |
| STFT [%] -10.1 | | B. I | | | | |
| Engine RPM 700 | | Petrol Injections converting t | o gas 🗸 | | | |
| Engine load [%] 19 | | Pre injection | (Petrol V | | | |
| Engine temp [C] 93 | | Main injection | Petrol + Gas V | | | |
| MAP press. [bar] 0.19 | | Extended injections | Gas | | | |
| Rail press. [bar] 38.4 Rail press set [bar] 30.0 | | Extra petrol during all gas | < | | | |
| Lambda [V] 0.92 | | Increasing petrol usage during | g pressure drop < | | | |
| Speed [km/h] 0 | | Increasing petrol usage during | g open loop 🛛 < | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | Gas corrections | < |
| | | | | | Petrol corrections | 1.050 |
| | | | | | Rail press. IN [X] | 1.959 |
| | | | | | Rail press. emu. [x | 1.000 |
| Device: Injecto Disconnected V | iew ID: 0x6FBE4138 (Injecto) | | | | PCID | : 702C-E799 |
| | and infectory | | | | PGID | |

Petrol injections converting to gas (set type of gas injections) <u>汽油喷射转换为GAS燃气(设置GAS燃气喷射类型)</u>

Pre-injection- that injection happens before main injection for checking petrol injectorsperformance. It's always on petrol and it is impossible for emulating it on gas. Can be seton:

<mark>预喷</mark> - 这是在主喷射之前进行的注入 , 用于检查汽油喷射器的喷油嘴性能。它始终在汽油 状态下工作,无法在燃气模式下模拟。可以进行设置:

Petrol- pre-injection is done in petrol, next main injection in after that pre-injection is possible be

done on gas <mark>汽油</mark> - 预喷射在汽油状态下完成 , 之后的主喷射可以在预喷射之后进行燃气喷射。

All petrol- if stroke has a pre-injection, done on petrol, all other next injections in

全汽油 - 如果行程有预喷射,在汽油状态下完成,所有其他的主喷射和额外喷射也都将在汽油 状态下进行。

Main injection- Can be set on:

<u>主喷 - 可以设置为</u>:

Petrol- main injections always on petrol

<mark>汽油</mark> - 主喷射始终在汽油状态下进行

Petrol-gas - Opening peak is being done partially on gasoline and

remaining injection time pulse is being emulated and realized on gas. **汽油+燃气** - 开启峰值部分在汽油上完成

剩余的喷射时间脉冲在燃气上进行仿真和实现。

Gas - Complete injection is realized through gas injectors and every certain number of assoline is being injected depending on the selected frequ

燃气 - 完整的喷射通过燃气喷射器实现,并且根据选择的频率,每隔一定周期注入一定 量的汽油。

- 1/3 每1次汽油冲程对应3次GAS燃气冲程 - 1/3 - 1 petrol stroke to 3 gas stroke
- 1/5 每1次汽油冲程对应5次GAS燃气冲程 - 1/5 - 1 petrol stroke to 5 gas strokes
- 1/7 1 petrol stroke to 7 gas strokes 1/7 - 每1次汽油冲程对应7次GAS燃气冲程
- 1/11 1 petrol stroke to 11 gas strokes 1/11 每1次汽油冲程对应11次GAS燃气冲程

Extended injections- same way function as described above for Main injection way ofwork.

<mark>延长喷射时间</mark> - 与上述描述的主喷射方式相同的功能工作方式。

Extra petrol during all gas (possibility only for "gas" mode injections)

额外的汽油喷射(仅适用于"燃气"模式喷射) 20 / 23

Extra petrol mode- when gas – complete injection is realized through gas injectors and every certain number of cycles some amount of gasoline is being injected depending on the selected frequency:

<mark>额外汽油模式</mark> - 当选择燃气模式时,完整的喷射通过燃气喷射器实现,并且根据选择的频 率,每隔一定周期注入一定量的汽油。

- 1/3 1 petrol stroke to 3 gas stroke
- 1/3 每1次汽油冲程对应3次GAS燃气冲程
- 1/5 1 petrol stroke to 5 gas strokes

