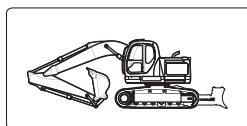
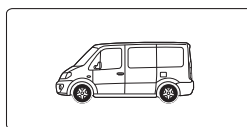
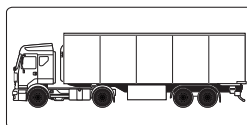
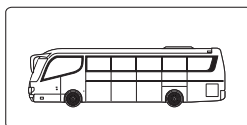


ENGLISH


FEELPURE™ DPF SYSTEM

FEELPURE™ and FEELPURE™ AR
system installation, operation & maintenance book




Passive and aided regeneration systems.
On-board additive delivery version.

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	FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK	On board additive dosing version
		Date: 12.12.2010
		Revision: Rev. 7.2 - EN

CONTENTS

Important notes	page	3
Pirelli Eco Technology Warranty	page	5
1) How the Feelpure™ system works + vehicle maintenance status	page	7
1.1 List of the supplied components	page	9
2) Basic selection/dimensioning guidelines for the Feelpure™ system	page	25
3) Replacing the original muffler	page	29
3AR) Additional activities to be carried out on the muffler for Feelpure™ AR versions	page	35
3.1AR) Installation of temperature sensor	page	35
3.2AR) Installation of glow-plugs	page	35
3.3AR) Connection of glow plugs	page	41
4) Installing the CAM FBC additive tank	page	43
5) Assembling the backpressure measurement metal pipe	page	46
6) Connecting the additive line to the fuel injection system	page	50
7) Making electrical connections	page	52
7-AR) Making electrical connections – additional components for AR:	page	54
8) Installing the software for managing the electronic control unit (ECU)	page	56
9) Operations&Checks to be carried out at the end of the installation	page	58
9.1 Dosing the CAM FBC additive into the fuel tank	page	58
9.2 Functioning tests of the electrical wiring	page	59
9.3 Functioning tests of the filtering system by means of the ECU management software	page	59
9.4 Functioning tests of the additive delivery system	page	64
9.5 Setting of generic working parameters of the system on ECU 3.0	page	65
9.6 Setting the additive dosing time	page	71
9.7 Checking the operational data of the Feelpure™ system by means of the ECU 3.0 software	page	76

	FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK	On board additive dosing version
		Date: 12.12.2010
		Revision: Rev. 7.2 - EN

9.8	Verifying the filtering efficiency of the Feelpure™ system	page 79
9.9	"Feelpure™ Installation&Warranty form" filling-in rules	page 79
10)	Operation and maintenance	page 84
10.1	Feelpure™ system operational status	page 84
10.2	Scheduled maintenance	page 85
10.3	How to carry out diagnoses on the Feelpure™ system – filling in the Vehicle Inspection Form	page 87
10.4	Replacing/cleaning the filtering cartridge for Feelpure™ versions	page 89
10.5	Replacing/cleaning the filtering cartridge for Feelpure™ AR versions	page 90
	Attachment 1 - Feelpure™ ECU 3.0 Calibration values for dosing interval –continuous dosing	page 91
	Attachment 2 – ECU 3.0 Calibration form – level dosing	page 92
	Attachment 3 – Feelpure™ system Installation & Warranty Form	page 93
	Attachment 4 – Feelpure™ system Vehicle Inspection Form	page 94

	FEELPURE™ SYSTEM		On board additive dosing version
	INSTALLATION, OPERATION & MAINTENANCE BOOK		Date: 12.12.2010
			Revision: Rev. 7.2 - EN

IMPORTANT NOTES

Documentation information

The information, instructions and recommendations contained in this manual (which is always supplied with the product) are essential for the correct installation, operation and maintenance of the Feelpure™ filter system, and are updated to the date shown on the manual. Any updates or changes to this manual are available on the internet website: www.pirelliecotecnology.com.

This manual is for the product installer and should be carefully kept on board the vehicle together with the attached installation and maintenance manual.

Before proceeding with the installation of the product, it is essential to read the entire manual carefully and understand it completely, and also check if any updates are available on the internet website or by contacting Pirelli Eco Technology S.p.A. Customer Assistance by email at service.ecotecnology@pirelli.com

If you are unsure of anything at all about the installation procedure and/or the operation and/or maintenance of the product, you should contact Pirelli Eco Technology S.p.A. Customer Assistance at the email address above.


Installation and maintenance of the product, as well as any operation carried out on it, must be done only and exclusively by qualified personnel with the necessary skills for performing these operations, using the correct tools and fully observing the instructions and recommendations in this manual, in addition to all safety regulations and precautions.

The installation, operation and maintenance of the product, as well as any intervention on it, are the sole responsibility of the person carrying them out, and Pirelli Eco Technology S.p.A. is expressly excluded from any responsibility.

In some countries the product has been homologated to work with the original components of the product, comprising the CAM FBC catalysing additive supplied by Pirelli Eco Technology for the first filling and available for subsequent refills. Therefore, Pirelli Eco Technology S.p.A. recommends you use original parts (including the additive) or parts with technical and functional specifications that conform completely to the originals and especially, but not only, in terms of composition, physical dimensions, type, resistance and materials.

Failure to observe these information notices and the recommendations contained in this document may lead to malfunction, breakdown, breakage etc. and also the danger of damage to objects and/or personal injury, as well as voiding the Pirelli Eco Technology S.p.A. warranty specified on the following page.

This manual is available in other languages on the CD-ROM delivered with the system.


	FEELPURE™ SYSTEM		On board additive dosing version
	INSTALLATION, OPERATION & MAINTENANCE BOOK		Date: 12.12.2010
			Revision: Rev. 7.2 - EN

Safety

The majority of accidents deriving from the operation, maintenance and repair of the product are caused by failure to observe basic safety rules or precautions. Accidents can often be avoided by anticipating potentially dangerous situations before the accident happens. You should always be alert to potential dangers. You must also have the proper training, skills and tools required to carry out these operations correctly.

Do not begin installation of this product until you have read and understood all the information given in this document.

Pirelli Eco Technology cannot predict all possible circumstances that could involve potential dangers. For this reason the warning notices in this document and on the product do not cover all eventualities. If during the various operations you adopt procedures, tools or methods that are not explicitly recommended by Pirelli Eco Technology, it is essential to make sure that the work is performed in full observance of your own personal safety and that of others. You must also make absolutely sure that the engine/vehicle on which you are working does not become damaged and is not made dangerous as a result of procedures you choose to follow.

	FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK		On board additive dosing version
			Date: 12.12.2010
			Revision: Rev. 7.2 - EN

Pirelli Eco Technology Warranty

Conditions

Pirelli Eco Technology S.p.A. guarantees the quality of the materials used in this product and their workmanship, and also guarantees the product's conformity to the technical specifications contained in this manual.

The existence of any defects must be verified by Pirelli Eco Technology S.p.A.'s technicians in all cases.

If the product is defective, Pirelli Eco Technology S.p.A. undertakes exclusively to repair or replace, at its final and unquestionable discretion, the product or part of the product that is recognised to be defective.

If Pirelli Eco Technology S.p.A. or one of its network of assistance centres listed on the internet website www.pirelliecotecnology.com is requested to carry out a repair or replacement under warranty, the product said to be defective must be sent, post free, to Pirelli Eco Technology S.p.A. or to one of its network of assistance centres, which will return it post free.

If Pirelli Eco Technology is requested for a repair or replacement under warranty outside of its workshop or the workshop of one of its authorised centres and Pirelli Eco Technology S.p.A. agrees to the request, all labour costs and shipping costs will be the exclusive responsibility of the party making the request.

The warranty does not cover:


- All those parts that, by their nature or use, are subject to wear or consumption and especially those parts that are subject to periodic replacement
- Normal maintenance operations and/or adjustment of products
- Components that are not original Pirelli Eco Technology S.p.A. parts

The warranty expires at the moment in which one of the following three events occurs:

- Twelve months have elapsed from the date of installation of the product as shown in the installation sheet
- The product is used for 200,000 km
- The product is operated for 2,000 hours

In addition, the warranty becomes void and is withdrawn in each of the following situations:

- If Pirelli Eco Technology S.p.A., within five working days after the installation of the products and/or after the carrying out of the periodic checks specified in this manual, has not received a copy of the sheets as specified in this manual, duly completed and signed as expressly specified in this manual
- If the defects and faults have not been reported according to legislation
- If the request for repair or replacement under warranty is not accompanied by copies of the sheets as per letter a) and/or the serial number of the products has been rendered illegible or removed or altered
- If the product has been modified or in any way interfered with or if equipment, parts or other accessories that are not original Pirelli Eco Technology S.p.A. or not of corresponding quality have been mounted, as per the information notices above
- If the product has not been stored, installed, operated or subjected to maintenance in conformance with the specifications contained in this manual

	FEELPURE™ SYSTEM		On board additive dosing version
	INSTALLATION, OPERATION & MAINTENANCE BOOK		Date: 12.12.2010
			Revision: Rev. 7.2 - EN

- If fuels and/or lubricants have been used that are different from those specified by the vehicle/engine Manufacturer on which the products are installed, or additives have been used other than those specified in this manual
- If the operation and maintenance recommendations required by the vehicle/engine Manufacturer, on which the products are used, have not been followed

The carrying out of repairs or replacements or provision of spare parts does not extend or renew the original date of expiry of the warranty.

The duration of the warranty for spare parts and accessories is 6 months from the delivery.

Repair or replacement of the defective product terminate the warranty provided by Pirelli Eco Technology S.p.A. The company provides no further warranty, nor does it assume any other undertakings, and, except where specified by law, expressly excludes any responsibility on the part of Pirelli Eco Technology S.p.A. for damages of any kind or nature, direct or indirect, for any accident to persons or objects, indemnities, compensation, including relating to failure to use the product and/or vehicle or engine on which the product is used and, in any case, any and all responsibility originating from the product.

Feelpure™ system installation & warranty form

The Feelpure™ installation form (enclosed with this manual) must be filled in, stamped and countersigned by the workshop that installed the system and by the owner of the vehicle.


This manual must be kept on board the vehicle with the vehicle's other identification documents and with the Installation and Maintenance manual. It contains the information on the filtering system's installation and (periodical and/or extraordinary) maintenance.

A copy of the document (hardcopy or in electronic format) must be sent to Pirelli Eco Technology by fax to [+39.02.938.74.664](tel:+390293874664) or by e-mail to service.ecotechnology@pirelli.com and must subsequently be sent by post within 5 working days of the date of installation.

A copy of the document must also be kept by the installer.

This is essential for the warranty to be recognised by the Pirelli Eco Technology organisation, based on the regulations that govern it (see the above section).

Following the maintenance programme specified by the vehicle/engine Manufacturer is essential for the product to be used correctly and in conformance with Pirelli recommendations. This is therefore an essential precondition in order to be able to avail of the warranty under the terms of the conditions of sale and use.

	FEELPURE™ SYSTEM	On board additive dosing version
	INSTALLATION, OPERATION & MAINTENANCE BOOK	Date: 12.12.2010
		Revision: Rev. 7.2 - EN

1) How the Feelpure™ system works + maintenance status of the vehicle

The Feelpure™ system reduces particulate emissions from diesel engines by over 95%, and can be used on commercial vehicles, transport vehicles and construction site machines on all engine classes.

There are two main versions of the Feelpure™ system which differ in terms of the presence or absence of some components which are necessary for favouring/supporting the “regeneration” process of the filtering cartridge. In this manual they will be referred to for brevity as:

- **Feelpure™** (based on the “passive” regeneration principle using the catalysing additive)
- **Feelpure™ AR** (where AR stands for Aided Regeneration, in which the use of the aforementioned catalysing additive is assisted by igniting special glow plugs)

The following pages contain a detailed description of the principal features of both versions.

The Feelpure system is comprised mainly of (see the table in the following section):


- A. A silencer (also referred to in this manual as a muffler), which in turn is comprised of:
 - o A filter (particulate trap) enclosed in a special stainless steel canning
 - o Inlet and outlet end cans for exhaust gases (in the case of the system with Aided Regeneration, the inlet end can is equipped with the appropriate housings for mounting the glow plugs)
 - o Gasket seals placed between the filter and the end cans
 - o Locking V-clamps
- B. Additive dosing kit (12/24V depending on the application)
- C. Backpressure control kit (including the electronic control unit, or ECU) in two different versions depending on the application (LIGHT and HEAVY duty)
- D. Installation kit (specific for LIGHT DUTY APPLICATIONS, TRUCKS, BUSES, EARTH MOVING MACHINES and for **Feelpure™** or **Feelpure™ AR** versions)
- E. Specific component kit for **Feelpure™ AR** versions (denominated *ARK4plugs*, or *ARK6plugs* – 12V or 24V depending on the application)
- F. CAM FBC additive tank (with a capacity suitable for the engine/vehicle and its diesel consumption)
- G. A suitable supply of CAM FBC catalysing additive (supplied in 5 litre cans)
- H. Thermal insulation kit for the pipe connecting the engine/turbocompressor to the muffler

Also supplied with the system are 3 copies of this manual (in Italian, English and German for the vehicle owner), and a CD containing the necessary software for installing the Feelpure™ system (and also the COM connection cable)

The filter (or filtering cartridge) is made of a honeycomb structure in silicon carbide (SiC) through which the exhaust gases are filtered. The particulate, made up mainly of particles of carbon of varying dimensions, is held back, right down to particles of the smallest dimensions.

The electronic control unit (ECU) monitors the level of backpressure and the temperature of the exhaust gases at the outlet endcan, regulates the delivery of the additive (via a 12/24V metering pump) and stores the operational parameters of the system. In addition the unit also manages the automatic ignition of the glow plugs, signals the need, if necessary, to manually ignite the glow plugs, or the need to have a check carried out at a specialized workshop.

Information on the working status of the system is notified to the vehicle driver by means of a warning LED installed on the dashboard (or on the operator panel in the case of stationary engines) together with a specific adhesive label containing the meanings of the different lighting codes (see section 10.1).

	FEELPURE™ SYSTEM	On board additive dosing version
	INSTALLATION, OPERATION & MAINTENANCE BOOK	Date: 12.12.2010
		Revision: Rev. 7.2 - EN

A **tank** installed on the vehicle contains the necessary additive for activating the regeneration of the filter. This iron-based additive is dissolved in the diesel fuel, reducing the ignition temperature of the residual carbon to 280°C - 300°C instead of the normal 600°C. The consumption of CAM FBC additive should be about 1.5 litres every 1,000 litres of diesel burned by the engine.

The use of an insufficient quantity of additive, or failure to use any additive at all, even for limited periods, will cause anomalous and irregular functioning of the filtering system. In these cases, the following can happen in particular:

- Early clogging of the filtering cartridge, caused by the activation of an insufficient number of spontaneous regenerations. With no additive, regeneration of the filter will only occur if the temperature of the exhaust gases reaches the 600°C required for combustion of the residual carbon.
- Damage to the filtering cartridge, caused by regenerations at higher temperatures than those specified. If regenerations are triggered with no additive present, temperature peaks can be reached that may compromise the functioning of the filtering cartridge and/or the stainless steel canning.

Using a greater quantity of additive than that specified does not bring appreciable/detectable benefits to the overall operation of the system, and it actually brings the risk of increasing the accumulation of residues inside the filtering cartridge. This may exclude the possibility of cleaning the cartridge, even with the use of special machinery.

It is not necessary to use special diesel fuels (for example ULSD, Ultra Low Sulphur Diesel).

The limited quantity of additive dosed into the diesel fuel does not affect its physical/chemical characteristics, which remain in total conformance to the UNI-EN590 standard in force.


For further information on the characteristics of the CAM FBC catalysing additive, consult the product safety sheet enclosed with every shipment of the product and which is also available on the internet website www.pirelliecotechnology.com.

In the **Feelpure™ AR** version, the regeneration process of the filtering cartridge is aided, through control by the ECU, by the activation of the glow plugs installed on the inlet endcan of the muffler. The electric power supply to these components (4 or 6, depending on the application) is via a suitable connection to the vehicle's battery. The power consumption is quite reduced and limited in time. This in order not to diminish the life and reliability of the vehicle's battery.

The maintenance intervals specified by the engine/vehicle manufacturer for the other auxiliary systems of the diesel engine (diesel injection, air intake, lubrication, etc) remain unchanged and should be strictly followed.

Specifically, it must be guaranteed that:

- **The smoke opacity of the exhaust gases measured upstream of the filter is lower than 1.7 K [m-1]** (1.5 K for engines equipped with EGR or in the case of installation of **Feelpure™ AR** systems)
- **The lube-oil consumption is lower than 800g/1000 km (0.25% of the fuel consumption)** (600g/100Km for engines equipped with EGR or in the case of installation of **Feelpure™ AR** systems)
- **The temperature of the exhaust gases at the inlet side of the muffler must be kept at over 300°C for at least 5% of the running time of the engine** in the case of **Feelpure™** systems.
- **In any case the temperature of exhaust gases at the muffler's output must remain higher than 200°C for at least 35% of the time the engine is used** (in the case of **Feelpure™** systems this percentage must be more than 50%).

	FEELPURE™ SYSTEM		On board additive dosing version
	INSTALLATION, OPERATION & MAINTENANCE BOOK		Date: 12.12.2010
			Revision: Rev. 7.2 - EN

1.1 List of the supplied components

The following table lists the components of the **Feelpure™** system.

Any non-compliance in relation to the following list of components (see the adhesive label on the packaging of Feelpure™ systems for the packing list) can be notified to Pirelli Eco Technology via fax +39.02.398.74.664 or via mail to service.ecotechnology@pirelli.com.



FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK

On board additive
dosing version

Date: 12.12.2010

Revision: Rev. 7.2 - EN

Feelpure™ system components			Quantity
A	Muffler		1
	A.1	Inlet Endcan	1
	A.2	Outlet Endcan	1
	A.3	Filter / Filtering cartridge	1
	A.4	V-Clamp	2
	A.5	Gasket	2
	A.6	Endcan bracket	2
	A.7	Exhaust "heavy-bolt" - "U" clamps	2
	A.8	Exhaust pipe adapter	4
	A.9	Silent-block	4
	A.10	Specific component (for BESPOKE versions)	-
B	Additive dosing KIT (12 / 24V)		1
	B.1	Additive dosing pump (12 / 24V)	1
	B.2	PTFE Additive hose	1
	B.3	Additive filter	1
	B.4	Quick-fit connections	9
	B.5	Tee connection 8/10/12 mm	3
	B.6	Additive filter hose clamp	1
	B.7	Antivibration hose clamp + M6 bolt	1
	B.8	Stop cock 1/4" m - 1/4" f	1
	B.9	Teflon® gasket for level gauge support	1
	B.10	Low level additive switch + copper washer	1
	B.11	Additive pump electrical connector	1
	B.12	Low level additive switch electrical connector	1
C	Backpressure kit 3.0 (Light/Heavy)		1
	C.1	ECU protection filter with condensate collector (LIGHT/HEAVY)	1
	C.2	Poliurethane pipe quick fit connection	3
	C.3	1/4" - 6mm Pipe tong	2
	C.4	Electronic Control Unit 3.0	1
	C.5	Antivibration hose clamp 6mm + bolts/screws	6
	C.6	ECU 3.0 electrical connector	1
	C.7	Vehicle Battery ECU 3.0 electrical connector	1
	C.8	ECU 3.0 Dashboard LED	1
D	Installation KIT (AR for specific versions)		1
	D.1	Blu poliurethane pipe	1
	D.2	6mm metallic pipe	1
	D.3	PTFE additive hose	1
	D.4	2-wires electrical cable	1
	D.5	7wires electrical cable	1
	D.6	20mm corrugate sheath	1
	D.7	10mm corrugated sheath	1
	D.8	20mmmm cable gand	1
	D.9	10mm cable gand	1
	D.10	Electric protecting box	1
	D.11	10mm ² electrical cable (for Relay-Vehicle Battery connection) (only for Feelpure™ AR versions)	1




FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK

On board additive
dosing version

Date: 12.12.2010


Revision: Rev. 7.2 - EN



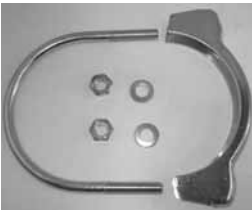

E	Feelpure™ ARKit® 4-6 glow plugs (only for Feelpure™ AR versions)	1
	E.1 Glow plug	4 - 6
	E.2 Short hexagonal nut M8x1	4 - 6
	E.3 PTFE high-temperature cable	1
	E.4 Thermistor electrical connector	1
	E.5 Manual regeneration button with electrical connector	1
	E.6 Glow-plug supply relay with electrical connector	1
	E.7 3A "glow-plug sense" with electrical connector	1
	E.8 50A "glow-plug supply" with electrical connector	1
	E.9 Electric safety connection box with M6 x 13mm bolt	1
	E.10 Glow-plug "positive pole" protection	4 - 6
F	CAM FBC additive tank	1
	F.1 5/10/20/30 litres tank (according to the application)	1
	F.2 Additive tank cap	1
	F.3 Low level additive switch support + bolts/screws	1
G	CAM FBC additive - 5 litres cans	from 1 to 4
H	Silicone insulation KIT	2
	H.1 Self Bonding Tape	1
	H.2 Insulation Tape	1
	H.3 High Temperature Silicone	1


	FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK	On board additive dosing version
		Date: 12.12.2010
		Revision: Rev. 7.2 - EN





For explanatory purposes the following table shows the main components (identified by the relevant progressive number) in relation to the aforementioned list:


Photo of component	Name	Progressive identification number	Quantity
Muffler / Silencer			
	Inlet endcan	A.1	1
	Outlet endcan	A.2	1
	Filter / Filtering cartridge	A.3	1
	V-clamp	A.4	2

	FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK	On board additive dosing version
		Date: 12.12.2010
		Revision: Rev. 7.2 - EN


	Filter gasket	A.5	2
	Endcan brackets	A.6	2
	Exhaust "Heavy-bolt" / "U-bolt" clamp	A.7	2 – 4
	Exhaust pipe adapter	A.8	4





	FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK	On board additive dosing version
		Date: 12.12.2010
		Revision: Rev. 7.2 - EN


	Muffler silent-block	A.9	4
N.A.	BESPOKE system specific components	A.10	-
Additive dosing KIT (12 / 24V according to the application)			
	Additive pump with connector (12/24V according the application)	B.1	1
	Additive PTFE hose	B.2	1
	Additive filter	B.3	1

	FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK	On board additive dosing version
		Date: 12.12.2010
		Revision: Rev. 7.2 - EN


	Quick-fit connections	B.4	9
	Tee connection 8/10/12 mm	B.5	3
	Additive filter hose clamp	B.6	1
	Antivibration hose clamps + M6 bolt	B.7	1
	Stopcock 1/4" m – 1/4" f	B.8	1
	55mm Teflon® gasket for level gauge support	B.9	1



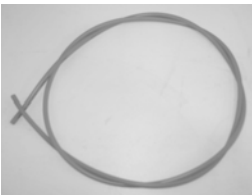


	FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK	On board additive dosing version
		Date: 12.12.2010
		Revision: Rev. 7.2 - EN


	Low-level additive switch + copper washer	B.10	1
	Additive pump electrical connector	B.11	1
	Low-level additive switch electrical connector	B.12	1
Backpressure control KIT 3.0			
	ECU protection filter with condensate collector (LIGHT / HEAVY version according to the application)	C.1	1





	FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK		On board additive dosing version
			Date: 12.12.2010
			Revision: Rev. 7.2 - EN


	Polyurethane pipe quick-fit connection	C.2	3
	1/4" - 6mm Pipe tong	C.3	2
	ELECTRONIC CONTROL UNIT 3.0	C.4	1
	6mm Antivibration clamp + bolts/screws	C.5	6
	ECU 3.0 electrical connector	C.6	1





	FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK	On board additive dosing version
		Date: 12.12.2010
		Revision: Rev. 7.2 - EN


	Vehicle battery ECU 3.0 electrical connector	C.7	1
	ECU 3.0 dashboard LED	C.8	1
Installation KIT			
	Blue polyurethane pipe	D.1	Length depending on the application
	6mm Metallic pipe	D.2	Length depending on the application
	PTFE Additive hose	D.3	Length depending on the application
N.A.	2-wires electric cable	D.4	Length depending on the application






	FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK	On board additive dosing version
		Date: 12.12.2010
		Revision: Rev. 7.2 - EN


N.A.	7-wires electric cable	D.5	Length depending on the application
	20mm Corrugated sheath	D.6	Length depending on the application
	10mm Corrugated sheath	D.7	
	20mm Cable gland	D.8	1
	10mm Cable gland	D.9	1



	FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK	On board additive dosing version
		Date: 12.12.2010
		Revision: Rev. 7.2 - EN




	Electric protecting box	D.10	1
	10mm ² electric cable (for Relay/Vehicle- battery connection) (only for Feelpure™ AR versions)	D.11	1
Feelpure™ ARKit® 4-6 plugs (only for Feelpure™ AR versions)			
	Glow plug (only for Feelpure™ AR versions)	E.1	4 – 6 (depending on the application)
	Short Hexagonal M8x1/M10x1.25 nut (only for Feelpure™ AR versions)	E.2	4 – 6 (depending on the application)


	FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK	On board additive dosing version
		Date: 12.12.2010
		Revision: Rev. 7.2 - EN


	PTFE high-temperature cable	E.3	1
	Thermistor with electrical connector	E.4	1
	Manual regeneration button with electrical connector	E.5	1
	Glow plug supply relay with electrical connector	E.6	1
	3A "Glow plug sense" fuse with electrical connector	E.7	1


	FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK	On board additive dosing version
		Date: 12.12.2010
		Revision: Rev. 7.2 - EN

	50A "Glow plug supply" fuse with electrical connector	E.8	1
	Electrical connection box with M6 x 13mm nut	E.9	1
	Glow plug "positive pole" protection	E.10	4 - 6 (depending on the application)
CAM FBC additive tank			
	5/10/20/30 litre tank (according to the application)	F.1	1
	Additive tank cap	F.2	1

	FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK		On board additive dosing version
			Date: 12.12.2010
			Revision: Rev. 7.2 - EN
	Low-level additive switch support + bolts/screws	F.3	1
	CAM FBC additive – 5 litre cans	G	From 1 to 4 (according to the application)

	FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK	On board additive dosing version
		Date: 12.12.2010
		Revision: Rev. 7.2 - EN

Silicone insulation KIT			
	Self Bonding Tape	H.1	1
	Insulation Tape	H.2	1
	High Temperature Silicone	H.3	1

	FEELPURE™ SYSTEM	On board additive dosing version
	INSTALLATION, OPERATION & MAINTENANCE BOOK	Date: 12.12.2010
		Revision: Rev. 7.2 - EN

2) Basic selection/dimensioning guidelines for the Feelpure™ system

Muffler

All muffler designs for Feelpure™ systems for **RETROFIT** (also known as **BESPOKE**) application are developed by Pirelli Eco Technology based on the original chassis, with tailor-made solutions. Installation of one of these systems is actually a replacement of the original muffler, and it matches the original in terms of size, supports and mountings.

For special vehicles/applications, **STANDARD** systems are offered which are then adapted, via adjustment operations, to replace the original muffler. The components supplied by Pirelli are based on past experience: specific installations may require specific components that are not included in the installation kits.

The same difference applies to the **Feelpure™ AR** versions.


Every Feelpure™ system has a “**SAP code**” (e.g. 2000083901) which is used for logistical/administrative purposes, and a “**MUFFLER code**” (e.g. MST11225NC1) which is necessary for its recognition for homologation/road circulation purposes. This second code is found on the inlet end can for exhaust gases (which is part of the muffler) and it is also essential for identifying the system for maintenance purposes and for coverage by the warranty.

Filter / Filtering Cartridge / Particulate trap

In the same way, the filter is identified by a “**SAP code**” (e.g. 6400000101) which is used for logistical/administrative purposes, and by a “**FILTER code**” (e.g. F111409N71) which is necessary for its recognition for homologation/road circulation purposes. This second code is found on the metal plate welded to the filtering cartridge's canning and it is also essential for identifying it for maintenance purposes and for coverage by the warranty.

In all cases the filter (particulate trap) is dimensioned on the basis of the engine characteristics (displacement, power, emissions level). Please refer to the table shown below (the engine power values are indicative).

FILTER CODE	FILTER DIAMETER [INCHES]	FILTER LENGTH [INCHES]	FILTER VOLUME [LITRES]	ENGINE DISPLACEMENT [LITRES]	ENGINE POWER [Up to kW / hp]
F671118N41	6.77	11	6.5	3.0	70 / 95
F750815N41	7.5	8	5.8	2.9	70 / 95
F751115N41	7.5	11	8	4	100 / 135
F751415N41	7.5	14	10	5	130 / 180
F101015N71	10	10	12.9	6.5	175 / 240
F101215N71	10	12	15.5	8	215 / 290
F101515N71	10	15	19.3	10	240 / 330
F111215N71	11.25	12	19.6	10	255 / 350
F111415N71	11.25	14	22.8	13	270 / 370
F121515N71	12	15	27.8	16	380 / 520

	FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK		On board additive dosing version
			Date: 12.12.2010
			Revision: Rev. 7.2 - EN

As an example, an IVECO CURSOR 7.8 litre engine needs an F101215N71 cartridge with a useful filtering volume of 15.5 litres.

Buses equipped with MAN D2866 or Mercedes OM447 engines (both 11.9 litre) need F111415N71 cartridges with a filtering volume of 22.8 litres.

A medium vehicle equipped with a 5.9 litre IVECO 8060 engine needs an F101215N71 cartridge with a filtering volume of 15.5 litres.

In some countries, matching the engine/vehicle with the respective filtering cartridge must take into account legislative restrictions and the related specifications.

The homologation tables for Italy are shown below as an example, and from these we can identify the correct Feelpure™ system to install in order to obtain the update to the vehicle's Registration Certificate. Note that the table shown is subject to continual updates.

The most recent version is available for consultation at the following internet address:

<http://www.it.pirelliecotechnology.com/web/products/downloads/default.page>

The correct designation of the category to which the vehicle belongs is in the vehicle registration document on line J, and the environmental homologation class (based on the EC directive) is indicated on line V.9.

In detail, for the table of homologations valid for engines used in Heavy Duty vehicles:

- EURO 0: previous to the entry into force of the 91/542/EEC directive
- EURO 1: 91/542/EEC directive, line A
- EURO 2: 91/542/EEC directive, line B, i.e. 96/1/EEC
- EURO 3: 1999/96/EC directive to 2001/27/EC directive, line A




FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK

On board additive
dosing version

Date: 12.12.2010

Revision: Rev. 7.2 - EN


Cilindrata motore MAX (cc)	Cilindrata motore MIN (cc)	n. cilindri	Alimentazione	Sistema Pirelli	Omologazione di partenza del motore	Cod. Omologazione	Fascia inquadramento emissioni particolato con sistema FEELPURE™
17.174	13.739	8	Turbo	F1215	EURO 0	NAD8004EST001	EURO 3
					EURO 1	NAD8004EST002	EURO 3
					EURO 2	NAD8004EST006	EURO 5
				F1114	EURO 3	NAD8004EST007	EURO 5
					EURO 0	NAD8001EST006	EURO 3
					EURO 1	NAD8001EST007	EURO 3
13.798	11.038	6	Turbo	F1215	EURO 2	NAD8001EST023	EURO 5
					EURO 3	NAD8001EST024	EURO 5
					EURO 2	NAD8004EST004	EURO 5
				F1114	EURO 3	NAD8004EST005	EURO 5
					EURO 0	NAD8001EST009	EURO 3
					EURO 1	NAD8001EST010	EURO 3
				F1015	EURO 2	NAD8001EST019	EURO 5
					EURO 3	NAD8001EST020	EURO 5
					EURO 0	NAD8002EST001	EURO 3
					EURO 1	NAD8002EST002	EURO 3
					EURO 2	NAD8002EST003	EURO 3
12.760	10.208	8	Turbo	F1114	EURO 0	NAD8001EST015	EURO 3
11.600	9.280	6	Turbo	F1114	EURO 1	NAD8001EST016	EURO 3
11.020	8.816	6	Turbo	F1114	EURO 2	NAD8001EST021	EURO 5
9.975	7.980	5	Turbo	F1114	EURO 3	NAD8001EST022	EURO 5
9.572	7.658	6	Turbo	F1114	EURO 0	NAD8001EST012	EURO 3
9.498	7.598	6	Turbo	F1114	EURO 1	NAD8001EST013	EURO 3
					EURO 2	NAD8001EST025	EURO 5
					EURO 3	NAD8001EST026	EURO 5
				F1015	EURO 0	NAD8001EST003	EURO 3
					EURO 1	NAD8001EST004	EURO 3
					EURO 2	NAD8001EST017	EURO 5
7.790	6.232	6	Turbo	F1012	EURO 3	NAD8001EST018	EURO 5
6.871	5.497	6	Turbo	F1012	EURO 2	NAD8002EST004	EURO 5
4.580	3.664	4	Turbo	F1012	EURO 3	NAD8002EST005	EURO 5
3.972	3.178	4	Turbo	F1012	EURO 1	NAD8005EST004	EURO 3
3.908	3.126	4	Turbo	F1012	EURO 2	NAD8005EST005	EURO 5
3.000	2.400	4	Turbo	F1012	EURO 3	NAD8005EST006	EURO 5
2.800	2.240	4	Turbo	F1012	EURO 0	NAD9018	EURO 5
2.800	2.240	4	Turbo	F1012	EURO 3	NAD9019	EURO 5
2.800	2.240	4	Naturale	F1012	EURO 0	NAD8005EST001	EURO 3
2.500	2.000	4	Turbo	F1012	EURO 1	NAD8005EST002	EURO 3
2.286	1.829	4	Turbo	F1012	EURO 2	NAD8005EST007	EURO 5
2.800	2.240	4	Turbo	F6711	EURO 3	NAD8005EST008	EURO 5
					EURO 2	NAD8005EST009	EURO 5
					EURO 3	NAD8005EST010	EURO 5
				F7511	EURO 2	NAD8003EST003	EURO 5
					EURO 3	NAD8003EST004	EURO 5
					EURO 0	NAD8003	EURO 3
2.800	2.240	4	Turbo	F6711	EURO 1	NAD8003EST001	EURO 3
2.800	2.240	4	Turbo	F6711	EURO 2	NAD8003EST002	EURO 3
2.800	2.240	4	Turbo	F6711	EURO 3	NAD9028	EURO 5
2.800	2.240	4	Turbo	F6711	EURO 2	NAD8006EST004	EURO 5
2.800	2.240	4	Turbo	F6711	EURO 3	NAD8006EST005	EURO 5
2.800	2.240	4	Turbo	F6711	EURO 2	NAD9028EST002	EURO 5
2.800	2.240	4	Turbo	F6711	EURO 3	NAD9028EST005	EURO 5
2.800	2.240	4	Turbo	F6711	EURO 2	NAD9028EST003	EURO 5
2.800	2.240	4	Turbo	F6711	EURO 3	NAD9028EST004	EURO 5
2.800	2.240	4	Turbo	F6711	EURO 2	NAD8006EST006	EURO 5
2.800	2.240	4	Turbo	F6711	EURO 3	NAD8006EST007	EURO 5
2.800	2.240	4	Turbo	F6711	EURO 0	NAD8006EST001	EURO 3
2.800	2.240	4	Turbo	F6711	EURO 1	NAD8006EST002	EURO 3
2.800	2.240	4	Turbo	F6711	EURO 2	NAD8006EST003	EURO 3
2.800	2.240	4	Turbo	F6711	EURO 3	NAD9028EST001	EURO 5

	FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK		On board additive dosing version
			Date: 12.12.2010
			Revision: Rev. 7.2 - EN

In detail, the table of homologations is valid for EURO 2 vehicles (Light Duty): 96/69/EC directive, 98/77/CE, 94/12/CEE, 96/44/CE, etc.

Cilindrata		n° cilindri	Alim.	Omologazione di partenza del motore	Categoria	Massa	Sistema PIRELLI	Cod. Omologazione	Fascia inquadramento emissioni	
max	min									
2800	1960	4	Turbo	EURO 2	M	massa complessiva >2500 Kg	F6711	NAD9026EST001	EURO 4	
					N1	1735 Kg<taras 2815 Kg				
					M	massa complessiva >2500 Kg	F7511	NAD9027EST001		
					N1	1735 Kg<taras 2815 Kg				

For all the versions of the Feelpure™ systems, in addition to the choice of filter/system, it is also necessary to determine and set (at the end of the installation) a series of parameters which are included in a *.dcr settings file, depending on the type of the vehicle on which the system will be installed and its principal use (urban, extraurban, motorway etc.). In addition, the additive dosing interval in the control unit must be set (see section 9.6.1).

	FEELPURE™ SYSTEM	On board additive dosing version
	INSTALLATION, OPERATION & MAINTENANCE BOOK	Date: 12.12.2010
		Revision: Rev. 7.2 - EN

3) Replacing the original muffler

Assembly of the **Feelpure™** system (and **Feelpure™ AR** system) involves replacing the original muffler and mounting a number of additional components, including the additive tank and the electronic control unit (see table and descriptive list in section 1.1.)

The description of the operations to be carried out is divided into sections for each main component and also for the mechanical and/or electrical connections between them.


The instructions in this section also apply to the installation of a Feelpure™ AR system, but they must be integrated with the instructions in the following section (3AR). It is therefore necessary to carefully read both sections before replacing the muffler.

Before beginning to assemble the system, read ALL of the following instructions. If the muffler is installed without following these instructions, the product will not be covered by the warranty.

NB: in every threaded connection to be made in the assembly described, the male-threading must be sealed with an adequate quantity of Teflon® tape.

The procedure for removing/installing the muffler described below is obviously generalised. There may be small differences between the systems (see the description of Feelpure™ RETROFIT and STANDARD in section 2). For notes on safety, see the **Important Notes** section at the beginning of this manual.

- 0) Fill out the Installation&Warranty Form (following the instructions given in section 9.9), and in particular fill in the silencer and filter codes, shown on the metal plates welded to the endcans and filtering cartridge.
- 1) Test the smoke opacity of the exhaust gases. The value must be lower than 1.7 K [m-1] (1.5 for engines equipped with EGR or for the installation of Feelpure™ AR systems).
- 2) Remove the original muffler and check the reliability of the existing supports and mountings, and if they are not adequate rectify them via adjustment, observing good technical standards and normal workshop practices. As well as the muffler supports, you also need to check the operational and maintenance conditions of the components connected to the muffler itself (or which are installed in the immediate vicinity). In particular, check the pipes and hoses connecting the turbocharger to the muffler, the hose clamps affixing them, the screws, nuts and bolts, the protective panels in the muffler bay, the electrical/pneumatic cables etc. If these components are in a poor state of maintenance (bleeding, breakages, damaged or broken welds, cables/hoses/components fitted in a rough-and-ready manner etc) then they must be replaced/repared to proper technical standards and according to normal workshop practice. In no way can Pirelli be held responsible for damage to the aforementioned components or to the vehicle in relation to the sole application of the filtering system.
- 3) Position the **Feelpure™** replacement muffler on the support brackets, **taking care to install it on new, anti-vibration supports, even if these were not required for the original muffler. Pay attention to the exhaust gases direction indicating arrow, reported on the filter cartridge plate. It must always be the correctly directed toward the outlet end-can.** The muffler support brackets (**A.6**) must "preferably" be installed so as to grip the inlet/outlet end cans (**A.1 – A.2**), thus to allow easy removal operations of the filtering cartridge. However there are no technical issues related to the application of the above mentioned brackets directly onto the filtering cartridge. All that is needed is to budget for extra time when replacing the filtering cartridge (**A.3**).

	FEELPURE™ SYSTEM	On board additive dosing version
	INSTALLATION, OPERATION & MAINTENANCE BOOK	Date: 12.12.2010
		Revision: Rev. 7.2 - EN

- 4) Connect the inlet and outlet pipes to the intake and outflow sides of the replacement muffler **taking care to position the identification plates (welded on the inlet end can and on the filter) in a position where they can be easily read for any scheduled/homologation/roadworthiness checks.** If the dimensions of the original pipes are different from those of the Feelpure™ muffler, apply the necessary reductions (**A.8**).
- 5) Fix the endcan brackets supplied with the replacement muffler to the original supports and mountings on the vehicle, using the Pirelli components if these are supplied, or via suitable adjustments. During installation take account of the fact that the height of the new muffler from the ground may vary; if this height is very low then make any necessary adjustments to restore the correct distance from the road surface.
- 6) When carrying out the installation, observe the vehicle/engine Manufacturer's standard requirements and/or specifications (e.g. ensure the minimum distance from existing electrical wires, from fuel/oil/coolant pipes, from moving parts etc.). Also, adequate thermal insulation must be used at all points which could come into direct contact with the instruments on board and with electric wires/cables (special kits and components are available on request).

