



EMMEGAS Company & LPG/CNG Products presentation

Reggio Emilia
07/2010

Emmegas Company Profile

- EMMEGAS SpA is an Italian ISO9001 manufacturer of Lpg-Cng Conversion Kits.

- It was founded in 1993 by Mr. Medardo Landi.



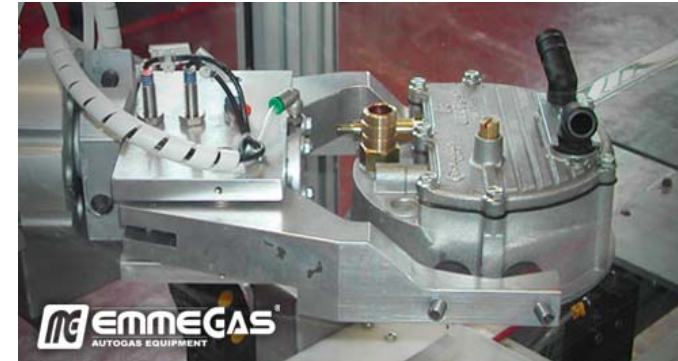
- At the end of year 2002, Emmegas moved to the actual headquarter that has a modern R&D Centre with a new roller bench for simulating road rides and testing the exhaust emissions of cars.

- A new automated assembly line, completely controlled by PLC and outfitted with advanced testing equipment which grants the final inspection of 100% of production, completes the structure of a modern and customer oriented company.

Strategy and Mission

Emmegas **Strategy**:

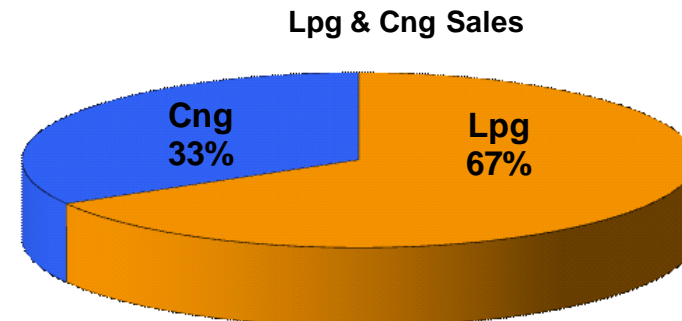
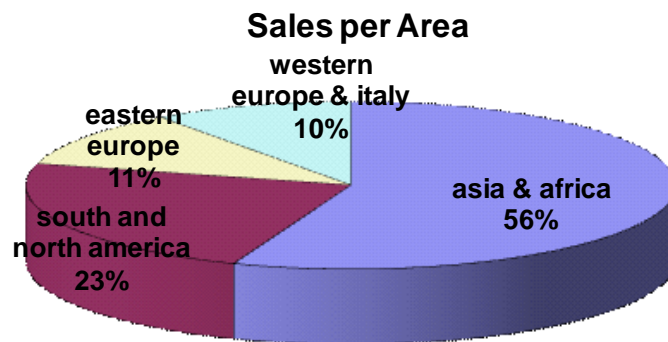
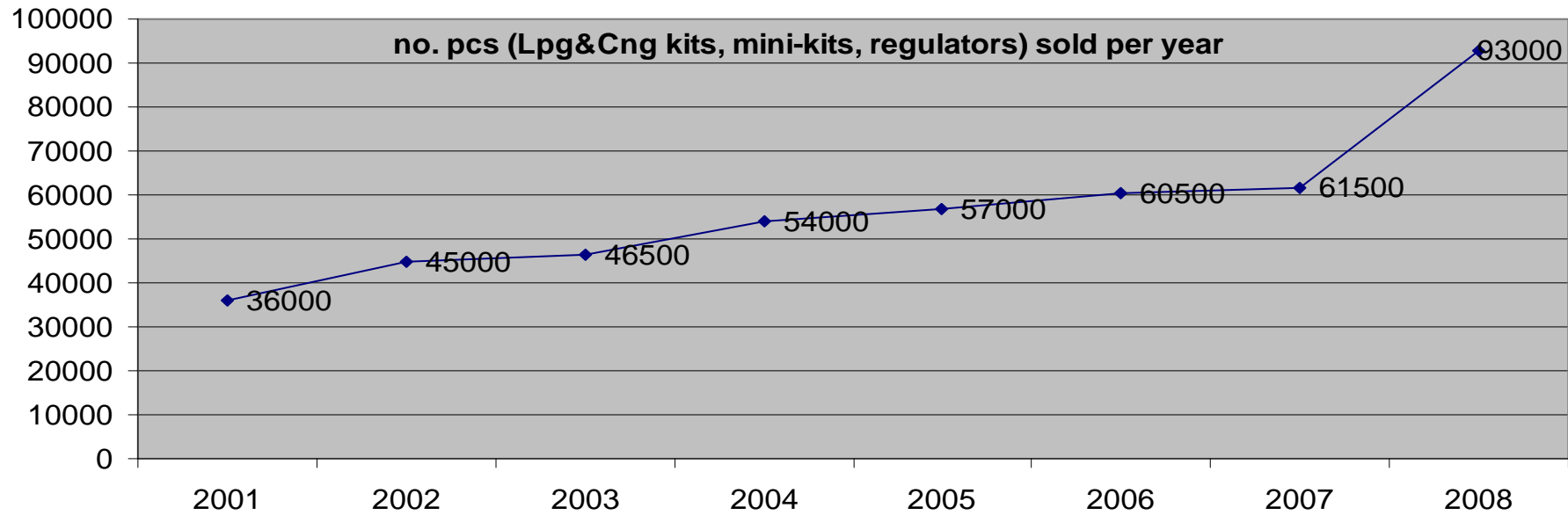
- A very **flexible internal structure** that can respond to the market requirements -by managing a lot of outsourcing suppliers- always under a strict **Internal Quality Control System**.
- Most of the **mechanical components** of the Kits are designed and manufactured by Emmegas itself, while the **electronic components** are studied and developed by our R&D Dept, in cooperation with primary companies of the field.



Emmegas **Mission**:

- The maximization of the **customer's satisfaction** by projecting and manufacturing high quality and price competitive products.
- The contribution **to protect and preserve our environment** by installing its LPG and CNG conversion kits, reducing the quantity of exhaust emissions of the cars.

The figures



Emmegas Sales Network

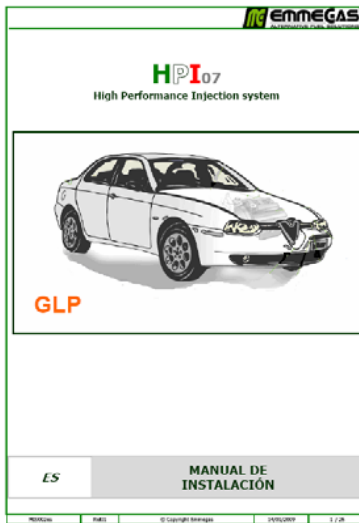


Sales support (Promotional leaflets & material)



Technical support

Installation Manuals:



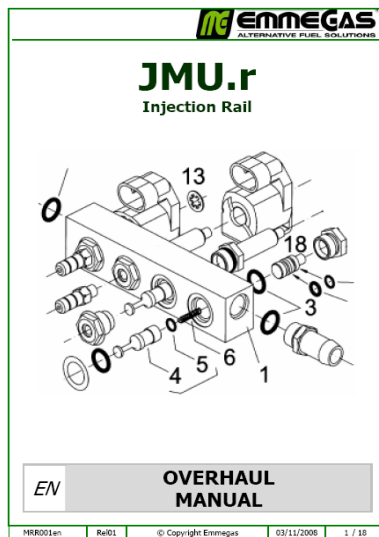
Programming Manuals:



User Manuals:



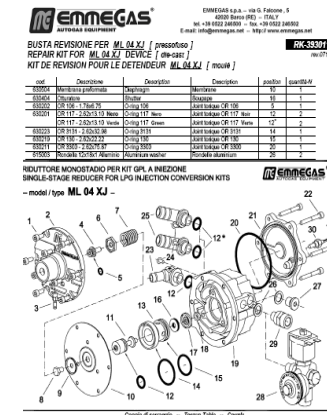
Overhauling Manuals:



Newsletters:



Repair Kits:



Quality processes

Simultaneously to the enlargement and progressive completion of the range of products offered to the market, Emmegas S.p.A. got all the most important International **homologations**:

- The **ISO 9002 : 1994**
Certificate obtained in 1999
- The **ISO 9001 : 2000**
Certificate gained in 2002

both by TUV, confirm the achievement of the highest level of reliability of the company and of its products.

