



Instructions Manual
pulsFOG TracFOG 400 G
Tractor Mounted ULV Fogger

pulsFOG®

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INSTRUCTION MANUAL – PULSFOG TRACFOG 400 G

1. PREPARING THE UNIT FOR OPERATION

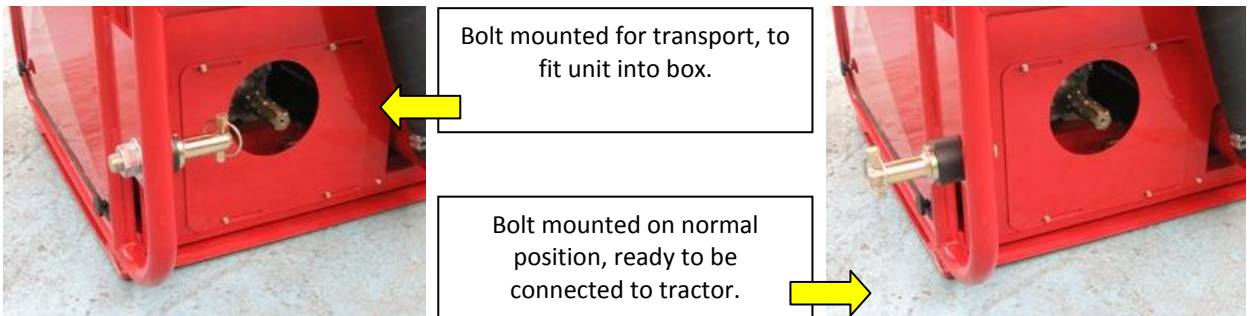
1.1. SUPPLIED ITEMS. The TracFOG 400F fogger is delivered with following items:

- 1 complete fogging unit;
- 1 “short arms” parts set
- 1 complete driveshaft;
- 1 driveshaft guard;
- 2 complete lower 3-point-hitch bolts;
- 1 complete 3rd point hitch;
- 1 set of dosing nozzles;
- 1 set of instructions manuals.



1.2. **PREPARATIONS BEFORE OPERATION.** Before operating the unit, following procedures must be carried out:

1.2.1. Correct mounting of the hitch bolts. In order to reduce packing dimensions, the two lower 3-point hitch bolts are mounted inwards. Before the unit is hitched to the tractor, the bolts must be mounted outwards, like shown on the pictures below.



1.2.2. The pulsFOG TracFOG 400 is delivered ready to use and filled with lubricant. However, before operating the unit we recommend to check the oil levels of the components, like described further in the text. Place the unit on a leveled surface and remove its side guards to perform this checking. To avoid injury hazard, make sure the driveshaft is disconnected, so the unit cannot be started by accident during the checking. Refer to Section 3 in this manual for information about oil check and change frequency, recommended oil types and related procedures.

ATTENTION! Do not run the unit if any of its guards are not in place, as there is severe injury hazard caused by moving parts such as wheels and belts.

1.2.3. Check the tension of the blower and pump drive belts. Pressed by hand, they should yield no more than about 10 mm. For instructions to set the belt tension, please go to page 13.

1.3. CAUTION WITH THE FORMULATION PUMP. The formulation pump of the TracFOG 400 fogger should not run dry. Fill the tank with about 20 L of formulation before starting the equipment and make sure the formulation ball valve (see picture below) is opened. Do not run the unit when this valve is shut, or the pump may be damaged.

Ball valve in the formulation pump feeding line (opened position). Before starting the unit this valve must be opened.



For cleaning the formulation filter, shut the valve, unscrew the filter cup and clean the strainer. Remember to open the valve after reassembling the filter.

1.4. **FITTING THE UNIT TO THE TRACTOR.** After the procedures described above, fasten both side guards back into place securing them tightly with the locking nuts. The machine must be connected to an agricultural tractor with at least 50HP, equipped with hydraulic 3-point hitch system and 540 rpm clockwise turning PTO shaft. The 3rd point extension bar should be set so that the unit becomes leveled when lifted 40-50 cm above the ground. Running the unit unlevelled may damage the driveshaft and other components.



Unit should be leveled when lifted about 40-50 cm above the ground.



Incorrect left-right and/or front-end leveling may damage the equipment.

1.5. **INSTALLING THE CARDAN DRIVE SHAFT.** The TracFOG 400 is supplied with one 50 cm long driveshaft, including 1.3/8" standard quick release connectors on both ends and a complete driveshaft guard. Depending on the tractor model it might be necessary to cut the shaft bars to a suitable length. The driveshaft bars (square bar and square tube) should be inserted about 2/3 of their length when the unit is lifted to the running position. In order to avoid excessive wear or failure of the driveshaft links, the tractors PTO and the TracFOG power input shaft should be set to the best possible alignment. The driveshaft links should be lubricated daily. Observe following pictures:

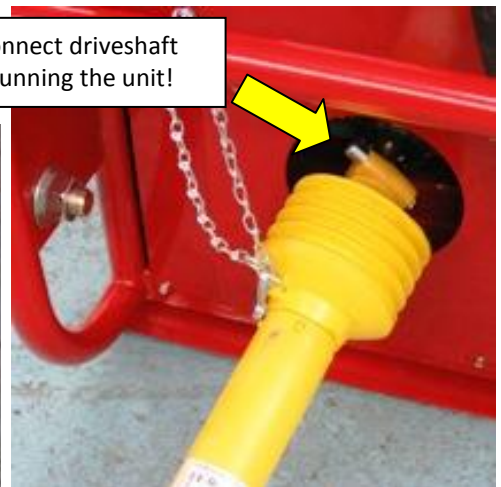
Driveshaft lock (yellow arrow) in locked position. Push in to connect or disconnect driveshaft from PTO or TracFOG input shaft. Make sure connectors are locked before running the unit!



