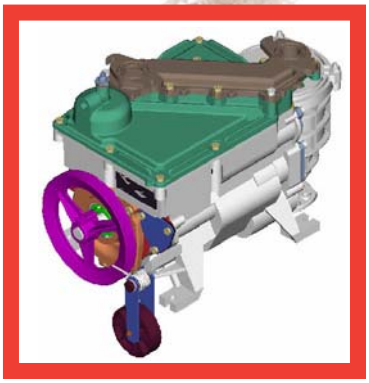
PAS V3
Pumping Unit

Component
Technical Manual



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Tokheim shall not be liable for damage to the product, nor for personal or third party injury, caused by incorrect use of the product or by attempts to maintain or to repair the product by parties other than those fully trained by Tokheim or by its accredited third party representatives.

Please contact your nearest service department, at the relevant address printed on the back cover of this manual, should any aspect of this manual be unclear.

Tokheim reserves the right to apply changes to this document and the equipment without further notice.

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REVISION RECORD

Date	Revision	Page	Issue	Reason
01/03/2002	1	All	A	Original Issue
13/04/2006	2	All	B	Copyright and disclaimer notice added; contents updated; pages renumbered; drawings redrawn; new pages inserted; revised addresses
	3	2-2	C	New tech info added (min inlet vacuum)
28/08/2008		2-5		Above ground tank applications added

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1 GENERAL

1.1 Definitions

¤ **PAS V3:** Commercial name of the PAS version 3

There is one hydraulic block for both 80 l/min and 130 l/min flow

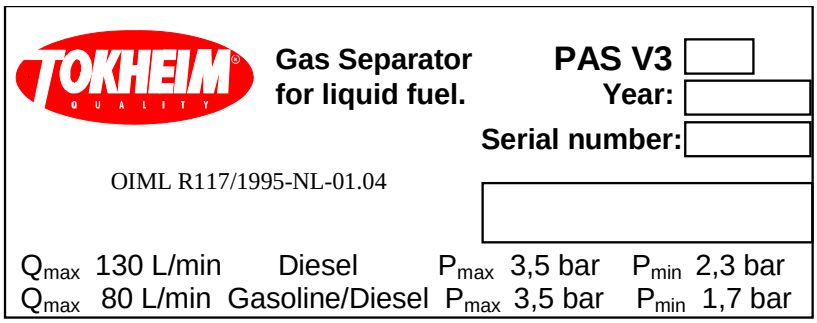
¤ **PAS V3 80:** Name used when the delivery is 80 l/min (4.8 m^3/h)

The PAS is equipped with a 1kW 1400rpm motor

¤ **PAS V3 130:** Name used when the delivery is 130 l/min (7.8 m^3/h)

The PAS is equipped with a 1.5kW 2800rpm motor

¤ **Type plate:**

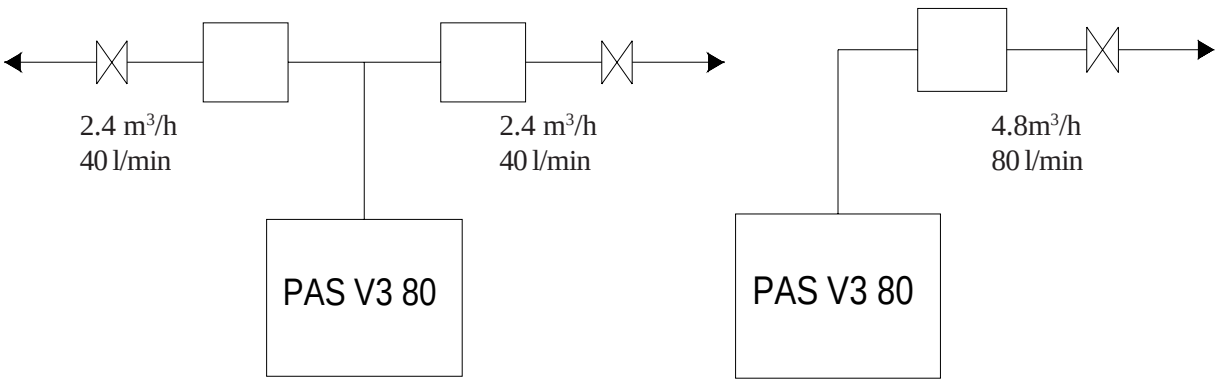


IMPORTANT NOTE

When reporting a case of anomaly or malfunction, the name PAS V3 has to be mentioned together with the serial number indicated on the type plate near the pump pulley (see picture above). It is also possible to fill in a problem report (see Section 6) to report malfunction or anomalies.

1.2 Configurations

Standard configurations of the PAS V3 80 l/min



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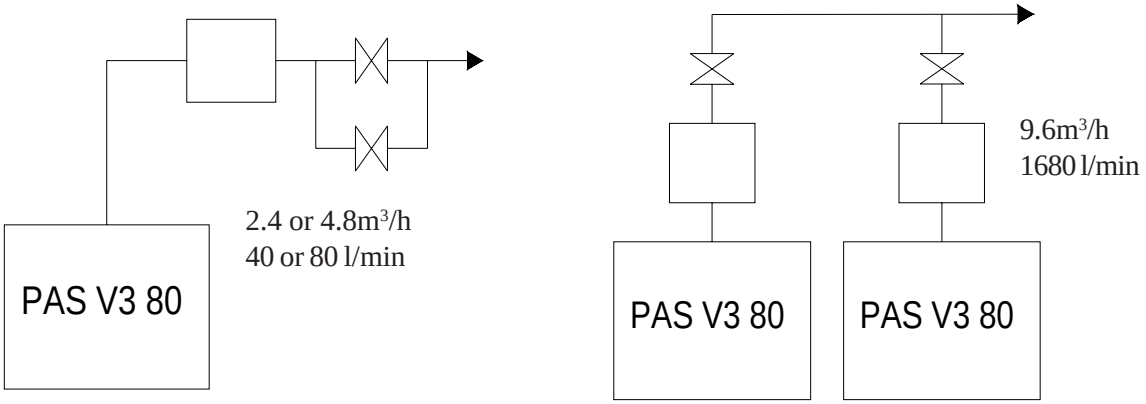
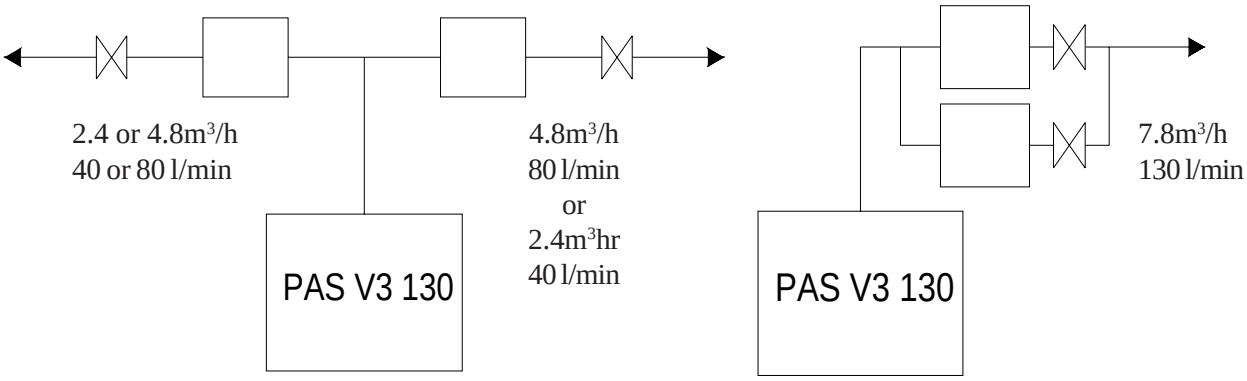


Standard configurations of the PAS V3 130 l/min



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2 OPERATING DESCRIPTION

2.1 Technical Characteristics

DIMENSIONS

Width x height x length	225 x 450 x 490 mm including motor, filter and mounting bracket
Weight	37 kg
Suction pipe	Ø 1.5 or 2 inches (40 l/min) Ø 2 inch (80 and 130 l/min)
Inlet of the filter housing	DN Ø 40/49 mm (1.5")

PAS type	Motor power	Ø of motor pulley	Ø of pump pulley
PAS 80	1 kW / 1400rpm	95 mm	150 mm
PAS 130	1.5 kW / 2800rpm	71 mm	150 mm

HYDRAULIC PERFORMANCES

The hydraulic performances mentioned below are for a standard installation (one pump on piping to the tank). The pump has a static lift of 4m, a pipe diameter of 2 inches and a length of 40m. The fuel temperature is 20°C.

Flow rate:	40 and 80 l/min (motor of 1 kW) or 130 l/min (motor of 1.5 kW)
Pressure:	$1.7 \leq P \leq 3.5$ bar for PAS V3 80 l/min $2.3 \leq P \leq 3.5$ bar for PAS V3 130 l/min
Suction capacity:	vacuum pressure dry pump is 400 mbar, vacuum pressure wet pump (with oil) is 900 mbar
Pump intake depth	0.5 to 4.5 meters
Air separator	fulfils the EEC regularisation for systems without sight glass
Filters	12 or 25 µm paper mesh and 90 µm plastic mesh (can be cleaned and re-used). The filter can easily be replaced without spillage, and without losing the priming on the suction line due to the foot valve in the bottom of the filter box.
Liquids	fuels with a viscosity lower than 10^{-4} m^2/s
Minimum inlet vacuum for correct operation	100mB @ 80 l/min 150mB @ 130 l/min

