

POWERJET OBD PJ+ SOFTWARE 2014



www.autogasitalia.it

The **ECU PJ+** that bring the sticker “**2014 New Software**” are characterized by innovative new features. This in order to optimize the software usage, new “Setting” strategies and to expand it with the inclusion of the “**OBD TESTER**” that allows a complete diagnosis system monitoring as it was a normal scanner external diagnosis. Another important thing is the evident economic saving for the mechanic’s workshop that is not equipped with diagnosis OBD scanner. In this section of the software general use manual we describe the changes introduced with the 2014 version.

ESCAPE BUTTON



The inclusion of the “**ESC**” key shortcut simplify the navigation from the various pages to the main. You can return to the home page everytime you want, only by pressing “**ESC**” on the computer keyboard.

PARAMETERS

Injector Type	Autogasitalia, 30hm
Gas inj. minim. open time (ms)	2
Start&Stop vehicle	DISABLED
Valvetronic engine	DISABLED
Multiair engine	DISABLED
Monofuel	DISABLED
Additional services	DISABLED

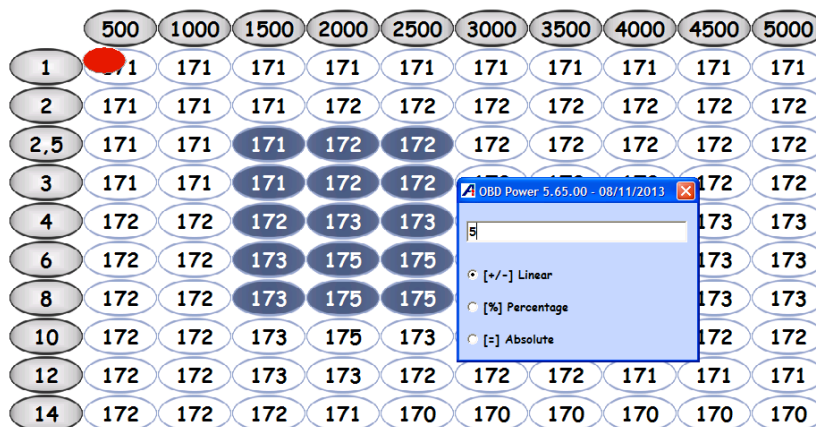
In “**SWITCHING**” the function **MONOFUEL** (disabled by default) has been inserted as a possible selection. This feature must be enabled in vehicles working with only one alternative fuel (LPG or CNG). The **MONOFUEL** control can disable the typical features of the traditional gasoline – gas management, like for example a gasoline starting or the automatic low pressure gas return. If you want to access to higher levels of change in **MONOFUEL** configuration (like for example if you want to modify the temperature settings), you need a **level 2 hardware key**.

INJECTORS

Injector Type	Autogasitalia, 30hm
	PlaniJet, Injectors
	Valtek, 30
	Valtek, 34
	HANA, Injectors
	MATRIX, 30hm
	B-GAS, INJ
	OL, INJ
	RP4SU, INJ

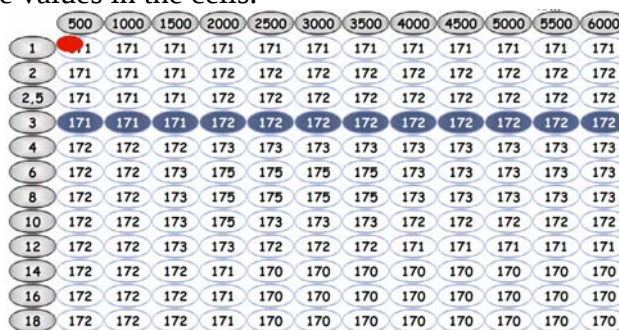
New kind of injectors have been insert.

CARBURETION

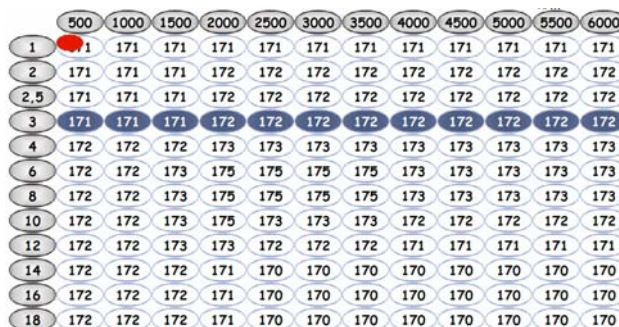


By modifying the map values (when the edit window appears) the variation is now placed on "LINEAR" mode. If you want to use "PERCENTAGE" or "ABSOLUTE" mode, you have to select them manually (Point 7, page 10 of the user guide).