TracFOG 400 power input shaft



Complete driveshaft with links, connectors and guard.



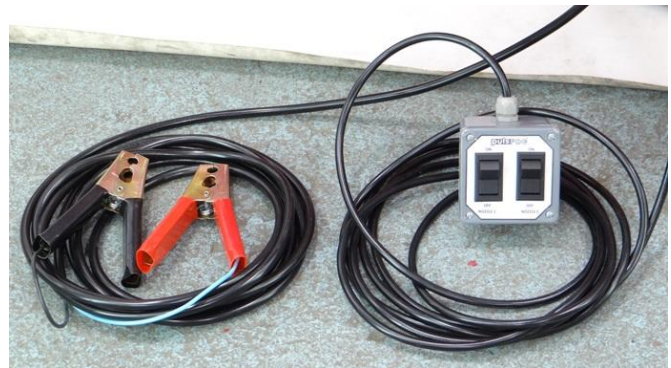
Correct mounting of the driveshaft. Fix chains to prevent guard from rotating.

ATTENTION! Do not operate the unit if the driveshaft guard is damaged, not properly fastened, incomplete or missing, as there is severe injury hazard. Make sure all links and connectors are integer and properly fixed and the links are not excessively twisted, before starting the unit. Repair or substitute the driveshaft immediately if any damage is noticed. Stay away from the driveshaft and do not allow anyone to remain near it when the unit is running or about to be started.

1.6. CONNECTING THE UNIT TO 12VDC POWER

Connect the power cable to a 12VDC automotive battery. Whenever possible, use the own tractor's battery. Place the control panel in the tractor's cabin, within the drivers reach.

Power cable and control panel



1.7. FILLING THE FORMULATION TANK. Make sure the drain valve is shut and the ball valve in the formulation line is opened. Fill the tank with at least 20 and up to 400 liters of ready and homogenized formulation. The TracFOG 400 features a bypass system that directs part of the formulation flow generated by the pump through an hydraulic agitator back into the tank, providing an agitation effect which helps to avoid decantation. It is recommended, however, to use only perfectly homogeneous and stable formulations, as sediments of solid particles on the bottom of the tank may obstruct the formulation filter, formulation lines, shut-off valves and nozzles. Use the tank intake strainer to filter out larger particles from the formulation. Reinstall the lid after filling the tank. Reinstall the unit's side guards after checking the ball valves.



Formulation line ball valve. Must be opened for operation.

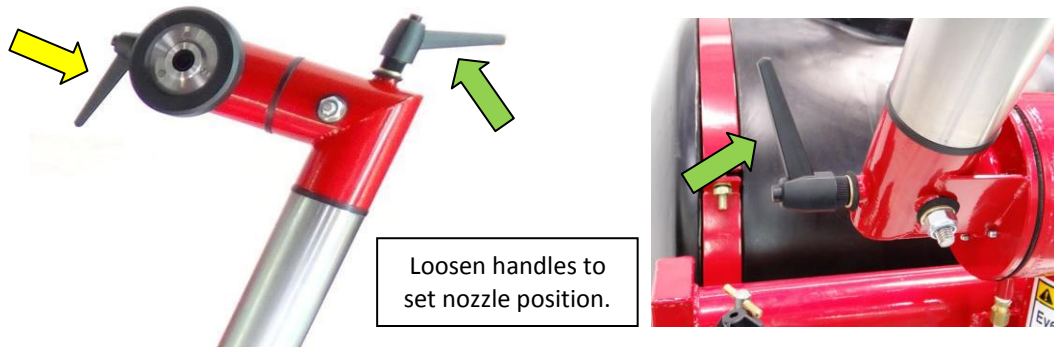


Formulation drain valve. Must be shut before filling the tank.



Hydraulic agitator mounted on tank

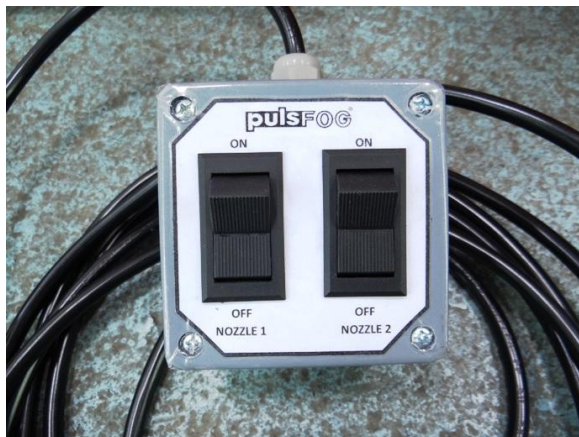
1.8. **SETTING THE NOZZLE POSITION.** Loosen the locking handles and set the nozzles to the desired direction.



ATTENTION! Be sure to tighten the handles well before running the unit, especially those shown with green arrows. Not tightening these handles properly may cause the spray arms to break due to shaking and bouncing with the tractor movement.