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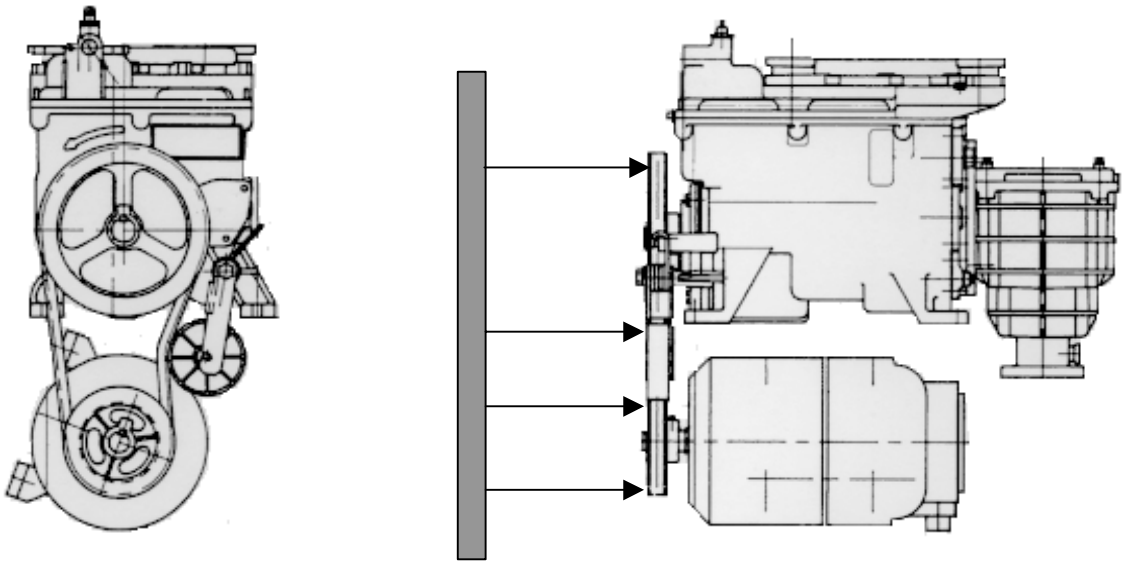
ENVIRONMENTAL CONDITIONS

Climate	Marine, tropical, industrial and polar
Ambient temperature range	-40 °C to +55 °C
Temperature of liquid	-25°C to +25°C
Relative humidity	5% to 95% non condensing
Altitude	Sea level up to 2000 m

2.2 Alignment of the Pump

When installing the PAS V3 the following measures have to be taken concerning the V-belt.

Adjust the pulleys of the motor and pump in such a way that they are positioned in one plane. A flat plate can be used to position the pulleys correctly. In this case the plate has to touch the pulleys at 4 points (see picture).



If a tensioning roller (optional) is used, the v-belt should run in the middle of this roller. This has to be checked during running of the pump.

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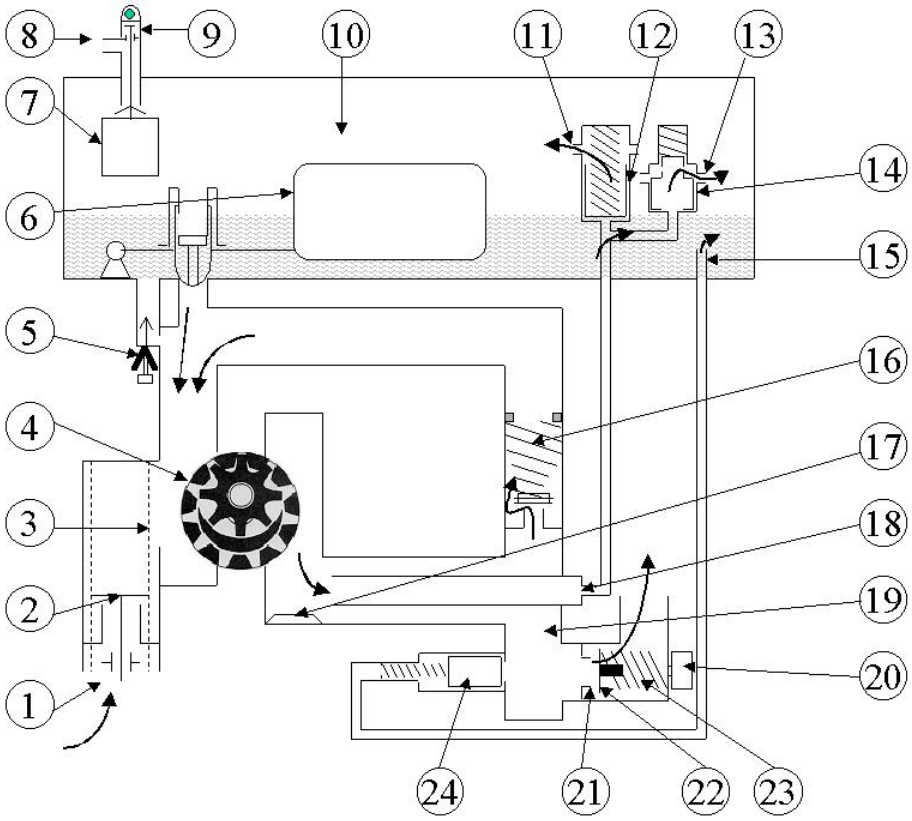
2.3 Schematic Diagram of Operating Principles



2.4 Schematic Diagram References

1) Inlet pipe
2) Foot valve
3) Filter
4) Gear pump
5) Drain
6) Float system
7) Vent float (non overflow device)
8) Vent
9) Top vent plug
10) Recovery chamber
11) Permanent air separation leak
12) Vortex regulating valve
13) Low pressure air separation leak
14) Low pressure vortex valve
15) Outlet valve reference to atmosphere
16) By-pass
17) Vortex centrifugal inlet

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18) Air separation channel
19) High-pressure chamber
20) Drain and pressure plug
21) Outlet valve seat
22) Outlet valve
23) Outlet valve spring
24) Aeration valve

2.5 Operating Description

2.5.1 PUMPING, FILTRATION & BY-PASS

The fuel held in the tank underground is raised by the gear pump [4] and passes through the filter [3] and the foot valve [2].

The gear pump forces the product through the vortex system [17] into the high-pressure chamber [19].

When the flow pressure exceeds the reference pressure, adjusted by the by-pass screw, the by-pass valve [16] opens and the excess fuel in the high-pressure chamber [19] is channelled back to the intake. Thus, the outlet pressure is kept constant regardless of the flow drawn off by the fuel distribution hose(s).

2.5.2 ABOVE GROUND TANK APPLICATIONS

The PAS V3 pump has been specifically designed to work in conjuction with underground tanks where the fuel level inside varies between 0.5 and 4 meters below the pump shaft.

If the fuel in the tank can rise above this level, then we do not recommend you use the PAS V3 pump.

Should there be no other option available, then the following precautions must be taken:

1) Install a special “Tokheim 52 Valve” between the tank and the inlet of the pump.

For VHS applications, you are required to use 2 of these valves in parallel.

2) Install a 1 in. solenoid valve between the tank and the inlet of the Tokheim 52 Valve.

For VHS applications, you are required to use 2 of these valves in parallel

The valve(s) should only be opened when the pump is running.

Note: This installation must be done in accordance with all local safety legislation.

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2.5.3 AIR SEPARATION

The flow is channelled tangentially into the vortex where the shape of the inlet [17] imparts a helical movement to the flow producing a centrifugal effect.

the heavier liquid product molecules in the flow forced by the centrifugal pressure towards the outside walls of the vortex channel and then directed away to the high-pressure chamber. The lighter air/vapour molecules remain trapped in the centre of the vortex channel and are then directed away through the vortex tube, the vortex valves into the recovery chamber.

The purpose of the vortex valves is regulating the flow at different pressures. The pressure depends on the amount of air in the flow. From the vortex valves the particles move into the recovery chamber [10].

The vortex body exists of two valves in parallel:

- **The vortex regulating valve [12]**

  A piston spring loaded valve, which gives a constant headloss between the air separation channel and the recovery chamber. This valve stays open to keep the air separation system working at any pressure or flow.

- **Low-pressure vortex valve [14]**

  A piston spring loaded valve, which opens when the pressure is less than 1 bar.

2.5.4 OUTLET VALVE

Once the liquid has had the air/vapour extracted, it enters the high-pressure chamber located on the down-stream circuit after the vortex. Here a spring loaded non-return outlet valve [22] performs the dual function of:

- An authorisation valve (opening when the pressure is sufficient),
- A non-return valve which will keep pressure on the measuring system. This is necessary to avoid start up errors at the next pumping cycle. In the valve a pressure overload vent limits this pressure.

  An aeration valve is placed on the other side of the outlet-channel. This valve is open on low pressure (up to 0.7 bar) and closes on higher pressure. This means it is open on high air intakes, which will keep the pressure low and the outlet valve closed. On lower air intakes it closes which will close the internal leakage and increases the maximum flow. The PAS is then ready to distribute fuel when the nozzle is opened.

2.5.5 RECOVERY CHAMBER

In the recovery chamber [10] the following flows are collected back:

- the vapour/ liquid flow from the central canal of the vortex [18]
- the flow through the aeration valve in the outlet channel [24] (only when the pressure is < 0.7 bar)

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Together these flows, necessary for the functioning of the system, are about 8 l/min. These flows are brought back to the pump inlet by the recovery float valve [6].The specially designed recovery float valve maintains the liquid at a constant level.

2.5.6 VENT TO ATMOSPHERE

A vent [8], located at the highest point on the cover, maintains the recovery chamber at atmospheric pressure.

The gas that is extracted from the central channel of the vortex is released into the atmosphere by this vent. According to some local regulations, a pipe or hose must be connected to this vent.

A non-overflow device [7], made by a floating valve is put in the vent channel.

NOTE:- If this vent (internal thread R 3/8") is connected to an atmospheric pressure equalising pipe, the pipe has to have a minimum internal diameter of 12mm.

2.5.7 DRAINING OF THE PAS

The PAS V3 is provided with a double drain [5] located at the lowest point of the housing. The pump can easily be drained without spillage. Therefore the following actions must be carried out:

- open the filter box
- remove the foot valve (to let the fuel go back to the tank underground)
- unscrew the drain [5] and pull it one level down to empty the recovery chamber [10] in the filter box

If the fuel can not go back to the tank underground (e.g. non-return valve in the pipeline, ground tank higher than pump), the draining is still possible by unscrewing the drain screw [5] completely and catch the fuel in a tank.

2.5.8 V-BELT TRANSMISSION

In the new range of dispensers, Quantium T range, the motor is fixed on the PAS support which can be adjusted in order to get the right tension. A spring roller (optional) is also available to get the correct tension.

