



PARTS & SERVICE

Heating systems

Retrofit instruction gas pressure regulator (new) for NGW/GBW applications

Regulations / safety hints natural gas vehicles

On behalf of the Federal Roads Office (FEDRO), the SGWA maintains a register of persons who are knowledgeable and capable of carrying out inspection and maintenance work on natural gas vehicles.

- The compressed gas system is under high pressure (200 bar), which is maintained in the pipe system even when the engine is shut off.
- At high natural gas concentrations, there is a danger of suffocation.
- Natural gas forms an ignitable mixture with air.
- Disconnecting the battery should be avoided if the gas concentration is critical.
- Do not extinguish burning gas! Burning gas can not explode!
- After repairs on components or pipes of the compressed gas system, it must be checked for leaks by a certified mechanic.
- Keep a record about work on the high pressure system.

NOTE:

On vehicles with a compressed gas system, the discharge valves must be closed before starting maintenance or repair. All work on the natural gas system including the high pressure system ($p > 10$ bar system pressure) must only be carried out by certified mechanics.

Overview gas pressure regulator NGW / GBW old / new

Gas pressure regulator (old)	Gas pressure regulator (new)
9004006B	11121335A
11113411A / 9009636B	11121335A
9006881A	11121334A
9005709A	11121334A
9010283A	11121334A
9009561A	11121334A



Gas pressure regulator (old)
(e.g. 9004006B)



Gas pressure regulator (new)
(e.g. 11121335A)

Retrofit kits

Diameter high pressure line	Retrofit kit
6 mm	11121895A
8 mm	11121896A
10 mm	11121897A

The retrofit kits above contain:

1 Gas pressure regulator pipe high pressure / spare parts kit

Depending on version 6mm (11121909A), 8mm (11121920A) or 10mm (11121921A) each incl.: 1x Swagelok fitting, stainless steel tube L=500mm, Swagelok double fitting, gasket ring gas pressure regulator

2 Gas pressure regulator pipe low pressure / spare parts kit 11121910A

Incl.: 1m gas hose 5/8" Thermo G | 1x hose clamp 25-40mm for hose GBW | 1x adapter 1"-5/8" | 2x hose clamps 16-27mm for hose Thermo G

3 Gas pressure regulator water connection / spare parts kit 11121911A

Incl.: 2x hose clamps 16-24mm for GBW water hose | 2x adapter 15mm-8mm | 2m water hose 8x3.5mm | 4x hose clamps for 8mm hose

4 Gas pressure regulator safety valve / spare parts kit 11121912A

Incl.: 1x hose connector 16mm | 0.5m water hose DN16 | 2x hose clamps 16-24mm

5 Gas pressure regulator attachment / spare parts kit 11121913A

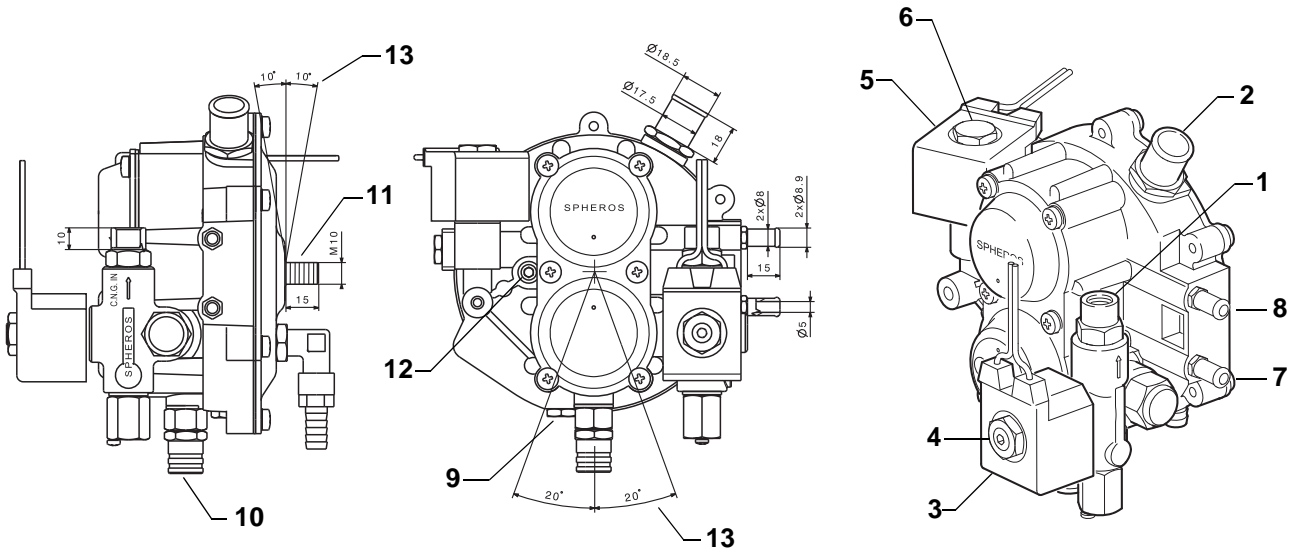
Incl.: 1x adapter bracket | 1x hex nut M10 | 1x washer B10 | 1x spring washer A10 | 4x combination nut M6