1.9. **CONTROL PANEL.** The control panel includes independent on-off control switches for the nozzles.

The TracFOG 400 G control panel



1.10. **RUNNING THE UNIT.** Make sure the tractor's PTO is set to 540 rpm clockwise (or counterclockwise if looking from the tractor towards the fogger), which complies with the international standard. Some tractors feature reversible PTO's. In those cases, make sure to set the tractor correctly before starting the PTO.

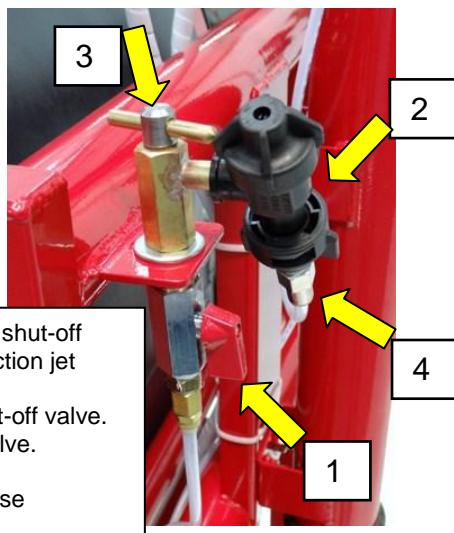
ATTENTION! Never run the PTO in reverse, which may damage the blower and other components.

ATTENTION! Do not exceed the tractor's standard operation speed (540 rpm at the PTO) while running the TracFOG. Running the unit with excessive speed may damage the blower and other components. In order to obtain the best possible performance during operation, keep the tractor's engine running as close as possible to the standard operation speed. The air pressure gauge will then indicate between 0.6 and 0.7 kgf/cm².

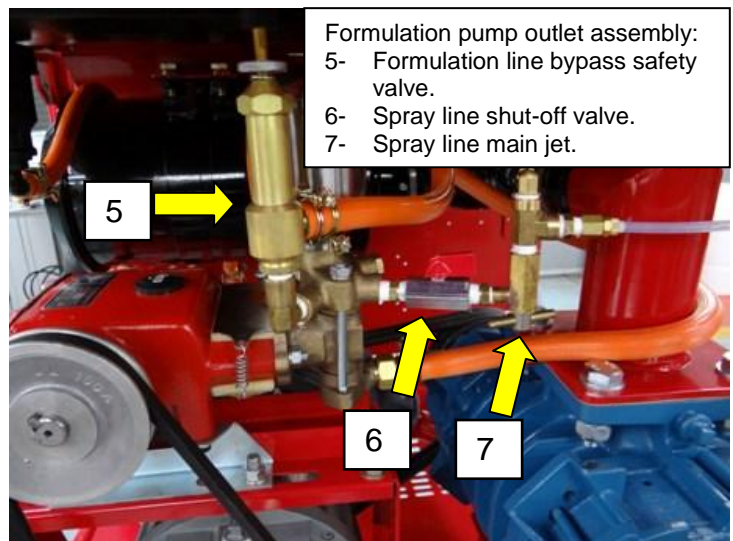
Air pressure gauge.
 At 540 rpm on the input shaft the indicated air pressure should be between 0,6 and 0,7 kgf/cm².
 The air pressure is not adjustable.



1.11. **CHECKING AND SETTING THE FLOW RATE.** The formulation flow rate on the TracFOG 400 fogger is controlled by exchangeable restriction jets. A basic jet set is supplied with the equipment. Before beginning an application the formulation flow rate should be measured and set. To measure the flow rate disconnect the nylon tube from one of the two anti-drip valves (4) and replace it with one of the supplied nylon ¼" spare tubes. Start the unit and retrieve the formulation into a cup or other container (e.g. during one minute). Calculate the flow rate by dividing the retrieved liquid volume by the measured time. Repeat the procedure with the second nozzle.



Anti-drip valve, shut-off valve and restriction jet assembly:
 1- Nozzle shut-off valve.
 2- Anti-drip valve.
 3- Nozzle jet.
 4- Quick release connector.



Formulation pump outlet assembly:
 5- Formulation line bypass safety valve.
 6- Spray line shut-off valve.
 7- Spray line main jet.

Formulation pressure gauge.
 Indicates formulation pressure on recirculating (agitation) line when unit is running and spraying is turned off.
 Indicates pressure on spray line when spraying is turned on.
 To extend the gauge's lifetime, keep valve (yellow arrow, open position) in "shut" position when the gauge is not being used.



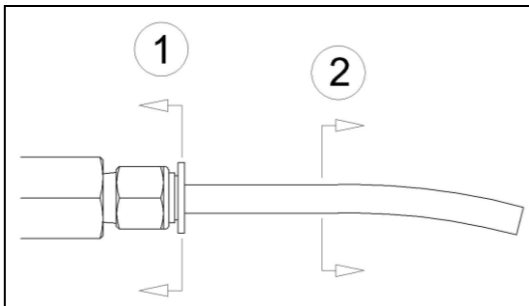
Approximate formulation pressure readings and flow rates at 540 rpm (water)

Main jet #	Spray-off pressure (psi)	Nozzle jet #	Spray-on pressure (psi)	Flow rate (two nozzles) ml/min
10	78	7	41	720
10	78	8	39	764
10	78	9	36	814
10	78	10	33	870
15	78	9	52	974
15	78	10	50	1048
15	78	12	48	1088
15	78	15	47	1164
18	78	15	50	1186
18	78	18	49	1224

Standard supplied nozzles:

Nozzle #	7	8	10	12	15	18
Qty.	2	2	3	2	3	3

IMPORTANT NOTICE: releasing the tube from the quick release connector.