For the Quantium T-range the following V-belts are used:

- For 80 l/min pumps (is with a SPA 95 pulley) the V-belt has Tokheim code number 900028-004.
- For 130 l/min pumps (is with a SPA 71 pulley) the V-belt has Tokheim code number 900028-005.
- For all other dispenser models check the code on the old V-belt before ordering, different V-belts may be used.

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2.5.9 MOTORS

The power that is required is proportional to the flow rate and pressure:

- For the 80 l/min version: 1 kW at 1400 rpm
- For the 130 l/min version: 1.5 kW at 2800 rpm

The motors correspond to European safety regulations: EExd

The body of the motor must always be earthed. The motors supplied are D 230 V/50 Hz and Y 400 V/50 Hz; other specifications can be delivered on demand.

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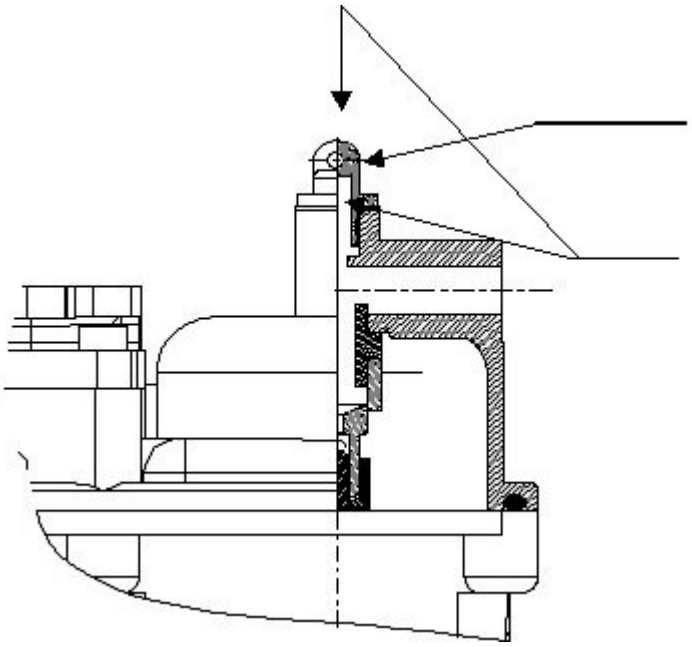
3 FAILURE DIAGNOSIS

SAFETY

1) Take the standard safety measures into account: place safety equipment and signs and switch off the electric power supply.

2) When the PAS V3 is stopped make sure that the pump is not pressurised due to closing of the vent float valve. When unscrewing the top vent plug (reference [9] in the schematic diagrams of operating principles), the pressure can be released by pushing the float down carefully with a pin.



Open the vent plug

If there is no air coming from the air-vent when the filterbox cover is removed, the vent float is closed and the PAS pressurised. By pushing a small screwdriver or pin through the hole, the pressure can be released.

3.1 Failure Diagnosis

1) No fuel flow
2) Reduced fuel flow
3) Uneven (pulsing) fuel flow
4) Closing of the overflow valve
5) Excessive noise

- Prior fault diagnosis/search:
- Check the condition of the belt drives.
- Following any repair action :

Make sure that all the necessary procedures required by Weights & Measures and Safety are fully applied.

REMARK

Once an O-ring has been removed, it must not be re-used.

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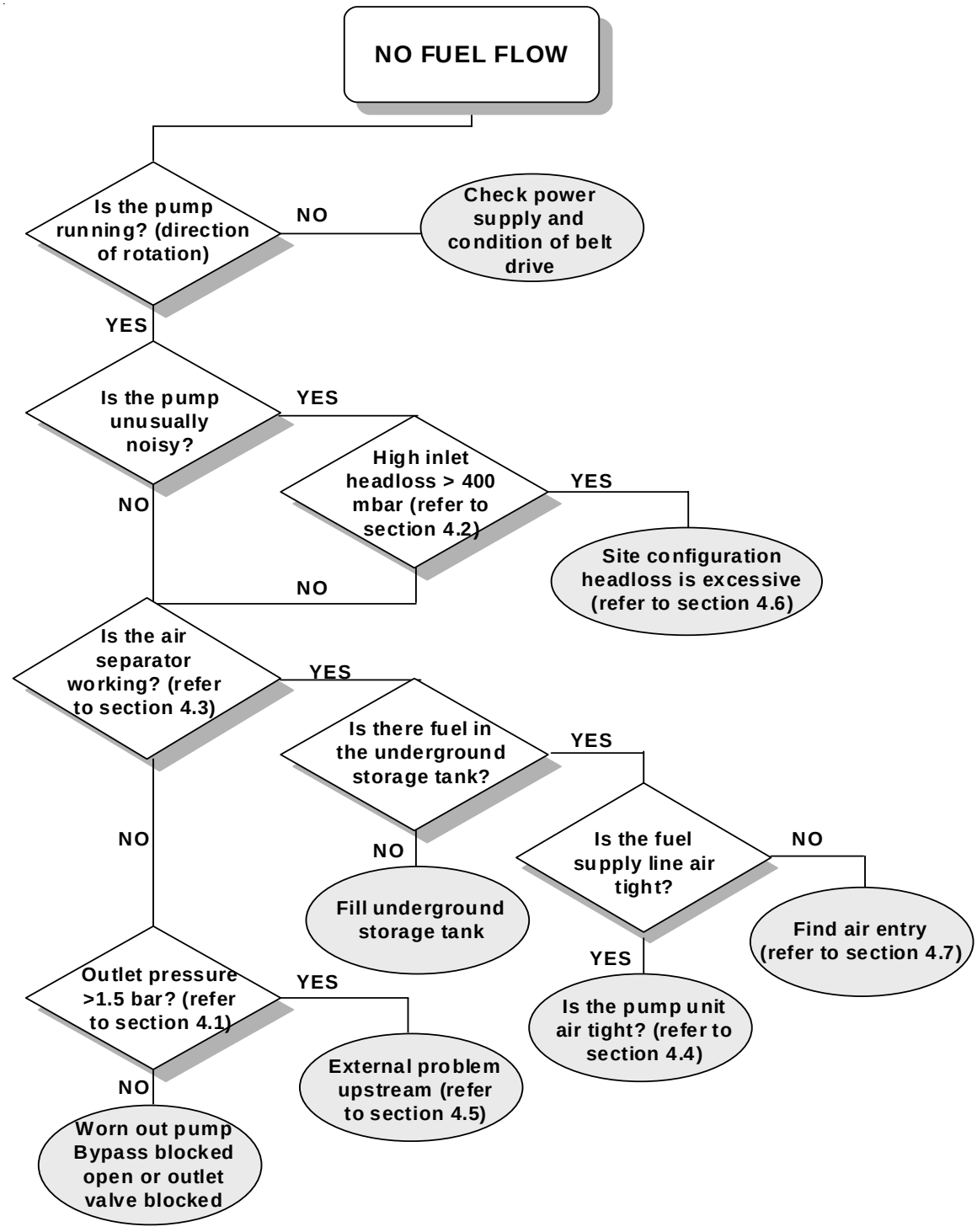
3.2 Flow Charts

3.2.1 NO FUEL FLOW



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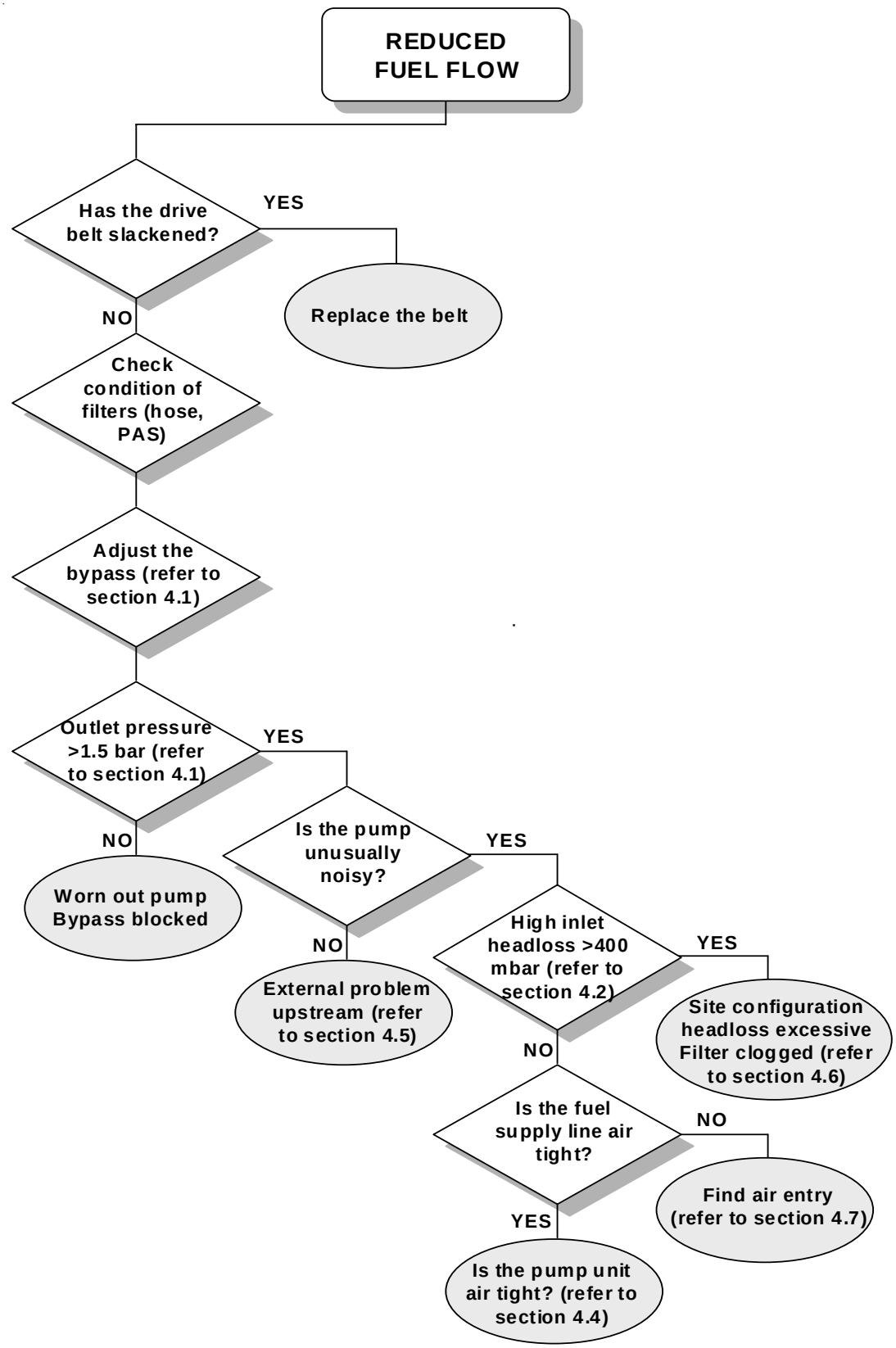
3.2.2 REDUCED FUEL FLOW



