



Installation manual

General

PART 1/2

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Required equipment / tools / materials for installing a complete system

- Complete workshop toolbox (wrenches, screwdrivers, cutters, pliers, ratchet, sockets)
- Car lift
- Portable computer : operating on Windows 98,W2000 or XP.
- Internal memory : 16 Mb or more
- Memory HD space : 5MB
- Screen : 256 colours, advise colours 16 bits or more
- Com port : 1 free COM port 1 or COM port 2 with a 9 or 25 pins connector or USB
- Vehicle fuel system scan tool or OBD scan tool Prins (part nr. 099/99928)
- Exhaust gas analyser
- Multimeter
- Oscilloscope
- Prins VSI diagnostic software
- Prins VSI serial interface
- Prins VSI break out box (part nr. 080/70090)
- Torque wrench (10Nm)
- Portable light
- Assortment drill bits 4 to 12 mm
- Assortment cutters (ø 20, 30, 50, 70 mm)
- Punching tool ø 70 mm
- Round file
- Portable drill or pneumatic drill
- Threading device (male M6x1, M8x1, M10x1)
- Pipe-flaring tool (for 6 and 8 mm copper pipe)
- Air gun
- Vacuum cleaner
- Hot air gun
- Allan spanner for inlet couplings 3,5mm (part nr. 099/9970)
- Reducer adjustment tool (part nr. 099/9960)
- Molex extraction tool for VSI switch connector (part nr. 090/9929)
- Soldering iron, soldering tin
- Wire-stripping pliers
- Adhesive tape
- Adhesive sealant
- Thread locking compound
- Anti-corrosion agent / black body coating
- Gas leak detection device or foam leak spray
- Shrink sleeves
- Engine coolant

Vehicle check

- Check the vehicle drivability on petrol
- Check the fuel system for error codes (scan tool)
- Check if the catalytic converter is in good condition (exhaust gas analyzer)
- Check the condition of the ignition system (spark plugs, cables, coil)

General instructions

- The installation of the system shall be done in accordance with the installation manual provided by Prins Autogassystemen.
- Always disconnect the battery when installing the LPG/CNG system.
- Do not place the main fuse into the fuse holder before having completed the installation of the VSI system.
- The VSI computer has to be activated by means of the diagnosis software.
- In the unlikely event the VSI computer fails, it will automatically switch over to petrol.
Never disconnect the VSI computer connector, unless you have removed the main fuse.
- When installing the VSI wiring harness, ensure that it does not run near any of the ignition components.
- Solder and insulate all electrical connections.
The wires in the loom are provided with numbers and text. The text on the wire explains the function of the wire.
The wire loom is not model specific, therefore it may be necessary to adjust the length of the wires.
Ensure maximum care is taken when connecting wiring.
Make professional joints using solder and shrink sleeve. Do not stretch the wiring harness.
- No component of the LPG/CNG-system shall be located within 100 mm of the exhaust or similar heat source, unless such components are adequately shielded against heat.
- Remove any internal burrs, after having shortened the LPG/CNG hose. (This guarantees the maximum flow through the hose without pollution.)
- If holes have to be drilled (wear safety glasses) in order to facilitate mounting the device frame, the reservoir frame, the LPG/CNG cut-off valve, etc., the drilled holes must always be treated with an anti-corrosive, after the burrs have been removed (especially when mounting a exterior filler).
- After having completed the installation, check the whole system for gas leakage; use a gas leak detection device.
- Fitting and maintenance is only allowed by Prins Autogassystemen selected LPG/CNG engineers.
- Prins Autogassystemen is not responsible for any damages to people or objects as a result of changes to Prins products.
- Check our website regularly for updates, info-bulletins and product information. (www.prinsautogassystemen.com)
- For installing a dedicated VSI-system download *DEDICATED MANUAL* (*part 2/2*)

Please fill in the warranty card completely and return it within 8 days after installation.

Introduction

VSI stands for “*vapour sequential injection*”, it points directly to the most important properties of the system. This second-generation gas injection system is based on a vapour LPG/CNG injection that is injected sequentially in the engine. Sequential means that the gas injectors will inject the LPG/CNG in the sequence equal to the injection sequence of the petrol injectors, This sequence in most applications is equal to the firing order of the ignition sequence of the engine, for example with a 4-cylinder engine this is normally 1-3-4-2. Sequential injection means that the amount of injected fuel per cylinder can be metered and timed individually.

This achieves a much higher level of performance emission and drivability. The VSI system was designed and developed in-house by Prins Autogassystemen B.V.

VSI characterizes itself with a high level of integration into the petrol management system. The two systems integrate as “master-slave” system.

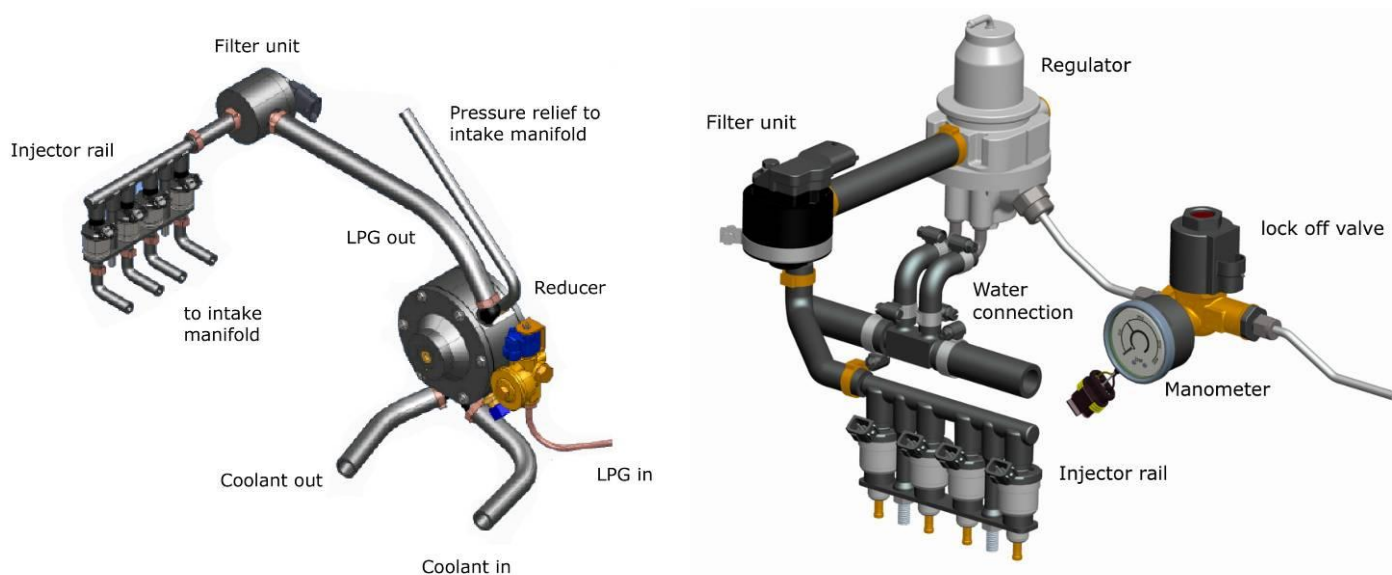
This means that the original petrol management ECM controls the amount of LPG/CNG injected via the gas injectors into the engine. The VSI ECM only translates the relevant signals coming from the engine management system necessary for MASTER /SLAVE strategy.

Following this strategy the petrol management system is the “MASTER” and the VSI ECM the “SLAVE”.

The advantage of this strategy: while driving on LPG/CNG the lambda control and OBD functions keep within the OE parameters, functioning correctly and controlled by the petrol management system. So when operating on LPG/CNG it is not necessary to generate simulated signals.

There is one exception made for the petrol injector signals, while driving on LPG/CNG the petrol injector's are switched off to discontinue the petrol supply. To maintain the injection control signals it is necessary to simulate the petrol injectors to ensure the original ECM does not detect a fault code. Secondly when operating on LPG/CNG it is necessary to maintain a petrol injector control signal to measure the required fuel demand.

The second generation injection system VSI has the ability to inject sequentially making it quicker and more accurate, large benefits can be gained in engine and emission performance.



Approval numbers VSI LPG / CNG components

Mark	Component	LPG	CNG
Prins	VSI Reducer	E4-67R-010054	
Valtec	6 / 8mm lock-off valve	E4-67R-010041	
Keihin	Regulator		E4-110R-000092
OMB	lock-off valve		E4-110R-000095
Wika	CNG Pressure indicator		E4-110R-000190
Prins	VSI Injector rail	E4-67R-010093	E4-110R-000021
Keihin	VSI Injector	E4-67R-010092	E4-110R-000020
Prins	Filter unit	E4-67R-010096	E4-110R-000028
Keihin	Filter unit	E4-67R-010177	E4-110R-000091
Prins	ECU	E4-67R-010098	E4-110R-000083
Electrical VSI components		EMC : E4-10R-020507	

VSI-I LPG



VSI-2.0 LPG / VSI-2.0 DI LPG



VSI-1 CNG

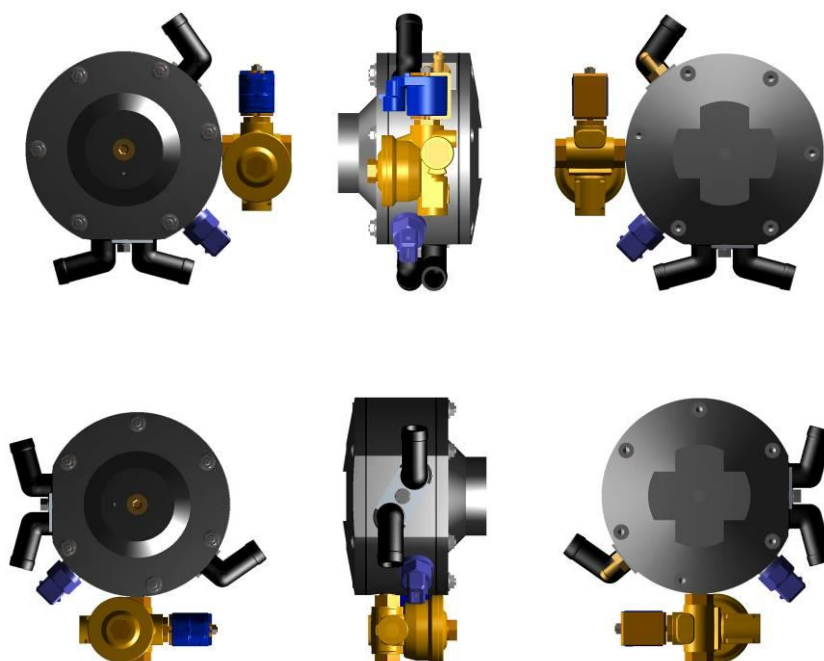


VSI-2.0 CNG / VSI-2.0 DI CNG



The Prins LPG reducer

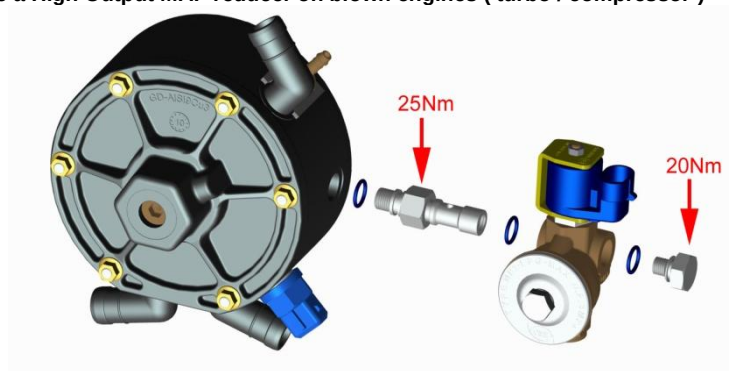
- Mount the reducer to the body of the vehicle in the engine compartment, never on the engine!
- Mount the reducer so that it is easy to adjust the pressure.
- Install the supplied 8 mm threaded end in the back cover of the reducer.
- Mount the reducer as shown in the drawing.
- Mount the reducer on a bracket and bolt on with a M8x1 nut.
- The LPG lock-off valve can be installed in different positions. Do not damage the O-rings when rotating the lock-off valve. See picture for torque moment.
- The reducer is connected to the heating system circuit by couplings between the coolant fluid hoses: dependant on the converted vehicle the reducer is placed in series or in parallel with the heating system.
- Overpressure 5mm relief hose : connect to the intake manifold.
- No component of the LPG-system shall be located within 100 mm of the exhaust or similar heat source, unless such components are adequately shielded against heat.
- The pressure can be adjusted with the adjusting screw (Allan screw) in the front cover.
- Seal the adjusting screw, with the sticker, in the front cover of the reducer after adjusting the pressure.



mounting positions



Standard reducer, 6 mm LPG pipe, used for engines with a HP up to 135 kW (180 HP).
 High Output reducer, 8 mm LPG pipe, used for engines with a HP over 135 kW (180 HP).
 Use a High Output MAP reducer on blown engines (turbo / compressor)



NO threat locking compound allowed !!

The Keihin CNG regulator

- Mount the Keihin regulator to the body of the vehicle in the engine compartment, never on the engine!
- Mount the regulator so that it is easy to replace the inlet filter.
- Mount the regulator as shown in the drawing with the water connections downwards.
- Mount the regulator on a bracket and bolt on with 3 M6x1 nuts.
- The regulator is connected to the heating system circuit by couplings between the coolant fluid hoses.
- Optional MAP connection: connect to the intake manifold if needed.
- No component of the CNG-system shall be located within 100 mm of the exhaust or similar heat source, unless such components are adequately shielded against heat.
- The pressure may not be adjusted and is fixed on 3.3 bar

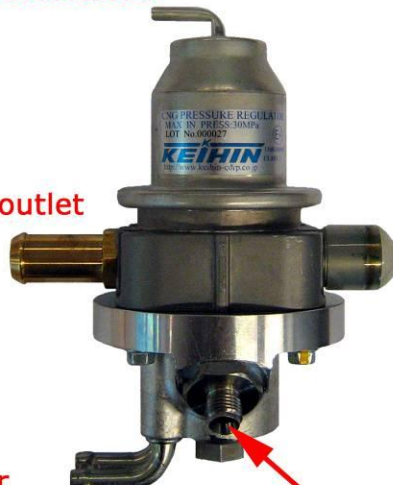


MAP connection

CNG outlet

water
connections

High pressure inlet



The injector rail



VSI 4-cylinder injector rail [KN8/KN9]

The Prins injector rail is available in 2 - 3 - 4 - 5 rail versions.

Guideline VSI injector choice : divide total engine power in kW up into the amount of cylinders.

LPG:

Color ID (KN-8)	Injector size	Minimum power per cylinder [LPG]		Maximum power per cylinder [LPG]	
		kW	HP	kW	HP
Green	32cc /stroke			13,0	17,4
white	42cc/stroke	9,0	12,1	15,0	20,1
Blue	52cc/stroke	13,0	17,4	20,0	26,8
Orange	63cc/stroke	18,0	24,1	27,0	36,2
Yellow	73cc/stroke	25,0	33,5	35,0	46,9
	82cc/stroke	28,0	37,6	39,0	52,3
Brown	100cc/stroke	31,0	41,6	45,0	60,3

CNG:

Color ID (KN-8)	Injector size	Minimum power per cylinder [CNG]		Maximum power per cylinder [CNG]	
		kW	HP	kW	HP
Green				9,0	12,1
White	42cc/stroke	7,0	9,4	12,0	16,1
Blue	52cc/stroke	10,0	13,4	16,0	21,5
Orange	63cc/stroke	14,0	18,8	22,0	29,5
Yellow	73cc/stroke	20,0	26,8	28,0	37,5
	82cc/stroke	23,0	30,8	33,0	44,2
Brown	100cc/stroke	25	33,5	36,0	48,3

The Prins filter unit

The filter unit filters the LPG/CNG and is also used to measure the gas temperature (T_{gas}) and gas pressure (P_{sys}) in the VSI system, by means of a combination sensor.

The filter unit has a single or a double outlet of 11mm.

Single outlet : on converted vehicle with 3-4 or 5 cylinder engines with one VSI injector rail.

Double outlet : on converted vehicle with 6 or 8 cylinder engines with two VSI injector rails.



Single outlet
3-4-5 cylinder engine



Double outlet
6-8 cylinder engine

The Keihin filter unit



The VSI computer

The VSI computer can be mounted into the engine room as well as inside the car, depending on the converted vehicle.

Never mount the computer near a heat source.

Never mount the computer upside down.

Never clean engine room with a high pressure cleaner.

VSI-I



1	black	ground
2	black	ground
3	red-yellow	G INJ OUT 8
4	blue-yellow	G INJ OUT 4
5	light blue-yellow	G INJ OUT 7
6	pink-yellow	G INJ OUT 3
7	brow-yellow	G INJ OUT 6
8	green-yellow	G INJ OUT 2
9	grey-yellow	G INJ OUT 5
10	white-yellow	G INJ OUT 1
11	red	G INJ B plus
12	red	G INJ A plus
13	yellow-green	+LPG injectors
14	yellow-green	+LPG injectors
15	red-yellow	ecu side inj 8
16	blue-yellow	ecu side inj 4
17	light blue-yellow	ecu side inj 7
18	pink-yellow	ecu side inj 3
19	brow-yellow	ecu side inj 6
20	green-yellow	ecu side inj 2
21	grey-yellow	ecu side inj 5
22	white-yellow	ecu side inj 1
23	yellow	pulse fuel switch
24	purple-white	RPM engine speed
25	grey-white	ignition+
26	black	ground
27	brown	ECT sensor ground
28	grey	T-LPG
29	grey	ECT coolant temp
30	blue	MAP optional
31	green	sealed
32	green	Psys
33	orange-white	lambda bank 2
34	red	+5 Volt Psys
35	orange	lambda bank 1
36	black	beeper low
37	orange	diagnose LED
38	grey	RS232 TxD
39	brown	main ground
40	grey	RS232 RxD
41	red	+12 Volt battery
42	red	+12 Volt battery
43	green-yellow	+LPG
44	red-white	inj. module command
45	brown	INJ simulator ground
46	grey-white	ignition+
47		
48		
49		
50		
51		
52		
53		
54		
55		
56		

VSI computer connector

VSI-2.0 computer

The Prins VSI-2.0 computer is the second generation master-slave management system. This new design has distinctive features and will be used as a new platform for current and future Prins injection systems.



Connector B						Connector A								
pin	vsi wire	color	pin	vsi wire	color	pin	vsi wire	color	pin	vsi wire	color	pin	vsi wire	color
82	- GAS INJ 4	blue/yellow	103	n.c.		1	Ground Battery	brown	22	n.c._c gnd		43	n.c.	
83	n.c.		104	n.c.		2	Power tank valve 1	red	23	n.c.		44	n.c.	
84	n.c.		105	n.c.		3	+ 12 V Fuel switch	red	24	+12V reducer lock off	green-yellow	45	K-line	purple
85	n.c.		106	+ GAS INJ 1	red	4	+12V batt. (10A Fuse)	red	25	n.c.		46	Service TxD	grey
86	n.c.		107	+ GAS INJ 2	red	5	n.c.		26	Ground Tank lock off	black	47	n.c.	
87	n.c.		108	+ GAS INJ 3	red	6	n.c.		27	+5 volt sensor	red	48	n.c.	
88	n.c.		109	n.c.		7	n.c.		28	n.c.		49	LIN fuel switch	yellow
89	n.c.		110	n.c.		8	RPM engine speed	purple-white	29	n.c.		50	n.c.	
90	+ GAS INJ 4	red	111	n.c.		9	+5 Volt sensor	red	30	n.c.		51	n.c.	
91	n.c.		112	+ Petrol injectors	red-grey	10	n.c.		31	C Ground	brown	52	n.c.	
92	n.c.		113	n.c.		11	n.c.		32	Ground battery sense	brown	53	n.c.	
93	n.c.		114	min inj side 4	blue	12	Tank level IN	blue	33	n.c._c gnd		54	n.c.	
94	n.c.		115	ECU side inj 4	blue-yellow	13	+12 V Battery sense	red	34	C Ground	brown	55	n.c.	
95	n.c.		116	min inj side 3	pink	14	T-Gas	grey	35	C Ground	brown	56	n.c.	
96	n.c.		117	ECU side inj 3	pink-yellow	15	T-ECT	grey	36	n.c._c gnd		57	n.c.	
97	n.c.		118	min inj side 2	green	16	Pays	green	37	C Ground	brown	58	n.c.	
98	- GAS INJ 1	white-yellow	119	ECU side inj 2	green-yellow	17	AD2 (Valve Care)	green	38	n.c._c gnd		59	n.c.	
99	- GAS INJ 2	green-yellow	120	min inj side 1	white	18	AD1 (MAP)	blue	39	n.c._c gnd		60	n.c._c gnd	
100	- GAS INJ 3	pink-yellow	121	ECU side inj 1	white-yellow	19	AD4 (lambda 2)	orange-white	40	n.c._c gnd		61	n.c._c gnd	
101	n.c.					20	AD3 (lambda 1)	orange	41	n.c._c gnd		62	n.c._c gnd	
102	n.c.					21	n.c.		42	n.c._c gnd		63	n.c._c gnd	

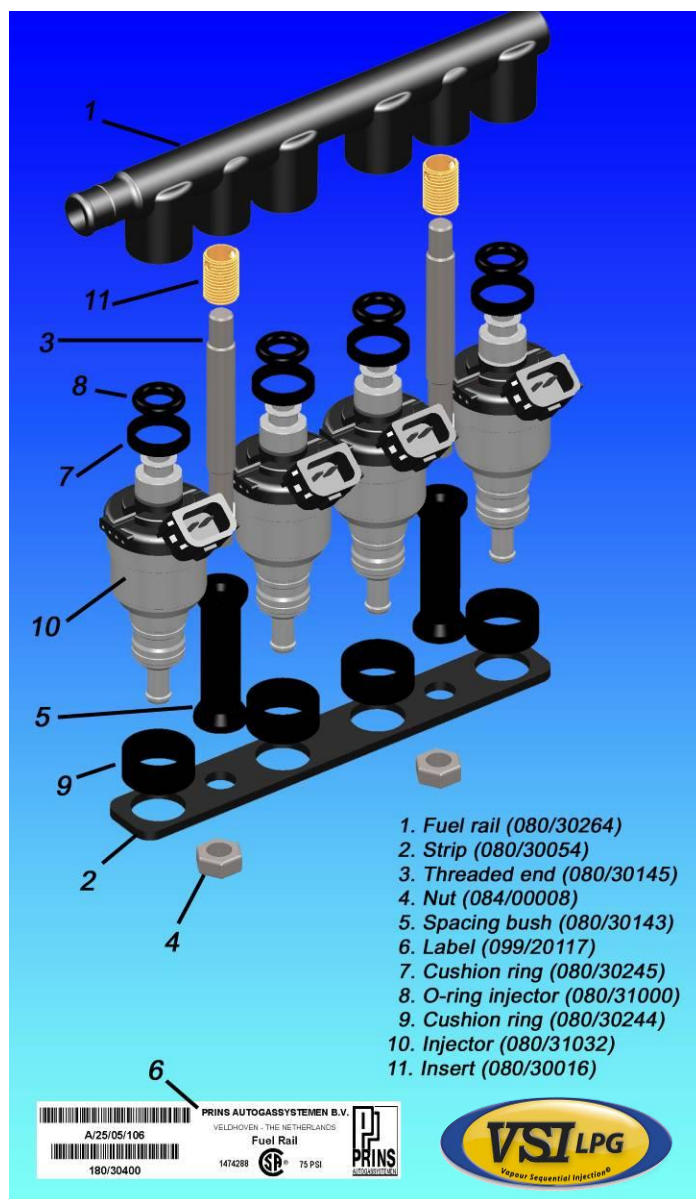
Instructions rotating the Prins VSI injector rail

This is an instruction how to convert a “right” rail into a “left” injector rail

Tools : Ring spanner size 13 mm
 Torque spanner (0-3 Nm)

Disassembly / assembly:

1. Unscrew both M8 (4) nuts.
2. Remove the strip (2).
3. Remove the injectors (10) with a rotating movement out of the fuel rail (1).
4. Rotate the rail (1) 180 degrees.
5. Mount the injectors (10) with a rotating movement into the fuel rail (1).
6. Mount the strip (2) on the injectors (10).
7. Tighten the strip (2) with two M8 nuts (4). Tightening moment **2.5 Nm**.



The wiring loom.

The cables in the loom are provided with numbers and text. The text on the cable explains the function of the wire. The wire loom is not model specific, therefore it may be necessary to adjust the length of the wires.

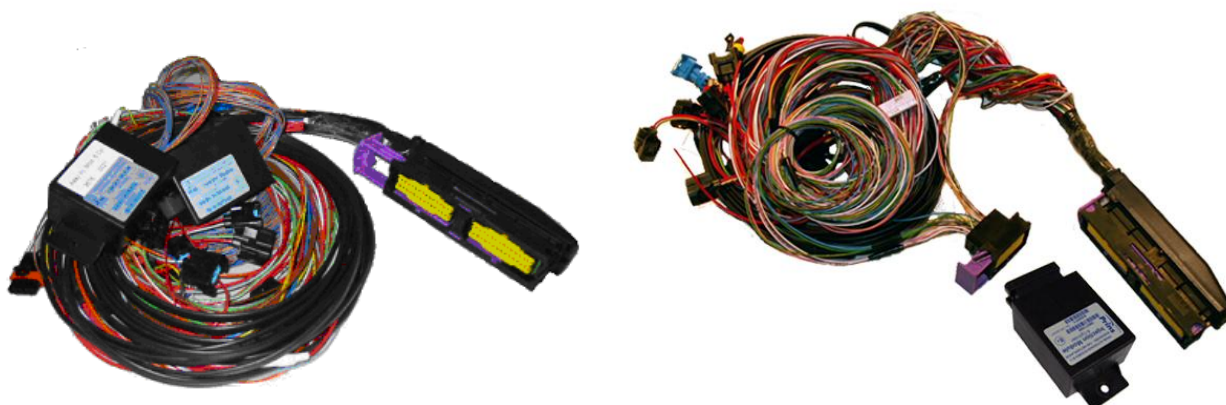
The watertight ECM housing is made from aluminium; this material is chosen for its excellent heat dissipation qualities, necessary for cool the injector drivers.
Always fix the computer in the coolest place in the engine compartment.

**All cable numbers correspond with a position numbered on the connector.
Example wire number 4 is mounted on connector position 4.**

**Ensure maximum care is taken when connecting wiring.
Make professional solder joints and insulate the joints.
Do not stretch the wiring harness.**

VSI-I

The wiring harness is equipped with a 56 position interlocking connector which slots into the VSI computer. Pull the purple interlocking clip and push the connector into the VSI computer, push the clip back into its original position, the connector is now locked into the VSI computer.



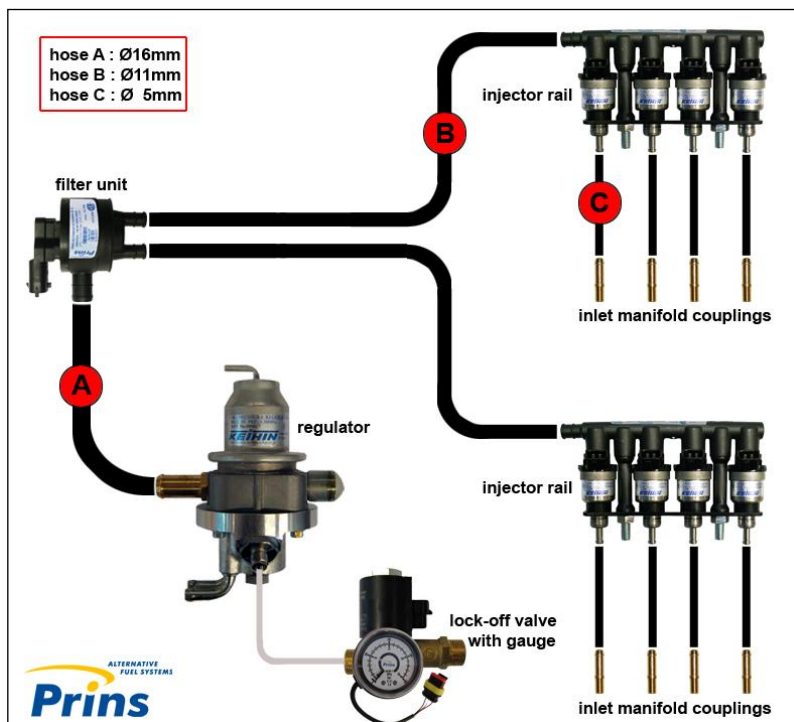
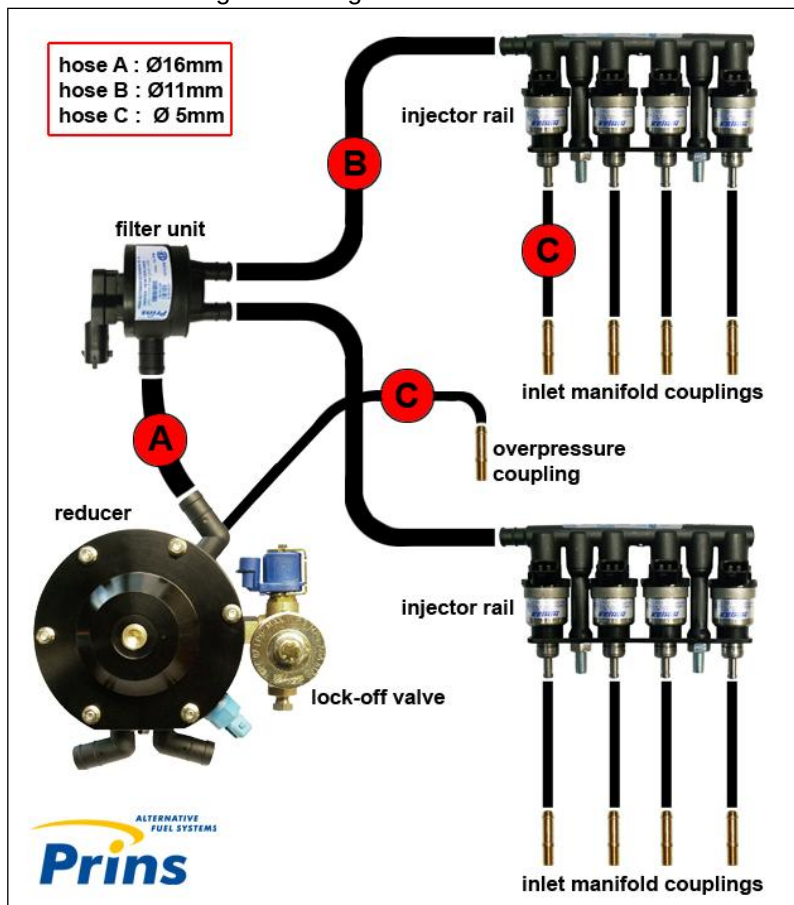
VSI-2.0

The wiring harness connects to the computer via two Bosch a 81+40 pins connector which is locked to the VSI-2.0 computer by means of connector clamping mechanism.



Hose connections

Try to keep the inlet manifold hoses as short as possible.
Use a hose clamp on all the LPG/CNG hose connections.
Please observe that there is no damage or fouling to the hoses.



