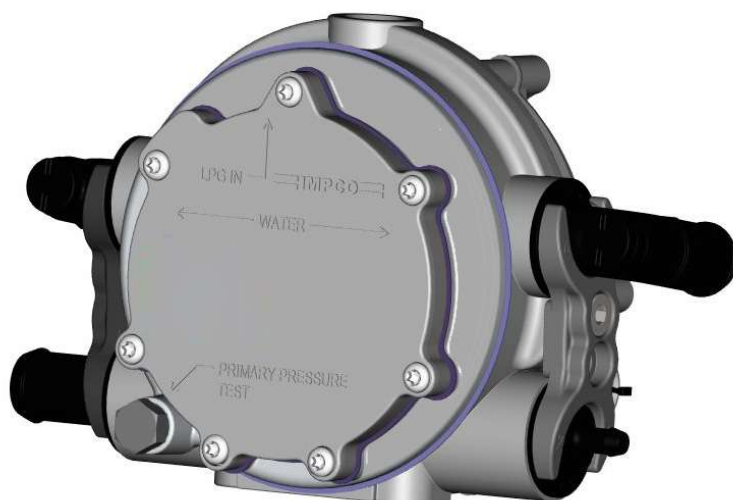
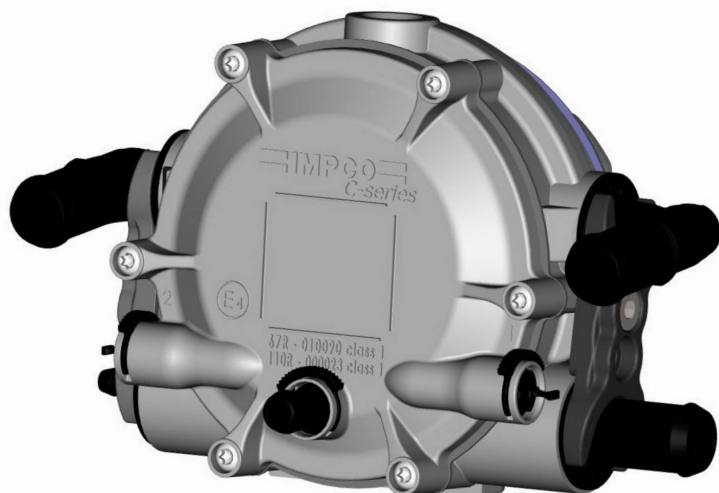


## Service & Parts manual IMPCO C-series

### Evaporator pressure regulator



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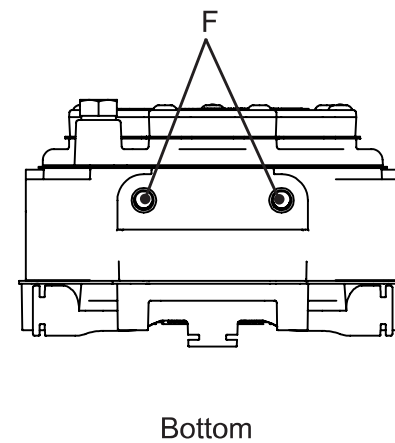
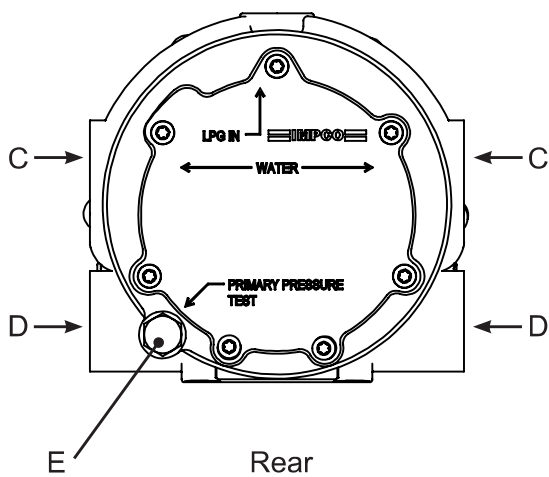
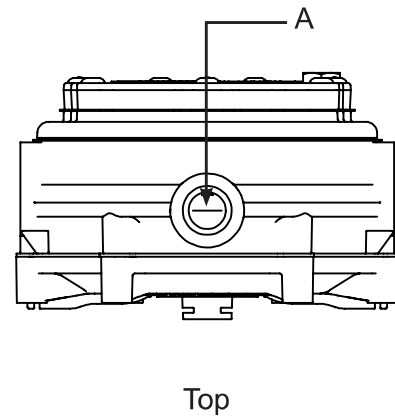
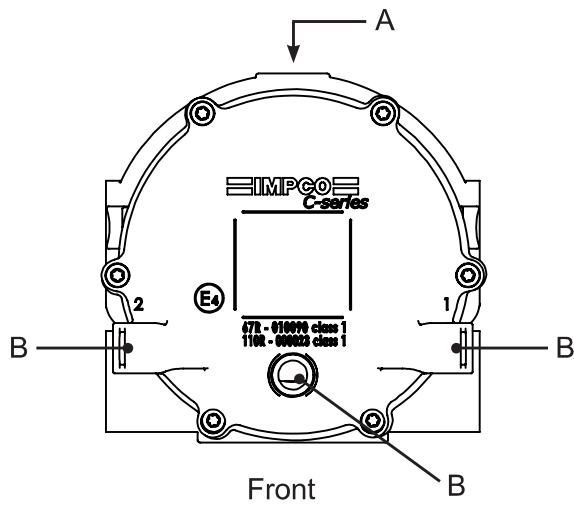
## Technical Specifications

| General technical specification |                                                                                                                                                                     |                                 |             |                                |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|-------------|--------------------------------|
| Product make:                   | IMPCO                                                                                                                                                               |                                 |             |                                |
| Name:                           | Evaporator pressure regulator                                                                                                                                       |                                 |             |                                |
| Model:                          | C-series                                                                                                                                                            |                                 |             |                                |
|                                 |                                                                                                                                                                     |                                 |             |                                |
| Specification                   |                                                                                                                                                                     |                                 |             |                                |
| Fuel:                           | Liquid and vapor LPG                                                                                                                                                |                                 | Natural gas |                                |
|                                 |                                                                                                                                                                     |                                 |             |                                |
| Max. Inlet pressure:            | 3.0                                                                                                                                                                 | mPa                             | 3.0         | mPa                            |
| Min. Inlet pressure:            | 0.2                                                                                                                                                                 | mPa                             | 0.2         | mPa                            |
|                                 |                                                                                                                                                                     |                                 |             |                                |
| Primary pressure:               | 15-25                                                                                                                                                               | kPa                             | 15-25       | kPa                            |
| Nominal outlet pressure:        | -0.37                                                                                                                                                               | kPa                             | -0.37       | kPa                            |
|                                 |                                                                                                                                                                     |                                 |             |                                |
| Max. Capacity liquid fuel:      | 15                                                                                                                                                                  | Kg/Propane/hr                   | -           | -                              |
| Max. Capacity vapor fuel:       | Depending on fuel specification and fuel pressure.                                                                                                                  |                                 |             |                                |
|                                 |                                                                                                                                                                     |                                 |             |                                |
| Filtration requirement:         | 40                                                                                                                                                                  | Micron                          | 40          | Micron                         |
| Heating source:                 | Coolant circuit.<br>Other liquids and heating methods possible after IMPCO approval.                                                                                |                                 |             |                                |
| Minimum temperature:            | 80                                                                                                                                                                  | °C                              | 80          | °C                             |
| For Max. Capacity:              | 90-95                                                                                                                                                               | °C                              | -           |                                |
|                                 | For maximum evap. Capacity.                                                                                                                                         |                                 | -           |                                |
| Mounting position:              | Fuel outlet lowest position, this should be higher than fuel inlet on carburetor to avoid heavy end deposits accumulation. Other positions after approval by IMPCO. |                                 | -           |                                |
| Mounting place:                 | Base frame or engine. If on engine local forced should not exceed 8G. Component location position to be confirmed with IMPCO.                                       |                                 |             |                                |
| Weight:                         | 0.86                                                                                                                                                                | Kg.                             | 0.86        | Kg.                            |
|                                 |                                                                                                                                                                     |                                 |             |                                |
| Approvals:                      | USA                                                                                                                                                                 | UL listed.                      | USA         | UL listed.                     |
|                                 | Europe                                                                                                                                                              | R67-01, E4-67R-010090, class 1. | Europe      | R110, E4-110R-000023, class 1. |
| Applications:                   | Internal combustion engines, Max. turbo pressure allowed 100kPa                                                                                                     |                                 |             |                                |

### Note:

The evaporator pressure regulator can not be opened and is not repairable.  
Only available as exchange module and replacement set. See service/parts manual.