1/5 - 每1次汽油冲程对应5次GAS燃气冲程 1/7 - 每1次汽油冲程对应7次GAS燃气冲程

- 1/7 1 petrol stroke to 7 gas strokes 1
- 1/11 1 petrol stroke to 11 gas strokes 1/11 每1次汽油冲程对应11次GAS燃气冲程

| Petrol injections converting | g to gas | ~ | | | |
|--|---------------|-----|--|--|--|
| Pre injection | Petrol | ~ | | | |
| Main injection | Gas | ~ | | | |
| Extended injections | Gas | ~ | | | |
| Extra petrol during all gas | | ~ | | | |
| Extra petrol mode | 1/ | 3 🗸 | | | |
| Extra delay after peak [ms] | 0.1 | 0 ~ | | | |
| Increasing petrol usage during pressure drop < | | | | | |
| Increasing petrol usage dur | ing open loop | < | | | |

Extra delay after peak- in time of gas injection have delaying of emulation of petrol injector for adding of petrol in moment of working in gas.

<mark>额外延迟在峰值之后</mark> - 在燃气喷射时,延迟仿真汽油喷射器,以在燃气工作时添加汽油。

Attention: changing of that option to too low frequency can reduce the usage of gasolinesignificantly thus cause damage of petrol injectors due overheating.

<u>注意:将该选项设置为过低的频率可能会显著降低汽油使用量,</u> 从而导致汽油喷射器因过热而损坏。

Increasing petrol usage during pressure drop

在压力下降期间增加汽油使用量

Using in time if has problems "check engine" DTCs related with gasoline high pressuresensor (like P0088) and samed or jerkings in time of throttle position change during fuel rail pressure surges.

在出现与汽油高压油压传感器相关的"检查发动机"故障码(如P0088) ,以及在燃料轨道压力波动期间节气门位置变化时出现顿挫或抖动的 情况下使用。

| ◆EG Injecto ver 1.9.7 (Chevrole | t Malibu 1.5 turbo el.czuj | nik petrolgas _lnjecto_2215-20020_ | _settings.eggc.crp) | | | | | | l. | - 🗇 x |
|---|----------------------------|------------------------------------|---------------------|-------------------------------|---------------|--------------------------|------------------------------------|---------------------|-------------------------------|------------------|
| Readings ✓ ✓ Engine RPM 681 ✓ Petrol dose [mg] 1.97 | | ON 1.97 _{mg} 1 2.87 | 1.1 | on () 96 _{mg} 1 | 1.9 | on 97 _{mg} 1 | ON 1.97 _{mg} 1 2 85 | Petr Fuel cons | GAS oltimes win umption | dow V |
| Gas time [ms] 2.87 → MAP press. [bar] 0.28 | Settings | Calibration | Petrol usage | Corrections | OBD | Service | Scope | 29 | 37 Petrol | 0 Reteal |
| Gas press. [bar] 1.20 | Settings | | Rail press/RPM | limit [%] | | MAP/RPM limit [%] | | Petrol [%] | [%] | limit [%] |
| Rail press. OUT [bar] 30.2 | | | | | | | | | 0.2 Petrol | 6.2 |
| Gas temp. [C] 80.7 | | | | | | | | Petrol [l/100km] | averaged [l/100km] | Distance [km] |
| Advanced < | | | | | | | | | 13.2 Gas | |
| OBD 🗸 | | | | | | | | Gas [l/100km] | averaged [l/100km] | |
| Errors CONNECTED | | | Petrol ir | jections converting to ga | as < | | | | Clear | |
| Loop status 1 CLOSE | | | Extra pe | trol during all gas | < | | | Condition | 5 | |
| ✓ RTFT [%] -3.9 | | | Increasi | ng petrol usage during pr | essure drop 🗸 | | | | | |
| LTFT [%] -4.6 | | | Mode | l minimum natral usaga (%) | OFF ¥ | | | | | |
| Engine RPM 690 | | | Minimum | pressure for activation [bar] | 50 - | | | | | |
| Engine temp [C] 97 | | | Sensitivit | y for pressure drop detection | [%/s] 2.0 ¥ | | | | | |
| MAP press. [bar] 0.16 Rail press. [bar] 29.8 | | | Activation | n delay during pressure dropp | ing [s] 0.8 💙 | | | | | |
| Rail press. set [bar] 30.0 | | | Maximum | RPM for activation | 4000 ~ | | | | | |
| Speed [km/h] 0 | | | Activation | after pre injections for [s] | OFF V | | | | | |
| | | | MAP pres | ssure drop detection [%/0.1s] | 10 👻 | | | | | |
| | | | MAP pres | ssure drop hold [s] | 0.5 🗸 | | | | | |
| | | | Turn off H | IPS emulation during drop | OFF ¥ | | | | | |
| | | | Increasi | ng petrol usage during op | en loop < | | | | | |
| | | | | | | | | Gas corre | ctions | < |
| | | | | | | | | Petrol co | rections | ~ |
| | | | | | | | | Rail pre | ss. IN [x] ss. OUT [x] | 1.726 1.726 |
| | | | | | | | | Rail pre | ss. emu. [x] | 1.000 |
| Device: Injecto Disconnected Vi | ew ID: 0x6FBE4138 (Injec | to) | | | | | | | PCID | 5059-6AAC |