ZERTIFIKAT ◆ CERTIFICATE ◆ CERTIFICADO ◆ CERTIFIKAT ◆ CERTIFICATE ◆ CERTIFICADO ◆ CERTIFIKAT



CERTIFICATO

Nr 50 100 1787 - Rev. 05
Si attesta che / This is to certify that
IL SISTEMA QUALITÀ DI
THE QUALITY SYSTEM OF


EMMEGAS S.p.A.
SEDE LEGALE E OPERATIVA:
VIA GIOVANNI FALCONE 5
I-42021 BARCO (RE)

È CONFORME AI REQUISITI DELLA NORMA
HAS BEEN FOUND TO COMPLY WITH THE REQUIREMENTS OF
UNI EN ISO 9001:2008

Riferirsi al manuale della qualità per eventuali dettagli delle esclusioni
ai requisiti della norma ISO 9001:2008
Refer to quality manual for possible details of exclusions of requirements
of the norm ISO 9001:2008

Questo certificato è valido per il seguente campo di applicazione
This certificate is valid for the following product or service range

Progettazione, fabbricazione ed assistenza di sistemi di alimentazione per impianti aftermarket a gas liquido e metano per autotrazione e relativi accessori e componenti; commercializzazione di componenti ed accessori per impianti a gas liquido e metano per autotrazione (EA 22a, 29a)

Design, manufacture and after-sales service of LPG and NGV conversion systems for aftermarket automotive kits and related components and accessories; trade of components and accessories for LPG and NGV aftermarket automotive kits (EA 22a, 29a)

 Per l'Organismo di Certificazione
For the Certification Body
TÜV Italia S.r.l. Data di emissione / Issue date
2010-05-17

 Data di scadenza / Expiry date
2011-04-18

Member degli Azionisti di Mutual Riconoscimento EA e IAF
Signatory of EA and IAF Mutual Recognition Agreements

Rimissione del certificato emesso per la prima volta in data 2002-05-09

"La validità del presente certificato è subordinata a sorveglianza periodica a 12 mesi e al riesame completo del sistema di gestione aziendale con periodicità triennale"
"The validity of the present certificate depends on the annual surveillance every 12 months and on the complete review of company's management system after three-years"

TÜV Italia • Gruppo TÜV SÜD • Via Carducci 125, Pal. 23 • 20099 Sesto San Giovanni (MI) • Italia • www.tuv.it

Product homologation

Our products are conform to the following **Regulations:**

- **ECE/ONU 67R-01**

LPG products

- **ECE/ONU 110R-00**

CNG products



- **ISO 15500**

CNG Regulators conformity declaration

- **10R-02** Electromagnetic Compatibility

Electric & Electronic components

- Conformity to **EURO4** Exhaust Emission Limits

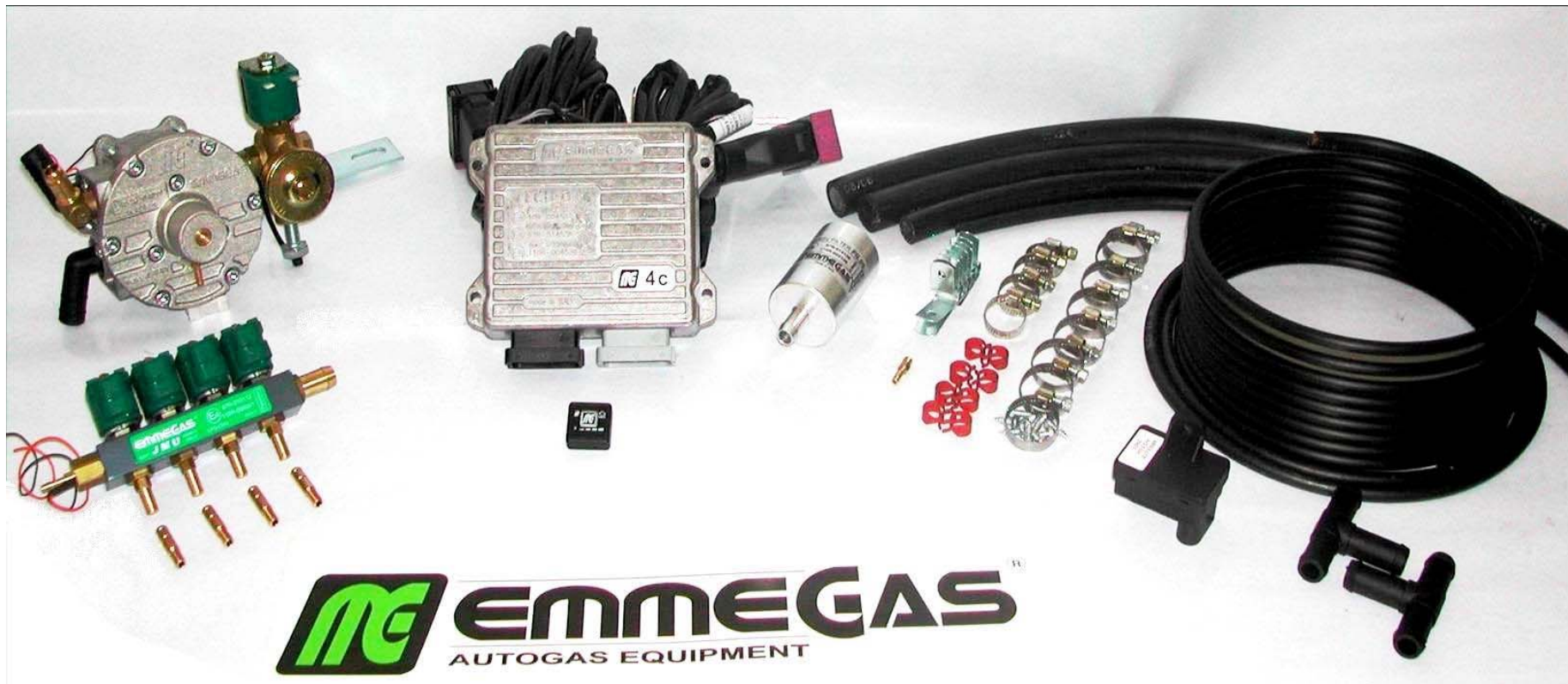
LPG & CNG products

Declaration			DECLARATION
Number 123603-MECH29 GASTEC Certification B.V., declares that the;		ext. 01	
CNG Pressure Regulator, Series NGV 20E2R			
Manufacturer	Emmegas S.p.a. Via Giovanni Falcone, 5 42020, Barco (RE) Italy		
Complies with:			
ISO 15500 part 2 and part 9.			
See appendix to declaration for all available types			
Gastec report number:	123603		
This declaration is drawn up and signed on January 31 st 2007 and is valid for the above mentioned product until the product modified.			
Apeldoorn, 13 February 2007			
 M. de Vries Product manager Automotive Systems. GASTEC Certification B.V.		 <small>GASTEC Certification B.V. PO Box 157 7300 AC Apeldoorn The Netherlands Wilhelmsdijk 80 7317 AC Apeldoorn</small>	

EMMEGAS LPG sequential products



LPG HP|07 High Performance Injection system



EACH Timed Sequential Injection KIT INCLUDES:

- ML04-XJ single-stage Lpg regulator
- lock-off Lpg valve
- JMU Injection Rail & Filter in gaseous phase
- ECU07 control unit (3/4/6/8 cyl.) c/w switch-indicator
- universal cut-injector harness integrated into main wiring
- complete set of wiring, hoses and fitting