All adjustment/welding operations that may be necessary during the installation must be executed in accordance with good technical standards and normal workshop practice. Parts outside the system (brackets, supports etc.) must not be welded to the body/canning of the filtering cartridge.

The correct functioning of the Feelpure™ system is linked to the temperatures at the inlet of the muffler. The use of catalysing additive permits the regeneration/combustion of the particulate collected in the filter at temperatures of 280/300 °C. It is therefore essential that these temperatures be available. In order to ensure the highest possible temperatures at the inlet to the filtering cartridge, it is necessary to use the special thermal insulation kit (**H**) for the pipe between the engine/turbocompressor and the muffler.

Bear in mind that the longer this pipe, the greater the loss of heat/temperature. It is good practice to wrap this pipe with the available insulating material, taking care to attach it using the special adhesive tape and metallic fixing clamps supplied. Each insulation kit supplied is sufficient to properly insulate an exhaust pipe of 1-1.3 metres in length (depending on the diameter of the pipe itself).

If the material supplied is not sufficient to entirely cover the pipe, then it is necessary to purchase one or more additional insulation kits, available on request.

Note on SAFETY for A.D.R. VEHICLES:

If a Feelpure™ system (or Feelpure™ AR system) is installed on a vehicle for transporting explosives or substances that are inflammable, toxic, radioactive, corrosive or carcinogenic, special attention must be paid to the positioning of the replacement muffler, taking into account the minimum distance required between a potential heat source and the load being transported by the vehicle. Take account of the fact that the replacement muffler can reach, in the regeneration phase, an outside temperature of approximately 3-400°C.



FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK

On board additive
dosing version

Date: 12.12.2010

Revision: Rev. 7.2 - EN

INSTALLATION note for SPECIAL Bus/Truck VERSIONS:

For the specific case of the **FIAT-IVECO 370** vehicle, Pirelli Eco Technology provides different BESPOKE solutions depending on the vehicle version/series on which it is necessary to work on. Each solution has the necessary **INSTALLATION INSTRUCTIONS**. Therefore, before proceeding with assembly of the product, it is essential to consult these instructions (provided with the system and/or available on the internet website www.pirelliecotecnology.com or by contacting Pirelli Eco Technology S.p.A. Customer Assistance by email at: service.ecotechnology@pirelli.com).

The same rule is also valid for other buses/trucks produced in several versions/series with different muffler solutions (in terms of shape, supports, position on the vehicle, etc). For this reason Pirelli Eco Technology recommends visiting its website for further information about installations that pose problems or a particular challenge.

Some examples of muffler mountings are shown on the following pages:

BOVA FUTURA FHD



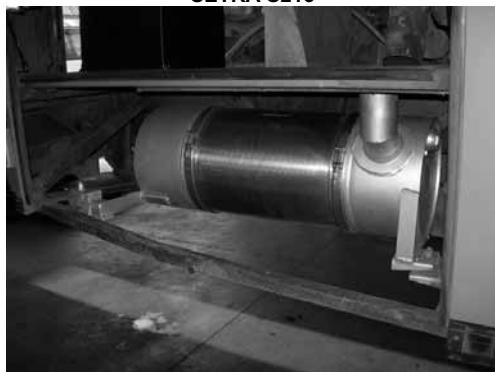
VOLVO B10 – EURO1



MERCEDES ACTROS



SETRA S215





FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK

On board additive
dosing version

Date: 12.12.2010

Revision: Rev. 7.2 - EN

MERCEDES CITARO



IVECO 370 L25 L 30



NEOPLAN 122



MAN 41.464



IVECO EURORIDER



IVECO 491/591 12m E2





FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK

On board additive
dosing version

Date: 12.12.2010

Revision: Rev. 7.2 - EN

IVECO CITYCLASS CURSOR 491/591 18m E3



IVECO 480



MERCEDES O 303



PALA ZAXIS 210N



DAF 95.430 EURO 2



IVECO TRAKKER VERT CON AUSILIARIO





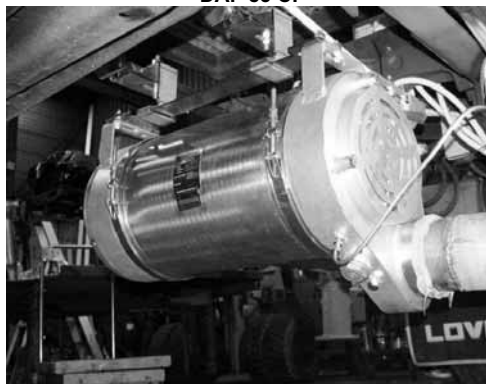
FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK

On board additive
dosing version

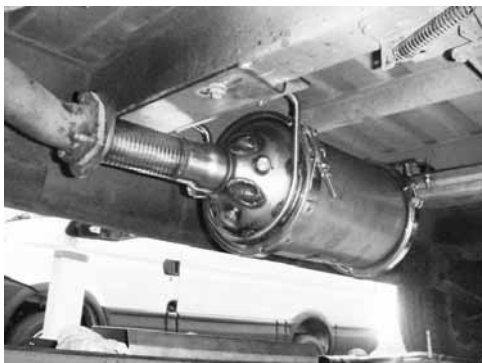
Date: 12.12.2010

Revision: Rev. 7.2 - EN

DAF 85 CF



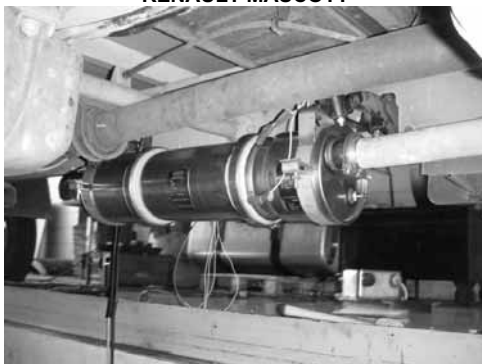
FIAT DUCATO



MAN A 21



RENAULT MASCOTT




RENAULT SFR 112



SETRA S328



	FEELPURE™ SYSTEM	On board additive dosing version
	INSTALLATION, OPERATION & MAINTENANCE BOOK	Date: 12.12.2010
		Revision: Rev. 7.2 - EN

3AR) Additional activities to be carried out on the muffler for Feelpure™ AR versions

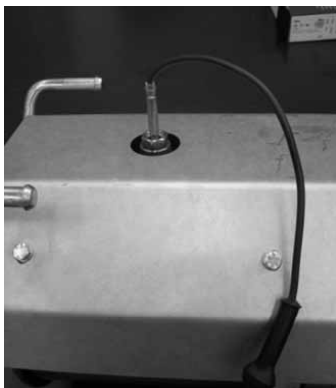
The assembly of the **Feelpure™ AR** system is different from that of the **Feelpure™** versions in that there are some additional operations which are described in this section.

For making the electrical connections, similarly to this section (which describes the mechanical connections), you need to follow the same steps as described for the **Feelpure™** versions and supplement these with some specific, extra operations – see sections **7)** and **7AR)**.

Moreover, as mentioned in section 2, particular attention must be paid when making the settings in the electronic control unit – see section **9.5**.

3.1 AR) Installation of temperature sensor

For Feelpure AR™ systems, before placing the muffler in its housing, it is necessary to tighten the supplied thermistor (**E.4**) in the sleeve welded on the exhaust gas exit end can (**A.2**) of the muffler:




3.2 AR) Installation of glow-plugs

3.2.1 AR) M10x1.25 Glow-plugs – 12 or 24V depending on the application

The Feelpure™ AR systems can be supplied complete with two different models of glow plugs, both with threaded stem in stainless steel M10x1.25:

- o 12V, for Light Duty applications – Light Vehicles
- o 24V, for Heavy Duty applications – Heavy Vehicles

For vehicles with a 12V electrical system, a 12V relay will be provided, and for vehicles with a 24V system a 24V relay will be provided. In the photos below are the two types of glow-plugs supplied (NB: the voltage values stamped on the glow plugs indicate the rated working voltage, i.e. 13V and 26V).

	FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK		On board additive dosing version
			Date: 12.12.2010
			Revision: Rev. 7.2 - EN

12V M10X1.25 Glow plugs

Code: 7000001001



24V M10X1.25 Glow plugs

Code: 70000001101



To install these glow plugs correctly, perform the operations described below:

- Screw the M10x1.25 bolts onto the body of the M10 glow plugs – 12 or 24V – present in the ARK4/6 kit (E), then insert them in the threaded holes located on the muffler inlet endcan.
- Bring the tips of the glow plugs into contact with the silicon carbide at the centre of the corresponding segment (forming the filtering cartridge) using a dynamometric screwdriver, applying a tightening torque of 0.65 Nm.
This operation is necessary to ensure the functioning of the active regeneration system, by preventing the filtering cartridge from being damaged.
- Tighten the M10x1.25 locknut into place, using a 17 mm light Allen key and applying a tightening torque of 25Nm.

For the assisted regeneration system to function correctly the glow plugs must be positioned at the centre of each segment.



FEELPURE™ SYSTEM **INSTALLATION, OPERATION &** **MAINTENANCE BOOK**

On board additive
dosing version

Date: 12.12.2010

Revision: Rev. 7.2 - EN



Threaded hole in the inlet endcan



Tightening the glow plug using a dynamometric
screwdriver (torque 0.65 Nm)




Glow plug correctly installed, in contact with the
silicon carbide filter and in the centre of one of
the 4/6 segments



Glow plug installed, secured with M10x1.25
locknut (torque 25 Nm)

**Further information is available by consulting the Service Information 3/2009 document, which
you can download from the internet address:**

<http://www.it.pirelliecotecnology.com/web/products/downloads/service.page>

	FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK		On board additive dosing version
			Date: 12.12.2010
			Revision: Rev. 7.2 - EN

3.2.2 AR) M8x1 12V Glow plugs

These instructions are to be applied where an inlet plate has adaptors and bushings with M4x1 grub screw.

The first operation required is to screw the locking nuts M8x1 **(E.2)** on the 12V glow plugs **(E.1)** to be found in the ARK4/6 **(E)** kit.



Now it is possible to tighten the glow plugs, equipped with locking nut, to the end of the threading in the bushings with a torque of 17 Nm.





FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK

On board additive
dosing version

Date: 12.12.2010

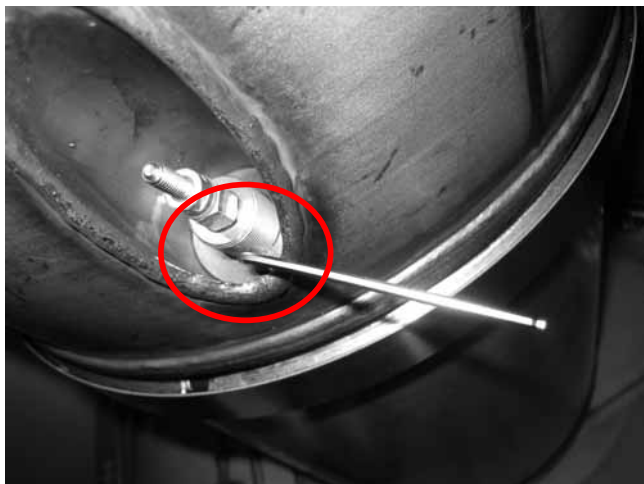
Revision: Rev. 7.2 - EN


Before tightening the glow plug/bushing assemblies, loosen the hexagonal-socket-head M4x1 grub screws on the 4/6 seats of the glow plugs found on the endcan, in order to make installation easier.

After having prepared the glow plug/bushing assemblies, it is possible to screw them in the housings on the inlet end plate (**A.1**) with a torque of 65cNm (i.e. 0.65 Nm), using a dynamometric screwdriver.



In order to complete the installation of the glow plugs, it is necessary to tighten the hexagonal-socket-head M4x1 grub screws in the housings, in order to eliminate any movement between the end plate and the glow plugs.



	FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK	On board additive dosing version
		Date: 12.12.2010
		Revision: Rev. 7.2 - EN

At the end of the operation the glow plugs must be in direct contact with the entry surface of the filter, in the central areas of the silicon carbide segments (4/6) of the filtering cartridge (see photo).



For the assisted regeneration system to function correctly the glow plugs must be positioned at the centre of each segment.



FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK

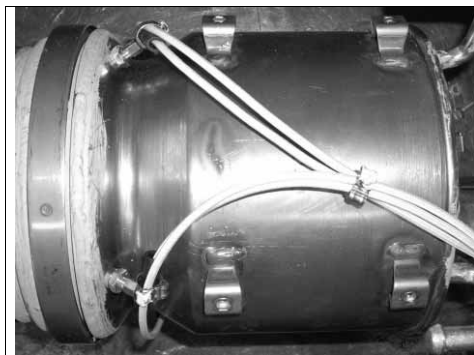
On board additive
dosing version

Date: 12.12.2010

Revision: Rev. 7.2 - EN

3.3 AR) Connection of glow plugs


To complete the installation of the glow plugs **(E.1)** (4 or 6 depending on the application), it is necessary to organize the cables of the muffler to power them, using the material supplied in the ARKit® kit **(E)** and adapting the lengths and the cable route **(E.3)** to the shape and to the subsequent positioning of the muffler on the vehicle.



The lengths of the PTFE cables must be such as to allow the eyelet wire terminals to be crimped to their ends and connection of the glow plugs to the power line. To one end must be crimped the M4 high temperature eyelet terminals, which are tightened to the glow plug via a nut, and to the other end must be crimped the M6 terminals to be connected to the glow plug supply relay **(E.6)** via a nut inserted into the connection box **(E.9)**. All the components mentioned are supplied in the ARKit®. The connection box must be affixed to the chassis about 2 metres from the muffler, and it must not be in direct contact with heat sources.

At this point it is possible to position the new muffler in the housing prepared according to the instructions given in the previous section 3).



	FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK		On board additive dosing version
			Date: 12.12.2010
			Revision: Rev. 7.2 - EN

If, while affixing the muffler, it is necessary to change the position of the inlet end plate relative to the filter, remember that it is not possible to directly loosen the affixing V-clamps.

First of all remove the glow plug/locknut assemblies, then detach the V-clamps, and then reposition the glow plugs in order to bring them into contact once more with the filter's inlet surface (at the centres of the segments that make up the filter).

Finally, as mentioned earlier, bring the cables of the glow plugs (E.3) to the chassis and fasten them to the muffler's supports (allowing the necessary clearance for the movement of the muffler relative to the chassis) and then proceed to position the connection box (E.9).


The connection of the glow plug power line protection fuse must be connected to the positive pole of the battery (12V or 24V depending on the voltage of the supplied glow plugs).

Just as the glow plugs rated for 12V must be connected to the positive pole of the 12V battery, the glow plugs rated for 24V must be connected to the positive pole of the battery pack (24V power supply), just as the other electrical devices on board the vehicle are normally connected.

An incorrect power supply to the glow plugs will lead to the malfunctioning of the entire system and possible damage to it.

Specifically, the following may occur:

- Connection of 12V glow plugs to a 24V positive pole:
Irreversible damage to the glow plugs
- Connection of 24V glow plugs to a 12V positive pole:
The heat generated by the ignition of the glow plugs does not allow the system to reach the temperatures necessary for the component, and the entire filtering system, to function correctly

	FEELPURE™ SYSTEM	On board additive dosing version
	INSTALLATION, OPERATION & MAINTENANCE BOOK	Date: 12.12.2010
		Revision: Rev. 7.2 - EN

4) Installing the CAM FBC additive tank

Numbers given in brackets after components refer to the positions indicated in the diagram on page 35 (DOSING KIT 2.0), and in the components list in section 1.1.

These components are supplied together with the Feelpure™ system in the ADDITIVE DOSING KIT.

- 1) Via the 1/4"-F threaded sleeve welded to the additive tank, mount the 1/4" stopcock [(1) in the following drawing, (B.8) in the components list] and on this mount a 1/4"M-6mm "L" connection (3) (B.4)
- 2) On the pump body (17)(B.1) screw the 2 quick-fit connections M5 M – 6mm (5)(B.4)
- 3) On the filter body (4)(B.5) screw the 2 quick-fit connections 1/4"M – 6mm (2)(B.4)
- 4) Fix the 12/24V additive pump to the support plate welded to the tank, using the antivibration hose-clamp Ø35mm (10)(B.7) and also fix the additive filter using the hose-clamp Ø40mm (14)(B.6)
- 5) With two lengths of the PTFE additive hose (D.3) connect the additive filter on one side to the stopcock, and on the other side to the delivery pump.

Note: The PTFE additive hose must be cut at 90° using special hose-cutting shears, taking care that the tube does not have an oval profile after cutting. Verify that there is no dribbling inside or outside.

- 6) Screw the additive level switch (8) (B.12) onto its support (**make sure that the arrow on the level gauge cursor is pointing upwards**). Pass the two electrical wires connected to the level sensor through the support. Seal the point where the wires come out from the support with an adequate amount of silicone, and make sure there is no leakage into the tank.
- 7) Position the 55 mm Teflon® white gasket seal (B.9) on the flanged hole in the upper side of the tank. Then insert the sensor into the hole on the upper side of the tank and tighten the three M4x10 screws to affix the support.
- 8) Position the tank and affix it using four M8 screws in one of the spaces in the vehicle (luggage compartment, spare-wheel storage space that may be unused, 'dead' spaces between the fuel tank and the inside wheel arch, etc). If necessary clamp it in a convenient, protected position close to the chassis.

DO NOT under ANY circumstances install the tank
in direct contact with heat sources, inside the driver's cab, or inside a passenger
compartment.

The following are two example diagrams of the floating gauge (with the supporting shaft) and one of the available tank models.



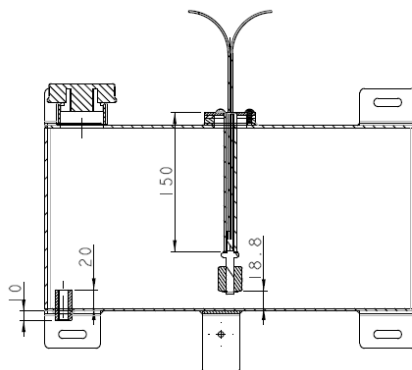
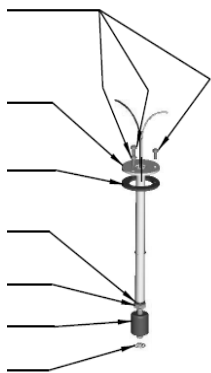
FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK

On board additive
dosing version

Date: 12.12.2010

Revision: Rev. 7.2 - EN

ADDITIVE SWITCH	LEVEL
SUPPORT SCREWS	FIXING
ADDITIVE SWITCH SUPPORT	LEVEL
55mm Teflon® GASKET	
COPPER WASHER	
ADDITIVE SWITCH SHAFT	LEVEL
ADDITIVE	LEVEL



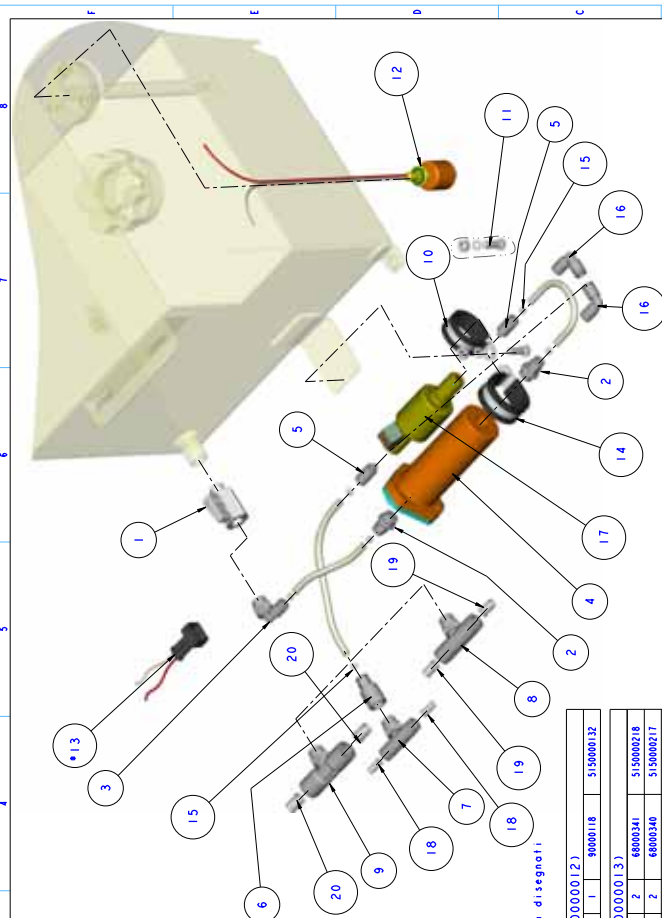
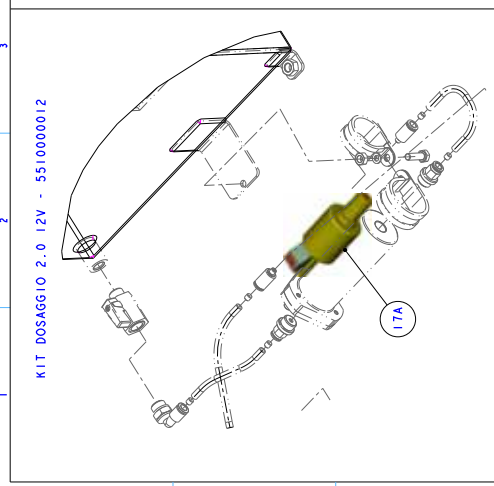
Note 1 :if no space or auxiliary compartment is available on the vehicle for the additive tank then it can be installed in the engine compartment, but taking care to locate it in the coolest area (on the air-intake side) or by using suitable thermal insulation (special kits are available on request).