ATTENTION:

Gas pipes must be designed in such a way that torsion in the vehicle, movements by the engine and the like do not have a negative effect on their durability. They must be protected from mechanical damage.

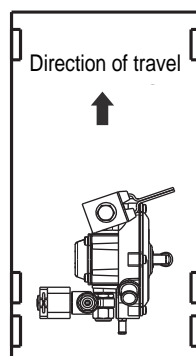
Gas pipes must not be installed in the passenger cabin or driver's cab of buses. Parts that carry gas must be positioned such that in the event of a fire the entry and exit points are not place in immediate danger. The parts that carry gas must be inspected on a regular, annual basis. Leaking or damaged parts must be replaced with genuine spare parts.

Gas pressure regulator ports

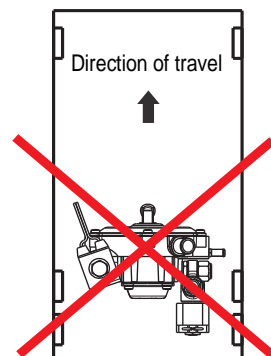


- 1 Gas inlet, M12x1, torque 25 Nm
- 2 Gas outlet, torque hose clamp 5 +0,5 Nm
- 3 High pressure solenoid valve, 1st stage
- 4 Attaching nut, SW17, torque 5 +2/-1 Nm
- 5 Low pressure solenoid valve, 2nd stage
- 6 Attaching nut, SW17, torque 9 +2/-1 Nm
- 7 Water intake, torque hose clamp 1.2 Nm
- 8 Water outlet, torque hose clamp 1.2 Nm
- 9 Oil drain screw
- 10 Safety valve
- 11 Mounting stud bolt, torque 20 ±2 Nm
- 12 Calibration screw (secured with safety varnish and silicone)
- 13 Admissible fitting positions