To release the nylon tube from the connector:

- 1 – With one hand push the ring (1) towards the connector.
- 2 – With the other hand pull out the tube.

To reassemble the set simply push the tube into the connector until it sits tight.

2. SAFETY AND CARE

- 2.1. **RECOMMENDED PROTECTIVE GEAR.** Always use all recommended personal protective equipment during preparation of the formulation, application and cleaning or washing the equipment. The tractor driver should wear a full-face respirator with filter-class compatible with the applied formulation. Tractors with enclosed cabs should be preferred.
- 2.2. **CARE WITH THE DRIVESHAFT.** Follow all local regulations and safety guidelines regarding PTO drive shafts. Do not use the driveshaft without its guard. Use chains to fix both ends of the guard respectively to the tractor and to the fogger. Stop the application immediately if any malfunction or damage is noticed on the driveshaft or its guard. Before starting the operation, make sure the driveshaft is properly mounted as described in this manual, and that its connectors are firmly seated and locked.
- 2.3. **CARE DURING OPERATION.**
- 2.3.1. Before starting the unit, make sure all guards are properly mounted and locked.
- 2.3.2. Do not exceed the standard speed of 540 rpm at the PTO. Excessive speed may damage the unit.
- 2.3.3. Check the oil levels on gearbox, blower and spray pump daily. Follow the oil change schedule shown ahead on section 3.4. Check air and formulation filters regularly, as well as spray pump and blower drive belts tension and wear.
- 2.3.4. The TracFOG 400 should only be operated by professional and properly trained personnel.

ATTENTION! Never perform any servicing on the unit while it is running.

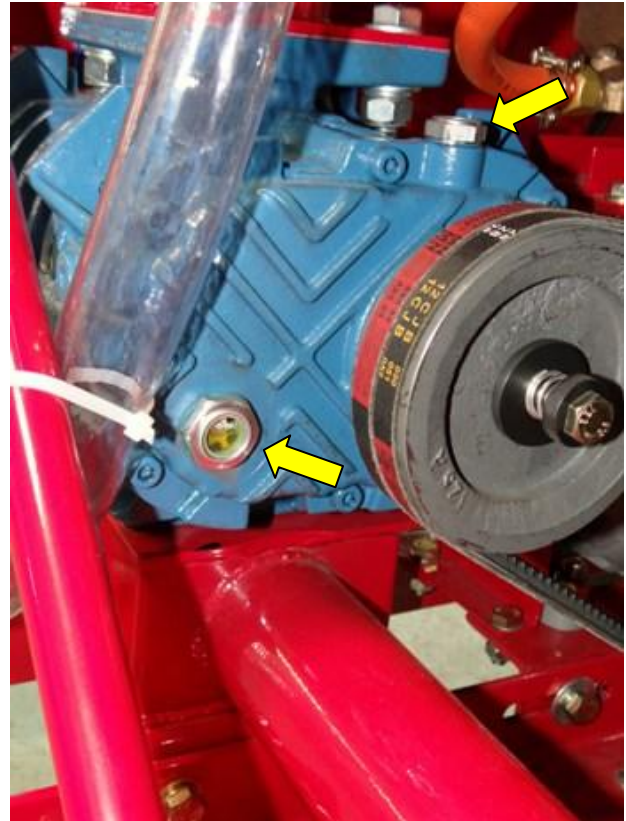
ATTENTION! Do not remove the unit's protective guards while it is running. Do not start the unit while its protective guards are not properly mounted and locked. Disconnect the driveshaft from the PTO before removing any of the unit's guards.

3. MAINTENANCE

3.1. OIL CHECK AND CHANGE SCHEDULE

The TracFOG 400 fogger is supplied with all oil pans adequately filled and ready to use. However, before starting the unit for the first time, check the oil level at the following 4 points, and fill with oil if necessary. To perform the oil check, place the unit on a leveled surface.

3.1.1. **BLOWER:** the blower features two oil pans, one on the driveshaft side and one on the gear drive side. To access the filling plugs and level indicator on the shaft side, remove the left guard of the unit. The recommended oil specification for the blower is ISO VG-220 standard compliant oil. The approximate oil capacities are 0.25 L (driveshaft side) and 0.40 L (opposite side). These volumes, however, are only basic references. The level control should be made daily before starting the application, using the oil level indicators shown in the pictures, with the leveled unit. The unit must be off for at least five minutes. The oil level should fill about half to $\frac{3}{4}$ of the indicator. Milky appearance of the oil indicates contamination with water. Should the milkyness persist after more than 15 minutes after starting the unit, it is recommended to stop the application and perform an oil change. In normal conditions, the recommended oil change period is every 500 working hours.

