



DURANOVA START-UP TRAINING AND TROUBLESHOOTING GUIDE

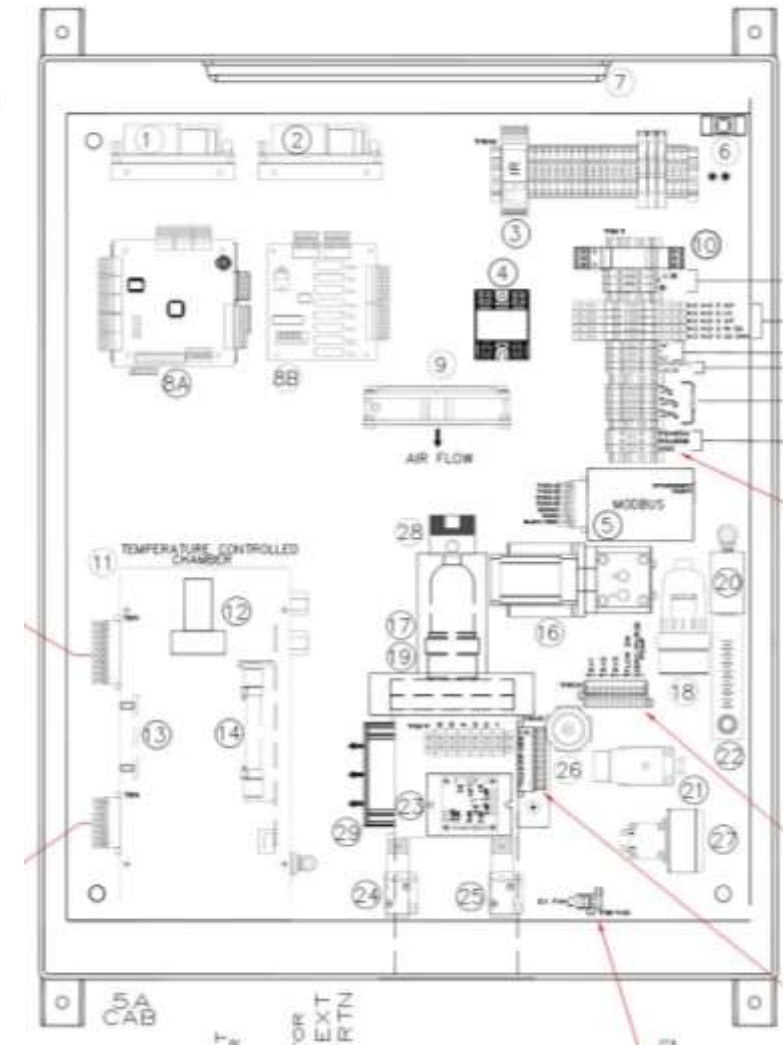
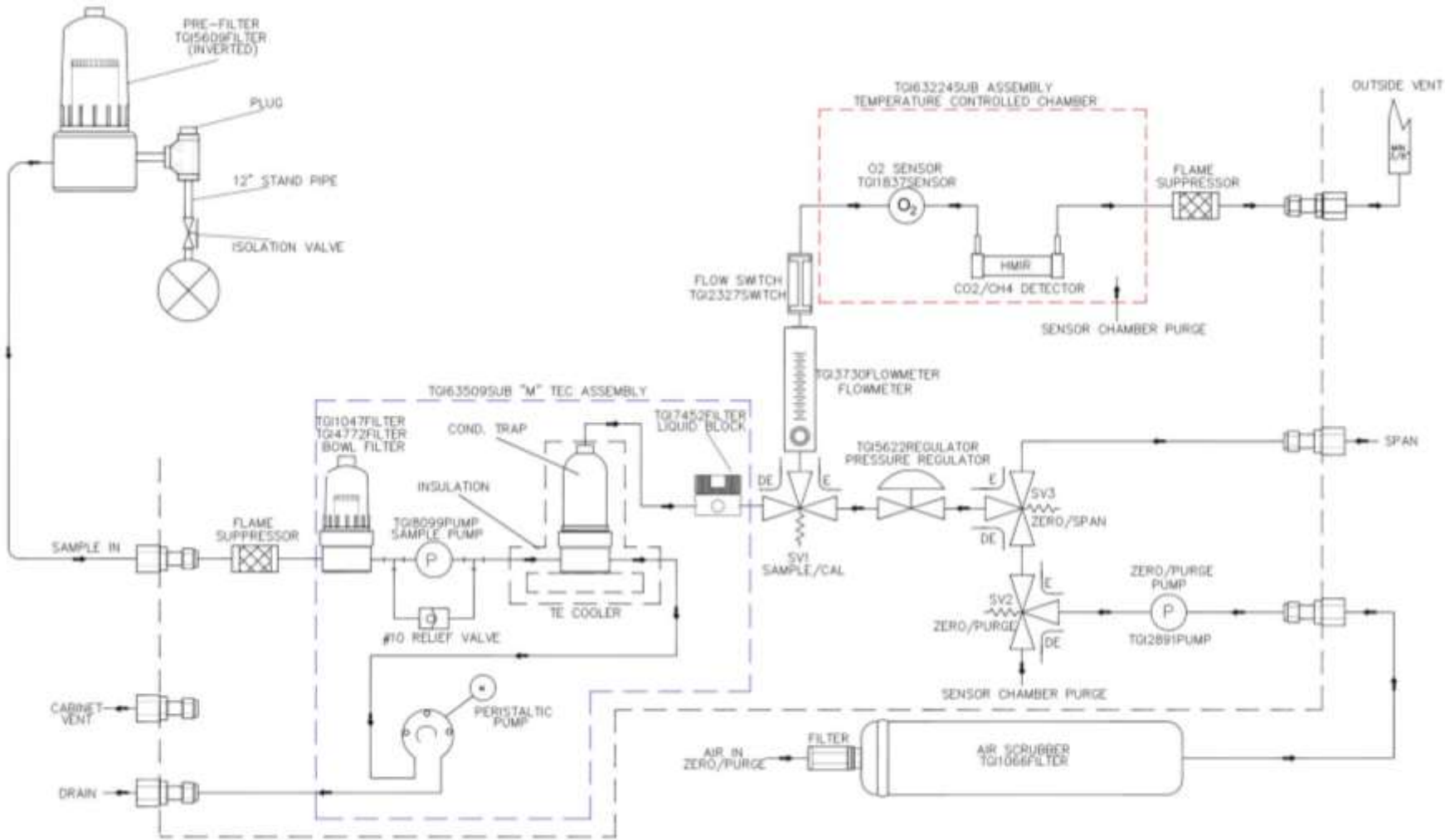
April 2019