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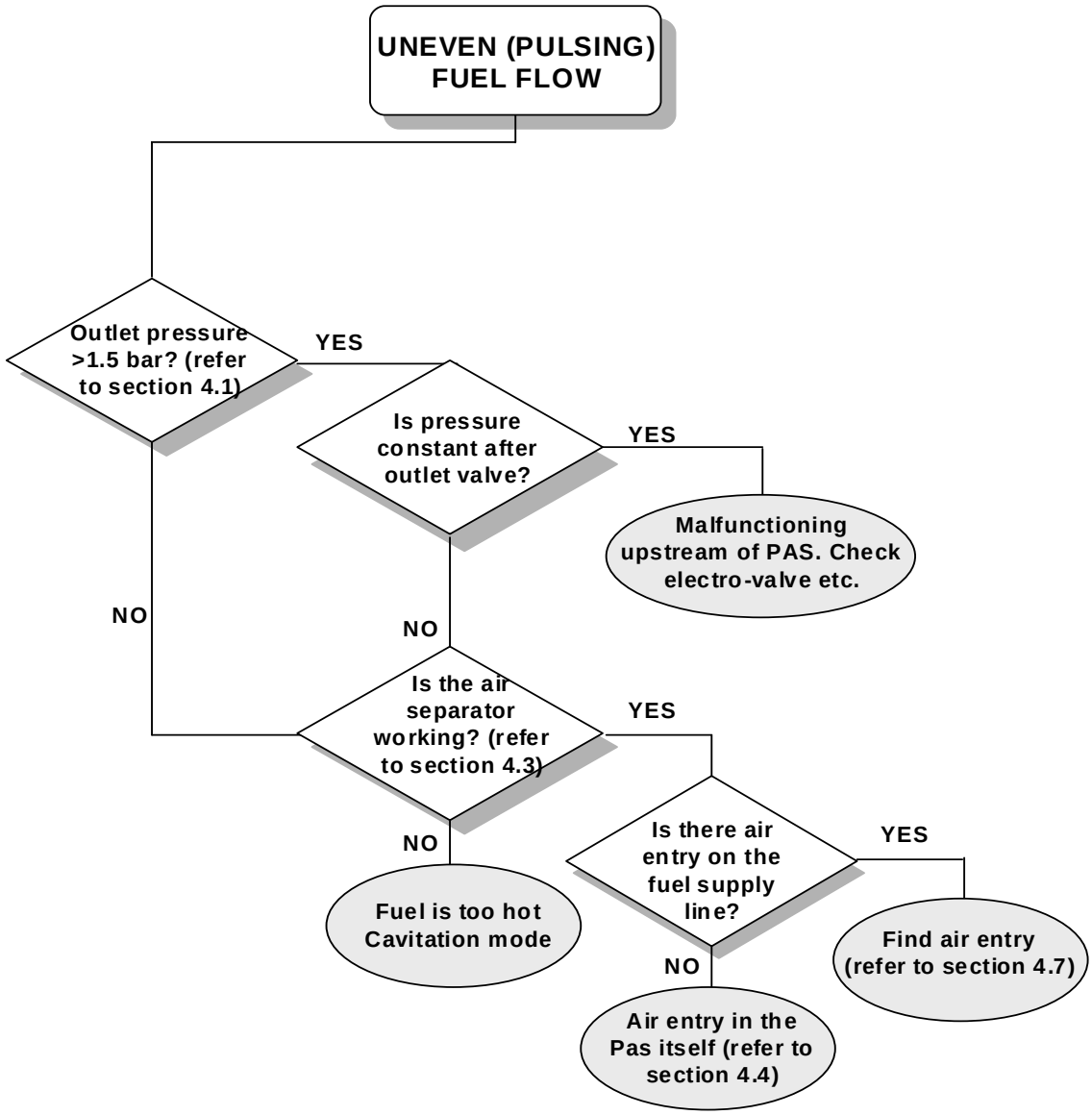
3.2.3 UNEVEN FUEL FLOW



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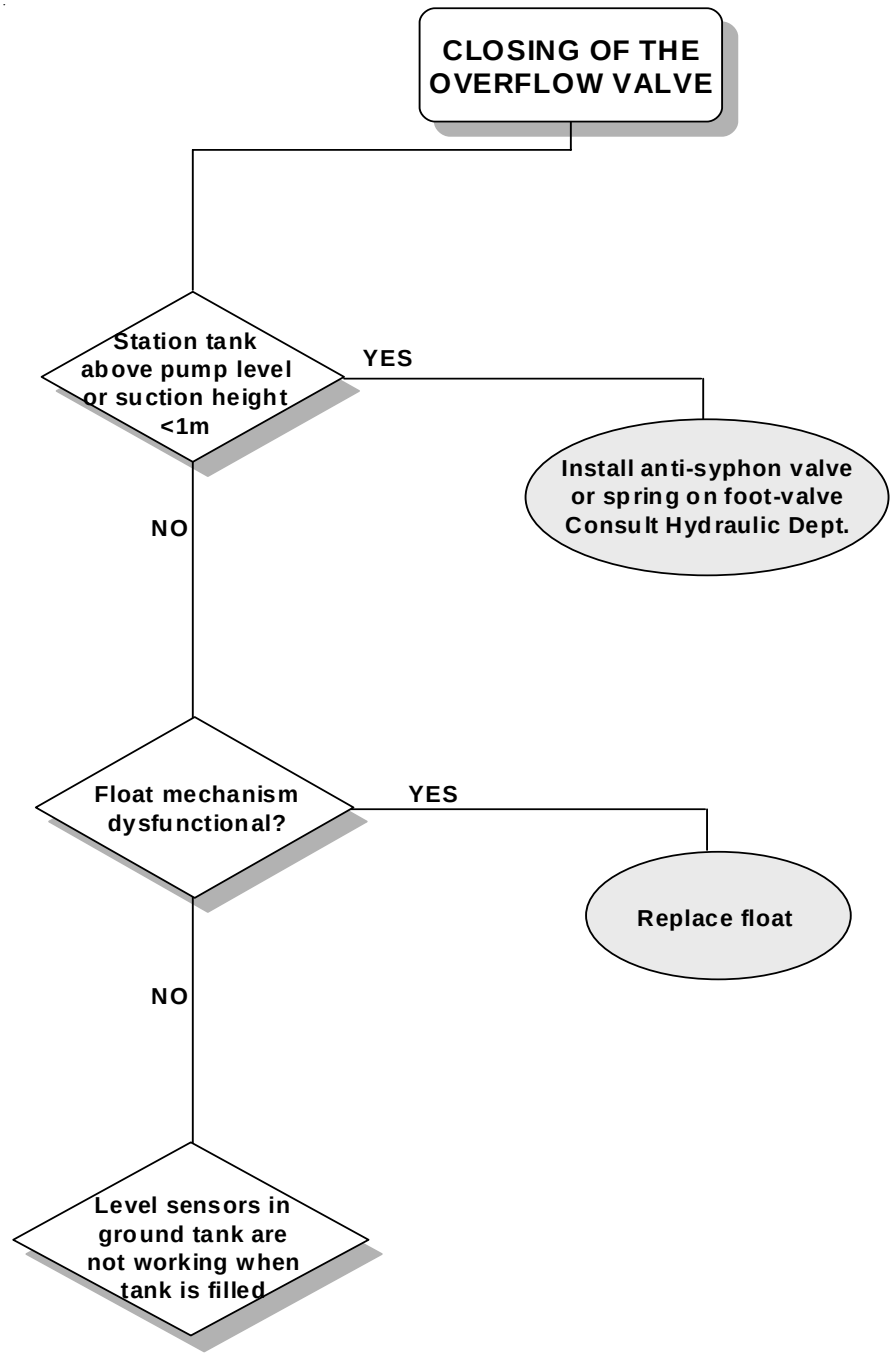
3.2.4 CLOSING OF THE OVERFLOW VALVE