Gas pressure regulator installation position



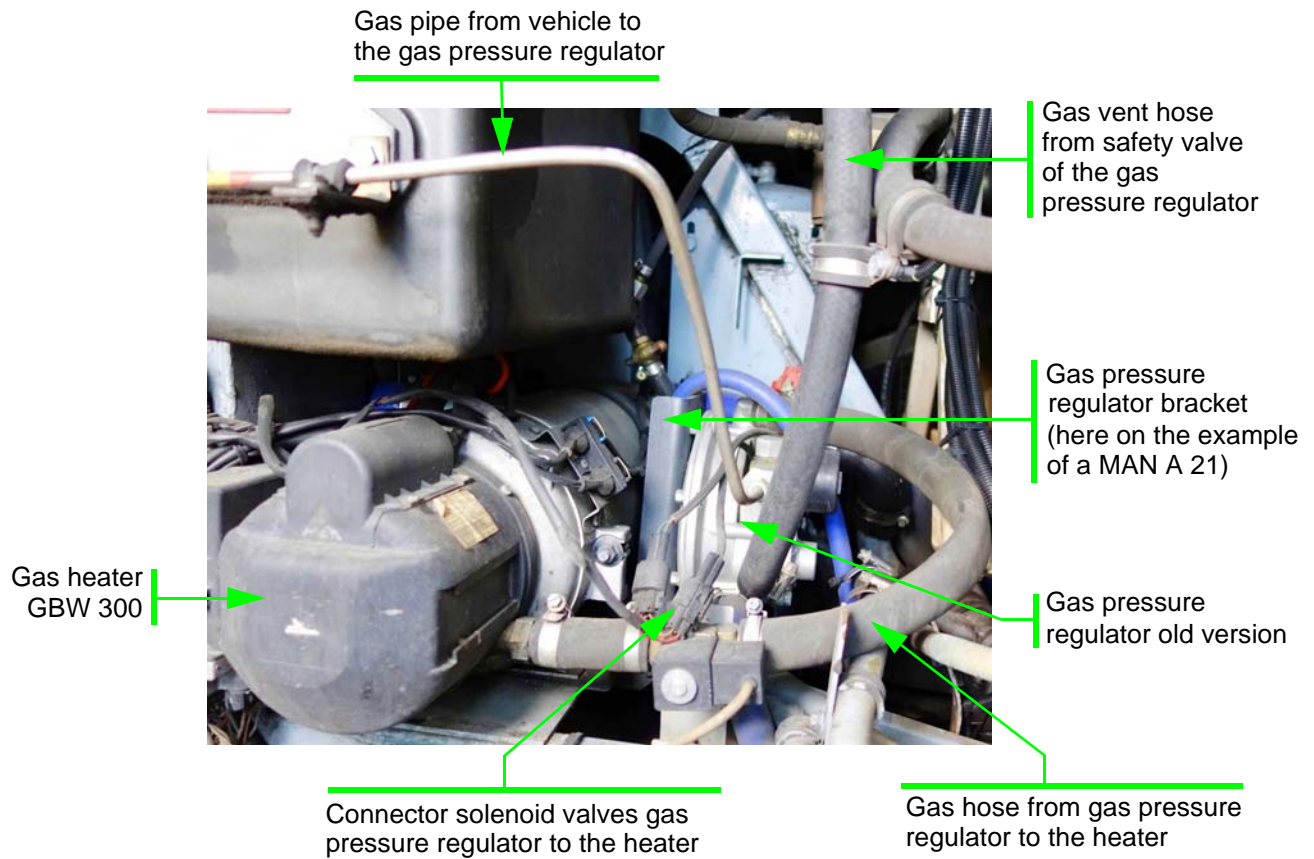
Installation position correctly
0 resp. 180° possible



Installation position wrong

Initial situation (on the example of a MAN A 21)

Installation situations on other vehicles may differ!



Overview removal gas pressure regulator (old)

- Close the gas supply from the vehicle and secure against reopening
- Disconnect power from vehicle by battery main switch
- Disconnect electrical connections solenoid valves on the gas pressure regulator to the heater [page 6](#)
- Remove the gas hose from the gas pressure regulator to the additional solenoid valve
- Remove hose from the safety valve on the gas pressure regulator
- Disconnect the gas pipe from the gas inlet of the gas pressure regulator [page 6](#)
- Pinch off water hoses
- Disconnect water hoses from gas pressure regulator [page 7](#)
- Remove the gas pressure regulator from attachment bracket, loosen attachment screws

Retrofit instruction gas pressure regulator (new) for NGW / GBW applications

Disconnect electrical connections solenoid valves on the gas pressure regulator to the heater



Remove the gas hose from the gas pressure regulator to the additional solenoid valve