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GM, NOVA Analytical Systems, TGI

TROUBLESHOOTING

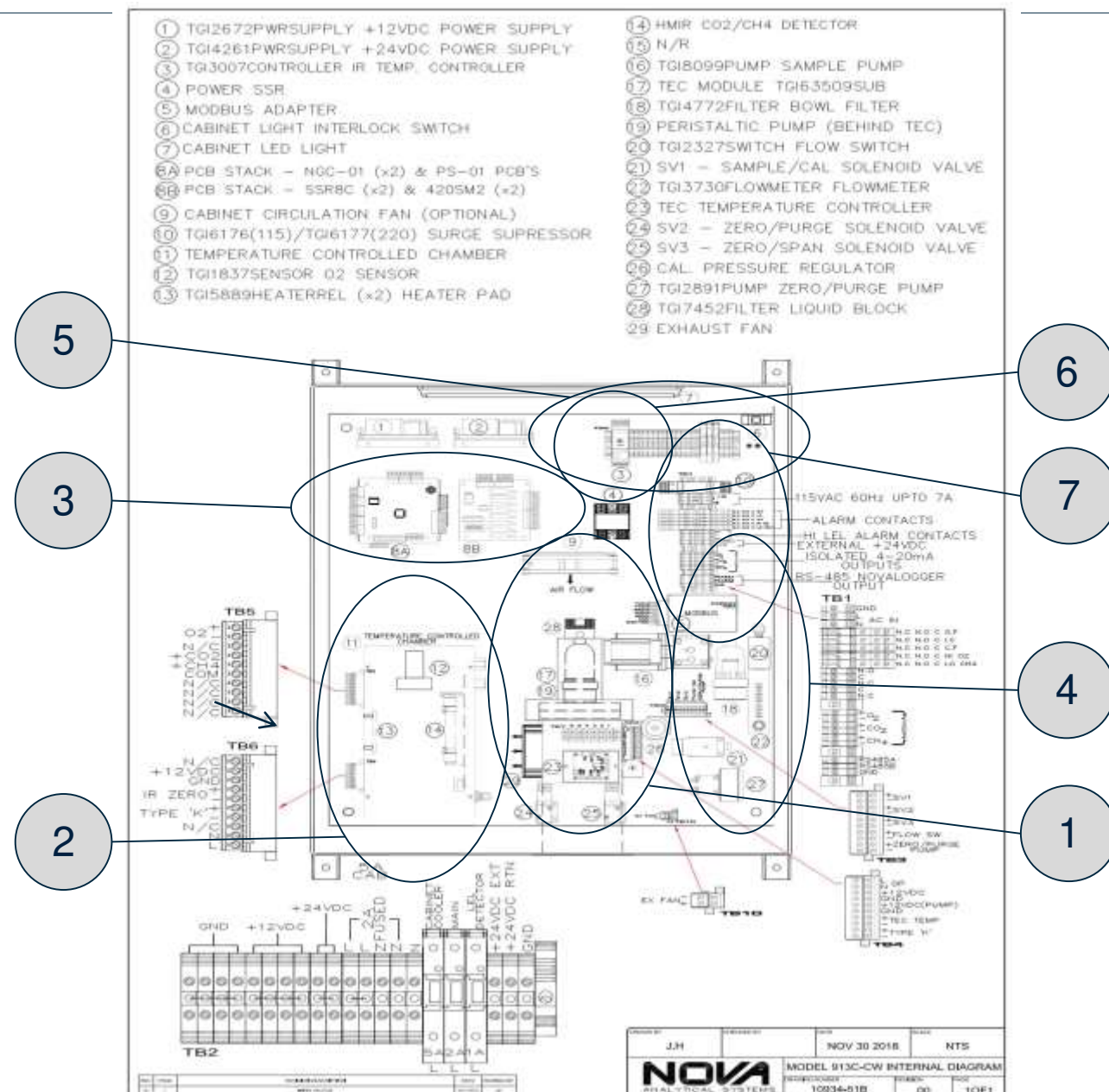
Analyzer Flow



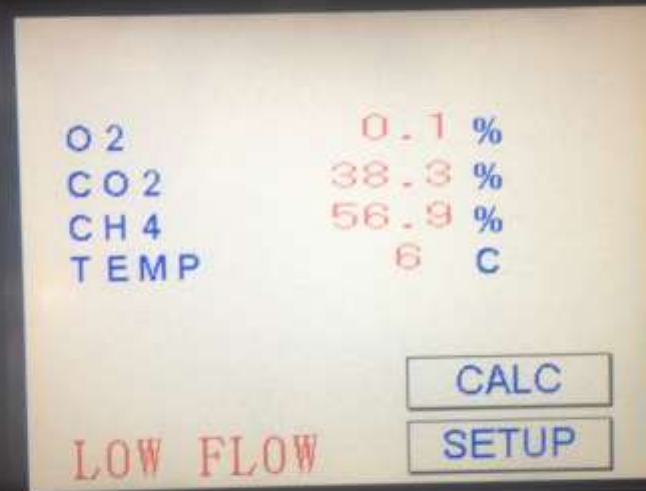
System Overview



- 7 KEY SECTIONS INSIDE THE ANALYZER
 1. SAMPLE EXTRACTION AND CLEANING MODULE
 2. HEATED SENSOR MODULE
 3. MICROPROCESSOR BASED MODULAR ELECTRONICS