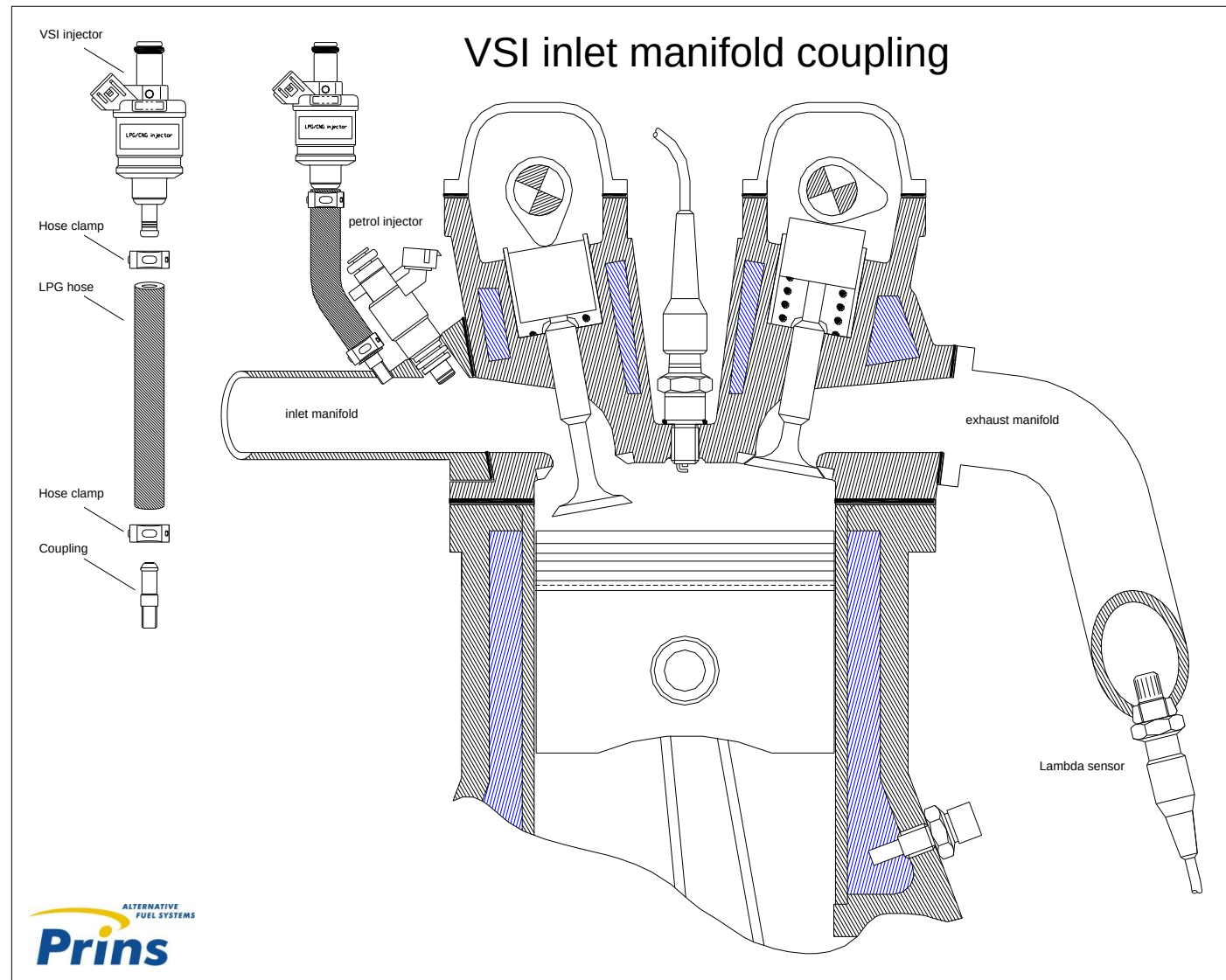


Diagram 1 VSI inlet manifold coupling

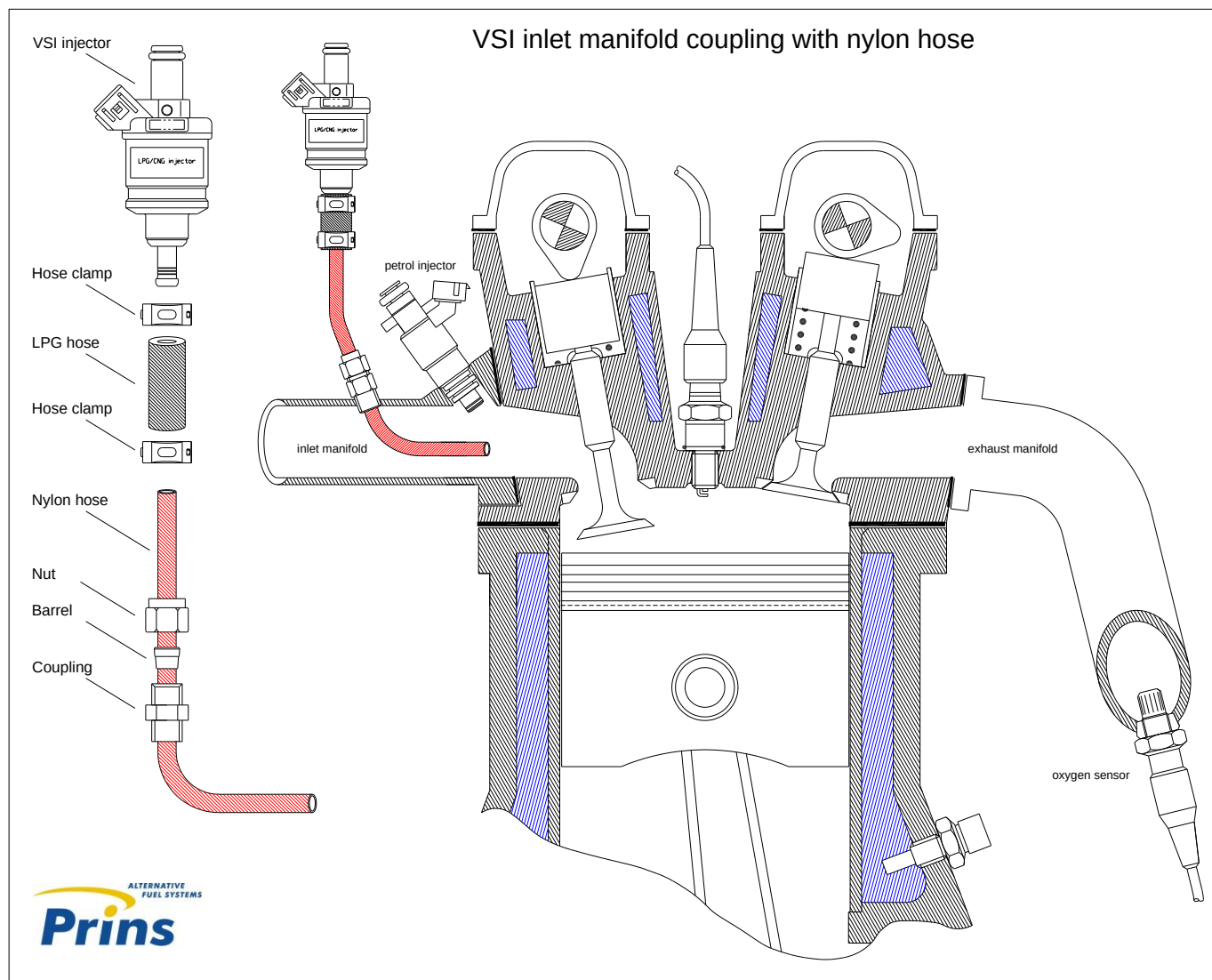


Diagram 2 VSI inlet manifold coupling with nylon hose

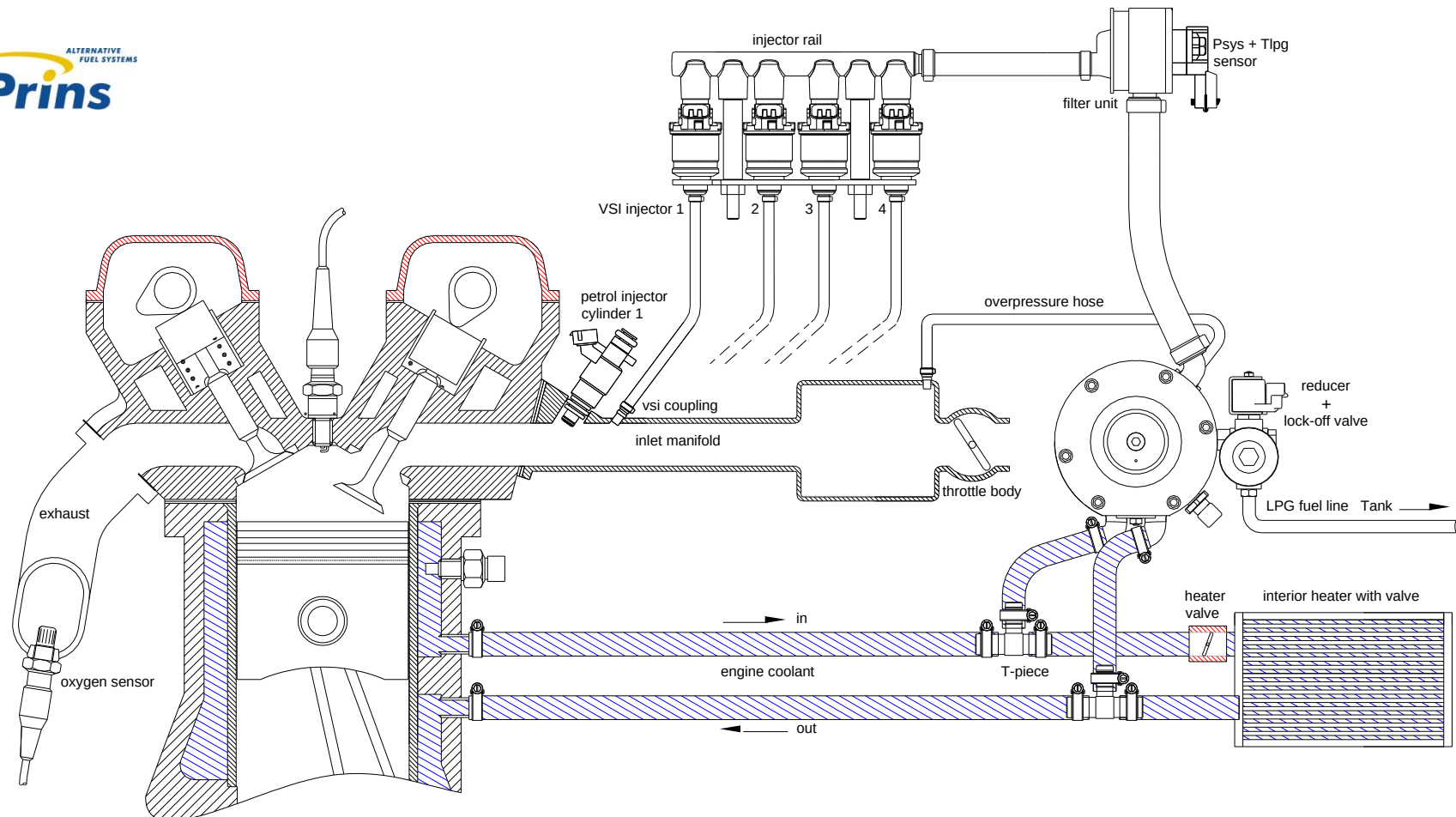


Diagram 3 Parallel water connection

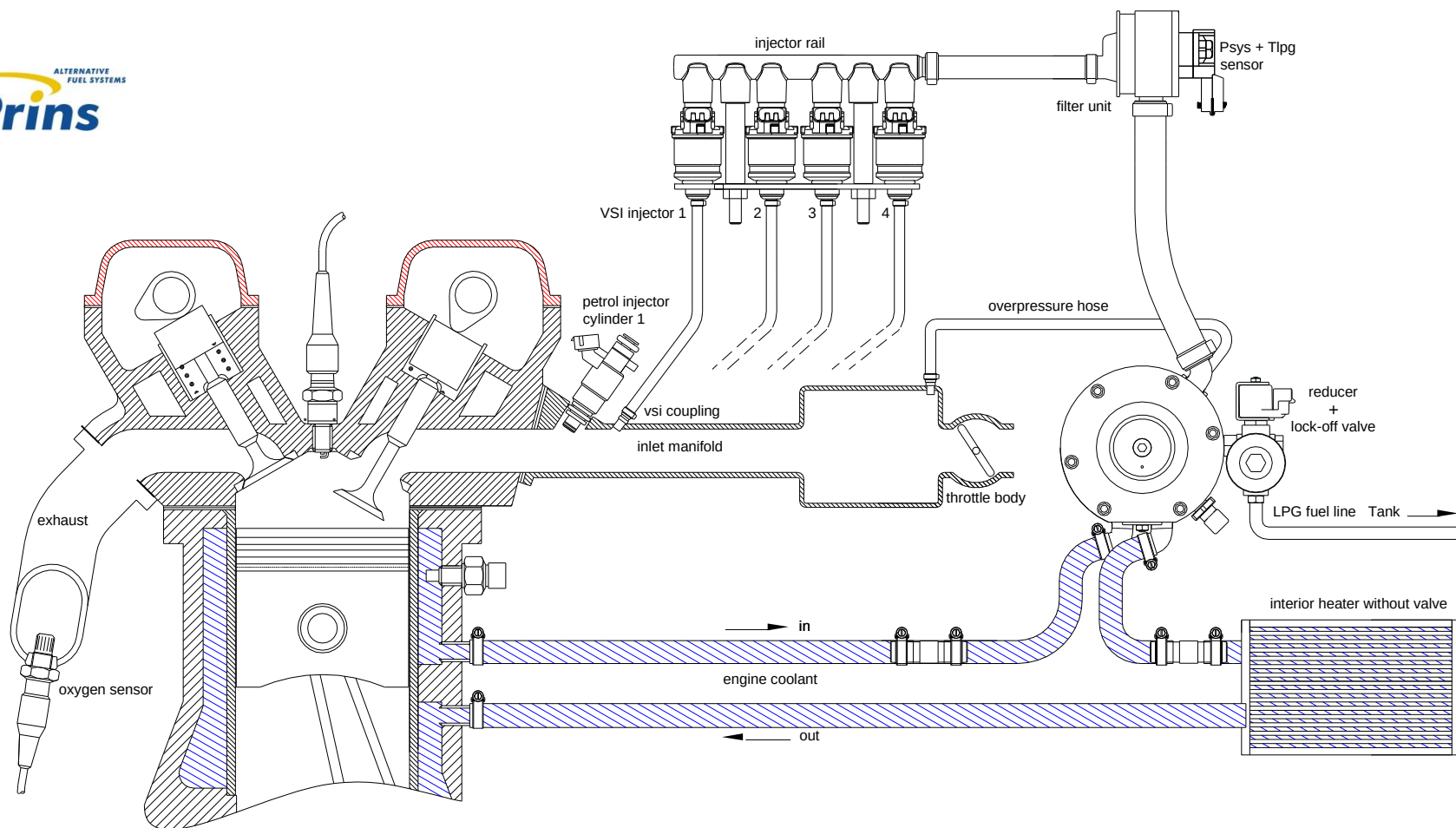


Diagram 4 Serial water connection

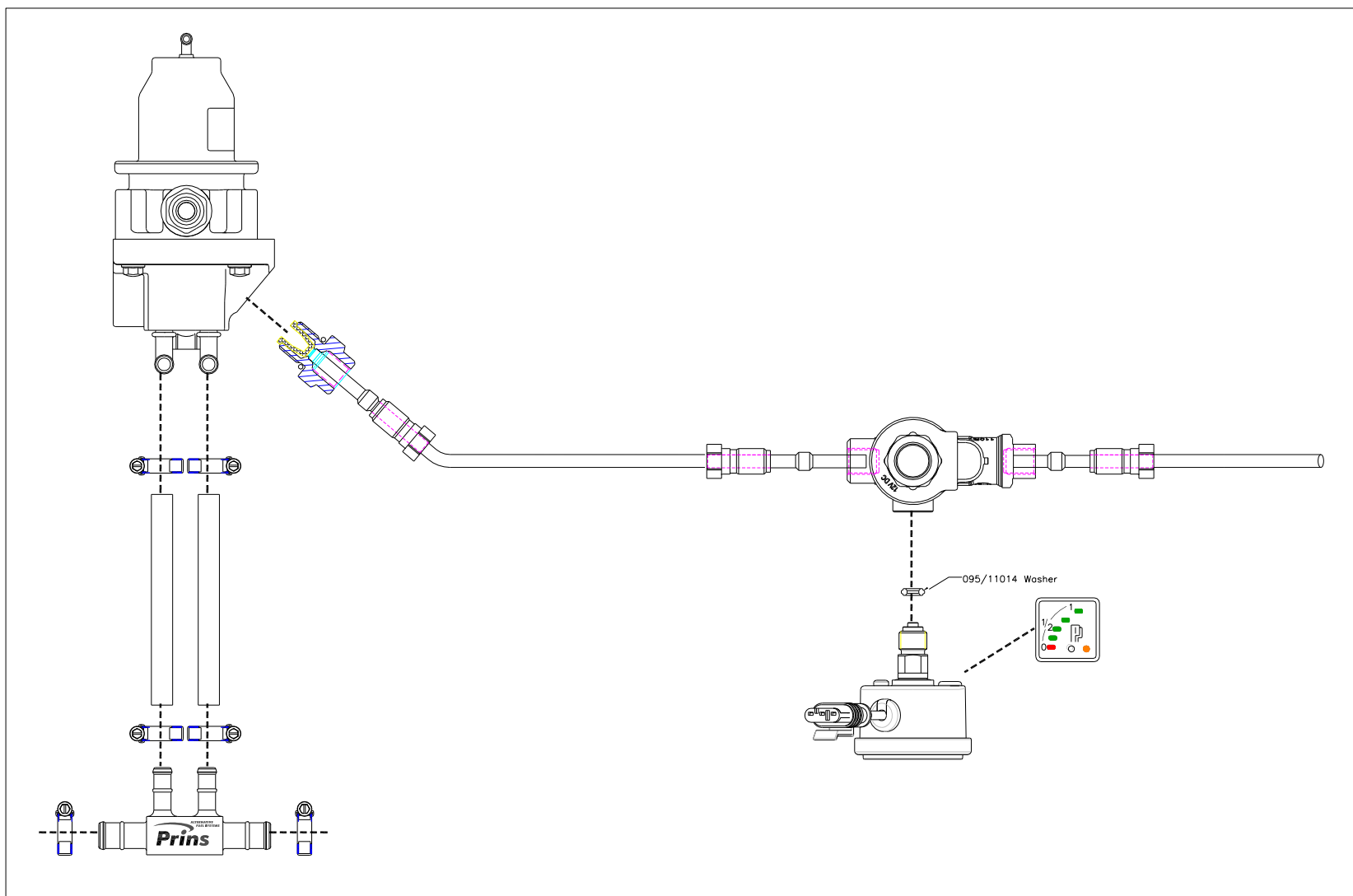


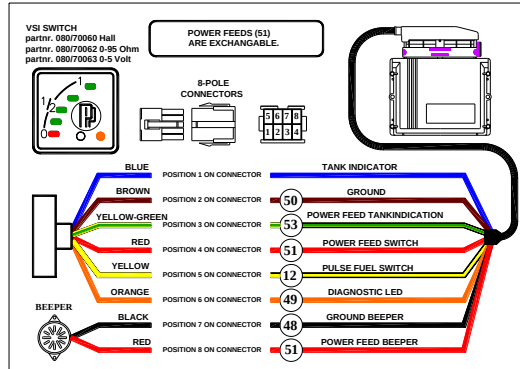
Diagram 5 Serial water connection CNG regulator

The VSI-I fuel switch

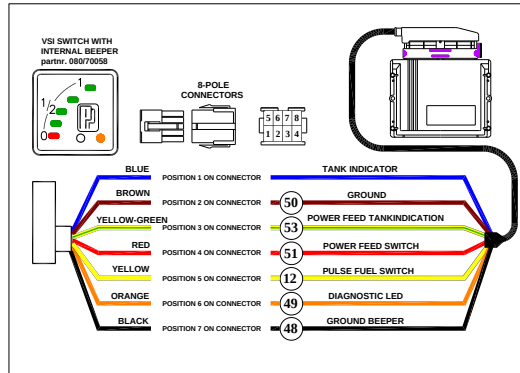


Mount the switch on a visible and approachable place for the driver.
When mounting the switch, only push on its sides.
Pushing the switch in the centre may result in damage to the switch.

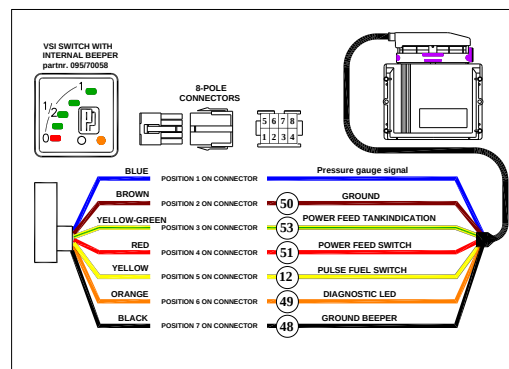
ELECTRICAL CONNECTION OF THE LPG SWITCH with loose beeper



ELECTRICAL CONNECTION OF THE LPG SWITCH with internal beeper



ELECTRICAL CONNECTION OF THE CNG SWITCH with internal beeper



The LPG VSI switch with internal beepers is programmable for different types of tank indicators.
Standard setting of the switch is 0-95 Ohm.

For reprogramming the switch:

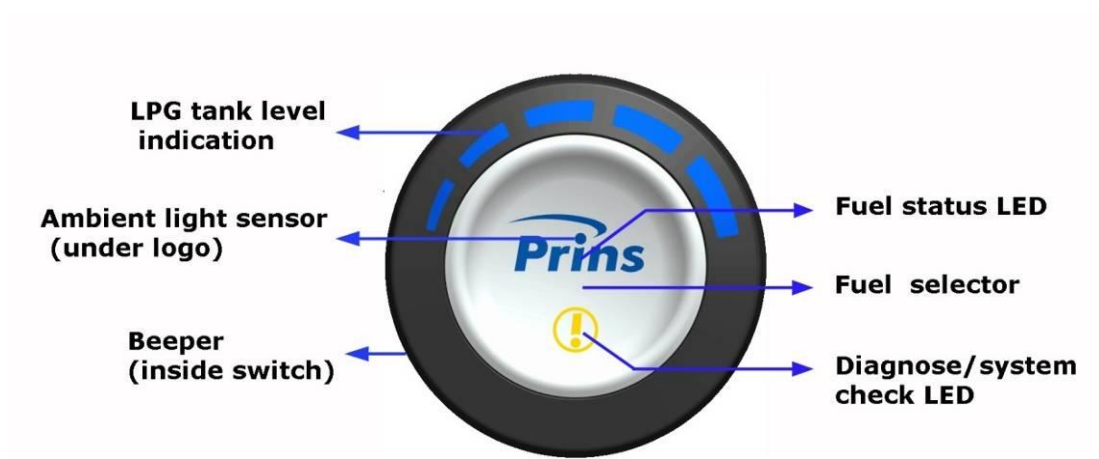
1. Make sure that the ignition switch is turned off.
2. Place the VSI main fuse.
3. Push the switch for 5 seconds until a signal sounds (beep).
4. Make a choice immediately:
 - push 1 x for 0-95 Ohm tank indicator
 - push 2 x for Hall tank indicator
 - (push 3 x preparation VSI2, not used)
5. The VSI switch will confirm the choice with a beep signal (1 or 2 signals)

To change the choice of indicator: remove the VSI main fuse and start with step 1.

The CNG switch is not programmable. The CNG switch is not exchangeable with a LPG switch!

The VSI-2.0 fuel switch

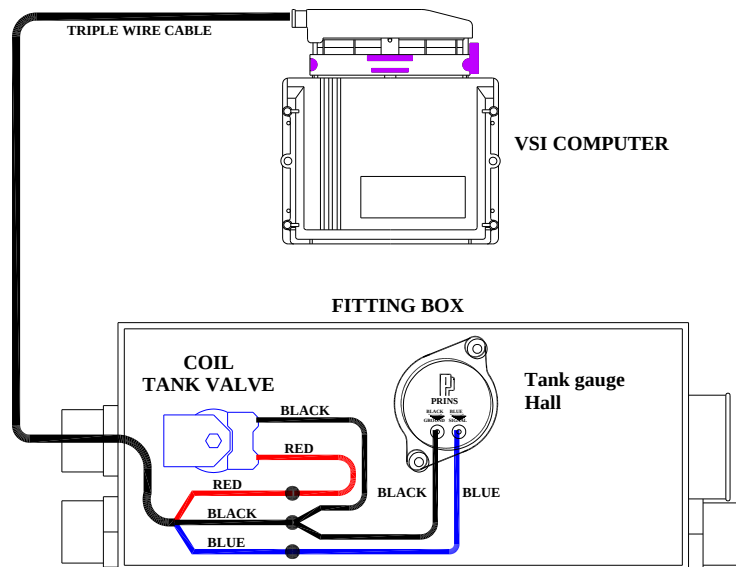
The VSI-2.0 switch is designed for the new VSI-2.0 platform.
The switch is controlled by the VSI-2.0 computer through LIN communication.



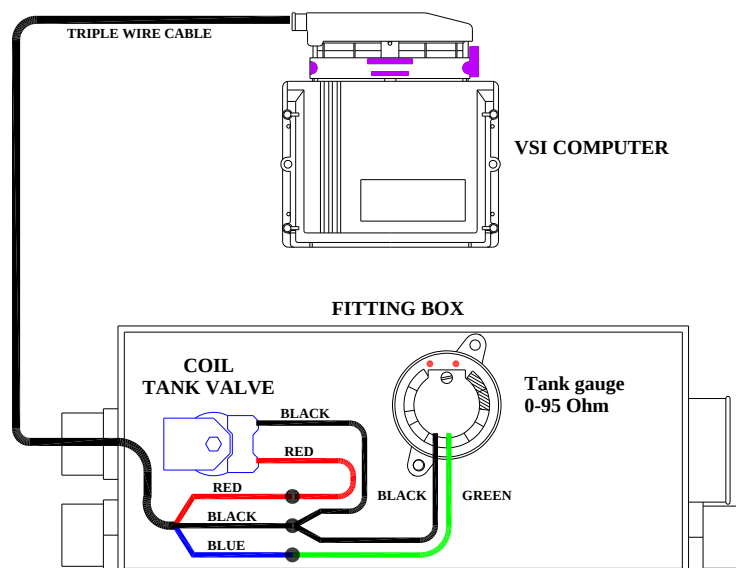
Operation mode	Fuel selection	Active fuel	Status LED	Tank LEDS	Beeper	Diagnose LED
Engine off	GAS/Petrol	No	Off	Off	Off	Off
Contact+ on /engine of	Petrol	No	Off	On	Off	on 3 sec (system check)
Contact+ on /engine of	Gas	No	flashing1, 0Hz	Off	Off	on 3sec (system check)
Engine on	Petrol	Petrol	Off	On	Off	Off
Gas standby	Gas	Petrol	flashing 1,0Hz	On	Off	Off
Gas mode	Gas	Gas	On	On	Off	Off
Tank empty, switched back to petrol mode	Gas	Petrol	flashing1, 0Hz	LED 1 1,0Hz	3x0,5Hz	Off
Tank empty, petrol mode	Petrol	Petrol	Off	Led1 on	Off	Off
Critical fault	Gas	Petrol	flashing 1,0 Hz	On	On, 2Hz	On
Non critical fault, petrol mode	Petrol	Petrol	Off	On	Off	Off
Non critical fault, gas mode	Gas	Gas	on	On	Off	Flashing 1,0 Hz

Electrical connections on the LPG reservoir

The wire harness contains the wires for connecting the LPG reservoir. Refer to the following diagram when connecting the LPG reservoir.



SOLDER THE CONNECTIONS IN THE FITTING BOX AND PROTECT THEM WITH A SHRINK SLEEVE.



SOLDER THE CONNECTIONS IN THE FITTING BOX AND PROTECT THEM WITH A SHRINK SLEEVE.

Electrical connections VSI-I wiring harness

Check and measure the wiring in case of changes in the cars wiring colours.

Wire number / code		Wire colour	Connection	
50	MAIN GND	brown	Connect to the '-' of the battery; use a ring terminal for this purpose.	
25-51	+12V BAT	red	Connect to the '+' of the battery; use a ring terminal for this purpose or solder. Do not place the main fuse into the fuse holder before having completed the installation of the system.	
50	LPG/CNG VLV GND	brown	Ground shut-off valve.	2-pole connector shut-off valve.
53	+ LPG/CNG VLV	yellow - green	Power supply shut-off valve.	
42	ECT GND	brown	Ground ECT sensor.	2-pole black connector temperature sensor in the evaporator.
43	ECT	grey	ECT measurement.	
22	RS232 TxD	grey	4-pole black connector diagnosis wire connection.	
23	RS232 RxD	grey		
50	DIAGNOSE GND	brown		
51	+12V DIAG	red		
15	T LPG	grey	4-pole black connector filter unit connection.	
17	Psys	pale green		
18	+ 5V Psys	red		
42	Psys GND	brown		
33	33G INJ OUT 1	white - yellow	Connector VSI-injector to cylinder 1.	
34	34 G INJ A PLUS	red		
32	32G INJ OUT 2	green - yellow	Connector VSI-injector to cylinder 2.	
34	34 G INJ A PLUS	red		
31	31G INJ OUT 3	pink - yellow	Connector VSI-injector to cylinder 3.	
34	34 G INJ A PLUS	red		
30	30G INJ OUT 4	blue - yellow	Connector VSI-injector to cylinder 4.	
34	34 G INJ A PLUS	red		
5	5G INJ OUT 5	grey - yellow	Connector VSI-injector to cylinder 5.	
6	34 G INJ A PLUS	red		
4	4G INJ OUT 6	brown - yellow	Connector VSI-injector to cylinder 6.	
6	34 G INJ A PLUS	red		
3	3G INJ OUT 7	light blue - yellow	Connector VSI-injector to cylinder 7.	
6	34 G INJ A PLUS	red		
2	2G INJ OUT 8	red - yellow	Connector VSI-injector to cylinder 8.	
6	34 G INJ A PLUS	red		
44	AD1	green	Option, programmable input	
16	MAP	blue	For measuring the inlet manifold pressure (MAP). In combination with Prins Turbo/MAP sensor.	
18	+ 5V MAP	red		
42	MAP GND	brown		
PTO	CRANK-D	purple / purple-yellow	For interrupting the crank signal on CNG.	
50	Ground	blue	For measuring the high pressure signal of the CNG system In combination with Prins High Pressure gauge	
53	+ CNG Signal	green-yellow blue		

Electrical connections VSI-I wiring harness

Check and measure the wiring in case of changes in the cars wiring colors.