Remove hose from the safety valve on the gas pressure regulator

Disconnect the gas pipe from the gas inlet of the gas pressure regulator

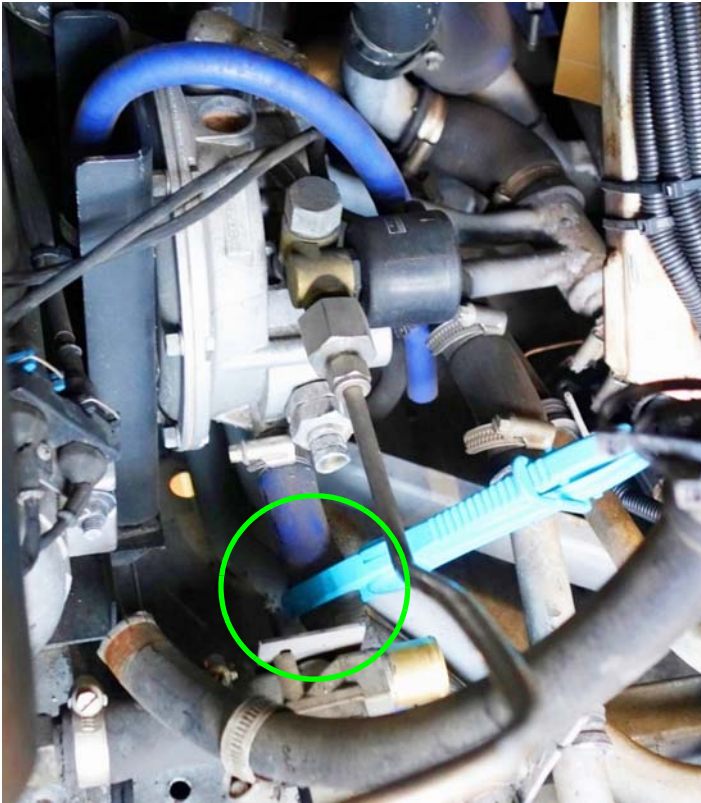


Attention while opening!
Escapes residual gas from
the gas pipe.

Note:
Previous removal of the vent hose
required

Retrofit instruction gas pressure regulator (new) for NGW / GBW applications

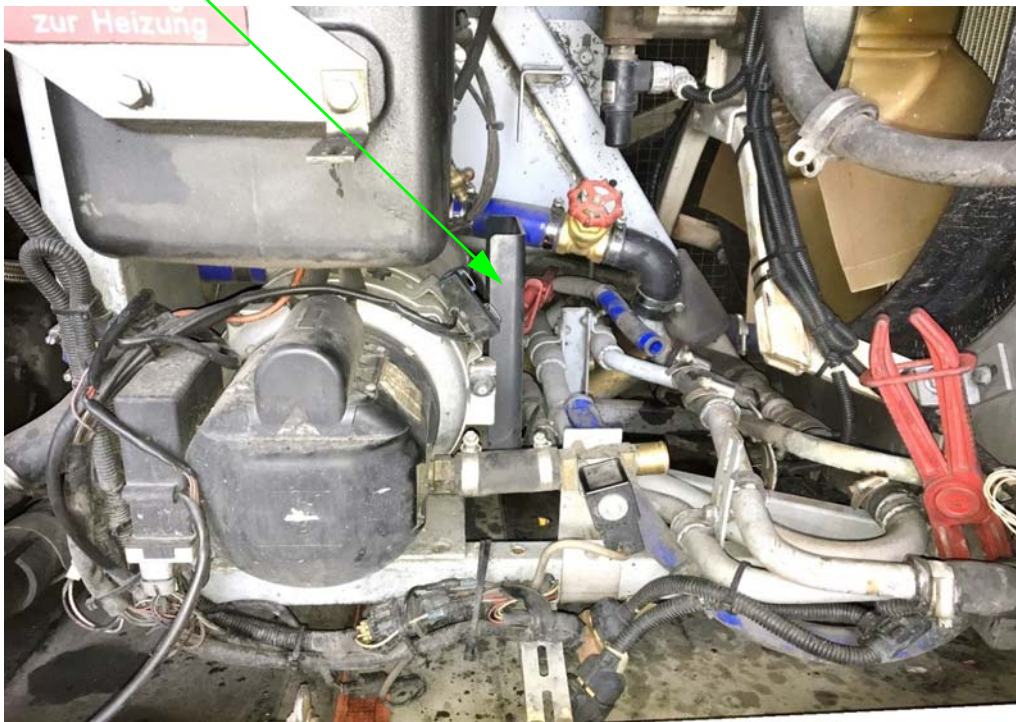
Pinch off water hoses



Disconnect water hoses from gas pressure regulator

Remove the gas pressure regulator from attachment bracket, loosen attachment screws