 4. CALIBRATION AND FLOW CONTROL MODULE
 5. POWER DISTRIBUTION
 6. TEMPERATURE CONTROL
 7. CUSTOMER INTERFACE
- ALL MODULES ARE QUICK CHANGE
- ALL MODULES ARE LABELLED FOR EASY TROUBLESHOOTING
- ALL MODULES ARE SOLD AND SERVICED BY NOVA.



Troubleshooting Low Flow

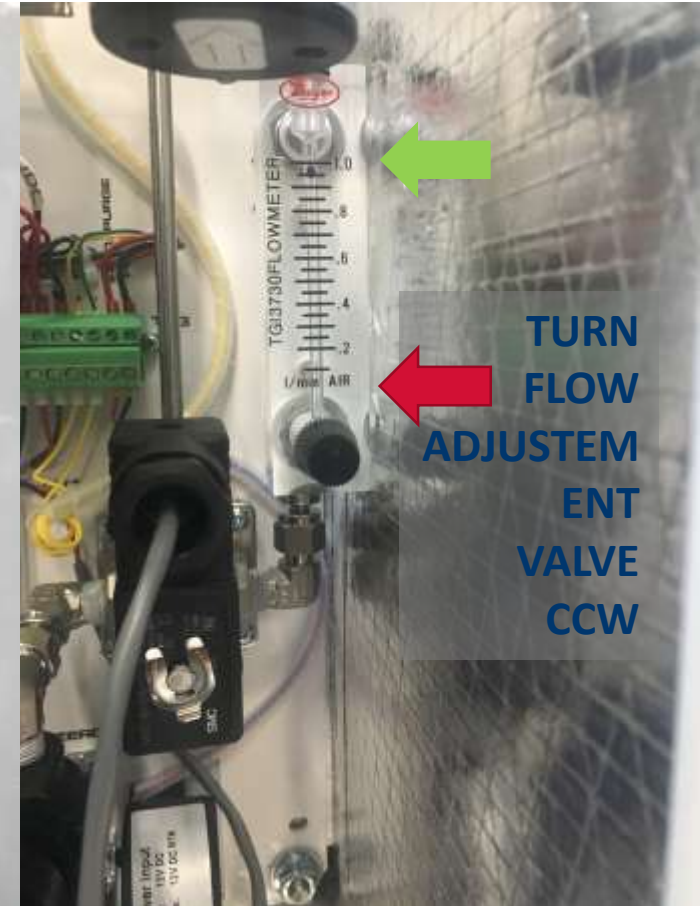
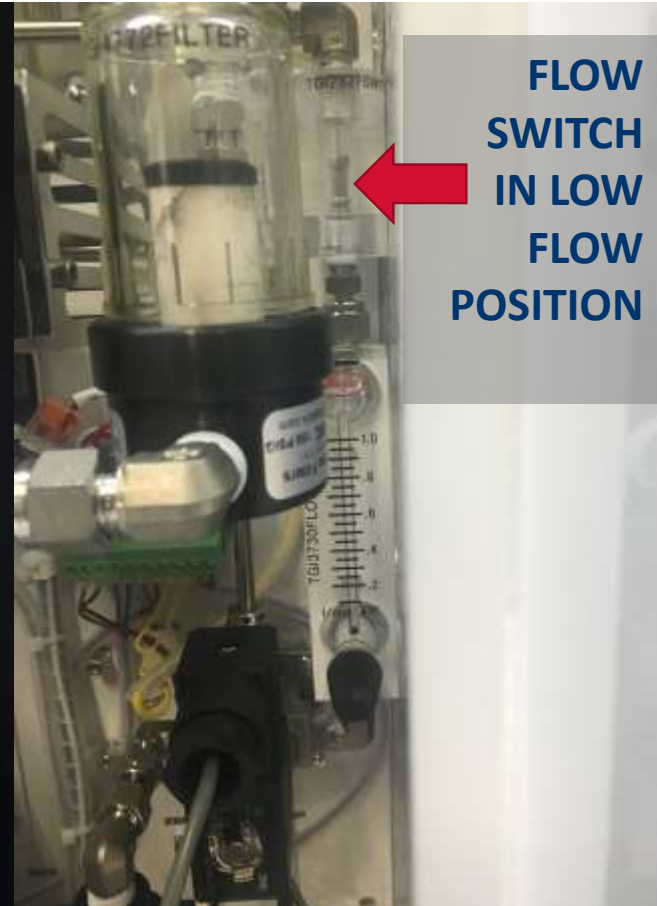