13	IGNITION +	grey-white	Make a connection to ignition + / contact +. Make sure that the voltage will not fail during starting the engine.																																				
46	LAMBDA 1-L	orange	For the measurement of the lambda signal of cylinder bank 1. Connect the wire parallel to the lambda sensor signal wire.																																				
45	LAMBDA 2-R	orange-white	For the measurement of the lambda signal of cylinder bank 2. Connect the wire parallel to the lambda sensor signal wire.																																				
40	RPM	purple-white	For measuring the engine speed. Connect to a Hall-sensor or camshaft sensor, Make sure that the <u>squared</u> signal is not higher then 30 Volt ! Never connect to the ignition coil (only with a RPM module) !																																				
Injector measure wire (injection module) 39 38 37 36 11 10 9 8	Bicolour / Full colour	For measuring / interrupting the petrol injectors : Interrupt each petrol injector control wire (injector min) Each VSI wire has a cylinder number printed on the wire, connect this wire to the corresponding petrol injector. Connect the bicoloured VSI measuring wire to the ecu side , (wire code: ECU SIDE). Connect the accompanying full coloured VSI wire to the petrol injector side (wire code: MIN INJ SIDE). See diagrams in Installation Manual General part 1 / 2. <u>Attention:</u> Each bicoloured measuring wire corresponds to a specific LPG injector and cylinder number. Do not interchange the wires.																																					
<table><tr><td colspan="2">Injection module</td><td>=> VSI-ecm =></td><td>VSI injector rail</td></tr><tr><td>White-yellow</td><td>vsi nr. 39 (petrol injector cyl.1)</td><td>=>VSI-ecm=></td><td>White-yellow vsi nr.33 (vsi injector cyl.1)</td></tr><tr><td>Green-yellow</td><td>vsi nr. 38 (petrol injector cyl.2)</td><td>=>VSI-ecm=></td><td>Green-yellow vsi nr.32 (vsi injector cyl.2)</td></tr><tr><td>Pink-yellow</td><td>vsi nr. 37 (petrol injector cyl.3)</td><td>=>VSI-ecm=></td><td>Pink-yellow vsi nr.31 (vsi injector cyl.3)</td></tr><tr><td>Blue-yellow</td><td>vsi nr. 36 (petrol injector cyl.4)</td><td>=>VSI-ecm=></td><td>Blue-yellow vsi nr.30 (vsi injector cyl.4)</td></tr><tr><td>Grey-yellow</td><td>vsi nr. 11 (petrol injector cyl.5)</td><td>=>VSI-ecm=></td><td>Grey-yellow vsi nr.05 (vsi injector cyl.5)</td></tr><tr><td>Bruin-yellow</td><td>vsi nr. 10 (petrol injector cyl.6)</td><td>=>VSI-ecm=></td><td>Brown-yellow vsi nr.04 (vsi injector cyl.6)</td></tr><tr><td>Light blue-yellow</td><td>vsi nr. 09 (petrol injector cyl.7)</td><td>=>VSI-ecm=></td><td>Light blue-yellowvsi nr.03 (vsi injector cyl.7)</td></tr><tr><td>Red-yellow</td><td>vsi nr. 08 (petrol injector cyl.8)</td><td>=>VSI-ecm=></td><td>Red-yellow vsi nr.02 (vsi injector cyl.8)</td></tr></table>				Injection module		=> VSI-ecm =>	VSI injector rail	White-yellow	vsi nr. 39 (petrol injector cyl.1)	=>VSI-ecm=>	White-yellow vsi nr.33 (vsi injector cyl.1)	Green-yellow	vsi nr. 38 (petrol injector cyl.2)	=>VSI-ecm=>	Green-yellow vsi nr.32 (vsi injector cyl.2)	Pink-yellow	vsi nr. 37 (petrol injector cyl.3)	=>VSI-ecm=>	Pink-yellow vsi nr.31 (vsi injector cyl.3)	Blue-yellow	vsi nr. 36 (petrol injector cyl.4)	=>VSI-ecm=>	Blue-yellow vsi nr.30 (vsi injector cyl.4)	Grey-yellow	vsi nr. 11 (petrol injector cyl.5)	=>VSI-ecm=>	Grey-yellow vsi nr.05 (vsi injector cyl.5)	Bruin-yellow	vsi nr. 10 (petrol injector cyl.6)	=>VSI-ecm=>	Brown-yellow vsi nr.04 (vsi injector cyl.6)	Light blue-yellow	vsi nr. 09 (petrol injector cyl.7)	=>VSI-ecm=>	Light blue-yellowvsi nr.03 (vsi injector cyl.7)	Red-yellow	vsi nr. 08 (petrol injector cyl.8)	=>VSI-ecm=>	Red-yellow vsi nr.02 (vsi injector cyl.8)
Injection module		=> VSI-ecm =>	VSI injector rail																																				
White-yellow	vsi nr. 39 (petrol injector cyl.1)	=>VSI-ecm=>	White-yellow vsi nr.33 (vsi injector cyl.1)																																				
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Red-yellow	vsi nr. 08 (petrol injector cyl.8)	=>VSI-ecm=>	Red-yellow vsi nr.02 (vsi injector cyl.8)																																				

Electrical connections VSI-2.0 wiring harness

**Check and measure the wiring in case of changes in the cars wiring colours.
Insulate all not used wires.**

Wire number / code	Wire colour	Connection
1 ground battery	brown	Connect to the '-' of the battery; use a ring terminal for this purpose. Wire colour : Wire location :
32 ground battery sense	brown	Connect to the '-' of the battery together with VSI wire 1 ground battery.
44 +12V battery	red	Connect to the '+' of the battery; use a ring terminal for this purpose or solder. Wire colour : Wire location : Do not place the fuse in the holder before having completed the installation of the LPG system.
13 +12V battery sense	red	Connect to the '+' of the battery together with VSI wire 44 +12V battery.
112 + petrol injectors or ignition+ (+15)	red-grey	Make a connection to + petrol injector or ignition+ (+15) Wire colour : Wire location :
20 AD3 (lambda 1)	orange	For the measurement of the lambda signal of cylinder bank 1 Connect the wire in parallel to the lambda sensor. Wire colour : Wire location :
19 AD4 (lambda 2)	orange-white	For the measurement of the lambda signal of cylinder bank 2 Connect the wire in parallel to the lambda sensor. Wire colour : Wire location :
18 AD1 (MAP)	blue	For measuring the inlet manifold pressure (MAP). Wire colour : Wire location :
17 AD2 (Valve Care)	green	Optional connection. Wire colour : Wire location :
8 RPM	purple-white	For measuring the engine speed. Wire colour : Wire location :

Electrical connections VSI-2.0 wiring harness

**Check and measure the wiring in case of changes in the cars wiring colours.
Insulate all not used wires.**

3-pole connector		
18 AD1 (MAP)	blue	For measuring the inlet manifold pressure (Prins MAP sensor).
27 +5 volt sensor	brown	Connect the 3-pole connector to the Prins MAP sensor.
37 C ground	red	

2-pole blue connector		For measuring the engine coolant temperature (Tect).
15 Tect	grey	Connect the connector to the reducer temperature sensor.
34 C ground	brown	

4-pole connector		For measuring gas pressure and temperature.
35 C ground	brown	Connect the connector to the filter unit sensor.
14 T-Gas	grey	
9 +5 Volt sensor	red	
16 Psys	green	

2-pole connector		
24 +12V reducer lock-off	yellow-green	Connect the connector to the reducer lock-off valve.
31 Ground reducer lock-off	brown	

4-pole connector		
46 Service TxD	grey	Diagnose connector.
65 Service RxD	grey	
68 C ground	brown	

3-pole connector		
3 +12V fuel switch	red	Connect to the VSI switch.
66 ground fuel switch	brown	
49 LIN fuel switch	yellow	

Tank wiring loom		
2 Power tank valve 1	red	Connect to the tank lock-off.
12 Tank level in	blue	Connect the tank level gauge.
26 ground tank lock off	black	Connect to the tank lock-off.

Electrical connections VSI-2.0 wiring harness

Check and measure the wiring in case of changes in the cars wiring colours.

Some wires/connectors are only available in the Full Spec VSI loom.

Insulate all not used wires.

51 70	CAN 1 High CAN 1 Low	blue-yellow blue	Optional / insulate / Connect to EOBD diagnose connector Pin : 6 Pin : 14
53 72	CAN 2 High CAN 2 Low	pink-yellow pink	Optional / insulate / Connect to EOBD diagnose connector
23	ground switched 2	yellow	Optional / insulate
28	+5V (EXT)	red	Optional / insulate
29	+5V PU1 (optional)	red	Optional / insulate
30	+5V PU2 (optional)	red	Optional / insulate
43	+GAS injectors	red	Optional / insulate
45	K-line	pink	Optional / insulate
57	+12V (external)	red	Optional / insulate
76 22	power tank valve 2 ground switched 1	red brown	Connect to the second tank lock-off valve. Optional / insulate
3-pole connector 11 12 33	+ manometer tank level in ground manometer	red blue brown	Connect to the CNG high pressure gauge Optional / insulate

Electrical connections VSI-2.0 wiring harness

Check and measure the wiring in case of changes in the cars wiring colours.



For measuring the petrol injectors :

Interrupt each petrol injector control wire (injector min)

Each VSI wire has a petrol injector / cylinder number printed on the wire, connect this wire to the corresponding petrol injector / cylinder.

Connect the **bicoloured** VSI measuring wire to the **ecu side**, (wire code: ecu side inj).

Connect the **corresponding full coloured** VSI wire to the **petrol injector side** (wire code: min inj side).

Attention:

Each bicoloured measuring wire corresponds to a specific VSI injector and petrol injector / cylinder number. Do not interchange the wires.

VSI measure wire nr. :	Full coloured / Bicoloured	To interrupt petrol injector wire colour / location
121 ecu side injector 1 120 injector side inj 1	white-yellow white	Colour : Location :
119 ecu side injector 2 118 injector side inj 2	green-yellow green	Colour : Location :
117 ecu side injector 3 116 injector side inj 3	pink-yellow pink	Colour : Location :
115 ecu side injector 4 114 injector side inj 4	blue-yellow blue	Colour : Location :

VSI injector connectors:

98 -GAS INJ 1 106 +GAS INJ 1	white-yellow red	Connector VSI-injector cylinder 1 . (timing belt side)
99 -GAS INJ 2 107 +GAS INJ 2	green-yellow red	Connector VSI-injector cylinder 2 .
100 -GAS INJ 3 108 +GAS INJ 3	pink-yellow red	Connector VSI-injector cylinder 3 .
82 -GAS INJ 4 90 +GAS INJ 4	blue-yellow red	Connector VSI-injector cylinder 4 .

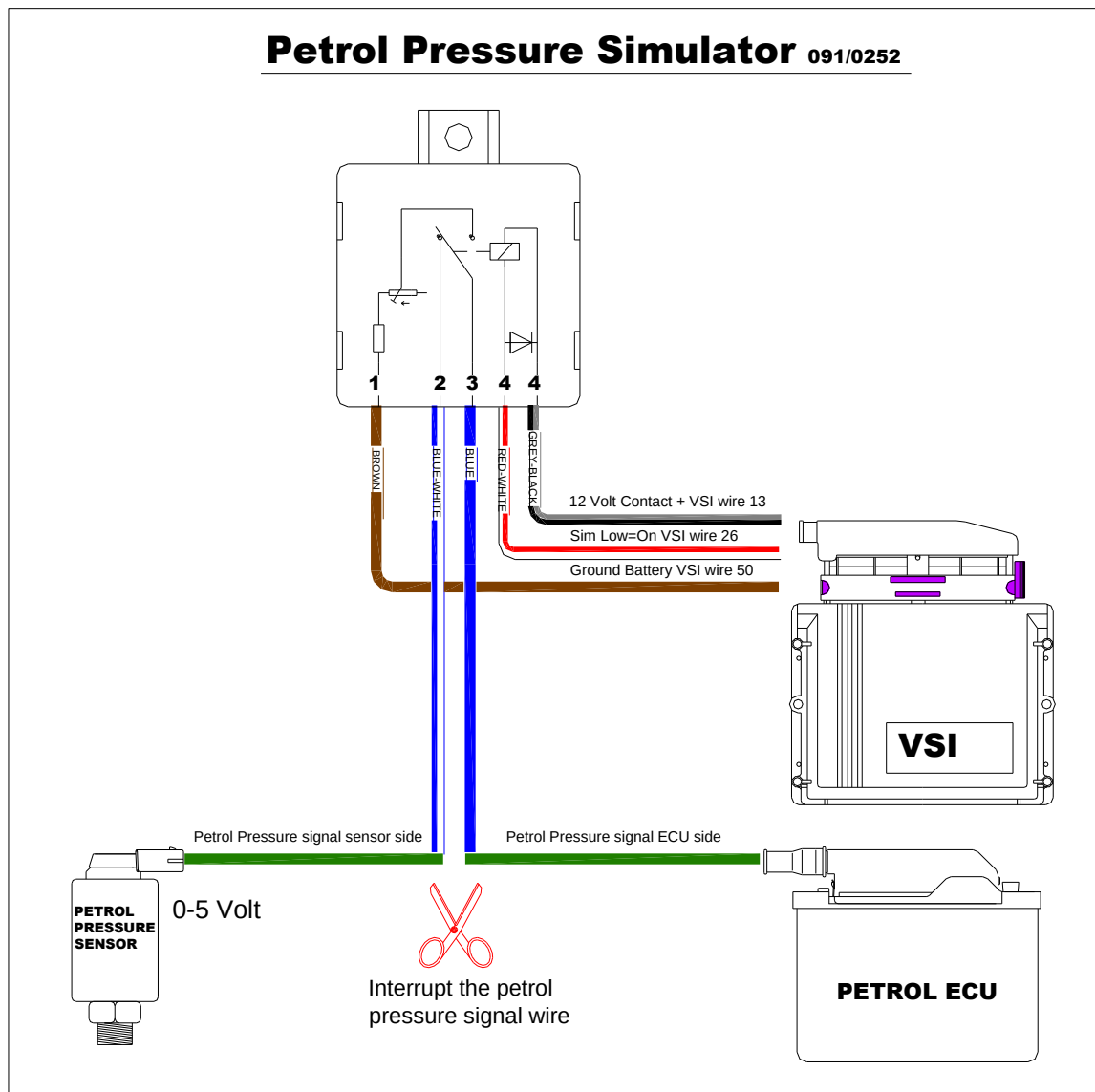
Copyright © [Prins Autogassystemen B.V.](#) 2013



- Connect the brown wire of the RPM module to the brown wire nr.50 of the VSI wiring loom.
- Connect the purple-white wire of the RPM module to the purple-white wire nr.40 of the VSI wiring loom.
- Connect the grey-white wire of the RPM module to the grey-white wire nr.13 of the VSI wiring loom.
- Connect the purple wire of the RPM module to the ignition coil driver wire.

Electrical connections Petrol Pressure Simulator 091/0252

Engines equipped with a return less fuel system. These engines can generate trouble codes and/or have difficulties with the fuel trims (mixture) on both petrol and lpg.



Brands: Mainly brands who are connected with Ford technologies like:

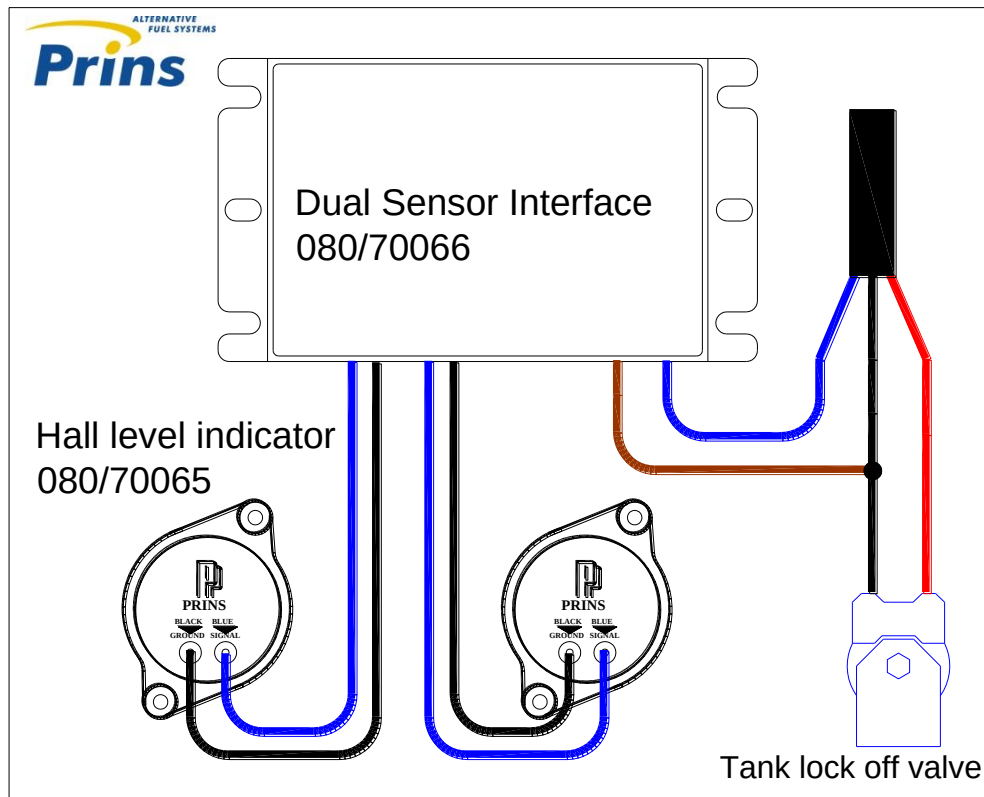
- * Ford models from 2003/2004
- * Jaguar models from 2003/2004
- * Some Volvo models from 2003

Connections and Set-up

Connect the PPS module according the shown schematic. Measure the voltage, on petrol, for the blue wire (pressure sensor signal wire) when the engine is idling. Or read the actual petrol pressure when you have the disposal of a scan tool which can read the actual petrol system pressure.

Next we have to setup the same Voltage (pressure) when running on LPG via de pot meter. The pot meter is accessible when you remove the small protection cover of the module.

Electrical connections Dual Sensor Interface (DSI)

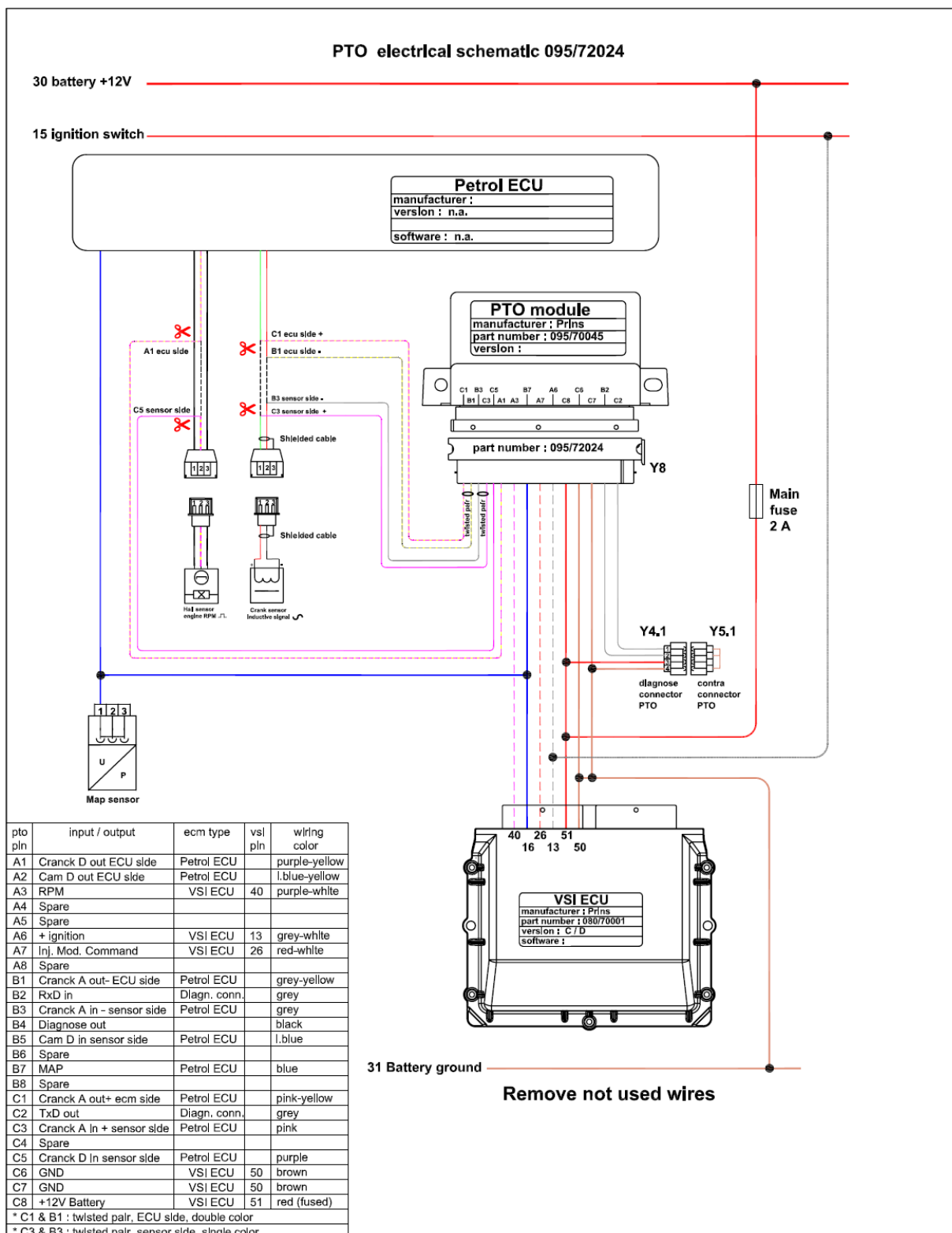


DSI connection:

Connect the interface wiring according to drawing, all blue and black wires are exchangeable since they are internally connected.

The DSI makes it possible to connect two level sensors to one lpg switch.
The DSI will always show the highest lpg level on the switch.

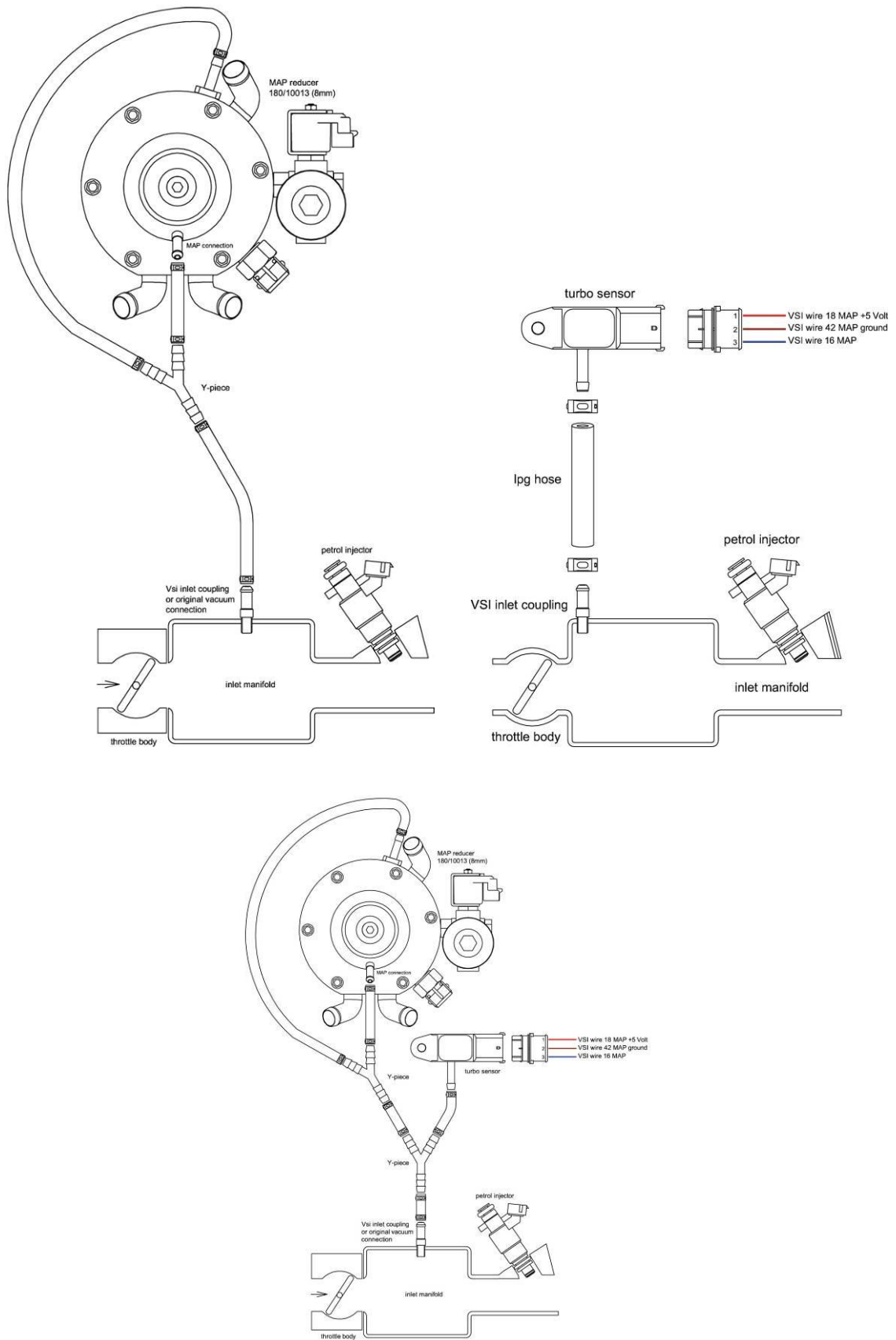
Electrical connections CNG Prins Timing Optimizer (PTO)



Connect the PTO module according to the shown diagram.
 Check if the latest software is downloaded in the PTO!

Diagram CNG PTO wiring

Prins Turbo / MAP sensor



The diagram illustrates the electrical and fuel systems of a Vauxhall Astra G 1.6i 16V engine. Key components and their part numbers are as follows:

- Engine RPM:** Part 11 129 1600000, Part 11 129 1600000.
- Ignition+:** Part 11 129 1600000, Part 11 129 1600000.
- Battery:** Part 11 129 1600000, Part 11 129 1600000.
- Petrol ECU:** Part 11 129 1600000, Part 11 129 1600000.
- Petrol Injectors:** Part 11 129 1600000, Part 11 129 1600000.
- Fuel System:** Part 11 129 1600000, Part 11 129 1600000.
- Tank Lock-off Valve:** Part 11 129 1600000, Part 11 129 1600000.
- Lambda Sensor:** Part 11 129 1600000, Part 11 129 1600000.
- VSI Computer:** Part 11 129 1600000, Part 11 129 1600000.

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VSI base diagram 4 cylinder LPG (080/72040)

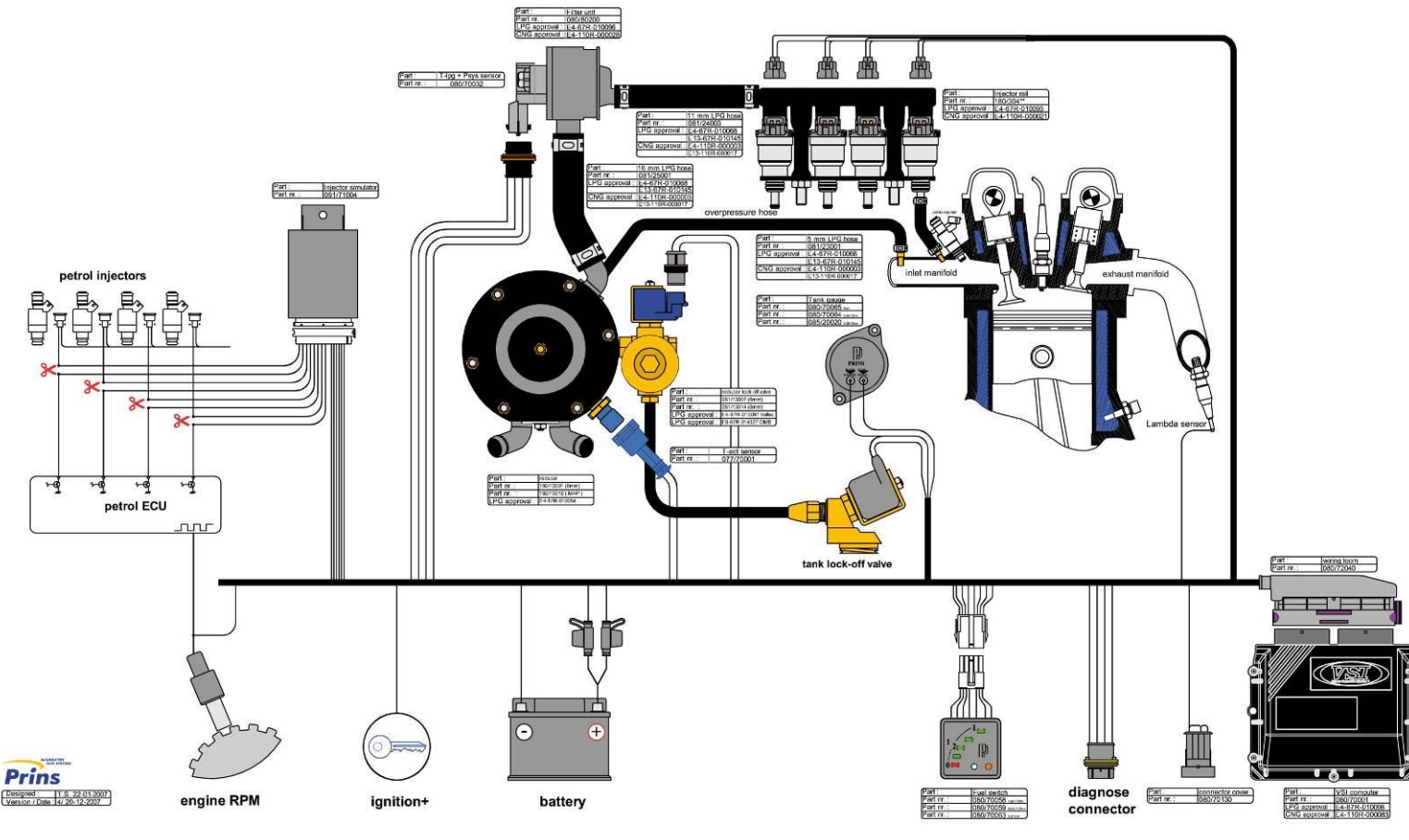


Diagram 6 LPG Base layout VSI 4 cylinder solder

VSI base diagram 5 cylinder LPG (080/72055)