## Connections

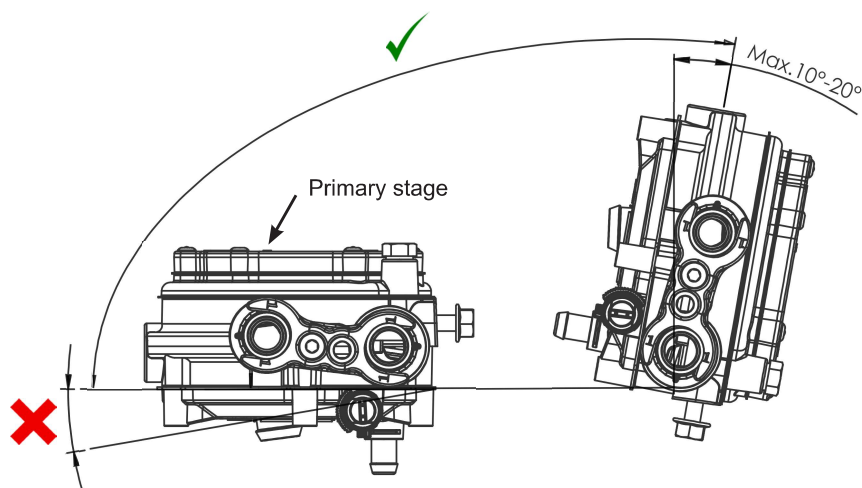
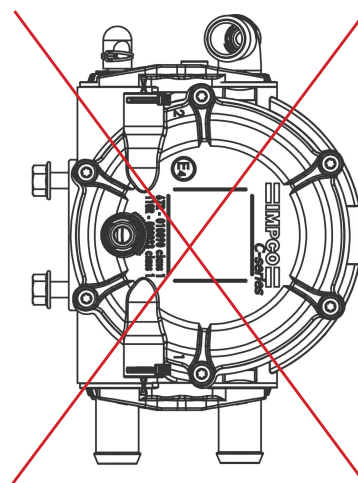
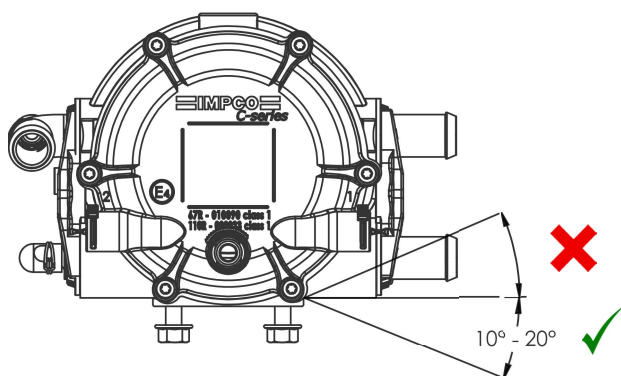
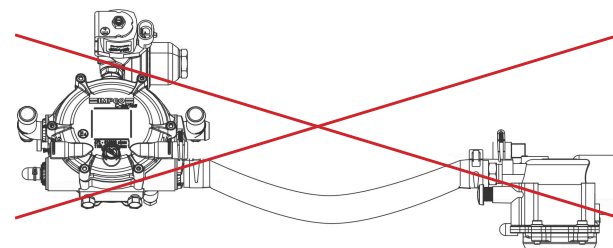
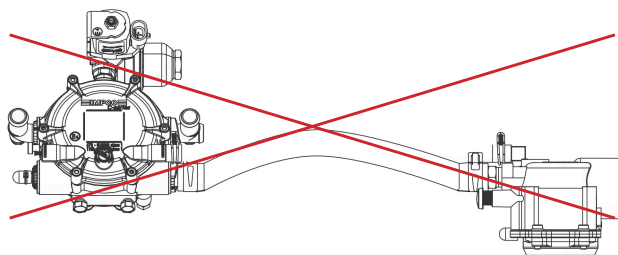
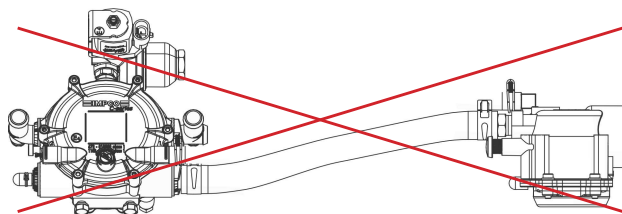
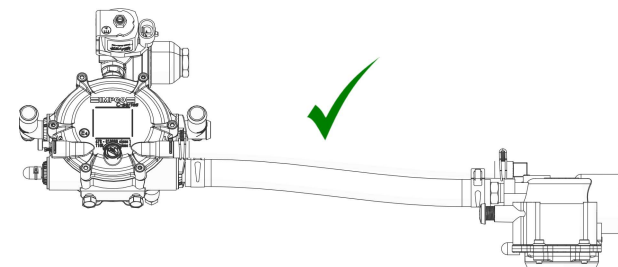


| # | Description                           |
|---|---------------------------------------|
| A | Liquid fuel in (1/4"-18 NPT)          |
| B | Balance connection (3 options)        |
| C | Coolant in/out                        |
| D | Fuel out                              |
| E | Primary pressure test port (1/8" NPT) |
| F | Fixing point M6 (2x) depth:16mm       |

## Mounting position evaporator



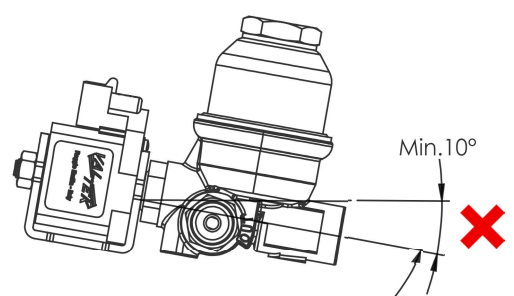
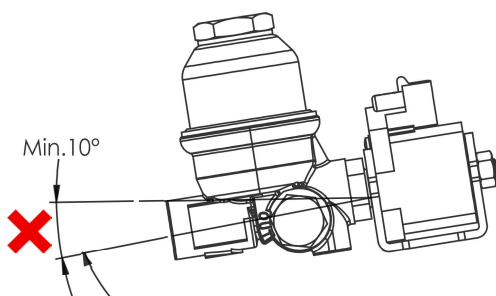
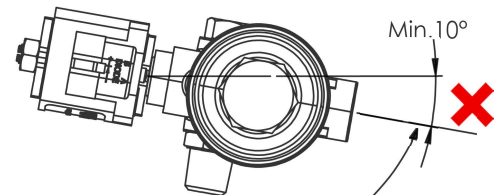
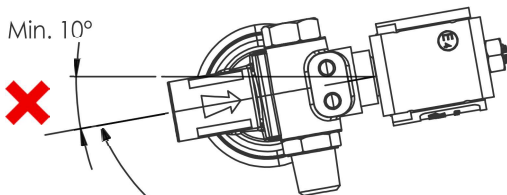
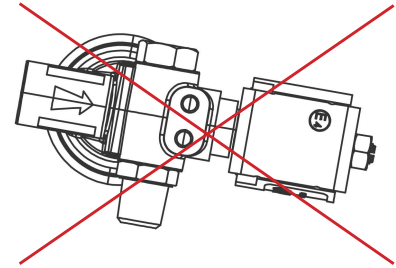
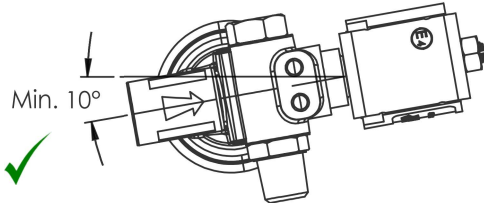
Fuel outlet position in the application MUST be higher than the fuel inlet of the air/gas mixer to avoid heavy end build up in the dry fuel side of the system.