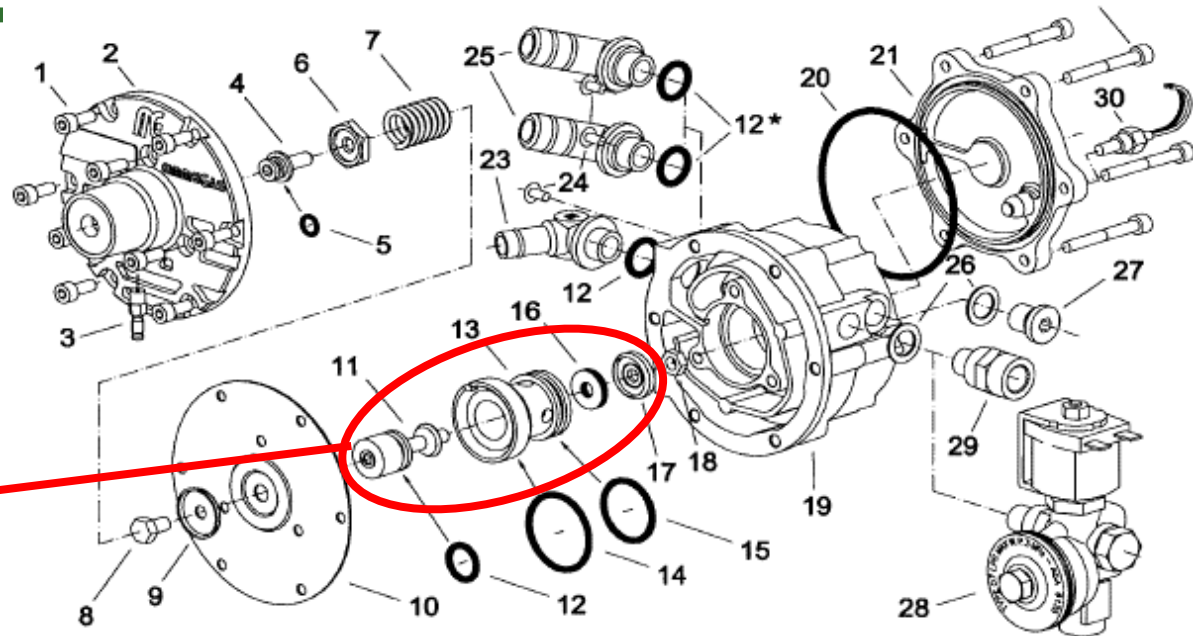
LPG HPI₀₇: the PLUS of Emmegas mechanical parts

The HPI07 product is supplied with innovative LPG mechanical components based on exclusive features such as:

- **reduction device of regulator by piston** and without internal leverages, that means higher flow of gas, prompt response on high power demand from the engine, idle stability

- wide and adequate **water circuit inside the LPG regulator**, offers the most effective and efficient vapourization process of Lpg

- water chamber **separated** from any Lpg circuit



Emmegas Accessories



| **cng** valves



| **Timing** advance processors



| **lock off** valves



| **injector** emulators



| **change-over** switches



| **multivalves**



| **Lambda** control systems



| **mixers**



ML 04 J
| XJ injection



ML 94 EP
| E2R electronic



ML 03 P
| vacuum



NGV 04
| E2R electronic



NGV 20 E
| electronic



NGV 04 J
| injection

EMMEGAS CNG sequential products



CNG HP107 High Performance Injection system



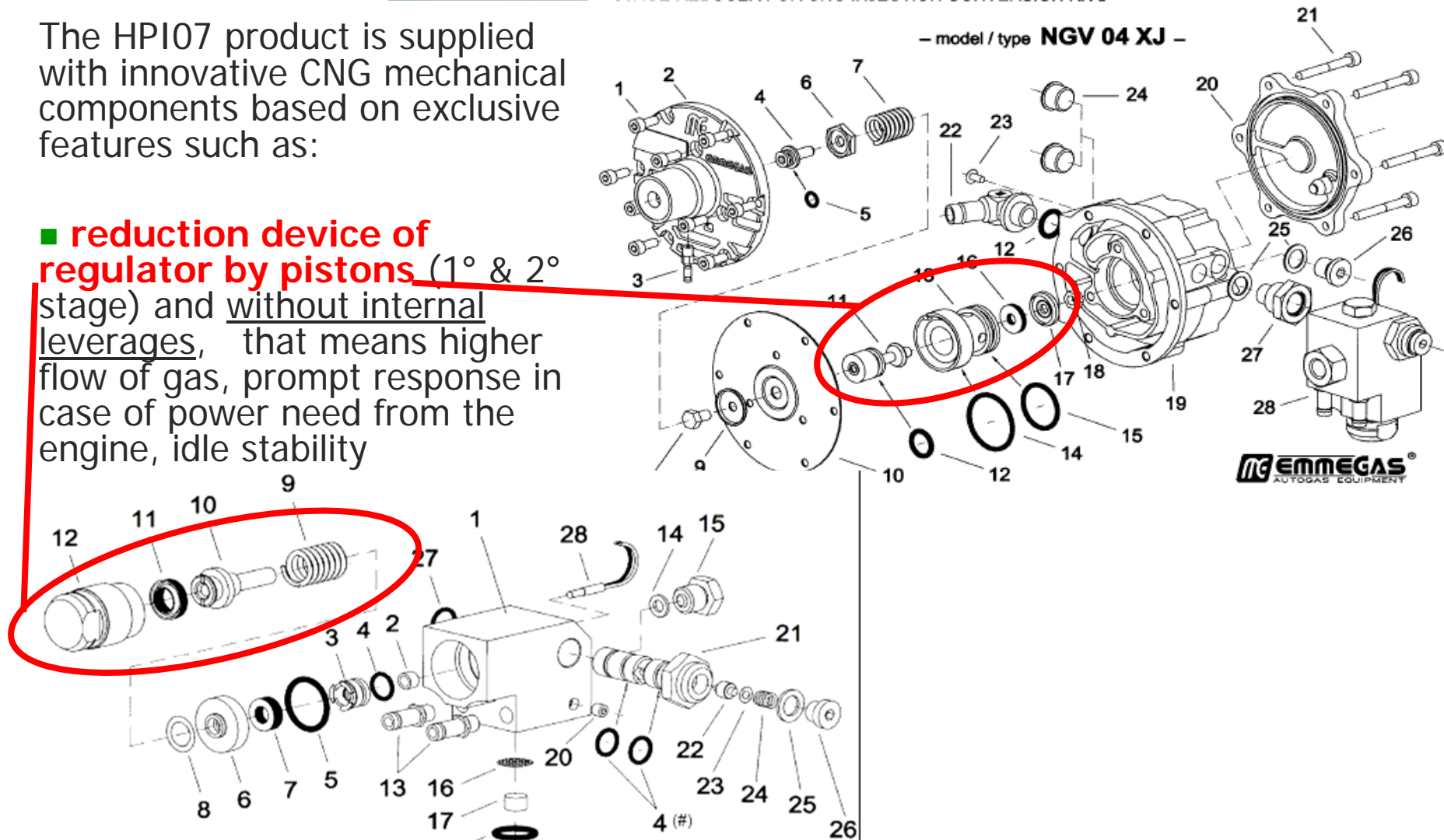
EACH Timed Sequential Injection KIT INCLUDES:

- **NGV04 J** two-stages CNG regulator with **Manometer** (c/w level sensor)
- **JMU** Injection rail & **Filter** in gaseous phase
- **ECU07** control unit (3/4/6/8 cyl.) c/w **switch/indicator**
- Universal **cut-injector** harness integrated into main wiring
- Complete set of **wiring, hoses and fitting**