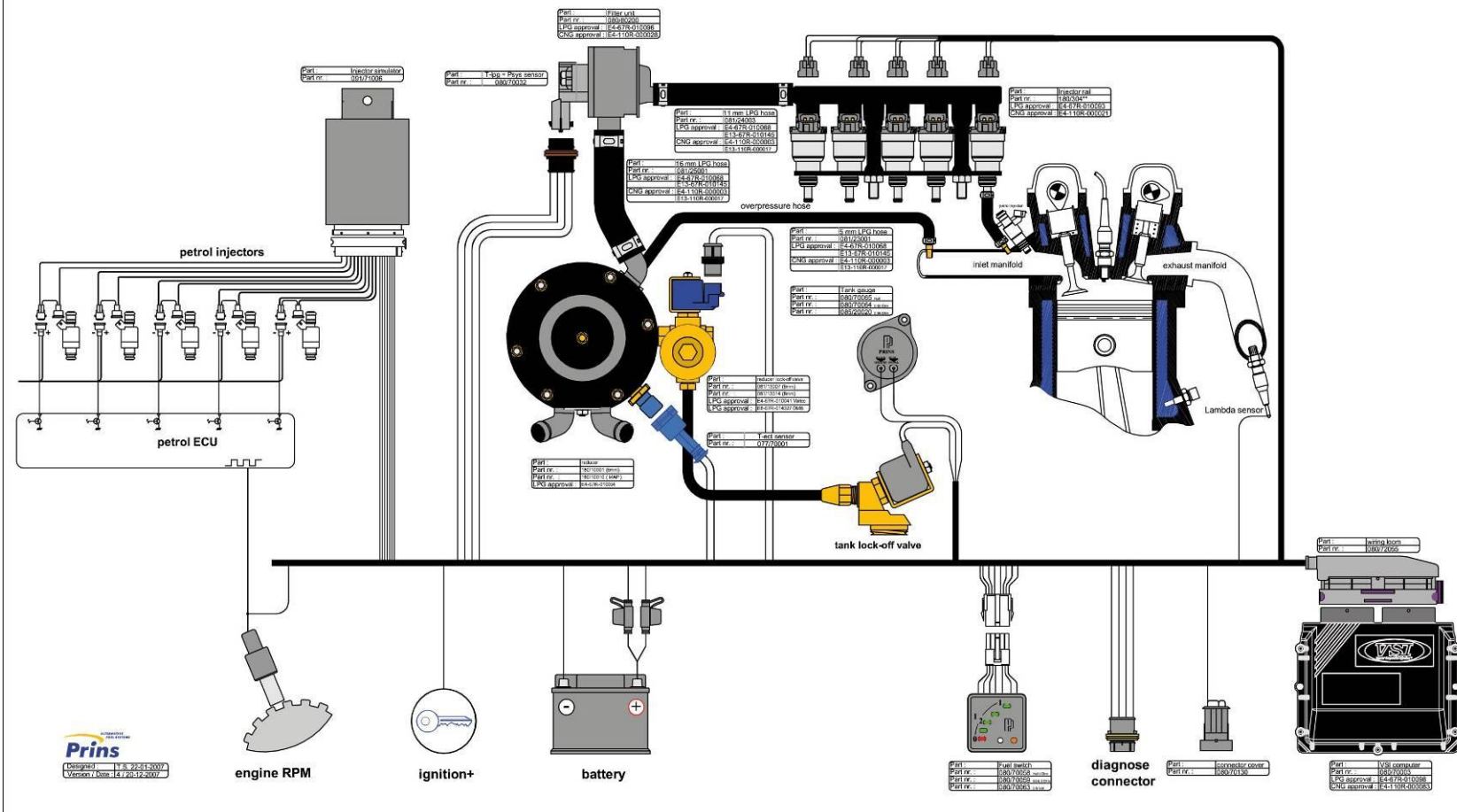


Diagram 7 LPG Base layout VSI 5 cylinder

[illegible]

Diagram 8 LPG Base layout VSI 6 cylinder connector

VSI base diagram 6 cylinder LPG (080/72050)

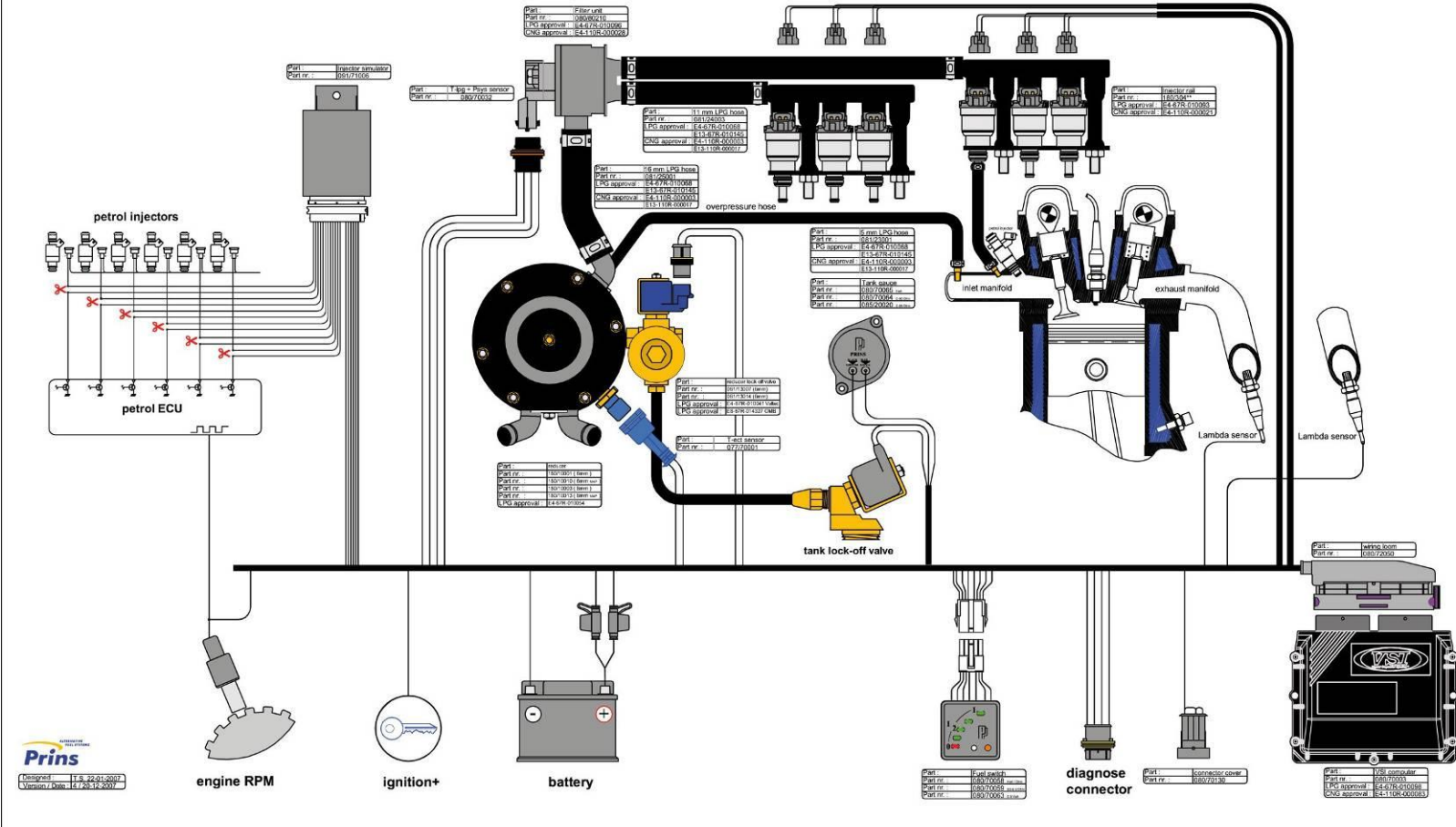
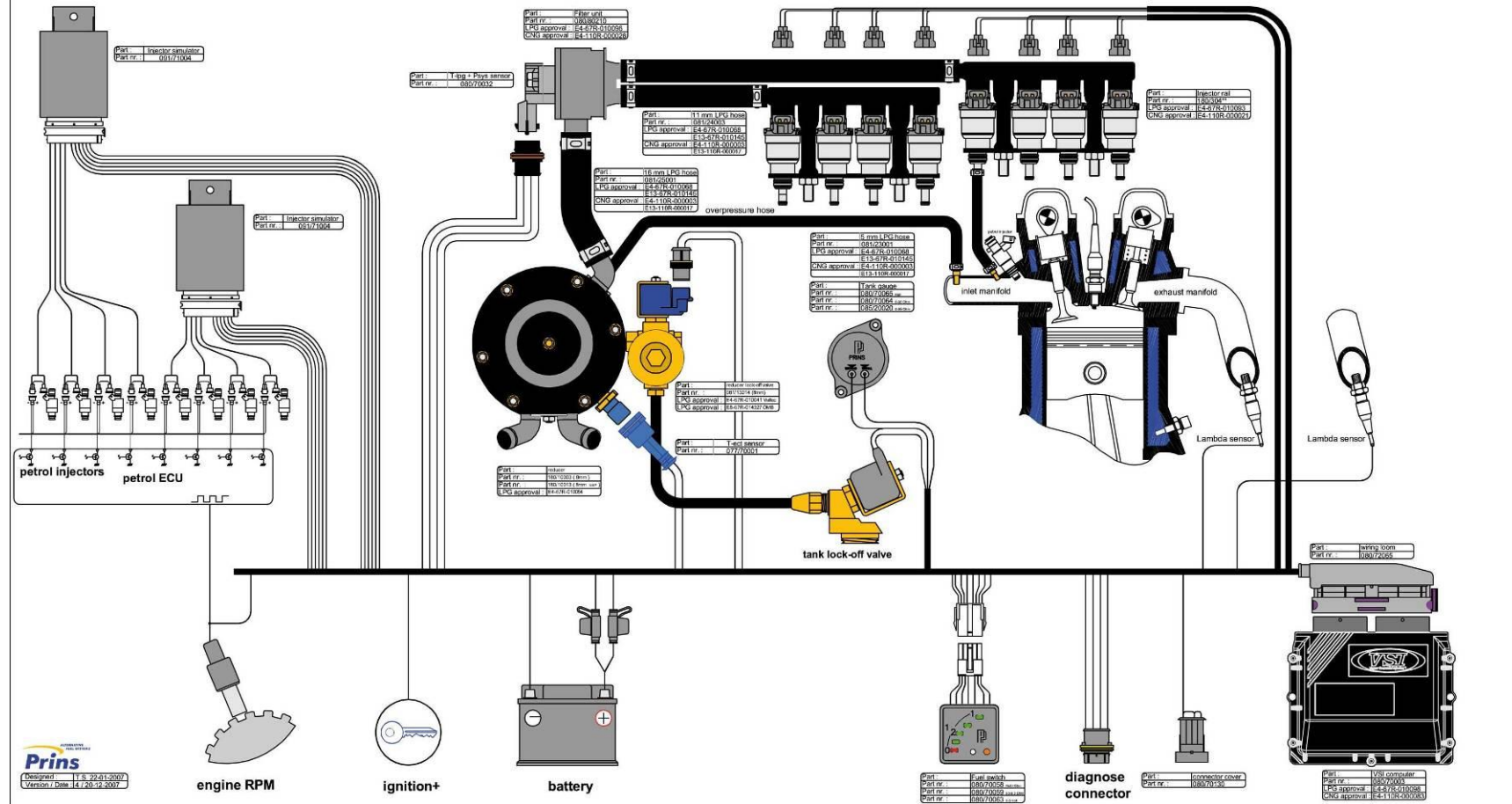


Diagram 9 LPG Base layout VSI 6 cylinder solder

VSI base diagram 8 cylinder LPG (080/72065)



VSI base diagram 8 cylinder LPG (080/72060)

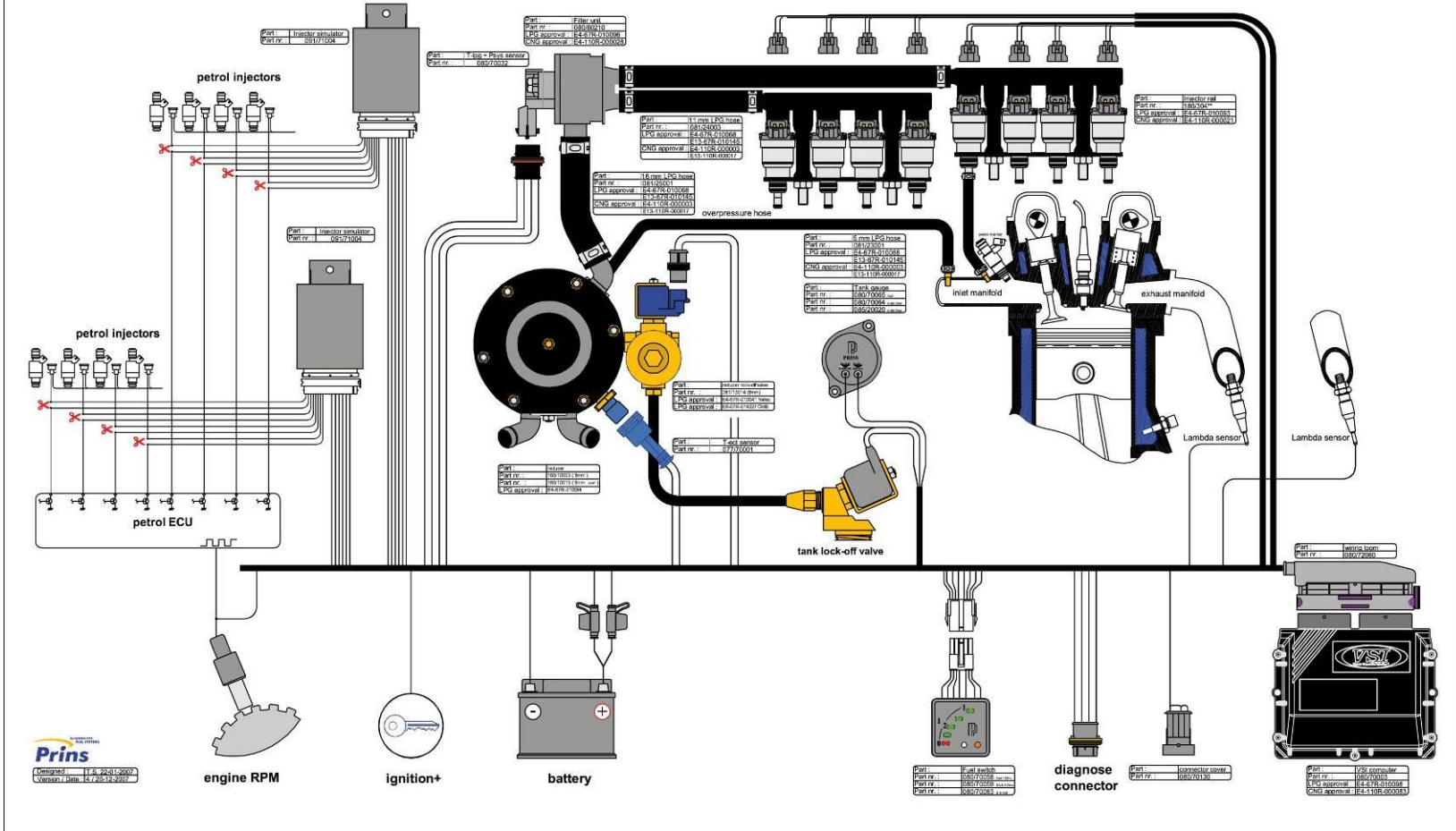


Diagram 11 LPG Base layout VSI 8 cylinder solder

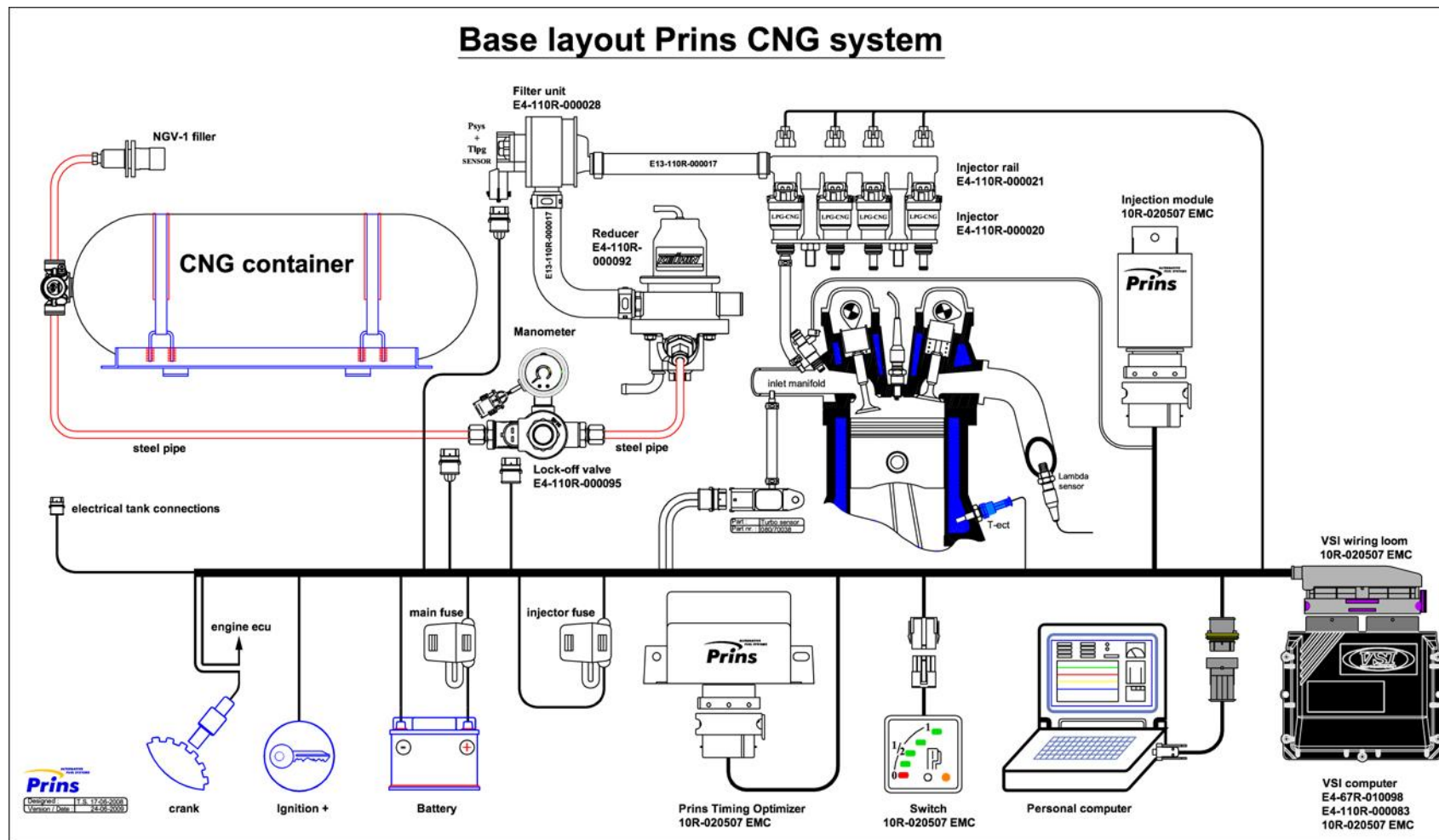


Diagram 12 CNG Base layout

VSI II base diagram 4 cylinder LPG

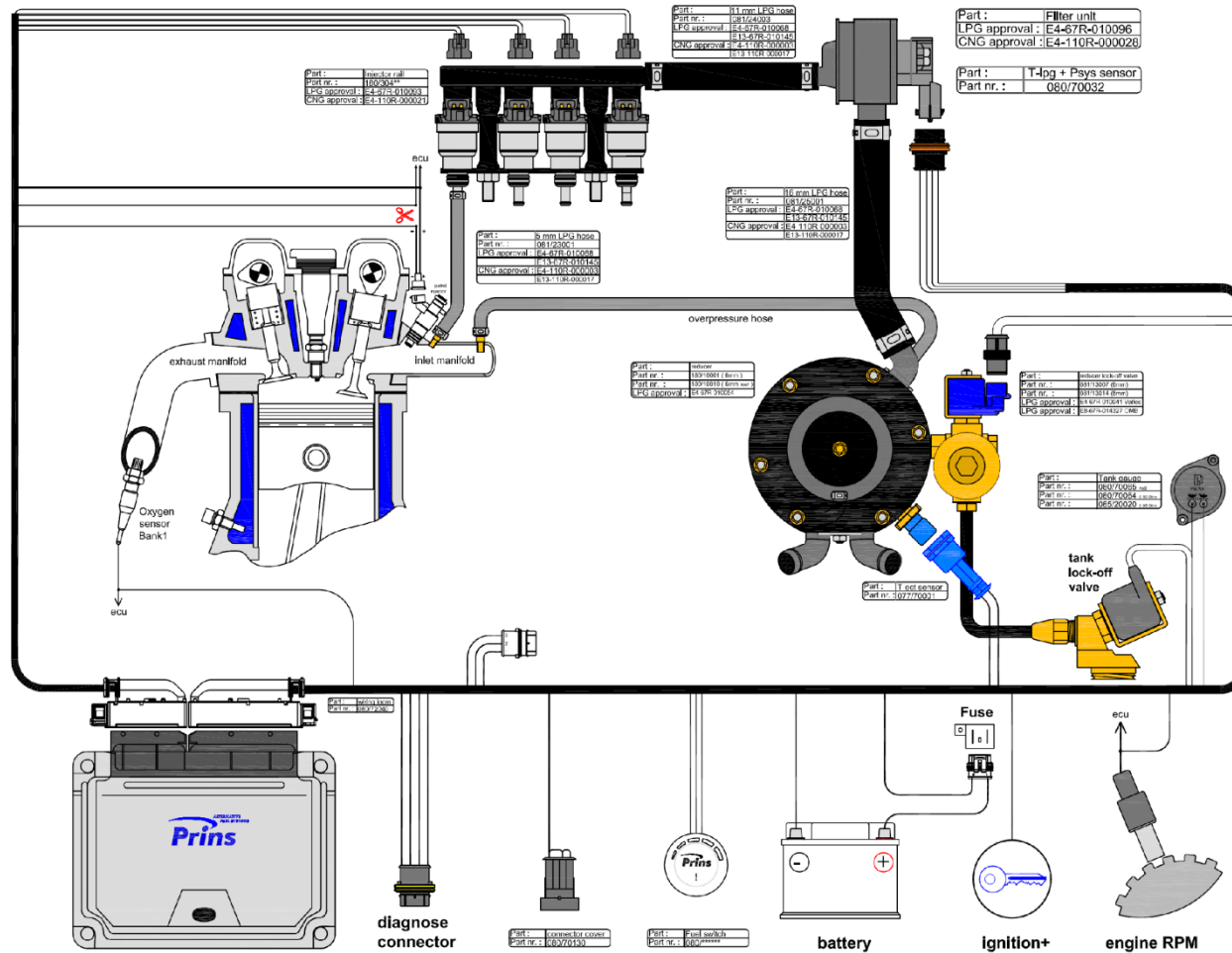


Diagram 13 VSI-2.0 LPG Base layout

VSI II base diagram 4 cylinder MAP LPG

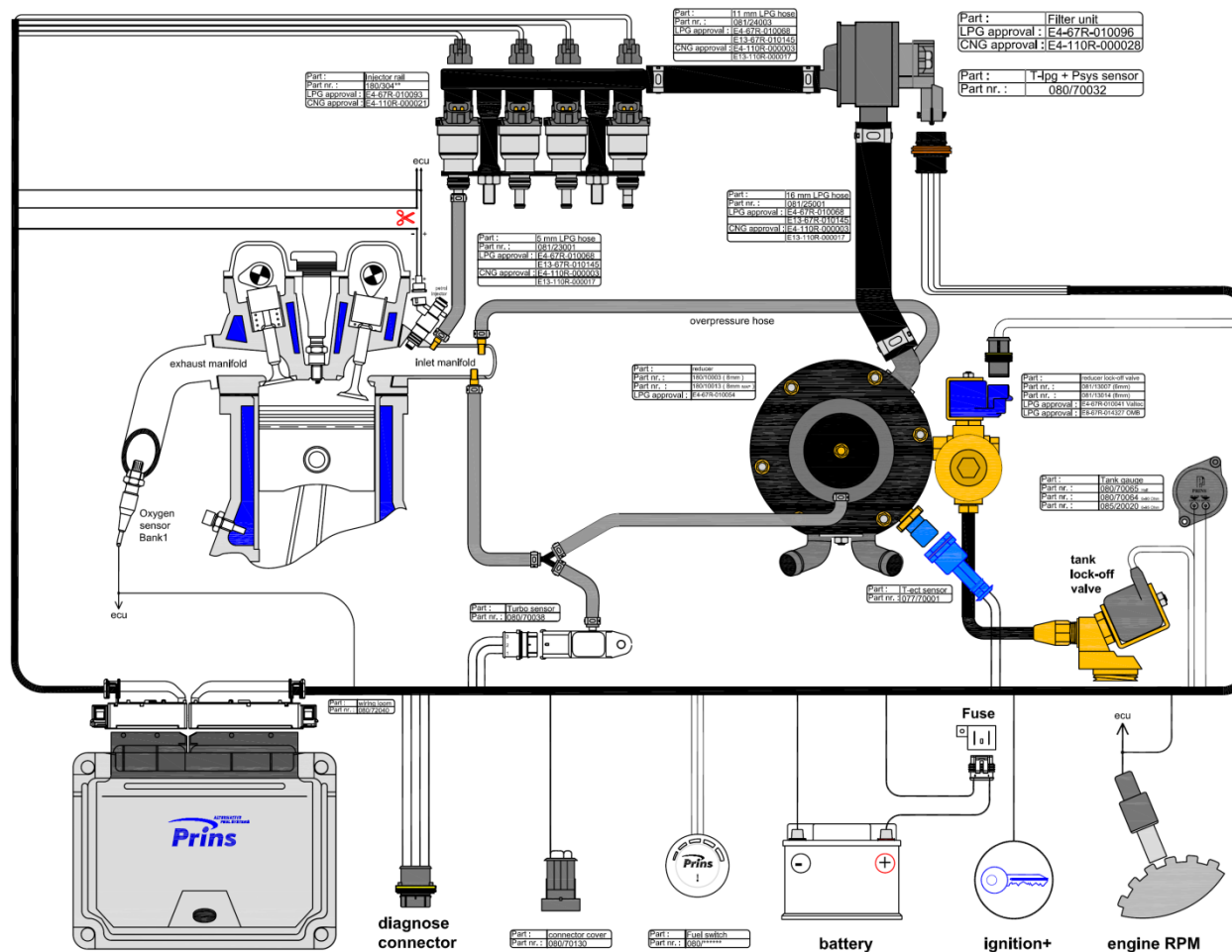
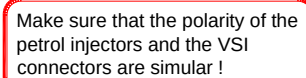


Diagram 14 VSI-2.0 MAP LPG Base layout



46

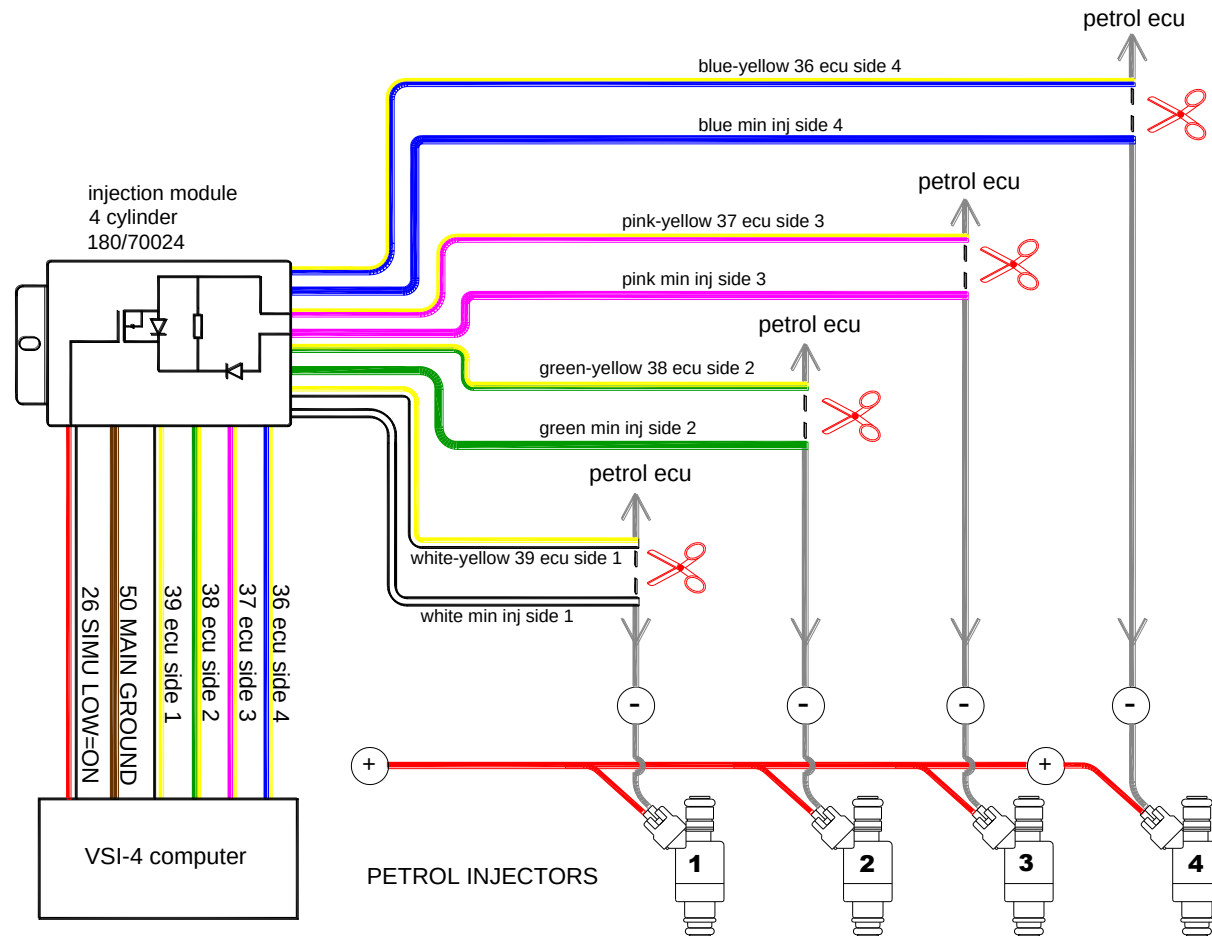


Diagram 14 Injection module 4-cylinder (180/ 70024 solder)