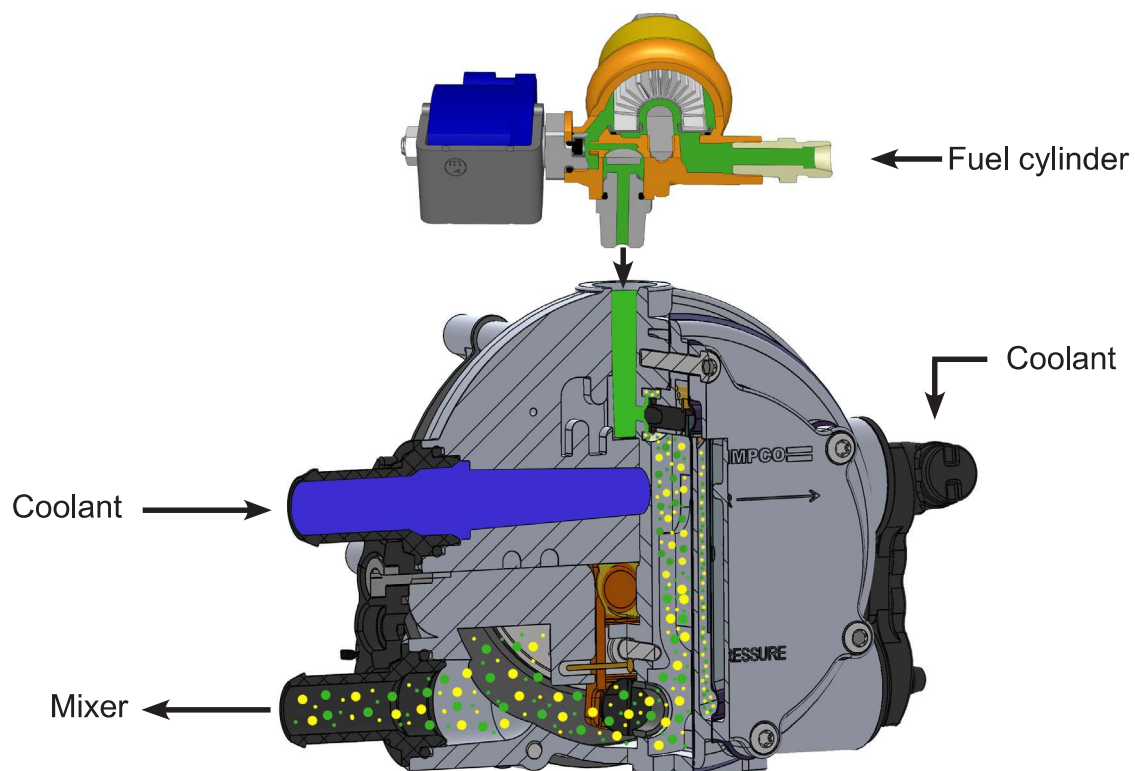
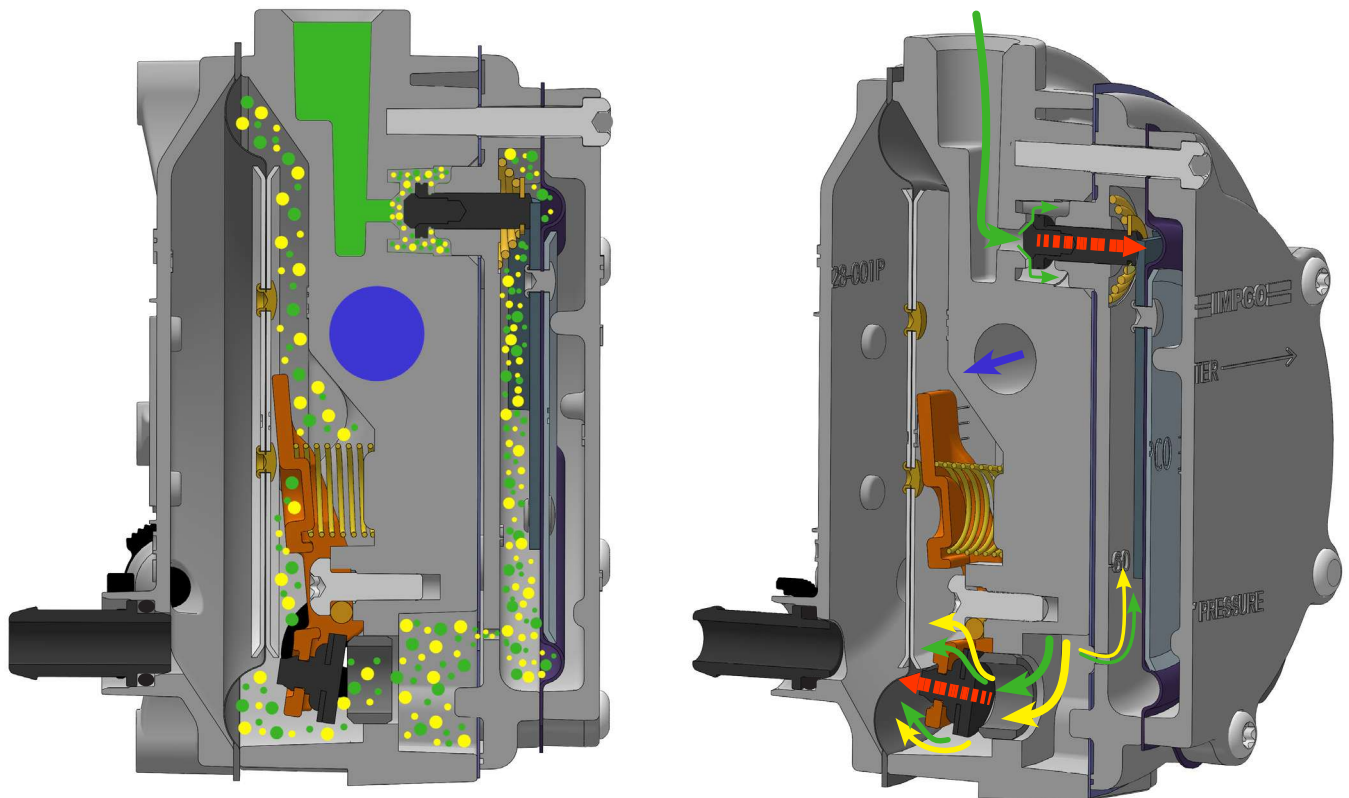
## Mounting position filter lock off valve



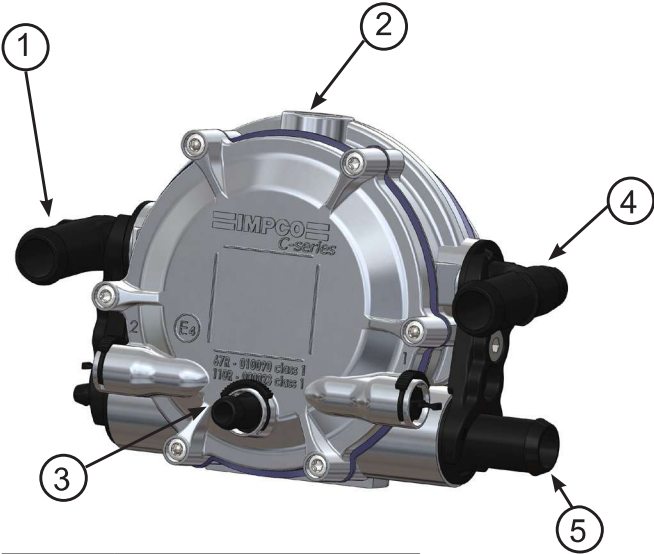
Fuel inlet position of the filter lock off valve MUST be lower than the electrical coil to avoid heavy end build up in the valve.