O₂ 0.1 %
CO₂ 38.3 %
CH₄ 56.9 %
TEMP 6 C

LOW FLOW

CALC
SETUP

Panasonic

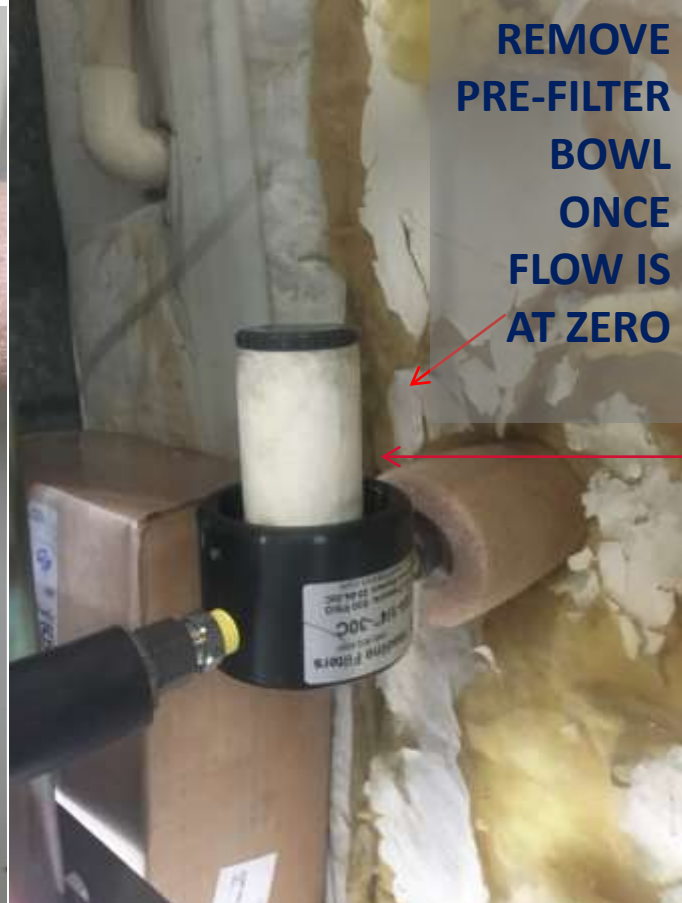


Troubleshooting - Low Flow

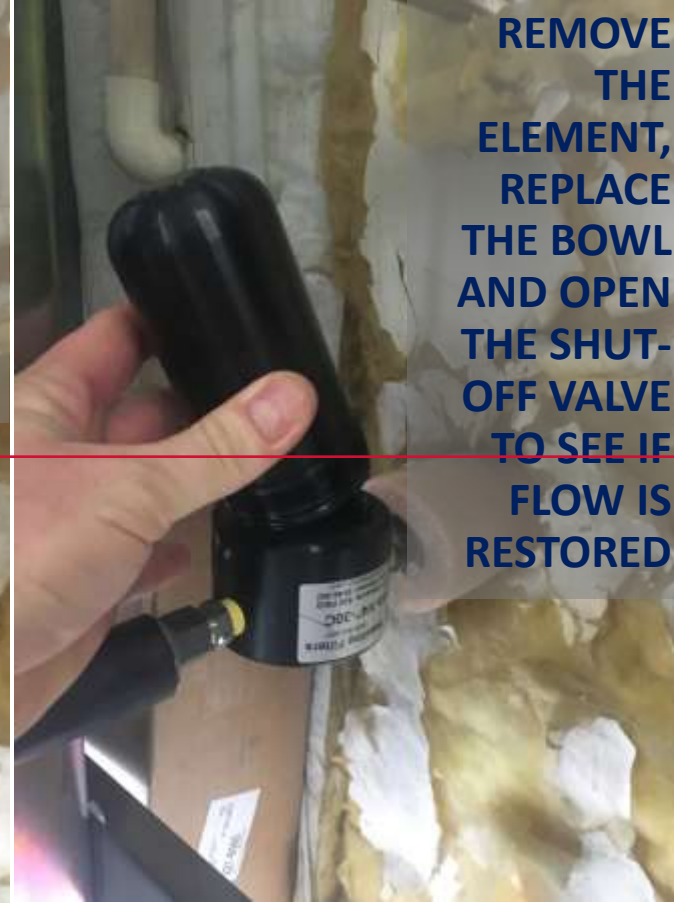
PRE-FILTER