6-CYLINDER CONNECTOR INJECTION MODULE VSI 1 REV.B

06-06-2005

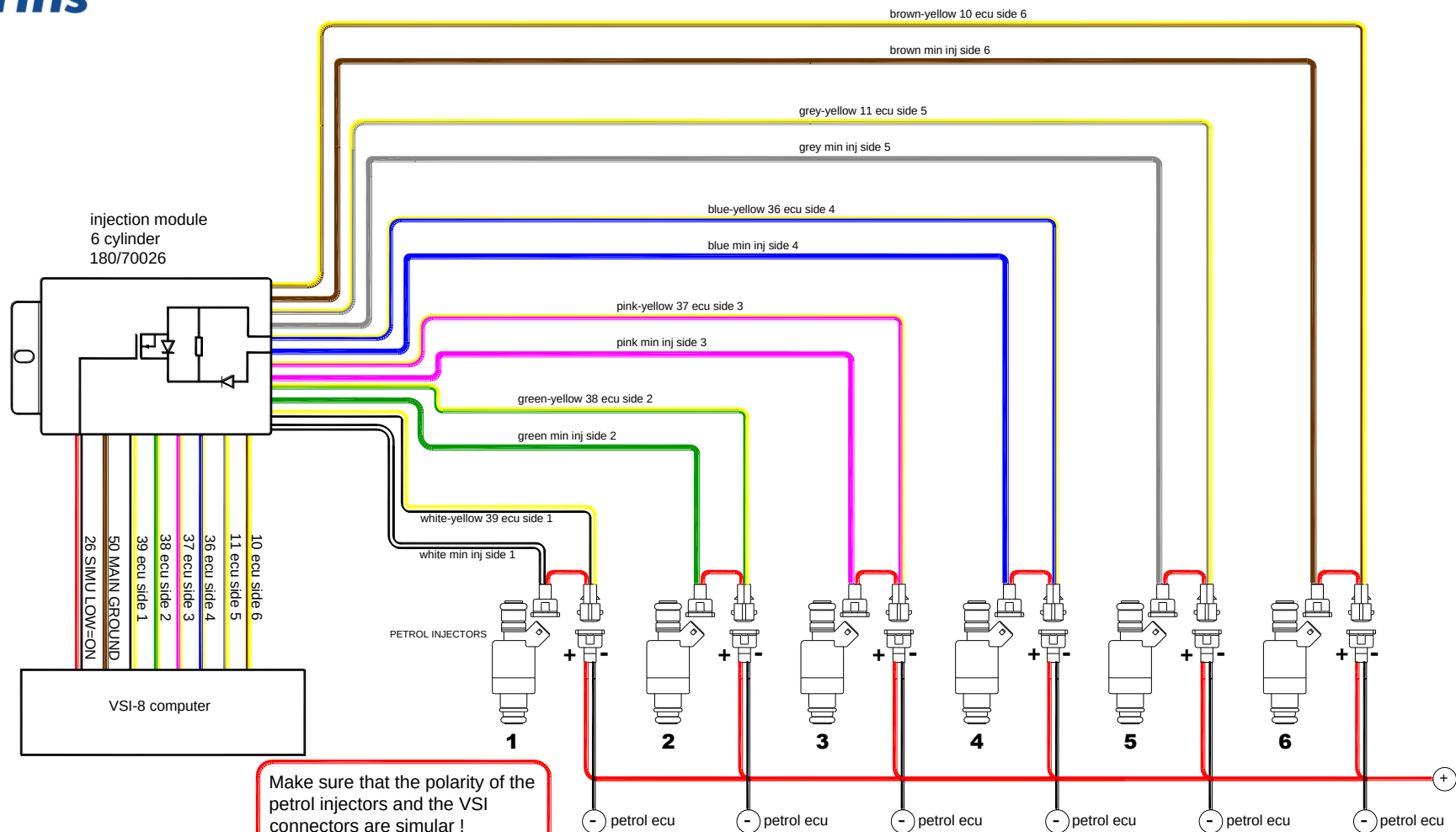


Diagram 15 Injection module 6-cylinder (180/70026 connector)

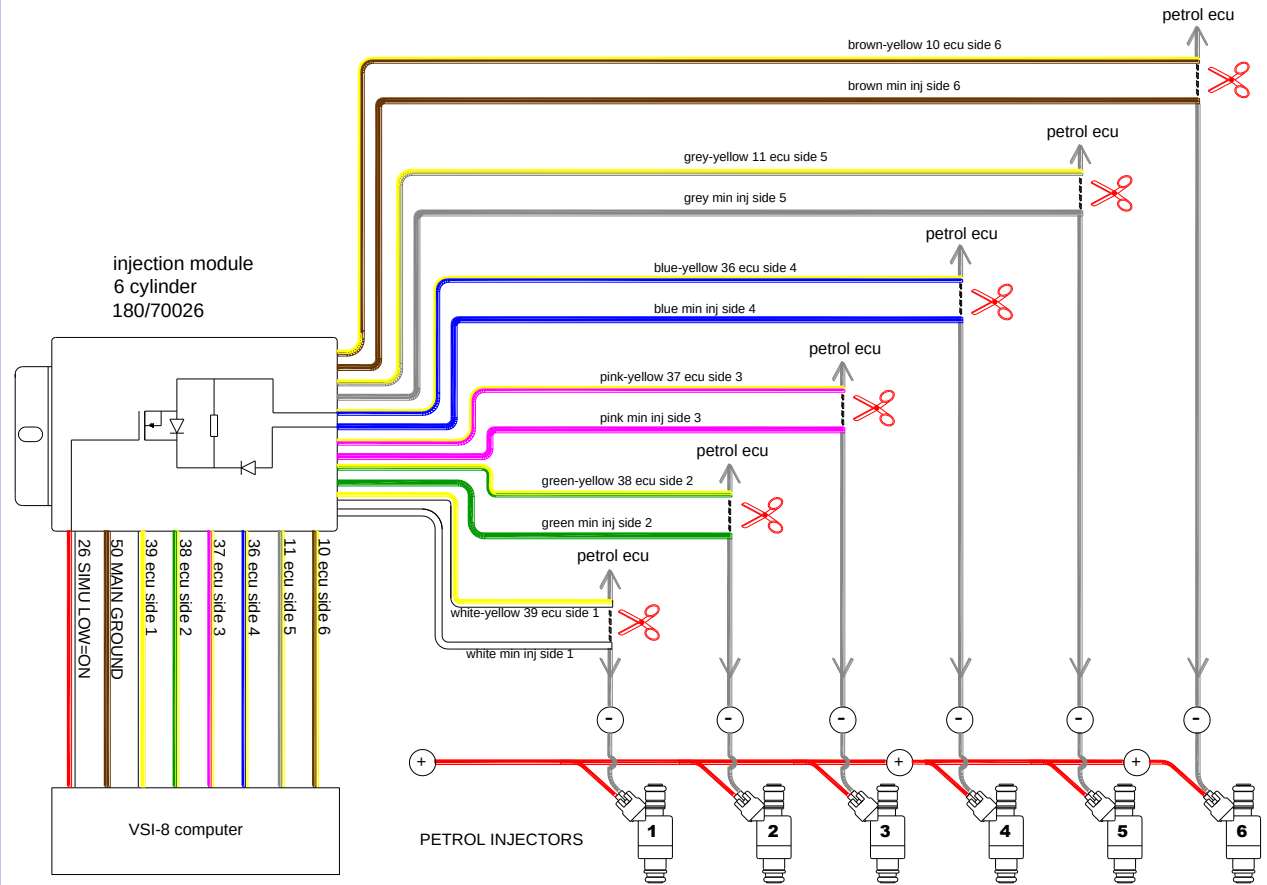


Diagram 16 Injection module 6-cylinder (180/70026 solder)

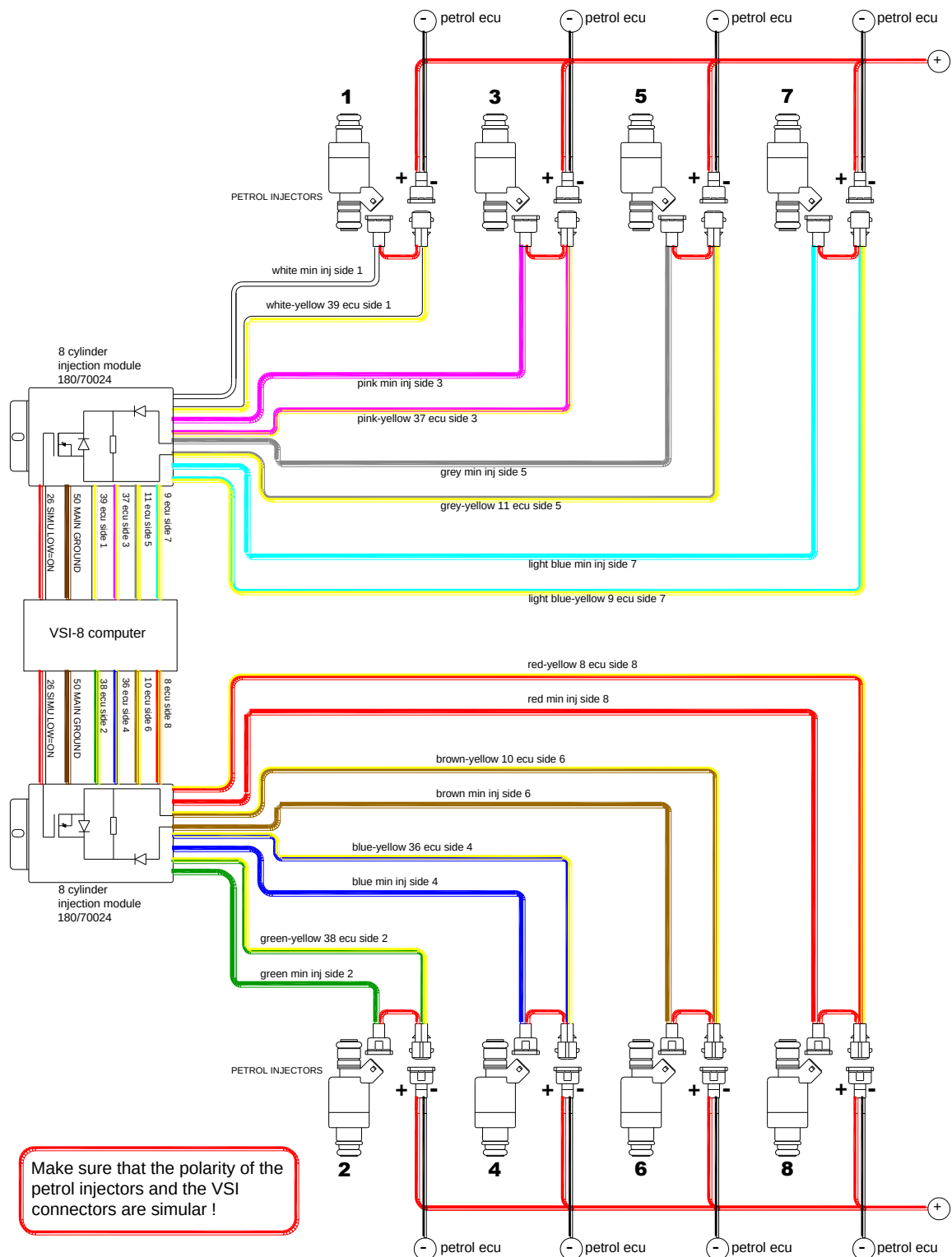


Diagram 17 Injection module 8-cylinder (180/ 70024 connector)

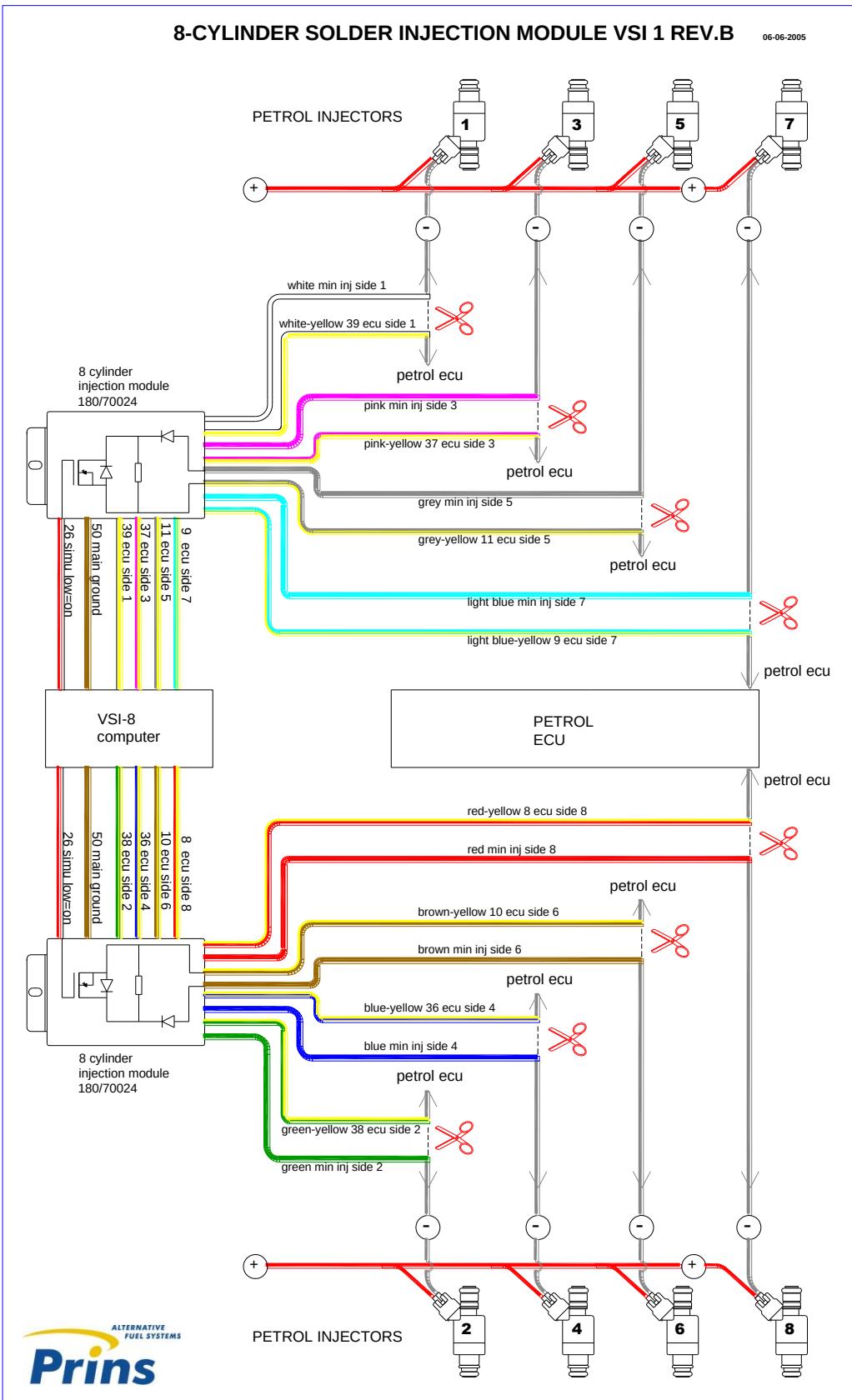


Diagram 18 Injection module 8-cylinder (180/70024 solder)

4 & 8 CYLINDER REPAIR INJECTION MODULE VSI 1 REV.B 180/30024 06-06-2005

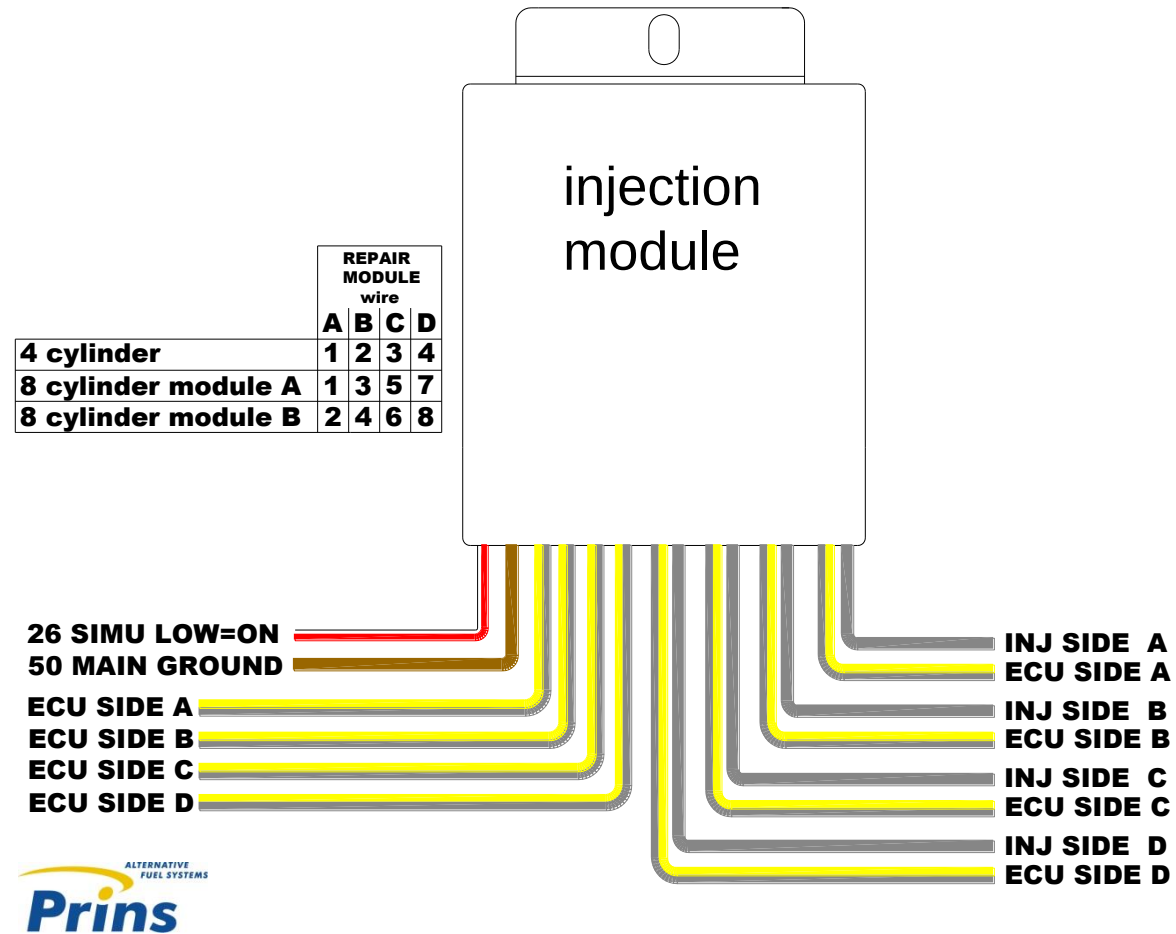
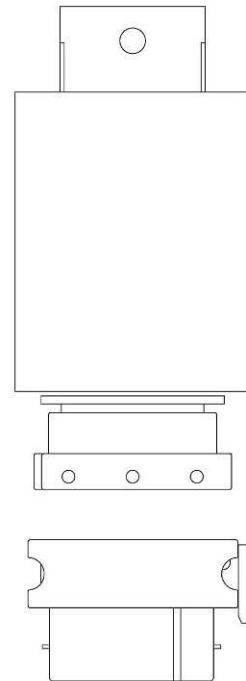
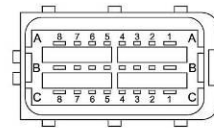


Diagram 19 Repair module 180/30024 (4-8 cylinder)



Sigma
24-pole pin header
black



Sigma
24-pole female housing
black

Injection module 4 cylinder			
pin	connected to	wire color	print on wire
A1			
A2	vsi ecu	white-yellow	39 ecu side 1
A3	vsi ecu	green-yellow	38 ecu side 2
A4	vsi ecu	pink-yellow	37 ecu side 3
A5	vsi ecu	blue-yellow	36 ecu side 4
A6			
A7			
A8			
B1	vsi ecu	grey-white	13 ignition plus
B2	petrol ecu	white-yellow	39 ecu side 1
B3	petrol ecu	green-yellow	38 ecu side 2
B4	petrol ecu	pink-yellow	37 ecu side 3
B5	petrol ecu	blue-yellow	36 ecu side 4
B6			
B7			
B8	vsi ecu	red-white	26 inj. mod. command
C1			
C2	petrol injector	white	min inj side 1
C3	petrol injector	green	min inj side 2
C4	petrol injector	pink	min inj side 3
C5	petrol injector	blue	min inj side 4
C6			
C7			
C8	vsi ecm	brown	54 inj. mod. ground

Material:		Unit: mm				
Hardness:		Tol: ISO 2768-1:m				
Designed	T.S.	18-04-2007	Part.No: 091/71004			
Approved	W.E.	18-04-2007	Part Name: Injection Module with connector 4 cylinder			
Checked	W.E.	18-04-2007				
Drawn	T.S.	18-04-2007	Scale:	Rev:	Sheet: 1/1	Size: A4
		Name	Date			

Diagram 20 connector injection module 091/71004

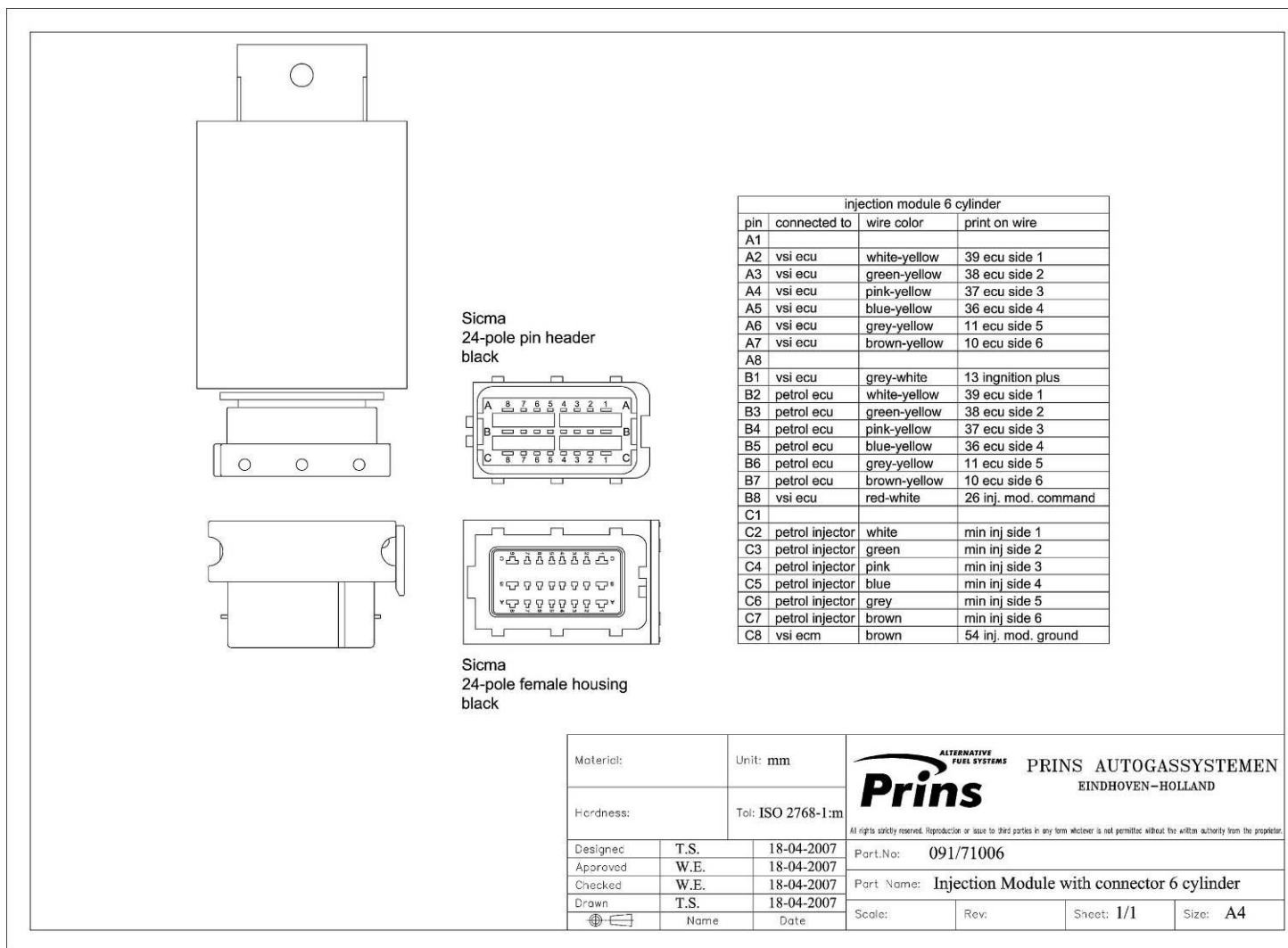


Diagram 21 injection module 091/71006

REPLACING THE INJECTION MODULE VSI 1 REV.B BY OLD TYPE 06-06-2005

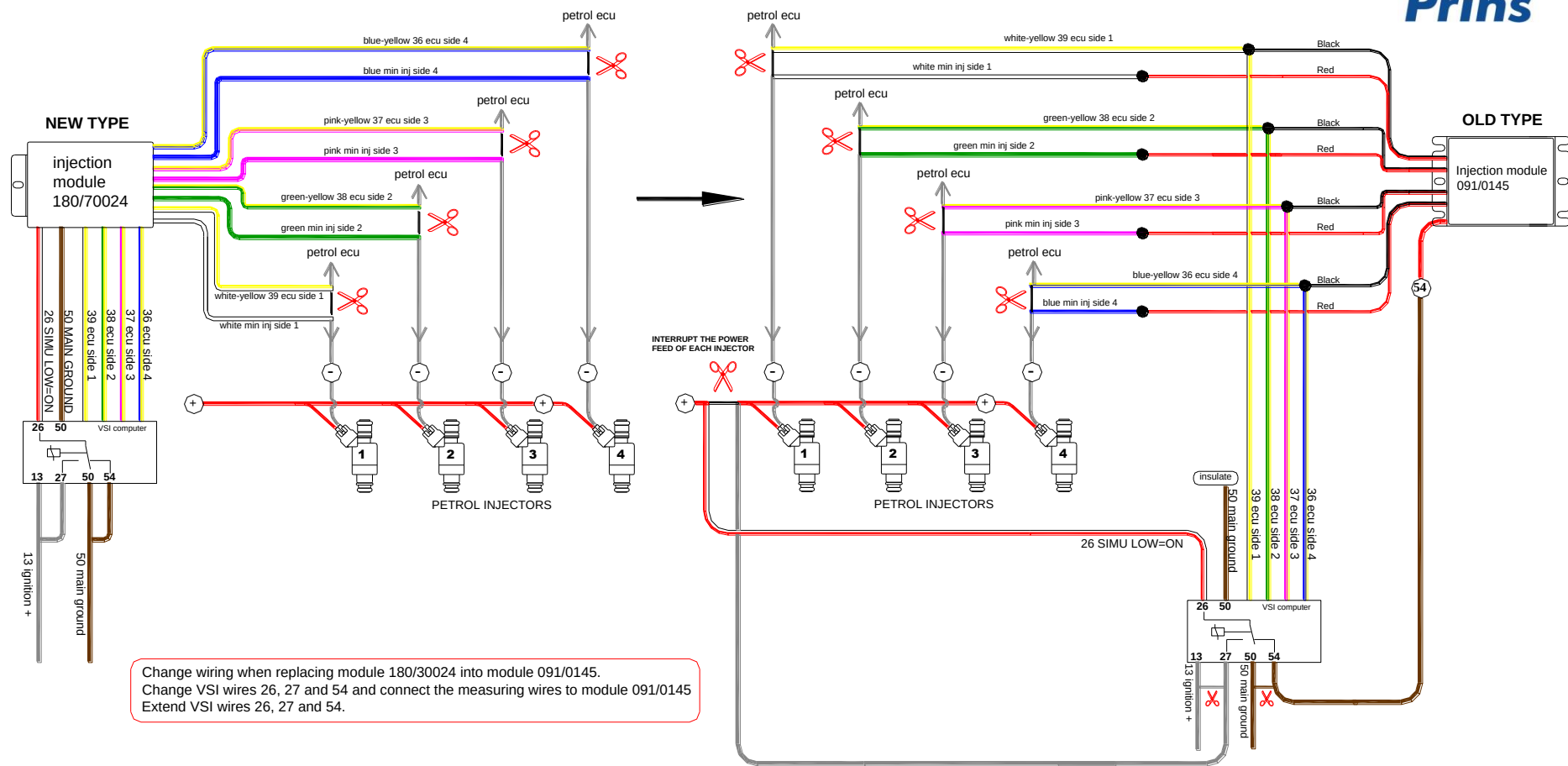


Diagram 22 Replacing the injection module 180/70024 → 091/0145

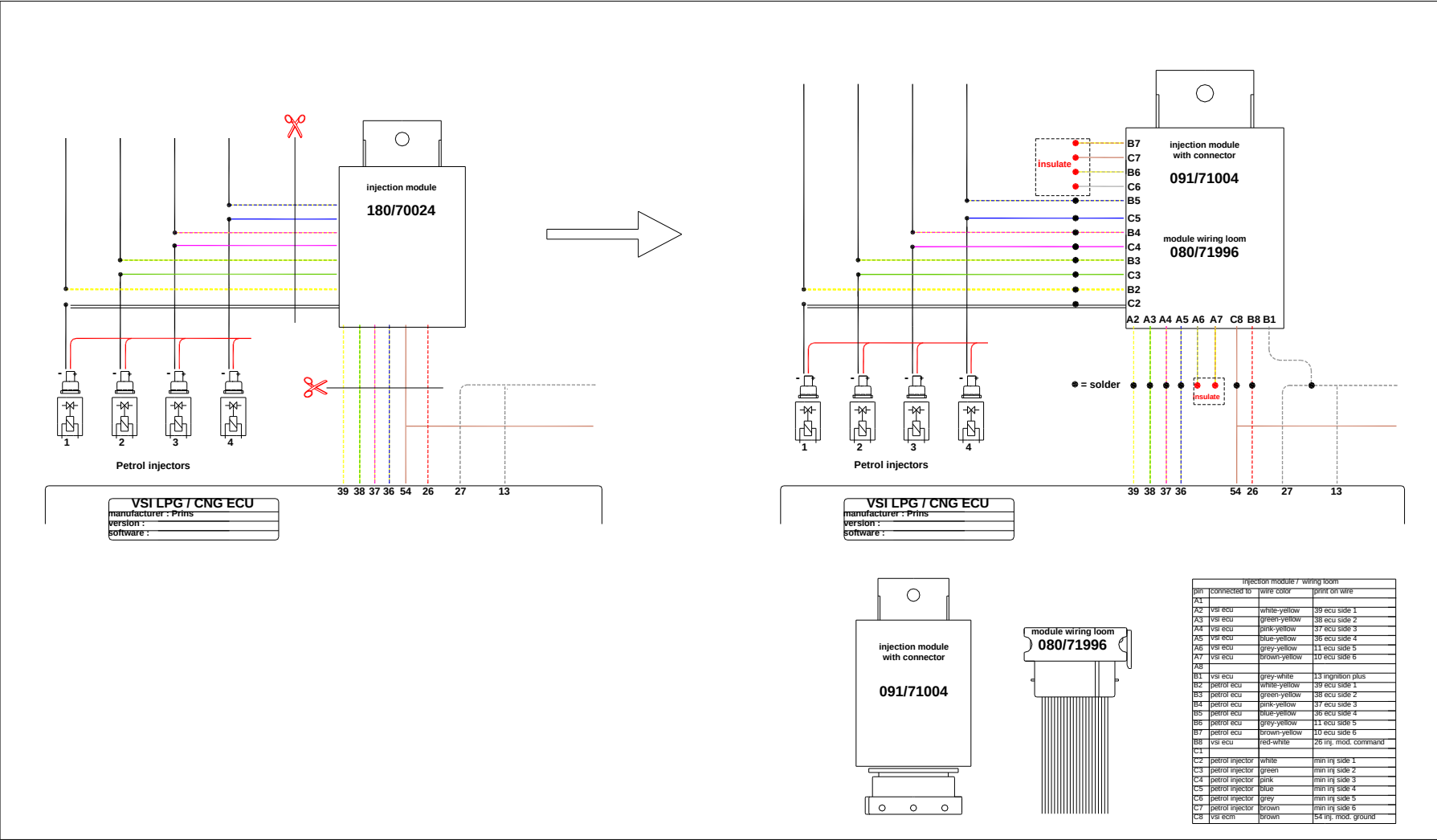


Diagram 23 Replacing the injection module 180/70024 → 091/71004 (4 cylinder)

