

# OPERATING INSTRUCTIONS

## Thermo-Gen VF Portable Thermal Fogger

Thermo-Gen VF X-SFJR:  
Thermo-Gen Volumetric Fogger, Extra-Safe Junior model



**PRORESTORE™**  
PRODUCTS

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# Content

Ordering No.:

1. Safety instructions
2. Technical specifications
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Final content:

Explosion drawings with nomenclature and order numbers

EC Declaration of Conformity

# 1. SAFETY INSTRUCTIONS AND ACCIDENT PREVENTION

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Thermal foggers with pulse jet engines generate hot exhaust gas which may incinerate flammable objects, gases or dusts. The electrical coldfogger or ULV machines are not explosion proof as well. It is therefore mandatory to read and strictly observe the operating instructions and the safety instructions below. Failure to comply with these may result in fire or accidents. Observe the EU Directive 1999/92/EC (ATEX 137).

## Intended Use

The Thermo-Gen VF X-SFJR (Thermo-Gen Volumetric Fogger, Extra-Safe Junior model) is designed for fogging all kinds of pesticides, disinfectants and pest control agents authorized and approved for this type of application insofar as there are no risks for the environment, human beings and animals involved. The following type specifications must be observed:

- The Thermo-Gen VF fogger is suitable for epidemics control, plant protection in enclosed greenhouses, warehouse pest control in enclosed spaces from the outside to the inside and for the disinfection of cleaned empty animal stables with agents tested and approved for this purpose. This unit is suitable for flammable (flash point  $>70^{\circ}\text{C}$ ) and non-flammable fogging liquids. For safety reasons, fogging of flammable products or non-flammable products releasing oxygen (e.g. peroxides) requires using the automatic shut-off function on the unit.
- **Warning:** Repeated application of acidic products requires acid resistant unit versions.

## Contrary to intended use

Contrary to intended use and improper handling may cause hazards for people, objects and environment. With a **unintended use** of the unit the general permit of operation/use expires.

## Authorized Operator Groups

The equipment is restricted to professional use by persons of age and qualified operators duly instructed by an authorized dealer.

## WARNING: Fire Hazard

Any formation of aerosols or fogs from flammable substances or acids releasing oxygen in a mixture with air and/or dust always involves the risk of fire or explosion if there is a source of ignition. The hot exhaust gas of the engine of thermal foggers is a potential source of ignition. For this reason: Make a risk analysis and develop a strategy to prevent risks! Accordingly observe strictly the following safety instructions:

- Do not smoke when handling the unit!
- Never fill fuel into the chemical tank!
- Whenever fogging flammable liquids – including peroxides – into enclosed spaces, always keep a fire extinguisher readily available near the unit. Take care the fire extinguisher is adapted to the disinfectant in use (e.g. fires caused by peroxides require an extinguishing agent based on water or CO<sub>2</sub>)
- Do not use thermal foggers to fog in rooms if there is a risk of fire, dust explosion or dust whirling up (e.g. in grain mills, non-cleaned storage silos or on floors which have not been cleaned or are covered with straw or wood dust).
- Stationary application of approved flammable agents (including peroxides) into enclosed spaces:
  - **Only from the outside to the inside** using circulating air ventilation within the room.
  - Only with automatic shut-off function on the unit for the disinfectant.
  - Ensure a stable position of the unit on a **non-inflammable support**.
- Observe the material safety data sheet (MSDS) and instructions of the fogging product. Check the flash point of flammable fogging liquids. Do not fog any liquids with a flash point of less than 70°C into enclosed spaces.
- Never fog more than 3 l of an approved flammable liquid or more than 10 l of a flammable aqueous liquid with a water content of less than 70 % per 1000 m<sup>3</sup> of space!
- Never fog flammable liquids into a tube or tunnel without suction ventilation (explosion hazard).
- Do not refill fuel into the unit when the engine is still hot! The minimum cooling time is 20 minutes.
- Whenever performing any work on the carburettor or fuel tank, remove all sources of ignition from the vicinity and remove the spark plug cap and the batteries.
- **CAUTION:** a defective membrane (diaphragm) at the carburettor may lead to a fire accident.

### **Property, Operator and Environmental Protection**

- Observe the specified intended use of the chemical agents. In arid environments or dry seasons and if there is a general risk of fire, only operate the unit with the built-in automatic shut-off function active. Keep a fire extinguisher readily near at the unit available.
- Observe the application instructions and safety data sheets of the manufacturer or supplier of the active substances and fogging liquids used (however, without restricting the unit manufacturer's safety instructions in any way).
- Outdoor application is only permitted with the wind calm, or at a maximum air movement of 6 km/h. Avoid application beyond the target area by keeping a safety distance to the boundary line.
- Always use a funnel and sieve when refilling the chemical tank. Close any product drain valves before filling the chemical tank.
- Wear suitable protective clothing during the preparatory work and when fogging (full-face mask with filter A<sub>2</sub> B<sub>2</sub>-P<sub>3</sub>, protective suit, gloves, rubber boots) as well as ear protection against the engine noise.
- The unit shall only be accessible to duly instructed persons during operation and in the cooling phase.

#### **Prior to application:**

- For safety reasons the fogging valve (tap) is always closed.

- Check the functional safety of the unit (e.g. by trial fogging with water). Repair any loose or leaking lines.
- If functional safety is not ensured, do not put the unit into operation.
- The dosing nozzle and the nozzle holder (screw insert for the dosing nozzle) on the fogging tube of the thermal foggers must be screwed hermetically tight (never omit the heat-resistant gasket).
- When filling the tanks with flammable liquids, handling a source of ignition is prohibited in the vicinity of the unit.
- In case of stationary use, ensure the **stability** of the unit (e.g. to prevent sliding, shaking or tilting over) on a non-flammable support.
- Make sure that the fresh air supply to the carburettor is unobstructed. Whenever fogging a flammable liquid into a room, all sources of ignition must have been removed from there and all electrical switches disconnected.
- Make sure to prevent unauthorized access to the application area (e.g. attach an access prohibition sign on the door). Close any openings of the application area and eliminate any leaks found.

### **During application:**

- Wear protective clothing (protective suit, gas mask with filter A<sub>2</sub>B<sub>2</sub>-P<sub>3</sub>, safety gloves and ear protection).
- Keep a fire extinguisher readily at hand whenever using flammable products in enclosed spaces. Stay near the unit in order to be able to intervene immediately in an emergency.
- Never let the unit run without supervision.
- Open the fogging valve only with the engine running. Close the fogging valve when the engine is still running. In case of misuse or an accident close the tap immediately even if the motor is not running.
- The thermal fogger must not stand in the fog in an enclosed space (otherwise there is a risk that the engine could stop suddenly due to the sucking of fog into the carburettor). For this reason, keep the unit away from the fog or fog from **the outside to the inside**.
- If the engine should suddenly stop unexpectedly (e.g. because of a lack of fuel or energy) during application, close the fogging valve immediately and interrupt the application. Fix the problem when the unit has cooled down.
- When the chemical tank gets low (end of fogging), close the fogging valve instantly and stop the engine immediately afterwards.
- If any leakage should occur on the unit or tank during fogging, immediately
  1. close the fogging valve,
  2. stop the engine,
  3. loose the cap of the chemical tank of the thermal fogger (depressurize the tank) and
  4. terminate the application.
- Do not insert the fogging tube of an thermal fogger into another tube of similar diameter for fogging (this may result in overheating of the engine and inflammation of the fog).
- The hot fogging tube and the hot exhaust gas of a thermal fogger must never touch or reach any flammable material. For through-wall application, the minimum distance from the fogging tube surface to the wall is: 6 cm

### **After application:**

- Close and lock the fogged room and attach a warning sign. Ventilate the treated room thoroughly before re-entering.
- Close the fuel main valve of the unit

- The fogging tube of the thermal fogger will still be hot for up to 30 minutes after stopping the engine. Do not touch the fogging tube!
- Do not transport a hot unit in an enclosed vehicle/car.
- If there is any fuel or active substance left in the tanks, the unit must be kept upright and fastened to prevent tilting and the tanks must be well closed.
- Shipping of units is only admissible with the fuel tank and the rinsed chemical tank empty.
- Store in a safe place, use the original cardboard box if possible; store in a dry and dust-free room, protected against tilting and only with the rinsed chemical tank empty. Drain the fuel tank if the unit is not going to be used for more than 3 weeks.

### **Regular Maintenance Required**

The unit must be subjected to maintenance at regular intervals (after 50 h of operation at the latest) by a qualified person (technician), observing all applicable safety and accident prevention standards. Wear parts as well as the vibrating diaphragms of the carburettor of a thermal fogger must be replaced as described in the operating instructions by an authorized person.

#### **WARNING:**

Worn-out vibrating diaphragms on the carburettor not replaced in time may result in an accident involving fire.

Any repairs must be made by a qualified person, at the manufacturer's works or an authorized dealer.

#### **Warning label**



Heat, hot surface



Use ear protection



No fire and no smoking



Read manual and safety instructions

## 2. SPECIFICATIONS

Model	Thermo-Gen VF X-SFJR
Dimensions (L x W x H)	129 x 30 x 36 cm
Empty weight	7 kg
Gross weight (filled tanks)	13,5 kg
Capacity of chemical tank	4,5 l
Capacity of fuel tank	2 l
Starting current (4x1,5 V cells)	6 V DC
Combustion chamber volume	300 cm <sup>3</sup>
Gross max. power of engine	17,5 kW / 24,1 h.p. / 15300 kcal/h
Max. fuel consumption	1,9 l/h
Flow rate with 0,8 nozzle	see 6.2
Operating pressure in chemical tank	0,2–0,35 bar
Max. sound pressure level during idle running	98 db
Operating temperature (ambient air temperature 20 °C) on cooling jacket, max. Measured during fogging	35 °C
Temperature on cooling jacket 10 minutes after engine stop	120 °C
Temperature of combustion gas at resonator outlet when idling	550 °C

### OPTIONAL EQUIPMENT

- Automatic cut off device for inflammable fogging solutions
- Extralong protective grating
- Flame head
- Air-agitator

### ACCESSORIES

- Funnel for chemicals
- Fuel pitcher
- Cleaning brush for resonator
- Ear protectors

### RECOMMENDED ACCESSORIES

- Protective clothing
- Gas mask with filter A<sub>2</sub>B<sub>2</sub>- P<sub>3</sub>
- Mixing kit cpl. consisting of:
  - 1 stirring stick, Measure 2 ltr.
  - Measure 0,25 ltr.