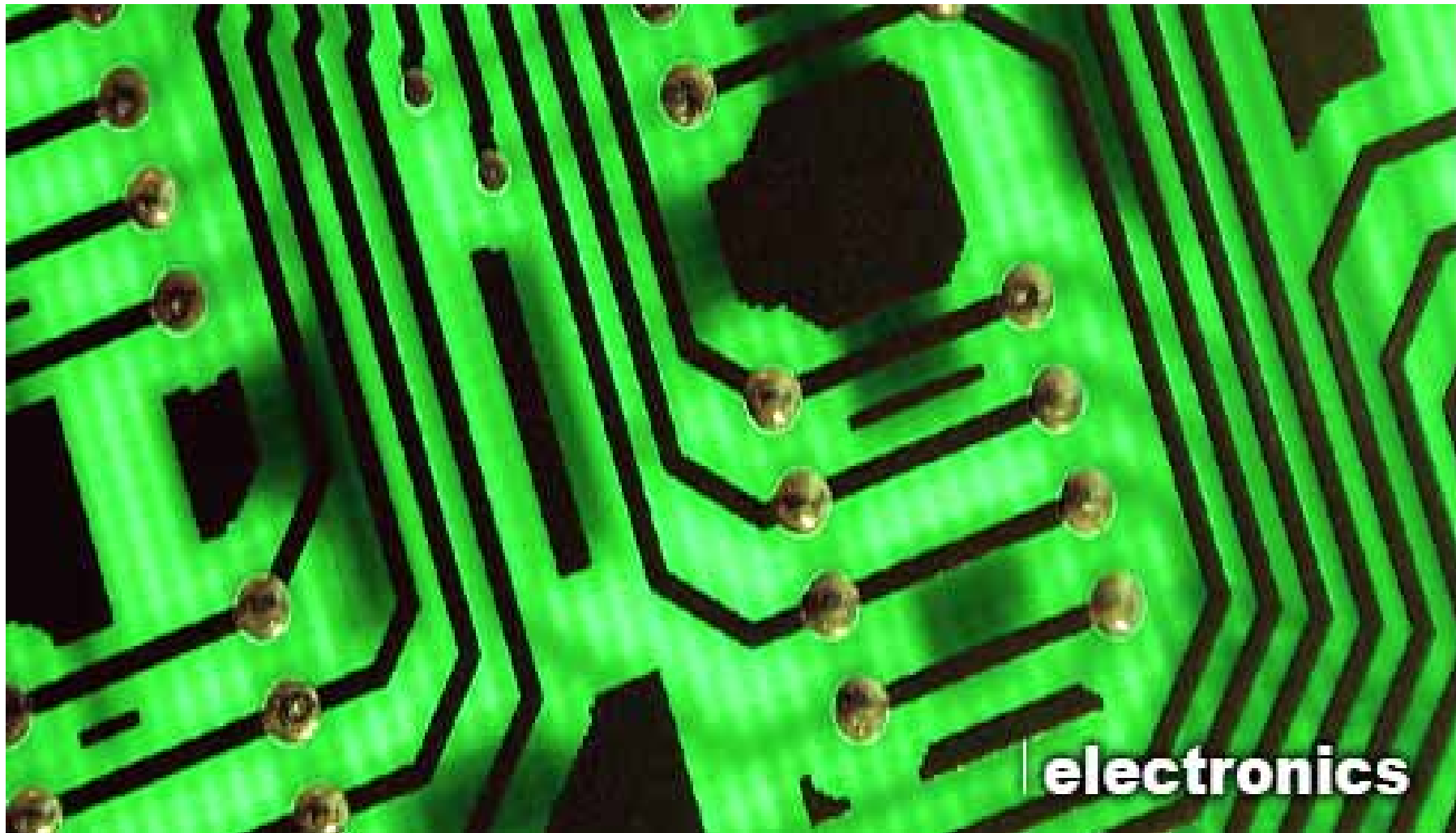
CNG HPI07: the PLUS of Emmegas mechanical parts

The HPI07 product is supplied with innovative CNG mechanical components based on exclusive features such as:

■ **reduction device of regulator by pistons** (1° & 2° stage) and without internal leverages, that means higher flow of gas, prompt response in case of power need from the engine, idle stability



EMMEGAS Sequential Injection c/u & SW

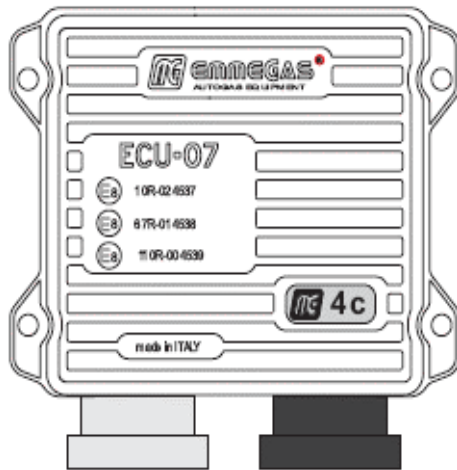


HPI07: the advantages of Sequential Injection

-The HPI07 development is based on the **same principles used by a vehicle's gasoline ECU**

-The amount of required fuel is **adjusted for each cylinder**, independently and moment-to-moment

-This precise, synchronized injection strategy optimizes **performance, consumption**, provides a stable **response** and eliminate risks of **backfiring**



-The HPI07 includes the latest technology, is **easy to install** and will not interfere with the factory settings of the vehicle

-Available in version for 3-4, 5-6-8, 10-12 cylinders, the HPI07 is based on a simple and **user-friendly installation** software with easy steps for configuration and diagnostics

-The intelligent **auto-calibration** function shows working parameters for gasoline under different conditions, mapping for the highest efficiency in either Lpg - Cng

Windows-compatible programming and monitoring software, Sequential Injection ECU, Autocalibrating, Database creation for storage of configurations, Mapping Adjustment and memorization for management of different injectors, Gas level indicator control, mode indicator, sound alarm, Automatic switch to gasoline, different sensor options, ECU-incorporated emulation impedances, Injector control, continuous monitoring and diagnostic of gas injectors, Diagnostic and auto-test strategies, Pressure sensor, Adaptable to all type of injectors

HPI₀₇: the PLUS of Emmegas sequential strategy

The new 'HPI07' High Performance Injection Sequential system – designed, engineered and manufactured in Emmegas (*) - is based on following exclusive and innovative features:

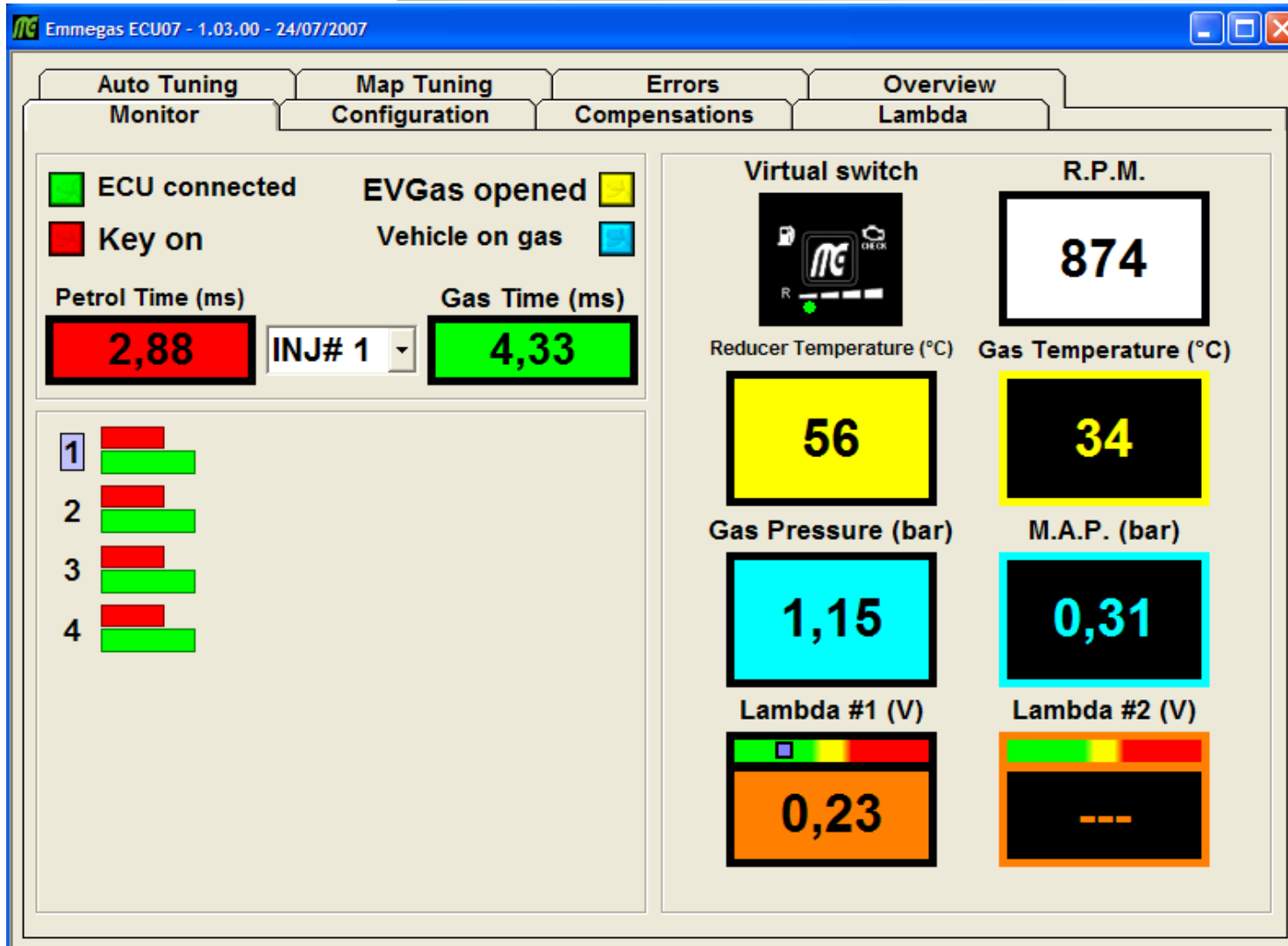
- Petrol signal self-learning **cylinder per cylinder**
- Autocalibration at **idle**
- **Map adjustment by sectors** (or free)
- **Cut injector wiring integrated** into main wire
- Possibility to program a **delay cylinder per cylinder** during the petrol/gas switch
- **Not invasive** into the vehicle electronics
- user **friendly**, **small** dimension c/u, **easy** program
- **Self adapting** during use of the vehicle
- **Universal** Lpg/Cng applicability 3-4-5-6-8 cyl. engines
- **Diagnostic** on the new switch (and **memory of errors**, present and stored)
- **Software full version** (not expiring) with complete map, no need of key, download available on the web