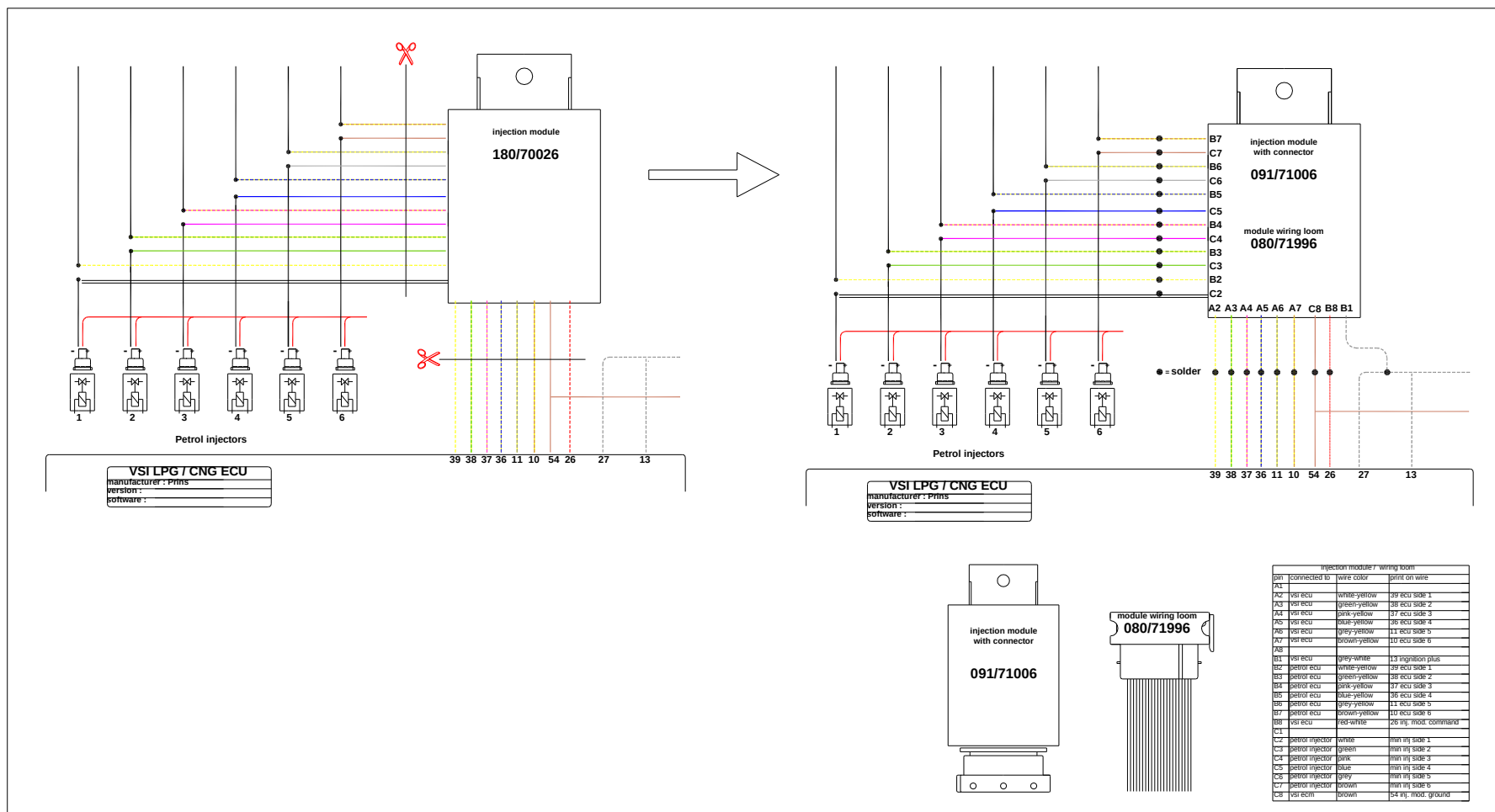
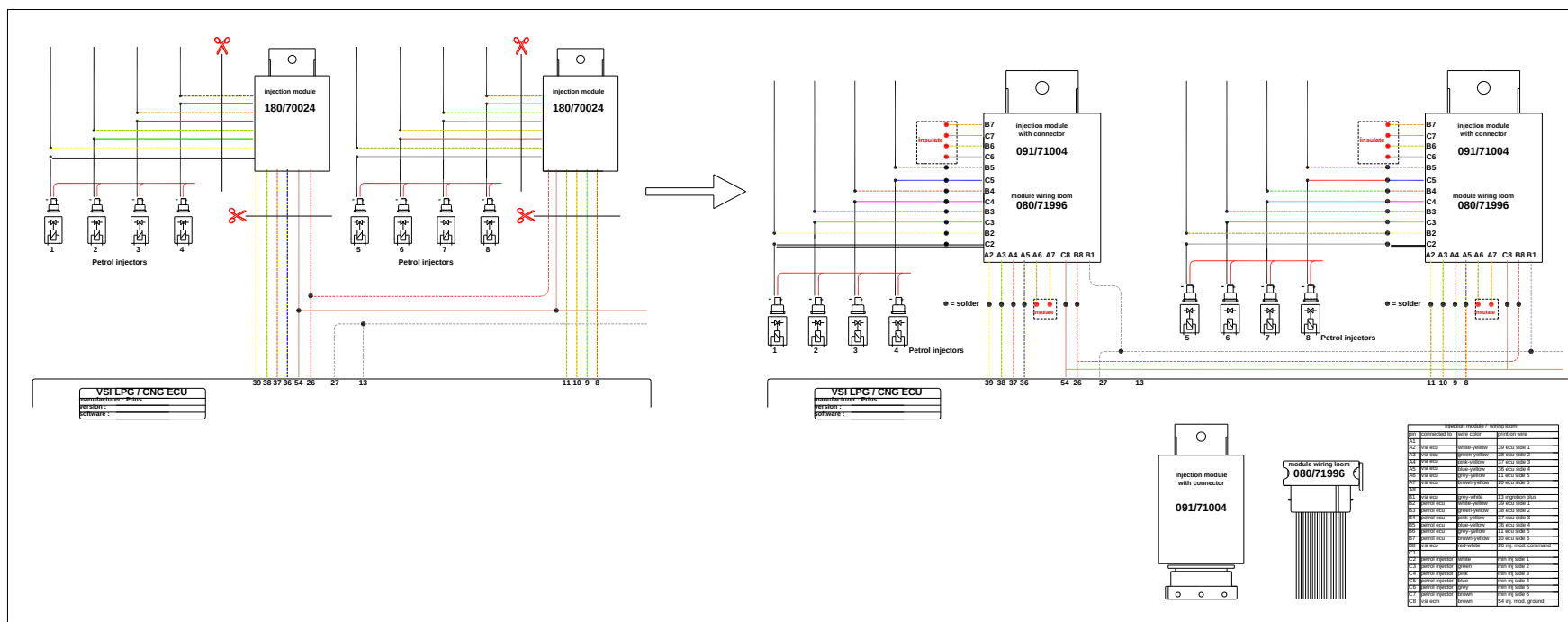


Diagram 24 Replacing the injection module 180/70026 → 091/71006 (6 cylinder)



180/70014 VSI Wiring diagram 4 cylinder LPG (with connectors)

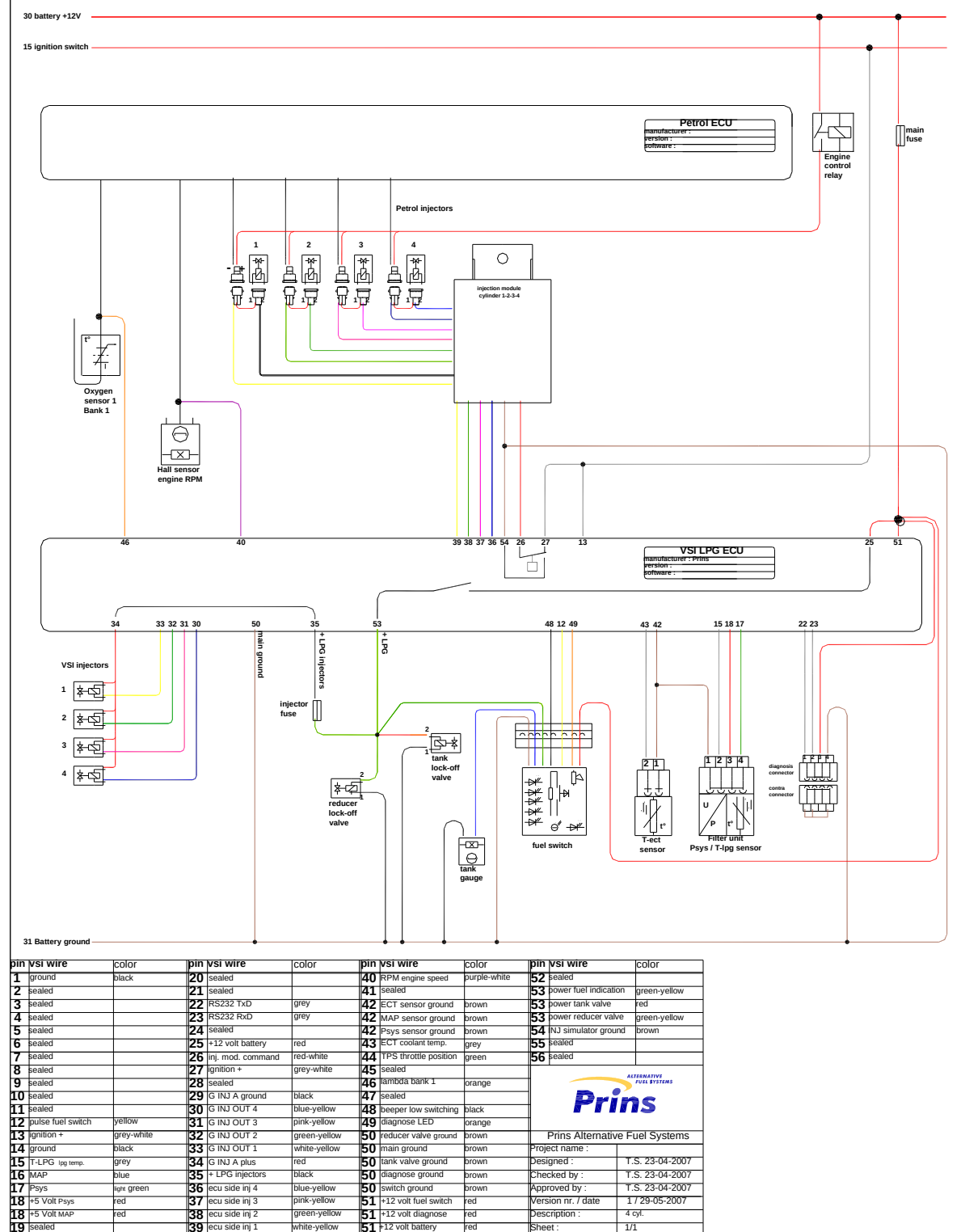


Diagram 26 LPG wiring 180/70014

180/70004 VSI wiring diagram 4 cylinder LPG (without connectors)

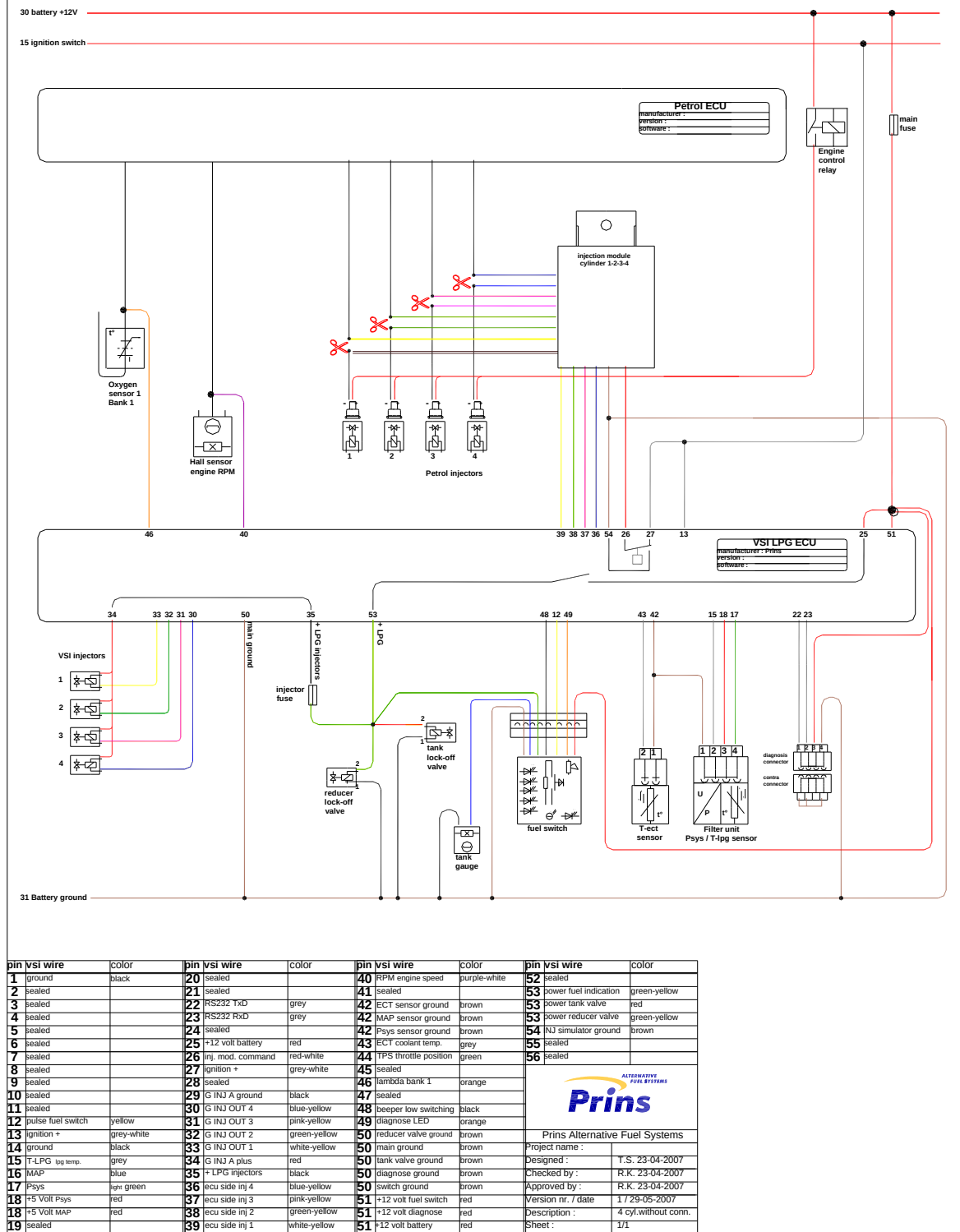


Diagram 27 LPG wiring 180/70004

180/70016 VSI wiring diagram 6 cylinder LPG (with connectors)

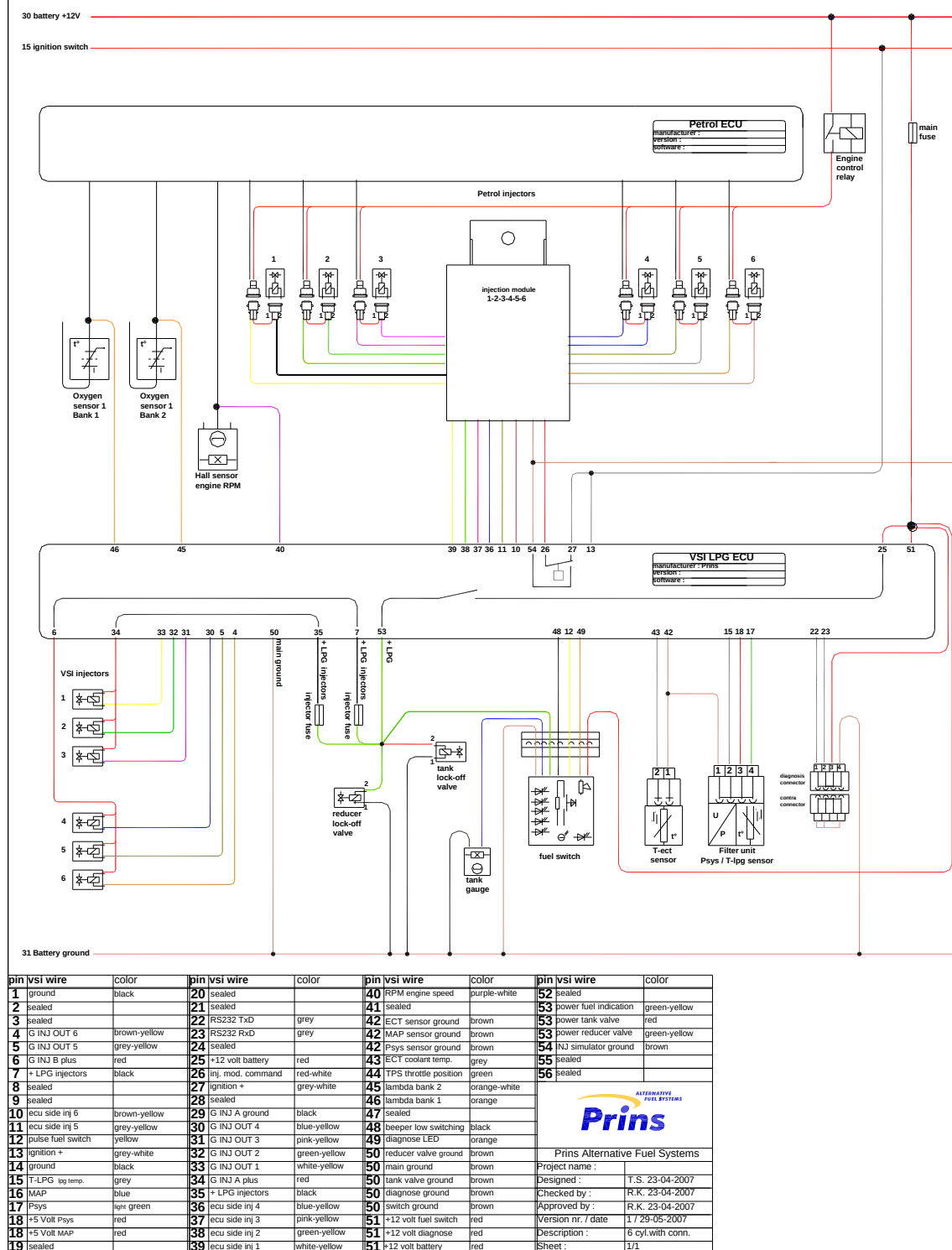


Diagram 28 LPG wiring 180/70016

180/70006 VSI wiring diagram 6 cylinder LPG (without connectors)

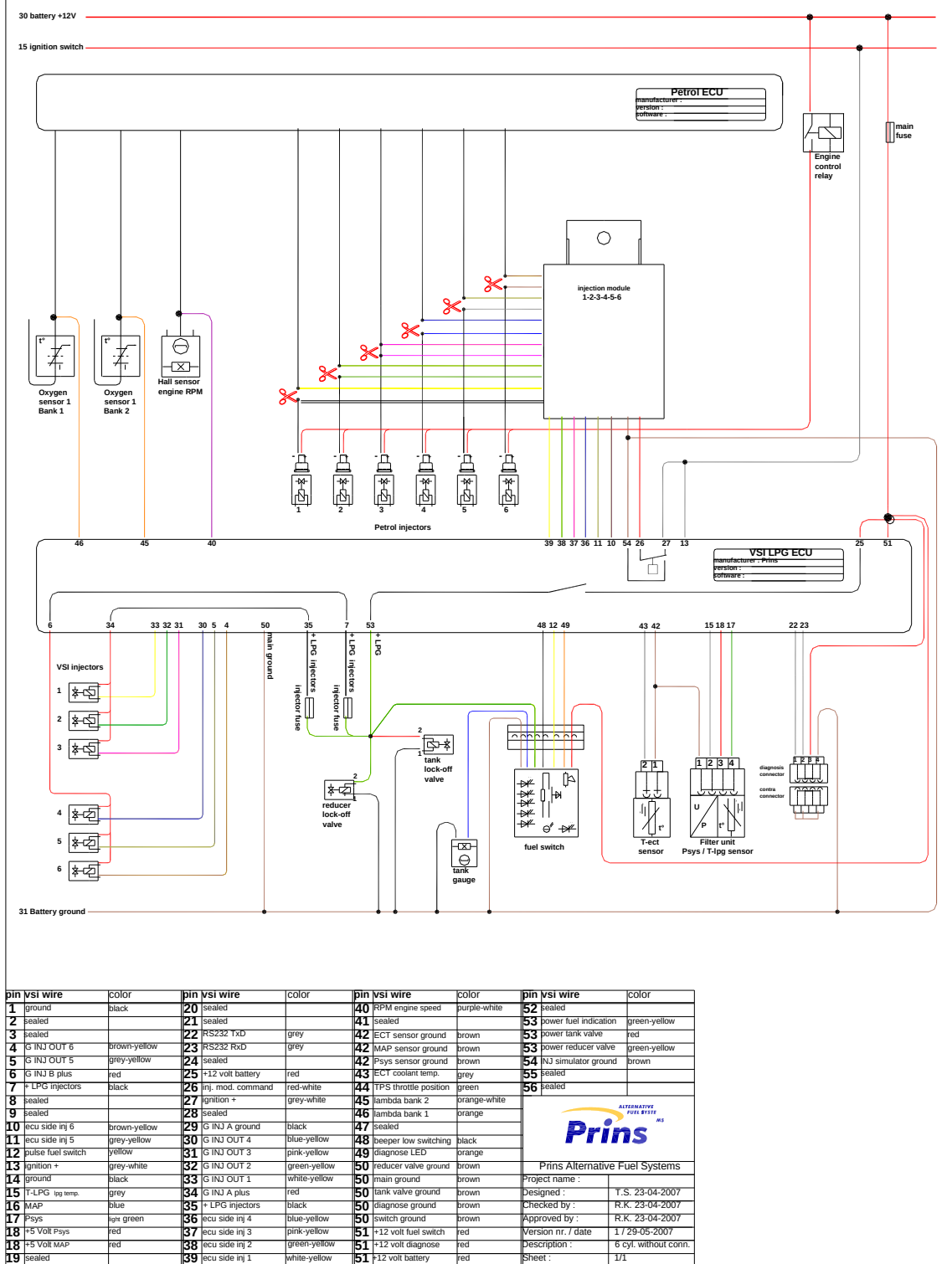
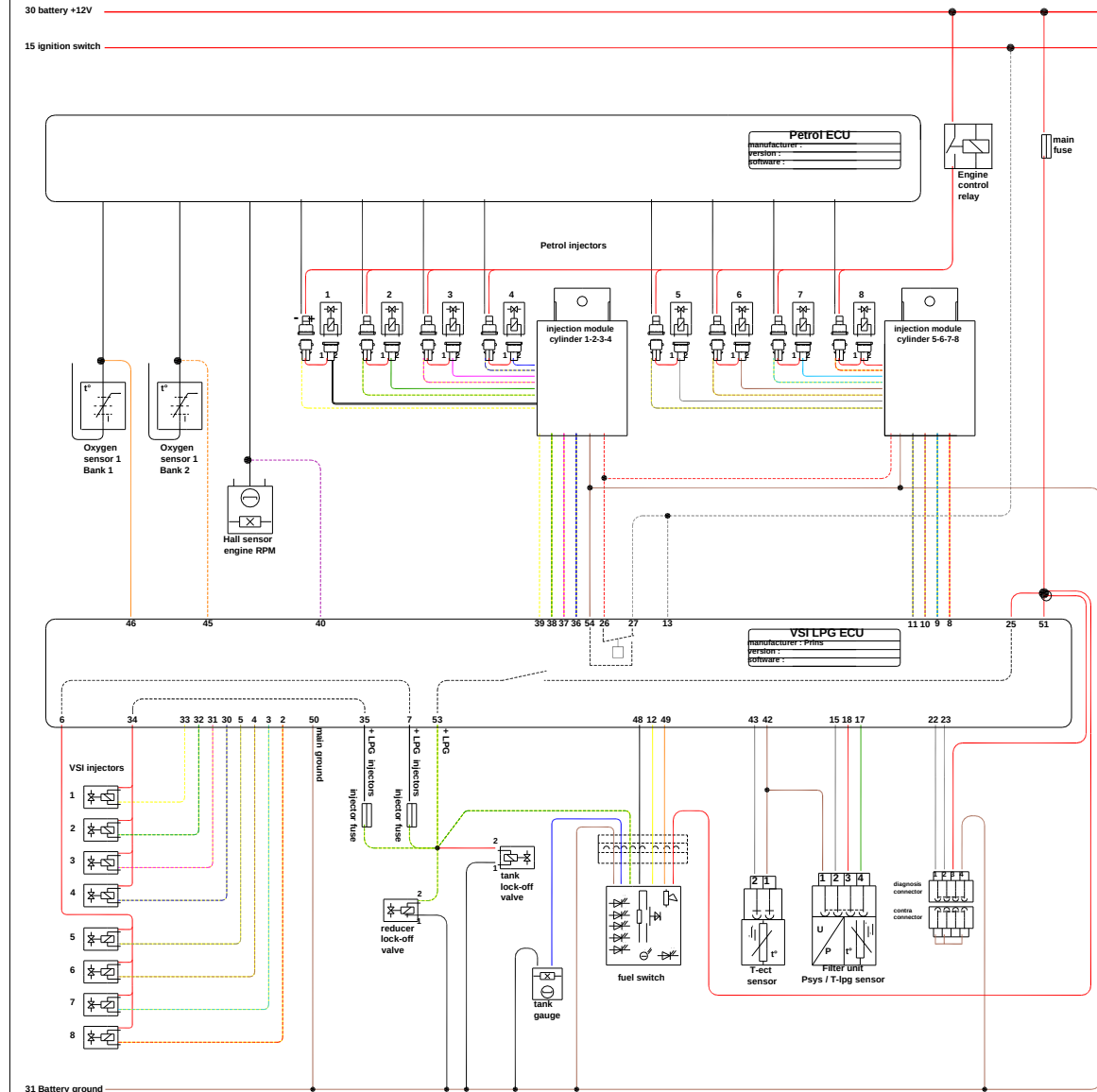


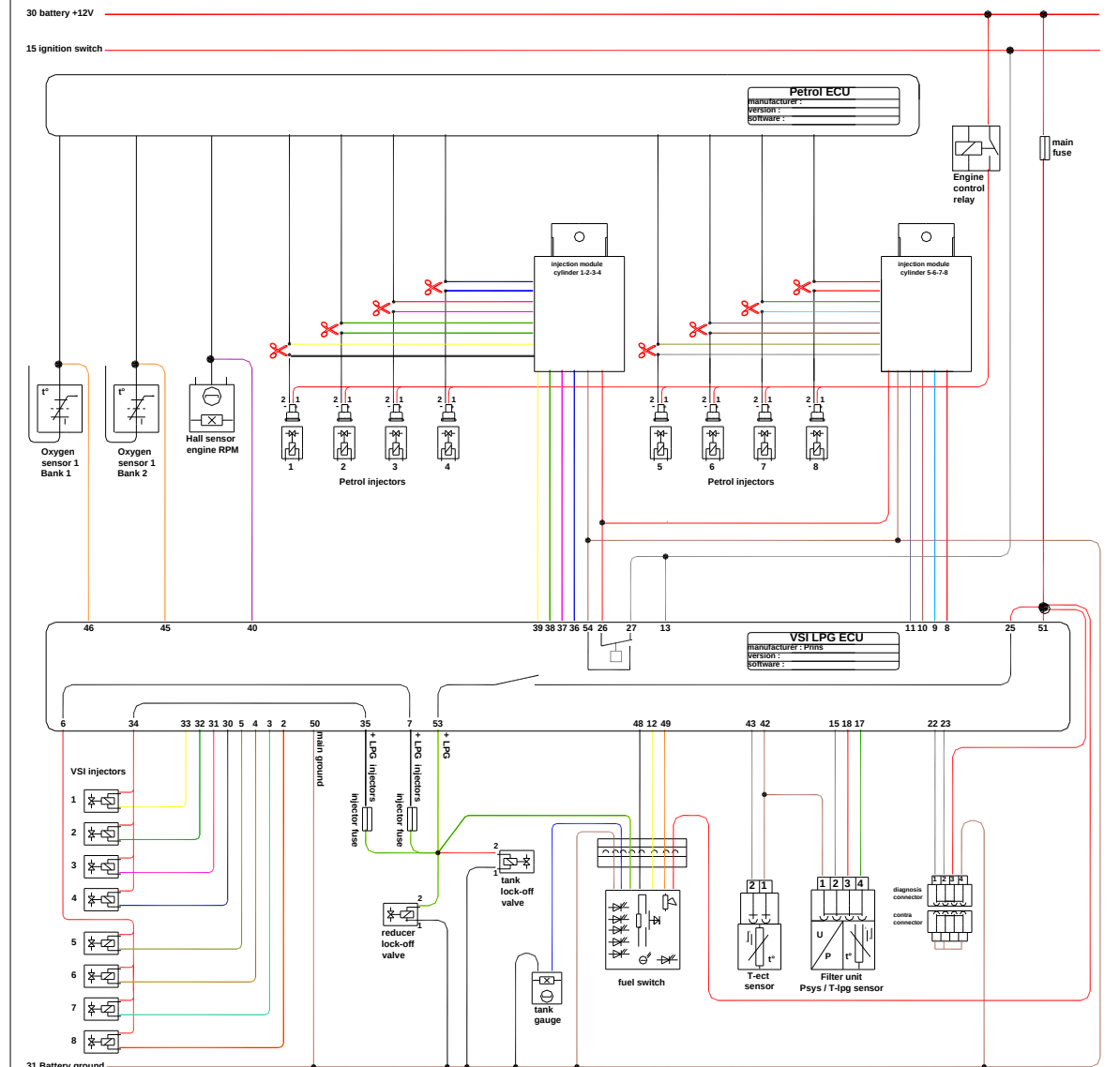
Diagram 29 LPG wiring 180/70006

180/70018 VSI wiring diagram 8 cylinder LPG (with connectors)



pin	vst wire	color	pin	vst wire	color	pin	vst wire	color	pin	vst wire	color
1	ground	black	20	sealed		40	RPM engine speed	purple-white	52	sealed	
2	INJ OUT 8	red-yellow	21	sealed		41	sealed		53	power fuel indication	green-yellow
3	INJ OUT 7	light blue-yellow	22	RS232 Tx/D	grey	42	ECT sensor ground	brown	54	power tank valve	red
4	INJ OUT 6	brown-yellow	23	RS232 Rx/D	grey	43	MAP sensor ground	brown	55	power reducer valve	green-yellow
5	INJ OUT 5	grey-yellow	24	sealed		44	TPS sensor ground	brown	56	INJ simulator ground	brown
6	INJ B plus	red	25	+12 volt battery	red	45	ECT coolant temp.	grey	57	sealed	
7	+ LPG injectors	black	26	inj. mod. command	red-white	46	TPS throttle position	green	58	sealed	
8	ecu side inj 8	red-yellow	27	ignition +	grey-white	47	lambda bank 2	orange-white	59	sealed	
9	ecu side inj 7	light blue-yellow	28	sealed		48	lambda bank 1	orange	60	sealed	
10	ecu side inj 6	brown-yellow	29	INJ A ground	black	49	sealed		61	sealed	
11	ecu side inj 5	grey-yellow	30	INJ OUT 4	blue-yellow	50	beeper low switching	black	62	sealed	
12	pulse fuel switch	yellow	31	INJ OUT 3	pink-yellow	51	diagnose LED	orange	63	sealed	
13	ignition +	grey-white	32	INJ OUT 2	green-yellow	52	diagnose	orange	64	sealed	
14	ground	black	33	INJ OUT 1	white-yellow	53	reducer valve ground	brown	65	sealed	
15	T-LPG temp.	grey	34	INJ A plus	red	54	main ground	brown	66	sealed	
16	MAP	blue	35	+ LPG injectors	black	55	tank valve ground	brown	67	sealed	
17	Psys	light green	36	ecu side inj 4	blue-yellow	56	diagnose ground	brown	68	sealed	
18	+5 Volt Psys	red	37	ecu side inj 3	pink-yellow	57	switch ground	brown	69	sealed	
19	+5 Volt MAP	red	38	ecu side inj 2	green-yellow	58	+12 volt fuel switch	red	70	sealed	
20	sealed		39	ecu side inj 1	white-yellow	59	+12 volt diagnose	red	71	sealed	
						60	+12 volt battery	red	72	sealed	