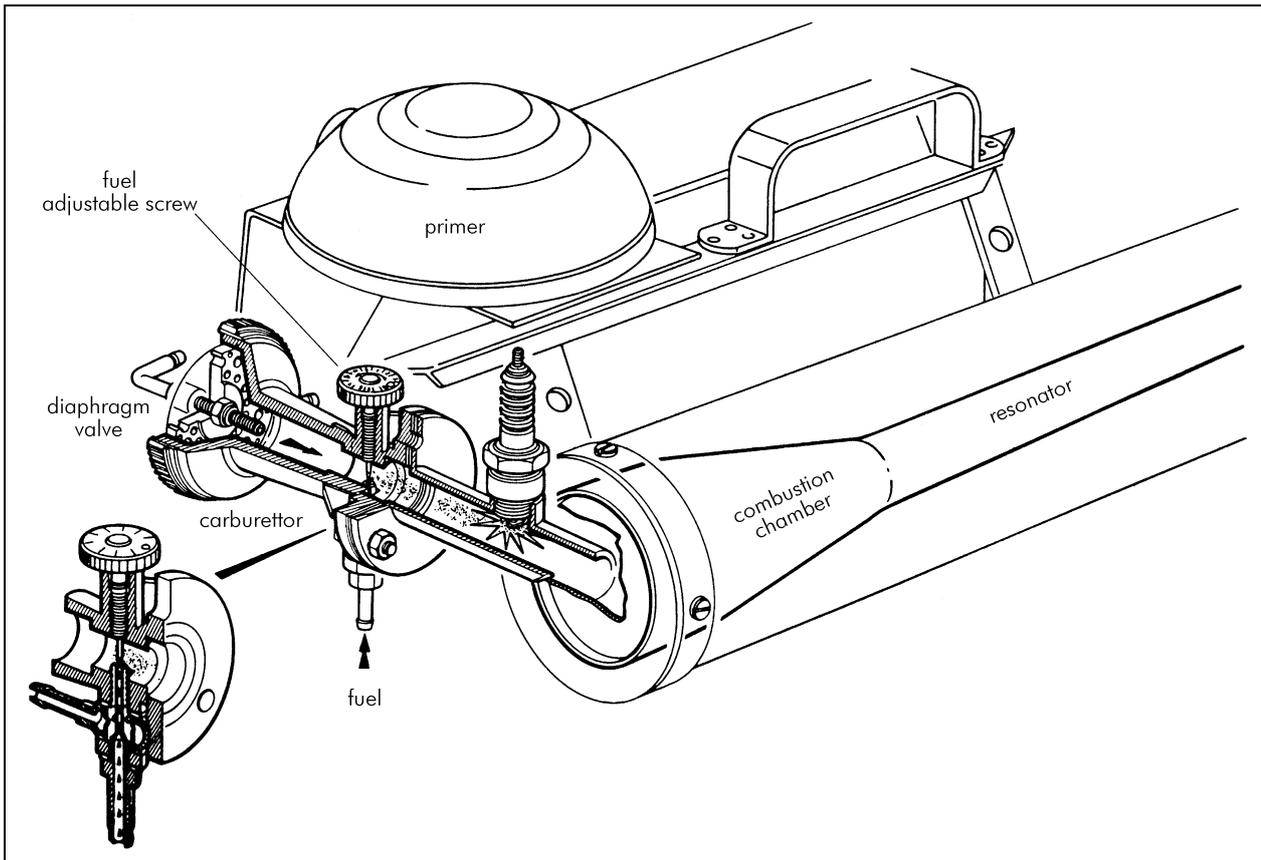
### SPARE PARTS

- Spare parts set with gaskets, diaphragms and 1 dosing nozzle

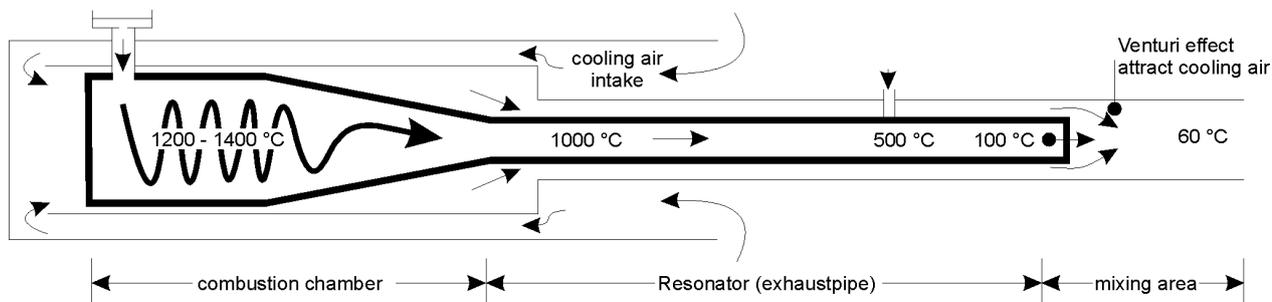
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### 3. TECHNICAL DESCRIPTION



The unit works according to the pulse-jet principle without any mechanically moving parts. When pressing on the primer or electric starting button, a fuel/air mixture is produced in the carburettor, blown into the combustion chamber and ignited by the spark plug. A pulsating combustion forms at approximately 80 explosions per second, controlled by an air diaphragm valve and a fuel adjustable screw on the carburettor. A limited overpressure of 0,2 – 0,35 bar is redirected from the carburettor to the chemical tank through a non-return valve. The pressure in the chemical tank conveys the fogging liquid through an ON/OFF valve and a dosing nozzle to the end of the exhaust pipe. There it is injected into the exhaust stream coming from the combustion chamber. For a fraction of a second (0,05 – 0,1 s), kinetic and thermal energy (600 – 700 kcal/litre of fogging liquid) acts on the injected solution, which is thereby torn to ultra-fine aerosols. The liquid partially vaporizes and converts into a visible fog by immediate condensation in the relatively cool ambient air.



## Detailed instructions for use

### 4. PREPARATIONS FOR STARTING

- 4.1** Fill the **fuel tank** with pure common petrol (gasoline) of normal grade (also unleaded) but not more than 95 octane; avoid super grade fuel, if possible. The maximum filling capacity is sufficient for emptying the chemical tank. When filling in fuel, always use the graduated fuel pitcher with sieve.

**WARNING:**

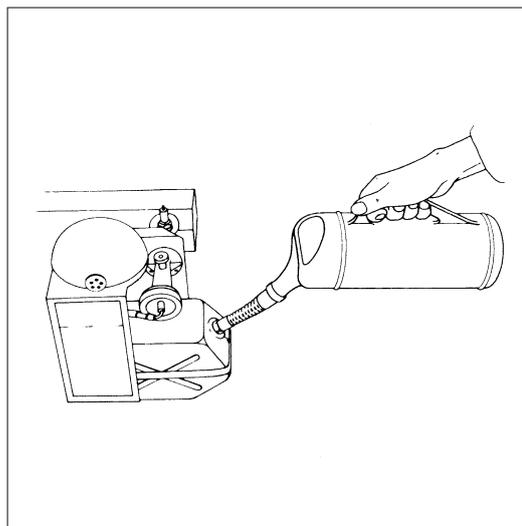
Never start a fogging process with the tank less than half filled. If fuel temperature is less than 10 °C the engine may start but without powerful run. Allow the fuel to warm up to room temperature.

- 4.2** Run the engine briefly and stop it again (see 5.0). If the tank is less than  $\frac{1}{4}$  full, you should avoid sudden movements with the unit as far as possible and not exceed an angle of 45 upwards or downwards. Air may enter in the fuel line and interrupt the engine run.

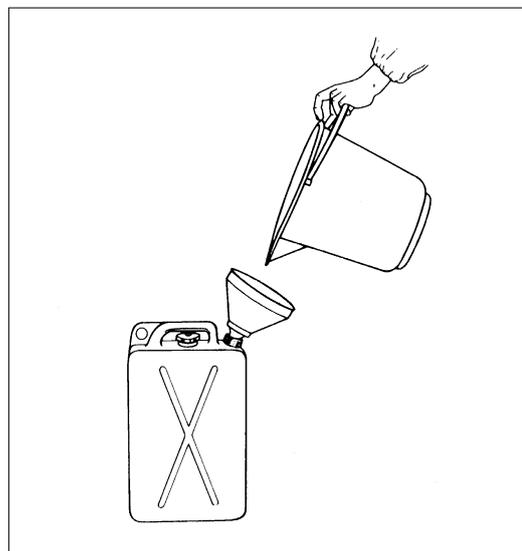
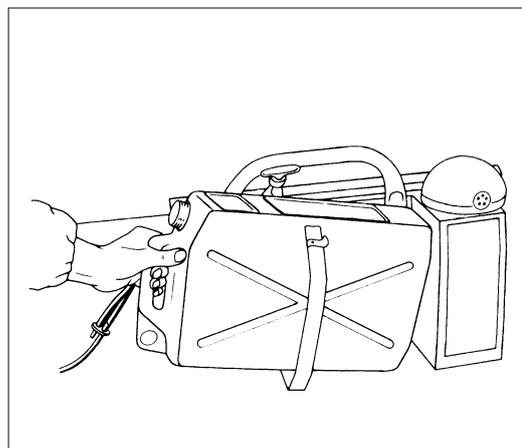
- 4.3** Fill the chemical tank as follows: Open the tank lid, remove the tube from the tank and hang it over the dosing nozzle on the fogging pipe. Release the tank holding strap and remove the chemical tank with the opening pointing upwards. The tank may only be filled with a maximum of 4,5 l. Use the funnel with sieve for filling. After filling, close tank with lid. Remount solution tank to the unit. Remove lid. Refit lid with passage and laminate gasket.