(*) Competitors:

- Bigas: AEB platform
- Emer: AEB platform
- Landi srl: AEB circuit, now MED
- Landi Renzo: AEB circuit now MED
- Lovato: AEB circuit
- Romano: AEB platform
- OMVL: AEB platform
- Tartarini: AEB platform
- Zavoli: AEB platform
- Poland Assemblers: they are not manufacturers, they combine different components not designed to work together (Tomasetto regulator + Poland ECU + Valtek rail)

HP107 software: MONITOR



HP107 software: CONFIGURATION

Emmegas ECU07 - 1.03.48 - 21/04/2008

Auto Tuning | Map Tuning | Errors | Overview

Monitor | Configuration | Petrol parameters | Compensations | Lambda

Switch parameters

Cylinders	4	Coil	4
Switch at (RPM)	1400		
Switch change-over	DECELERATION		
Temperature (°C)	25		
Forced petrol (s)	25		
Forced switch (s)	600		
Overlapping fuel (ms)	0		
Injectors delay (ms)	150		

Fuel's Type CNG


Sensibility 1,5 (ms)

Fuel Trim Bank #2 0

Pressure sensor 025/AA-612

Gas sensor type Reserve

R.P.M.	Gas (bar) Press.	M.A.P. (bar)	Petrol (ms) Time	Gas (ms) Time	Lambda #1 Signal (V)	Lambda #2 Signal (V)	Reducer (°c) Temp.	Gas (°c) Temp.
851	1,64	0,29	2,44	5,44	0,73	---	87	57



HPI07 SW: OBD Connection - New Feature

- There will be 2 additional wires into the HPI07 cable (to be connected to the OBD of the vehicle) so that the **Gas Map will be automatically linked to the petrol carburation**

- The EXCLUSIVE feature of our solution is that **each sector of the Gas Map will have its specific corrector**

- Through the HPI07 software the **Slow and Fast petrol correctors will be visualized** in your computer during the programming of the ECU

- The purpose of this new additional feature is the **self-adapting** of the system to the different condition of use, quality of fuel, etc. and **to avoid the turn on of the Check Engine LED** of the vehicle

The screenshot displays the Emmegas ECU07 software interface. The title bar reads "Emmegas ECU07 - 2.00.46 - 05/03/2010 - OFFLINE". The interface is divided into several sections:

- Monitor Map Tuning:** Includes "Disconnect OBD" and "Erase OBD errors" (checked).
- Configuration Errors:** Shows "Connection type" as "Iso kl Fast" and "Operative mode" as "DYNAMIC".
- Petrol param. Overview:** Includes checkboxes for "FIAT Trim" and "Reverse Trim".
- Compensations Reserved:** Includes an "OBD data" button.
- Lambda OBD:** Shows "OBD Status" for Bank #1 as "CLOSED LOOP/OXY SENS." with "Short fuel trim (%)" at -5,5 and "Long fuel trim (%)" at -7. Bank #2 is "NON SUPPORTED".
- Auto Tuning:** A bar chart shows fuel trim values from -60 to 60, with an "Average" of -53.
- OBD Corrections:** A table shows corrections for "Low", "Medium", and "High" loads. The "Low" load correction is -2 with 47 samples.
- Bottom Status Bar:** Displays various engine parameters: R.P.M. (2145), Gas (bar) Press. (2,11), M.A.P. (bar) (0,29), Petrol (ms) Time (2,28), Gas (ms) Time (3,83), Engine (°c) Temp. (77), Gas (°c) Temp. (38), and Bank #1 Short-Long (-5,5 -7).

Red arrows point from the text in the left column to specific elements in the software interface: one points to the "OBD data" button, another to the "OBD Status" table, and a third to the "Bank #1 Short-Long" value in the bottom status bar.

HP107 software: PETROL PARAMETERS

Emmegas ECU07 - 1.03.48 - 21/04/2008

Auto Tuning | Map Tuning | Errors | Overview | Monitor | Configuration | **Petrol parameters** | Compensations | Lambda

Working at high RPM

Gas Petrol

Petrol operating RPM threshold:

from to

Operating TinjPetr. above threshold (ms):


Working at low RPM

Gas Petrol

Return to petrol (temporary)

Operating RPM below threshold:

R.P.M.	Gas (bar) Press.	M.A.P. (bar)	Petrol (ms) Time	Gas (ms) Time	Lambda #1 Signal (V)	Lambda #2 Signal (V)	Reducer (°c) Temp.	Gas (°c) Temp.
857	1,64	0,29	2,44	5,40	0,06	---	87	57



HP107 SW: COMPENSATIONS (w/Acceleration Mixture setting)

Map Tuning	Errors	Overview	Reserved	OBD												
Monitor	Configuration	Petrol param.	Compensations	Lambda												
Reducer temperature compensation																
<input checked="" type="checkbox"/> Enabled	°C	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80
	%	-10	-9	-8	-7	-6	-5	-4	-4	-3	-3	-2	-2	-1	0	0
Gas temperature compensation																
<input checked="" type="checkbox"/> Enabled	°C	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70
	%	-13	-12	-10	-8	-6	-5	-4	-3	-2	-1	0	1	2	3	4
Acceleration Leaning / Enrichment																
<input type="checkbox"/> Enabled	Monitor															
Mixture alteration	0	◀ ▶		Return Speed	15	◀ ▶										
Select a cell and press (-) or (+) keys to change values. Press shift to increase by 10 unit.																
R.P.M.	Gas (bar) Press.	M.A.P. (bar)	Petrol (ms) Time	Gas (ms) Time	Reducer (°c) Temp.	Gas (°c) Temp.										
0	---	0,00	0,00	0,00	0	0										

HP107 software: AUTO TUNING

Step 3
Leave vehicle at idle!
Please wait... 9

Start Ok Cancel

TInjPetrol (on Petrol) 0 (ms)
TInjPetrol (on Gas) 0 (ms)

R.P.M.	Gas (bar) Press.	M.A.P. (bar)	Petrol (ms) Time	Gas (ms) Time	Lambda #1 Signal (V)	Lambda #2 Signal (V)	Reducer (°C) Temp.
849	---	0,29	2,62	0,00	1,10	---	67

Step 7
Calibration completed successfully!
Press Ok to proceed or Cancel to reload the previous one.