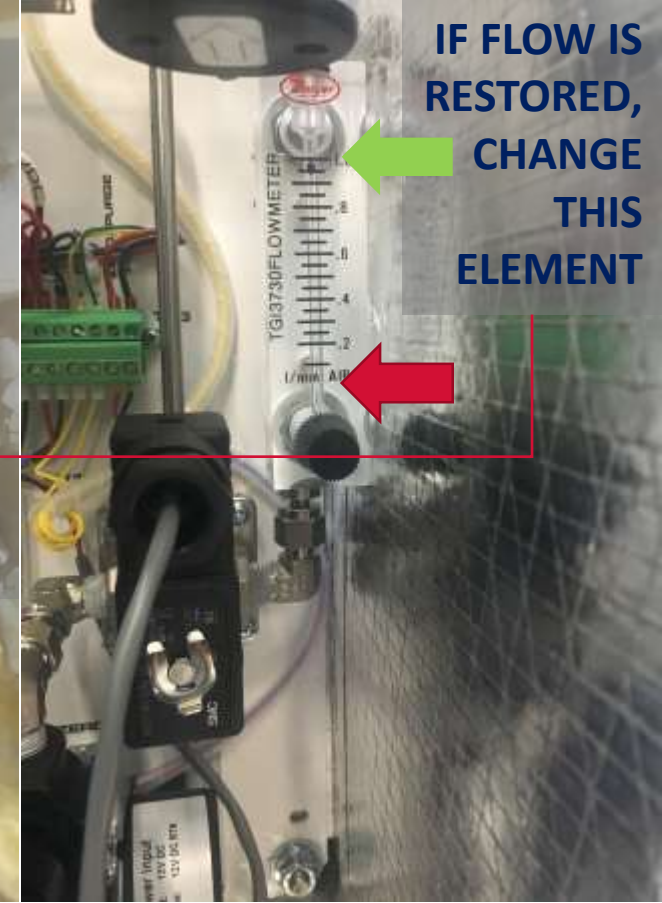
CLOSE
SAMPLE
SHUT-OFF
VALVE



REMOVE
PRE-FILTER
BOWL
ONCE
FLOW IS
AT ZERO



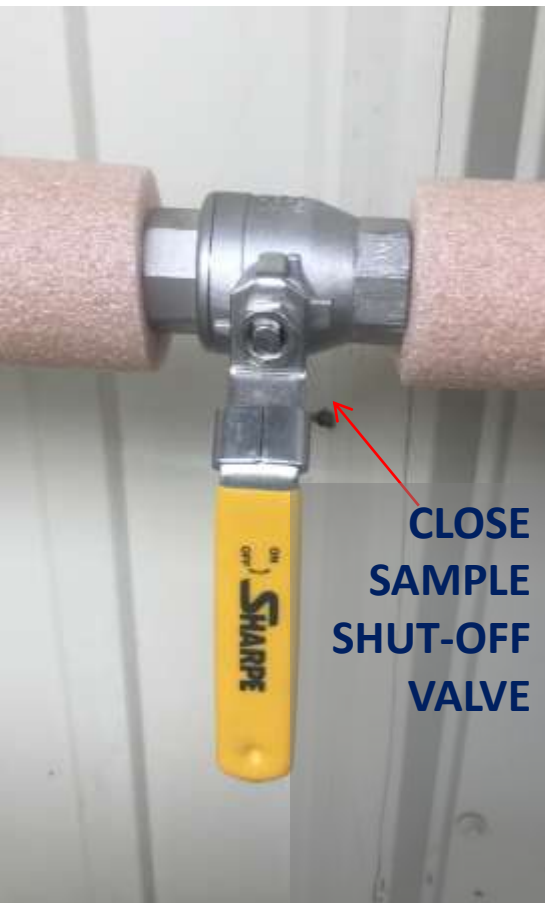
REMOVE
THE
ELEMENT,
REPLACE