**WARNING:**

Viton hoses are not resistant to chemicals containing dichlorvos (DDVP) or Aceton as



Filling the fuel tank



Filling the chemical tank

solvent. Use in that case the yellow Novoprene hoses from ProRestore.

#### 4.4 Check tightness of dosing nozzle

##### **WARNING:**

Toxic chemicals of fogging solution may be sprayed by tank pressure onto your body and face if dosing nozzle is not well sealed.

### **STARTING THE ENGINE**

- a) Set the fog tap to the closed position.
- b) Open the fuel adjustable screw on the carburettor to the starting position (approx. ¼ turn).

##### **WARNING:**

Opening too far would feed excessive fuel to the engine, which would cause engine and carburettor choking (flooding). Read 5.2 c.

- c) With your left hand press the primer slowly down several times and each time keep it pressed for a second to prolong the ignition. Do not pump more than 5 times. Read 6.2 c.

##### **WARNING:**

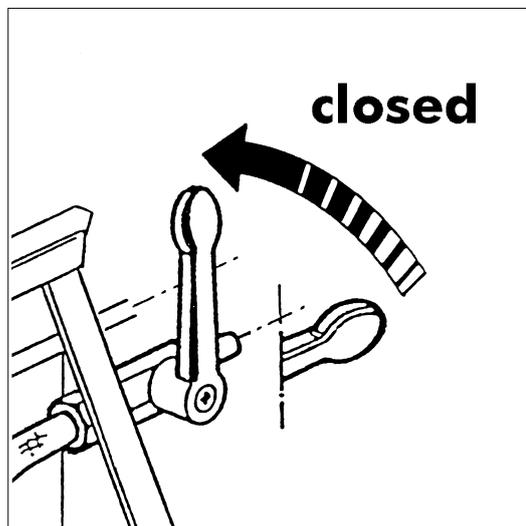
With the fuel tank full, do not press the primer powerfully since this would cause carburettor flooding (excessive fuel injected). Read 6.2 c

#### 5.1 Adjusting for continuous operation

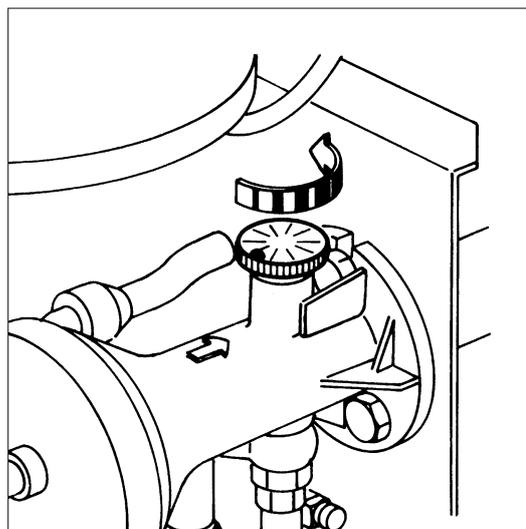
After the engine has started and warmed up (approx. 30 seconds), readjust the adjustable screw on the carburettor (usually, open further) until the engine runs with a powerful, deep sound (low frequency = optimum performance).

##### **WARNING:**

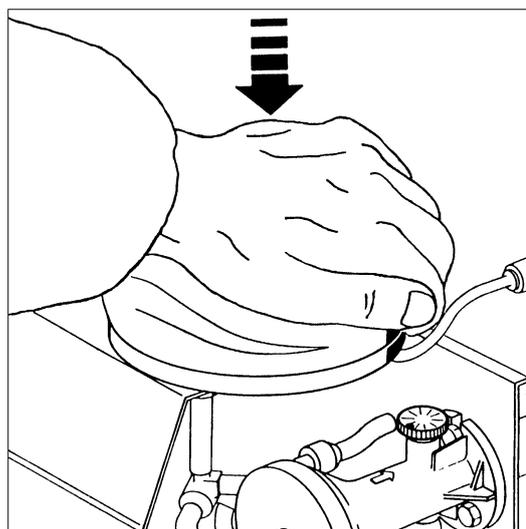
A high sound (high-frequency engine run) means poor engine performance which causes overheating and an excessively large droplet spectrum.



A. Set the fog tap to the closed position



B. Open fuel adjustable screw approx. ¼ turn



C. With your left hand press primer slowly



## 5.2 If the engine does not start

→ Check the fuel supply, i.e. fuel must be visible in the transparent tube between the red fuel valve and the carburettor. If no fuel is visible, continue pumping not more than 5 times. If still no fuel is becoming visible the red fuel valve may be blocked. Disconnect the valve and blow through.

→ If the carburettor is flooded of fuel close adjustable screw and continue to pump. After some pumping (approx. 5 times) the carburettor becomes dry again and the motor tries to start. Open the adjustable screw again to the starting position and follow according to 5c. Be aware the reason of flooding of carburettor also could be a sign of a dirty spark plug.

## 6. FOGGING

Open the fog tap while motor is running. The unit starts fogging immediately.

### Note:

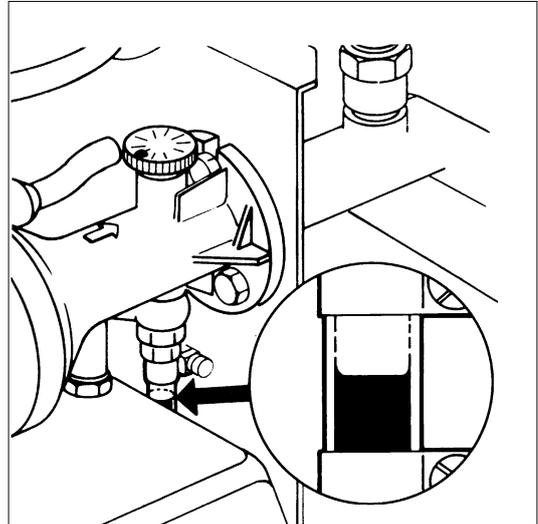
The engine frequency may now vary slightly under load. In this case, readjust the adjustable screw on the carburettor once more (usually, open a little more)

### 6.1 Interrupting the fogging process

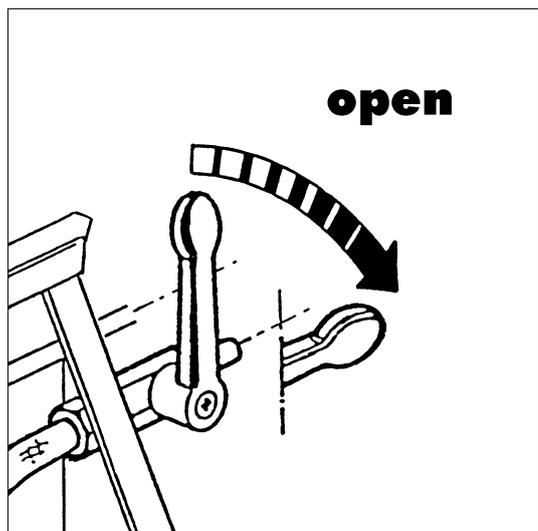
With the engine running, close the fog tap; re-open as necessary.

**WARNING:** Towards the end of the fogging process, usually there is only little fuel left in the tank. Therefore you should avoid sudden movements in order to prevent air from being taken in by the fuel suction piece. A single air bubble may cause engine standstill.

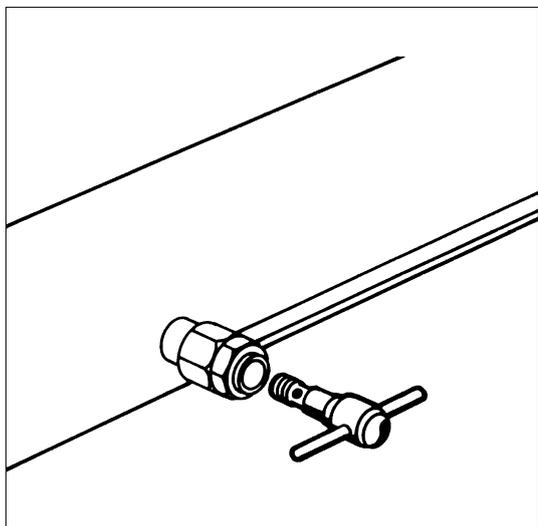
**6.2 Flow rate and droplet size** are controlled by interchangeable dosing (restriction)



Fuel visible in the transparent tube



Fogging: open the fog tap



Interchangeable dosing nozzle

nozzles. The flow rate depends on the unit type, the set power and the viscosity of the liquid. This should be checked on a case-to-case basis.

	Fogging solution: diesel-oil	Fogging solution: water
Flow rate (with provided 0,8 mm dosing nozzle)	10 l/h	8,9 l/h

Other dosing nozzles upon request. Dosing nozzles with a bigger borehole permit a higher flow rate so that the produced droplet size spectrum will increase.

### 6.3 Stopping the fogging process

Proceed in the following order:

- a) Loosen the lid of the chemical tank (release pressure) and wait until the unit stops fogging.
- b) Close the fog tap.
- c) Stop the engine (by closing the adjustable screw on the carburettor).

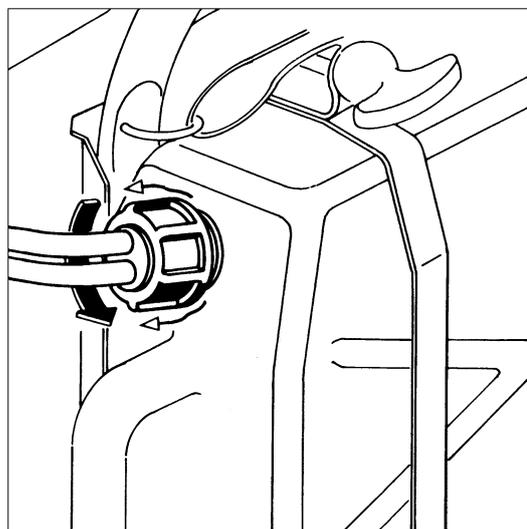
**WARNING:** When you have finished fogging, always release the solution tank from pressure first and close the fog tap before stopping the engine.