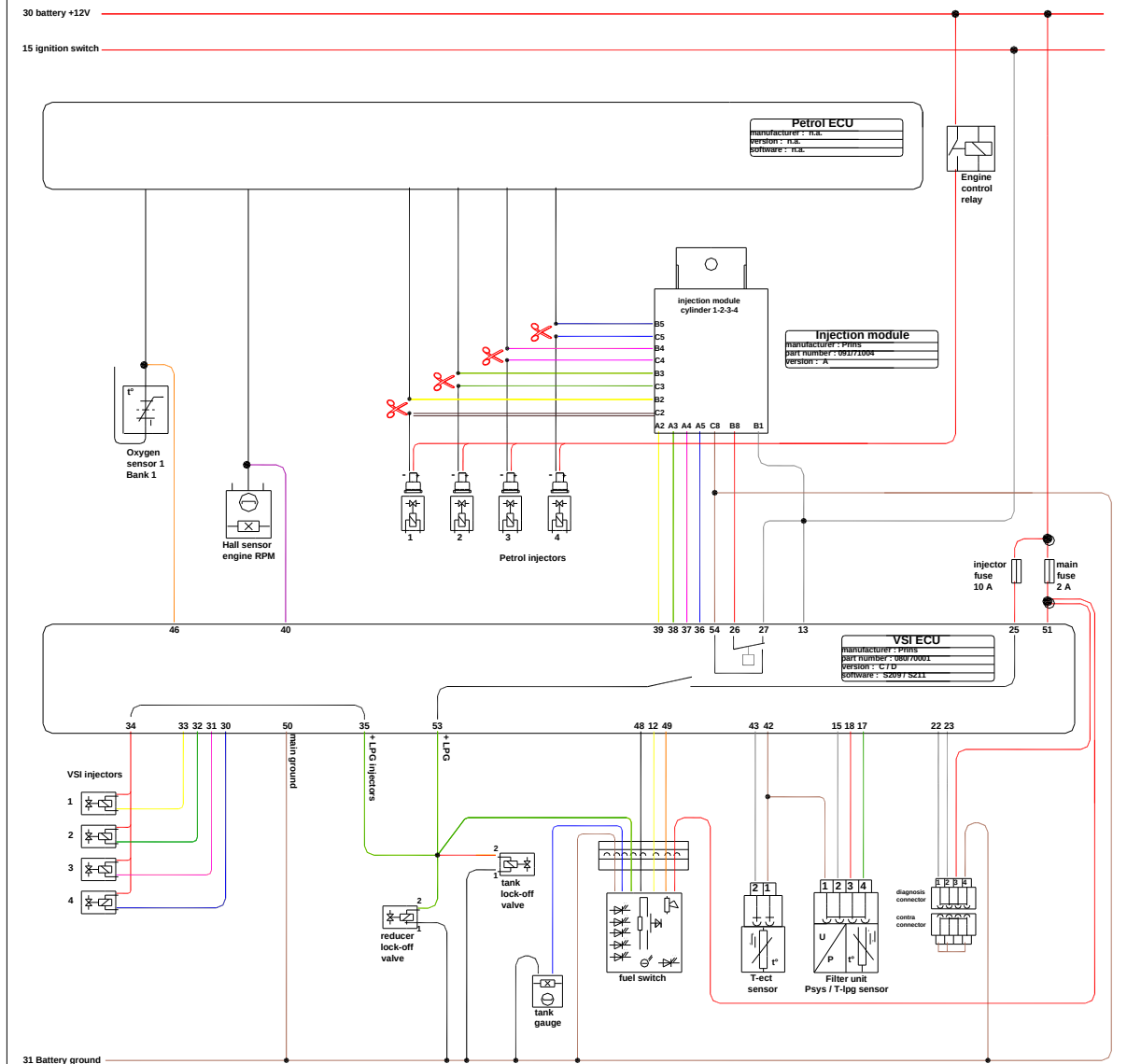
180/70008 VSI wiring diagram 8 cylinder LPG (without connectors)



pin	vsi wire	color	pin	vsi wire	color	pin	vsi wire	color	pin	vsi wire	color
1	ground	black	20	sealed		40	RPM engine speed	purple-white	52	sealed	
2	G INJ OUT 8	red-yellow	21	sealed		41	sealed		53	power fuel indication	green-yellow
3	G INJ OUT 7	light blue-yellow	22	RS232 Tx/D	grey	42	ECT sensor ground	brown	53	power tank valve	red
4	G INJ OUT 6	brown-yellow	23	RS232 Rx/D	grey	42	MAP sensor ground	brown	53	power reducer valve	green-yellow
5	G INJ OUT 5	grey-yellow	24	sealed		42	Psys sensor ground	brown	54	INJ simulator ground	brown
6	G INJ B plus	red	25	+12 volt battery	red	43	ECT coolant temp.	grey	55	sealed	
7	+ LPG injectors	black	26	inj. mod. command	red-white	44	TPS throttle position	green	56	sealed	
8	ecu side inj 8	red-yellow	27	ignition +	grey-white	45	lambda bank 2	orange-white	 Prins Alternative Fuel Systems		
9	ecu side inj 7	light blue-yellow	28	sealed		46	lambda bank 1	orange			
10	ecu side inj 6	brown-yellow	29	G INJ A ground	black	47	sealed				
11	ecu side inj 5	grey-yellow	30	G INJ OUT 4	blue-yellow	48	breepier low switching	black			
12	pulse fuel switch	yellow	31	G INJ OUT 3	pink-yellow	49	diagnose LED	orange			
13	ignition +	grey-white	32	G INJ OUT 2	green-yellow	50	reducer valve ground	brown			
14	ground	black	33	G INJ OUT 1	white-yellow	50	main ground	brown			
15	T-LPG temp.	grey	34	G INJ A plus	red	50	tank valve ground	brown			
16	MAP	blue	35	+ LPG injectors	black	50	diagnose ground	brown			
17	Psys	light green	36	ecu side inj 4	blue-yellow	50	switch ground	brown			
18	+5 Volt Psys	red	37	ecu side inj 3	pink-yellow	51	+12 volt fuel switch	red	Project name :	Y.S. 23-04-2007	
18	+5 Volt MAP	red	38	ecu side inj 2	green-yellow	51	+12 volt diagnose	red	Designed by :	R.K. 23-04-2007	
19	sealed		39	ecu side inj 1	white-yellow	51	+12 volt battery	red	Checked by :	1/29-05-2007	
									Approved by :	8 cyl. without conn.	
									Version nr. / date	1/1	
									Project name :		
									Sheet :		

Diagram 31 LPG wiring 180/70008

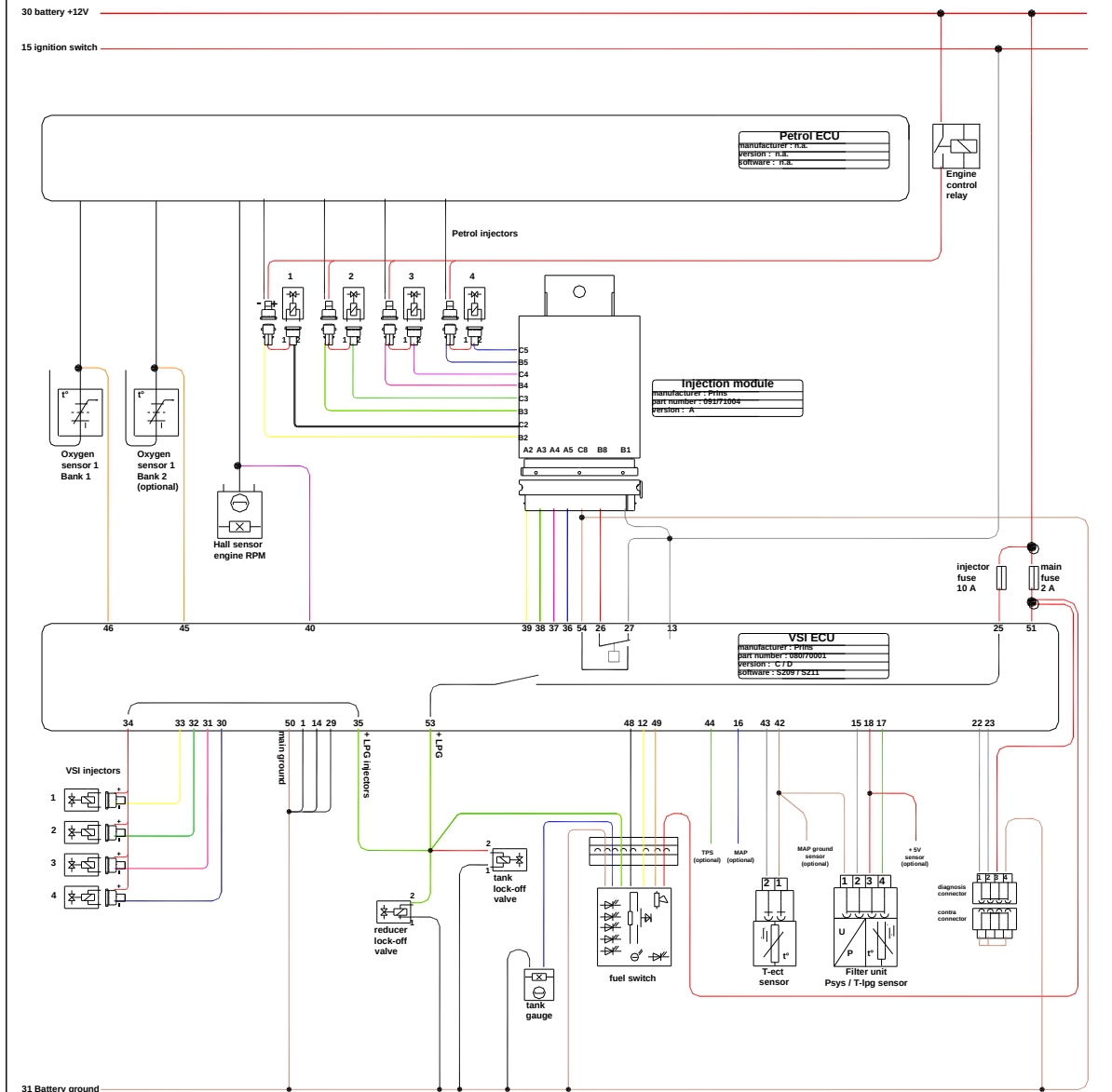
080/72040 VSI wiring diagram 4 cylinder LPG (without connectors)



injection module				pin	vsi wire	color	pin	vsi wire	color	pin	vsi wire	color	pin	vsi wire	color
A1	vsi ecu	white-yellow	39 ecu side 1	1	ground	black	20	sealed		40	RPM engine speed	purple-white	52	sealed	
A2	vsi ecu	white-yellow	39 ecu side 1	2	sealed		21	sealed		41	sealed		53	power fuel indication	green-yellow
A3	vsi ecu	green-yellow	38 ecu side 2	3	sealed		22	RS232 TXD	grey	42	ECT sensor ground	brown	53	power tank valve	red
A4	vsi ecu	pink-yellow	37 ecu side 3	4	sealed		23	RS232 RXD	grey	42	MAP sensor ground	brown	53	power reducer valve	green-yellow
A5	vsi ecu	blue-yellow	36 ecu side 4	5	sealed		24	sealed		42	Psys sensor ground	brown	54	IJ simulator ground	brown
A6				6	sealed		25	+12 volt battery	red	43	ECT coolant temp.	green	55	sealed	
A7				7	sealed		26	inj. mod. command	red-white	44	TPS throttle position	grey	56	sealed	
A8				8	sealed		27	ignition +	grey-white	45	sealed				
B1	vsi ecu	grey-white	13 ignition plus	9	sealed		28	sealed		46	lambda bank 1	orange			
B2	petrol ecu	white-yellow	39 ecu side 1	10	sealed		29	G INJ A ground	black	47	sealed				
B3	petrol ecu	green-yellow	38 ecu side 2	11	sealed		30	G INJ OUT 4	blue-yellow	48	beeper low switching	black			
B4	petrol ecu	pink-yellow	37 ecu side 3	12	sealed		31	G INJ OUT 3	pink-yellow	49	diagnose LED	orange			
B5	petrol ecu	blue-yellow	36 ecu side 4	13	sealed		32	G INJ OUT 2	green-yellow	50	reducer valve ground	brown			
B6				14	ground	black	33	G INJ OUT 1	white-yellow	50	main ground	brown			
B7				15	T-LPG lpg temp.	grey	34	G INJ A plus	red	50	tank valve ground	brown			
B8	vsi ecu	red-white	26 inj. mod. command	16	MAP	blue	35	+ LPG injectors	green-yellow	50	diagnose ground	brown			
C1	petrol injector	white	min inj side 1	17	Psys	light green	36	ecu side inj 4	blue-yellow	50	switch ground	brown			
C2	petrol injector	green	min inj side 2	18	+5 Volt Psys	red	37	ecu side inj 3	pink-yellow	51	+12 volt fuel switch	red			
C3	petrol injector	pink	min inj side 3	19	+5 Volt MAP	red	38	ecu side inj 2	green-yellow	51	+12 volt diagnose	red			
C4	petrol injector	blue	min inj side 4				39	ecu side inj 1	white-yellow	51	+12 volt battery	red			
C5	petrol injector	blue	min inj side 4												
C6															
C7															
C8	vsi ecm	brown	54 inj. mod. ground												

Diagram 32 LPG wiring 080/72040

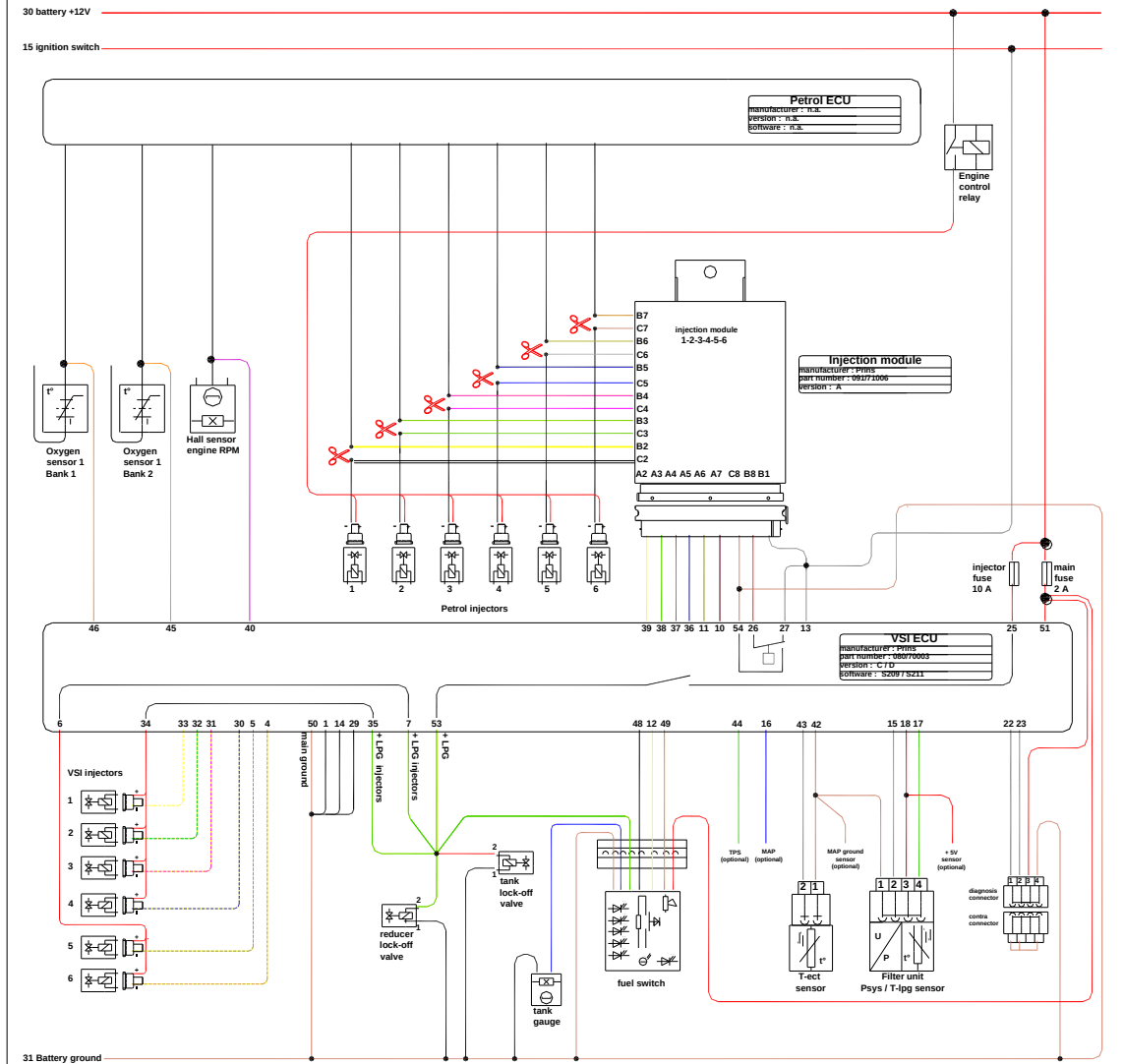
080/72045 VSI Wiring diagram 4 cylinder LPG (with connectors)



	injection module		pin	vsi wire	color	pin	vsi wire	color	pin	vsi wire	color	pin	vsi wire	color
A1			1	ground	black	20	sealed		40	RPM engine speed	purple-white	52	sealed	
A2	vsi ecu	white-yellow	39	ecu side 1		21	sealed		41	sealed		53	power fuel indication	green-yellow
A3	vsi ecu	green-yellow	38	ecu side 2		22	RS232 Tx D	grey	42	ECT sensor ground	brown	53	power tank valve	red
A4	vsi ecu	pink-yellow	37	ecu side 3		23	RS232 Rx D	grey	42	MAP sensor ground	brown	53	power reducer valve	green-yellow
A5	vsi ecu	blue-yellow	36	ecu side 4		24	sealed		42	Psys sensor ground	brown	54	INJ simulator ground	brown
A6			5	sealed		25	+12 volt battery	red	43	ECT coolant temp.	grey	55	sealed	
A7			6	sealed		26	inj. mod. command	red-white	44	TPS throttle position	green	56	sealed	
A8			7	sealed		27	ignition +	grey-white	45	lambda bank 2	orange-white			
B1	vsi ecu	grey-white	13	ignition plus		28	sealed		46	lambda bank 1	orange			
B2	petrol ecu	white-yellow	39	ecu side 1		29	G INJ A ground	black	47	sealed				
B3	petrol ecu	green-yellow	38	ecu side 2		30	G INJ OUT 4	blue-yellow	48	beeper low switching	black			
B4	petrol ecu	pink-yellow	37	ecu side 3		31	G INJ OUT 3	pink-yellow	49	diagnose LED	orange			
B5	petrol ecu	blue-yellow	36	ecu side 4		32	G INJ OUT 2	green-yellow	50	reducer valve ground	brown			
B6			11	sealed		33	G INJ A plus	white-yellow	50	main ground	brown			
B7			12	pulse fuel switch	yellow	34	G INJ A	red	50	tank valve ground	brown			
B8	vsi ecu	red-white	26	inj. mod. command	grey-white	35	+ LPG injectors	green-yellow	50	diagnose ground	brown			
C1			14	ground	black	36	ecu side inj 4	blue-yellow	51	switch ground	brown			
C2	petrol injector	white	min inj side 1	T-LPG log temp.	grey	37	ecu side inj 3	pink-yellow	51	+12 volt fuel switch	red			
C3	petrol injector	green	min inj side 2	MAP	blue	38	ecu side inj 2	green-yellow	51	+12 volt diagnose	red			
C4	petrol injector	pink	min inj side 3	Psys	light green	39	ecu side inj 1	white-yellow						
C5	petrol injector	blue	min inj side 4	+5 Volt Psys	red									
C6			18	+5 Volt MAP	red									
C7			19	sealed										
C8	vsi ecm	brown	54	inj. mod. ground										

Diagram 33 LPG wiring 080/72045

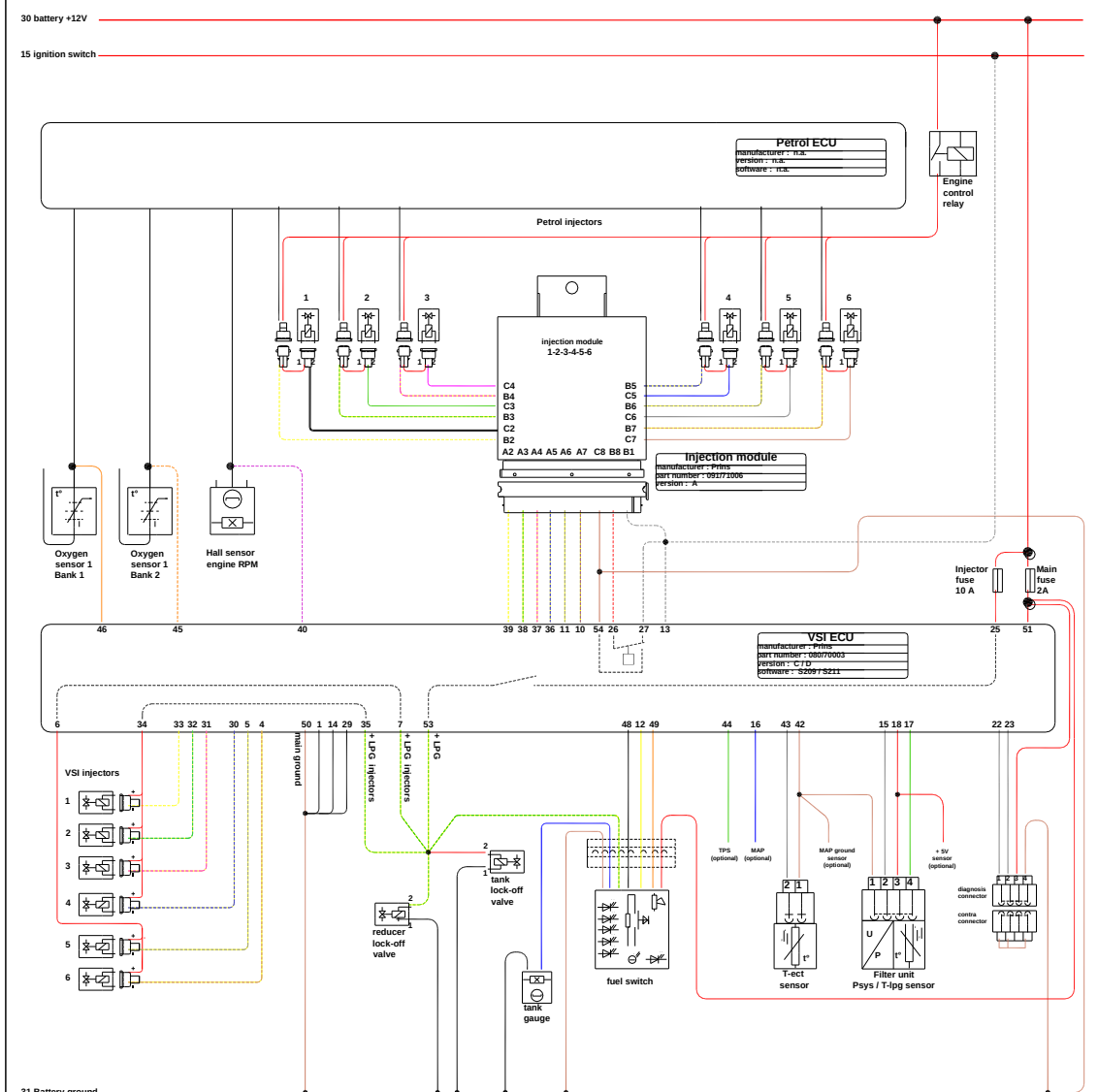
080/72050 VSI wiring diagram 6 cylinder LPG (without connectors)



		injection module	pin	vsi wire	color	pin	vsi wire	color	pin	vsi wire	color	pin	vsi wire	color
A1			1	ground	black	20	sealed		40	RPM engine speed	purple-white	52	sealed	
A2	vsi ecu	white-yellow	39	ecu side 1		21	sealed		41	sealed		53	power fuel indication	green-yellow
A3	vsi ecu	green-yellow	38	ecu side 2		22	RS232 Tx/D	grey	42	ECT sensor ground	brown	54	power tank valve	red
A4	vsi ecu	pink-yellow	37	ecu side 3		23	RS232 Rx/D	grey	43	MAP sensor ground	brown	55	power reducer valve	green-yellow
A5	vsi ecu	blue-yellow	36	ecu side 4		24	sealed		44	TPS sensor ground	brown	56	INJ simulator ground	brown
A6	vsi ecu	grey-yellow	11	ecu side 5		25	+12 volt battery	red	45	ECT coolant temp.	grey			
A7	vsi ecu	brown-yellow	10	ecu side 6		26	inj. mod. command	red-white	46	TPS throttle position	green			
A8			7	+ LPG injectors	green-yellow	27	ignition +	grey-white	47	lambda bank 2	orange-white			
B1	vsi ecu	grey-white	13	ignition plus		28	sealed		48	lambda bank 1	orange			
B2	petrol ecu	white-yellow	39	ecu side 1		29	G INJ A ground	black	49	beeper low switching	black			
B3	petrol ecu	green-yellow	38	ecu side 2		30	G INJ OUT 4	blue-yellow	50	diagnose LED	orange			
B4	petrol ecu	pink-yellow	37	ecu side 3		31	G INJ OUT 3	pink-yellow	51	reducer valve ground	brown			
B5	petrol ecu	blue-yellow	36	ecu side 4		32	G INJ OUT 2	green-yellow	52	main ground	brown			
B6	petrol ecu	grey-yellow	11	ecu side 5		33	G INJ OUT 1	white-yellow	53	tank valve ground	brown			
B7	petrol ecu	brown-yellow	10	ecu side 6		34	G INJ A plus	red	54	diagnose ground	brown			
B8	vsi ecu	red-white	26	inj. mod. command		35	+ LPG injectors	green-yellow	55	switch ground	brown			
C1			15	T-LPG log temp.	grey	36	ecu side inj 4	blue-yellow	56	+12 volt fuel switch	red			
C2	petrol injector	white	min inj side 1			37	ecu side inj 3	pink-yellow	57	+12 volt diagnose	red			
C3	petrol injector	green	min inj side 2			38	ecu side inj 2	green-yellow	58	+12 volt battery	red			
C4	petrol injector	pink	min inj side 3			39	ecu side inj 1	white-yellow						
C5	petrol injector	blue	min inj side 4											
C6	petrol injector	grey	min inj side 5											
C7	petrol injector	brown	min inj side 6											
C8	vsi ecu	brown	54	inj. mod. ground										

Diagram 34 LPG wiring 080/72050

080/72055 VSI wiring diagram 6 cylinder LPG (with connectors)



	injection module	pin	vsi wire	color	pin	vsi wire	color	pin	vsi wire	color	pin	vsi wire	color	
A1	vsi ecu	white-yellow	39 ecu side 1	1	ground	black	20	sealed	40	RPM engine speed	purple-white	52	sealed	
A2	vsi ecu	green-yellow	38 ecu side 2	2	sealed		21	sealed	41	sealed		53	power fuel indication	green-yellow
A3	vsi ecu	pink-yellow	37 ecu side 3	3	sealed		22	RS232 Tx/D	42	ECT sensor ground	brown	53	power tank valve	red
A4	vsi ecu	blue-yellow	36 ecu side 4	4	G INJ OUT 6	brown-yellow	23	RS232 Rx/D	42	MAP sensor ground	brown	53	power reducer valve	green-yellow
A5	vsi ecu	grey-yellow	11 ecu side 5	5	G INJ OUT 5	grey-yellow	24	sealed	42	Psys sensor ground	brown	54	NJ simulator ground	brown
A6	vsi ecu	brown-yellow	10 ecu side 6	6	G INJ B plus	red	25	+12 volt battery	43	ECT coolant temp.	grey	55	sealed	
A7	vsi ecu	grey-white	13 ignition plus	7	+ LPG injectors	green-yellow	26	inj. mod. command	44	TPS throttle position	green	56	sealed	
A8	petrol ecu	white-yellow	39 ecu side 1	8	sealed		27	ignition +	45	lambda bank 2	orange-white			
B1	petrol ecu	green-yellow	38 ecu side 2	9	sealed		28	sealed	46	lambda bank 1	orange			
B2	petrol ecu	pink-yellow	37 ecu side 3	10	ecu side inj 6	brown-yellow	29	G INJ A ground	47	sealed				
B3	petrol ecu	blue-yellow	36 ecu side 4	11	ecu side inj 5	grey-yellow	30	G INJ OUT 4	48	beeper low switching	black			
B4	petrol ecu	grey-yellow	11 ecu side 5	12	pulse fuel switch	yellow	31	G INJ OUT 3	49	diagnose LED	orange			
B5	petrol ecu	brown-yellow	10 ecu side 6	13	ignition +	grey-white	32	G INJ OUT 2	50	reducer valve ground	brown			
B6	vsi ecu	red-white	26 inj. mod. command	14	ground	black	33	G INJ OUT 1	50	main ground	brown			
C1	petrol injector	white	min inj side 1	15	T-LPG log temp.	grey	34	G INJ A plus	50	tank valve ground	brown			
C2	petrol injector	green	min inj side 2	16	MAP	blue	35	+ LPG injectors	50	diagnose ground	brown			
C3	petrol injector	pink	min inj side 3	17	Psys	light green	36	ecu side inj 4	51	switch ground	brown			
C4	petrol injector	blue	min inj side 4	18	+5 Volt Psys	red	37	ecu side inj 3	51	+12 volt fuel switch	red			
C5	petrol injector	grey	min inj side 5	19	+5 Volt MAP	red	38	ecu side inj 2	51	+12 volt diagnose	red			
C6	petrol injector	brown	min inj side 6		sealed		39	ecu side inj 1	51	+12 volt battery	red			
C7	petrol injector	white-yellow	39 ecu side 1											
C8	vsi ecu	green-yellow	38 ecu side 2											

Diagram 35 LPG wiring 080/72055

080/72060 VSI wiring diagram 8 cylinder LPG (without connectors)