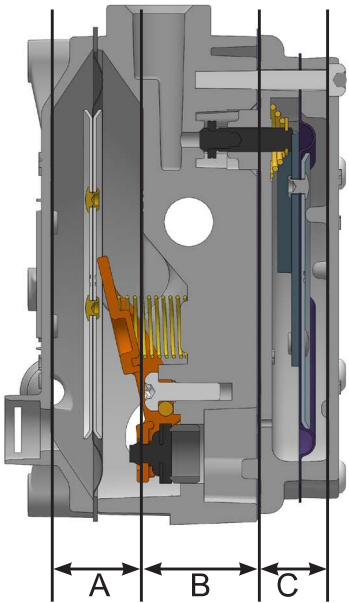
## Working principle



- = Coolant
- = Liquid Fuel
- = Vapor Fuel



| # | Description        |
|---|--------------------|
| 1 | Coolant            |
| 2 | Liquid fuel in     |
| 3 | Balance connection |
| 4 | Coolant            |
| 5 | Fuel out           |



|   |                 |
|---|-----------------|
| A | Secondary stage |
| B | Evaporator      |
| C | Primary stage   |

## Recommended Maintenance

The evaporator pressure regulator should be checked periodically for external leaks and correct function. The checks as a rule should be carried out in connection with the specified regular maintenance intervals of the unit, but should not exceed a period of 6 months or max. 1.000 running hours. Whichever occurs first.

After a maximum of 3 years or 5000 hours of operation the evaporator must be replaced.

Depending on the purity of the used liquefied gas shorter inspection intervals may be required.

Required tools:

1. Differential pressure gauge. (0-50 mbar vacuum) , alternatively U - tube  
(clear tube, vertical leg length at least 100 cm. For example: Dwyer 1211-100)
2. 1x Adapter Kit P / N 88 4500 0010 (see page 12) for regulated investment.
3. 1x adapter AF5-40 for unregulated investment.
4. Appropriate foam-forming agent. (Leak spray / soapy water)

Maintenance / inspection:

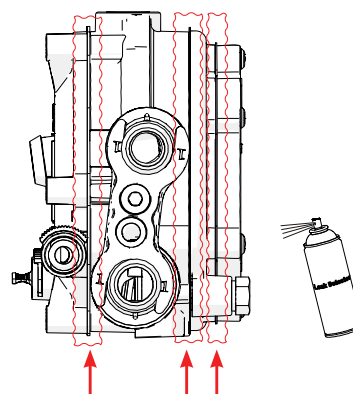
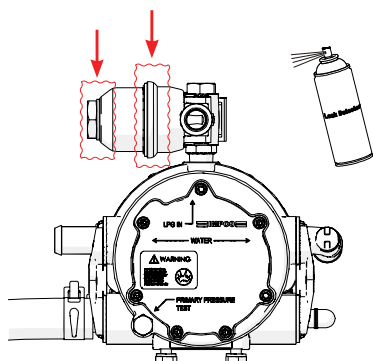
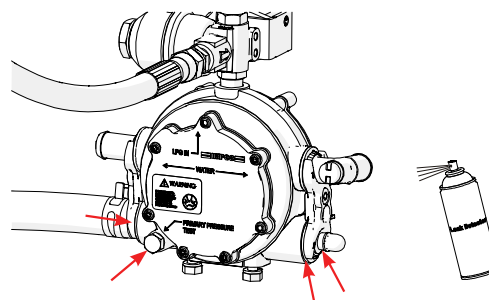
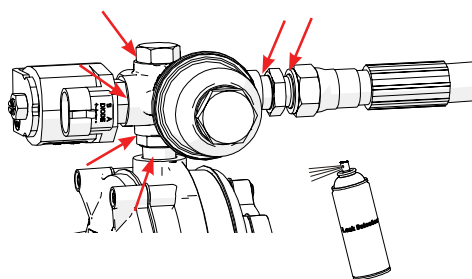
The inspection should be carried out with an engine on operating temperature, filled fuel tank and non leaking fuel system. (Checked for leaks with a suitable method) according to the following procedure)

- Connect a differential pressure measuring system according to the connection method on page 9-10.
- Start engine. At idle and at load record the differential pressure. The pressure drop values must lay between the values -3.0 and -6.0 mbar (open loop system) or -3.0 and -6.0 mbar (close loop system).

Note: if the close loop system, the values are running up and down within the above limits with a correct functioning Lambda control.

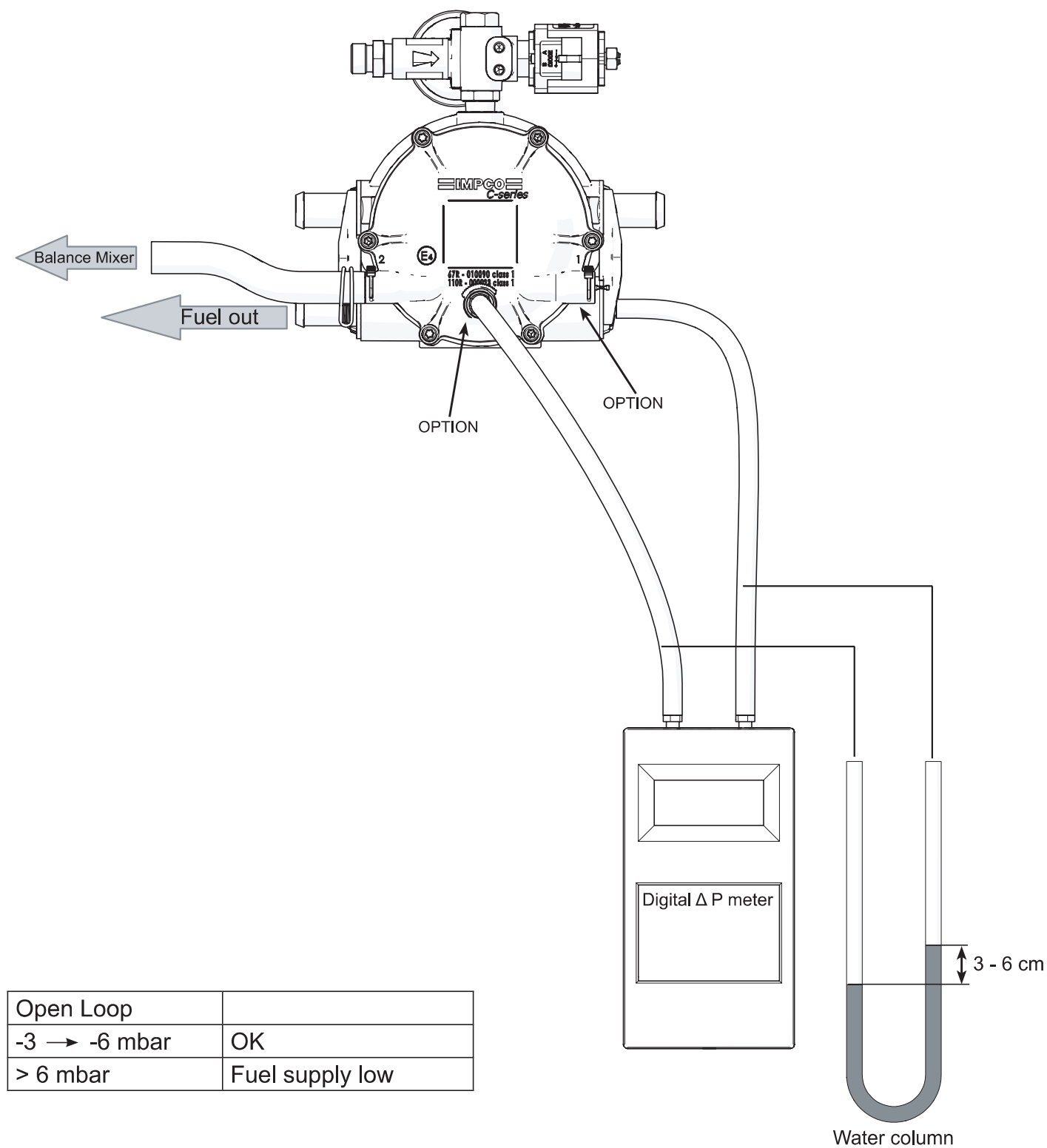
Attention: The evaporator can't be opened and should not be repaired or otherwise maintained.