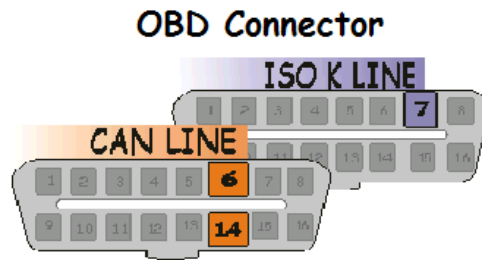
By clicking on an injection time value (ms) the corresponding line is colored in blue, so at this point it is possible to change the values in the cells.



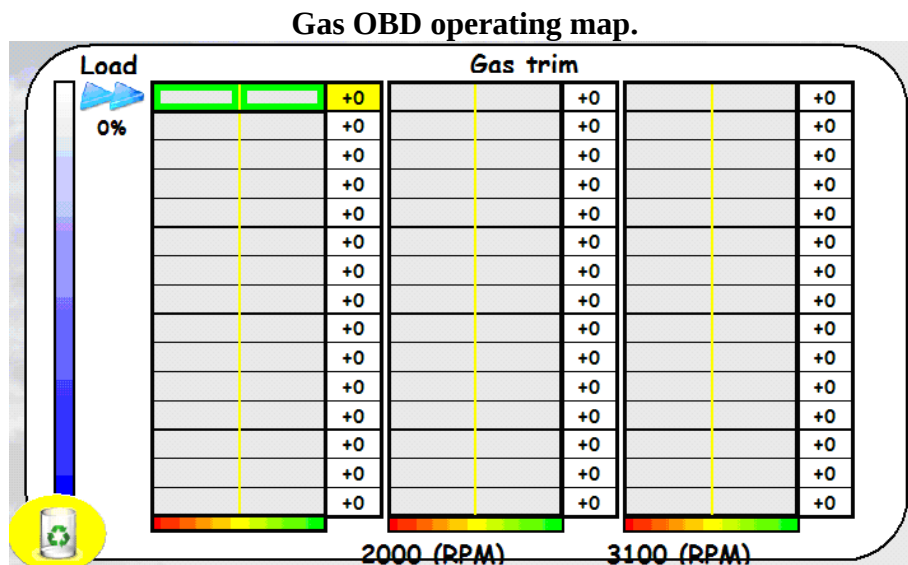
By clicking on a RMP (ms) value the corresponding column is colored in blue, so at this point it is possible to change the values in the cells.



OBD



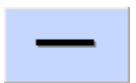
The graphic representation which indicates the connection of the PJ+ wiring threads to the OBD connector has been improved (in the software user guide, the instructions and schemes are explained). The PIN number and the color of the threads (PJ+ wiring) to connect are indicated depending on the connection.



OBD correctors for the gas graphic has been modified and improved. Previously we had only a graphic indicator for the whole map. With the 2014 version, the sectors are now three. The first one ends at 1900 RPM. The second goes from 2000 to 3000 RPM and the third from 3100 to the end of RPM. The cursor (highlighted in green on the picture above) moves fastly from one sector to another (up/down and right/left) in relation with RPM and engine load. The cursor movement is combined with the one of the two blue arrows which indicates the engine load (point 10, page 24 of the user guide). On the right of each sector, a column indicates the value of the modification that the system applies on the carburetion map. The values can be positive (the PJ+ system evaluates that is necessary to enrich the carburetion) or negative (the PJ+ system evaluates that is necessary to lean the carburetion). A graphic display is highlighted (with a coloured bar) together with the numeric indication. In the following picture you can see a simulation of how the system works.



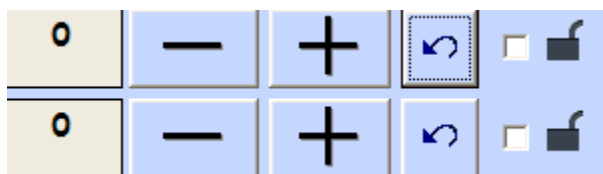
Increases the correction percentage (greater gas injector opening) on each single cylinder. This amount of gas is in variation than the other regulations on.