Note 2 : the additive level switch notifies the vehicle driver of the need to **refill the tank** (via the installed dashboard LED – see section 10.2). This operation, like the **first filling**, must be carried out following the safety precautions described in the CAM FBC Safety Data Sheet and must also respect the **level indicators (MIN-MAX)** shown on the tank walls. **Never fill to over 90% of the maximum tank capacity.**

Note 3 : If the additive tank is placed in a luggage compartment of the vehicle, place the dosing pump on the compartment wall side and/or install one or more protective walls on the other sides to isolate the dosing system from the rest of the compartment and to avoid accidental collisions with items of luggage (which may cause damage to the dosing system and/or additive leakage).

Note 4 :The additive dosing pump must be installed horizontally (or in any case with an inclination not greater than 15°). The pump must not be installed vertically. It must preferably be installed near the tank, using the special components provided for affixing the pump (B.7).



Bear in mind that the flash-point temperature of the CAM FBC additive is between 61 and 100°C. For further details see the Safety Data Sheet for the additive, which is enclosed with every delivery and is also available on the internet website www.pirelliecotecnology.com.




* N.B. Il codice 5500000236 è composto anche da altri elementi non designati

ITA	POMPA PER OSSIGENO ADITIVO 24V NSF	KIT DOSAGGIO 2.0 12V - 6100004271 (551000012)	ADITIVO DOSING PUMP 24V NSF	1	9000018	515000032
		KIT DOSAGGIO 2.0 24V - 6100004371 (551000013)				
20	OGIVA Ø 10 mm PER TUBO GOMMA Ø 10 mm	OGIVA Ø 10 mm PER RUBBER HOSE Ø 10 mm	2	68000341	5150000218	
19	OGIVA Ø 8 mm PER TUBO GOMMA Ø 10 mm	OGIVA Ø 8 mm PER RUBBER HOSE Ø 10 mm	2	68000340	5150000217	
18	OGIVA Ø 6 mm PER TUBO GOMMA Ø 8 mm	OGIVA Ø 6 mm PER RUBBER HOSE Ø 8 mm	2	68000339	5150000216	
17	POMPA PER DOSAGGIO ADITIVO 24V NSF	ADITIVO DOSING PUMP 24V NSF	1	9000018	5150000132	
16	RACCORDO A INNESTO 1/4" 6mm	QUICK COUPLING 1/4" 6mm	2	68000335	5150000138	
15	OGIVA PER TUBO PTFE	PTFE HOSE FEMALE	12	68000338	5150000133	
14	CAVITÀ METALLO GOMMA Ø16mm	RUBBER FASTENING CLAMP Ø16mm	1	68000336	5150000165	
13	CONNESSIONE ECO 3.0 KIT DOSAGGIO	ECO 3.0 CONNECTIONS DOSING KIT	1	70000001	5500000236	
12	LIVELLOSTATO ADITIVO	ADITIVO LOW LEVEL SWITCH	1	90000084	5150000004	
11	VITE M12X 20 CON DADO E RONDELLA	SCREW M12X20 WITH NUT AND WASHER	2	90000040	5150000022	
10	POMPA PER DOSAGGIO ADITIVO 55mm	RUBBER FASTENING CLAMP 55mm	1	90000013	5150000026	
9	RACCORDO A INNESTO 1/4" 1/4M-12mm	QUICK COUPLING 1/4" 1/4M-12mm	1	68000054	5150000136	
8	RACCORDO A INNESTO 1/4" 1/4M-10mm	QUICK COUPLING 1/4" 1/4M-10mm	1	68000034	5150000134	
7	RACCORDO A INNESTO 1/4" 1/4M-6mm	QUICK COUPLING 1/4" 1/4M-6mm	1	68000333	5150000133	
6	RACCORDO A INNESTO 1/4" 6mm	QUICK COUPLING 1/4" 6mm	1	68000332	5150000132	
5	RACCORDO A INNESTO 55mm ACCIAIO INOX	QUICK COUPLING M54-55mm STAINLESS STEEL	2	68000337	5150000172	
4	FILTRO ADITIVO PER CANI TEC	CAN FIBC ADITIVO FILTER	1	90000116	5150000130	
3	RACCORDO A INNESTO 1/4" 1/4M-6mm	QUICK COUPLING 1/4" 1/4M-6mm	2	68000331	5150000129	
2	RACCORDO A INNESTO 1/4M-6mm	QUICK COUPLING 1/4M-6mm	2	68000330	5150000118	
1	VALVOLA A SFERA MINIBALL 1/4" MTF	M 1/4"-1/4" STOPCOCK	1	90000011	5150000023	
INDEX		DESCRIZIONE	QTY	SAP CODE	EX SAP CODE	

		CAD 30	CAD 20	APPO.	DATE	ECC NUMBER	RIF.
03		*****	*****				
02		*****	*****				
DGC RYK	DESCRIPTION						TOLLERANZE GENERALI RIF. DIN ISO 2768 1-2 -cl. / GENERAL TOLERANCE REF. DIN ISO 2768 1-2 -cl.

		KIT DOSAGGIO 2.0 24V DOSING KIT 2.0 24V		PRODUCT:	
MATERIAL:		WEIGHT:		PCS:	
CAD 3D	CAD 2D	APPD	DATE	ECN NUMBER	
R B	CHFC	CHFC	comune		
R B	CHFC	CHFC	comune		
EX SAP CODE		DOCUMENT NUMBER	DOC. REV		
ESB00000003		DWG	61000043		01
SHEET 1 of 2		SCALE		FILE NAME	
		33340000		A3	
Pirelli & C. Eco Technology S.p.A. Viale Luraghi, inc. 20020 Arese (MI)					
This drawing is our property. We total or partial reproduction and its use of any information contained therein are allowed without the prior written authorization of Pirelli & C. Eco Technology S.p.A.					

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	FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK		On board additive dosing version
			Date: 12.12.2010
			Revision: Rev. 7.2 - EN

5) Assembling the backpressure measurement metal pipe

Numbers given in brackets after components refer to the positions indicated in the following diagram (and to the components list in section 1.1).

- 1) Connect the 6mm metal pipe [(2) in the following diagram, (D.2) in the components list], after verifying with a burst of compressed air that it is not clogged, to the pipe-tong ¼" M-6mm (1) (C.3) which was previously installed on the sleeve positioned on the exhaust gas inlet end plate (0)(A.1) of the replacement muffler.
- 2) On the side opposite to the metal pipe, connect the pipe tong connection to the quick fit ¼"-4mm (3) (C.2).
- 3) Prepare the condensate separation filter (6) (C.1) by installing the quick fit 1/8"-4mm (5) (C.2) connectors on its inlet and outlet ends.

NB Make sure to respect the direction of throughput (arrow) indicated on the filter body.

- 4) Connect the blue polyurethane pipe (4) (D.1) (protected by a sheath) to the reducer (3) (C.2) and to the filter entry..
- 5) Connect, by means of the blue polyurethane pipe (protected by the corrugated sheath), the electronic control unit to the outlet point of the separating filter (6) (C.1).
- 6) Affix the metal pipe (2) (D.2) to the vehicle chassis by means of the supplied anti-vibration clamps (8)(C.5) and the separating filter(6) (C.1) in a protected but accessible position (at least 1.5m from the muffler) by means of the supplied special supports.



FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK

On board additive
dosing version

Date: 12.12.2010

Revision: Rev. 7.2 - EN

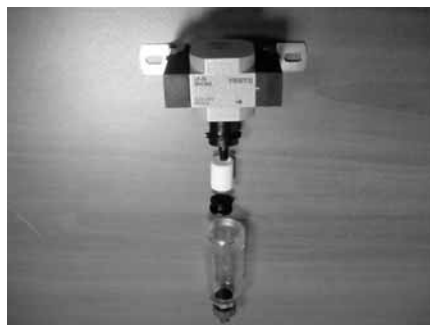
The filter **(6) (C.1)** can be installed in the engine compartment at a suitable distance from heat sources by means of its support brackets (see photos below).



Condensate separator filter for Light Duty vehicles
- installation

Condensate separator filter for Heavy Duty vehicles
- installation

To verify the integrity and functionality of the condensate separator filter (during installation or scheduled maintenance interventions – section **10.2**) refer to the following photos, which show all the components of the filter itself (both for the Light Duty version and the Heavy Duty version).



Condensate separator filter for Light Duty vehicles - components



FEELPURE™ SYSTEM **INSTALLATION, OPERATION &** **MAINTENANCE BOOK**

On board additive
dosing version

Date: 12.12.2010

Revision: Rev. 7.2 - EN



Condensate separator filter for Heavy Duty vehicles - components

When connecting the filter outlet **(6) (C.1)** to the quick-fit connector on the body of the electronic control unit, of the two connectors, make sure to use the one closer to the electrical connector (see photo below). Also, you should insert the end of the blue pipe all the way into the quick-fit connector, as far as it will go, and then verify that the connection is solid by checking that the blue pipe does not detach from the quick-fit connector.



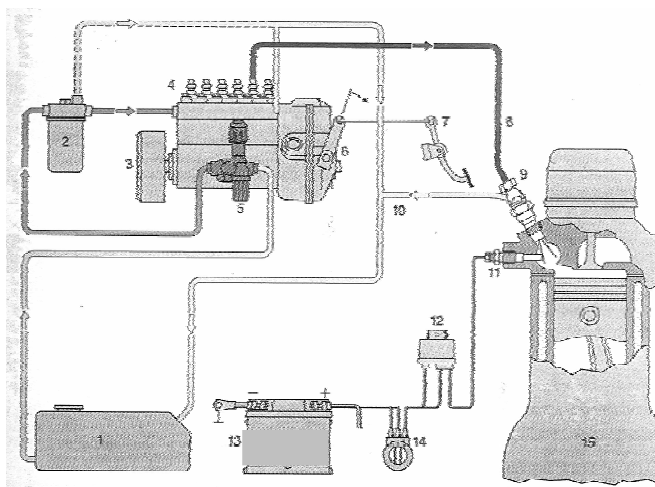
Connection to the electronic control unit

6) Connecting the additive line to the fuel injection system

Carrying out the tasks described in this section will enable delivering of the CAM FBC catalysing additive into the fuel line by means of the previously installed 12/24V pump.


See the diagram for section 4, which also applies to this section.

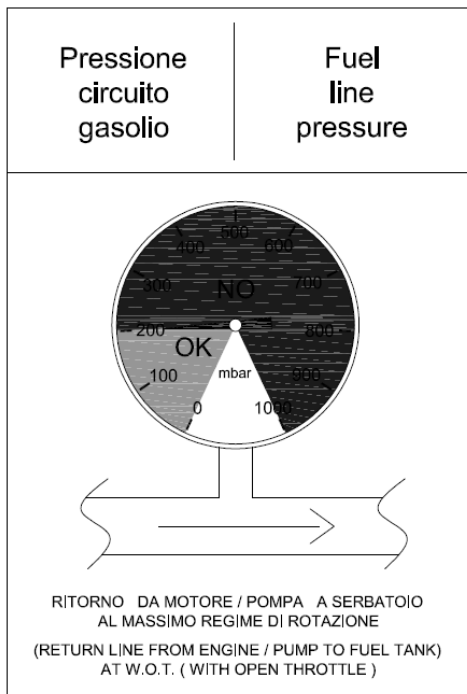
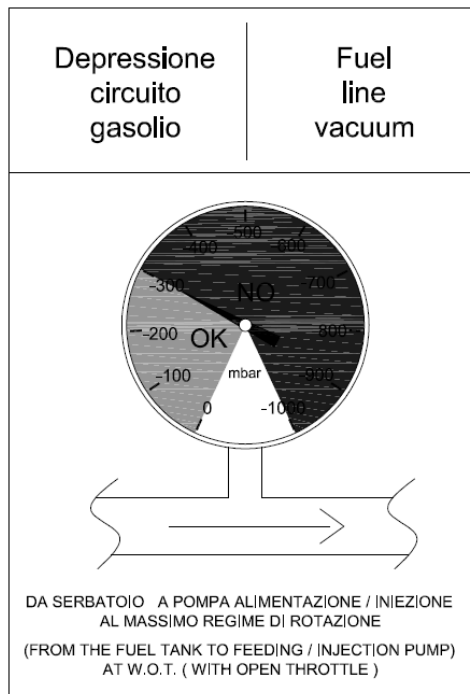
- 1) Insert the additive hose into the 10mm-diameter corrugated sheath (supplied with the INSTALLATION KIT), and bring it from the area where the additive tank is installed to the diesel tank area, preferably using the existing passages in the chassis.
- 2) Connect the additive hose (**D.3**) to the outflow of the delivery pump (**17**) (**B.1**) using the quick-fit connection (5) which was previously fitted to this pump.
- 3) At the most convenient point, intercept the fuel intake line to the engine, e.g. by using the connections to the pre-supply pump (manually-primed) or those on the diesel pre-filter. With reference to the following diagram: in the section of the diesel supply system between the tank (1) and the pre-supply pump (5).



Make sure that the vacuum at the point of connection is not lower than (- 300mbar).


If it is necessary to make the connection on the diesel return line to the tank, it must be made on a section of pipe where the fuel pressure is less than 200mbar. Bear in mind also that the maximum length of the inlet pipe to the pump must not be more than 1.3 m, and the outlet pipe from the pump must not be longer than 5.8 m.

	FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK		On board additive dosing version
			Date: 12.12.2010
			Revision: Rev. 7.2 - EN



Prepare the connection between the additive line and the diesel line preferably with one of the "Tee" junctions **(7-8-9)(B.5)** supplied with the DOSING KIT (use the most suitable one for the application, diameter and material used in the diesel line).

The path of the additive pipe must never be in direct contact with heat sources or with moving parts.

	FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK		On board additive dosing version
			Date: 12.12.2010
			Revision: Rev. 7.2 - EN

7) Making electrical connections

The instructions in this section also apply for the installation of a Feelpure™ AR system, but they must be integrated with the instructions of the following section (7AR). It is therefore necessary to carefully read both sections before starting the activity.


Using the components supplied with the INSTALLATION KIT (D), the PRESSURE CONTROL KIT 3.0 (C.4 – C.6 – C.7 – C.8) and with the DOSING KIT (B) (electrical wires, corrugated sheaths, quick-fit connections, etc.) make the electrical connections described below, taking care to follow the usual good technical regulations and normal workshop practice.

For all components described in this section, refer to the diagrams/drawings of the electrical connections and components of the systems, shown below.

- 1) Install the electronic control unit (ECU) (C.4) and the connector (C.6) in a protected position that cannot be reached by the driver or by other persons using the vehicle (e.g. space under the dashboard, glove compartment, magnetothermal panels or in some other position, if necessary protected by the casing supplied with the INSTALLATION KIT). It is highly preferable to NOT install the control unit in passenger compartments.
- 2) Install the driver's LED (C.8) on the dashboard in a place where the driver can easily see it and attach the adhesive label (supplied with the KIT) with the LED codes that show the operational state of the system.

If a Feelpure™ AR version is installed, use both the supplied labels, including the one describing the MANUAL REGENERATION PROCEDURE.

- 3) Install the vehicle battery ECU 3.0 connector (C.7), connecting the 2 cables to the poles of the battery, and make the connection to the D+ signal (+12V/24V rotating engine) of the alternator, according to the attached diagrams and drawings, using the appropriate connectors.
- 4) Make the electrical connections, according to the following diagrams, between the control unit connector (C.6) and:
 - Vehicle battery ECU 3.0 connector (C.7)
 - Additive floating gauge (B.10)
 - Driver's LED (C.8) – (depending on layouts)
 - Delivery pump (B.1)

	FEELPURE™ SYSTEM	On board additive dosing version
	INSTALLATION, OPERATION & MAINTENANCE BOOK	Date: 12.12.2010
		Revision: Rev. 7.2 - EN


7-AR) Making electrical connections – additional components for AR:

The assembly of the **Feelpure™ AR** system differs from that of the **Feelpure** versions in that there are some additional operations which are described in this section.

Using the components supplied with the INSTALLATION KIT **(D)** and with the ACTIVE REGENERATION KIT ARK4/6 PLUGS **(E)** (electrical wires, corrugated sheaths, quick fit connections, etc.) make the electrical connections described below, taking care to follow the usual good technical regulations and normal workshop practice.

For all components described in this section, refer to the diagrams/drawings of the electrical connections and components of the systems in the previous section.

- 1) Install the Manual Regeneration Button **(E.5)** on the dashboard, in a highly visible position that can be easily reached by the driver.
- 2) Install the 50A fuse connection **(E.8)** in the battery compartment, connected to the positive pole of the battery.
- 3) Install the glow plug supply relay **(E.6)** in a suitable and protected position, far from heat sources and from fuel pipes.
- 4) Install the glow plug sense fuse with connector **(E.7)**, connected to the wire terminals M6 crimped on the free terminals of the power supply cables of the glow plugs, previously positioned on the muffler.
- 5) Make the electric connections, according to the attached diagrams, between:
 - Control unit connector **(C.6)** and manual regeneration button **(E.5)**
 - Control unit connector **(C.6)** and glow plug supply relay **(E.6)**
 - Control unit connector **(C.6)** and glow plug sense fuse **(E.7)**
 - Control unit connector **(C.6)** and thermistor **(E.4)**
 - Fuse 50A connection **(E.8)** and glow plug supply relay **(E.6)**
 - Glow plug supply relay **(E.6)**, high-temperature glow plug supply cables **(E.3)**, and glow plug sense fuse **(E.7)**. Then protect the resulting electrical connection with the supplied connection box **(E.9)**

	FEELPURE™ SYSTEM	On board additive dosing version
	INSTALLATION, OPERATION & MAINTENANCE BOOK	Date: 12.12.2010
		Revision: Rev. 7.2 - EN

8) Installing the software for managing the electronic control unit (ECU)

To correctly conclude the installation of the filtering system, both for Feelpure™ versions and for Feelpure™ AR versions, it is necessary to configure the electronic control unit that has been installed and connected as per the instructions in sections 7) and 7AR).

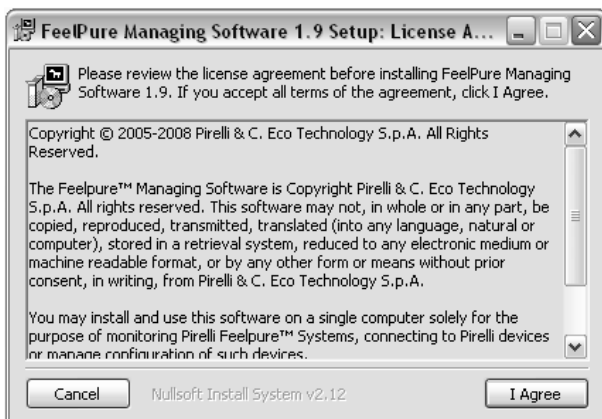
The correct configuration of the control unit can be done only and exclusively by using the specially-created software on the supplied CD. The procedure to follow for installing this software is described below:


- Browse the contents of the CD.
- Open the "SOFTWARE" folder and execute the file named "Feelpure Managing Software 2.2.exe".