Gas pressure regulator removed



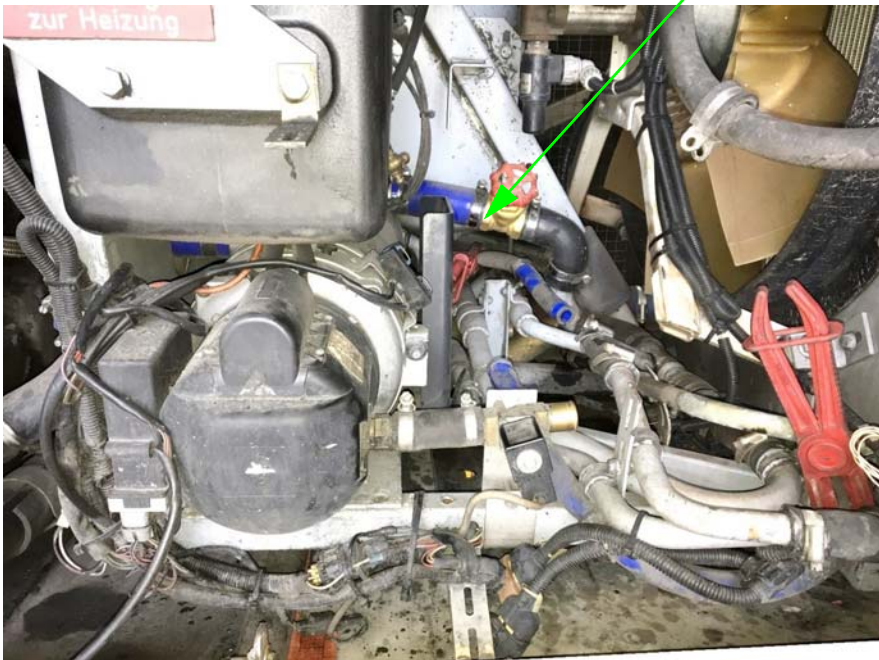
Overview of the required steps for gas pressure regulator installation (new)

- Mounting adapter bracket onto existing brackets [page 8](#)
- Establish gas pressure regulator connections [page 9](#)
- Mount gas pressure regulator to adapter bracket [page 10](#)
- Connect water hoses vehicle / gas pressure regulator each other [page 11](#)
- Connect gas vent hoses each other (safety valve) old / new [page 11](#)
- Connection between additional solenoid valve heater / gas pressure regulator [page 12](#)
- Gas pipe from the vehicle to the gas pressure regulator [page 12](#)
- Reconnect electrical connectors heater - gas pressure regulator [page 13](#)
- Commissioning

Mounting adapter bracket onto existing brackets

Note:

The adapter bracket was modified, otherwise the regulator collides with the gas vent line on the water hose under the regulator.