Start Ok Cancel

Injector's measurement
Too big Correct Too small

R.P.M.	Gas (bar) Press.	M.A.P. (bar)	Petrol (ms) Time	Gas (ms) Time	Lambda #1 Signal (V)	Lambda #2 Signal (V)	Reducer (°C) Temp.	Gas (°C) Temp.
856	1,11	0,29	2,64	4,22	0,46	---	65	42

HP107 software: MAP TUNING (sectors and free)

EmmeGas ECU07 - 1.03.00 - 24/07/2007

Monitor Configuration Compensations Lambda
Auto Tuning Map Tuning Errors Overview

(x10 rpm)

	30	60	70	80	90	100	120	140	160	180	200	220	240	260	280	300	350	400	450	500	550	600	650	700
0.5	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
1.5	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
1.8	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
2.1	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
2.4	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
2.7	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
3	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
3.5	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
4	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
4.5	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
5	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
6	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
7	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
8	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
9	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
10	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
11	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
12	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
14	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
16	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
18	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
20	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
22	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10

R.P.M. Gas (bar) M.A.P. (bar) Petrol (ms) Gas (ms) Lambda #1
876 1,09 0,31 2,81 4,52 0,20

EmmeGas ECU07 - 1.03.00 - 24/07/2007

Monitor Configuration Compensations Lambda
Auto Tuning Map Tuning Errors Overview

(x10 rpm)

	30	60	70	80	90	100	120	140	160	180	200	220	240	260	280	300	350	400	450	500	550	600	650	700
0.5	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
1.5	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
1.8	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
2.1	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
2.4	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
2.7	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
3	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
3.5	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
4	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
4.5	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
5	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
6	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
7	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
8	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
9	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
10	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
11	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
12	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
14	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
16	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
18	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
20	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
22	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10

R.P.M. Gas (bar) M.A.P. (bar) Petrol (ms) Gas (ms) Lambda #1 Lambda #2 Reducer Gas (°C)
870 1,06 0,30 2,53 4,24 0,22 --- 68 45

HP107 software: ERRORS REPORT

The screenshot displays two windows from the Emmegas ECU07 software. The main window shows a list of errors, and a smaller window provides detailed data for a specific signal.

Emmegas ECU07 - 1.03.48 - 21/04/2008

#	Device name	Present	Stored
Err 00	INJ_1	---	---
Err 01	INJ_2	---	---
Err 02	INJ_3	---	---
Err 03	INJ_4	---	---
Err 04	INJ_5	---	---
Err 05	INJ_6	---	---
Err 06	INJ_7	---	---
Err 07	INJ_8	---	---
Err 08	MAP SENSOR	---	---
Err 09	MAP1 SENSOR	---	---
Err 10	TEMP. VAPOR.	---	---
Err 11	TEMP. INJ	---	---
Err 12	TEMP. ECU	---	---

Enable acoustic signal Erase Errors

Gas Pressure (bar): 1,61

Emmegas ECU07 - 1.03.00 - 24/07/2007

Signal name	Value
Gas inj time	0,00 (ms)
Petrol inj time	2,67 (ms)
Time between 2 injections Petrol	137,17 (ms)
Correction time	0,00 (ms)
Rpm period	870 (rpm)
Absolut colletctor pressure	1,12 (bar)
Collector - Reducer pressure	0,68 (bar)
Lambda sensor voltage	1,12 (V)
Lambda 2 sensor voltage	0,93 (V)
Level gas visualized on switching	3,74 (V)
Level gas read	3,73 (V)
Reducer temperature	-62 (°C)
Injectors gas temperature	46 (°C)
Hardware temperature	0 (°C)

Enable acoustic signal Erase Errors Back to Error Page

HP107 SW: OVERVIEW AND INFO SUMMARY

The screenshot displays the EmmeGas ECU07 software interface. The main window has a title bar "EmmeGas ECU07 - 1.03.48 - 21/04/2008" and several tabs: Monitor, Configuration, Petrol parameters, Compensations, and Lambda. Under the Configuration tab, there are sub-tabs for Auto Tuning, Map Tuning, Errors, and Overview. The interface is divided into several sections:

- Language:** Radio buttons for English (selected), Italiano, Español, German, and Turkece.
- ECU Management:** Buttons for "Save the vehicle configuration", "Load a configuration saved", "Reset all parameters", and "Info".
- Communication ports:** Radio buttons for USB, Com 04, and Com 17 (selected). A "Search com. port" button and an "Offline" button are also present.
- Firmware Section:** A table showing "ECU's Firmware" with a highlighted entry "01.01 - 20/03/2008". Below it, a section for "Firmware available" also shows "01.01 - 20/03/2008".

A modal dialog box is open in the foreground, displaying the following information:

- Info:** S/N Lotto: 2, Lotto: 1, week: 30, Year: 7, Client: 0, SL: 245, Cylinder: 4. Hardware configuration: 0 0 0 0 0 0 0.
- Software user:** - 1.03.00 - 24/07/2007
- ECU Firmware:** 01.01 - 19/07/2007
- Firmware available:** 01.01 - 19/07/2007
- Working time gas (h):** 0
- Working time petrol (h):** 0

Buttons for "ECU Update", "Ok", and "Cancel" are visible in the dialog. A "Back to previous page" button is located at the bottom right of the main window.

FINAL DRIVE TEST



Roller Bench in the new EMMEGAS Test Laboratory – Reggio Emilia - Italy

HPI 07: Electric Scheme & Installation Diagram

WIRE COLOURS CORRESPONDENCE TABLE / TABELLA CORRISPONDENZA COLORE FILI

	I	GB	ES	TR	PL	D	F
A	Azzurro	---	---	---	---	---	---
B	Bianco	White	Blanco	Beyaz	Biała	Wass	Bianco
C	Arancio	Orange	Naranja	Turuncu	Pomarańczowa	Orange	Arancio
G	Grigio	Yellow	Amarillo	Sari	Żółta	Gelb	Grigio
H	Grigio	Grigio	Grigio	Grigio	Grigio	Grigio	Grigio
I	Grigio	Grigio	Grigio	Grigio	Grigio	Grigio	Grigio
L	Marrone	Brown	Marrón	Kahverengi	Niebieska	Braun	Marrone
N	Nero	Black	Negro	Siyah	Czarna	Schwarz	Nero
R	Rosaceo	Red	Rosjo	Kirmizi	Czerwona	Rot	Rosaceo
S	Rosaceo	Pink	Rosa	Pembe	Różowa	Rose	Rosaceo
V	Verde	Green	Verde	Yasil	Zielona	Grün	Verde
Z	Viola	Violet	Violeta	Mor	Fioletowa	Violet	Viola
SD	Rosaceo - Nero	Red - Black	Rosjo - Negro	Pembe-Siyah	Czerwona-Czarna	Rot - Schwarz	Rosaceo - Nero
SV	Verde - Nero	Green - Black	Verde - Negro	Yasil-Siyah	Niebieska-Czarna	Grün - Schwarz	Verde - Nero
MN	Marrone - Nero	Brown - Black	Marrón - Negro	Kahverengi-Siyah	Niebieska-Czarna	Braun - Schwarz	Marrone - Nero
SN	Rosaceo - Nero	Pink - Black	Rosa - Negro	Pembe-Siyah	Różowa-Czarna	Rose - Schwarz	Rosaceo - Nero
LN	Grigio - Nero	Grey - Black	Grigio - Negro	Gril-Siyah	Szara-Czarna	Gray - Schwarz	Grigio - Nero
GN	Grigio - Nero	Yellow - Black	Amarillo - Negro	Sari-Siyah	Żółta-Czarna	Gelb - Schwarz	Grigio - Nero
ZV	Viola - Nero	Violet - Black	Violeta - Negro	Mor-Siyah	Fioletowa-Czarna	Violet - Schwarz	Viola - Nero

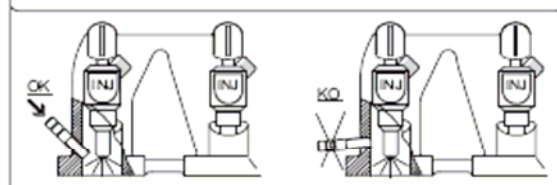
NOZZLES Ø / VEHICLE DISPLACEMENT & POWER correspondence table
TABELLA di corrispondenza Ø UGELLI / CILINDRATA E POTENZA VEICOLO