Decreases the percentage correction (smaller gas injector opening) on each single cylinder. This smaller amount of gas is in variation than the other regulations on.



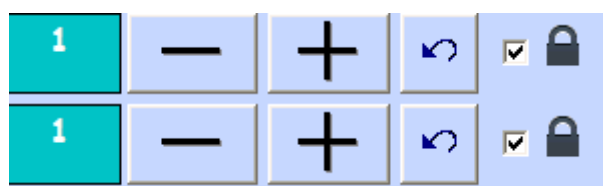
It brings the corrections automatically to "0".



In this configuration, the variation is applied singularly to each injector using "+" or "-".



The check box is not selected and the padlock is opened



In this configuration (as an example) two injectors are "**bound**" to each other. If you want to bound multiple injectors, you have to select the check box, so the padlock closes  (as it indicates the link). The square that reports the correction (numerical value) has a more intense color in order to better highlight this "bound" (among multiple injectors). By using the + and - keys we can increase or decrease simultaneously the correction on the linked injectors.



This key always brings back to zero every possible modification. In this case at the same time for all the selected injectors.

Unselect the check box to "free" the injectors (from the bond between them). The padlock is now opened. The padlock device has been added in order to help the user with an immediate interpretation of the configuration. This function is useful in engines with more cylinder banks that may have difference in carburetion between a bank and another.

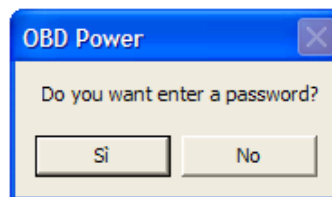
By "linking" the injectors of a bank, you can easily make any changes in order to balance the carburation.

ERRORS

The screenshot shows a software window titled 'Erase errors'. Inside, there's a 'Maintenance' section. A red rectangle highlights the following fields: 'Ecu working days' (set to '- -'), 'Block switching to gas after months' (set to 'DISABLED'), and a small icon of a gas pump. Other visible fields include 'Working time to gas (h.mm)' (0.00), 'Working time to petrol (h.mm)' (0.00), 'Scheduled service to (h.mm)' ('- -'), and 'Service time (h)' ('DISABLED').

On the page **ERRORS** a new "**setting**" feature for programmed maintenances (red square) has been added. The ECU operation days are highlighted; this if the user wants to get a check "**service**" not according to driving but to time. If activated, this new feature **blocks the gas functioning when the set time is reached**.

If you know the working timing it is possible to determin the "**GAS OPERATION STOPPING**" after the set term. This feature is disabled by default. If the user decides to activate it, the time must be selected in months. By clicking the arrow on the communication box side, the available items list appears. On the left side you have the ECU working days. **If the battery is disconnected the ECU does not lose its memory data and it continues to calculate the time.**

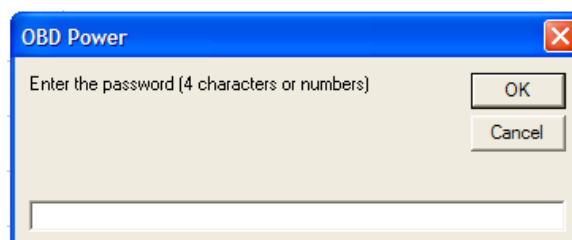


Block switching to gas after months **24**

Once you have entered the number of months, the system asks if you want to put a password for security. If you decide to NO, the system counts the set months after which it blocks the gas operation.

Ten days before the set time expiry, the switch makes a series of "sounds" (about three secs) and it continues working normally on gas; this to avoid the gas operation blocking when the vehicle is located maybe many miles away from the point of service. This is a warning to give the driver a sufficient time to reach a service center avoiding the gas operation blocking.

Of course if the protection password is not inserted, all the "workshops" which use PJ+OBd software can enter and modify this setting. If you decide to enter a password, the system opens a second window where you are asked to enter a 4 numbers, letters or mixed code.



When a password is inserted the system highlight the "state of protection" by closing the lockpit on the right of the set months.

24



With a pass access you can modify this feature only by typing the correct password. While typing the inserted password please remember to respect the first insertion font: capital or simple. Other workshops won't be able to do such assistance services on this system without having the password by the owner. **If the battery is disconnected or if the ECU is reset, the password stays on.**
WHAT DO YOU HAVE TO DO IF YOU FORGET YOUR PASSWORD?