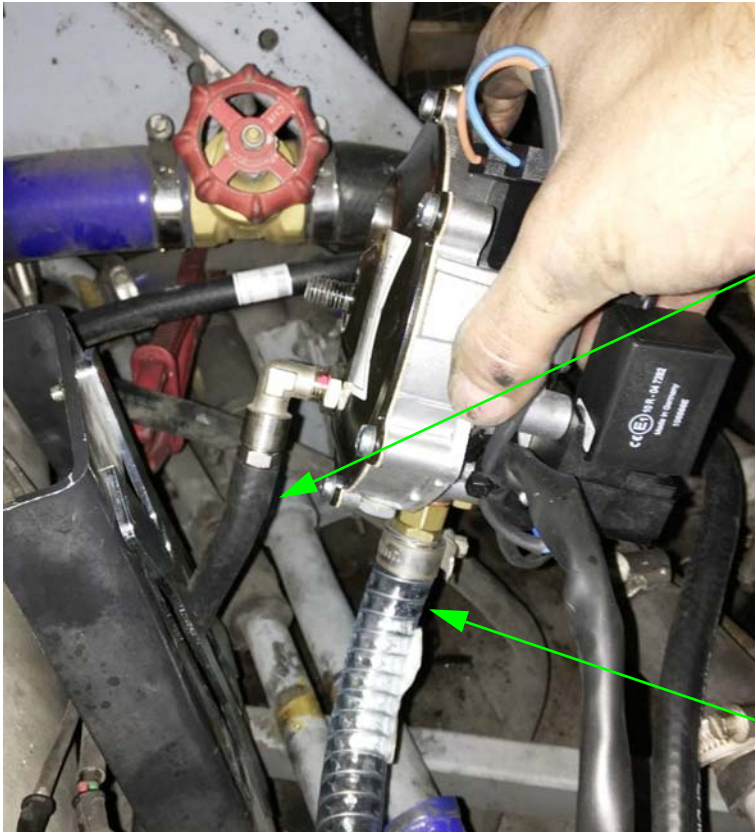


Note:

The illustrated adapter bracket 11121866A covers a large number of gas pressure regulator applications. If necessary, the adapter bracket must be modified / changed!

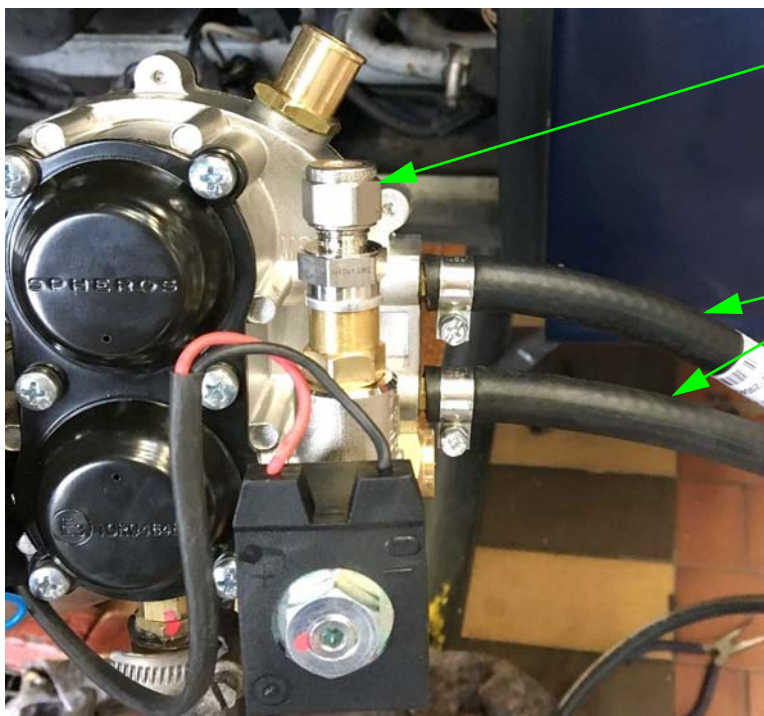
Retrofit instruction gas pressure regulator (new) for NGW / GBW applications

Establish gas pressure regulator connections



Secure hose onto reference pressure port

Fit new hose on safety valve and secure with new clamp

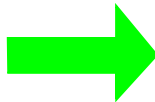


Screw the Swagelok fitting onto the gas inlet of the gas pressure regulator

Connect water hoses to the gas pressure regulator

Retrofit instruction gas pressure regulator (new) for NGW / GBW applications

Mount gas pressure regulator to adapter bracket



Note: Adapter bracket

Connect water hoses vehicle / gas pressure regulator each other

Insert reducers into existing water hoses from the vehicle and secure with hose clamps



Retrofit instruction gas pressure regulator (new) for NGW / GBW applications

Connect water hoses vehicle / gas pressure regulator each other

Place water hoses from gas pressure regulator onto reducers and secure with hose clamps



Connect gas vent hoses each other (safety valve) old / new



Insert reducer into gas vent hose, secure hose using clamp



Connection with transparent gas vent hose from the safety valve

Retrofit instruction gas pressure regulator (new) for NGW / GBW applications

Connection between additional solenoid valve heater / gas pressure regulator



Note:

If an additional solenoid valve is installed in the gas hose from the gas pressure regulator to the heater, it must remain in the gas hose!