Petrol limits - After auto calibration we need to check driving characteristics in all modes and take a look on actual petrol usage at certain moments, and fix it, if petrol usage is too low.

汽油限制 <mark>-</mark> 在自动校准后,我们需要在所有模式下检查驾驶特性, 并在特定时刻查看实际的汽油使用量 , 如果汽油使用量过低 , 则进行修正。

Rail press/RPM limit -additional use of gasoline depending on rail pressure value regarding RPM:

燃油轨压力/RPM限制 -根据喷轨压力值附加使用汽油,考虑到发动机转速。



MAP/RPM limit -additional use of gasoline depending on Manifold Absolute Pressure value regarding RPM:

MAP/RPM限制 [%]-根据进气歧管绝对压力值附加使用汽油,考虑到发动机转速<mark>。</mark>

| ♦EG Injecto ver 1.9.7 (0 EU E E E E E E E E E E E E E E E E E E | EG Injecto ver 1.9.7 (Chevrolet Malibu 1.5 turbo el czujnik petrolgas _Injecto_2215-20020_settings eggc crp) | | | | | | | | | | | | | | | | | | |
|--|--|------------|-----|-------|---------------------------------------|-----|------------|-------------|-------------------|-----|-------|-------------|---------------------|--------------|-----------------------|------------------|-----------------------|-----------|--|
| File Edit Ports Lanç | guage Op | tions Help | | | | | | | | | | | | | | _ | | | |
| Readings | ~ | | λ 🦳 | | ON | | | 40 | 4 | | | | ON | | ON | | GAS | | |
| Engine RPM | 3828 | | T I | 23 | 3.43 _{mg1} | | | 23.54 | 4 _{ma} 1 | | | 23. | .42 _{mo} 1 | | 23.48 _{ma} 1 | Pe | Petrol times window | | |
| Petrol dose [mg] | 23.43 | \sim | 2 | 2 | 1 74 | | | 22.1 | 3 | | | 21 | 67 | | 21 78 | Fuel con | sumption | ~ | |
| 🗹 Gas time [ms] | 21.74 | | | _ | ms | _ | | | oms | | _ | 21 | .01 ms | _ | Z III Oms | 11 | 41 | 0 | |
| MAP press. [bar] | 2.11 | Settings | | Calib | ration | Pet | trol usage | | Corrections | | 0 | BD | | Service | Scope | | Petrol | Petrol | |
| 🗹 Gas press. [bar] | 0.97 | Settings | | | | | Rail pr | ess/RPM lim | it [%] | | | | MAP/R | PM limit [%] | | Petrol [% | [%] | limit [%] | |
| 🗹 Rail press. OUT [ba | r) 209.0 | ž | 8 | 00 | e e e e e e e e e e e e e e e e e e e | 000 | | 200 | 8 | 000 | 80 80 | | | 00 | 8 | Ð | 0.0 | 5.0 | |
| Reducer temp. [C] | 79.5 | MAP | 2 | ÷ | | 2 | á c | N | Ř | m i | 46 | | 4 | ů. | ii ii | Petrol | Petrol averaged | Distance | |
| Gas temp. [C] | 78.4 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | [l/100km] | [l/100km] | [km] | |
| Advanced | < | 0.20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | | 13.5 Gas | | |
| OBD | ~ | 0.30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | Gas [l/100km] | averaged [l/100km] | | |
| Status CON | NECTED | 0.40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | | Clear | | |
| Errors | Clear | 0.50 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | Conditio | ns | | |
| Loop status 1 | CLOSE 42.0 | 0.60 | 0 | 0 0 0 | | | | 0 | 0 | 0 | 0 0 0 | | | 0 | 0 | Rail pres | s fall | | |
| VRIFI[%] | 13.2 | 0.70 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | | | | |
| U STFT [%] | 8.5 | 0.80 | | | | | | _ | | | | | | | | | | | |
| Engine RPM | 3801 | | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 30 | | 30 | 30 | 30 | 30 | | | | |
| Engine load [%] | 78 | 1.00 | - | | | | | | | | | | | | | | | | |
| Engine temp [C] | 97 | | 0 | 0 | 0 | 0 | 0 | U | 30 | 30 | | 30 | 30 | 30 | 30 | | | | |
| MAP press. [bar] | 1.14 | 1.20 | | | | | | | | | | | | | | | | | |
| Pail press. [Dar] | 209.0 | | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 30 | | 30 | 30 | 30 | 30 | | | | |
| Lambda [V] | 0.07 | 1.50 | | | | | | | | | | | | | | | | | |
| Speed [km/h] | 19 | 1.50 | | | | | | | | | | | | | | | | | |
| | | | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 30 | | 30 | 30 | 30 | 30 | | | | |
| | | 1 80 | | | | | L | | | | | | | | | | | | |
| | | 1.80 | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| | | | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 30 | | 30 | 30 | 30 | 30 | Gas corr | ections | < | |
| | | | | | | | | | | | | | | | | Petrol c | orrections | ~ | |
| | | | | | | | | | | | | | | | | Rail pr | ess. IN [x] | 4.571 | |
| | | 2.50 | | | | | | | | | | | | | | Rail pr | ess. OUT [x] | 4.571 | |
| | | 000 | | | | | | | | | | | | | 0 | U Rall p | ess. emu. (x) | 1.000 | |
| Device: Injecto Disconn | evice: Injecto Disconnected View ID: 0x6FBE4138 (Injecto) PCID: 702CF797 | | | | | | | | | | | : 702C-F799 | | | | | | | |

