

Trouble-shooting Guide for



Fluid Handling Equipment

If you are experiencing problems with your Piusi fuel transfer pump, flow meter or fuel nozzle, refer to this trouble-shooting guide designed to help you diagnose the issue and fix it.

I seem to be experiencing a slow flow rate on my pump - what could be the problem?

- Power supply - An incorrect power supply will cause the pump / motor to turn slowly. On a 230 volt pump you are allowed +/- 5% of the nominal voltage, and +/- 2% of the nominal frequency.
- Damaged vanes - Carefully remove the cover plate that seals the pump chamber, making sure that the cover plate o-ring is not moved. Inspect the vanes individually by turning the rotor and check for any chips or melting parts. If you find these to be damaged, you can purchase a new pack of vanes from the spares list.
- Blocked filter – This could be a sign that either an external filter is full, or the inlet filter on the pump. It is the external filter then this will need to be replaced. If it is the inlet filter, carefully removed the screws, cover plate and gasket and inspect for debris. Clean it and return to the original direction with the outer edges pointing towards the fuel inlet. You may also need to inspect the strainer on the foot valve for signs of diesel slime or if missing that the hose is not being sucked to the floor of the tank.
- Bypass jammed open - Remove any connection on the outlet side of the pump and using your thumb repeatedly press the valve in and out to check that it operates correctly.
- Air leak on cover plate - Tighten all of the cover plate screws and re-test. If this fails replace the o-ring seal, and also check for signs of warping if a hard wall delivery hose is in use.
- Kinked hose - Ensure that the delivery hose is stored correctly and is free from any creases / kinks.

My pump is very noisy when it runs - what could be the problem?

- Damaged vanes - Carefully remove the cover plate that seals the pump chamber, making sure that the cover plate o-ring is not moved. Inspect the vanes individually by turning the rotor and check for any chips or melting parts. If you find these to be damaged, you can purchase a new pack of vanes from the spares list.
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- Air leak on cover plate - Tighten all of the cover plate screws and re-test. If this fails replace the o-ring seal, and also check for signs of warping if a hard wall delivery hose is in use.
- Damaged bearings - You can usually hear a squeaky grinding noise - return pump through your channel of purchase for inspection.

My pump runs for a short time but then stops by itself - what could be the problem?

- Power supply - An incorrect power supply will cause the pump / motor to turn slowly. On a 230 volt pump you are allowed +/- 5% of the nominal voltage, and +/- 2% of the nominal frequency. Voltage fluctuations may also cause the failure of the condenser inside the pump, or the windings to burn out.
- Suction line - Too high a suction pressure will cause the pump to overheat. Reduce the suction run to the recommended one in the pump's instruction manual.
- Delivery line - Too high a delivery pressure will cause the pump to run in bypass and over heat. Reduce the delivery run to the recommended one in the pump's instruction manual.

My pump motor is not turning - what could be the problem?

- Power supply - Isolate the power before checking this or confirm with an electrician. Make sure the switch on the pump is in the on position, and check to ensure that any trip switches, fuses and breakers are all functioning. If power is ok and the switch works, listen to the pump. If it is making a humming noise, this means that the pump has a jammed head or motor, and should be returned to the company it was purchased from for inspection.
- Switch has failed - Replace switch from spares list.
- Rotor jammed in head - Carefully remove the cover plate that seals the pump chamber, making sure that the cover plate o-ring is not moved. Inspect the vanes individually by turning the rotor and check for any chips or melting parts.
- Water in the windings - Possible high pressure jet washing has occurred. Usually a replacement pump is required.

My pump seems to have leaking joints - what could be the problem?

- Air leak on cover plate - Tighten all of the cover plate screws and re-test. If this fails replace the o-ring seal, and also check for signs of warping if a hard wall delivery hose is in use.
- Air leak on filter housing - Check that the filter gasket is in place correctly. If the cover plate appears distorted, check that a soft wall delivery hose is being used as a hydraulic shock from an incorrect delivery hose can damage the cover plate.
- O-ring air leak - Tighten the chamber cover plate screws and check that the o-ring is seated correctly. If the chamber cover plate appears distorted, then check that a soft wall delivery hose is being used as a hydraulic shock from an incorrect delivery hose can damage the cover plate.
- Shaft seal - Running the pump in bypass mode for extended periods or fitting a hard wall hose without a pressure relief valve will cause wear to the shaft seal. Over time this could leak and need replacing. Refer to a service centre for this work.

The pump runs but I can't seem to get any diesel to dispense - what could be the problem?