Nozzle Ø	Diagram	Engine displacement divided by the number of cylinders Cilindrata diviso per il N° dei cilindri		Power divided by the number of cylinders Dividere la Potenza per il N° dei cilindri	
		cm ³		CV/HP	
1,8 mm		0	350	10	20
2,25 mm		>350	500	>20	32
2,5 mm		>500	650	>32	39
2,7 mm		>650	800	>39	46
3,5 mm		>800		>46	

The total displacement and the total Power must be divided by the number of the cylinders.
 A > If the two results belong to the same line, use the corresponding nozzle.
 B > If further to the item A, the two results are on the upper boundary, use the bigger hole diameter of the next line.
 C > If the two results belong to different lines, use the nozzle with the bigger hole diameter.
 Note > the conversion Factors "KW<->CV" are: 1KW=1,36CV ; 1CV=0,735KW

Dividere la cilindrata totale e la potenza per il numero dei cilindri.
 A > se entrambi i risultati cadono nella stessa riga, utilizzarsi il foro corrispondente a quella riga.
 B > se, oltre a quanto sopra, entrambi cadono sul limite superiore del proprio intervallo, passare al foro successivo.
 C > se i due risultati cadono su righe diverse, del due utilizzare il foro maggiore.
 Nota > i fattori di conversione KW<->CV sono: 1KW=1,36CV ; 1CV=0,735KW

POSIZIONAMENTO UGELLI / NOZZLES POSITIONING



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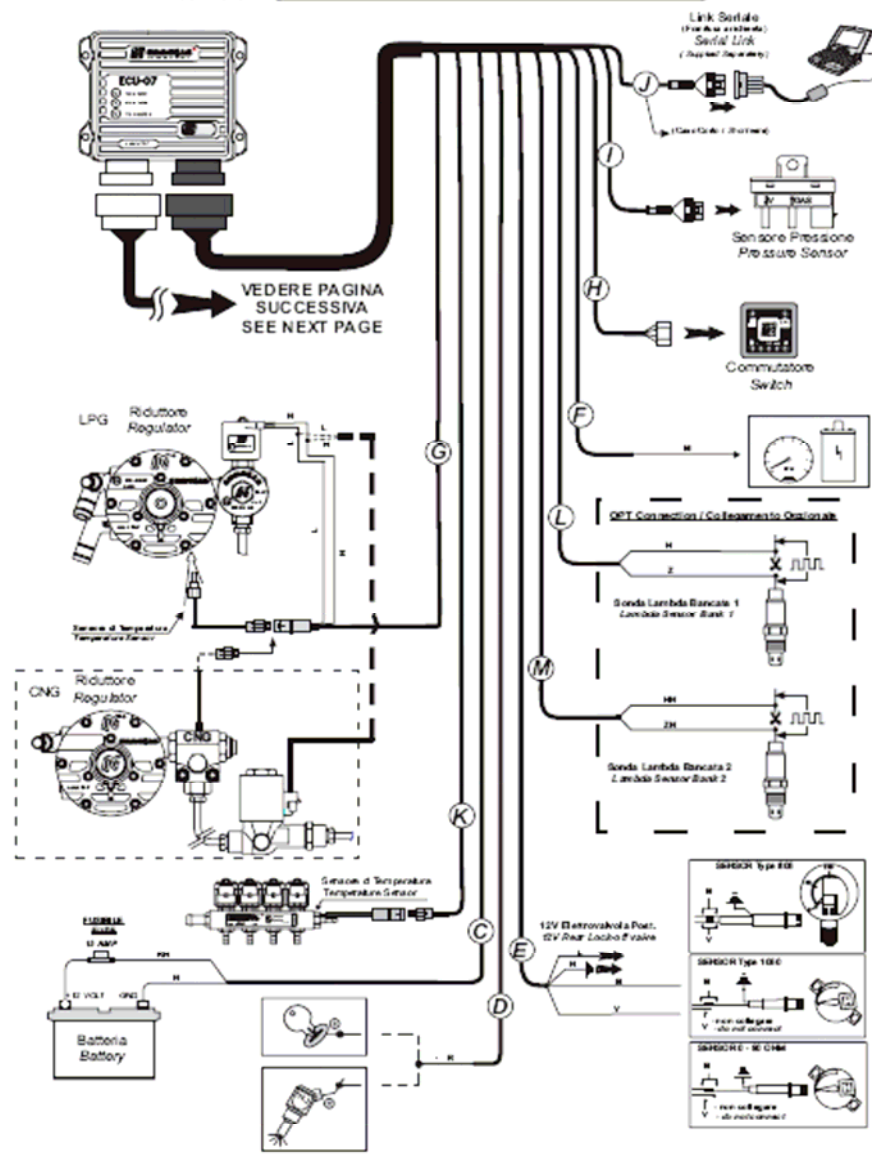
Col. 660220 Rev. 08/08