**Never stop the engine before the fog tap is closed! If motor stops unexpectedly during application close immediately the fogging tap and interrupt the application.**

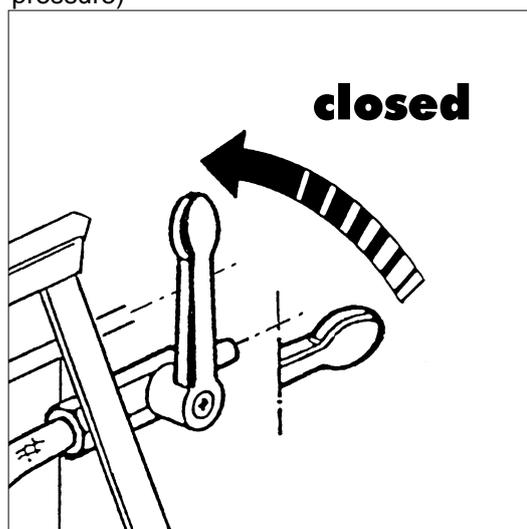
**Reason** (In case the unit is not equipped with an automatic cut off device.): If you stop the engine before having closed the fog tap, the fogging solution remaining in the tank continues to flow to the very hot fogging pipe where it may cause fire hazard or form black sooty clouds causing dirt on the spark plug and in the carburettor. Venting the solution tank by releasing the tank lid before stopping the engine offers the additional advantage that the liquid still present in the fog solution conduits fogged off and does not remain in the conduits.

**WARNING:**

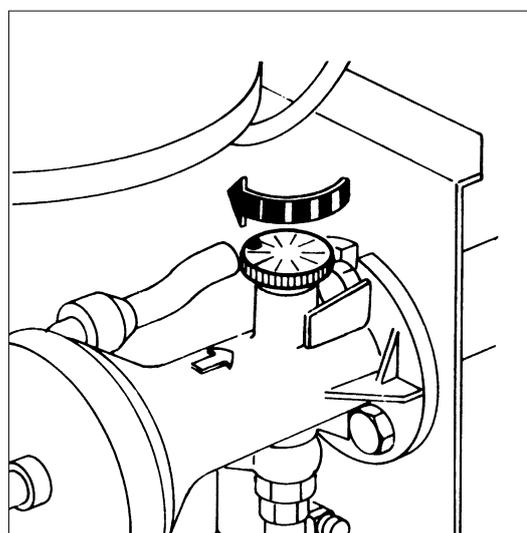
Refill fuel only with the unit cooled down. The heat radiation after stopping the



A. Loosen the lid of chemical tank (release pressure)



B. Close the fog tap before stopping the engine



C. Close adjustable screw to stop the engine

engine will heat up the double cooling jacket of the fogging tube. Do not touch the jacket for approx. 20 minutes.

## 7. CLEANING

7.1 The unit must be cleaned after each fogging application. For this purpose, remove the solution tank and rinse it with water. Subsequently, fog approx. 1 l of clear water in order to clean the fog solution conduit. Adding a small quantity of alcohol or just a few drops of dishwashing agent is helpful.

### 7.2 Final cleaning

As described in section 9.1, but with additional cleaning of the carburettor diaphragm, since some fog usually penetrates the carburettor during a fogging application and may cause blocking. The carburettor diaphragm can be cleaned as follows:

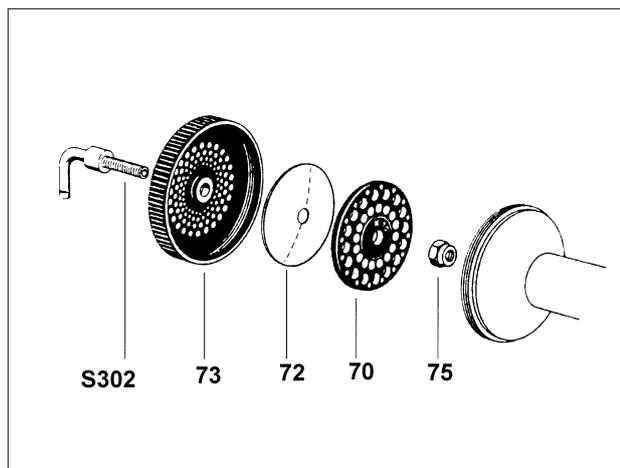
a) Unscrew the diaphragm valve and blow through from both sides with compressed air.

alternatively:

b) Unscrew the diaphragm valve and rinse in hot water (approx. 60 °C).

alternatively:

c) Unscrew the diaphragm valve and rinse with hand-warm water to which cleaning alcohol has been added. Cleaning with water and alcohol is especially recommended after fogging with formalin.



alternatively:

d) Unscrew the diaphragm valve and put it into a vessel with fuel for 5 minutes. Subsequently dry it with compressed air.

alternatively:

e) Disassemble the valve (pictured above), clean the disassembled parts according to a), b), c) or d) and re-assemble the parts according to "Carburettor Assembly Drawing," page 21.

## 8. STORAGE

If you want to keep residual quantities for a limited time in the solution tank, remove the suction tube from the tank.

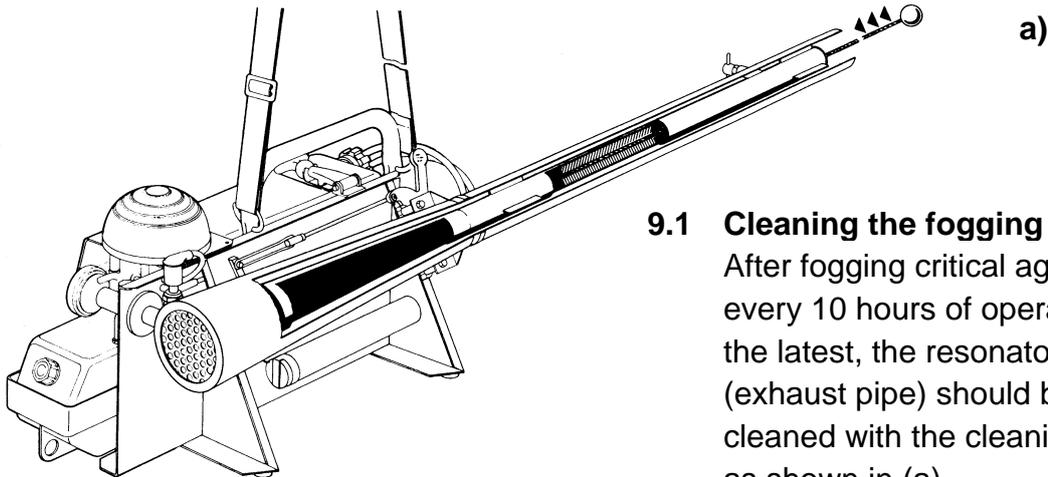
When the unit is not going to be used for some time, drain the fuel tank and store the unit in a cool and clean condition in the cardboard packaging. If you use the unit weekly, refill the fuel tank completely after the unit has cooled down and store it in a safe place, protected against tilting or falling down. The formation of water condensate is prevented by the tank being either completely full or completely empty!

### WARNING:

Condensation in the fuel tank causes considerable malfunctions since the fuel suction piece (No. 169z) and the red fuel valve (No. 7980) will clog. Only store the

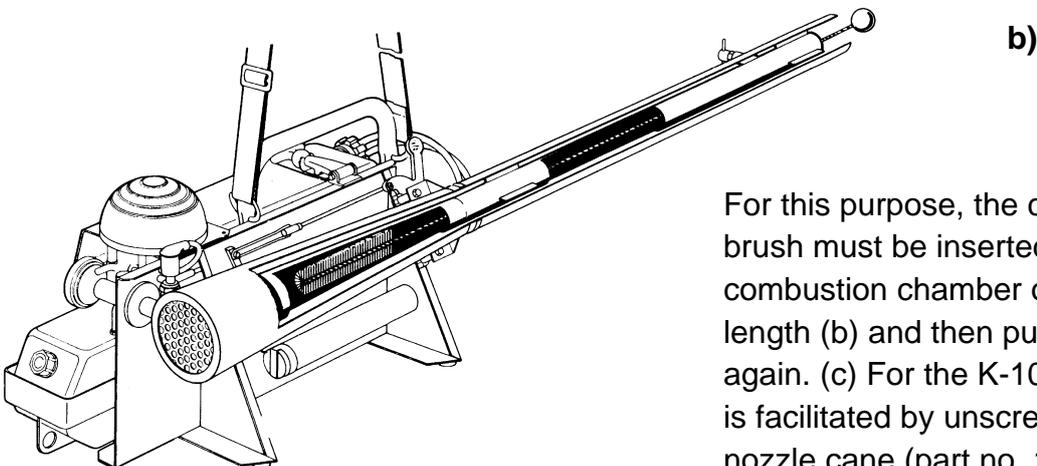
unit in a dry and cool place, protected from direct sunlight and dust.

## 9. MAINTENANCE

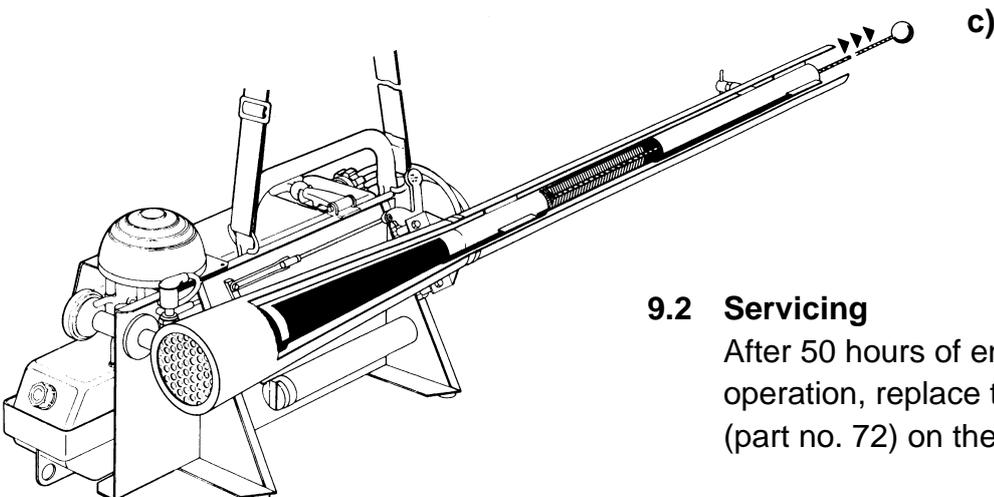


### 9.1 Cleaning the fogging pipe

After fogging critical agents, or every 10 hours of operation at the latest, the resonator (exhaust pipe) should be cleaned with the cleaning brush as shown in (a).