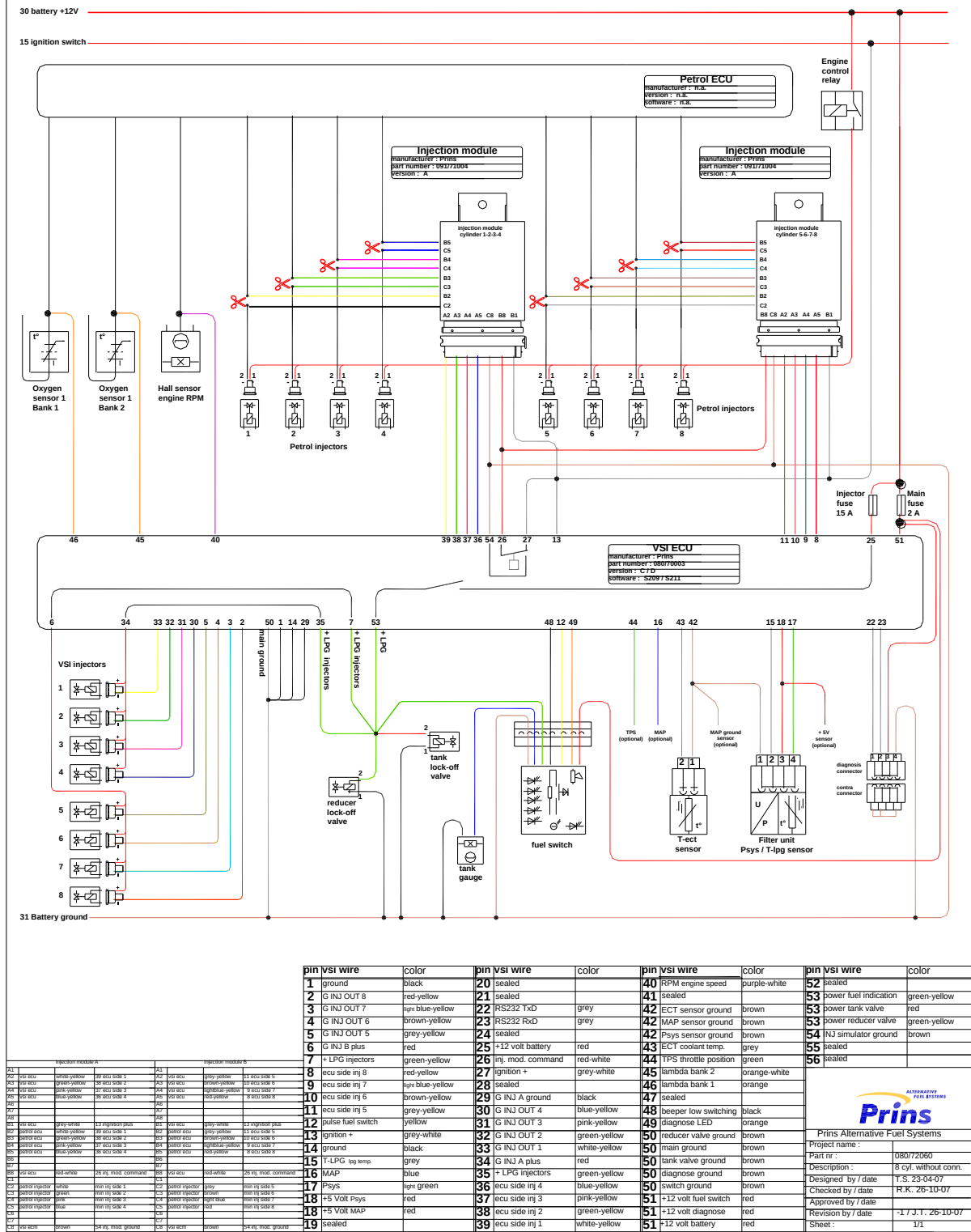
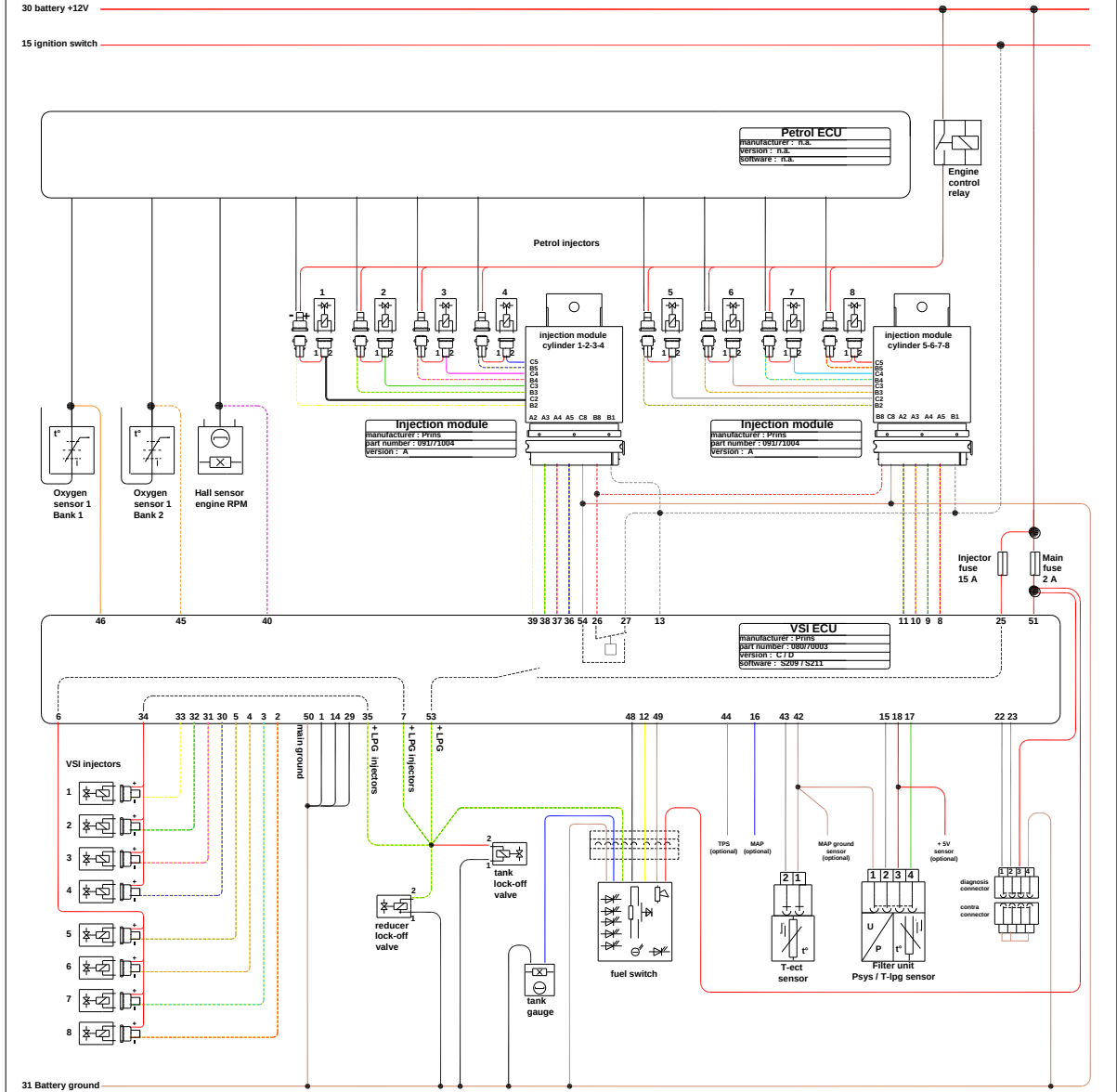


Diagram 36 LPG wiring 080/72060

080/72065 VSI wiring diagram 8 cylinder LPG (with connectors)

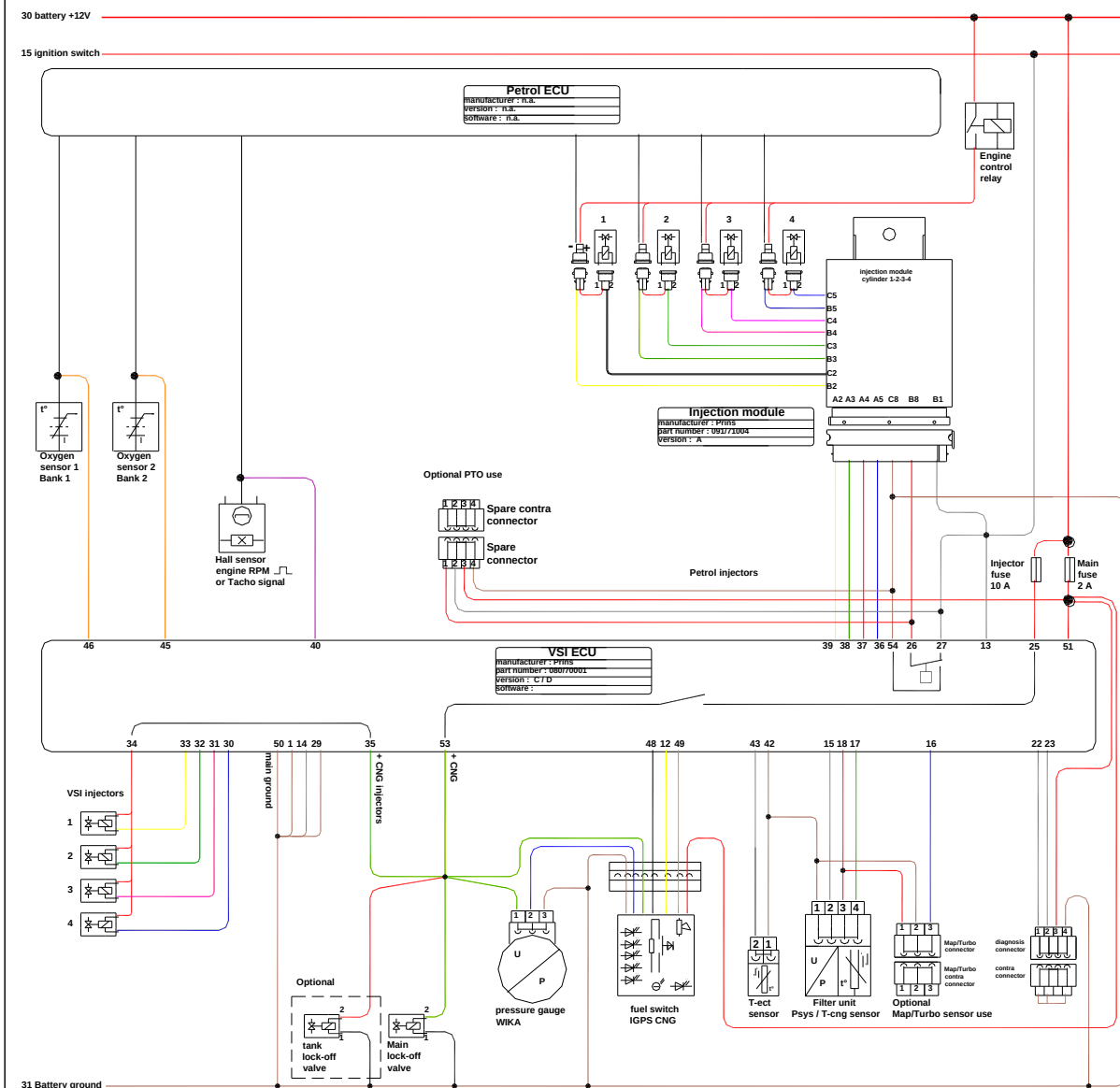


pin v/si wire				color	pin v/si wire				color	pin v/si wire				color	pin v/si wire				color				
1				ground	black	20				sealed	52				sealed	53				power fuel valve	red		
2				G INJ OUT 8	red-yellow	21				sealed	40				RPM engine speed	purple-white	53				power fuel valve	red	
3				G INJ OUT 7	sep blue-yellow	22				RS232 Tx/D	grey	41				sealed	54				power reducer valve	green-yellow	
4				G INJ OUT 6	brown-yellow	23				RS232 Rx/D	grey	42				ECT sensor ground	brown	55				power reducer valve	green-yellow
5				G INJ OUT 5	grey-yellow	24				sealed	43				MAP sensor ground	brown	56				INJ simulator ground	brown	
6				G INJ B plus	red	25				+12 volt battery	red	44				Psys sensor ground	brown	57				sealed	
7				+ LPG injectors	green-yellow	26				inj. mod. command	red-white	45				ECT coolant temp.	grey	58				sealed	
8				ecu side inj 8	red-yellow	27				ignition +	grey-white	46				TPS throttle position	green	59				sealed	
9				ecu side inj 7	sep blue-yellow	28				sealed	47				lambda bank 2	orange-white	60				sealed		
10				ecu side inj 6	brown-yellow	29				G INJ A ground	black	48				lambda bank 1	orange	61				sealed	
11				ecu side inj 5	grey-yellow	30				G INJ OUT 4	blue-yellow	49				beeper low switching	black	62				sealed	
12				ecu side inj 4	sep blue-yellow	31				G INJ OUT 3	yellow	50				diagnose LED	orange	63				sealed	
13				ignition +	grey-white	32				G INJ OUT 2	green-yellow	51				reducer valve ground	orange	64				sealed	
14				ground	black	33				G INJ OUT 1	white-yellow	52				main ground	brown	65				sealed	
15				T-LPG req time	grey	34				G INJ A plus	red	53				tank valve ground	brown	66				sealed	
16				MAP	blue	35				+ LPG injectors	green-yellow	54				diagnose ground	brown	67				sealed	
17				Psys	sep green	36				ecu side inj 4	blue-yellow	55				switch ground	brown	68				sealed	
18				+5 Volt Pays	red	37				ecu side inj 3	pink-yellow	56				+12 volt fuel switch	red	69				sealed	
19				+5 Volt MAP	red	38				ecu side inj 2	green-yellow	57				+12 volt diagnose	red	70				sealed	
				sealed		39				ecu side inj 1	white-yellow	58				+12 volt battery	red	71				sealed	

Diagram 37 LPG wiring 080/72065

095/72045

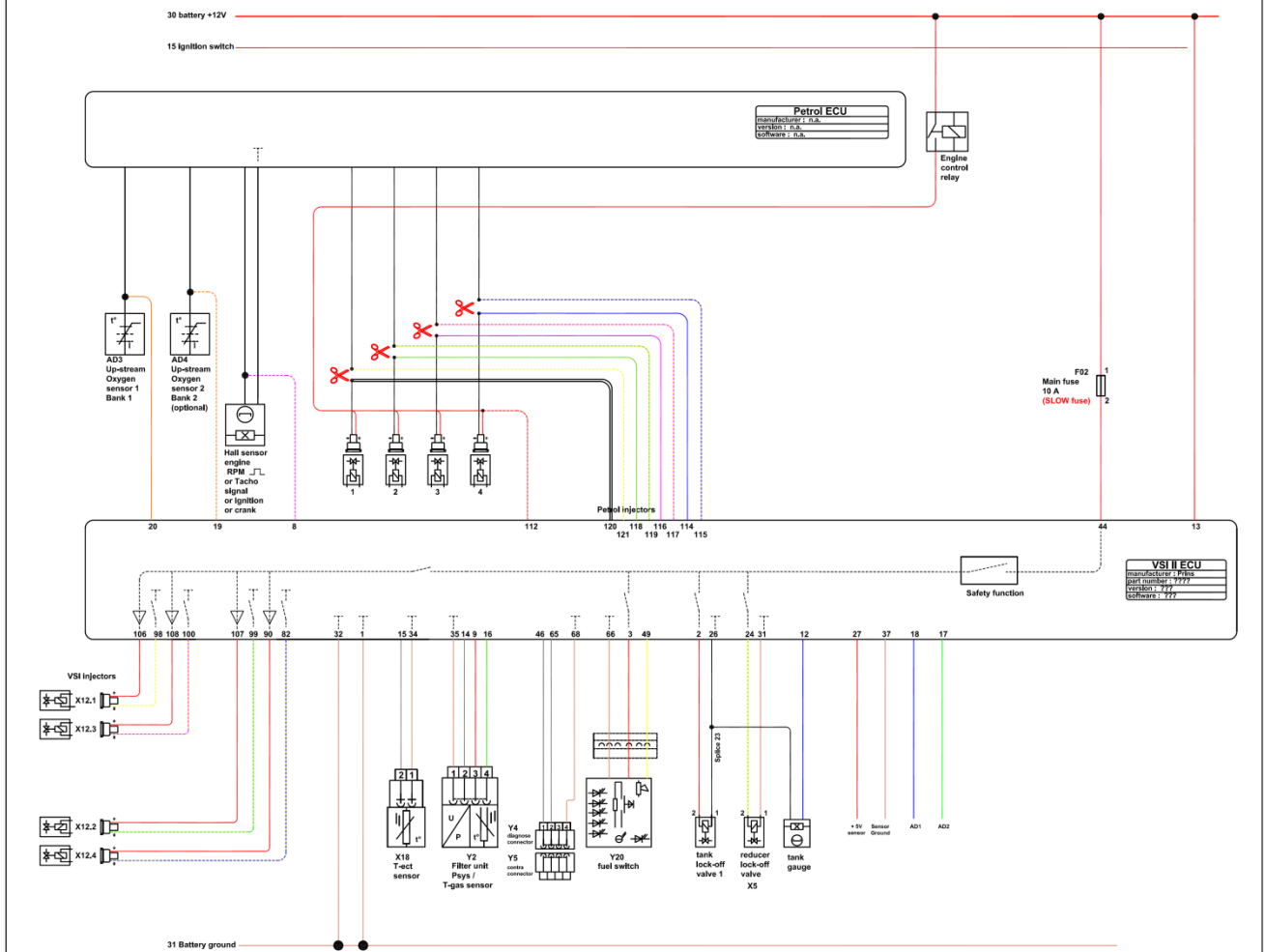
CNG Wiring diagram 4 cylinder connector CNG



	injection module	pin	vsi wire	color	pin	vsi wire	color	pin	vsi wire	color	pin	vsi wire	color
A1		1	ground	black	20	sealed		40	RPM engine speed	purple-white	52	sealed	
A2	vsi ecu	2	sealed		21	sealed		41	sealed		53	power fuel indication	green-yellow
A3	vsi ecu	3	sealed		22	RS232 Tx/D	grey	42	ECT sensor ground	brown	54	power tank valve	red
A4	vsi ecu	4	sealed		23	RS232 Rx/D	grey	43	MAP sensor ground	brown	55	power main valve	green-yellow
A5	vsi ecu	5	sealed		24	sealed		44	P/Tsys sensor ground	brown	56	INJ module ground	brown
A6		6	sealed		25	+12 volt battery	red	45	ECT coolant temp.	grey			
A7		7	sealed		26	26 inj. mod. command	red-white	46	TPS throttle position	green			
A8		8	sealed		27	ignition +	grey-white	47	lambda bank 2	orange-white			
B1	vsi ecu	9	sealed		28	sealed		48	lambda bank 1	orange			
B2	petrol ecu	10	sealed		29	G INJ A ground	black	49	sealed				
B3	petrol ecu	11	sealed		30	G INJ OUT 4	blue-yellow	50	beeper low switching	black			
B4	petrol ecu	12	pulse fuel switch	yellow	31	G INJ OUT 2	green-yellow	51	diagnose LED	orange			
B5	petrol ecu	13	ignition +	grey-white	32	G INJ OUT 1	pink-yellow	52	main valve ground	brown			
B6		14	ground	black	33	G INJ OUT 1	white-yellow	53	main ground	brown			
B7	vsi ecu	15	T-Gas cng temp.	grey	34	+ G INJ A OUT	red	54	tank valve ground	brown			
C1	petrol injector	16	MAP	blue	35	+ G INJ A IN	green-yellow	55	diagnose ground	brown			
C2	petrol injector	17	Psys	light green	36	ecu side inj 4	blue-yellow	56	tank valve ground	brown			
C3	petrol injector	18	+5 Volt P/T sys	red	37	ecu side inj 3	pink-yellow		+12 volt fuel switch	red			
C4	petrol injector	19	+5 Volt MAP	red	38	ecu side inj 2	green-yellow		+12 volt diagnose	red			
C5	petrol injector				39	ecu side inj 1	white-yellow		+12 volt battery	red			
C6													
C7	vsi ecu												
C8	vsi ecu												

Diagram 38 CNG wiring 095/72045

191/040002 VSI II wiring diagram 4 cylinder BASIC



Connector B			Connector A		
pin	vsi wire	color	pin	vsi wire	color
82	- GAS INJ 4	blue-yellow	1	Ground Battery	brown
83	n.c.		2	Power tank valve 1	red
84	n.c.		3	+12 V Fuel switch	red
85	n.c.		4	+12V batt. (10A Fuse)	red
86	n.c.		5	n.c.	
87	n.c.		6	n.c.	
88	n.c.		7	n.c.	
89	n.c.		8	RPM engine speed	purple-white
90	+ GAS INJ 4	red	9	+5 Volt sensor	red
91	n.c.		10	n.c.	
92	n.c.		11	n.c.	
93	n.c.		12	Tank level IN	blue
94	n.c.		13	+12 V Battery sense	red
95	n.c.		14	T-Gas	grey
96	n.c.		15	T-ECT	grey
97	n.c.		16	Plays	green
98	- GAS INJ 1	white-yellow	17	AD2 (valve Care)	green
99	- GAS INJ 2	green-yellow	18	AD1 (MAP)	blue
100	- GAS INJ 3	pink-yellow	19	AD4 (lambda 2)	orange-white
101	n.c.		20	AD3 (lambda 1)	orange
102	n.c.		21	n.c.	
			22	n.c. c_gnd	
			23	n.c.	
			24	+12V reducer lock off	green-yellow
			25	n.c.	
			26	Ground Tank lock off	black
			27	+5 volt sensor	red
			28	n.c.	
			29	n.c.	
			30	n.c.	
			31	C Ground	brown
			32	Ground battery sense	brown
			33	n.c. c_gnd	
			34	C Ground	brown
			35	C Ground	brown
			36	n.c. c_gnd	
			37	C Ground	brown
			38	n.c. c_gnd	
			39	n.c. c_gnd	
			40	n.c. c_gnd	
			41	n.c. c_gnd	
			42	n.c. c_gnd	
			43	n.c.	
			44	n.c.	
			45	Service TxD	purple
			46	Service TxD	grey
			47	n.c.	
			48	n.c.	
			49	LIN fuel switch	yellow
			50	n.c.	
			51	n.c.	
			52	n.c.	
			53	n.c.	
			54	n.c.	
			55	n.c.	
			56	n.c.	
			57	n.c.	
			58	n.c.	
			59	n.c.	
			60	n.c. c_gnd	
			61	n.c. c_gnd	
			62	n.c. c_gnd	
			63	n.c. c_gnd	
			64	n.c.	
			65	Service Rx/D	grey
			66	Ground fuel switch	brown
			67	n.c.	
			68	Ground PDI	brown
			69	n.c.	
			70	n.c.	
			71	n.c. c_gnd	
			72	n.c.	
			73	n.c. c_gnd	
			74	n.c.	
			75	n.c.	
			76	n.c.	
			77	n.c.	
			78	n.c.	
			79	n.c. c_gnd	
			80	n.c. c_gnd	
			81	n.c. c_gnd	

Draft

Prins

Prins Alternative Fuel Systems	
Project name :	191/040002A
Part no :	LPQ VSI II 4 cyl. BASIC
Description :	JT / 25-05-08
Designed by / date	
Checked by / date	
Approved by / date	
Revision by / date	B/JT 16-05-11
Sheet :	1/1

Diagram 39 VSI-2.0 wiring 191/040002

Trouble code chart LPG

Trouble code	Definition	Check / solution
100	Lambda to long to rich.	Check when operating on petrol and LPG that there is good lambda signal movement.
101	Lambda to long to lean.	Check when operating on petrol and LPG that there is good lambda signal movement.
102	Lambda to long to lean during open loop.	Check when operating on petrol and LPG that there is good lambda signal movement.
110	T-ECT >= 171°C	Check if the ECT sensor (blue) in the reducer is connector is connected to ground.
111	T-ECT >= -40°C	Check if the ECT sensor (blue) in the reducer has a power connection.
120	T-LPG >= 171°C	Check the ground connection of the Pressure/temperature sensor in the filter unit.
121	T-LPG >= -40°C	Check the power connection of the Pressure/temperature sensor in the filter unit.
150	Psys <= Low_Level	Based on a pressure drop in the system, this can be caused by an empty LPG tank, incorrect solenoid valve, polluted filter or incorrectly adjusted pressure.
160	ECM-VSI not activated	Activate the LPG computer with the diagnostic program, using the F11 function key.
180	T-Board >= 90°C	LPG computer circuit board to hot, replace the VSI computer in a cooler area.
181	Battery voltage to high	Check board voltage / alternator output and condition of the battery.
210-220-230-240-250-260-270-280	VSI injector overload	Injector current to high, check for short circuiting
211-221-231-241-251-261-271-281	VSI injector noload	Injector current to low, check for bad connections.
310	Adjusted pressure on idle out of range	Adjust the idle pressure to the value shown by parameter " Idle Level "
311	Programm error during flahing the memory	Check parameter settings, contact Prins Autogassystemen.
320	Psys voltage to low	Check the ground connection of the Pressure/temperature sensor in the filter unit.
321	Psys voltage to high	Check the power connection of the Pressure/temperature sensor in the filter unit.
322	Psys > 3,5 Bar	Check the coolant temperature (T-ect) and the evaporator for leakage of the first stage.
330	unexpected parameter change	Contact Prins Autogassystemen.
340	reducer warms up to slow	Check the water connections / circuit.
341	Gas leakage, system pressure is less then 1.25 bar after 4 hours when the engine is not running	Check the system for gas leakage.
div.	System switches to LPG but engine stalls immediately.	LPG tank empty ? Lock-off valves open ?
div.	No injection timing on LPG (0 Msec.)	Check the injection module.
div.	The LPG system switches constantly between LPG and Petrol	- Check coolant system for air. - T-ect sensor in the evaporator malfunction.
div.	Engine hesitates on high revs, and not running on all cylinders. Engine runs good on idle.	Check for kinked or jammed LPG hoses (between VSI injector and couplings). Check for blocked inlet couplings.
div.	Switch LED's don't lit up	Check the main fuse of the VSI system Check ignition+ (VSI wire 13)
div.	Fault codes when turning the ignition off (key out the ignition)	Caused by different switch off times between ignition+ and injector power. Connect VSI wire 13 to the petrol injector feed instead of ignition+.
div.	The orange LED on the switch flashes	Activate the LPG computer with the diagnostic program, using the F11 function key.
div.	The LPG system switches to LPG but engine stalls immediately	LPG tank empty?
div.	Not running on all cylinders on lpg	Check parameter 10, number of cylinders.
div.	No injection times on lpg	Check the connections of the injection module.
div.	Injection time "falls" to 0 mSec on LPG	Check the injection module.
div.	Check engine while running on LPG, injector circuit malfunction, no lambda control (limb home)	Replace injection module
div.	Not starting / running on petrol	Check the connections of the injection module.

Maintenance instructions

When you drive on LPG/CNG, maintaining your car is even more important than when using petrol. Since the specifications of LPG/CNG differ from those of petrol, minor engine problems which won't disturb the driving comfort while using petrol, may cause major problems while using CNG. Follow the maintenance instructions in order to use LPG/CNG without any problem.

- General maintenance to the car regarding spark plugs, spark plug cables, ignition circuit, valves, etc., has to be carried out according to the instructions of the car manufacturer.
- Proof of maintenance according to the guidelines of the importer is obligatory (completely filled in maintenance booklet).
- Maintenance has to be carried out by a dealer authorised by the importer.
- Adjustments and repairs on your Prins VSI- system should only be carried out by a dealer authorised by Prins Autogassystemen B.V.

MAINTENANCE AND SERVICE

Registration of maintenance and service of the VSI-LPG system.

	25.000 km or after 2 years	100.000 km or after 2 years	175.000 km or after 2 years	250.000 km or after 2 years
Checklist executed services:				
Lock off valve filter replacement*	☐	☐	☐	☐
Filter unit filter replacement*	☐	☐	☐	☐
Hoses + filling hoses checked	☐	☐	☐	☐
Fastening of components checked	☐	☐	☐	☐
Electrical connection + wiring checked	☐	☐	☐	☐
Checked for fuel leakage	☐	☐	☐	☐
Checked for trouble codes (petrol and LPG) + system pressure	☐	☐	☐	☐
Checked for exhaust emissions	☐	☐	☐	☐
Tightening torque of the allen screws of the reducer checked at 8Nm	☐	☐	☐	☐
	Number of kilometres: Date:	Number of kilometres: Date:	Number of kilometres: Date:	Number of kilometres: Date:

*The service intervals of the filter replacements may be divergent because of the variable LPG quality. Ask your Prins dealer for more information.

Registration of maintenance and service of the VSI-CNG system.

	25.000 km or after 2 years	100.000 km or after 2 years	175.000 km or after 2 years	250.000 km or after 2 years
Checklist executed services:				
Keihin inlet filter replacement*	☐	☐	☐	☐
Filter unit filter replacement*	☐	☐	☐	☐
Hoses + pipes checked	☐	☐	☐	☐
Fastening of components checked	☐	☐	☐	☐
Electrical connection + wiring checked	☐	☐	☐	☐
Checked for fuel leakage	☐	☐	☐	☐
Checked for trouble codes (petrol and CNG) + system pressure	☐	☐	☐	☐
Checked for exhaust emissions	☐	☐	☐	☐
	Number of kilometres: Date:	Number of kilometres: Date:	Number of kilometres: Date:	Number of kilometres: Date:

*The service intervals of the filter replacements may be divergent because of the variable CNG quality. Ask your Prins dealer for more information.

Checklist after installation

1. Connect the serial interface cable and run the VSI diagnosis program.
Install the VSI main fuse, and program the fuel switch.
Turn the ignition key in the accessory position.
When working on the car, beware of moving and rotating parts in the engine compartment.
2. When commissioning the LPG/CNG system, you must activate the VSI computer with the diagnosis software. When the VSI-I computer has not been activated, it will keep generating error code 160. To activate the VSI-I computer, select function F11 (activate ECM). After activation erase faultcode 160.
3. Check whether the program in the VSI computer matches with the car (dedicated engine set):
Refer with F2 to the box number and car description in the diagnosis software and compare these with the set number.
4. The system will switch over to LPG/CNG as soon as the temperature of the coolant (T-ect) becomes higher than the parameter T-min set and when the TSO-cold time is expired.
5. Check all components and connections for any gas leakage (use a LPG/CNG leak detector device) or foam leak spray. Caution for moving and rotating parts in the engine compartment !
6. Let the engine run warm on petrol >80°C.
Check if the evaporator/coolant water heats up.
Check the engine signals: petrol injection time, RPM, ECT, lambda
Let the engine run idle on LPG/CNG.
Adjust the LPG evaporator pressure. Refer to the parameter list (or F2 : ID box) for the idle level value set.
Adjust the LPG evaporator pressure in such a way that the pressure measured (P-sys) equals the idle level value.
Turn the socket-head screw at the front of the evaporator to adjust the pressure.
An error code will be generated whenever the pressure variation is too high.
Seal the evaporator with the sticker included in the delivery after having adjusted the pressure.
7. Use the diagnosis software to check again all input and output signals.
8. Check the system for error codes and solve these, if required.
Check the petrol MMS for EOBD error codes.
Place the protection connector on the VSI communication connector.
9. Make a test drive and check the driveability on LPG/CNG and petrol.