Save the vehicle configuration and send it to Autogas Italia that will identify it and retransmit it to the workshop.

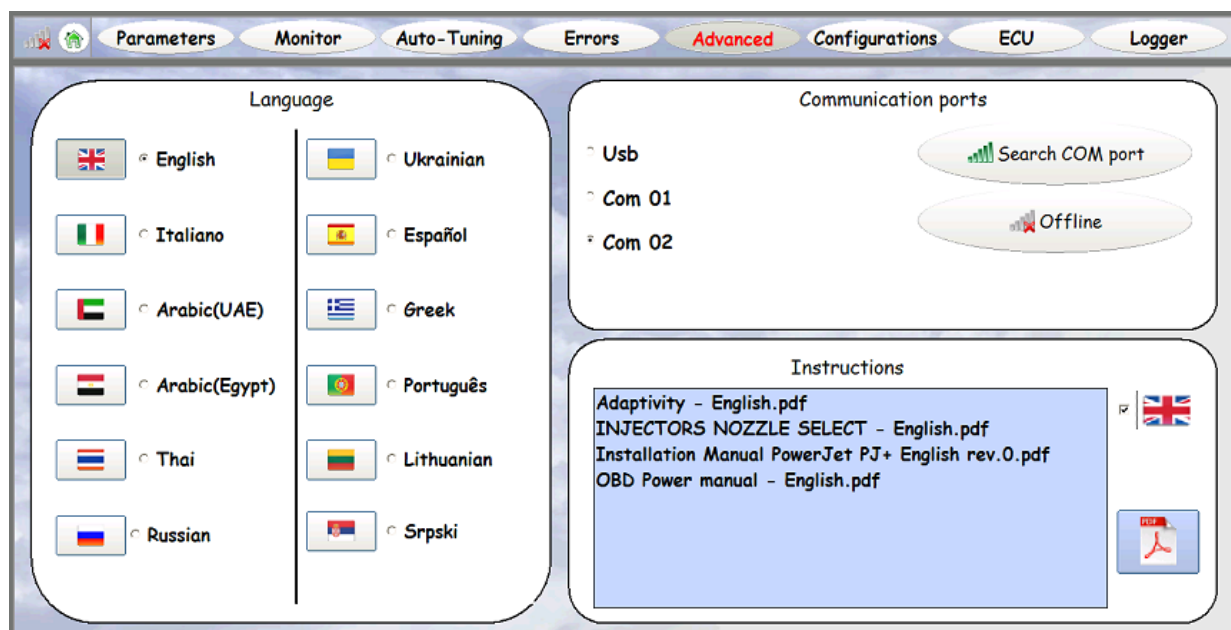
If once on the password insertion screen we decide not to insert it, the unprotected feature automatically activates by selecting "Cancel". The function is activated with the deadline on but without protection (blocking).

If we have enabled this feature (once the vehicle will be in the workshop), follows the instructions to remove the block:

1. Connect the PC to the ECU and activate the OBD software.
2. Enter in ERRORS page (from the homepage). The icon will be coloured ORANGE to indicate that in this feature there is element to work on: in this case the time block.
3. Click on the “**rubber**” next to the control “**ECU working days**”
4. Automatically program the window where we have to enter the password. If this is not inserted we directly go from point 3 to point 5.
5. Once the password is on, the window closes, so we can click on “**rubber**” and remove the days that caused the block. The value “0” appears.
6. If we decide to keep the feature on we just have to wait and after the set months the same process will be repeated. If you decide to change the number on months or to disable the feature please act as described before.

AVANCED

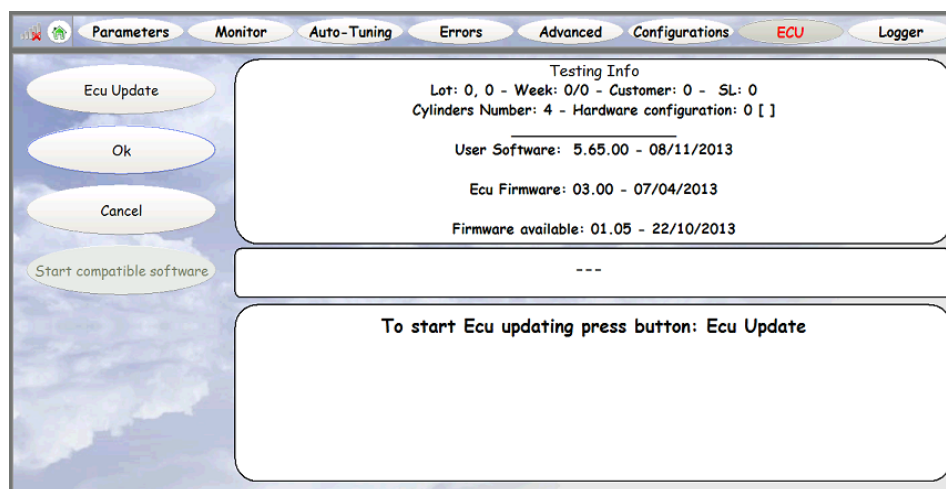
The page "Advanced" and Languages has been improved and reordered. A larger box has been created in order to better contain PDF docs.