Leak check with running engine:



## Fuel pressure measurement

### Open Loop

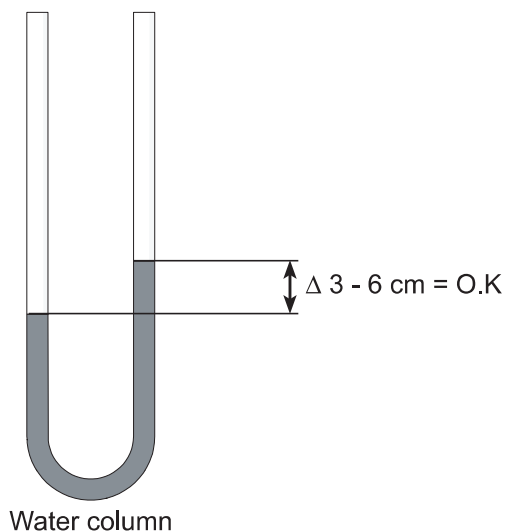


Note:

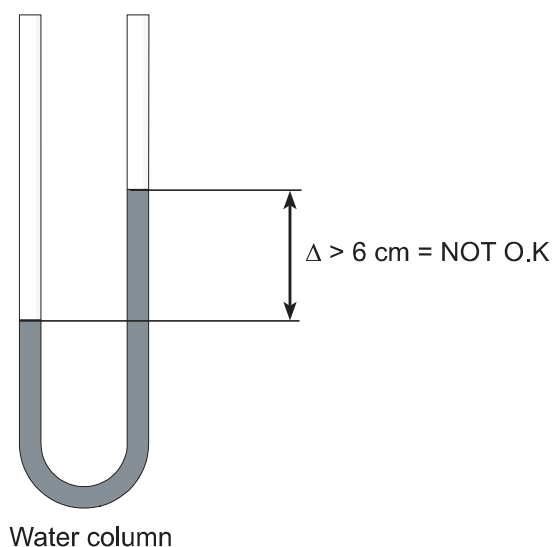
-4.0 mbar = 4.0 cm WC = -0,40 kPa

## Fuel pressure diagnose

### Open Loop



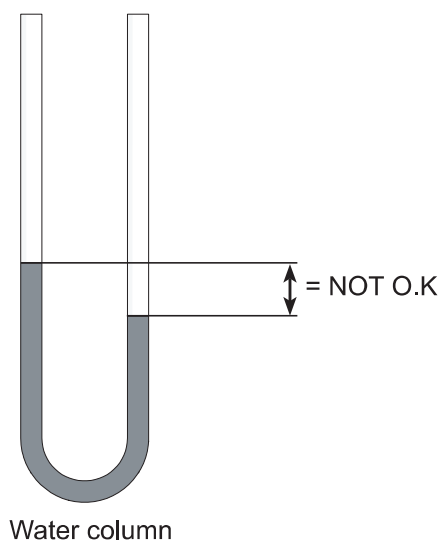
**Fuel supply O.K**



**Fuel supply LOW**

Cause:

- Tank empty
- Tank up side down
- Excess flow
- Hose kinked
- Fuel filter
- Lock off



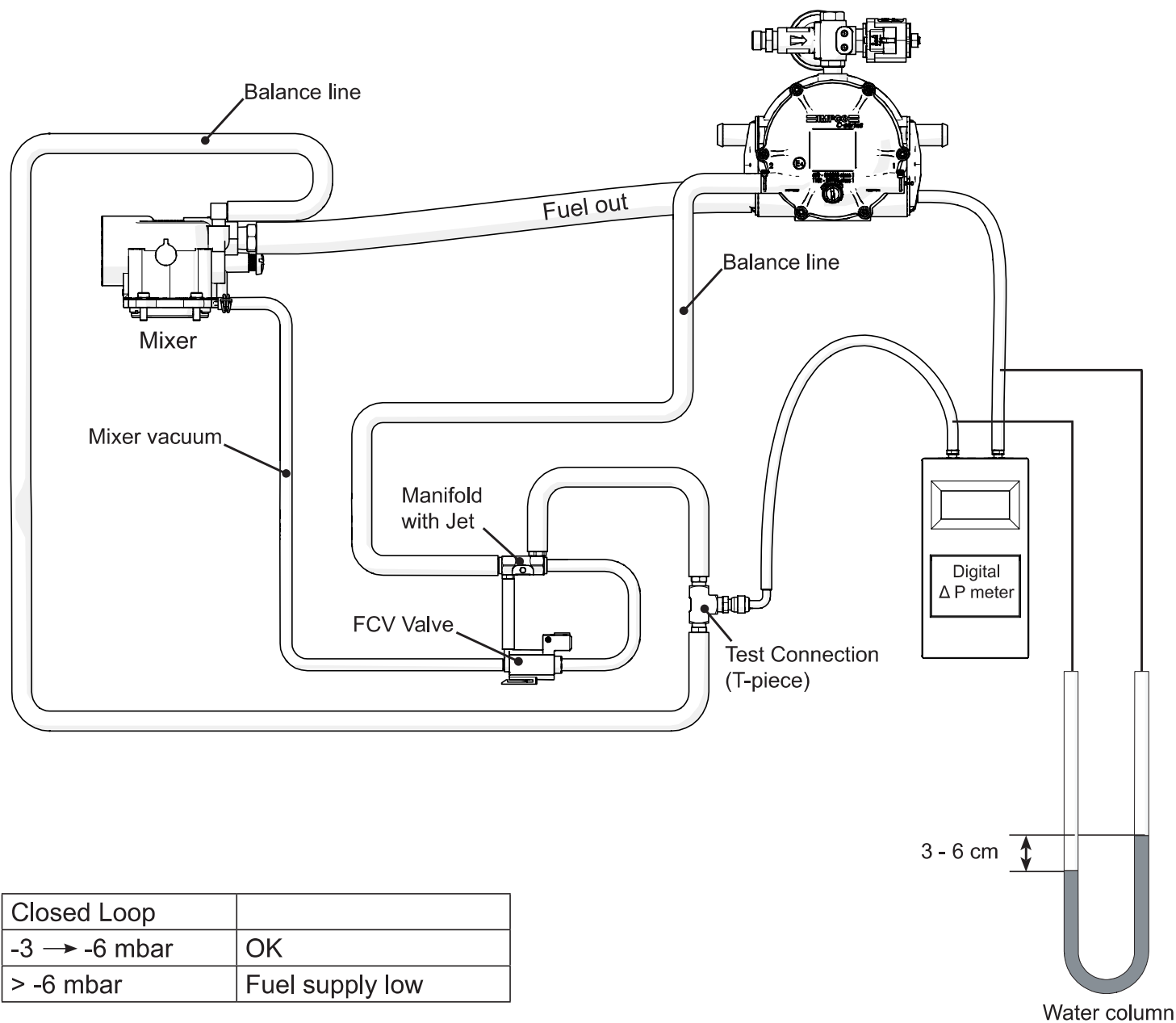
**Fuel supply HIGH**

Cause:

- Internal leakage or valve wear inside the evaporator.
- Replace the evaporator.