The following setup language selection screen will be displayed:

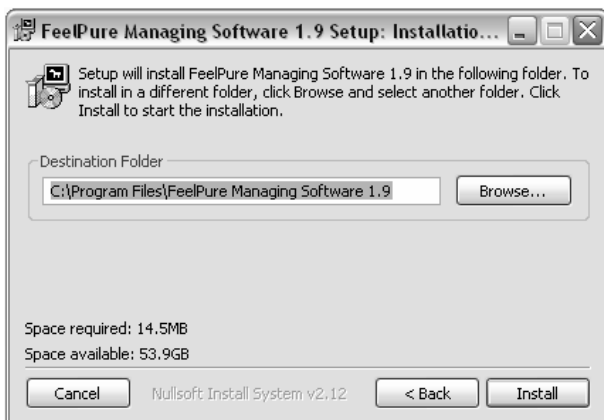


- Select the language from the drop-down menu and click on OK, then the following Copyright acceptance window will be displayed:

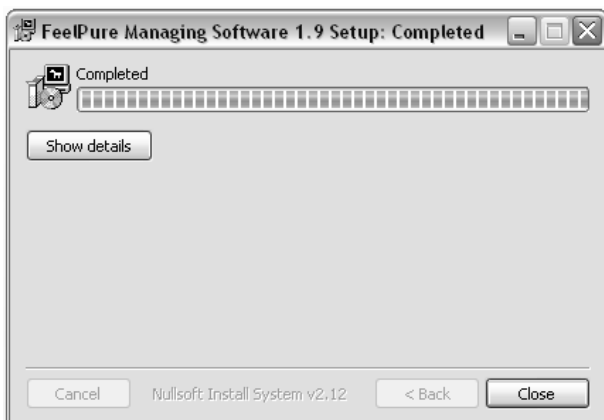


	FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK		On board additive dosing version
			Date: 12.12.2010
			Revision: Rev. 7.2 - EN


- After accepting the conditions described in the Copyright text, the following window for choosing the program installation folder opens:



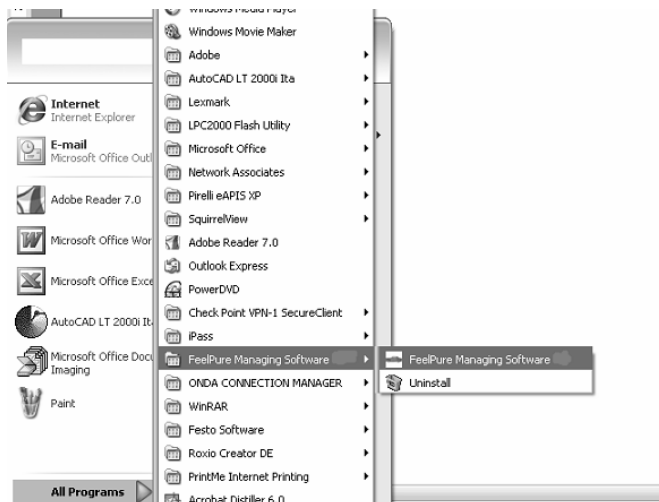
- Make the choice by means of the “Browse” button and then click on “Install”: the installation procedure begins and at the end of it the following window opens:



- Click on “Fine” to end the operation.

	FEELPURE™ SYSTEM	On board additive dosing version
	INSTALLATION, OPERATION & MAINTENANCE BOOK	Date: 12.12.2010
		Revision: Rev. 7.2 - EN

- To run the program choose the icon named “FeelPure Managing Software” from the Start menu -> All programs on the PC.




9) Operations to be carried out at the end of the installation

9.1 Dosing the CAM FBC additive into the fuel tank

With the Feelpure™ system (in the version with on-board additive dosing system) some “5 litre cans” of CAM FBC catalysing additive are supplied, depending on the capacity of the additive tank supplied.

To assist the initial regenerations (complete combustion of the carbon accumulated in the particulate filter), you need to dose a preliminary amount of additive into the diesel fuel tank.

- Pour 0.3 litres of CAM FBC additive directly into the fuel tank (for tanks greater than 500 litres in capacity, increase the amount as follows: 0.1 litres of FBC for every extra 100 litres of diesel). If at the time of installation a small quantity of diesel fuel (less than 100 litres) is present in the fuel tank, then it is important to instruct the vehicle driver to fill the fuel tank completely as soon as possible.
- Fill the additive tank with the remaining quantity supplied with the system, taking care to use a funnel with a metal mesh filter if the additive tank doesn't have one installed on its inlet neck (fill with 10-15-20 litres, depending on the application). This operation has to be carried out following the safety precautions described in the CAM FBC Safety Data Sheet and must also respect the **level indicators (MIN-MAX)** shown on the tank walls. **Never fill to over 90% of the maximum tank capacity.**

	FEELPURE™ SYSTEM	On board additive dosing version
	INSTALLATION, OPERATION & MAINTENANCE BOOK	Date: 12.12.2010
		Revision: Rev. 7.2 - EN

9.2 Functioning tests of the electrical wiring

- Check that when the engine is turned on, the driver's LED indicator shows a steady green light. **When the engine is switched off, the LED must not be illuminated.** Otherwise a check of the electrical connections related to the ECU connector (C.6) must be carried out (see sections 7 and 7AR)

Note: the Feelpure™ ECU must always be connected to the vehicle battery power supply.

However, the additive dosing pump must receive its electric impulses from the ECU only when the vehicle engine is running (and therefore when it is actually consuming diesel fuel).

9.3 Functioning tests of the filtering system by means of the ECU management software

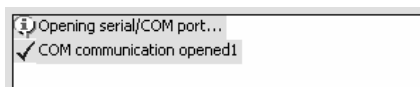
Every time you make the connection between the PC and the ECU, follow this procedure exactly:

- run the software
- connect the serial cable
- perform the desired operations
- disconnect the serial cable
- close the software

- Launch the program named Feelpure Managing Software.exe
- Select the serial port for the connection to the control unit. The box in the bottom left corner of the screen must become red:



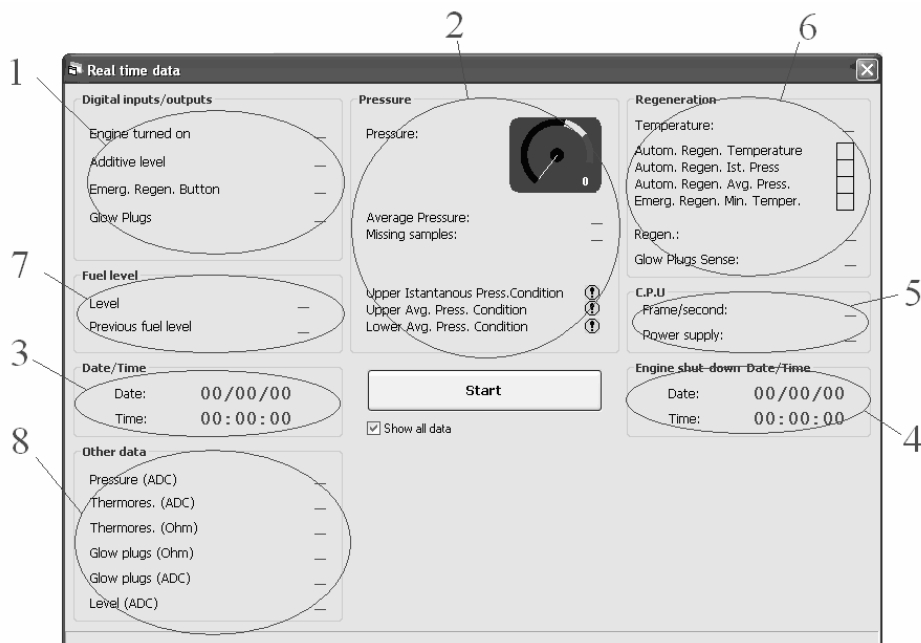
while the box in the bottom right corner must show the availability of the selected port:



- Connect the laptop PC to the control unit with the supplied serial cable. The "Connection status" box must become green, indicating that there is communication activity between the PC and the control unit.



- Click on VIEW and then on REAL TIME DATA. The following screen will be displayed:




By clicking on START it is possible to verify:

1. "Digital inputs/outputs" field:

- Engine running: ON = engine turned on
OFF = engine turned off
- Additive level: OK = additive level higher than the reserve
LOW = additive level lower than the reserve
- Regen. Button (only for Feelpure™ AR versions): ON = button pressed
OFF = button not pressed

2. "Pressure" field:

- Pressure: shows the instantaneous reading of the pressure uphill the filter in mbar
- Average Pressure: shows the average pressure value, calculated on the set number of samples (200 samples in 2000 seconds)
- Missing samples: shows the number of pressure samples which are still lacking for calculating the average pressure
- Upper Instantaneous Press. Condition
GREEN= instantaneous high pressure alarm condition not reached
RED= instantaneous high pressure alarm condition reached

	FEELPURE™ SYSTEM		On board additive dosing version
	INSTALLATION, OPERATION & MAINTENANCE BOOK		Date: 12.12.2010
			Revision: Rev. 7.2 - EN

- Upper Avg. Press. Condition
GREEN=average high pressure alarm condition not reached
RED = average high pressure alarm condition reached

- Lower Avg. Press. Condition
GREEN = average low pressure alarm condition not reached
RED = average low pressure alarm condition reached

3. "Date/time" field:

- Date: shows the current date
- Time: shows the current time

Both values can be updated in the Upload window, with the command "Update Date/Time"

4. "Engine shut-down Date/Time" field:

- Date: shows the date in which the engine was turned off for the last time
- Time: shows the time in which the engine was turned off for the last time

5. "C.P.U" field:

- Frame/Second: display of the functioning parameter of the control unit processor
- Power supply: display of the supply value of the control unit V (12/24V)

6. "Regeneration" field (only for **Feelpure™ AR** versions):

- Temperature: show the instantaneous temperature downstream of the filter in °C

Autom. Regen. Temperature:

EMPTY = automatic regeneration temperature condition not reached

HIGHLIGHTED = automatic regeneration temperature condition reached

Autom. Regen. Ist. Press.

EMPTY = instantaneous pressure condition for the automatic regeneration not reached

HIGHLIGHTED = instantaneous pressure condition for the automatic regeneration reached

Autom. Regen. Avg. Press.:

EMPTY = average pressure condition for the automatic regeneration not reached

HIGHLIGHTED = average pressure condition for the automatic regeneration reached

Emerg. Regen. Min. Temper.:

EMPTY = minimum temperature condition for the emergency regeneration not reached

HIGHLIGHTED = minimum temperature condition for the emergency regeneration reached

- Regen.:

NOT USED= the software is set to be used on a Feelpure™ version (without aided regeneration)


OFF = glow plugs not powered

ON (time in seconds) = glow plugs powered, countdown in brackets

T_PAUSE (time in seconds) = waiting phase for the evaluation of the result of the glowplugs ignition, count down in brackets

EM_REG_TEMPER: the system is waiting for the minimum temperature condition for the emergency regeneration

EMERG_REGEN_BUTTON = request for a manual regeneration

	FEELPURE™ SYSTEM		On board additive dosing version
	INSTALLATION, OPERATION & MAINTENANCE BOOK		Date: 12.12.2010
			Revision: Rev. 7.2 - EN

- Glow Plug Sense:
“ . . . ” = the check of the glow plugs connection is not taking place
Various numbers shown = number of connected glow plugs
7. “Fuel level” field (only if using level dosing mode – see section 9.6.2):
- Level: Displays the amount of diesel detected in the tank (in litres)
 - Previous fuel level.: Displays the amount of diesel detected in the tank the last time the engine was switched off (in litres).
8. “Other Data” field (visible by selecting the “Sow all data” check box):
- Pressure (ADC): Displays the internal signal read by the pressure sensor
 - Thermores. (ADC): Displays the internal signal read by the temperature sensor
 - Thermores. (Ohm): Displays the instantaneous value of the electrical resistance of the temperature sensor
 - Flow plugs (Ohm): Displays the value of the total electrical resistance of the glow plugs while the control test is being conducted
 - Glow plugs (ADC) Displays the internal value of the total resistance of the glow plugs while the control test is being conducted
 - Level (ADC) Displays the internal value read by the level sensor of the diesel tank (exclusively if using the level dosing mode – see section 9.6.2)


By starting the engine, you can now verify:

- That the control unit is correctly powered
- That the control unit correctly receives the “engine running” signal, – (ON)
- That the control unit correctly receives the “additive level” signal – (OK)
- That the current date and time are correct
- The date and time when the engine was turned off the last time
- The backpressure of the system at engine idle speed
- (When accelerating fully) the backpressure at W.O.T.
- The average backpressure value or the number of missing samples to calculate it
- The instantaneous pressure condition for the high pressure alarm, and the average pressure conditions for the high pressure alarm and for the low pressure alarm
- The temperature of the exhaust gases coming out of the filter
- The current level of the diesel tank (is level dosing is used – see section 9.6.2)

For a **Feelpure™ AR** system, you can also verify:

- The temperature, instantaneous pressure and average pressure conditions for the automatic regeneration
- The minimum temperature condition for the emergency (manual) regeneration
- The glow plugs supply (when powered) and the number of glow plugs which are connected (just after the check carried out by the control unit, downstream of all power supply)

Typically the backpressure values that can be measured will be respectively approx. 10mbar (**Pmin**) and 50mbar (**Pmax**) at the end of the installation. These will gradually increase with use, until the filtering cartridge is replaced for cleaning (see section 10.2 – Maintenance).

	FEELPURE™ SYSTEM		On board additive dosing version
	INSTALLATION, OPERATION & MAINTENANCE BOOK		Date: 12.12.2010
			Revision: Rev. 7.2 - EN


The measured values must be logged on the “Feelpure™ Installation & Warranty Form” (see attachment 3 and the instructions in section 9.8).

If it is not possible to get a reading of the backpressure, check that there are no blockages/cloggings along the line (Ø6mm metal pipe and blue polyurethane pipe) or leaks (check that all threaded joints have been sealed with Teflon® and properly tightened). Also check the correct installation of the ECU protection filter (or condensate separation filter), checking that the direction of throughput indicated on the filter body is correct (as specified in section 5).

If, after performing these checks, you read the backpressure as 0 mbar, you will have to verify it with a manual pressure gauge. After doing this:

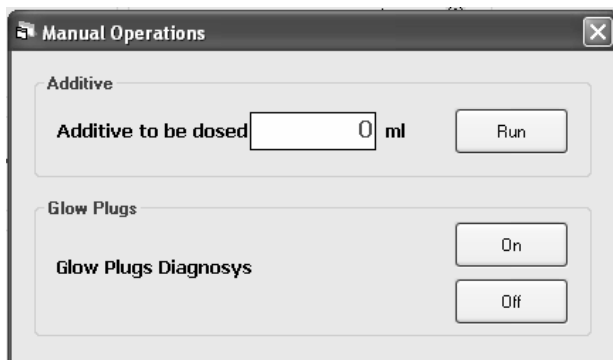
- If the reading from the pressure check shows a value that is different from 0 mbar, contact the supplier of the system to have the control unit replaced.
- If the pressure gauge confirms the value of 0mbar, contact the supplier of the system to have the filter checked to verify it is operating correctly.

If a backpressure level of greater than 80mbar is read at engine idle speed, contact the supplier of the system to have the filter checked to verify it is operating correctly.

	FEELPURE™ SYSTEM	On board additive dosing version
	INSTALLATION, OPERATION & MAINTENANCE BOOK	Date: 12.12.2010
		Revision: Rev. 7.2 - EN

9.4 Functionality tests of the additive delivery system and, for the Feelpure™ AR system, of the glow plugs

1. Launch the program named "**FeelPure Managing Software.exe**" (see the first three steps described in section 9.3)
2. Check that the stopcock on the outflow of the additive tank is open (see diagram of additive line in section 4.)
3. Click on OPERATIONS and then click on MANUAL OPERATIONS. The following screen will be displayed:




Verify functionality of the additive delivery system

4. In the appropriate field on the screen, enter the amount of additive necessary to get the additive come out from the end of the additive hose that has to be connected to the diesel line (see section 6). As a rule, 20ml of additive is needed to bleed every metre of additive hose.
5. Click on the RUN icon (It looks like a syringe)
6. Verify that the pump is dosing the additive and wait for additive to come out of the hose, using a container to catch excess liquid.
7. If the pump is not working, check that you have followed the procedure correctly and also check the electrical connections (see section 7).
8. While the pump is operating, check that there are no leaks along the line.

Verify functionality of the glow plugs

9. On the power supply line of the glow plugs, position an ampere absorption probe to detect the current consumed, or connect the positive pole of a multimeter (tester) to the power wire of a glow plug and the negative pole to the vehicle ground.

	FEELPURE™ SYSTEM	On board additive dosing version
	INSTALLATION, OPERATION & MAINTENANCE BOOK	Date: 12.12.2010
		Revision: Rev. 7.2 - EN

10. In the "Glow Plugs" field click on the "ON" button. The following window will open:



11. Enter the password required and click on "OK" (for passwords please contact Pirelli & C. Eco Technology by e-mail at service.ecotechnology@pirelli.com, or directly from the website www.pirelliecotecnology.com, in the ECU SOFTWARE PW DOWNLOAD section)
12. Read the current consumed by the glow plugs (if using ampere absorption probe) or read the presence of battery voltage (12V or 24V) on the glow plug power line (if using a multimeter)
13. If no current can be read or no voltage appears to be present, check the electrical connections of the glow plug power line (see section **7AR**).

9.5 Setting of generic working parameters of the system on ECU 3.0

In order to set the working parameters of the system (for **Feelpure™** versions as well as for **Feelpure™ AR** versions) it is necessary to follow these steps:

1. Run the program named "**FeelPure Managing Software.exe**" following the instructions described in the first three steps of section 9.3.
2. Click on OPERATIONS and then on UPLOAD. The screen for inserting the parameters will be displayed.
3. Click on OPEN, then select a ".dcr" file in the "ECU Settings file" folder on the CD. For a **Feelpure™** system, select "Feelpure.dcr" and set the dosing time.


For a **Feelpure™ AR** system, select the file depending on the application (truck NO EGR / truck EGR / bus / light duty). The corresponding files are:

- "FeelpureAR_truck_NO_EGR.dcr"
- "FeelpureAR_truck_EGR.dcr"
- "FeelpureAR_bus.dcr"
- "FeelpureAR_LD.dcr".

4. Click on UPLOAD REGISTERS.

Here you can find a description of the meanings of the aforementioned applications:

- **Feelpure™**: for all vehicles which are used outside (and possibly inside) the urban area and therefore whose working cycle also includes full loads and full speed activities causing temperatures of the exhaust gases higher than 300°C for at least 5% of the time the engine is used. The filtering cartridges of these systems may be regenerated periodically (complete burning of the accumulated carbon) in passive mode, or using only the CAM FBC catalyzing additive.

	FEELPURE™ SYSTEM	On board additive dosing version
	INSTALLATION, OPERATION & MAINTENANCE BOOK	Date: 12.12.2010
		Revision: Rev. 7.2 - EN

- TRUCK NO EGR: for trucks which mainly work in the urban area with a low average speed, reduced loads and very low temperatures of the exhaust gases. The regeneration of the filtering cartridges installed on these vehicles must be aided by means of the glow plugs (when necessary). The setting is specific for vehicles without EGR (Exhaust Gas Recirculation) systems, normally registered before the Euro3 (2001) standard entered in force.
- TRUCK_EGR: for trucks which mainly work in the urban area with a low average speed, reduced loads and very low temperatures of the exhaust gases. The regeneration of the filtering cartridges installed on these vehicles must be assisted by means of the glow plugs (when necessary). The setting is specific for vehicles equipped with EGR (Exhaust Gas Recirculation) systems, normally registered after the Euro3 (2001) standard entered in force.
- BUS: for buses which mainly work in the urban area, with a low average speed, reduced loads and very low temperatures of the exhaust gases. The regeneration of the filtering cartridges installed on these vehicles must be assisted by means of the glow plugs (when necessary).
- LIGHT DUTY: for light commercial vehicles which mainly work in the urban area, with a low average speed, reduced loads and very low temperatures of the exhaust gases. The regeneration of the filtering cartridges installed on these vehicles must be assisted by means of the glow plugs (when necessary).