In the box "**INSTRUCTIONS**" you get the flag of the selected "**Language**". By putting the check box next to it, you get the list of the available docs in the selected language.

You select the document you need and you open it by clicking on the PDF button. If the check box next to the flag is not selected, all the manuals and instructions available (in all the languages) are listed in the instruction box. The docs consultation can be also made **OFFLINE** (in the "Communication doors" area).

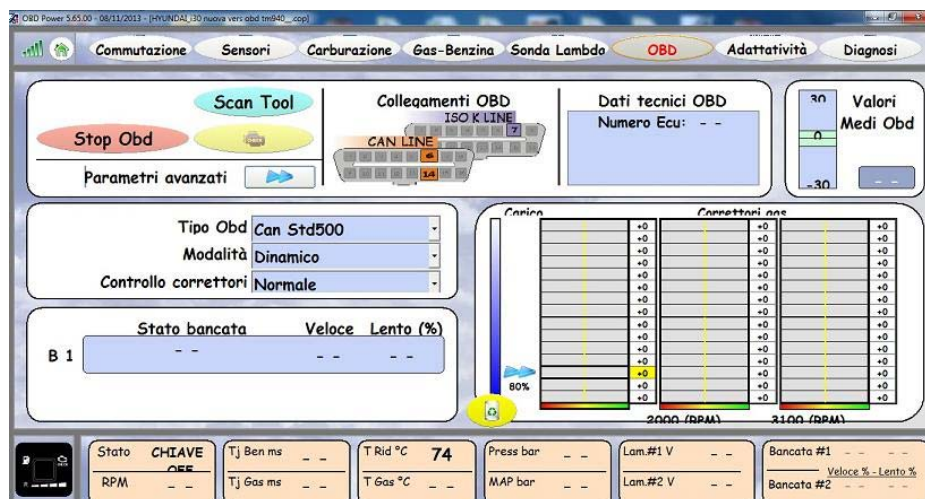
ECU



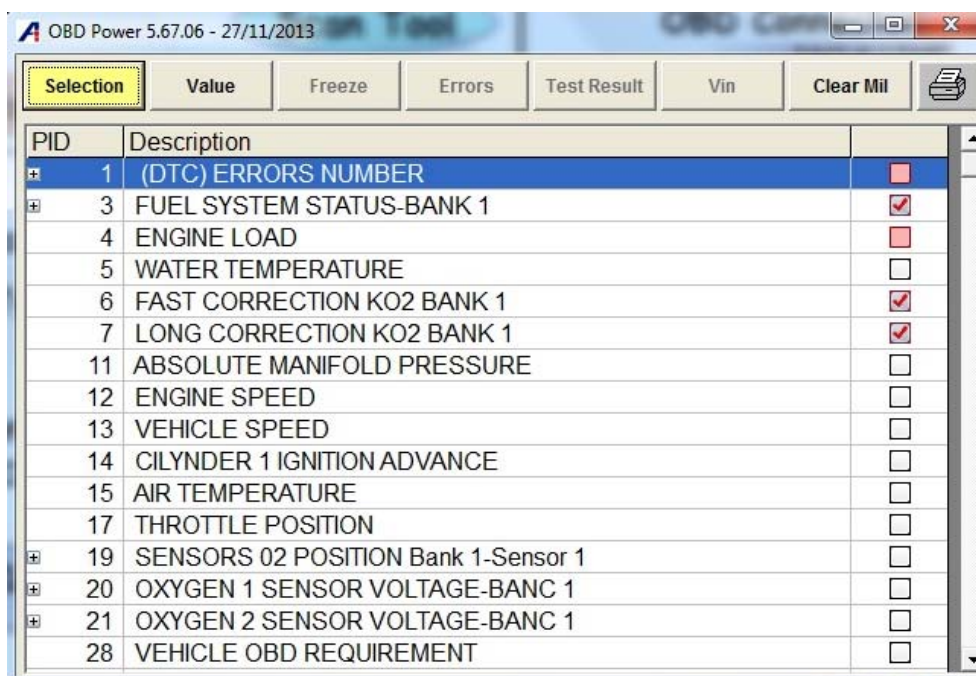
The ECU page has been reorganized with the insertion of all the infos concerning the control unit and the installed or available softwares. From this page the Firmware (point 18, page 44 of the user guide) update starts too. If you decide not to update the firmware by clicking on "**Start compatible software**" key, the program will automatically search for (in its database) the software version compatible with the one installed in the ECU and it opens the program..