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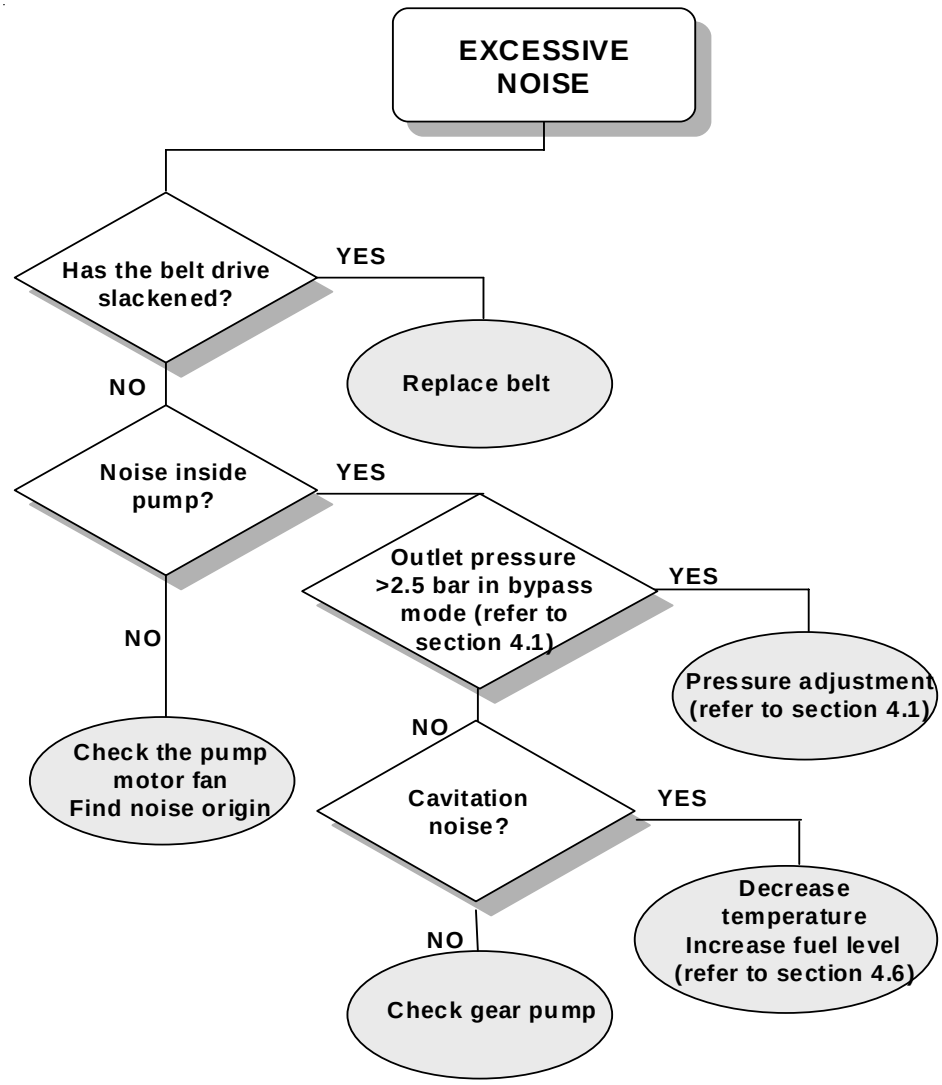
3.2.5 EXCESSIVE NOISE



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4 TROUBLESHOOTING

4.1 Outlet Pressure

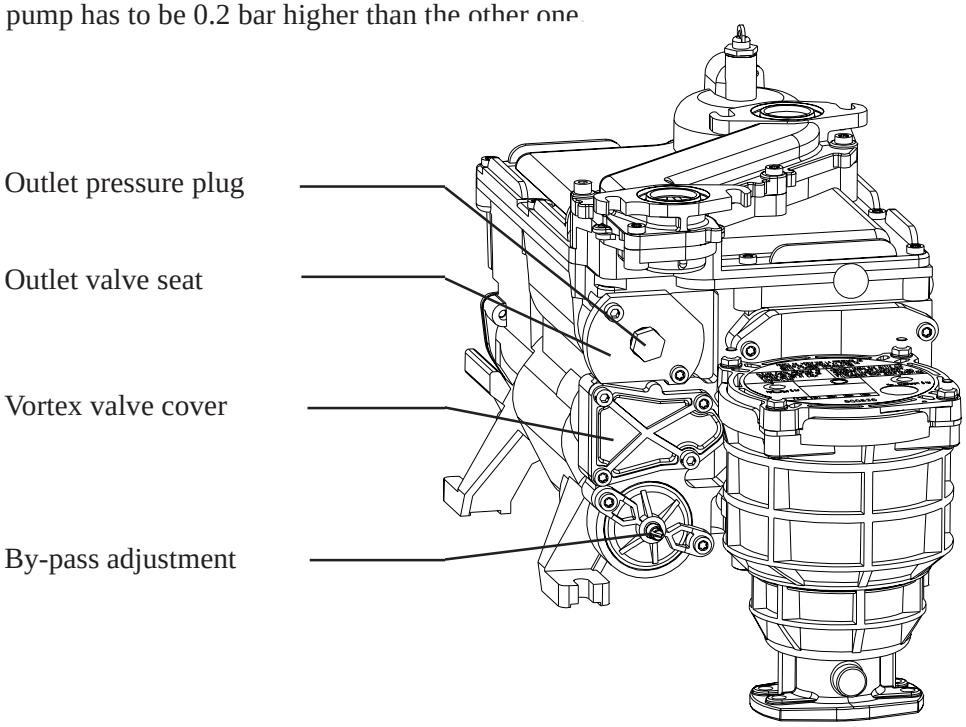
The flow of the PAS V3 is regulated with the outlet pressure. To adjust the outlet pressure:

- Unscrew the pressure plug (see reference [20] in the schematic diagram) with dimensions M10 x 1.0 spanner size 17.
- Connect the pressure gauge via the flexible pipe into the hole of the outlet-cover (See section 5.3 for specific tools).
- Take the nozzle out of the dispenser and when the pump starts to run (nozzle is still closed), check the pressure at the pressure gauge. On top of the by-pass cover a + and - show in which way the by-pass screw must be turned to increase (+) or decrease (-) the pressure. When the desired pressure is adjusted, check whether a correct flow is reached.

The pressure value depends on installation characteristics. However when adjusting the outlet pressure, the following values for the pressure are to be respected:

- For the PAS V3 80 l/min models the normal working pressure in by-pass mode should be between 2 and 2.5 bar, and should always be > 1,7 bar.
- For the PAS V3 130 l/min models, the pressure should be between 2.5 and 3.5 bar.

For dispensers delivering 9.6 m^3/h (two PAS 80 pumps in parallel), the pressure of one pump has to be 0.2 bar higher than the other one.



4.2 Inlet Pressure

The inlet pressure can be measured by using a special filter box cover (see section 5.4) and a pressure gauge (range –1 bar up to 3 bar).

At full flow (2 nozzles of 40 l/min) the inlet pressure measured is the pressure loss caused by the resistance of the site configuration (height of pump in comparison to the reservoir and length of pipe work).

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If the inlet pressure is too high, check:

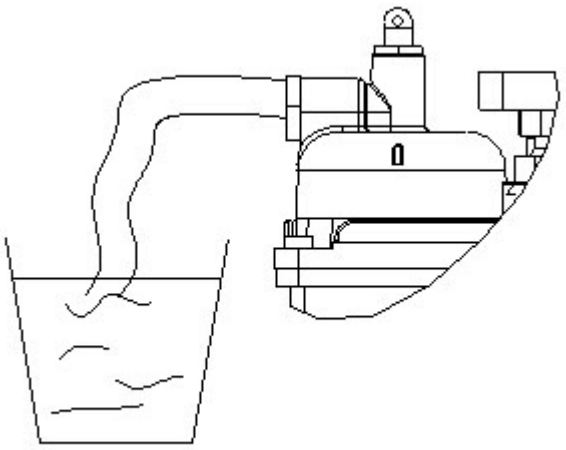
- if the filter is clean
- correct working of the foot valve
- installation up to the reservoir (non-return valve, dirt blocking the flow, tank filter clogged, and so on).

4.3 Air Vent

Place one end of a tube (inner diameter 12 mm) with a 3/8" BSP thread coupling on the vent and drop the other end of the tube in a small tank with fuel (same fuel as tank).

Start the pump in by-pass mode by removing the nozzle from its holder and let it run for a while before opening the nozzle.

- When bubbles appear constantly, it means that there is an air entry in the pump or the installation before the pump
- If the fuel is sucked into the pump, the recovery float valve is not closing properly



Put the tube in the tank (not too deep), and check if there are bubbles

NOTE

If the vent is difficult to reach:

Try to feel with your hand if a stream of air or vapour is expelled from the vent.

4.4 Internal Air Entry in the Pump

Below a list of possible causes for air to enter the pump:

1) Filter cover O-ring incorrectly positioned or dilated.
2) O-ring between filter box and PAS body incorrectly positioned or dilated.
3) One of the sealing rings between the connection to ground piping and filter box is defective or insufficiently tightened.
4) Float assembly blocked in an open position, installed incorrectly or a loose particle is in between.

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4.5 External Problems up-stream the PAS

1) If there is a non-return valve, check its proper operation.

*Defective non-return valve (if mounted according to dispenser model):

Replace the valve.

2) Check the volume meter is not blocked

*If blocked, replace the volume meter.

3) Check condition of the nozzle filter and of the nozzle

*Filter of the nozzle clogged. Clean filter when necessary.

4) Check whether the electronic valve is working

*Electronic valve is blocked. Replace the electronic valve.

4.6 Excessive Head Loss

When the ambient temperature increases, the ability to pump fuel is reduced (formation of vapour locks): check if the pipe work and manifold are sufficiently insulated (as installed) from ambient heat sources.

To reduce the temperature build-up the manhole chimneys can be filled with sand and the manhole covers can be painted white.

If a satisfactory technical solution cannot be found, try to maintain normal operation by keeping the storage tank filled as much as possible, this will reduce problems coming from high ambient temperatures.

1) Check the head loss resulting from the specific configuration of each fuel line by comparing the measured head loss under each dispenser at the point where the same fuel from the same underground storage tank arrives.

- If these various measured head loss values are comparable:

  ⇒ Check the expected (theoretical) head loss values are indeed comparable to those measured. If not the line may be obstructed by an unknown object.

- If these various measured head loss values are not comparable:

  ⇒ Check the connection between each PAS and the relevant underground pipe work (manifold, non-return valve blocked).

2) Check the PAS filter.

3) If the dispenser is the only one delivering this product, check the complete line, noting the distance between the pump and the storage tank (take care of the way of piping), the height of the product in the tank, the various accessories (plugs, valves, and so on). Usually an easy way to solve the problem is to fill the tank before trying to cool down the fuel.

4.7 Air Entry on the Pipework to the Storage Tank

Check if there is a leak in the fuel piping from the storage tank to the dispenser.

In the piping systems with more than one pump per suction line, check the non-return valves on each derivation when present.

If there are no special valves for this purpose, the valves of the filter box take over this function (they must exist on all dispensers). It is possible that one of these valves is not closing properly and is allowing air into the pipeline. When the problem can not be found, it is possible to mount a sight glass underneath the pump filter box to check for leakages and to define the leakage (contact Tokheim Hydraulic Department).