For this purpose, the cleaning brush must be inserted into the combustion chamber over its full length (b) and then pulled out again. (c) For the K-10 model, this is facilitated by unscrewing the nozzle cane (part no. 151) slightly.



### 9.2 Servicing

After 50 hours of engine operation, replace the diaphragm (part no. 72) on the carburettor.

## 10. Troubleshooting

<b>Fault identified:</b>	<b>Possible cause:</b>	<b>Remedy:</b>
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*(Part nos. shown in parenthesis)*

### 1. Engine does not start

No fuel	Fuel tank is empty	Fill fuel tank
No fuel	Adjustable screw is closed	Open adjustable screw
No fuel reaches the carburettor when pressing the primer	Fuel nozzle is choked	Clean fuel nozzle and/or blow through ring slot nozzle
No fuel is visible in the transparent hose between fuel valve and carburettor	Fuel valve sticks or is choked Fuel filter is choked	Blow through or exchange the fuel valve
Fuel in the transparent hose flows back after pumping	Red fuel valve not tight Fuel valve dirty	Exchange fuel valve or try to clean it by low air pressure
No ignition spark at the spark plug	Batteries corroded or empty, spark plug defective or wet/dirty ignition coil defect	Replace batteries, exchange spark plug resp. dry/clean it. Space between electrodes of spark plug = 1,5 – 2,0 mm.
	Micro-switch defective No contact between spark plug and spark plug socket	Replace micro-switch/ ignition coil Fix the high-tension cable to the spark plug socket
No correct air supply through the membrane-valve	Membrane (72) is dirty and/or pasted up or assembled incorrectly	Assemble cleaned membrane-valve correctly (see drawing)

## Troubleshooting (cont.)

<b>Fault identified:</b>	<b>Possible cause:</b>	<b>Remedy:</b>
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*(Part nos. shown in parenthesis)*

### 2. Engine runs poorly

Air bubbles in the fuel	Fuel pipes or fuel valve leak	Tighten fuel pipes and exchange fuel valve
Fuel supply to the carburettor is not sufficient	Adjustable screw incorrectly adjusted	Turn adjustable screw to the left until the engine runs with a deep powerful sound
Air does not pass at the right measure	Membrane (72) is dirty and/or pasted up or assembled incorrectly	Clean membrane-valve and membrane resp. exchange or assemble correctly
Fuel supply is irregular	Fuel nozzle is choked or destroyed by the adjustable screw	Clean fuel- and ring slot nozzle or replace fuel nozzle
Primer is blown up	Block valve is defective	Clean block valve, blow through or exchange it
Sparks are thrown out of the exhaust pipe	Resonator or combustion chamber is choked with chemical residues	Clean resonator and combustion chamber with cleaning brush

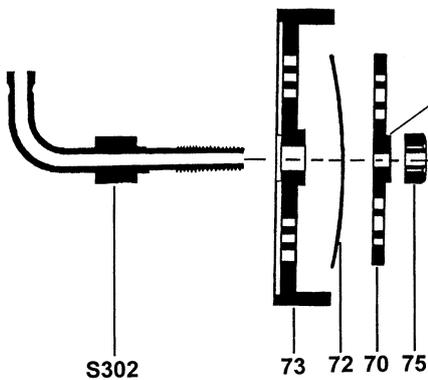
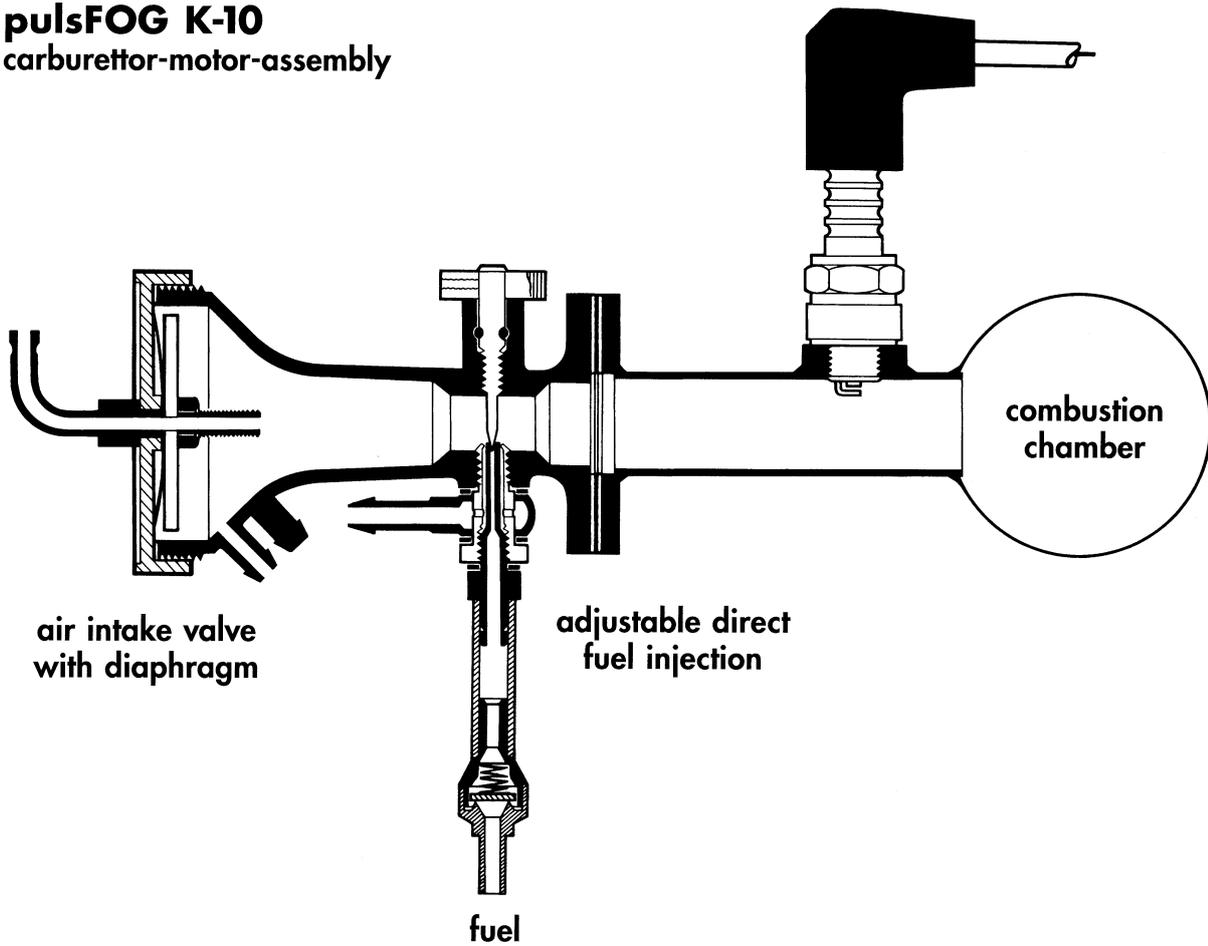
### 3. Unit fogs irregularly or not at all

No pressure in chemical tank	Tank lid not tight, pressure valve (green/grey) defective	Close tank lid of chemical tank more tightly. Exchange laminate gasket (No. 119) at passage (No. 115) and replace pressure valve
Dosing nozzle(s) is (are) too hot	Idle running (without fogging) of the engine not longer than 1/2 minute	Cool down cautiously dosing nozzle(s) and nozzle cane(s) with water
No fogging solution arrives at dosing nozzle(s).	Fogging solution conduit (122z), suction piece (139), fog tap (128z) or dosing nozzle (149) choked	Clean suction piece and/or dosing nozzle and/or fog tap, blow through with compressed air. Unscrew dosing nozzle and clean nozzle cane with a small screw-driver or a wire piece.
No fogging solution arrives at dosing nozzle(s).	Viton (Novoprene) tube in chemical tank is buckled	Replace Viton (Novoprene) tube

