

PSA Oxygen Generation Plant

TROUBLESHOOTING AND CORRECTIVE MAINTENANCE

General troubleshooting

Undertake the following steps to isolate any malfunctions before initiating any specific troubleshooting solutions.

- Turn the generator on. If unit does not turn on, refer to troubleshooting chart.
- Ensure that all filters are clean.
 - Test all tubing connections and fittings with leak testing solution to ensure that the unit is free of leakage, and
 - If there are any leaks, repair them by tightening the connections and fittings.
- Ensure that the unit is cycling properly. If the unit is not cycling properly, refer to troubleshooting chart.
- Use the troubleshooting chart to review, isolate and repair any other malfunctions.

Specific problems and troubleshooting solutions

(ANY REPAIR OR REPLACEMENT OF PARTS MUST BE PERFORMED ONLY BY A TRAINED ENGINEER)



TOWER STATUS LED IS NOT CHANGING

Disconnect the tower from control panel connections and test it individually. Also check relay or any device from where tower lamp is given input. If issue still persists and other parts are working fine, then replace the Tower LED lamp.



DISPLAYS ARE NOT SHOWING UP

Check the connections of human machine interface (HMI) and programmable logic controller (PLC) and power supply to HMI. If HMI display backlight is on, then check the RJ45 or RS485 or USB connection of HMI (through which HMI is connected with PLC).



NO PURGING

- Check the solenoid valve
- Check the exhaust valve
- Clean the silencer (muffler)
- Continuous purging at Tower 1A if the shuttle not closing
- Check pilot air for exhaust valve
- Check if the exhaust valve piston is stuck



LARGE DROP IN PRESSURE ACROSS THE GENERATOR

- Pre-filter may be clogged. Check and replace filter elements.
- Check whether the generator is overflowing.
- Check hose pipe leakages, and leakages at joints.



LOW OPERATING PRESSURE

- Check for restriction in the suction air intake filter, which may limit the amount of air passing through it to the generator. Clean the air filters free from foreign materials.
- Check and confirm if the circuit board and solenoid valve are operating properly.
- Perform the Leak Test to check for a leak in the unit, which allows system pressure to escape.
- Check if the compressor has reduced output. Ensure that the oxygen concentration level at the desired liter flow is within the manufacturer's specifications. If it is below specifications, replace or repair the compressor.

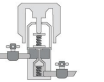
HIGH OPERATING PRESSURE

- Check if there is a restriction in the muffler, which does not allow the waste (purge) gas to exit the system freely. Operate the unit with the muffler disconnected to see if the operating pressure returns to normal.
- Check and confirm if the circuit board and solenoid valves are functioning properly.
- Check if there is a restriction in the diffuser, which does not allow the inlet feed air as well as exhaust air from the generator, and correct it.
- Check for contaminated sieve beds, and change them if required.



HIGH PURGE LOSS

- Check if the outlet shuttle is closing or not.
- Check for silencer choke.



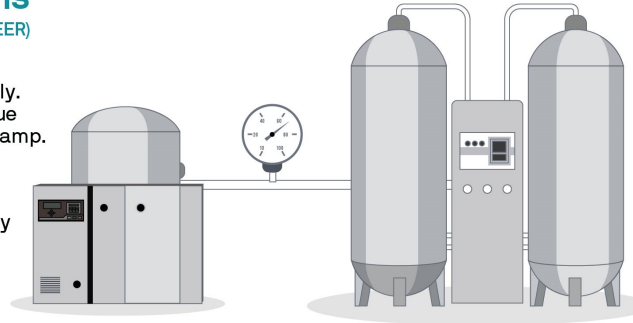
OXYGEN ANALYSER (PURITY) ISSUE

- Follow the flow diagram given by the manufacturer.
- Check if the desired flow of oxygen is going into the analyzer.



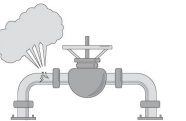
LED STATUS HAD CHANGED BUT THE TOWER IS NOT SWITCHING

- Check solenoid valve.
- Check coil connection at DIN and terminal connector in the controller.



PRELIMINARY LEAK TEST GUIDELINE

- Hissing sound check
 - Check for CONTINUOUS hissing sound throughout the pipeline network especially around the connections in the PSA plant. If the hissing sound is heard, the leakage could be present. To confirm the site of leakage, please hold paper or any other light object such as cloth close to the suspected leakage site. If the object flutters, the leakage site has been successfully identified.
 - Look for the pressure readings and identify the site of pressure drop with the help of pressure gauges' readings.
 - If the pressure difference is above 0.5 bar, please get in touch with the vendor for repairs and maintenance procedures.
 - Note:
 - Majority of the leakages occur around the pipe connections or flanges or at the site of filters' installations.
 - CYCLIC/PERIODIC hissing sound is always present around the muffler from where nitrogen is purged out. Please do not consider this sound as "leakage hissing sound" as this is normal.
- If the hissing sound is absent or unidentifiable and if the pressure drop is consistently higher than 0.5 bar and if the buffer tank/outlet pressure is below 4 bar, then please get in touch with the vendor for further inspection, repair, and maintenance procedures.



ARE YOU FACING A PROBLEM NOT LISTED HERE?

Contact your supervisor or PSA supply partner immediately for troubleshooting support

Disclaimer : This poster has been adapted and customized from PATH's Oxygen Delivery Toolkit.