- Fuel level - Visually check that there is enough fuel in the tank - usually about 4" (100mm) is required for the pump to operate efficiently.
- Suction system - Check for air leaks in pipe work that may be preventing good suction. Check foot valve on suction pipe in tank for blockage, and also check that the hose is not being sucked onto the bottom of the tank.

- Damaged vanes - Carefully remove the cover plate that seals the pump chamber, making sure that the cover plate o-ring is not moved. Inspect the vanes individually by turning the rotor and check for any chips or melting parts. If you find these to be damaged, you can purchase a new pack of vanes from the spares list.
- Bypass jammed open - Remove any connection on the outlet side of the pump and using your thumb repeatedly press the valve in and out to check that it operates correctly.
- Kinked hose - Ensure that the delivery hose is stored correctly and is free from any creases / kinks.

I have run out of fuel recently, but now can't get my pump to run now that my PLASTIC tank is full - how can I re-prime the system?

Check that the suction hose is in the fuel and not bent upwards inside the tank. Switch on the power and squeeze and release nozzle trigger to attempt to discharge fuel for max 2 mins. If no fuel flows remove nozzle from dispensing hose and run pump again for max 2 mins. Do not allow pump to run for more than 2 minutes if no fuel flows out - refer to instruction manual.

I have run out of fuel recently, but now can't get my pump to run now that my STEEL tank is full - how can I re-prime the system?

If the tank is fitted with a brass angle check valve at the top of the tank, then remove the retaining bolts and back fill the suction line with diesel, re-assemble the valve. Switch on power and squeeze and release nozzle trigger to attempt to discharge fuel for max 2 mins. If no fuel flows remove nozzle from dispensing hose and run pump again for max 2 mins. Do not allow pump to run for more than 2 minutes if no fuel flows out - refer to instruction manual.

My mechanical flow meter is not counting accurately/not counting at all, what could be the problem?

- Lost calibration – The flow meter may need to be re-calibrated. Refer to the product's instruction manual for the calibration process for that particular meter.
- Flow rate - Check that the flow rate of the fluid through the meter is between the minimum and maximum flow rate compatible with the flow meter. If it is not, the meter will not read accurately.
- Fluid viscosity - Check that the fluid viscosity is correct for your flow meter. If it is not, the meter will not read accurately.
- Contamination - Check for contamination in the flow chamber by removing the flow meter and inspecting inside the inlet and outlet ports. Flush to check that the parts move correctly
- Counter assembly - Check counter assembly alignment is correct. This can be adjusted using the attachment screws next to the counter assembly
- Air leak - Ensure that all pipe work is leak free as air will be counted by the flow meter as well as fuel.

My mechanical flow meter is leaking, what can I check?

- Remove the plastic cover and check that the circle of main body bolts are tight. Check that a taper fitting has not been inserted too far and cracked the casting on the ports.
- Fitting a hard wall hose without using a pressure relief valve will cause the shaft seal to fail.

My mechanical flow meter is counting backwards, why?

Meter is installed backwards. Check the direction of the flow arrow on the rear casing and reinstall. Note that

you will have to remove the cover and counter assembly, rotate and install in correct orientation.

My electronic flow meter is not counting accurately/not counting at all, what could be the problem?

- Lost calibration – The flow meter may need to be re-calibrated. Refer to the product’s instruction manual for the calibration process for that particular meter.
- Flow rate - Check that the flow rate of the fluid through the meter is between the minimum and maximum flow rate compatible with the flow meter. If it is not, the meter will not read accurately.
- Low battery - Try changing the battery to see if the flow meter response improves.

The display on my electronic flow meter is blank or faint, what does this mean?

- Low battery - Try changing the battery to see if the flow meter response improves.
- Environmental damage - Sunlight exposure can cause the display to fade over time, or ultra-low temperatures can cause the display to freeze and not recover. Check the instruction manual for temperature considerations
- Damage - Inspect the face of the meter for damage caused by misuse such as cracked screen or split membrane buttons.

How often should a flow meter be calibrated?

There is no real rule for this. However in our experience we would expect a flow meter to be checked at an annual maintenance service.

My nozzle keeps cutting off before the tank is full - what can I check?

- Sensing port - Ensure that the small hole at the end of the nozzle is not blocked by sand or grit. Swirl the nozzle around in a bucket of diesel to clean. Ensure that the end of the spout is round and not damaged as this can upset the vortex created at the end of the spout.
- Flow rate - Check that the flow rate of the pumping system meets the minimum and maximum flow rates of the nozzle. If it does not, the nozzle will fail to operate properly.
- Vehicle - Some vehicles have a complex fuel entry and fuel may be splashing back at the nozzle, try filling at a slower speed by not pulling the trigger fully open.