The wrong foot valve can be detected by delivering about 20 litres with each pump and check if the delivery is immediately starting when the motor starts and stays constant.

After visual checking the parts of the pipeline (valves, hinges, bent pipes, and so on) get in touch with specialised departments to make a hydraulic improvement on the fuel piping.

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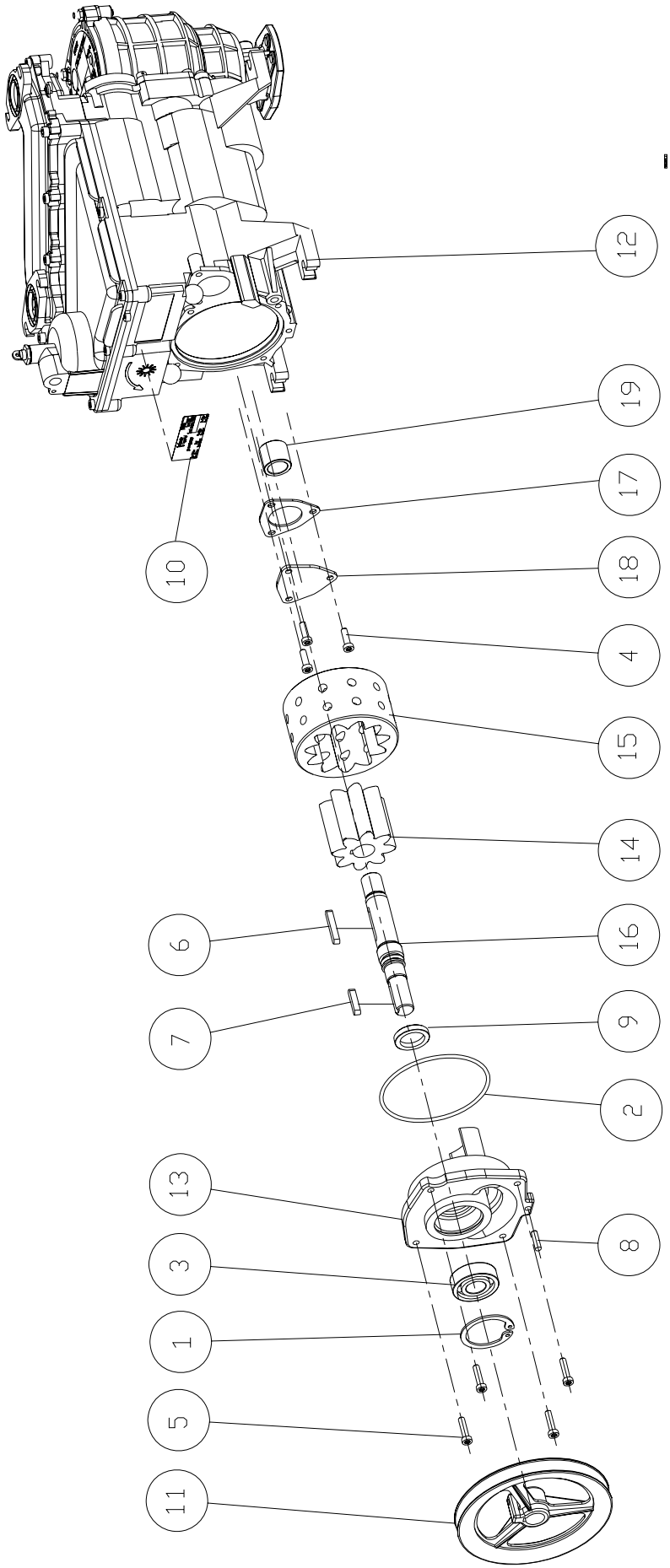
5 SPARE PARTS AND MAINTENANCE TOOLS

5.1 Frequently Used Spare Parts

Reference	Description
902373	Pump pulley SPA 150
901321-002	Key A6 x 6 x 30 for motor and pump pulleys
900050-027	O-ring Viton Ø 4 x 120 for filter box cover
900050-002	O-ring Viton Ø 4 x 34 for outlet flange of PAS
901614	Paper filter 12 µm Gasoline (according to country specification)
901613	Paper filter 25 µm Diesel (according to country specification)
901612	Cleanable plastic filter 90 µm mesh, all fuels.
900028-004	V-belt A29/13 13A760MC used in Quantium T with 95 mm pulley
900028-005	V-belt A27/13 13A720MC used in Quantium T with 71 mm pulley
* * * * * * * * *	With V-belts always: check code on V-belt before ordering

5.2 Exploded Views and Parts Lists

5.2.1 FRONT VIEW



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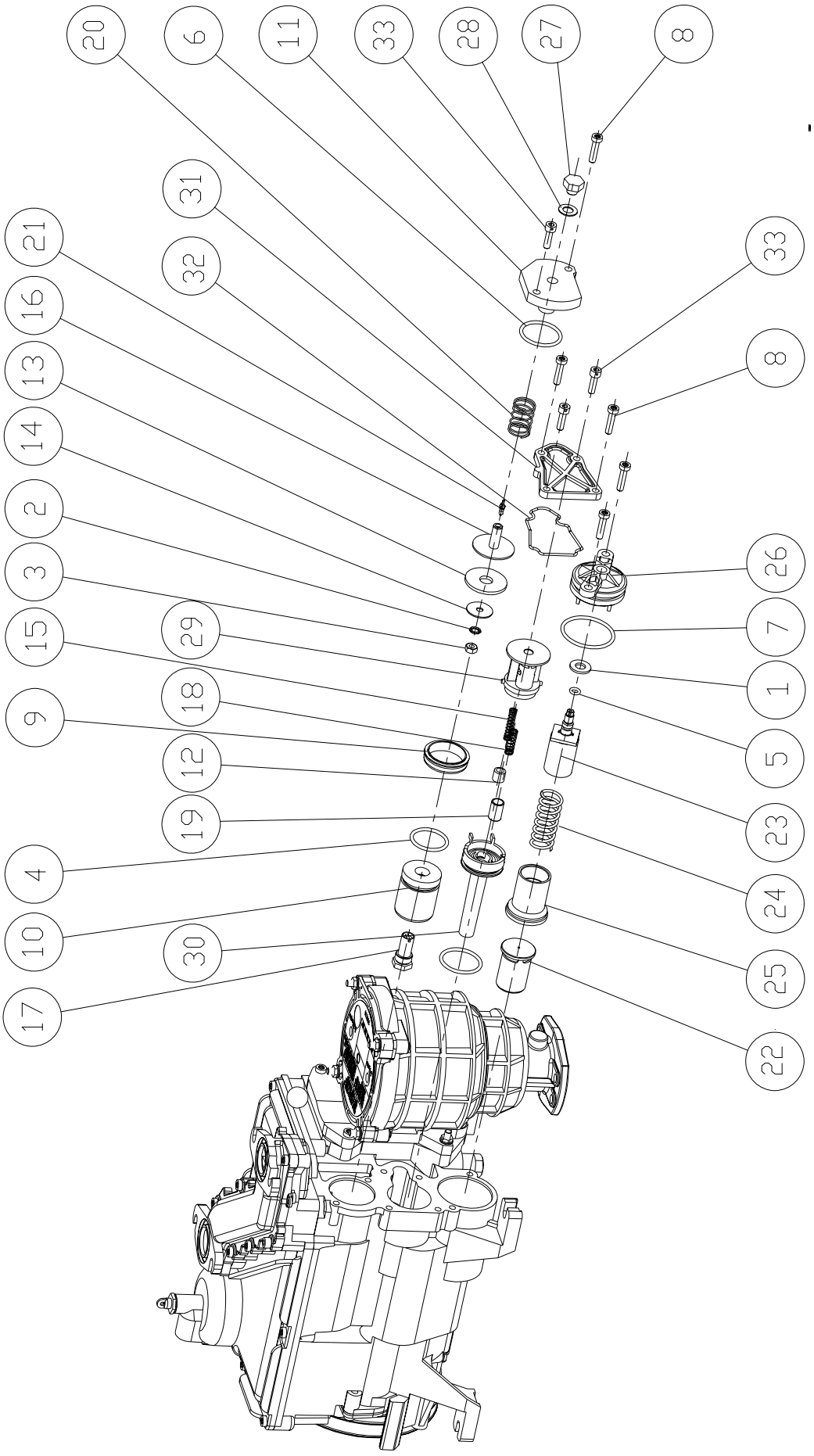
FRONT VIEW PARTS LIST

Item No	Description	Désignation Français	Part No	Comments
1	Ring Retain Bore D50	Anneau Elast Int D50	900049-002	
2	O-ring 105.00x3.50	Joint Torique 105.00x3.50	900050-023	
3	Ball Bearing D20xD47x14	Roulement a Billes D20xD47x14	900070-001	
4	Screw Torx SHC M6x20	Vis Torx CZX M6x20	900356-001	
5	Screw Torx SHC M6x25	Vis Torx CZX M6x25	900356-002	
6	Cotter Pin 6x6x40	Clavettes Paralleles 6x6x40	901321-001	
7	Cotter Pin 6x6x30	Clavettes Paralleles 6x6x30	901321-002	
8	Parallel Pin 6x20mm	Goup cyclind C 6x20mm	901348-001	
9	Lip Seal 25x35x6	Joint de Levre 25x35x6	901350-001	
10	Label PAS V3	Etiquette PAS V3	901662	
11	Pulley SPA150	Poulie SPA150	902373	
12	Assy main housing	Asm cuve	902377	
13	Pump flange	Flasque de pompe	902378	
14	Pinion	Pignon	902381	
15	Crown	Couronne	902382	
16	Pump shaft	Axe de pompe	902387	
17	Vortex/housing seal	Joint vortex/cuve	902389	
18	Vortex cover	Plaque de vortex	902392	
19	Pump shaft bearing brush	Palier axe de pompe	902397	