Corrections 修正

RPM/MAP correction here You you can set percentage of enriching or lean mixture by adjusting gas injection opening time in range of 0-50%

在 "RPM/MAP 修正" 这里, 您可以通过调整GAS燃气喷射的开启时间 来设置富化或稀释混合物的百分比修正, 范围在0-50%之间。

| | | | | 10 | | | | | | | | | | | | | | | | |
|---|---|--------------|-------|----------------------|-----|-----------|------|-----------------|---------|---------|--------------|--------------------|---------|----------------------|-----------------|-----------------------------|-----------|--|--|--|
| ♦EG Injecto ver 1.9.7 (Chevrole | et Malibu 1.5 turbo el czujnik petrolgas _injecto_2215-20020_settings eggc.crp) | | | | | | | | | | - 🗇 🗙 | | | | | | | | | |
| File Edit Ports Language (| File Edit Pots Language Options Help | | | | | | | | | | | | | | | | | | | |
| Readings 🗸 🗸 🗸 | | | | ON | | | ON | | | | | | | | | GAS | | | | |
| Finance RPM 672 | | | | | | | | | | | | | Bot | Detroitimer window | | | | | | |
| Control dess [mail 4.04 | | 9 | | 1.94 _{mg} 1 | | | 1.94 | mg ¹ | | | 1. | 92 _{mg} 1 | | 1.93 _{mg} 1 | Free Contract | Petrortimes wildow | | | | |
| Petror dose [mg] 1.94 | | | | 2.81 _{ms} | | | 2.77 | ms | | | 2. | .77 _{ms} | | 2.78 _{ms} | Fuercons | umption | Ť | | | |
| Gastime (ms) 2.81 | | | | | | | | | | | | | | | 32 | 37 Betrol | 0 | | | |
| MAP press. [bar] 0.29 | Settin | ngs | Ca | libration | Pet | rol usage | | Corrections | | • | BD | | Service | | averaged | Petrol | | | | |
| Gas press. [bar] 1.20 | RPM/ | MAP correc | ction | | | | | | Gas tem | peratur | e correctior | ı | | | Petrol [%] | [%] | limit [%] | | | |
| Rail press. OUT [bar] 29.5 | P Z | | 0 | 000 | 500 | | 500 | 000 | 500 | 000 | | 200 | 000 | 500 | | 0.3 | 6.2 | | | |
| Reducer temp. [C] 83.4 | 0.00 | 5 | | - | 5 7 | | 0 | m | m | 4 | | 4 | 6 | 2 L | Petrol | averaged | Distance | | | |
| Gas temp. [C] 81.4 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | [l/100km] | [l/100km] | [km] | | | |
| Advanced < | 0.20 | | | | | | | | - | | | | | | | 13.4 | | | | |
| OBD Y | 0.30 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | Gas | averaged | | | | |
| Status CONNECTED | 0.40 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | [l/100km] | [l/100km] | | | | |
| Errors Clear | 0.50 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | | Clear | | | | |