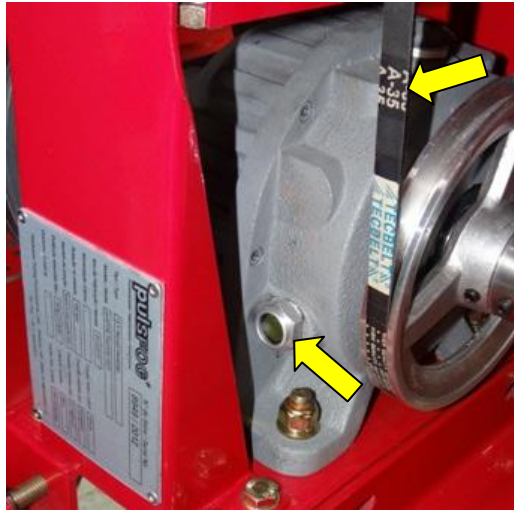


Blower oil level indicator and refill cap (driveshaft side).



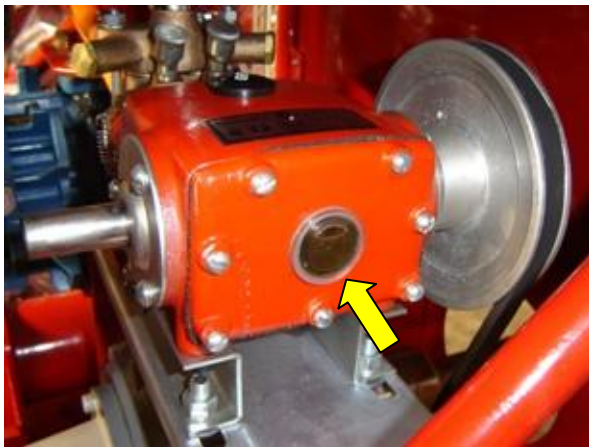
Blower oil level indicator (gear drive side).

3.1.2. **GEARBOX.** To have access to the gearbox remove the right guard of the unit. Check the gearbox oil level daily, or before starting an application. Check the oil level on the level indicator as shown in the Picture below, left side. The oil level should fill half to $\frac{3}{4}$ of the indicator. The recommended oil should comply to ISO VG-220 standard. The oil capacity is approximately 0.4 L. The recommended oil change period for the gearbox is every 500 working hours.

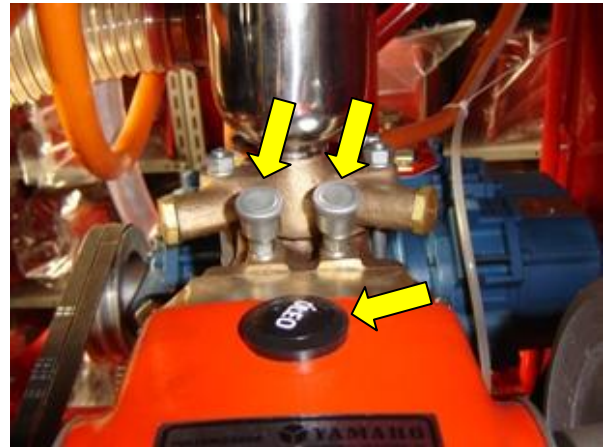


Gearbox with level indicator and refill plug.

3.1.3. **FORMULATION PUMP:** To access the formulation pump remove the guard on the right side of the machine. The pump's crankcase is oil lubricated. The oil level should be checked daily and the oil level indicator should be filled half to $\frac{3}{4}$. Refill if necessary with mineral oil for gasoline engines. The oil change should occur every 50 working hours. The pump's pistons are lubricated by the two greaser cups shown in the Picture below, right side. Turn both cups clockwise half a turn each 8 working hours. Remove and fill the cups with regular industrial grease when necessary.



Formulation pump oil level indicator



Oil refill cap and greaser cups

3.2. CHECKING THE FORMULATION AND AIR FILTERS

3.2.1. **BLOWER INTAKE FILTER.** The TracFOG 400 features a one-stage air filter, which protects the blower from particles and liquid, avoiding excessive wear. To ensure that the unit runs with its full capacity, without compromising its service life, it is very important that the air filter is kept clean and in good conditions. To access the air filter remove the guard on the right side of the machine. Check the filter every 50 working hours. Substitute the filter element at least every 200 working hours. Do not run the unit if the filtering element is missing, which may cause excessive wear or damage the unit. Also check regularly the air suction hose (which connects the filter to the blower) for punctures or loose clamps, which could compromise the efficiency of the filter.

Filtering element: ref. TR 1510 (compatible Ford F1000/2000/4000 and Mercedes Benz 709)



To open filter release butterfly nut.



To remove element release nut.

3.2.2. **FORMULATION INLINE FILTER.** The formulation inline filter is very important, as it will retain large solid particles that may find their way into the formulation tank, protecting the formulation pump. This filter should be checked and cleaned daily, which will avoid unplanned stops during application caused by obstruction of the filter. Access the filter through the right side of the machine.



Filter cup and strainer.



Before opening the filter shut the formulation line ball valve (shown here in open position).

ATTENTION! To perform the filter cleaning wear the same protective gear recommended for preparing the fogging solution.