# Carburettor Assembly Drawing

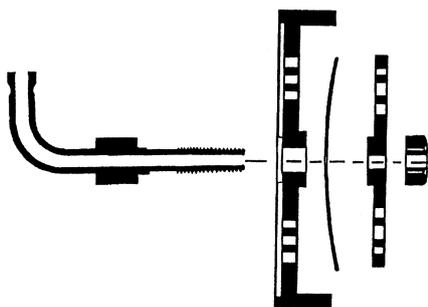
## pulsFOG K-10

carburettor-motor-assembly

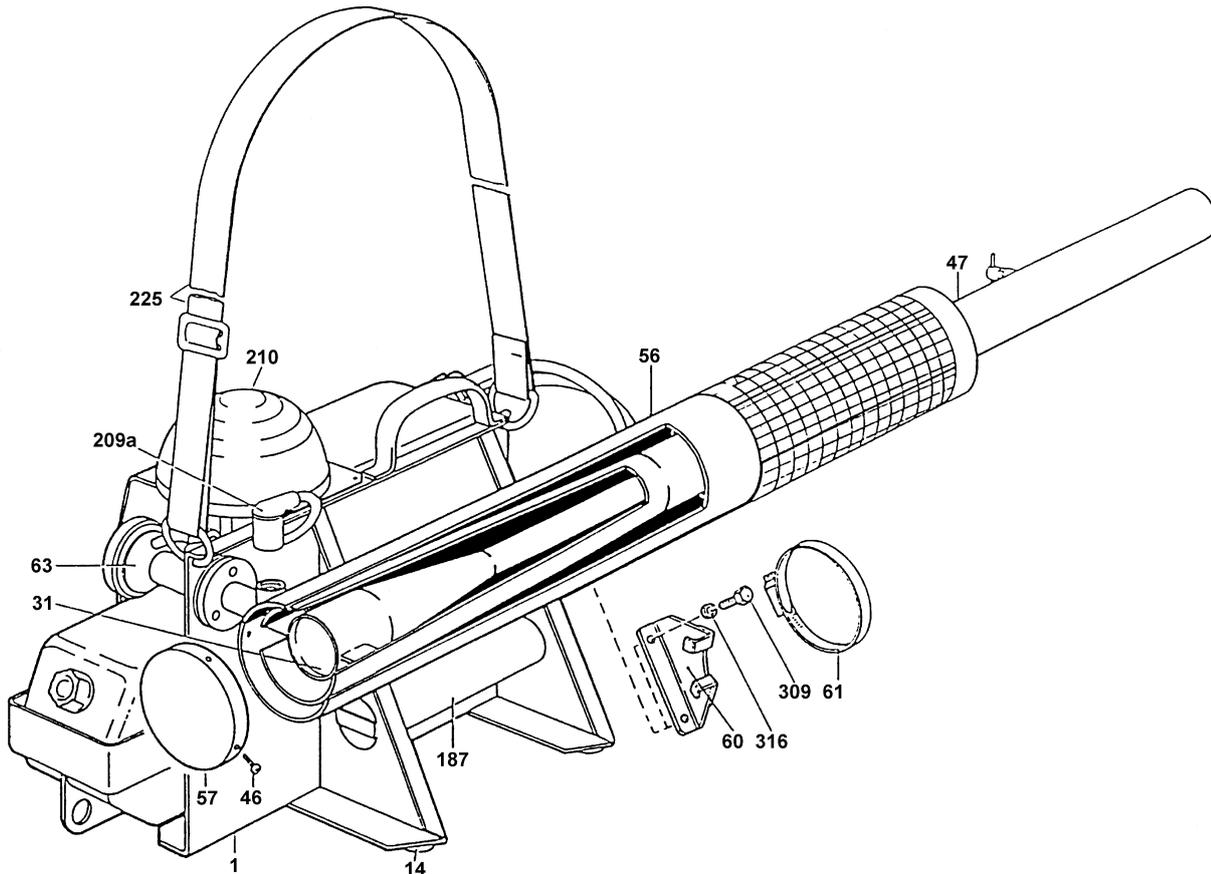


### Attention

Correct assembly of air intake valve K-10:  
Distance spacer of support plate (No. 70)  
contacts counternut (No. 75).  
Membrane (diaphragm No. 72)  
slightly bended as pictured.



## Resonator side

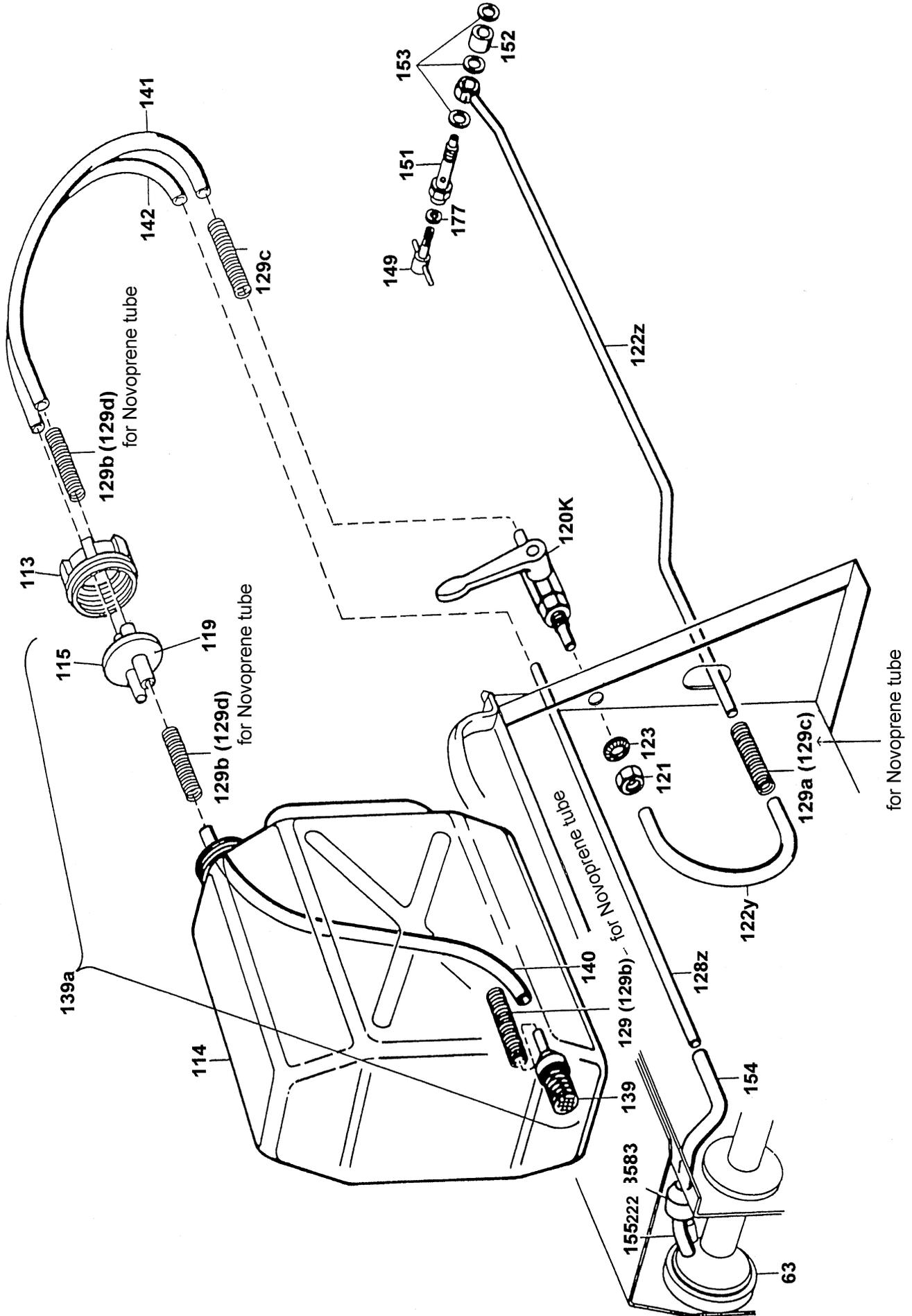


Goliath No.	Pos. No.	Order No.	Description
G00001.	1	101.100.00	Chassis K-10-SP
G00280.	1		Chassis K-10-DESERT (for primer black 2-piece)
Z00075.	14	900.100.01	Plastic feet
G00025.	31	101.410.00	Resonator K-10-SP
N00041.	46	999.009.01	Sheet head screw 3,9 x 9,5 DIN 7971
G00026.	47	101.420.00	Diffusor K-10-SP
G00027.	56a	101.430.00	Cooling jacket with protective grating
F00027.	57	100.433.00	Lid for cooling jacket (closed)
G00028.	60	100.440.00	Holding device for cooling jacket
N00090.	61	992.003.02	Clip size 80-100
G00002.	63	100.310.01	Carburettor (red) for K-10-SP cpl. with diaphragm valve, air/fuel nozzle, adjust. screw cpl., carburettor gasket, screws, nuts
Z00047.	187	900.220.01	Battery pipe
Z00201.	209a	900.211.02	Spark plug cap
G00035.	210	900.341.03	Primer (black, 2-piece) cpl.
G00346.	210		Primer (black, 1-piece) cpl. (2 fixations)
G00430.	210		Primer (black, 1 piece) cpl. (4 fixings)
Z00002.	225	900.000.02	Sling
N00072.	309	999.004.02	Hexagon screw M5 x 10 DIN 931
N00019.	316	997.006.03	Tooth lock washer (internal) d 5,3 DIN 6797
G00187.		101.450.00	Extralong protective grating K-10-SP
G00042.		101.440.05	Holding device for extra-long protective grating (incl. No. 61)

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# Fog solution tank assembly



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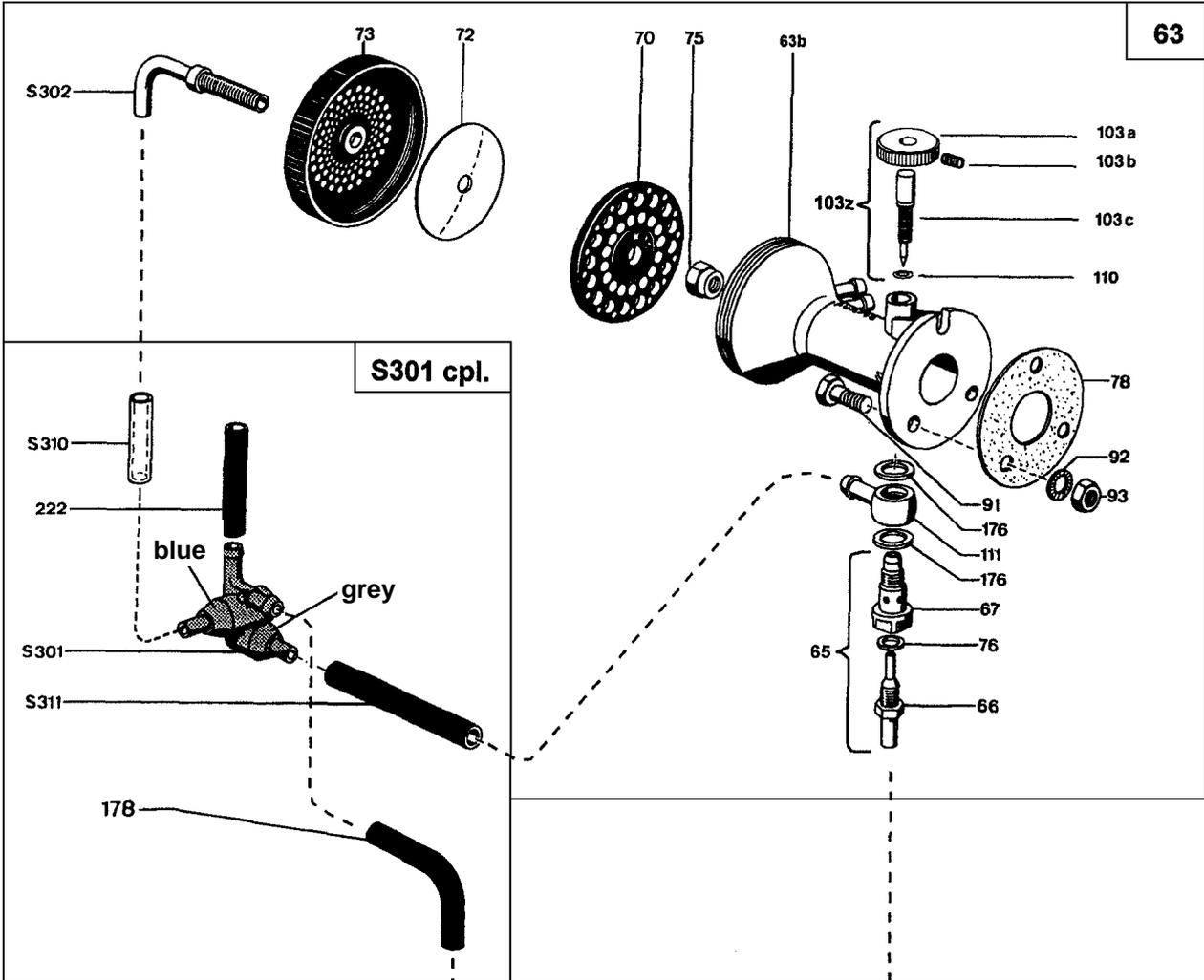
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## Fog solution tank parts