OBD TESTER (SCAN TOOL)

In the **2014** version of the ECU PJ + the OBD tester has been added. We think this is a very important innovation because the PJ+ software becomes extremely functional, flexible, more complete and unique in our field. The operation has simplified thanks to the possibility to check the OBD system of the car directly on the computer and inside the PJ+ software without connecting it to an external device. Another important element in the economic aspect for those structures that do not have an OBD tester yet. To access to the OBD TESTER function, you need to connect the ECU PJ + to the OBD system on the vehicle (you can find detailed instructions for the connection on the software general user guide at the voice "OBD"). Once accessed on the OBD page, click on the **SCAN TOOL** icon (see image below) in order to activate the data exchange between PC (functioning as TESTER) and OBD system.



The OBD scanner screen automatically opens.



On the page **SELECTION** (opens in a smaller size) highlights the controls subject to diagnosis: on the right side of the window there is a column with check box that get different meanings according to the sign they contain. The green check indicates that the referred item is displayed on the page "Value". The red check is paired with features reserved to ECU PJ+. These cannot be disabled as they're necessary to the OBD gas system in order to work correctly. They're automatically enabled by the PJ+ software when the OBD connection is enabled throught "**OBD connect**" key. Also in this case the features working values can be viewed in "Values". When the check box is in red (with no internal sign), the feature is always reserved to the ECU PJ+ but not currently used.

The window shown in the screen above, can be expanded by clicking on the command bar (see pictures below).

Selection	Value	Freeze	Errors	Test Result	Vin	Clear Mil
PID	Description					
1	RESULT HEATED CATALYST	☐				
1	RESULT EVAPORATIVE SYSTEM	☐				
1	RESULT SECONDARY AIR SYSTEM	☐				
1	RESULT A/C SYSTEM REFRIGERANT	☐				
1	RESULT O2 SENSOR	☐				
1	RESULT O2 SENS HEATER	☐				
1	RESULT EGR SYSTEM	☐				
3	FUEL SYSTEM STATUS-BANK 1	☒				
3	FUEL SYSTEM STATUS-BANK 2	☒				
4	ENGINE LOAD	☐				
5	WATER TEMPERATURE	☒				
6	FAST CORRECTION KO2 BANK 1	☒				
7	LONG CORRECTION KO2 BANK 1	☒				
11	ABSOLUTE MANIFOLD PRESSURE	☒				
12	ENGINE SPEED	☒				
13	VEHICLE SPEED	☐				
14	CILYNDER 1 IGNITION ADVANCE	☒				
15	AIR TEMPERATURE	☐				
17	THROTTLE POSITION	☒				
19	SENSORS O2 POSITION Bank 1-Sensor 1	☒				
20	OXYGEN 1 SENSOR VOLTAGE-BANC 1	☒				
21	OXYGEN 2 SENSOR VOLTAGE-BANC 1	☒				
28	VEHICLE OBD REQUIREMENT	☐				
33	DISTANCE DONE WITH MIL LAMP ON	☐				
47	FUEL LEVEL INPUT	☐				
51	BAROMETRIC PRESSURE	☐				
66	CONTROL MODULE VOLTAGE	☐				
73	ABSOLUTE THROTTLE POSITION D	☐				
74	ABSOLUTE THROTTLE POSITION E	☐				