## Fuel pressure measurement

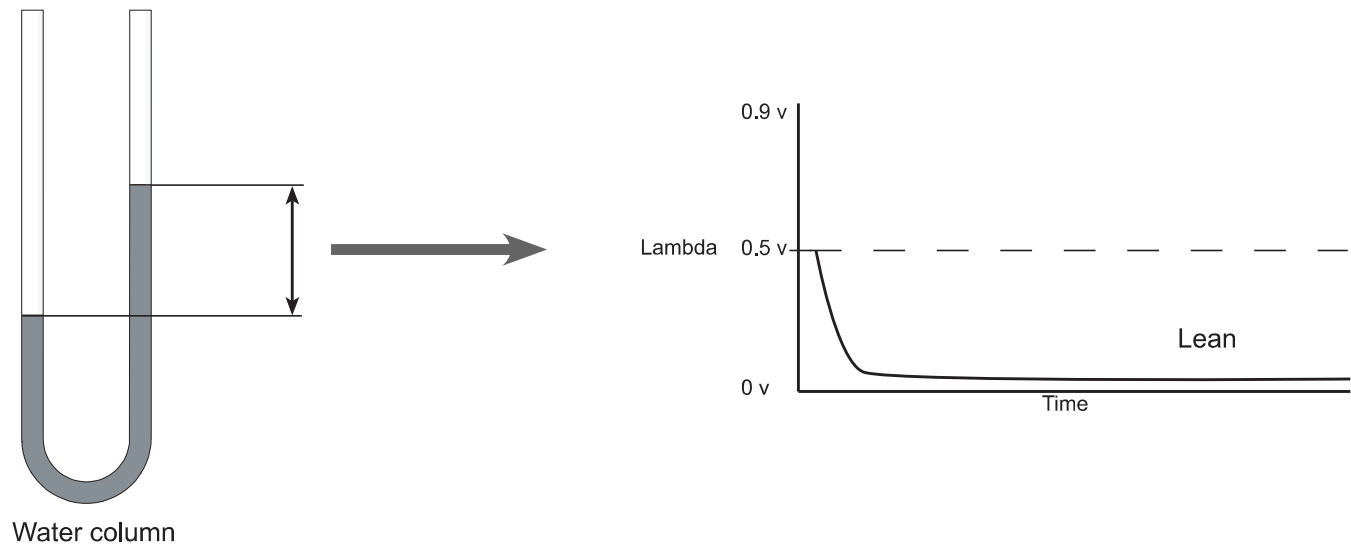
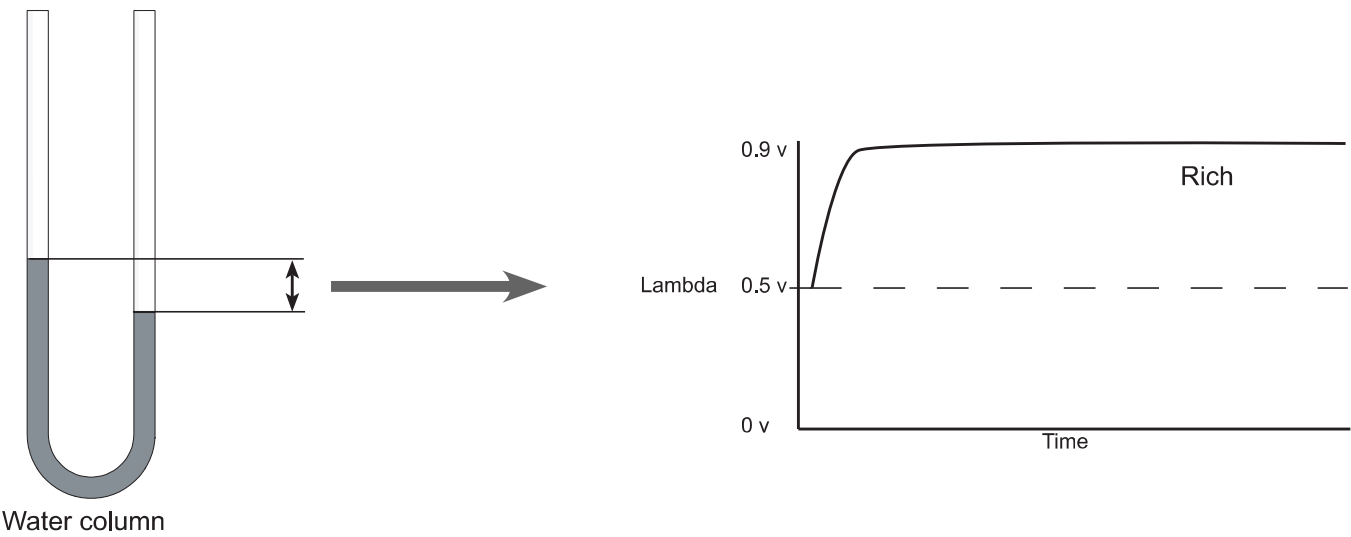
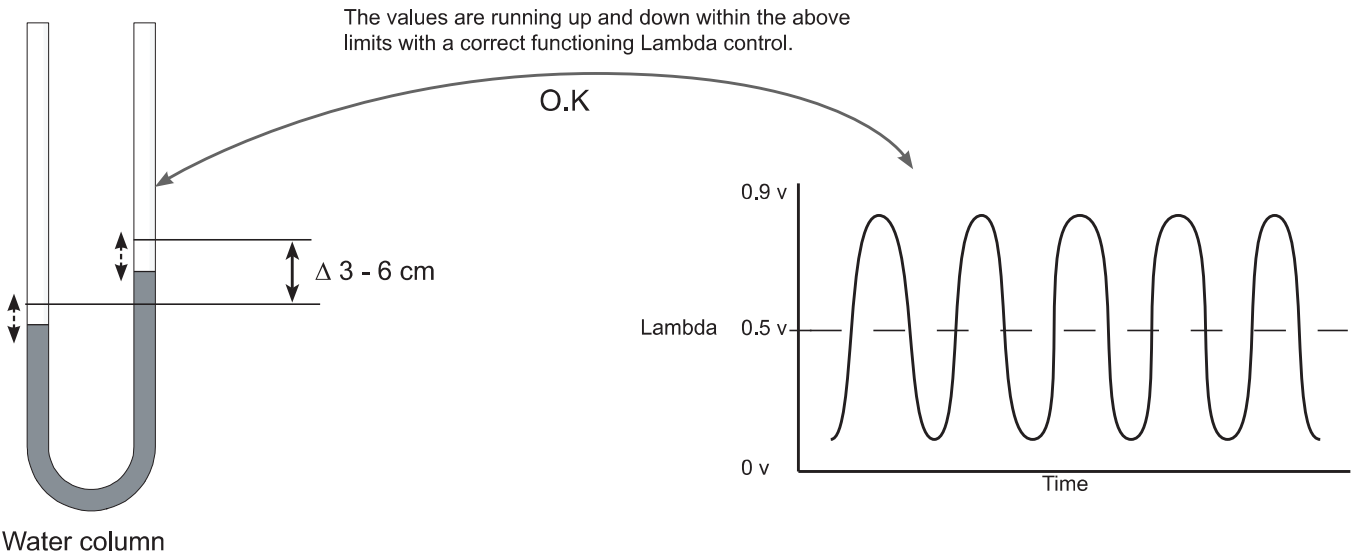
### Closed Loop