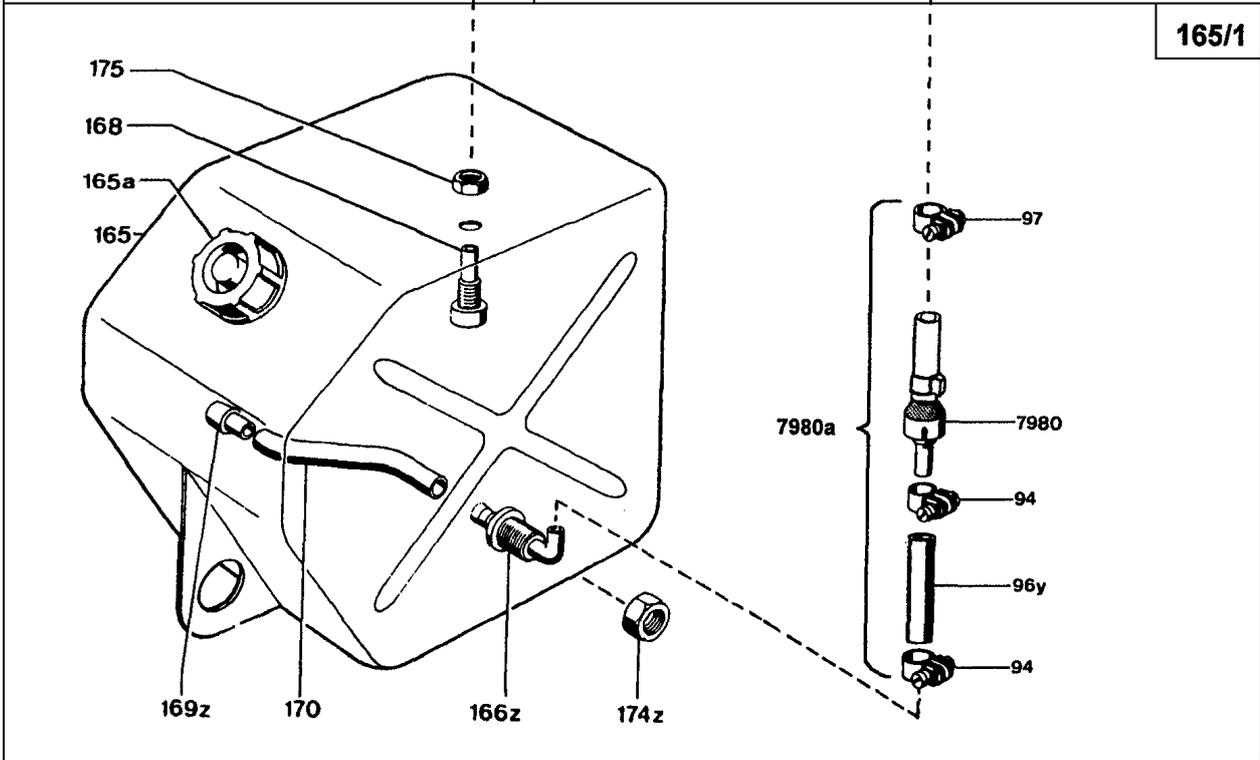
Goliath No	Part No.	Order No.	Description
G00002.	63	100.310.01	Carburettor (red) cpl. with diaphragm valve, air/fuel nozzle, adjust., screw cpl., carburettor gasket, screws, nuts
F00097.	113	900.520.14	Lid with bore-hole (tri-cornered)
F00129.	114	900.510.05	Solution tank with lid, 5 ltr.
Z00051.	115	900.520.10	Passage
Z00052.	119	900.520.11	Laminate gasket
G00056.	120K	900.526.00	Fog tap cpl., (connecting piece: polyamid)
N00030.	121	998.005.03	Flat hexagon nut M10 x 1 (brass)
F00083.	122y	900.521.03	Fog solution tube 150 mm, Viton
G00022.	122z	100.531.01	Fog solution conduit (stainless steel)
N00031.	123	997.009.01	Lock washer S
Z00199.	128z	101.520.30	Pressure pipe (plastic) K-10-SP
Z00055.	129	900.520.01	Supporting spring 8 x 100
Z00018.	129a	900.520.02	Supporting spring 8 x 150
Z00095.	129b	900.520.03	Supporting spring 8,5 x 100
Z00062.	129c	900.520.04	Supporting spring 8,5 x 160
Z00094.	129d	900.520.05	Supporting spring 9 x 100
G00165.	139	900.520.21	Single suction piece (PA with brass-weight)
Z00185.	139	900.520.22	Single suction piece (stainless steel)
G00166.	139	900.520.23	Single suction piece (PA with stainless-weight) "acid-resistant"
G00021.	139a	900.523.01	Single suction piece (PA with brass-weight) cpl. with Viton tube
G00311.	139a	900.523.01	Single suction piece (stainless steel) cpl. with Viton tube
F00066.	140	900.521.06	Fog solution tube 310 mm, Viton
F00070.	141	900.521.04	Fog solution tube 210 mm, Viton
F00111.	142	900.525.09	Tube 265 mm, black
	149	900.550.00	Dosing nozzle
Z00065.	151	912.540.00	Nozzle cane
Z00067.	152	900.560.01	Distance husk 11,5 mm long (stainless steel)
N00033.	153	993.001.02	Gasket 10x14x1 Cu
N00062.	153	993.003.02	Gasket 10x14x1 Al "acid-resistant"
F00075.	154	900.525.04	Tube 75 mm, black (No. S311)
F00076	222	900.525.02	Tube 40 mm, black
N00032.	177	993.001.01	Gasket 8 x 12 x 1 Cu
N00061.	177	993.003.01	Gasket 8 x 12 x 1 Al "acid-resistant"
G00023.	8583	900.323.00	Pressure valve (grey/green)
G00327.			Relief valve (red/blue) (instead of Pressure valve (grey/green) Pos. No. 8583)

# Starting installation

63



165/1



## Starting installation

Goliath No.	Part No.	Order No.	Description
G00002.	63	100.310.01	Carburettor (red) cpl. with diaphragm valve, air/fuel nozzle, adjust, screw cpl., carburettor gasket, screws, nuts
G00281.	63		Carburettor (black) <b>for K-10-DESERT</b> cpl. (without diaphragm valve), with air/fuel nozzle, adjust. screw cpl., carburettor gasket, screws, nuts
F00093.	63b	100.310.00	Carburettor (red) body
F00232.	63b		Carburettor (black) body ( <b>for K-10-DESERT</b> )
Z00120.	66	100.311.01	Fuel nozzle K-10
Z00011.	67	100.311.02	Ring slot nozzle K-10
Z00008.	70	900.313.01	Support plate
Z00007.	72	900.313.02	Teflon-diaphragm
Z00004.	73	900.313.03	Membrane thread (diaphragm valve cap)
N00004.	75	998.002.02	Counter nut M6 DIN 985
N00007.	76	993.002.01	Gasket 6 x 12 x 1 Fi
Z00014.	78	900.310.01	Carburettor gasket (Abil)
N00093.	91	999.004.06	Hexagon head screw M6 x 20 DIN 931
N00010.	92	997.005.04	Tooth lock washer (external) d 6,4 DIN 6797
N00011.	93	998.001.06	Hexagon nut M6 DIN 934
N00015.	94	992.001.02	Tube clip (size 8)
F00114.	96y	923.353.01	Fuel tube (blue)
N00014.	97	992.001.03	Tube clip (size 9)
G00007.	103a	900.312.03	Knurled washer cpl.
N00071.	103b	999.007.01	Locking screw M4 x 8 DIN 551
G00008.	103c	900.312.01	Threaded spindle
G00006.	103z	900.312.00	Adjustable screw cpl. with O-ring
N00063.	110	993.005.01	O-ring
N00006.	111	900.311.03	Ring piece
F00151.	165	912.351.01	Fuel tank with bore-holes and lid (d 32 mm)
G00010.	165/1	100.352.00	Fuel tank with fuel valve cpl.
Z00025.	165a	900.350.01	Lid for fuel tank (d 32 mm)
G00012.	166z	900.354.03	Connecting piece (bent)
Z00152.	168	900.354.04	Aeration piece
Z00027.	169z	900.354.01	Fuel suction piece
F00081.	170	900.354.02	Fuel suction tube, Viton
N00013.	174z	998.005.04	Hexagon nut (flat) M10 x 1,75 (brass)
N00012.	175	998.005.02	Hexagon nut (flat) M8 (brass)
N00005.	176	993.002.02	Gasket 10 x 14 x 1 Fi
F00082.	178	900.525.05	Tube 85 mm, black
F00076.	222	900.525.02	Air tube 40 mm, black
G00235.	S301	912.331.00	Block valve (grey/grey/blue)
G00004.	S302	900.313.04	Starting nozzle
F00113.	S310	900.355.02	Tube 40 mm, transparent
F00075.	S311	900.525.04	Tube 75 mm, black
G00014.	7980	900.321.01	Fuel valve (red) with transparent tube
G00013.	7980a	923.321.02	Fuel valve (red) cpl. with tubes
G00023.	8583	900.323.00	Pressure valve (grey/green)