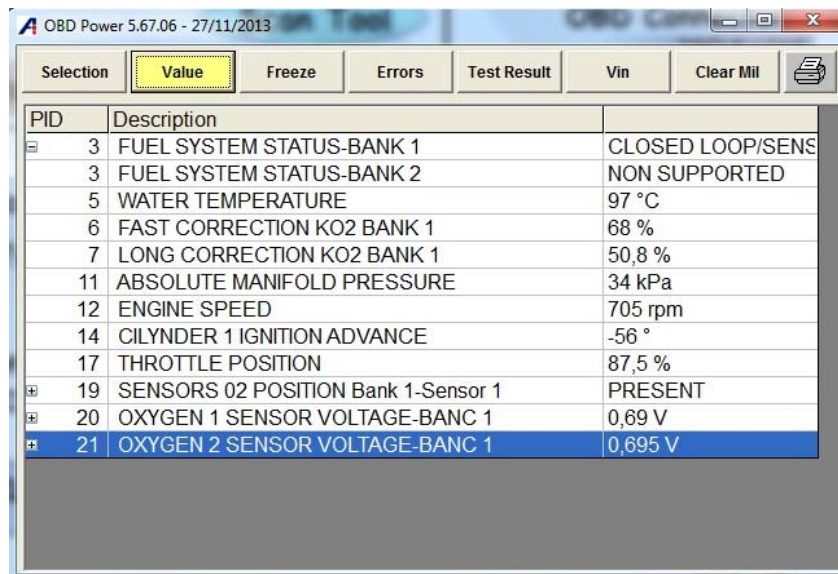
The extended display allows an easy reading of parameters and values. To reduce the window again, click another time on the control bar.

The windows size can also be modified / adapted to the needs using the mouse with the typical feature of a normal window on our monitor. In the "Selection" window click on the symbols "_" inside the PID column (where present) in order to display a greater number of features supported by the OBD vehicle protocol.

Selection	Value	Freeze	Errors
PID	Description		
1	NUMERO ERRORI (DTC)	☐	
1	STATO SPIA MIL	☒	
1	MISFIRE MONITORATO	☐	
1	FUEL SYSTEM MONITORATO	☐	

Click again on the symbol "_" to reduce the number of features.

By selecting **VALUES** you can read the values OBD system analyzes in real time. In the **PID** column (Identification Parameter) the numbers of that particular diagnosis are reported. The OBD system is an international standard with a precise identification standard with the same numbering criteria on all the systems (some numbers combinations are reserved only to veichle manufacturers and in this case the words " **non-standard code** " may appear). For example: PID 2 will always correspond to the "**SAVED ERROR**" feature (in any OBD system). In "**Description**" you have the type of anomaly recorded. On the right column the possible error code is reported (if present), the service status (ex: supported / not supported) or the work value. The screen **VALUE** can display up to 10 PID selectable from **SELECTION**.



Selection	Value	Freeze	Errors	Test Result	Vin	Clear Mil	
PID	Description						
3	FUEL SYSTEM STATUS-BANK 1						CLOSED LOOP/SENS
3	FUEL SYSTEM STATUS-BANK 2						NON SUPPORTED
5	WATER TEMPERATURE						97 °C
6	FAST CORRECTION KO2 BANK 1						68 %
7	LONG CORRECTION KO2 BANK 1						50,8 %
11	ABSOLUTE MANIFOLD PRESSURE						34 kPa
12	ENGINE SPEED						705 rpm
14	CILYNDER 1 IGNITION ADVANCE						-56 °
17	THROTTLE POSITION						87,5 %
19	SENSORS O2 POSITION Bank 1-Sensor 1						PRESENT
20	OXYGEN 1 SENSOR VOLTAGE-BANC 1						0,69 V
21	OXYGEN 2 SENSOR VOLTAGE-BANC 1						0,695 V

The window **"FREEZE"** contains **"frozen"** stored informations corresponding to the time when an error is detected by the system. This feature reports: conditions, moments and values stored when the trouble has occurred. This point often coincides with the illumination of the **"Check control"** indicator on the vehicle instrument panel. These elements are important to analyze the event and the engine operating conditions. With these informations it is possible to work on the defective component or to change the vehicle carburetion if necessary (only in gas functioning) at precise points of the carburetion map. **FREEZE** is activated only when PJ+ switch is in gasoline position. If the switch is in gas position or if it is set for gas switching, the feature is not selectable.