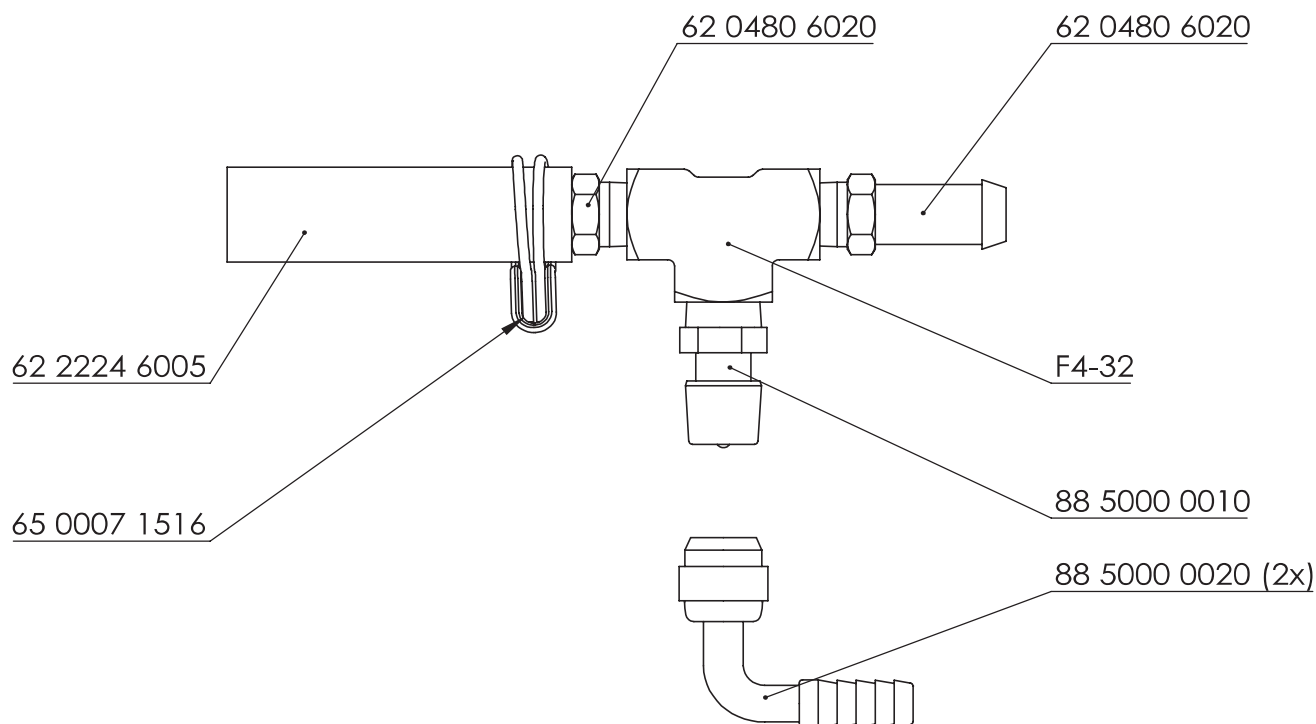


Note:

-4.0 mbar = 4.0 cm WC = -0,4 kPa

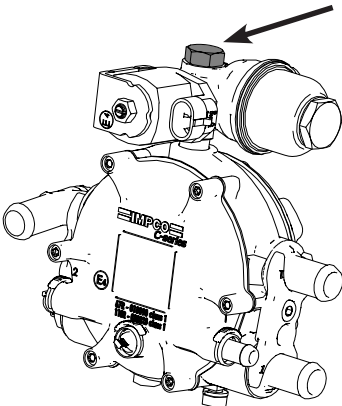
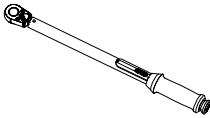
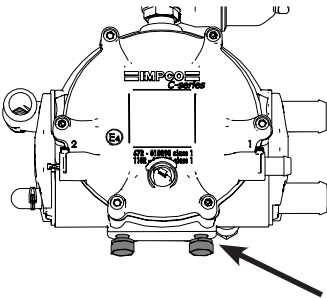
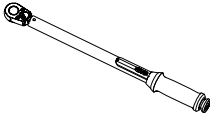
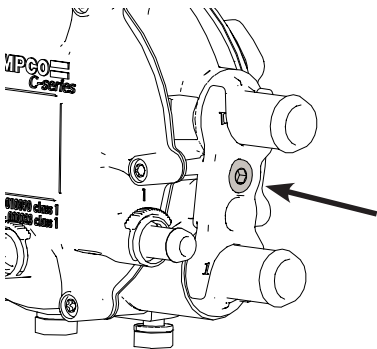
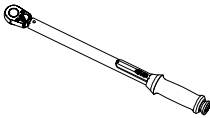
**Fuel pressure diagnose**  
**Closed Loop**



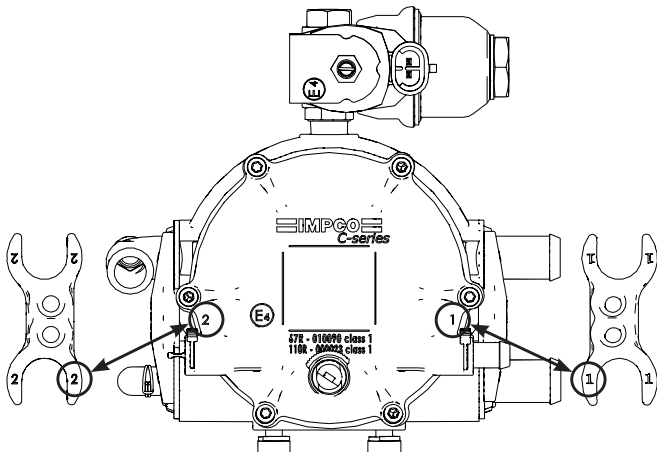
**Required parts:**

| Test connection adapter kit: 88 4500 0010 |              |                                 |       |
|-------------------------------------------|--------------|---------------------------------|-------|
| #                                         | Part number  | Description                     | "Qty. |
| 1                                         | F4-32        | T-fitting 3 x 1/8" NPT-F        | 1     |
| 2                                         | 62 0480 6020 | Hose fitting 1/8"NPT-M x 10mm   | 2     |
| 3                                         | 88 5000 0010 | Test connection 1/8"NPT-M       | 1     |
| 4                                         | 62 2224 6005 | Low pressure hose Ø9.5mm L=50mm | 1     |
| 5                                         | 65 0007 1516 | Hose clamp spring 15-18mm       | 1     |
| 6                                         | 88 5000 0020 | Test adapter 1/4"               | 2     |

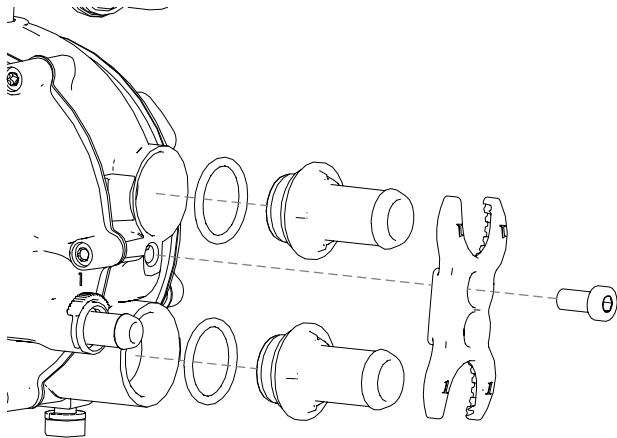
**Replacement instructions.**

|                                                                                     |                                                                                                                          |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| Fuel lock off screw.                                                                | Description.                                                                                                             |
|    | <br><br>Tightening torque: 25Nm        |
| Fixing bolts.                                                                       | Description.                                                                                                             |
|   | <br><br>Tightening torque: 10Nm       |
| Fitting connection.                                                                 | Description.                                                                                                             |
|  | <br><br>Tightening torque: 3,5 - 4Nm |

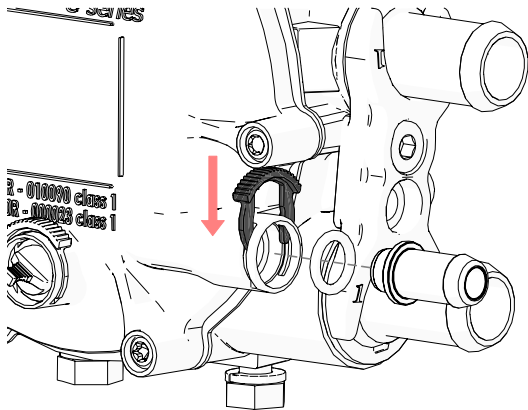
Fitting clamp connection.