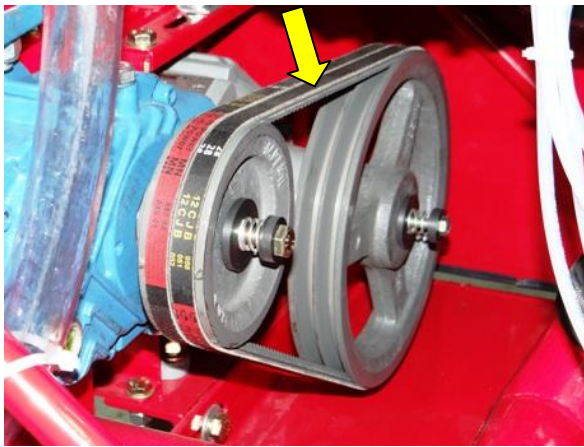
1. Shut the formulation line ball valve.
2. Unscrew the filter cup and pour its content into a proper container or back into the tank.
3. Remove the strainer from the cup and rinse it under running water. If necessary remove residues using a smooth brush (e.g. tooth brush). Rinse the cup to eliminate residues.
4. Reassemble and fasten the filter cup. Do not forget the sealing ring.
5. Open the formulation line ball valve.

3.3. OTHER PERIODIC CHECKS.

3.3.1. **CHECKING THE TENSION OF THE DRIVE BELTS.** (weekly or after every 50 working hours). Push each belt by hand like shown on the picture. It should not yield more than 10 mm. If necessary tighten the belts as shown on the pictures below. Make sure to keep the wheels properly aligned, to avoid excessive wear of the belts. When the belts become worn or show shredded edges they must be replaced. Use only belts of the same type and length as the originals. Make sure to tighten all screws before starting the machine.

Blower drive belts: 2 x A-52 or HA-52

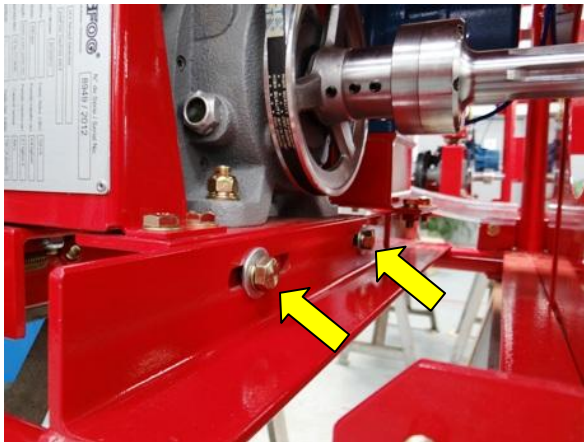
Formulation pump drive belt: 1 x A-36 or HA-36



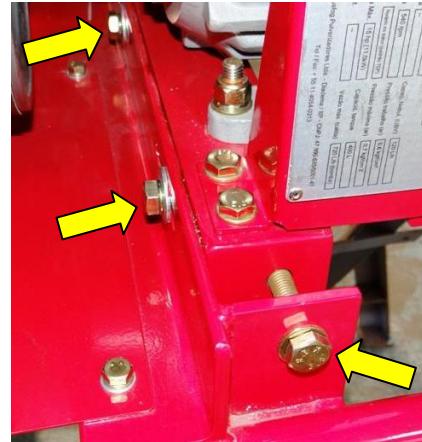
Check the tension of the blower drive belts.



Checking the pump belt.