After loading the .dcr file using the supplied software, as per the instructions given above, verify the actual correspondence of all the parameters set with the corresponding values shown on the following pages, both for the “Standard Setup” screen and for the “Regen. Setup” screen.

If there is a difference between the data set and the data shown, and for any information you may need in this regard, contact Customer Assistance by telephone at **(+39)02-93874699** or by email at **service.ecotechnology@pirelli.com**.



FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK

On board additive
dosing version

Date: 12.12.2010

Revision: Rev. 7.2 - EN

If the parameters of the "Feelpure.dcr" file are uploaded, the UPLOAD windows will look as follows:

Upload

Standard Setup | **Regen. Setup** | Correspondence Table

Description	Value	
Min threshold additivation	0	l
Dosing rate percentage	0	ppm
Pump flow	64	ml/imp
Press. sampling interval	10	sec
Temper. sampling interval	0	sec
Dosing strategy	1-Continue	
Pulses per dosing package	10	
Time between dosing packages	100	sec
First Additivation	0	ml
Hi_ist_press_Al_min tresh	400	mBar
Hi_ist_press_Al_max tresh	500	mBar
Hi_ist_press_Al_time interval	1	sec
Hi_avg_press_Al_min tresh	250	mBar
Hi_avg_press_Al_max tresh	500	mBar
Lo_avg_press_Al_max tresh	3	mBar
Lo_avg_press_Al_time interval	180	min
Sampling int. for Avg. Press. calc.	10	sec
Press. samples for average calc.	200	

Open

Save

Download Registers

Upload Registers

Update date/time

Upload

Standard Setup | **Regen. Setup** | Correspondence Table

Description	Value	
Active Regen.	No	
Max. Number of Emerg. Reg.	0	
Glow plugs energized time period	0	
Pause before regen. check	0	sec
Number of glow plugs	0	
Min. Ist. Press. Regen.	0	mBar
Max. Ist. Press. Regen.	0	mBar
Time int. Ist. Press. Regen.	0	sec
Min. Avg. Press. Regen.	0	mBar
Max. Avg. Press. Regen.	0	mBar
Min. Temp. Autom. Regen.	0	°C
Max. Temp. Autom. Regen.	0	°C
Time int. Temp. Autom. Regen.	0	sec
Min. Temp. Emerg. Regen.	0	°C
Max. Temp. Emerg. Regen.	0	°C

Open

Save

Download Registers

Upload Registers

Update date/time



FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK

On board additive
dosing version

Date: 12.12.2010

Revision: Rev. 7.2 - EN

For a **Feelpure™ AR** system for Truck without EGR applications
("FeelpureAR_truck_NO_EGR.dcr"):

Upload

Standard Setup	Regen. Setup	Correspondence Table
Description	Value	
Min threshold additivation	0 l	
Dosing rate percentage	0 ppm	
Pump flow	64 ml/imp	
Press. sampling interval	10 sec	
Temper. sampling interval	10 sec	
Dosing strategy	1-Continue	
Pulses per dosing package	10	
Time between dosing packages	100 sec	
First Additivation	0 ml	
Hi Ist. Press. Al. min tresh	350 mBar	
Hi Ist. Press. Al. max tresh	500 mBar	
Hi Ist. Press. Al. time interval	1 sec	
Hi Avg. Press. Al. min tresh	150 mBar	
Hi Avg. Press. Al. max tresh	500 mBar	
Lo Avg. Press. Al. max tresh	3 mBar	
Lo Avg. Press. Al. time interval	180 min	
Sampling int. for Avg. Press. calc.	10 sec	
Press. samples for average calc.	200	

Open

Save

Download Registers

Upload Registers

Update date/time

Upload

Standard Setup	Regen. Setup	Correspondence Table
Description	Value	
Active Regen.	Yes	
Max. Number of Emerg. Reg.	10	
Glow plugs energized time period	300	
Pause before regen. check	3600 sec	
Number of glow plugs	6	
Min. Ist. Press. Regen.	140 mBar	
Max. Ist. Press. Regen.	500 mBar	
Time int. Ist. Press. Regen.	1 sec	
Min. Avg. Press. Regen.	70 mBar	
Max. Avg. Press. Regen.	500 mBar	
Min. Temp. Autom. Regen.	170 °C	
Max. Temp. Autom. Regen.	230 °C	
Time int. Temp. Autom. Regen.	1 sec	
Min. Temp. Emerg. Regen.	170 °C	
Max. Temp. Emerg. Regen.	900 °C	

Open

Save

Download Registers

Upload Registers

Update date/time



FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK

On board additive
dosing version

Date: 12.12.2010

Revision: Rev. 7.2 - EN

For a **Feelpure™ AR** system for Truck with EGR applications ("FeelpureAR_truck_EGR.dcr"):

Upload

Standard Setup | **Regen. Setup** | Correspondence Table

Description	Value	
Min threshold addition	0	l
Dosing rate percentage	0	ppm
Pump flow	64	ml/imp
Press. sampling interval	10	sec
Temper. sampling interval	10	sec
Dosing strategy	1-Continue	
Pulses per dosing package	10	
Time between dosing packages	100	sec
First Addition	0	ml
Hi_ist_press_Al_min tresh	350	mBar
Hi_ist_press_Al_max tresh	500	mBar
Hi_ist_press_Al_time interval	1	sec
Hi_avg_press_Al_min tresh	150	mBar
Hi_avg_press_Al_max tresh	500	mBar
Lo_avg_press_Al_max tresh	3	mBar
Lo_avg_press_Al_time interval	180	min
Sampling int. for Avg. Press. calc	10	sec
Press. samples for average calc.	200	

Open

Save

Download Registers

Upload Registers

Update date/time

Upload

Standard Setup | **Regen. Setup** | Correspondence Table

Description	Value	
Active Regen.	Yes	
Max. Number of Emerg. Reg.	10	
Glow plugs energized time period	300	
Pause before regen. check	1800	sec
Number of glow plugs	6	
Min. Ist. Press. Regen.	140	mBar
Max. Ist. Press. Regen.	500	mBar
Time int. Ist. Press. Regen.	1	sec
Min. Avg. Press. Regen.	70	mBar
Max. Avg. Press. Regen.	500	mBar
Min. Temp. Autom. Regen.	170	°C
Max. Temp. Autom. Regen.	230	°C
Time int. Temp. Autom. Regen.	1	sec
Min. Temp. Emerg. Regen.	170	°C
Max. Temp. Emerg. Regen.	900	°C

Open

Save

Download Registers

Upload Registers

Update date/time



FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK

On board additive
dosing version

Date: 12.12.2010

Revision: Rev. 7.2 - EN


For a **Feelpure™ AR** system for Light Duty applications ("FeelpureAR_LD.dcr"):

Description	Value
Min threshold additivation	0 l
Dosing rate percentage	0 ppm
Pump flow	64 ml/imp
Press. sampling interval	10 sec
Temper. sampling interval	10 sec
Dosing strategy	1-Continue
Pulses per dosing package	10
Time between dosing packages	100 sec
First Additivation	0 ml
Hi_ist_press_AI_min tresh	350 mBar
Hi_ist_press_AI_max tresh	500 mBar
Hi_ist_press_AI_time interval	1 sec
Hi_avg_press_AI_min tresh	230 mBar
Hi_avg_press_AI_max tresh	500 mBar
Lo_avg_press_AI_max tresh	3 mBar
Lo_avg_press_AI_time interval	180 min
Sampling int. for Avg. Press. cal	10 sec
Press. samples for average calc.	200

Description	Value
Active Regen.	Yes
Max. Number of Emerg. Reg.	10
Glow plugs energized time period	180
Pause before regen. check	3600 sec
Number of glow plugs	6
Min. Ist. Press. Regen.	130 mBar
Max. Ist. Press. Regen.	500 mBar
Time int. Ist. Press. Regen.	1 sec
Min. Avg. Press. Regen.	60 mBar
Max. Avg. Press. Regen.	500 mBar
Min. Temp. Autom. Regen.	150 °C
Max. Temp. Autom. Regen.	250 °C
Time int. Temp. Autom. Regen.	2 sec
Min. Temp. Emerg. Regen.	170 °C
Max. Temp. Emerg. Regen.	900 °C

After loading the .dcr file using the supplied software, as per the above instructions, check that all the parameters set correspond to the values shown on the example screens above, both for the "Standard Setup" screen and for the "Regen. Setup" screen.

If there is a difference between the data set and the data shown, and for any information you may need in this regard, contact Customer Assistance by telephone at **(+39)02-93874699** or by email at **service.ecotechnology@pirelli.com**.

	FEELPURE™ SYSTEM		On board additive dosing version
	INSTALLATION, OPERATION & MAINTENANCE BOOK		Date: 12.12.2010
			Revision: Rev. 7.2 - EN

9.6 Setting the additive delivery time

9.6.1 – Continuous dosing (Dosing Strategy on the “Standard Setup” screen = 1-Continue)

Depending on the vehicle's average diesel consumption, you need to dose the adequate quantity of additive necessary to allow filter regeneration to take place (complete combustion of the carbon accumulated in the filtering cartridge). **Adjusting this parameter is vital for the Feelpure™ system to work properly. The default value entered in the “REGISTERS” of the ECU is 100 seconds.**

For example, for a bus with an “urban-city” mission and with a 270 hp engine (avg. speed = 13km/h), a dosing interval of 130 seconds is needed.

For a truck with an “urban-city” mission with a 300 hp engine (avg. speed = 10km/h), a dosing interval of 90 seconds must be set.

In the same way, for a truck with a 420 hp engine (avg. speed = 60km/h - average consumption 3 km/litre), a dosing interval of 70 seconds must be set.

For a minibus with an “urban-city” mission and with a 210 hp engine (avg. speed = 20km/h), a dosing interval of 180 seconds is needed.

For a 3.5 ton commercial vehicle with a 100 hp engine (urban mission) a dosing interval of 250 seconds must be set.

The ECU will wait for the set time (in seconds), before “sending” an “electrical impulse packet” made up of 10 impulses to the additive pump. This “packet” means 0.64 ml of additive dosed into the fuel supply line.


To calibrate the desired value, find the average speed at which the vehicle is used (in km/h) and the average fuel consumption (in km/litre). **With these two values you can calculate the average consumption in litres/hour and then use the table at the end of this manual (attachment 1) to calculate the dosing interval.**

Alternatively, to calculate the correct dosing time to set, you can use the spreadsheet on the supplied CD:

“Dosing computation sheet 31-12-2008.xls”.

- Open the file
- Enter the average diesel consumption [km/l] in the field
- Enter the average estimated speed [km/h] of the vehicle in the field
- Click on the “Calculat dosing” button

The value calculated to be set is displayed as shown in the figure:

	FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK		On board additive dosing version
			Date: 12.12.2010
			Revision: Rev. 7.2 - EN

AVERAGE FUEL CONSUMPTION:	50	[LT/100KM]	CALCULATE DOSING
VEHICLE AVERAGE SPEED:	35	[KM/H]	
			ERASE DATA

Time between dosing packages	85	sec
Pulses per dosing package	10	

AVERAGE FUEL CONSUMPTION	17,50 [LT/H]
ADDITIVE CONSUMPTION	26,25 [ml/H]
ADDITIVE CONSUMPTION	0,750 [lt/1000km]
PULSES / HOUR	420
ADDITIVE CONCENTRATION	0,15%

As a guide, use the examples given above to verify the result of the calculation. A simple proportioning of the engine powers described (expressed in horsepower) helps you to avoid excessive or insufficient dosing of the additive.

The CAM FBC consumption is about 1.5 litres every 1,000 litres of diesel burned by the engine.

To modify the additive dosing time in the REGISTERS of the system's electronic control unit, follow this procedure:

1. Launch the program named "**FeelPure Managing Software.exe**" according to the instructions in section 9.3
2. Click on OPERATIONS and then click on UPLOAD. The following screen will be displayed.
3. Click on DOWNLOAD REGISTRERS.
4. Modify the TIME BETWEEN DOSING PACKAGES [sec] by entering the desired value.
5. Click on UPLOAD REGISTRERS
6. Disconnect and reconnect the connector to the ECU **(C.6)**.
7. Click on DOWNLOAD REGISTRERS to verify that the changes you have made have been stored correctly.
8. Click on UPDATE DATE/TIME
9. Close the dialogue window and stop the software named "**FeelPure Managing Software.exe**"



FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK

On board additive
dosing version

Date: 12.12.2010

Revision: Rev. 7.2 - EN

The screenshot shows the 'Upload' software window with the 'Standard Setup' tab selected. The 'Time between dosing packages' is highlighted with a red circle and labeled 'DOSING INTERVAL TO BE MODIFIED'.

Description	Value
Min threshold addition	0 l
Dosing rate percentage	0 ppm
Pump flow	64 ml/imp
Press. sampling interval	10 sec
Temper. sampling interval	10 sec
Dosing strategy	1-Continue
Pulses per dosing package	10
Time between dosing packages	100 sec
First Addition	0 ml
Hi_ist_press_Al_min tresh	350 mBar
Hi_ist_press_Al_max tresh	500 mBar
Hi_ist_press_Al_time interval	1 sec
Hi_avg_press_Al_min tresh	150 mBar
Hi_avg_press_Al_max tresh	500 mBar
Lo_avg_press_Al_max tresh	3 mBar
Lo_avg_press_Al_time interval	180 min
Sampling int. for Avg. Press. cal	10 sec
Press. samples for average calc.	200

Buttons: Open, Save, Download Registers, Upload Registers, Update date/time

Any unauthorised operation on the operating parameters/settings of the electronic control unit will void the warranty.

9.6.2 – Level dosing (Dosing Strategy on the “Standard Setup” screen – 2-Level)

If the vehicle's fuel consumption is particularly difficult to quantify, or if the vehicle often changes its mission profile, or in any situation where effective continual dosing is not possible, you can execute the dosing directly into the diesel fuel tank according to the amount of fuel refilled. With this method, the ECU recognises the increase in diesel in the tank and consequently doses the correct amount of additive. To do this it is necessary to carry out a specific calibration for each new type of vehicle and fuel tank. In practice you need to “teach” the ECU to read the correct level of diesel from the floating gauge, and so it is essential that the floating gauge in the diesel tank is working perfectly. Using this type of additive delivery, the dosing line MUST be connected to the line returning diesel fuel to the tank. Below is the procedure for calibration:

- 1) Identify the cable that provides the positive diesel level signal (this voltage signal will vary with the fuel level)
- 2) Make an electrical branch connection to this signal and connect it to the “C3” connector of the Feelpure™ ECU
- 3) Completely empty the vehicle's fuel tank
- 4) On the PC run the program named “Feelpure managing software.exe” and connect the PC to the EU, following the procedure shown in section 9.3
- 5) Click on “View” and select “real time data”, and the window shown in section 9.3 will be displayed. Then select “show all data”
- 6) In the “Level (ADC)” field the value read from the floating gauge in the diesel fuel tank is displayed.
- 7) Now it is necessary (in our example we will take a 90 litre fuel tank) to draw up a table likethe one below (a template is available in the **Installation&Maintenance Manual** enclosed with this manual and must be given to the owner/driver of the vehicle):



FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK

On board additive
dosing version

Date: 12.12.2010

Revision: Rev. 7.2 - EN

litres	Level (ADC) Filling	Level (ADC) Emptying
90	2	1
85	3	5
80	4	6
75	11	13
70	18	22
65	24	26
60	32	30
55	37	35
50	44	44
45	50	48
40	57	57
35	63	59
30	70	68
25	76	74
20	83	79
15	89	87
10	96	100
5	105	107
0	112	110

Upload		
Standard Setup	Regen. Setup	Correspondence Table
Input value		Liters
1	1	90
2	4	85
3	5	80
4	12	75
5	20	70
6	25	65
7	31	60
8	36	55
9	44	50
10	49	45
11	57	40
12	61	35
13	69	3
14	75	25
15	81	20
16	88	15
17	98	10
18	106	5
19	111	0
20	-	-
21	-	-

Calculation of average value

To fill in this table, fill the diesel tank with regular, known quantities (e.g. 5 litres at a time) and record the ADC level read each time. Perform the same operation, but emptying the tank, and calculate the average of the values. The smaller the quantities of diesel between two readings, the more exact the additive dosing will be. In any case refer to the following table for calculating the filling/emptying intervals:

Tank capacity [litres]	ADC reading interval [litres]
Up to 150	5
From 150 to 250	10
From 250 to 350	15
Over 350	20

In the example described above the ADC level is **inversely proportional** to the quantity of diesel in the tank, but the calibration method also works for a signal that is **proportional** to the quantity of diesel. In other words: you can use the same procedure of filling/emptying for level indicators that show a voltage signal that increases with the diesel level (empty tank = 0V ----- full tank = 3.5÷24V)

- Once the table is completed select the correct settings file and load it onto the ECU, following the instructions in section 9.5. Then from "Software" click on "Operations" and then "Upload"
- Click on "Download registers"



FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK

On board additive
dosing version

Date: 12.12.2010

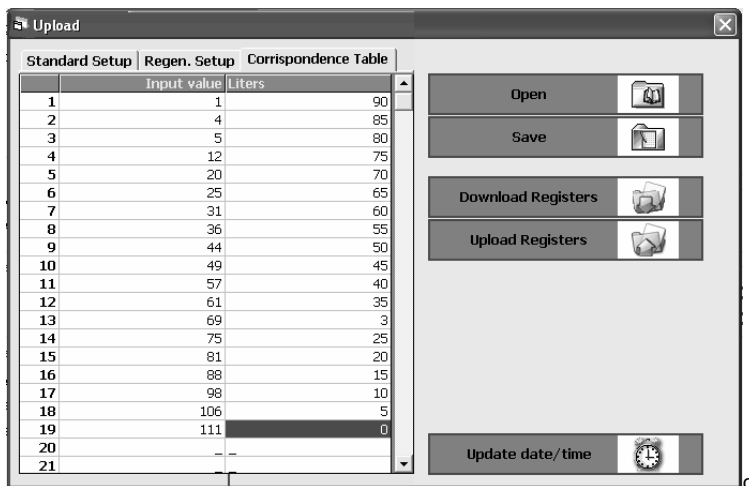
Revision: Rev. 7.2 - EN

10) Set the three fields shown in the screen, as follows:

- Min threshold addition: Enter capacity of tank/10, e.g. for a 100 litre tank enter 10
- Dosing rate percentage: 1600
- Dosing strategy: Once the field is selected, press “ENTER” until the “2-Level” text appears

Description	Value
Min threshold addition	8
Dosing rate percentage	1600 ppm
Pump flow	64 ml/imp
Press. sampling interval	10 sec
Temper. sampling interval	10 sec
Dosing strategy	2-Level
Pulses per dosing package	18
Time between dosing packages	100 sec
First Addition	0 ml
Hi_ist_press_AI_min tresh	400 mBar
Hi_ist_press_AI_max tresh	500 mBar
Hi_ist_press_AI_time interval	1 sec
Hi_avg_press_AI_min tresh	250 mBar
Hi_avg_press_AI_max tresh	500 mBar
Lo_avg_press_AI_max tresh	3 mBar
Lo_avg_press_AI_time interval	180 min
Sampling int. for Avg. Press. calc	10 sec
Press. samples for average calc.	200

11) Manually transfer the information table (previously calculated and filled out) into the “Corrispondece table” screen of the “Upload” screen, entering the calculations into the “In” coput valuelumn (calculated as the average of the two readings executed) and the corresponding litres in the “Liters” column.



12) Click on "Upload" and confirm the operation.

To verify that the calibration is correct, refuel with an amount of diesel that is greater than the minimum set threshold for additive delivery (one-tenth of the total capacity of the fuel tank) and check that the quantity of additive dosed is compatible with the increase in fuel recorded (visible from real-time data or recorded in the events LOG).




For the system to function correctly, it is ESSENTIAL to refuel while the vehicle is switched off. Otherwise the control unit will not recognise the level increase and will NOT dose the additive.

9.7 Checking the operational status of the Feelpure™ system by means of the ECU 3.0 software

If the data in the electronic control unit is downloaded (in the OPERATIONS menu, select DOWNLOAD) you can display and save 3 files that describe the operation of the Feelpure™ system: **REGISTERS, PRESS. LOGS, EVENTS LOGS.**

For a **Feelpure™ AR** system, it will also be possible to download the file referring to the **TEMPER. LOGS.**

These files can be converted/exported in **Excel format (.xls)** and if required they can be sent by email to service.ecotechnology@pirelli.com (in the VIEW menu, select DATABASE and then select the file required and click on the EXPORT button).