| Loop status 1 CLOSE | 0.60 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | Condition | 15 | | | | |
| RTET 1%1 -78 | 0.70 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | Rail press fall | | | | | |
| | 0.90 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | | | | | | |
| LTFT [%] -6.2 | 0.00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 | 0.0 | | | | | | | |
| Engine RPM 678 | 1.00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | • | 0.0 | 0.0 | 0.0 | 0.0 | | | | | | |
| Engine load [%] 17 | 1.00 | | | | | | | | | | | | | | | | | | | |
| Engine temp [C] 95 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | | | | | | |
| MAP press. [bar] 0.19 | 1.20 | | | | | | | | | | | | | | | | | | | |
| Rail press. [bar] 29.6 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | | | | | | |
| Rail press. set [bar] 30.0 | | | | | | | | | | | | | | | | | | | | |
| Speed [km/h] 0 | 1.50 | | | | | | | | | | | | | | Gas corre | ctions | ~ | | | |
| C obcoalimini | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | RPM/M | AP [x] | 1.000 | | | |
| | | | | | | | | | | | | | | | Dose re | eplace [x] | 1.000 | | | |
| | 1.80 | | | | | | | | | | | | | | 🗹 Gas pre | ess. [x] | 1.336 | | | |
| | | | | | | | | | | | | | | | Gas ter | np. [x] | 1.071 | | | |
| | | | | | | | | | | | | | | | | X] d time [me] | 2.017 | | | |
| | | | | | | | | | | | | | | | | n time (ms) | 2.44 | | | |
| | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | Detector | | | | | |
| | | | | | | | | | | | | | | | Petrol Co | reccions | 4 700 | | | |
| | | | | | | | | | | | | | | | Rail pre | ess. IN [X] | 1.720 | | | |
| | 2.50 | | | | | | | | | | | | | | Rail pre | ss. oor (x) ss. emii (y) | 1.720 | | | |
| | | J | | | | | | | | | | | | 0 | | onna: [A | | | | |
| Device: Injecto Disconnected Step (D: 0x6FBE4138 (Injecto) PCID:702CE799) | | | | | | | | | | | | | | | | | | | | |

ECU技术规范

ECU的电源电压范围:9V-16V。

工作温度范围:-40℃至+85℃。

兼容的传感器类型:模拟信号和数字信号。

注意:如果HPS高压油泵传感器是"数字信号",请勿_连接_黄色/黄黑电线。

通讯接口:CAN,K线。

术语表

| 不记役 ECU:发动机控制单元。 | 常见故障码 <u>www.obd-codes.com/p02f1</u> |
|---------------------|---|
| OBD:车载诊断系统。 | P02F0/1是循环故障码,车辆点火后自动清除。 |
| DTC:故障诊断码。 | P0100:质量或体积空气流量电路故障。 |
| CAN:控制器局域网。 | P0110:进气温度传感器电路故障。 |
| LPS:低压传感器。 | P0200:喷油器电路故障。 |
| HPP:高压油泵。 | P0300:随机/多次点火失火检测。 |
| HPS: 高压油压传感器。 | P0400:废气再循环(EGR)流量故障 |
| | |