New gas hose between heater and gas pressure regulator



Secure using hose clamps

Mount the new gas hose onto the gas pressure regulator and secure with a hose clamp



Gas pipe from the vehicle to the gas pressure regulator



Pipe 500mm of the scope of delivery must be bent and shortened as necessary to make a connection between the gas pipe of the vehicle and the gas pressure regulator.

ATTENTION!

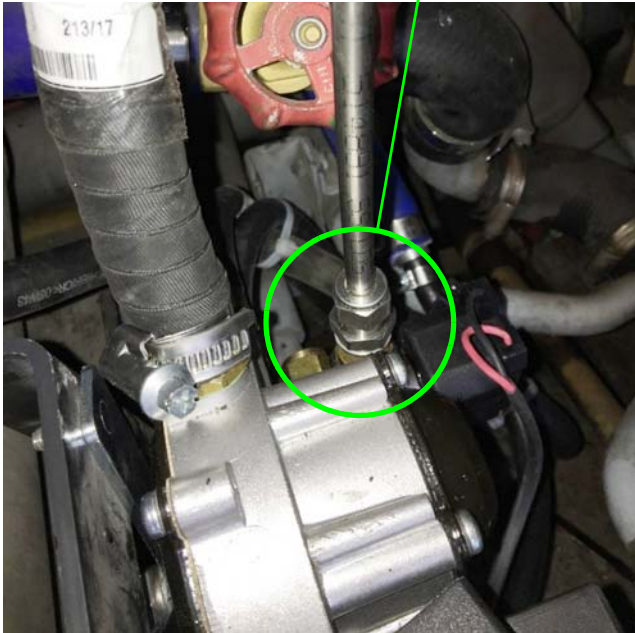
Requirements by Swagelok for cutting, bending and joining must be adhered to!

After completion:
Gas pipe from the vehicle connected to gas pressure regulator.

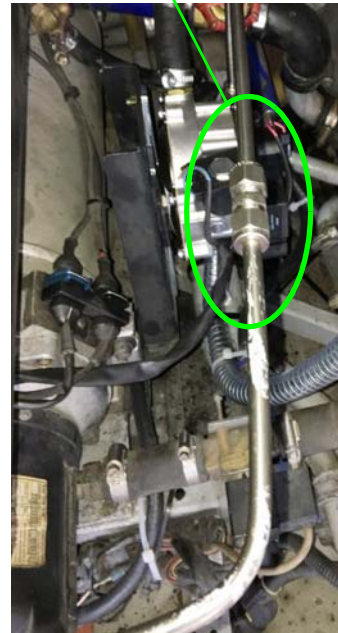
Retrofit instruction gas pressure regulator (new) for NGW / GBW applications

Gas pipe from the vehicle to the gas pressure regulator

Connection gas pipe to gas inlet of the gas pressure regulator via Swagelok fitting