	FEELPURE™ SYSTEM		On board additive dosing version
	INSTALLATION, OPERATION & MAINTENANCE BOOK		Date: 12.12.2010
			Revision: Rev. 7.2 - EN

During the display of the REGISTERS (or in the corresponding exported file), the following elements will be displayed:

- Serial number of the control unit (if previously inserted)
- Version and revision of the Firmware installed in the same control unit
- The **ADDITIVE TOTALIZER** (in terms of executed **IMPULSES**)
- The number of events, and the pressure and temperature logs stored in memory,
- Number of stored pulses which will be dosed at the following engine ignition (if present),
- Counter of Emergency Regenerations which did not succeed (**ONLY FOR ACTIVE REGENERATION**)

During the display of the PRESSURE data (or in the corresponding exported file), the last 50000 stored values of instantaneous pressure will be displayed, in mbar (corresponding to the last 150 engine operation hours)

During the display of the TEMPERATURE data (or in the corresponding exported file), the last 50000 stored temperature values will be displayed, in °C. (corresponding to the last 150 engine operation hours)

During the display of the EVENTS data (or in the corresponding exported file), the last 32000 stored operation events will be displayed, according to the following summary table:



FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK

On board additive
dosing version

Date: 12.12.2010


Revision: Rev. 7.2 - EN

EVENT CODE	SAVED EVENT	DESCRIPTION	VALUE
0	POWER_SUPPLY_ON	Beginning of power supply	0
2	ENGINE_ON	Engine turned on	0
3	ENGINE_OFF	Engine turned off	0
4	CONTINUOUS DOSING	Erogation of additive in continuous mode	Nr. of dosed pulses
6	MANUAL DOSING	Erogation of additive in manual mode	Nr. of dosed pulses
9	HI_PRESS_AL_BEGIN	Beginning of a high pressure alarm	0
10	HI_PRESS_AL_END	End of a high pressure alarm	0
11	EMERG_REGEN_NEEDED	Need of an emergency regeneration procedure	0
13	AUTOM_REGEN_BEGIN	Beginning of an automatic power supply of the glow plugs	0
14	EMERG_REGEN_BEGIN	Beginning of an emergency power supply of the glow plugs	0
18	ADD_LOW_LEVEL_BEGIN	Beginning of a low level alarm of the additive	0
19	ADD_LOW_LEVEL_END	End of a low level alarm of the additive	0
22	SERVICE_BEGIN	Beginning of a service request	0
23	SERVICE_END	End of a service request	0
24	LO_PRESS_AL_BEGIN	Beginning of a low pressure alarm	0
25	LO_PRESS_AL_END	End of a high pressure alarm	0
26	GLOW_PLUGS_ERROR	Negative result of a glow plugs control: Nr. of wired glow plugs (from 0 to 4) when different from the set value	Nr. of wired glow plugs (from 0 to 4)
27	GLOW_PLUGS_RESISTANCE	Result of a glow plugs control: total value of resistance of the wired glow plugs (kOhm)	Total value of glow plugs resistance (kOhm)
28	AUTOM_REGEN_END	End of an automatic power supply of the glow plugs	0
29	EMERG_REGEN_END	End of an emergency power supply of the glow plugs	0
30	THERMOR_UNWIRED	Testing of an unwired thermoresistance	0
31	THERMOR_WIRED	Testing of a re-wired thermoresistance (following an unwired thermoresistance event)	0
32	AUTOM_REGEN_POS_TEST	Positive result of the control on an automatic power supply of the glow plugs	0
33	AUTOM_REGEN_NEG_TEST	Negative result of the control on an automatic power supply of the glow plugs	0
34	EMERG_REGEN_POS_TEST	Positive result of the control on an emergency power supply of the glow plugs	0
35	EMERG_REGEN_NEG_TEST	Negative result of the control on an emergency power supply of the glow plugs	0
36	GLOW_PLUGS_SENSE	Positive result of a glow plugs control: Nr. of wired glow plugs (from 0 to 4) when equal to the set value	Nr. of wired glow plugs (from 0 to 4)
37	EMERG_REGEN_NO_MIN_TEMPER	Lack of the minimum temperature condition for an emergency regeneration	Temperature value (°C)
38	EMERG_REGEN_MAX_TEMPER	Lack of the maximum temperature condition for an emergency regeneration request	Temperature value (°C)
39	GLOW_PLUGS_DIAGNOSYS_ON	Beginning of manual (diagnosis) switching-on of the glow plugs	0
40	GLOW_PLUGS_DIAGNOSYS_OFF	End of manual (diagnosis) switching-on of the glow plugs	0
41	REGISTERS_MODIFIED	Execution of a modification to the ECU parameters (Upload Request)	0
42	SERVICE_ENGINE_BEGIN	Beginning of alarm to indicate service is needed, due to lack of engine-running signal	0
43	SERVICE_ENGINE_END	End of alarm to indicate service is needed, due to lack of engine-running signal	0
44	SERVICE_FR_BEGIN	Beginning of alarm to indicate service is needed, due to interruption in power supply line to glow plugs, on the section comprising battery/fuse/relay/connection box/sense cable	0
45	SERVICE_FR_END	End of alarm to indicate service is needed, due to interruption in power supply line to glow plugs, on the section comprising battery/fuse/relay/connection box/sense cable	0
46	SERVICE_BG_BEGIN	Beginning of alarm to indicate service is needed, due to interruption in power supply line to glow plugs, on the section comprising sense cable/connection box/glow plugs	0
47	SERVICE_BG_END	End of alarm to indicate service is needed, due to interruption in power supply line to glow plugs, on the section comprising sense cable/connection box/glow plugs	0
48	GP_LINE_OK	Check that power supply line to glow plugs is functioning is positive	0

For FEELPURE™ and FEELPURE™ AR versions

Only for FEELPURE™ versions

Only for FEELPURE™ AR versions

	FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK	On board additive dosing version
		Date: 12.12.2010
		Revision: Rev. 7.2 - EN

9.8 Verifying the filtering efficiency of the Feelpure™ system

1. With a smoke meter, perform the smoke opacity test of the exhaust gases output from the replacement muffler installed.
2. Compared to the value taken before installation (which must be less than $K = 1.7 \text{ [m}^{-1}\text{]}$), a substantial reduction can be measured (up to over 90%). **Bear in mind, however, that the reading taken at the end of installation is not definitive.** This is due to the filtering cartridge being "run in" and, because of this, the maximum filtering efficiency is reached only after around 2-300 km of running.

If you were not able to perform the smoke opacity test before the installation, you can still do it by removing the 1"1/4 threaded sleeve installed on the exhaust gas inlet end plate of the Feelpure™ muffler.

9.9 Feelpure™ Installation & Warranty form filling-in rules


All the readings taken (smoke opacity, backpressure, dosage time, kilometres on the clock at installation time etc.) are necessary for filling in the **Installation & Warranty Form** (see attachment 3), together with the vehicle information contained on the registration certificate and the codes on the plates of the following:

- Filter (filtering cartridge)
- Muffler inlet end plate
- Electronic control unit

It is essential to fill in all the mandatory parts of the Installation Form (the optional fields are marked with an asterisk). In particular the data about the vehicle on which the Feelpure™ filtering system is installed are absolutely essential in order to correctly issue the declaration of conformance (issued by the maker) for the homologation of the installed device. The data cited can easily be found by consulting the vehicle registration document.

Specifically (these indications are valid for Italy only), if you look at the 2nd quadrant at the top right of the Vehicle Registration Certificate (*Carta di Circolazione*) you can read off the following information which must then be entered in the corresponding fields of the Feelpure™ Installation & Warranty Form:

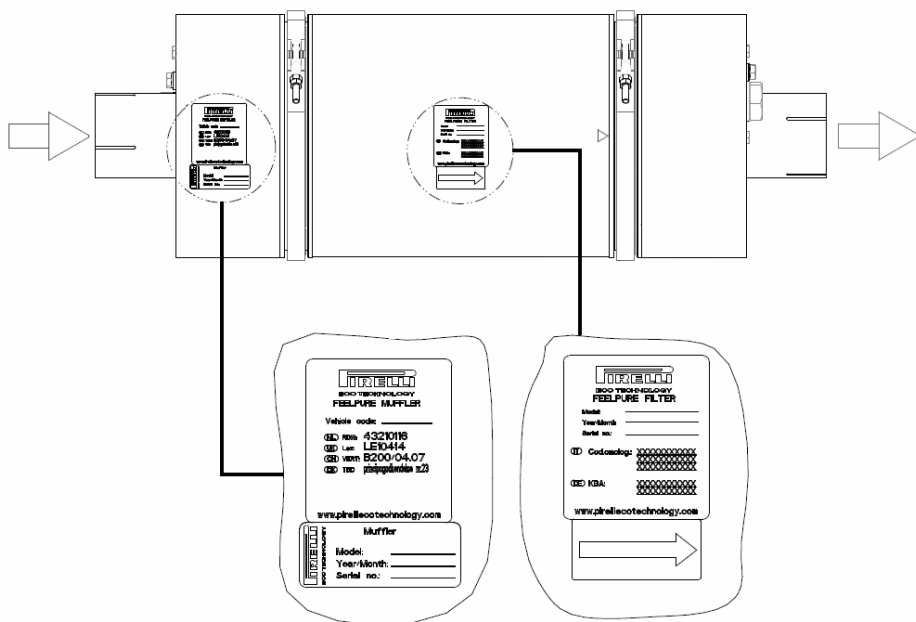
- | | | |
|--|---|------------|
| ▪ Registration no. | → | line (A) |
| ▪ Chassis no. | → | line (E) |
| ▪ Make | → | line (D.1) |
| ▪ Model | → | line (D.1) |
| ▪ Engine model | → | line (P.5) |
| ▪ Power [kW] | → | line (P.2) |
| ▪ Engine capacity | → | line (P.1) |
| ▪ Category of legislation (Euro class) | → | line (V.9) |

	FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK		On board additive dosing version
			Date: 12.12.2010
			Revision: Rev. 7.2 - EN

Regarding the category of legislation, it is mandatory to transcribe the contents of field (V.9) of the Vehicle Registration Certificate onto the form, and not just the Euro class, because for some categories of vehicle the correct issuing of the declaration of conformance is subject to knowing the exact legislation. If line (V.9) of the certificate does not contain any information, then you must fill in the Euro class field in the installation form as (EURO 0).

The readings before installation, as well as the date of installation, are essential in order to activate and benefit from the maker's Warranty, based on the warranty conditions specified in this manual.

The data for the muffler and for the filtering cartridge can be taken directly from the metal plates welded to the entry endcan and on the filtering cartridge of the installed system (as shown below).





FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK

On board additive
dosing version

Date: 12.12.2010

Revision: Rev. 7.2 - EN

 FEELPURE MUFFLER Vehicle code: _____ CD ROW: 43210116 CD Lnc: LE10414 CD VERT: B200/04.07 CD TBO: principio d'installazione n.23 www.pirelliecotecnology.com	 FEELPURE FILTER Model: _____ Year/Month: _____ Serial no.: _____ CD Cod. omolog.: XXXXXXXXXX CD KBA: XXXXXXXXXX www.pirelliecotecnology.com		
 Muffler Model: _____ Year/Month: _____ Serial no.: _____			
 SCHEDA INSTALLAZIONE & GARANZIA FEELPURE™ FOTOCOPIARE E INVIARE VIA FAX AL: +39 02 938 74 664 MAIL: service.ecotechnology@pirelli.com INVIARE A MEZZO POSTA (VEDI INDIRIZZO SUL RETRO DEL MANUALE) ENTRO 5 GG LAVORATIVI PER L'ATTIVAZIONE DELLA GARANZIA			
<table border="1"><tr><td>CLIENTE/PROPRIETARIO DEL VEICOLO: RAGIONE SOCIALE: _____ INDIRIZZO: _____ CITTA' / CAP / NAZIONE: _____ CONTATTO: Sig. _____ TELEFAX: _____ MAIL: _____</td><td>DATI VEICOLO: TARGA: _____ N° AZIENDALE: _____ TELAIO: _____ MARCA: _____ MODELLO: _____ MODELLO MOTORE: _____ POTENZA: _____ [KW] CILINDRATA: _____ [litri] CLASSE EURO (NORMATIVA DI RIFERIMENTO): _____</td></tr></table>		CLIENTE/PROPRIETARIO DEL VEICOLO: RAGIONE SOCIALE: _____ INDIRIZZO: _____ CITTA' / CAP / NAZIONE: _____ CONTATTO: Sig. _____ TELEFAX: _____ MAIL: _____	DATI VEICOLO: TARGA: _____ N° AZIENDALE: _____ TELAIO: _____ MARCA: _____ MODELLO: _____ MODELLO MOTORE: _____ POTENZA: _____ [KW] CILINDRATA: _____ [litri] CLASSE EURO (NORMATIVA DI RIFERIMENTO): _____
CLIENTE/PROPRIETARIO DEL VEICOLO: RAGIONE SOCIALE: _____ INDIRIZZO: _____ CITTA' / CAP / NAZIONE: _____ CONTATTO: Sig. _____ TELEFAX: _____ MAIL: _____	DATI VEICOLO: TARGA: _____ N° AZIENDALE: _____ TELAIO: _____ MARCA: _____ MODELLO: _____ MODELLO MOTORE: _____ POTENZA: _____ [KW] CILINDRATA: _____ [litri] CLASSE EURO (NORMATIVA DI RIFERIMENTO): _____		
RILEVI PRIMA DELL'INSTALLAZIONE OPACITÀ GAS DI SCARICO [m ³]: _____ KM/ORE: _____ Rum. possib. [dB]: _____			
DATI SISTEMA FEELPURE SILENZIOSITÀ (secondo regolamento UE): TIPO: _____ N° DI SERIE: _____ DATA PRODUZIONE: _____	DATI SISTEMA FEELPURE CARBURANTE (secondo regolamento UE): TIPO: _____ N° DI SERIE: _____ DATA PRODUZIONE: _____		

The remaining data, concerning the electronic control unit, the tank, the ECU settings configured, the dosing and the readings made after installation are important to favour a rapid verification of the installation and any necessary recall/modifications. The stamp and signature of the installer must be clear and legible.


The Feelpure™ installation form must be filled in, stamped and countersigned by the workshop that installed the system and by the owner of the vehicle.

This manual must be kept on board the vehicle, together with the other identification documents and with the Installation and Maintenance manual.

A copy of the document (hardcopy or in electronic format) **must** be sent to Pirelli Eco Technology by fax +39.02.938.74.664 or by e-mail service.ecotechnology@pirelli.com and must subsequently be sent by post **within 5 working days of the date of installation**.

A copy of the document must also be kept by the installer.

This is essential for the Warranty to be recognised by the Pirelli Eco Technology organisation, based on the regulations that govern it.

	FEELPURE™ SYSTEM		On board additive dosing version
	INSTALLATION, OPERATION & MAINTENANCE BOOK		Date: 12.12.2010
			Revision: Rev. 7.2 - EN

To follow the maintenance programme specified by the vehicle/engine Manufacturer is essential for the product to be used correctly and in conformance with Pirelli recommendations. This is therefore an essential precondition in order to be able to benefit from the warranty under the conditions of sale and use.

Failure to complete the installation form in all its parts will void the maker's warranty.

Below is an example of a warranty form correctly completed in all its parts.



FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK

On board additive
dosing version

Date: 12.12.2010

Revision: Rev. 7.2 - EN



FEELPURE™ INSTALLATION & WARRANTY FORM

MAKE A COPY and FAX TO : +39 02 938 74 664

MAIL: service.ecotechnology@pirelli.com

SEND BY POST WITHIN 5 WORKING DAYS OF THE INSTALLATION DATE TO START THE WARRANTY PERIOD (SEE THE MANUAL BACKSIDE COVER)

CUSTOMER/VEHICLE OWNER

CORPORATE NAME: PIRELLI & C ECOTECHNOLOGY SPA

ADDRESS: VIALE LURAGHI SMC

CITY / CAP / COUNTRY: 20020 ARESE (MI)

CONTACT Mr: _____

TEL/FAX: 02-93874699 02-93874664

MAIL: service.ecotechnology@pirelli.com

VEHICLE DATA:

PLATE: AA123Z VEHICLE N°: _____

CHASSIS: ZCF3570 102191365

VEHICLE MANUFACTURER: IVECO

VEHICLE MODEL: 35 E 10

ENGINE MODEL: SOFIM 8140.23

POWER: 76 [KW] DISPLACEMENT: 2800 [litri]

EMISSION LEVEL: 96/99 CE

STATEMENT BEFORE INSTALLATION

SMOKE OPACITY (m-1): _____ KM/HOURS: _____ NOISE [dB]: _____

FEELPURE™ SYSTEM DATA

MUFFLER (See the plate on the inlet endcan):

TYPE: M751178N01

SERIAL NUMBER: A0000000

PRODUCTION DATE*: 2009-12

FILTER CARTRIDGE (See the welded plate):

TYPE: F751115N41

SERIAL NUMBER: ER000000

PRODUCTION DATE*: 2009-12

ELECTRONIC CONTROL UNIT (SEE THE ECU BACKSIDE):

VERSION: CPT01408-R02

SERIAL NUMBER: 4600000

PRODUCTION DATE*: B.N. 412-112

ADDITIVE TANK:

FIRST FILLING*:

1 [n° tanks]

5 [liters - 5 x tank]

Version / ECU Setting

Indicate the DPF version
and write the file name uploaded
in the ECU

☐ Feelpure™

File uploaded: _____ .dcr

☒ Feelpure™ AR

☒ 4 glow plugs ☐ 6 glow plugs

File uploaded: FEELPURE AR LD .dcr

ADDITIVE DOSING (See the manual at the section 9.5 and the table "additive dosing frequency"):

AVERAGE FUEL CONS. (km/lt): 5.5 AVERAGE SPEED (km/h): 35

AVERAGE = $\frac{\text{Average speed [km/h]}}{\text{Average cons. [km/lt]}}$ = 6.36 [lt/h] DOSING TIME
CONS. TO SET (sec): 240

STATEMENT AFTER INSTALLATION

SMOKE OPACITY (m⁻¹): _____ NOISE [dB]: _____

BACKPRESSURES (measured by):

IDLE SPEED: 2 [mbar] WOT: 15 [mbar]

☐ PRESSURE GAUGE

☒ ECU SOFTWARE


NOTES:

I declare that I have received the Feelpure(TM) installation manual,
the CAM FBC additive safety sheet and the CD with the ECU managing
software. I have read, understood and accepted their contents

INSTALLATION DATE: 18/12/2009

INSTALLER SIGNATURE & STAMP:

VEHICLE OWNER SIGNATURE & STAMP:

	FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK	On board additive dosing version
		Date: 12.12.2010
		Revision: Rev. 7.2 - EN









10) Operation and maintenance

Using the Feelpure™ system **generally does not involve changes** to the way the vehicle on which it is installed has to be used, from the “operational and maintenance” points of view. **The maintenance intervals specified by the vehicle/engine Manufacturer for the other auxiliary systems** (diesel injection, air intake, lubrication, etc) **remain unchanged and should be strictly followed**.

Specifically, the Feelpure™ system requires only that the driver (or operator, in the case of stationary engines) pay attention to the LED installed on the dashboard. The recommendations in the next section, 10.2, must also be strictly observed.


10.1 Feelpure™ system operational status

The operational status of the system is shown by the LED installed on the vehicle dashboard, in a position where it can be seen by the driver. The following are the stickers to be placed on the dashboard (or in a clearly visible position); the left one is to be used for **all versions**, while the other one is specific for the **Feelpure™ AR** versions and describes the manual regeneration procedure.