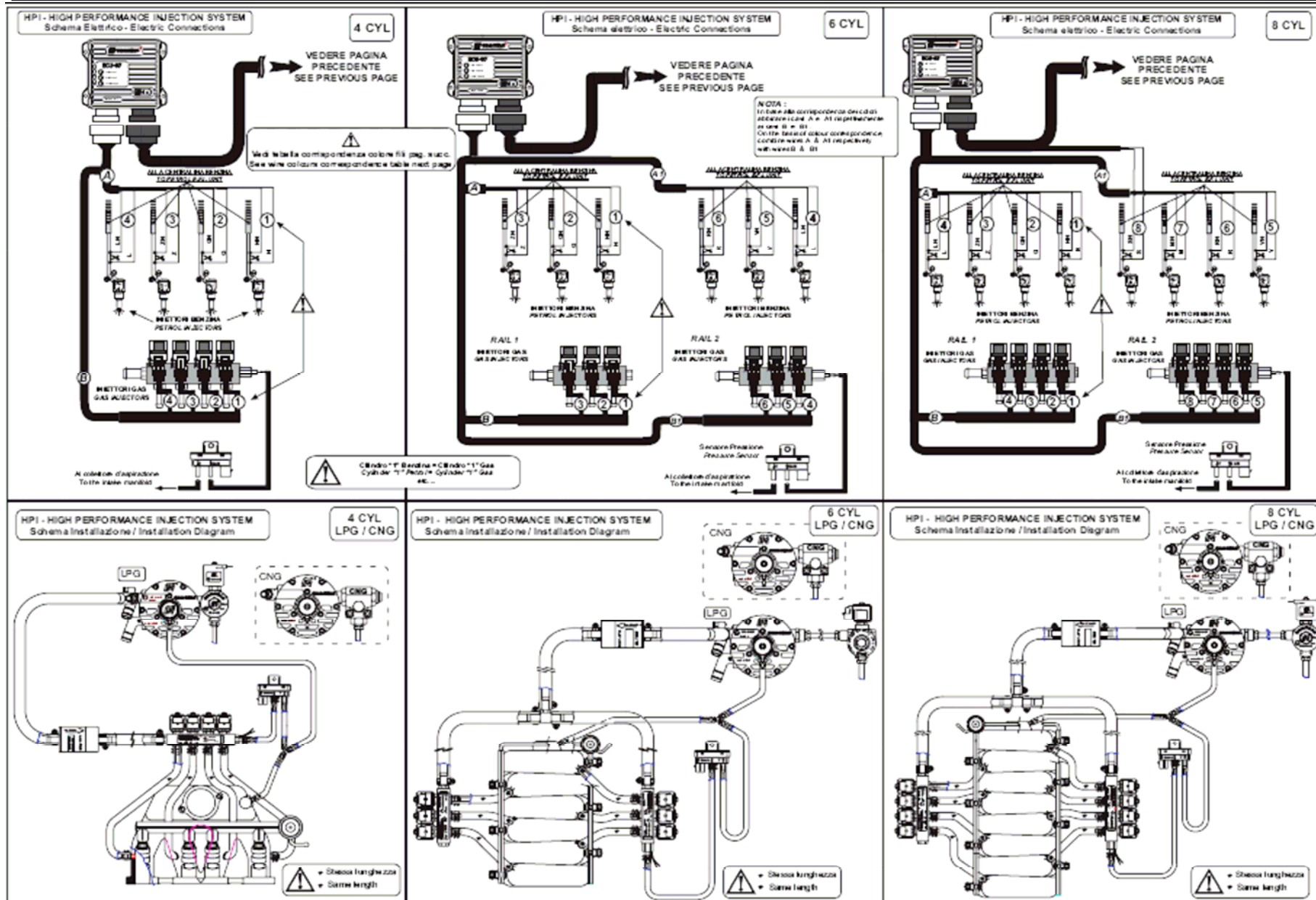
HPI - HIGH PERFORMANCE INJECTION SYSTEM

Schema Elettrico - Electric Connections

4 - 6 - 8 CYL
LPG / CNG



HPI07: Electric Scheme & Installation Diagram



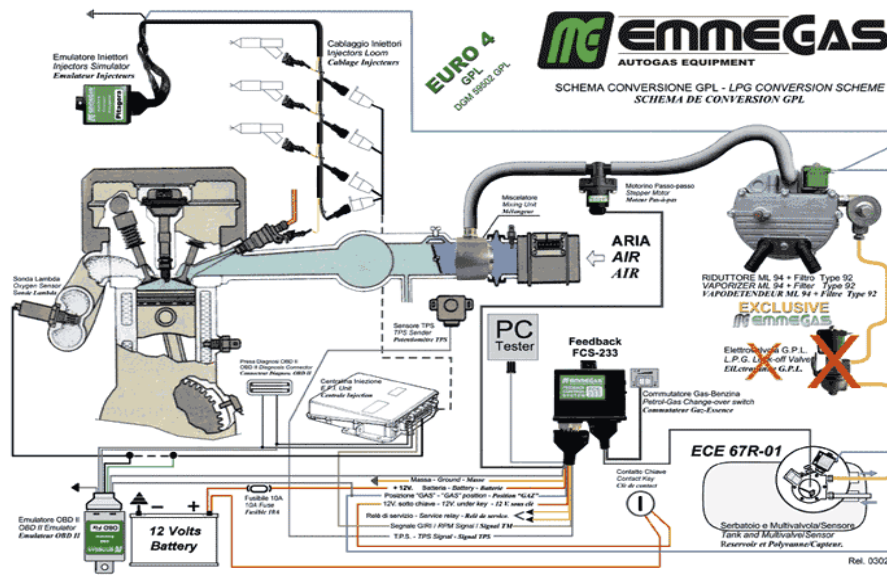


LPG

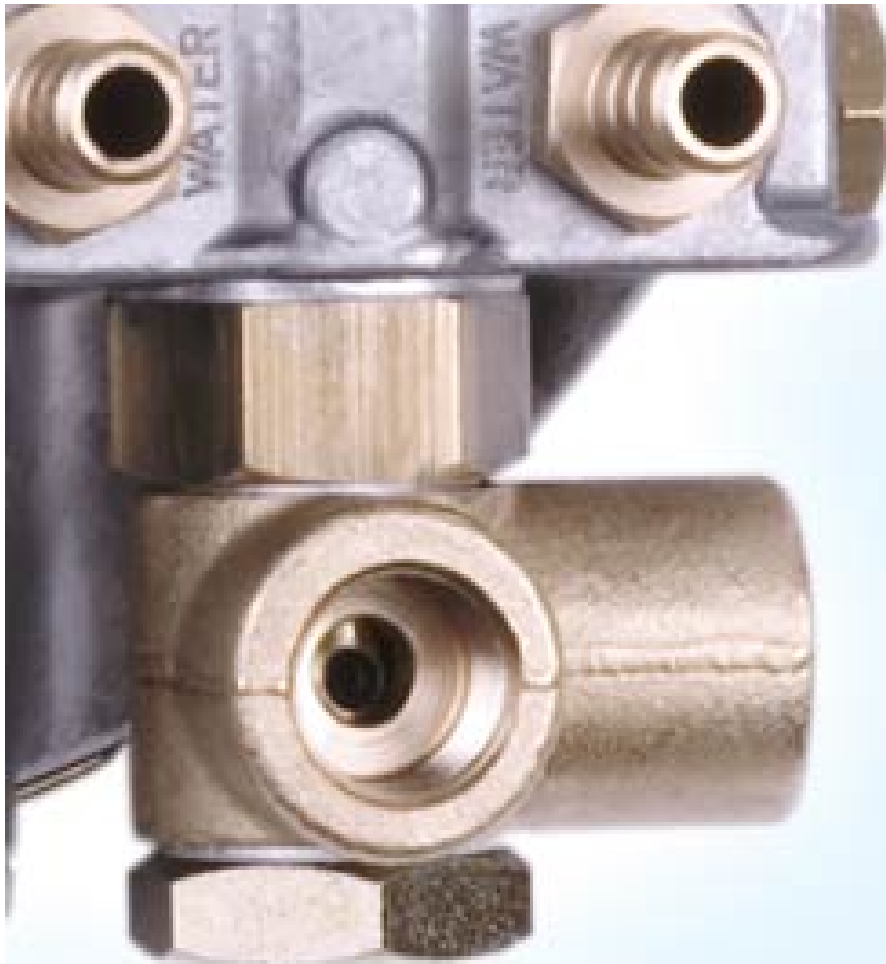
electronic kits



LPG ML94 Electronic kit



- EACH KIT INCLUDES:
- Lpg **ML94 EP/E2R** electronic regulator
- **Lambda Control System** (only for vehicles with catalyst and sonda lambda)
- Electronic **Switch & Indicator**
- **Lpg lock-off valve**
- **Petrol lock-off valve** (only for vehicles with carburettor)
- Complete set of **wiring, hoses and fitting**

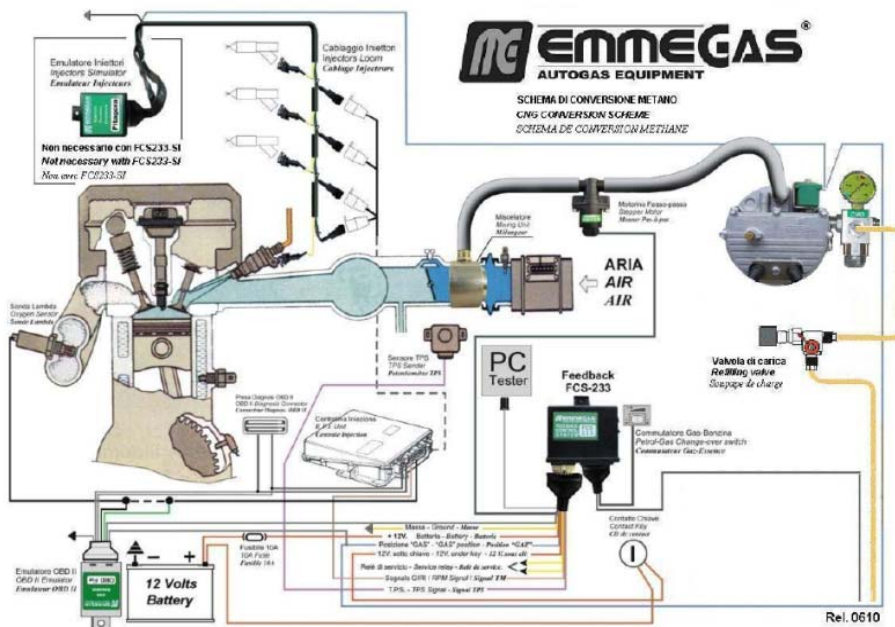


CNG

electronic kits

CNG 'NGV20' Electronic kit

Easy installation
Good quality/price ratio



EACH KIT INCLUDES:

- Cng **NGV** type electronic regulator
- **Lambda Control System** (only for vehicles with catalyst and sonda lambda)
- Electronic **Switch & Indicator**
- **Manometer** with Level Sensor
- **Petrol lock-off valve** (only for vehicles with carburettor)
- complete set of **wiring, hoses and fitting**

Thanks for your attention

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