**ProRestore Products**

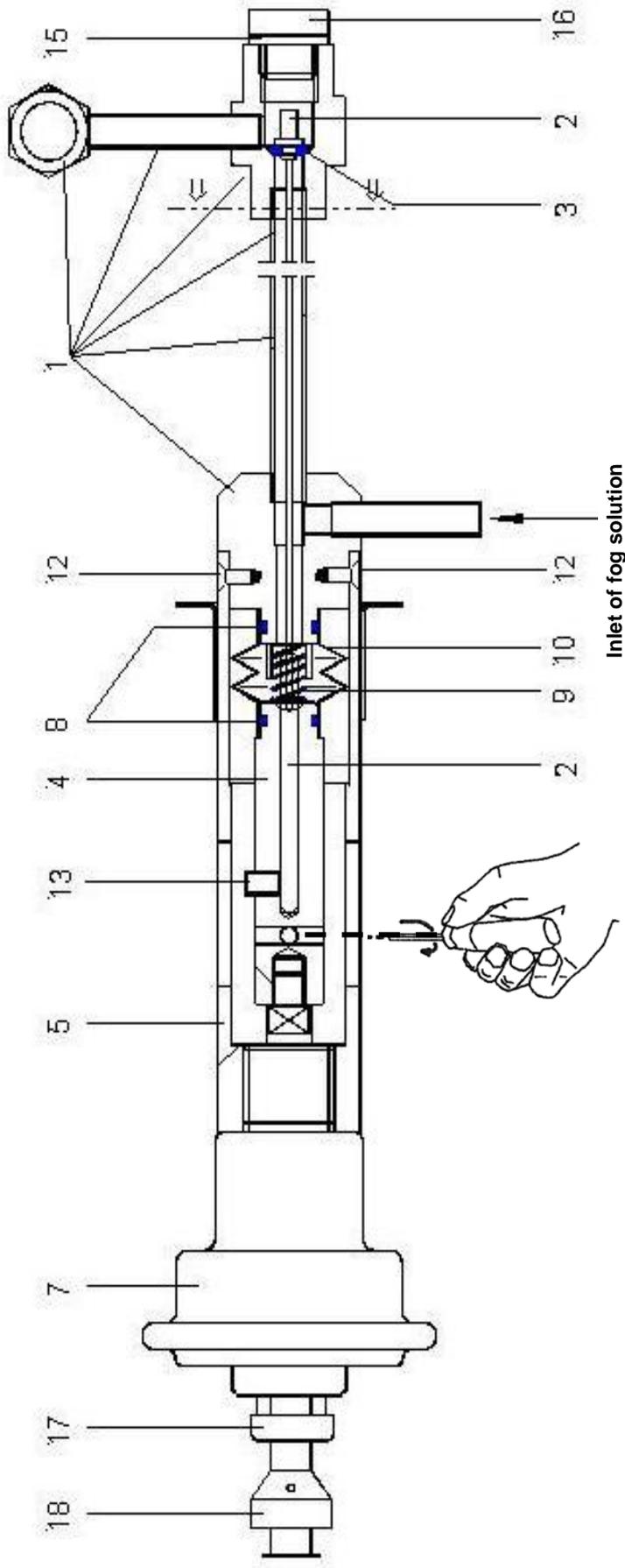
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## Primer and ignition installation

Goliath No.	Pos. No.	Order No.	Description
Z00041.	183	900.211.01	Ignition device
Z00042.	184	900.210.00	Micro - switch
Z00043.	185	900.221.00	Battery 1,5 V
Z00044.	186	900.212.00	Spark plug
F00010.	188	900.220.02	Lid for battery pipe
N00022.	193	999.008.01	Butterfly screw M5 x 10 DIN 316
N00021.	197	999.001.02	Fillister head screw M3 x 20 DIN 84
N00023.	198	998.001.01	Hexagon nut M3 DIN 934
N00020.	199	998.001.05	Hexagon nut M5 DIN 934
N00024.	200	997.003.01	Spring washer M3 DIN 127A
G00019.	202	900.220.00	Contact piece with cable
Z00046.	205	900.210.01	Rubber washer 45 x 30 x 3
N00027.	207	999.001.07	Fillister head screw M5 x 6 (brass)
N00019.	209	997.006.03	Tooth lock washer (internal) d 5,3 DIN 6797
Z00201.	209a	900.211.02	Spark plug cap
G00035.	210	900.341.03	Primer (black, 2-piece) cpl. rubber
G00346.	210		Primer (black, 1-piece) cpl. (2 fixings)
G00430.	210		Primer (black, 1 piece) cpl. (4 fixings)
F00338.	210a		Primer (black, 1-piece), body (2 fixings)
F00400.	210a		Primer (black, 1-piece), body (4 fixings)
G00036.	210a	900.341.00	Primer (black, 2-piece), body rubber
Z00079.		900.341.01	Primer (black, 2-piece) – bottom part rubber
Z00078.		900.341.02	Primer (black, 2-piece) – top part rubber
Z00039.	212	900.342.01	Connection piece M 12 (for primer black, 1-piece)
Z00080.	212		Connection piece M 8 (for primer black, 2-piece)
N00068.	213	999.005.01	Flat headed screw M5 x 10 DIN 921 (for primer black, 1-piece)
N00047.	213	999.005.02	Flat headed screw M5 x 16 DIN 921 (for primer black, 2-piece)
N00017.	216	998.005.05	Hexagon nut M 12, flat (for primer black, 1-piece)
N00012.	216		Hexagon nut M 8, flat (for primer black, 2-piece)
Z00040.	217	900.342.02	Plastic washer Ø13 (for primer black, 1-piece)
Z00081.	217		Plastic washer Ø8 (for primer black, 2-piece)
F00148.	223	900.342.04	Diaphragm for non-return valve (for primer)
Z00038.	223a	900.342.03	Non-return valve without diaphragm (for primer)
G00017.	223b	900.342.05	Non-return valve with diaphragm (for primer)
N00042.	226	999.004.04	Hexagon screw M5 x 30 DIN 931

# Automatic cut-off device



revolve to adjust tightness of closing valve

No.	Description	Goliath No.	Amount	No.	Description	Goliath No.	Amount
1	Fog solution conduit cpl.	G00060.	1	10	Expansion	Z00119.	1
2	Valve linkage	G00061.	1	12	Flat headed screw DIN 965 M3x6	N00082.	2
3	O-Ring Hiflour 2,57 x 1,78	N00085.	1	13	Set screw M4x8	N00071.	1
4	Adapter	G00059.	1	15	Gasket 10/14/1 Cu	N00033.	1
5	Mounting pipe	Z00155.	1	16	Screw plug, M 10x1 brass	N00084.	1
7	Diaphragm assembly	G00062.	1	17	Fixing nut for tube 8x1 R1/8"	N00076.	1
8	O-Ring 7 x 1,5 Viton	N00039.	2	18	Relief valve (grey/blue) with bore-hole	G00058.	1
9	Valve spring	N00081.	1				

# EG-Konformitätserklärung

EC-Declaration of Conformity  
Deklaracja zgodności CE  
CE-Déclaration de conformité  
Dichiarazione di conformità CE  
Declaração de conformidade da CE  
EG-conformiteitsverklaring  
Declaración de Conformidad de la UE  
EF-overensstemmelseserklæring  
EY-vastaavuusselitys  
EG-konformitetsförklaring  
EB Atitikties deklaracija

Wir / We / My / Nous / Nol / Nós / Wij / Nosotros / VI / Me / Mes

**pulsFOG Dr. Stahl & Sohn GmbH, Abigstr. 8, D-88662 Überlingen / Germany**

erklären, dass die Maschine / declare that the machine / deklarujemy, że urządzenie / déclarons que la machine / dichiariamo che la macchina  
deciaramos que as máquinas / verklaren dat de machine / declaramos que la máquina / erklærer hermed, at maskinen / ilmoitamme, että tämä kone / förklarar att maskinen / Parelšklame, kad mašina

**Thermo Nebelgerät, thermal fogger, zamglawiacz, nébulisateur thermique, termonebulizador, termonebulizzatore,**

Typ / Type / typu / Tipo / vastaa tyyppiltään / tipas

**pulsFOG K-10-SP**

oder / or / oraz / ou / o

**pulsFOG K-10-STD**

oder / or / oraz / ou / o

**pulsFOG K-10-O**

oder / or / oraz / ou / o

**pulsFOG K-10-SP-SAN**

oder / or / oraz / ou / o

**pulsFOG K-10-SP-ANTEATER**

mit folgenden EG-Richtlinien übereinstimmt / conforms to the specifications of the following  
EC directives / został wykonany zgodnie z normami Unii Europejskiej zawartymi w dyrektywach / est conforme aux spécifications des directives CE suivantes / è conforme alle seguenti direttive CE / estão em conformidade com as seguintes directrizes da CE / overeenkomt met de volgende richtlijnen / está conforme con las especificaciones de las siguientes directivas / svarer til følgende EF-direktiver / seuraavia EY-direktivejä / överensstämmer med följande EG-riktlinjer / atitinka šlas EB direktyvas:

**2009/127/EG  
89 / 336 / EWG (EEC)**

EN ISO 13857:2008  
EN ISO 12100-1+A1:2009  
EN ISO 12100-2+A1 :2009  
EN ISO 13732-1 :2008

Überlingen, im Januar/ enero/ gennaio/ styczeń 2011



Geschäftsleitung / Managing director / Dyrektor generalny / Gerente general / Directeur