      	<p>SOLID GREEN LIGHT System ok.</p> <p>RED/GREEN BLINKING Refill additive tank.</p> <p>RED BLINKING Manual regeneration required (if provided).</p> <p>GREEN BLINKING Manual regeneration in progress (if provided).</p> <p>DOUBLE RED BLINKING Low backpressure. Service required.</p> <p>SOLID RED LIGHT Service required. Go to a specialist service centre as soon as possible.</p>	<p>MANUAL REGENERATION PROCEDURE</p> <ul style="list-style-type: none"> • Warm up the engine as much as possible to increase the filter inlet temperature. • Keep the vehicle at idle speed until the end of the procedure. • Keep the button pressed until the LED becomes blinking green. • If, after pressing the button for at least ten seconds, the LED does NOT become green and start blinking, keep warming up the vehicle and repeat the procedure. • Wait a few minutes until the LED becomes solid green. • Return to the regular service. 
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Revision: Rev. 7.2 - EN

	FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK	On board additive dosing version
		Date: 12.12.2010
		Revision: Rev. 7.2 - EN

- Cleaning of additive filter (upstream of the delivery pump)
 ((The filter support can be taken apart and you can proceed to wash the cartridge in metal wire mesh with ordinary diesel and compressed air) at least every 60,000 km

The spare parts that may be necessary are the following:

SPARE-PART SAP CODE

- “ECU protection” gas filter

Description	Cartridge	Complete filter
Light Duty Vehicles	9000012171	9000004401
Heavy Duty Vehicles	9000012271	9000006501

- Filter/end plate gaskets (IN-OUT) (where required)
 - 6800001801 (7,5” diameter)
 - 6800006601 (10” diameter)
 - 6800000401 (11” diameter)
 - 6800006301 (12” diameter)


In addition to the above, should there be an engine problem (such as a failed turbocompressor, fuel-pump or injector) which would generate a large amount of soot in a short time period, it will be necessary to:

- Carry out a diagnosis of the Feelpure™ system
- Inspect the condition of the filtering cartridge
- If required, clean and replace the cartridge

In terms of importance, the Feelpure™ system could be considered on the same level as all the other auxiliary systems (lubrication, air intake, diesel injection, braking system etc.) and therefore we recommend you add the list of operations and checks described above to the maintenance plan for your vehicle fleet (i.e. these checks should be done at the regular services planned for every 15-30-45-60,000 km). You should budget approximately 1 hour of additional labour (see next section 1103) and 1.5 hours for replacing the filtering cartridge (2 hours for unusual muffler configurations).

The checks/repairs/replacements described above must be carried out in observance of the proper technical regulations, taking the necessary safety precautions, and preferably they should be performed at specialised workshops and sending the details of the servicing carried out to Pirelli Eco Technology using the **VEHICLE INSPECTION FORM** enclosed (see Attachment 4).

Failure to notify Pirelli Eco Technology of the operations carried out will result in the termination of the warranty.

	FEELPURE™ SYSTEM	On board additive dosing version
	INSTALLATION, OPERATION & MAINTENANCE BOOK	Date: 12.12.2010
		Revision: Rev. 7.2 - EN

10.3 How to carry out diagnoses on the Feelpure™ system - filling in the Vehicle Inspection Form

When filling in the **VEHICLE INSPECTION FORM** you must include the information on the **INSTALLATION & WARRANTY FORM** about the vehicle, the distance travelled and the smoke opacity of the exhaust gases logged by the installer at the time of installation.

Recognition of any replacement of a component via the Maker's Warranty will only be possible if the request is accompanied by the Vehicle Inspection Form, duly completed and signed.

In addition it is necessary to specify whether it is a Feelpure™ version or a Feelpure™ AR version (and in the latter case to indicate the number of glow plugs found on the entry end plate).

The backpressure check can be done using the **Pirelli software** supplied, as described in section 9.3

- Launch the program named "FeelPure Managing Software.exe"
- Select the serial port to connect to the ECU. The box in the bottom left must become red, and the box in the bottom right must indicate the availability of the selected port for communication.
- Connect the laptop PC to the ECU using the supplied serial cable. The connection status box must become green, to indicate that actual communication is taking place between the PC and the ECU.
- Click on VIEW and then on REAL TIME DATA.

By clicking on START you can check the instantaneous value of the pressure (note the analogue pressure gauge at the "pressure" field), read downstream of the filter.

In the absence of the supplied software you can make the same check using a **manual pressure gauge**.

The value must be read when the engine is at idle speed (**Pmin**) and then at WOT condition (**Pmax**).


In this way it is also possible to verify the status of the driver's LED (and to log the corresponding luminous code on the VEHICLE INSPECTION FORM).

Other information needed to complete the VEHICLE INSPECTION FORM is available from the REAL TIME DATA screen: specifically, you can read the **temperature**, **regen status**., and **glow plugs sense**.

The **additive level** in the tank can be easily measured manually and then it must be logged on the inspection form.

If the additive is **refilled**, this must be logged on the form, indicating, in the space provided, the level of additive reached after the refilling operation. Requests for additive may be sent to any of the network of workshops specialising in installing Feelpure™ systems (a list is available on the internet website www.pirelliecotechnology.com) and using ordering code **7600000271** for **5-litre cans** or ordering code **7600000171** for **200-litre steel drums**.

At each refilling of the additive tank it is necessary to check the status of the **additive filter**, and if it is clogged proceed with cleaning by means of puffing with compressed air, or replace the filter. It is also necessary to verify, when refilling, the functioning of the dosing pump.

	FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK	On board additive dosing version
		Date: 12.12.2010
		Revision: Rev. 7.2 - EN

You can verify the **additive pump functioning** via the following procedure:

- Disconnect the additive hose from the "Tee" junction on the diesel supply line
- Select, using the PIRELLI software, the **MANUAL DOSING** operation (see section 10.4)
- Set/execute a series of dosings of a few ml (by clicking on the RUN button, in the shape of a syringe)
- Using a graduated container, verify the correct dosing of the additive

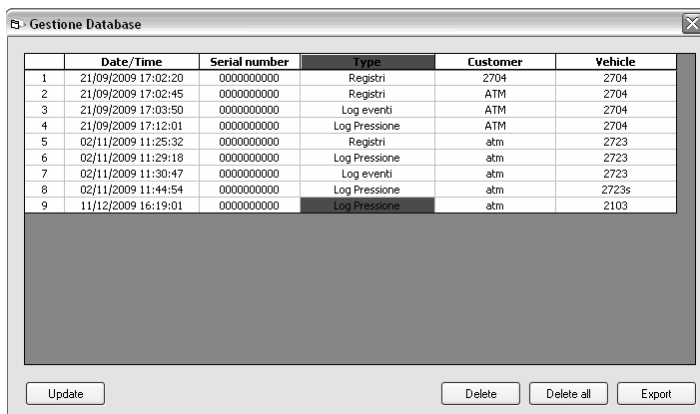
If the pump is found to not be working you will need to replace the pump. This can be ordered from the network of Pirelli Eco Technology specialist workshops (list available on the internet website www.pirelliecotecnology.com) quoting order code **9000000201** (24V) or order code **9000000301** (12V).

Each replacement of components must be reported (by checking the appropriate boxes) on the form. Any further annotations must be entered in the NOTES/COMMENTS field.

As for the download of the data from the ECU 3.0 with the supplied software, please refer to the instructions given in sections 9.3 and 9.6.


The downloaded files can be converted/exported in **Excel format (.xls)** and if required they can be sent by email to service.ecotechnology@pirelli.com. To export the data follow the instructions given below:

- Click on **VIEW**, select **DATABASE** and then the following screen will appear, containing the list of files downloaded with the software.



- Select the file of interest (the selected file is shown in green)
- Click on the **EXPORT** button
- Select the destination folder and name the export file – it will be saved in.xls format in the selected folder

The **smoke opacity of the exhaust gases** must be measured both upstream (through the 1"1/4 threaded sleeve) and downstream of the filtering cartridge.

	FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK		On board additive dosing version
			Date: 12.12.2010
			Revision: Rev. 7.2 - EN

You can **take a sample of diesel from the tank** (50ml) to verify that the correct amount of CAM FBC additive has been delivered. The sample can be sent to Pirelli Eco Technology for the specific laboratory analysis. Make sure it is in a suitable, sealed container, properly packed, and also enclose the product **safety data sheet** with the package.

10.4 Replacing/cleaning the filtering cartridge for Feelpure™ versions

Replacing the filtering cartridge must be carried out in observance of the proper technical regulations and taking the necessary safety precautions. The details must then be sent to Pirelli Eco Technology.

Recognition of any replacement of a component via the Maker's Warranty will only be possible if the request is accompanied by the Vehicle Inspection Form, duly completed and signed.

The detailed procedure is:

- Perform a smoke opacity test (upstream of the filter) and log the result on the **Vehicle Inspection Form** (see Attachment 4), and also enter the serial number of the filtering cartridge on the form.
- Position a suitable lifting/support system under the filter (the weight of the Feelpure™ cartridge varies from 10 to 30 kg depending on the size).
- Remove the locking V-clamps (via the threaded connections held with nut & locknut).
- Detach the filtering cartridge (and enter the serial number on the Vehicle Inspection Form).
- Replace the gaskets positioned between the cartridge and the inlet/outlet end plates (where applicable).
- Attach the replacement cartridge (and enter the serial number on the Vehicle Inspection Form).
- Reattach the locking V-clamps (the tightening torque required is 15Nm).


Note: the removed filter cartridge must be stored in the pack provided by Pirelli Eco Technology inside the special protective cover (and, if applicable, sent to Pirelli for the cleaning operation in accordance with the sales/maintenance conditions agreed). **Before inserting the cartridge into the packaging, verify that the cartridge temperature is close to the ambient temperature.**

When the operation is finished, the backpressure must be verified using the **Pirelli software** supplied or using a **pressure gauge**. See the instructions given in section 9.3.

When replacing the cartridge, it is also necessary to reset the filter's hour meter (i.e. hour log), using the supplied software. From the Operations – Download screen, select the command **“Reset filter counter”**.

Whenever the filtering cartridge is detached/reattached, **you must log the serial numbers (s/n) of the removed filter and of the replacement filter on the VEHICLE INSPECTION FORM** (the serial number is on the metal plate welded to the cartridge).

The form (contained in this manual) must be filled in, stamped and countersigned by the workshop that performed the maintenance operation and by the owner of the vehicle and kept on board the vehicle with the vehicle's other identification documents.

	FEELPURE™ SYSTEM INSTALLATION, OPERATION & MAINTENANCE BOOK	On board additive dosing version
		Date: 12.12.2010
		Revision: Rev. 7.2 - EN

A copy of the document (hardcopy or in electronic format) **must be sent** to Pirelli Eco Technology by fax +39.02.938.74.664 or by e-mail service.ecotechnology@pirelli.com and must subsequently be **sent by post within 5 working days of the date of inspection.**

A copy of the document must also be kept by the workshop that carried out the check/diagnosis.

For further information contact Pirelli Eco Technology Customer Assistance by email at service.ecotechnology@pirelli.com

Failure to notify Pirelli Eco Technology of the operations carried out will result in the termination of the warranty.

10.5 Replacing/cleaning the filtering cartridge for Feelpure™ AR versions

The filtering cartridge replacement procedure for the **Feelpure™ AR** versions is different from that of the **Feelpure™** versions in that there are some additional operations which are described in the present section.


All the other instructions in section 10.4 remain valid.

Replacing the filtering cartridge must be carried out in observance of the proper technical regulations and taking the necessary safety precautions. The details must then be sent to Pirelli Eco Technology.

The detailed procedure is:

- Perform a smoke opacity test (upstream to the filtering cartridge) and log the result on the **Vehicle Inspection Form** (see Attachment 4) and also enter the serial number of the filtering cartridge on the form.
- Position a suitable lifting/support system under the filter (the weight of the Feelpure™ cartridge varies from 10 to 30 kg depending on the size).
- Remove the positive terminal protections of the glow plugs and remove the glow plugs themselves (see section 3AR)
- Remove the locking V-clamps (via the threaded connections held with nut & locknut).
- Detach the filtering cartridge (and enter the serial number on the Vehicle Inspection Form).
- Replace the gaskets positioned between the cartridge and the inlet/outlet end plates (where applicable).
- Attach the replacement cartridge (and enter the serial number on the Vehicle Inspection Form).
- Reattach the locking V-clamps (the tightening torque required is 15Nm).
- Reattach the glow plugs and their protections according the instructions in section 3AR

When replacing the cartridge, it is also necessary to reset the filter's hour meter (i.e. hour log), using the supplied software. From the Operations – Download screen, select the command **“Reset filter counter”**.

<div>  <div>ADDITIVE DOSING FREQUENCY ECU SETTING</div> </div>	
Average fuel consumption [litres/hour]	Dosing frequency [seconds]
5	290
6	240
7	210
8	180
9	160
10	140
11	130
12	120
13	110
14	100
15	100
16	90
17	80
18	80
19	80
20	70
21	70
22	70
23	60
24	60
25	60
26	60
27	50
28	50
29	50
30	50
31	50
32	50
33	40
34	40
35	40
36	40
37	40
38	40
39	40
40	40
41	40
42	30
43	30
44	30
45	30
46	30
47	30
48	30
49	30
50	30



ELECTRONIC CONTROL UNIT CALIBRATION
SHEET FOR DOSING BASED ON FUEL LEVEL

LITRES	LEVEL (ADC) - Filling	LEVEL (ADC) - Emptying	Average values
90			
85			
80			
75			
70			
65			
60			
55			
50			
45			
40			
35			
30			
25			
20			
15			
10			
5			
0			

Average values

Upload

Standard Setup

Regen. Setup

Correspondence Table

	Input value	Liters
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		

Open

Save

Download Registers

Upload Registers

Update date/time

Attachment 3 – Feelpure™ system Installation&Warranty form



FEELPURE™ INSTALLATION & WARRANTY FORM

MAKE A COPY and FAX TO : +39 02 938 74 664

E-MAIL: service.ecotechnology@pirelli.com

SEND BY POST WITHIN 5 WORKING DAYS OF THE INSTALLATION DATE TO START THE WARRANTY PERIOD (SEE THE MANUAL BACKSIDE COVER)

CUSTOMER/VEHICLE OWNER CORPORATE NAME: _____ ADDRESS: _____ CITY / CAP / COUNTRY: _____ CONTACT Mr: _____ TEL/FAX: _____ MAIL: _____	VEHICLE DATA: PLATE: _____ VEHICLE N°: _____ CHASSIS: _____ VEHICLE MANUFACTURER: _____ VEHICLE MODEL: _____ ENGINE MODEL: _____ POWER: _____ [KW] DISPLACEMENT: _____ [litri] EMISSION LEVEL: _____
---	---

STATEMENT BEFORE INSTALLATION

SMOKE OPACITY (m⁻¹): _____	KM/HOURS: _____	NOISE [dB]: _____
--	------------------------	--------------------------

FEELPURE™ SYSTEM DATA

MUFFLER (See the plate on the inlet endcan): TYPE: _____ SERIAL NUMBER: _____ PRODUCTION DATE*: _____	FILTER CARTRIDGE (See the welded plate): TYPE: _____ SERIAL NUMBER: _____ PRODUCTION DATE*: _____
ELECTRONIC CONTROL UNIT (SEE THE ECU BACKSIDE): VERSION: _____ SERIAL NUMBER: _____ PRODUCTION DATE*: _____	ADDITIVE TANK: FIRST FILLING*: _____ [n° tanks] _____ [liters - 5 x tank]
ADDITIVE DOSING (See the manual at the section 9.5 and the table "additive dosing frequency"): AVERAGE FUEL CONS. (km/lt): _____ AVERAGE SPEED (km/h): _____ AVERAGE = $\frac{\text{Average speed (km/h)}}{\text{Average cons. (km/lt)}}$ = _____ [lt/h] DOSING TIME CONS. TO SET (sec): _____	Version / ECU Setting <i>Indicate the DPF version and write the file name uploaded in the ECU</i> <input type="checkbox"/> Feelpure™ File uploaded: _____ .dcr <input type="checkbox"/> Feelpure™ AR <input type="checkbox"/> 4 glow plugs <input type="checkbox"/> 6 glow plugs File uploaded: _____ .dcr

STATEMENT AFTER INSTALLATION

SMOKE OPACITY (m⁻¹): _____ NOISE [dB]: _____ BACKPRESSURES (measured by): IDLE SPEED: _____ [mbar] WOT: _____ [mbar] <input type="checkbox"/> PRESSURE GAUGE <input type="checkbox"/> ECU SOFTWARE	NOTES: _____ _____ _____ _____ _____ _____ _____
<p>I declare that I have received the Feelpure(TM) installation manual, the CAM FBC additive safety sheet and the CD with the ECU managing software. I have read, understood and accepted their contents</p> <p>INSTALLATION DATE: _____</p> <p>INSTALLER SIGNATURE & STAMP: _____</p>	<p>VEHICLE OWNER SIGNATURE & STAMP: _____</p>

* Not mandatory fields

Attachment 4 –Feelpure™ system Vehicle Inspection Form



FEELPURE™ SYSTEM INSPECTION FORM

MAKE A COPY and FAX TO : +39 02 938 74 664

E- MAIL: service.ecotechnology@pirelli.com

SEND BY POST WITHIN 5 WORKING DAYS (SEE THE MANUAL BACKSIDE) TO START THE WARRANTY PERIOD

COMPLAINT DATE: _____	INSPECTION DATE: _____
CUSTOMER (REFER TO THE INSTALLATION FORM): _____	
VEHICLE MAKE: _____	VEHICLE MODEL: _____
PLATE: _____	VEH. NUMBER: _____
MILEAGE/HOURS AT COMPLAINT: _____	MILEAGE/HOURS AT INSPECTION: _____
INSTALLATION DATE: _____	MILEAGE/HOURS INSTALLATION: _____
SMOKE OPACITY BEFORE INSTALLATION: _____	

DPF system version:	<input type="checkbox"/> Feelpure™	<input type="checkbox"/> Feelpure™ AR	→	<input type="checkbox"/> 4 Glow-plugs	<input type="checkbox"/> 6 Glow-plugs
---------------------	------------------------------------	---------------------------------------	---	---------------------------------------	---------------------------------------

SYSTEM BACKPRESSURE CHECK:	Pmin: _____	Pmax: _____	(VERIFY AT IDLE SPEED AND WOT)
	Pavg ^{AR} : _____	Samples left ^{AR} : _____	(on the REAL TIME DATA ECU software window)
Temperature: _____	(check if is an acceptable value)	REGEN. STATUS: _____	
GLOW PLUG SENSE: _____		SAMPLE FROM FUEL TANK: <input type="checkbox"/> YES <input type="checkbox"/> NO	
DASHBOARD LED STATUS:			
<input type="checkbox"/> FIX GREEN LIGHT	<input type="checkbox"/> RED/GREEN BLINKING	<input type="checkbox"/> RED BLINKING	<input type="checkbox"/> GREEN BLINKING
		<input type="checkbox"/> DOUBLE RED BLINKING	<input type="checkbox"/> FIX RED LIGHT
SMOKE OPACITY: _____	(BEFORE FILTER)	_____	(AFTER FILTER)
ADDITIVE LEVEL: _____	[CM]	AFTER REFILLING: _____	[CM]
ECU ADDITIVE TOTALIZATOR (DOWNLOADED VALUE)*: _____ IMPULSES			
ECU DOWNLOAD: <input type="checkbox"/> SETTINGS* <input type="checkbox"/> PRESSURE LOG* <input type="checkbox"/> EVENTS LOG* <input type="checkbox"/> TEMPERATURE LOG ^{AR} *			

SPARE PARTS USED:			
<input type="checkbox"/> FILTER CARTRIDGE	→	REMOVED S/N: _____	INSTALLED S/N: _____
	→	<input type="checkbox"/> Reset filter cartridge hour counter	
<input type="checkbox"/> ELECTRONIC CONTROL UNIT	→	REMOVED S/N: _____	INSTALLED S/N: _____
<input type="checkbox"/> ADDITIVE FILTER	<input type="checkbox"/> DOSING PUMP	<input type="checkbox"/> ADDITIVE LEVEL GAUGE/SENSOR	<input type="checkbox"/> DASHBOARD LED
<input type="checkbox"/> FILTER GASKETS	<input type="checkbox"/> FILTER V-CLAMPS	<input type="checkbox"/> "ECU PROTECTION" GAS FILTER	
<input type="checkbox"/> GLOWS PLUGS ^{AR}	→ How many? _____	<input type="checkbox"/> OUTLET ENDCAN THERMISTOR ^{AR}	<input type="checkbox"/> RELE ^{AR}
<input type="checkbox"/> BATTERY FUSE (3A) ^{AR}	<input type="checkbox"/> GLOW PLUGS "SENSE" FUSE (3A) ^{AR}	<input type="checkbox"/> GLOW PLUGS FUSE (50A) ^{AR}	

NOTES/COMMENTS: _____

INSPECTOR SIGNATURE AND STAMP:	VEHICLE OWNER SIGNATURE AND STAMP:
_____	_____

^{AR} Only for Feelpure™ AR versions

* Not mandatory fields

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