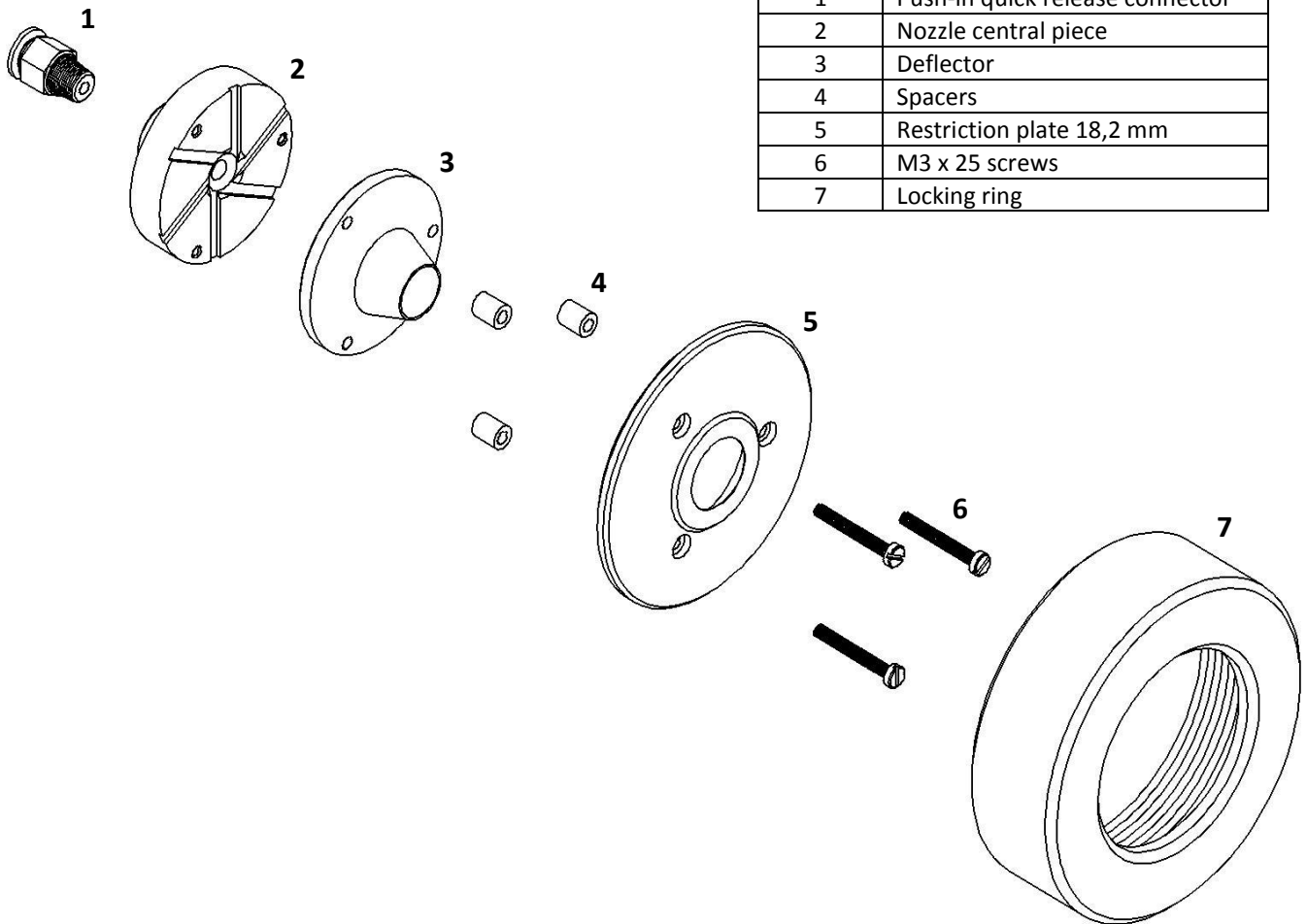


Fixing screws and screw tensioner.



ATTENTION! Before performing any servicing that requires opening any of the equipment's guards, make sure the driveshaft is disconnected from the tractor, as moving parts such as wheels and belts are very hazardous and may cause severe injury.``

3.3.2. CLEANING THE FOGGING NOZZLES. Depending on the formulation used, the fogging nozzles may accumulate solid residues, which will affect their efficiency. To disassemble the nozzles for cleaning, remove their locking rings (9) and draw the nozzle assemblies. To release the tube from a nozzle push the ring towards the quick-release connector (1) and pull the hose out at the same time. To reconnect the tube, simply push it back inside the connector until it sits tight. Clean the nozzles using a smooth non-metallic brush (e.g. a toothbrush). To remove persistent residues, use kerosene or thinner. If necessary, disassemble the nozzle set.



ITEM	DESCRIPTION
1	Push-in quick release connector
2	Nozzle central piece
3	Deflector
4	Spacers
5	Restriction plate 18,2 mm
6	M3 x 25 screws
7	Locking ring

3.3.3. MAINTENANCE OF THE ANTI-DRIP VALVES.

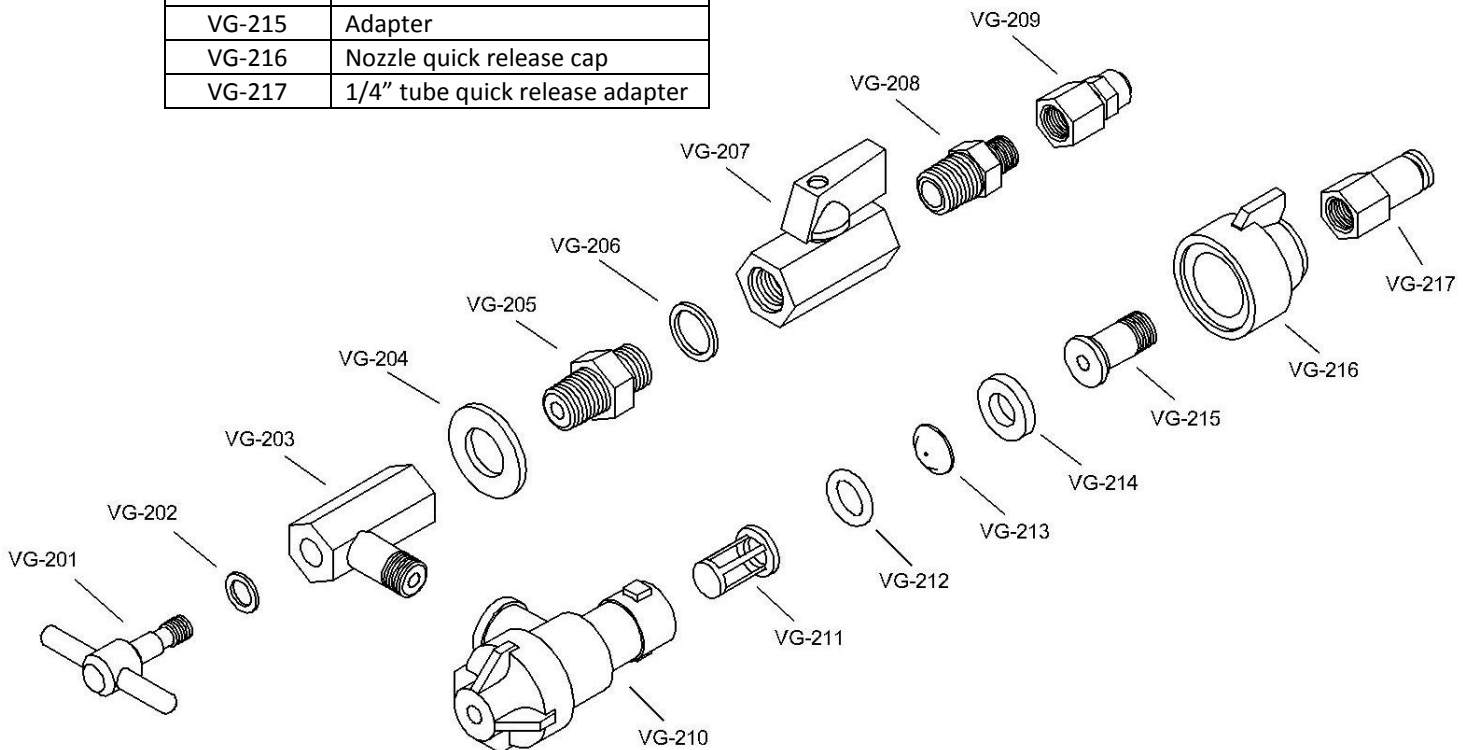
The anti-drip valves shut the formulation lines to the fog nozzles as soon as the pressure in the lines drops below 15 psi. This prevents formulation dripping from the nozzles after the machine is turned off. When the machine is turned on both valves open automatically and the formulation flow is reestablished.