The window **ERRORS** displays the errors stored. The error code and the trouble description (if available) are indicated. **ERRORS** is activated only when PJ+ switch is in gasoline position. If the switch is in gas position or if it is set for gas switching, the feature is not selectable. The values displayed in **FREEZE** and **ERRORS** can be removed by clicking "CLEAR MIL" key. **Before deleting the errors with "CLEAR MIL" key it is necessary to find the cause and remove it to avoid a subsequent appearance of the problem.**

TEST RESULT. This option allows to check if the system OBD of vehicle has saved errors but it has not yet lit the diagnosis indicator. To eliminate the stored parameters, after analyzing the problem, select CLEAR MIL.

The window **VIN (Veichle Identification Number)** shows the vehicle identification code if available. **VIN** is activated only when the PJ+ switch is in position gasoline. If this last is already in gas position, the feature is not selectable.

The **CLEAR MIL** key resets the errors in the OBD system and it removes the check control warning light activation from the vehicle control panel.

All the windows referring to the OBD tester remain open even if you move to other software screens. It is possible to send it to the control bar of the monitor (to reopen when needed) by selecting "-" on the window Tester command bar. Select X on the window command bar to close them.

On the right side of the window you can find a printer icon. If you want to save and print the tester screen in which you are (Select / Errors / Freeze / Values / Vin), you just have to click on the printer icon and all the data are automatically saved in a printable format. So we have a diagnostic tool to consult at a later time or an useful diagnostic report our client can check to highlight the

maintenance made on the vehicle based the errors stored by the OBD system . When we launch the print control, the software opens an Explorer window reporting all the infos reproduced on screen.

Value 03/12/2013 15:48:13

PID	Description	Value
3	FUEL SYSTEM STATUS-BANK 1	CLOSED LOOP SENSOR O2 FEEDBACK
5	WATER TEMPERATURE	96 °C
6	FAST CORRECTION KO2 BANK 1	99,2 %
7	LONG CORRECTION KO2 BANK 1	24,2 %
11	ABSOLUTE MANIFOLD PRESSURE	30 kPa
12	ENGINE SPEED	697 rpm
14	CILYNDER 1 IGNITION ADVANCE	-57 °
17	THROTTLE POSITION	87,8 %
19	SENSORS O2 POSITION Bank 1-Sensor 1	PRESENT
20	OXYGEN 1 SENSOR VOLTAGE-BANC 1	0,105 V
21	OXYGEN 2 SENSOR VOLTAGE-BANC 1	0,4 V

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It is possible to print the document (File/Print), or to save it (File/Save with name). The report is stored in Documents/AGI Data folder.

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Value 03/12/2013 15:48:13

PID	Description	Value
3	FUEL SYSTEM STATUS-BANK 1	CLOSED LOOP SENSOR O2 FEEDBACK
5	WATER TEMPERATURE	96 °C
6	FAST CORRECTION KO2 BANK 1	99,2 %
7	LONG CORRECTION KO2 BANK 1	24,2 %
11	ABSOLUTE MANIFOLD PRESSURE	30 kPa
12	ENGINE SPEED	697 rpm
14	CILYNDER 1 IGNITION ADVANCE	-57 °
17	THROTTLE POSITION	87,8 %
19	SENSORS O2 POSITION Bank 1-Sensor 1	PRESENT
20	OXYGEN 1 SENSOR VOLTAGE-BANC 1	0,105 V
21	OXYGEN 2 SENSOR VOLTAGE-BANC 1	0,4 V

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AUTO CALIBRATION (AUTO TUNING)

With the 2014 version many improvements on the automatic carburetion have been introduced (some of them are not visible). The most important is the automatic modification of the carburetion map at the end of the auto calibration. In a new installation all the mechanical / pneumatic components of the system have not worked and they have to break in. This mainly concerns with the rubber components as gearbox membranes, O-rings or gaskets and so on. In the first system working times, these components are subject to slight modifications due to: first working timing, temperatures to which they are subjected for the first time, and last but not least the contact with the gas. For these reasons it is suggested to double-check the carburations after some working hours of the system, but we understand it is not always possible. Aware of this, we applied an automatic carburetion map enrichment variation. The 2014 software recognizes the first automatic regulation and at the end of the auto calibration process (considering the set parameters and infos) it creates a carburetion map a bit richer than the real needs of the vehicle. In the first few tens of km the carburetion will fall in the correct values with the adjustment we just described. The system does this as it is the first automatic calibration from ECU, so it does not repeat the same strategy on the next auto calibrations of the same ECU. These will be managed in the traditional way.