Connection gas pipe from vehicle via Swagelok fitting

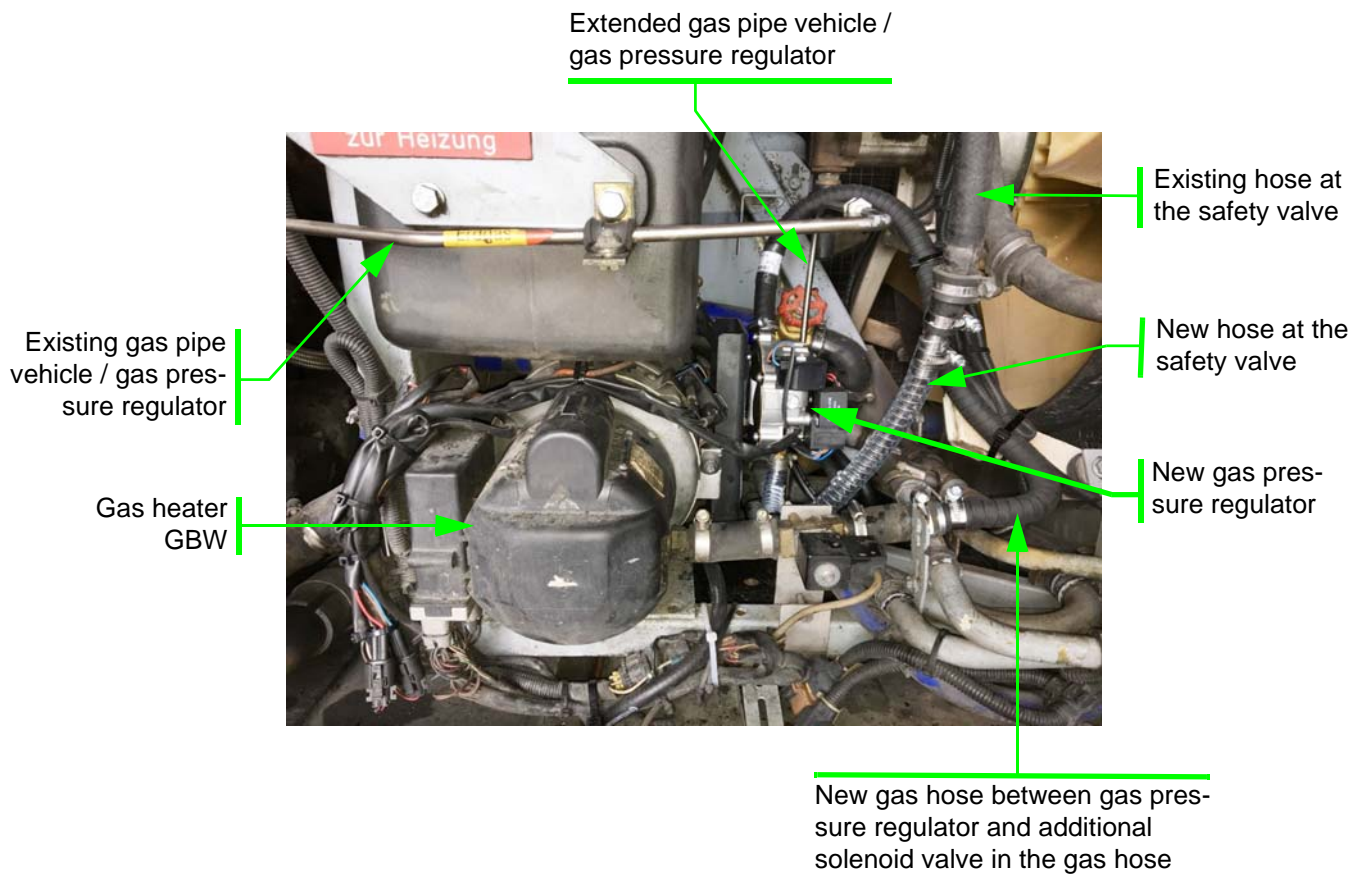


Reconnect electrical connectors heater - gas pressure regulator



Retrofit instruction gas pressure regulator (new) for NGW / GBW applications

Condition after retrofit



Commissioning

- Open the gas supply to the gas pressure regulator
- Check the screw connection of the gas pipe to the gas pressure regulator for tightness
- Functional test
- Check CO₂, if necessary adjust, see Workshop Manual Thermo GBW



Valeo Thermal Commercial Vehicles Germany GmbH
Friedrichshafener Str. 7 - 82205 Gilching - Germany - Tel. +49 (0)8105 7721-0 - Fax +49 (0)8105 7721-889
www.valeo-thermalbus.com - service-valeobus@valeo.com