Fittings assembly.

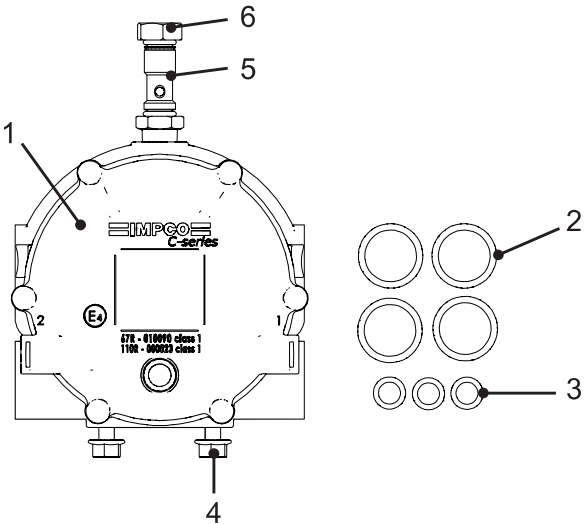


Reference port fittings.



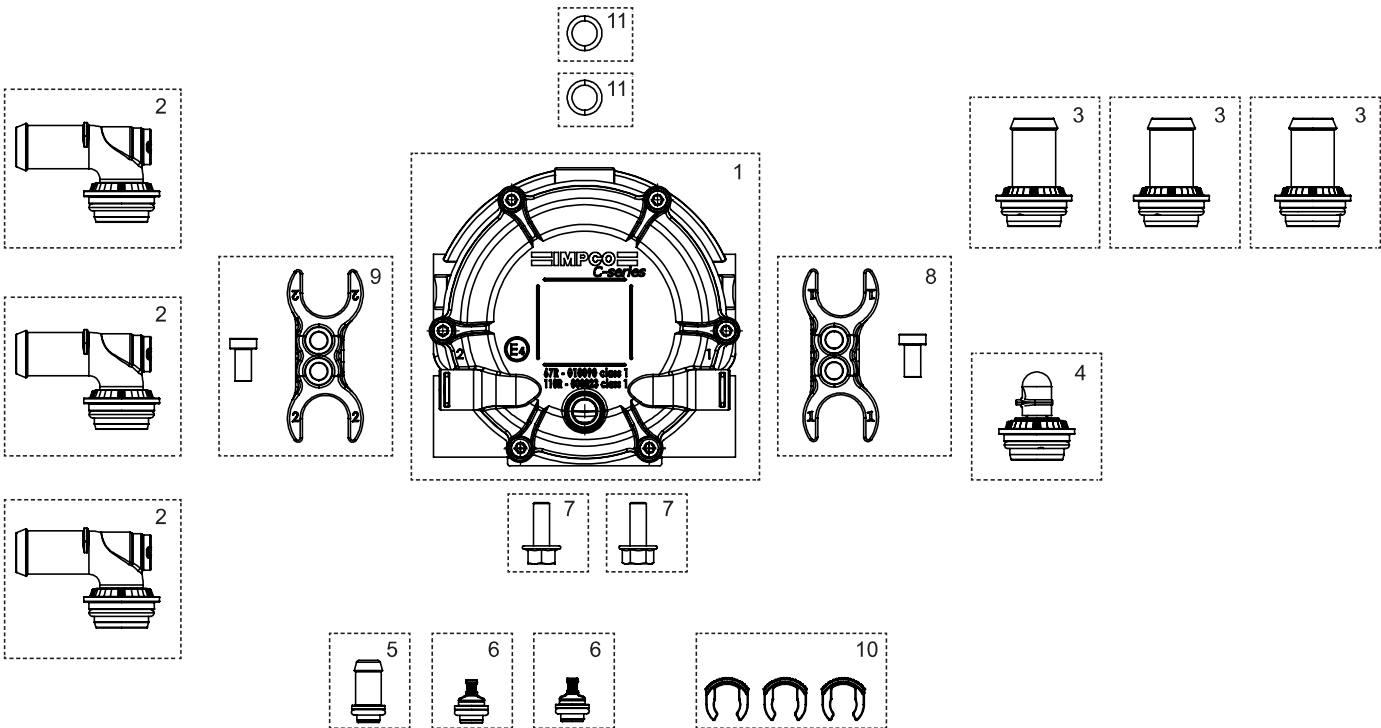
Service parts

Part number: C-Rex      Description: Service kit



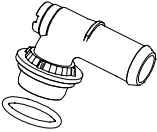
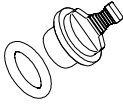
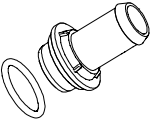
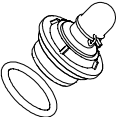
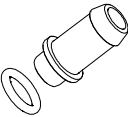
| C-Series Service kit. Part number: C-REX |                                       |      |
|------------------------------------------|---------------------------------------|------|
| #                                        | Description                           | Qty. |
| 1                                        | Converter/Pressure regulator C-Series | 1    |
| 2                                        | O-ring (not sold separately)          | 4    |
| 3                                        | O-ring (not sold separately)          | 3    |
| 4                                        | Bolt M6x14                            | 2    |
| 5                                        | Hollow bolt stainless steel           | 1    |
| 6                                        | Bolt + O-ring                         | 1    |

Part number: C-Series      Description: C-Series complete



| Part number: C-Series      Description: C-Series complete. |                                                                                |      |
|------------------------------------------------------------|--------------------------------------------------------------------------------|------|
| #                                                          | Description                                                                    | Qty. |
| 1                                                          | Converter pressure regulator; C-Series                                         | 1    |
| 2                                                          | Fitting C-Series 90° 16mm hose (incl. O-ring)                                  | 3    |
| 3                                                          | Fitting C-Series 180° 16mm hose (incl. O-ring)                                 | 3    |
| 4                                                          | Fitting C-Series gas plug / test connection (incl. O-ring, cap and hose clamp) | 1    |
| 5                                                          | Fitting C-Series 180° 9.5mm hose (incl. O-ring)                                | 1    |
| 6                                                          | Fitting C-Series cap balance connection (incl. O-ring)                         | 2    |
| 7                                                          | Bolt flange                                                                    | 2    |
| 8                                                          | Clamp fitting C-Series side 1 (incl. Screw)                                    | 1    |
| 9                                                          | Clamp fitting C-Series side 2 (incl. Screw)                                    | 1    |
| 10                                                         | Clamp fitting C-Series balance connection                                      | 3    |
| 11                                                         | O-ring lock off                                                                | 2    |

## **C-Series Fittings**

|                                                                                                                                                                                 |                                                                                                                                                                             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p><b>AF5-010</b><br/>Fitting, C-Series 90°<br/>16mm hose; incl. O-ring</p>                   |  <p><b>AF5-050</b><br/>Fitting, C-Series cap<br/>balance connection;<br/>incl. O-ring</p> |
|  <p><b>AF5-015</b><br/>Fitting, C-Series 90°<br/>16mm hose; incl. O-ring;<br/>bleed</p>        |  <p><b>AF5-101</b><br/>Clamp, C-Series<br/>fittings side 1; incl.<br/>screw</p>           |
|  <p><b>AF5-020</b><br/>Fitting, C-Series 180°<br/>16mm hose; incl O-ring</p>                   |  <p><b>AF5-102</b><br/>Clamp, C-Series<br/>fittings side 2; incl.<br/>screw</p>           |
|  <p><b>AF5-030</b><br/>Fitting, C-Series gas<br/>plug/test conn.; incl<br/>O-ring and cap</p> |  <p><b>AF5-210</b><br/>Set clamp, C-Series<br/>fittings balance con-<br/>nection.</p>    |
|  <p><b>AF5-040</b><br/>Fitting, C-Series<br/>180° 9,5mm hose<br/>incl. O-ring</p>            |                                                                                                                                                                             |