The anti-drip valves may get stuck or blocked by formulation residues. In that case, disassemble and clean the valves.



One of the anti-drip valves of the TracFOG 400

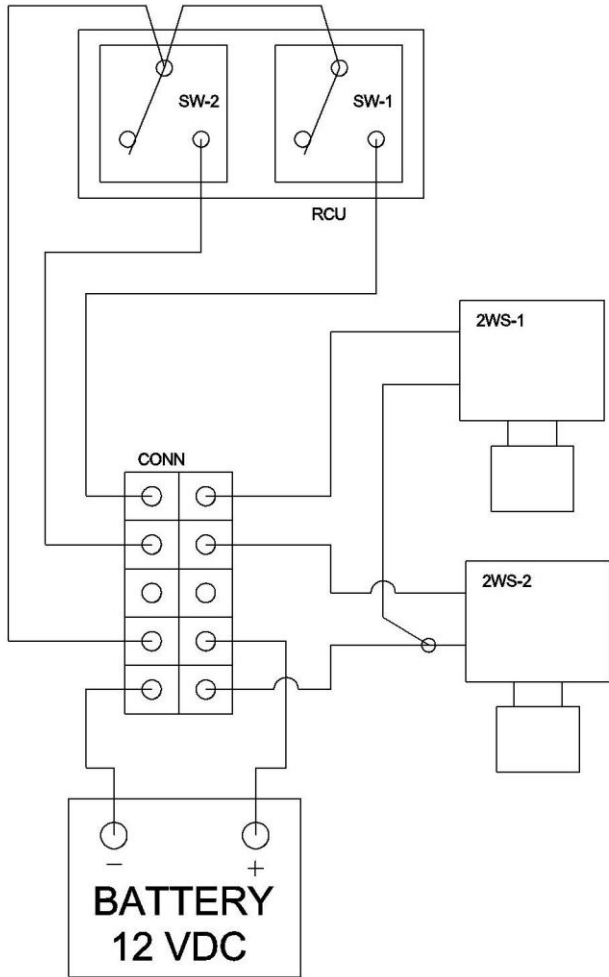
ITEM	DESCRIPTION
VG-201	Restriction jet
VG-202	Gasket FI 12/8/1
VG-203	Restriction nozzle seat
VG-204	M14 washer
VG-205	1/4" BSP x 1/4" NPT connector
VG-206	Gasket CU 17,5/13,5/1,5
VG-207	1/4" ball valve
VG-208	1/4" x 1/8" NPT male adaptor
VG-209	1/4" x 1/8" NPT connector
VG-210	Anti-drip valve
VG-211	Filter
VG-212	Gasket / O-ring
VG-213	Restriction plate
VG-214	Gasket
VG-215	Adapter
VG-216	Nozzle quick release cap
VG-217	1/4" tube quick release adapter



3.4. SERVICING SCHEDULE

PERIOD	EVENT	DIRECTIONS
DAILY	Check oil level on blower on both sides (shaft and gear drive side).	If necessary, complete level using ISO VG-220 oil.
	Check oil level on gear box.	If necessary, complete level using ISO VG-220 oil.
	Check oil level on formulation pump.	If necessary, complete level using mineral oil for gasoline engines.
	Clean formulation filter.	-
	Grease formulation pump pistons.	If necessary refill with regular mineral grease.
Every 50 working hours	Formulation pump oil change	Use mineral oil for gasoline engines.
	Check the blower intake filter	TR 1510 filter element
	Check tension of blower drive belts.	A-44 or HA-44 belts
	Check tension of formulation pump drive belt.	A-38 ou HA-38 belt
Every 200 working hours	Change blower intake filter element.	TR 1510 filter element
Every 500 working hours	Blower oil change (both oil pans).	ISO VG-220 oil
	Gearbox oil change.	ISO VG-220 oil

3.5. TRACFOG 400 G WIRING DIAGRAM



DESCRIPTION	
RCU	Remote control unit
SW-1	Switch for nozzle #1
SW-2	Switch for nozzle #2
CONN	Connectors
2WS-1	Two-way solenoid valve #1
2WS-2	Two-way solenoid valve #2