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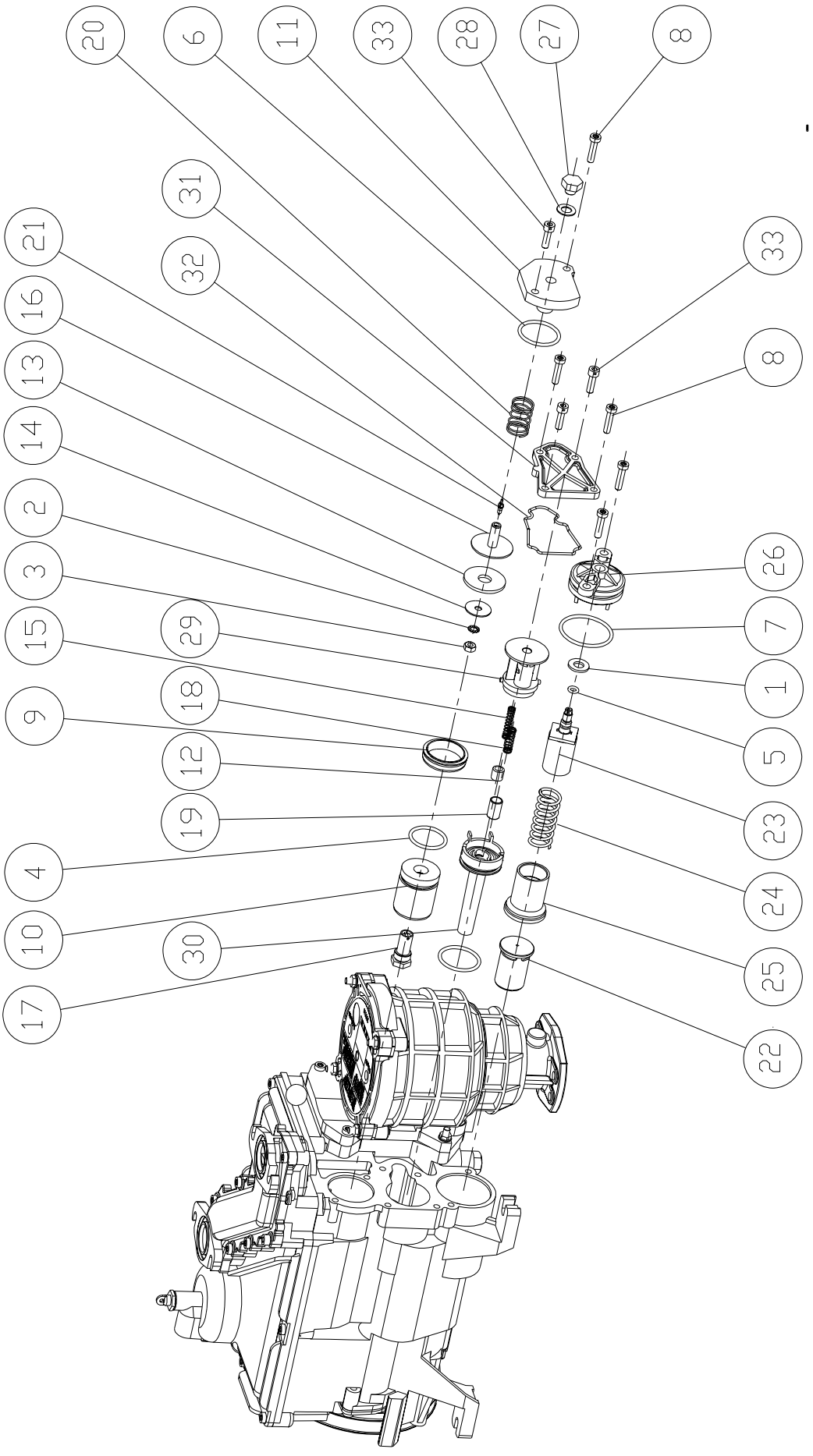
BACK VIEW PARTS LIST

Item No	Description	Désignation Français	Part No	Comments
1	Washer Pl M10	Rondelle Pl M10	900008-014	
2	Washer Serr Lock Ext M6	Rondelle a Dents DEC M6	900009-004	
3	Nut Hex M6	Ecrou Hex M6	900011-001	
4	O-ring 31.00x3.00	Joint Torique 31.00x3.00	900050-017	
5	O-ring 6.00x2.30	Joint Torique 6.00x2.30	900050-020	
6	O-ring 35.00x3.00	Joint Torique 35.00x3.00	900050-024	
7	O-ring 46.00x3.00	Joint Torique 46.00x3.00	900050-026	
8	Screw Torx SHC M6x25	Vis Torx CZX M6x25	900356-002	
9	Outlet valve seal	Siege valve de sortie	900638	
10	Outlet insert	Boite de sortie	900639	
11	Outlet cover	Couvercle de sortie	900640	
12	Vortex piston	Piston de vortex	900642	
13	Outlet valve disc	Disque valve de sortie	900645	
14	Outlet valve washer	Rondelle valve de sortie	900646	
15	Vortex piston spring	Ressort piston de vortex	900649	
16	Outlet valve body	Corps valve de sortie	901192	
17	Aeration valve assy	Clapet d'aeration assemblee	901700	
18	Vortex valve spring	Ressort valve de vortex	901701	
19	Vortex valve piston	Piston valve de vortex	901702	
20	Outlet valve spring	Ressort valve de sortie	901703	
21	Schrader valve	Mecanisme de valve Schrader	901790	
22	Bypass valve	Clapet de bypass	902368	
23	Assy bypass screw	Vis de bypass montee	902369	

(CONT.)

5.2.2 BACK VIEW (CONT.)



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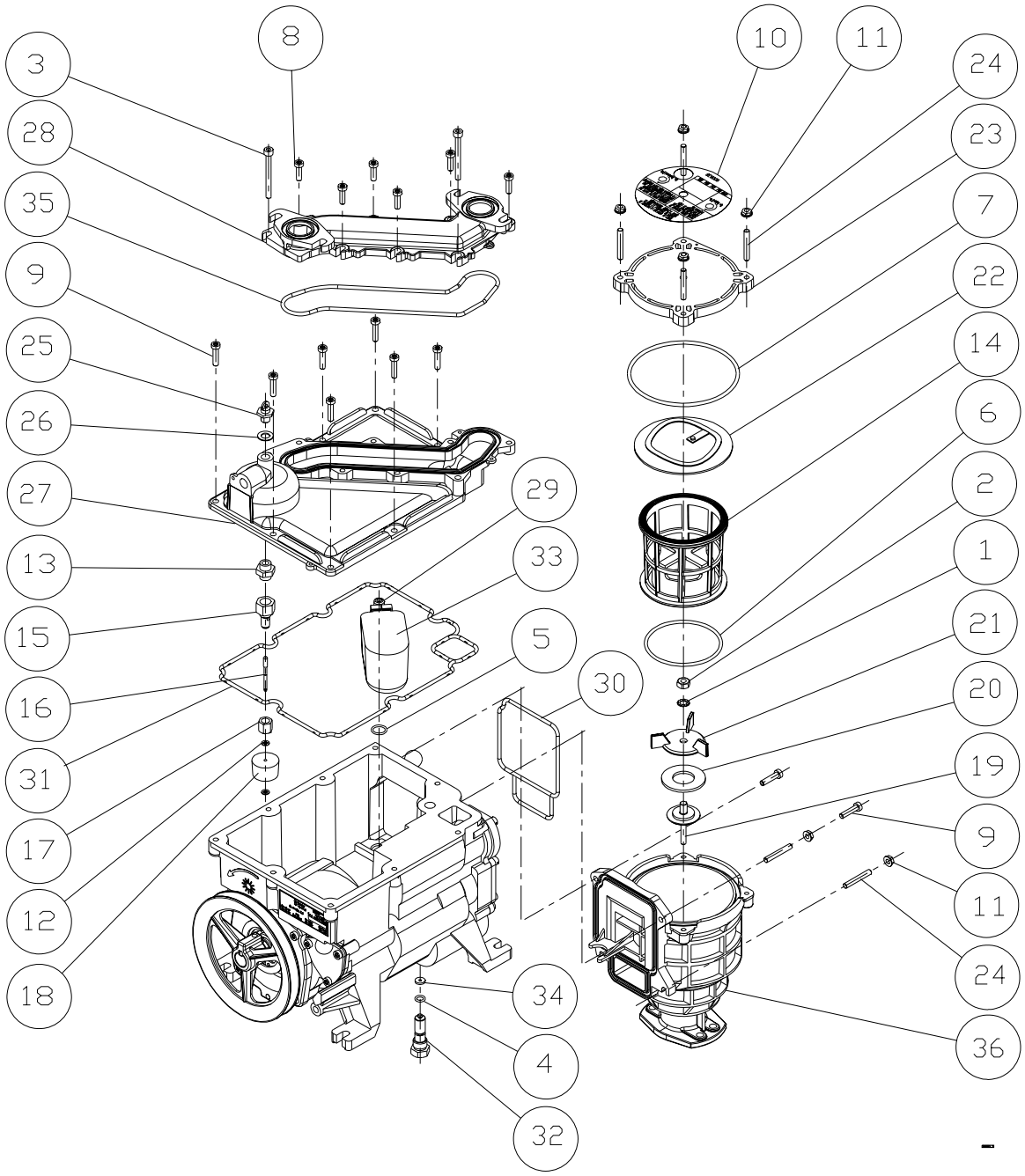
BACK VIEW PARTS LIST (CONT.)

Item No	Description	Désignation Français	Part No	Comments
24	Bypass spring	Ressort de bypass	902370	
25	Bypass damper	Assourdisseur de bypass	902371	
26	Bypass cover	Couvercle de bypass	902374	
27	Drain screw M10x1.00	Bouchon M10x1.00	902375	
28	Flat Seal D10x18x1	Joint Plat D10x18x1	902376	
29	Vortex valve body	Corps valve de vortex	902383	
30	Vortex valve tube	Tube valve de vortex	902384	
31	Vortex valve cover	Couvercle valve de vortex	902385	
32	Vortex valve cover seal	Joint couvercle valve de vortex	902395	
33	Drilled screw M6x20	Vis percee M6x20	902399	

5.2.3 TOP VIEW



Issue B

TOP VIEW PARTS LIST

Item No	Description	Désignation Français	Part No	Comments
1	Washer Serr Lock Ext M8	Rondelle a Dents DEC M8	900009-002	
2	Nut Hex M8	Ecrou Hex M8	900011-003	
3	Screw HSHC M6x60	Vis CHC M6x60	900017-001	
4	O-ring 8.00x2.00	Joint Torique 8.00x2.00	900050-021	
5	O-ring 14.00x2.00	Joint Torique 14.00x2.00	900050-022	
6	O-ring 82.14x3.53	Joint Torique 82.14x3.53	900050-025	
7	O-ring 120.00x4.00	Joint Torique 120.00x4.00	900050-027	
8	Screw Torx SHC M6x20	Vis Torx CZX M6x20	900356-001	
9	Screw Torx SHC M6x25	Vis Torx CZX M6x25	900356-002	
10	Sticker filterbox cover	Autocollant couvercle boite de filtre	900636	
11	Nut Hex Serpress M6	Ecrou Serpress M6	901295-001	
12	Washer Spring Retain Shaft D3	Anneau D'Arret pour Axe D3	901313-001	
13	Vent Float Nipple	Raccord de flotteur d'event	902372	
14	Filter - 90 micron Filter - 25 micron Filter - 12 micron	Filtre - 90 micron Filtre - 25 micron Filtre - 12 micron	901612 901613 901614	Standard Option Option
15	Valve housing	Corps de valve	901663	
16	Needle valve	Valve de aiguille	901664	
17	Gland Nut	Ecrou de joint	901665	
18	Cork float	Flotteur de liege	901666	
19	Foot valve guide	Guide clapet	901690	
20	Foot valve flat seal	Joint de clapet	901691	
21	Foot valve head	Tete clapet	901692	
22	Spring plate	Plaque supp equipee	901693	
23	Filter box cover	Couvercle boite de filtre	901694	
24	Stud M6x40 (18-4-18)	Goujon M6x40 (18-4-18)	901695	
25	Vent Body Plug	Bouchon d'event	902006	
26	Flat Seal D10x18x1	Joint Plat D10x18x1	902376	
27	Housing cover	Couvercle de cuve	902379	
28	Cover meter support	Couvercle liaison mesureurs	902380	
29	Recovery valve assy	Vanne de recup asm	902386	
30	O-ring filterbox support	Joint platine BAF	902388	
31	Cover seal	Jiont couvercle	902390	
32	Drain screw	Vis de purge	902391	
33	Recovery float	Flotteur de recuperation	902393	
34	Drain screw flat seal	Joint plat vis de purge	902394	
35	Meter support cover seal	Joint liaison mesureurs	902396	
36	Filterbox	Boite de filtre	902398	

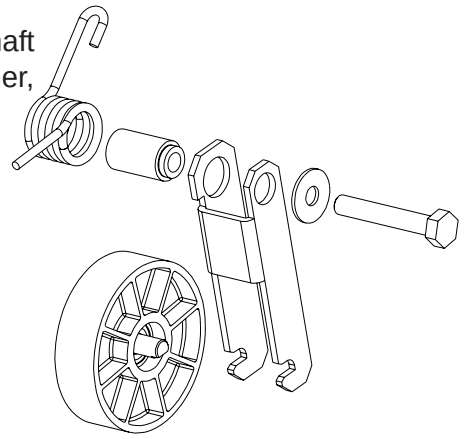
Issue B

5.3 Maintenance Kits

Repair kit 1 (optional) : Roller

Contains a roller with bearing + shaft (already assembled), spacer, washer, bolt, spring and a roller support.

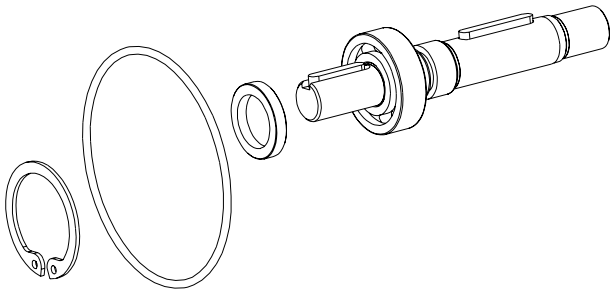
Order Number : 902297



Repair kit 2 : Gear Parts

Contains a shaft + ball bearing (already assembled), a retaining ring, lip seal and O-ring.

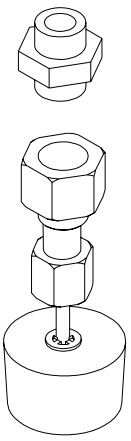
Order Number : 902298



Repair kit 3 : Air Vent Parts

Contains a gland nut + valve housing + needle valve + cork float + spring washers (already assembled) and a nipple.

Order Number : 902299

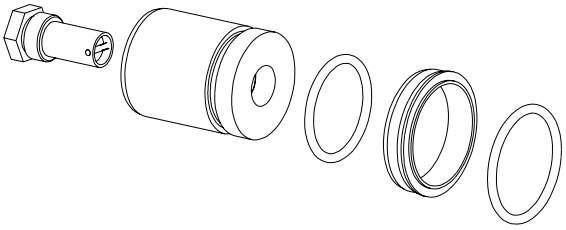


Issue B

Repair kit 4a : Outlet Insert

Contains an outlet insert + aeration valve + O-ring + valve seal + O-ring cover.

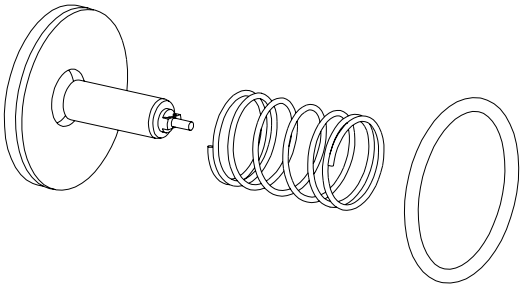
Order Number : 902300



Repair kit 4b : Outlet Valve

Contains an outlet valve assembly + spring + O-ring cover.

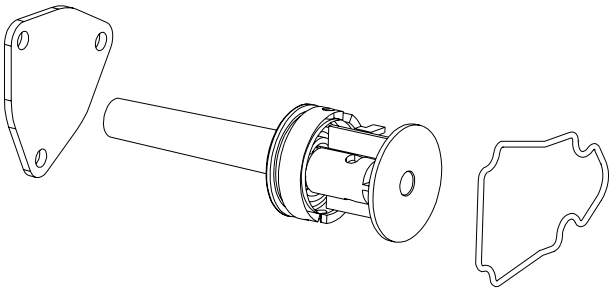
Order Number : 902301



Repair kit 5 : Vortex

Contains a valve tube + valves + springs + vortex body + O-ring (already assembled), seal vortex valve front-side and seal vortex rear-side.

Order Number : 902302

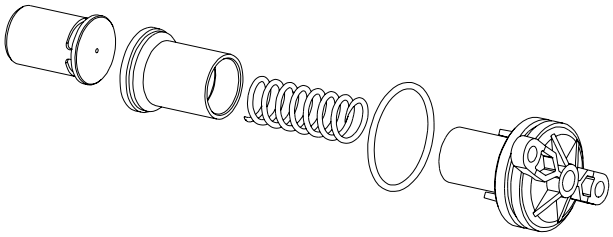


Issue B

Repair kit 6 : By-Pass Valve

Contains a cover, O-ring, pressure nut + iron washer (already assembled) and an O-ring, spring, valve and damper.

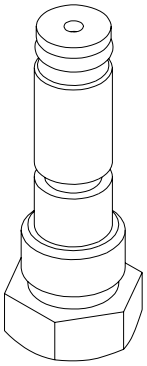
Order Number : 902303



Repair kit 7 : Drain Screw

Contains a drain screw, O-ring + flat seal (already assembled).

Order Number : 902304



Issue B

5.4 References of Specific Tools

902324	Tool for disassembling outlet insert (refer to Page 39 - part nos 17,10,4,9)
9231221014	Filter box cover for pressure measuring (vacuum)
9231221013	Filter box with pressure point before foot valve
9508012519	Flexible extension (male/female) M10 x 1.00 for pressure measurement
SR	Manometer (-1 to 3 bar) to measure pressure or vacuum
SR	Torx key (shape T30)
902325	Tool for mounting lip-seal (refer to Page 37 - part no 9)
902327	Tool for mounting outlet valve seat (refer to Page 39 - part no 9)
902328	Vortex remover (refer to Page 39 - part nos 30,19,12,18,15,29) **Note : remove from the front of the pump to the back**

SR: Tools from local stores.

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CONTENTS

Issue B

6 PROBLEM REPORT FORM FOR THE PAS V3 PUMP

Issued by:		Report date:	
Station name:		Meter reading 1:	l
city:		Meter reading 2:	l
country:		Ground piping:	
PAS V3 no.:		-Length	m
Installation date:		-Height	m
Kind of fuel:		-Diameter	m
Dispenser type:		More pumps on one pipeline	➢ yes ➢ no

Problem description

➢ *1. No fuel flow*

a) Is the pump running?	➢ yes ➢ no
b) Is the pump unusually noisy?	➢ yes ➢ no

If the answer is yes, go to point 4. If the answer is no:

c) Is there enough fuel in the underground tank?	➢ yes ➢ no
d) Is air coming out of the air vent?	➢ yes ➢ no
e) What is the outlet pressure (measured at the outlet plug)?	_____ mbar

➢ *2. Reduced fuel flow*

a) What is the outlet pressure when running in bypass mode?	_____ bar
b) What is the inlet pressure at the filter box?	_____ mbar
c) Are the following parts in good order: is the filter box clean, v-belt?	➢ yes ➢ no

➢ *3. Pulsating flow*

a) Is the outlet pressure constant?	➢ yes ➢ no
b) Is air coming out of the air vent?	➢ yes ➢ no

➢ *4. Excessive noise*

a) Is the noise coming from inside the pump?	➢ yes ➢ no
b) What is the outlet pressure in bypass mode?	_____ bar
c) What is the inlet pressure at the filter box?	_____ mbar
d) Is it cavitation noise?	➢ yes ➢ no

Cause of the Problem

Actions done to solve the problem (list part numbers of new parts used)

Further actions required

Remarks about special environmental or other circumstances

Issue B

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