THE BOWL
AND OPEN
THE SHUT-
OFF VALVE
TO SEE IF
FLOW IS
RESTORED



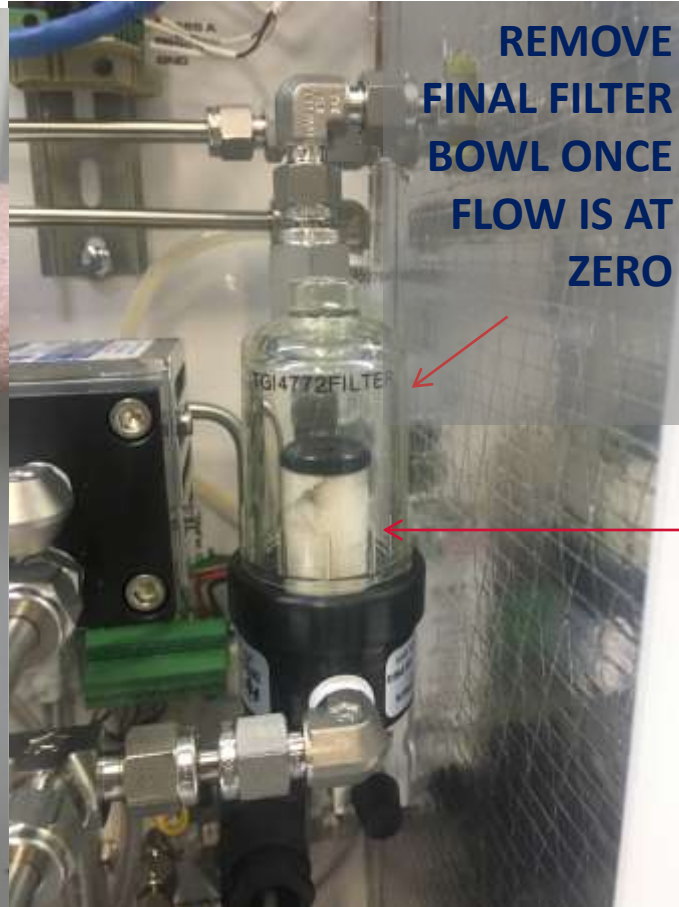
IF FLOW IS
RESTORED,
CHANGE
THIS
ELEMENT

Troubleshooting - Low Flow

FINAL FILTER



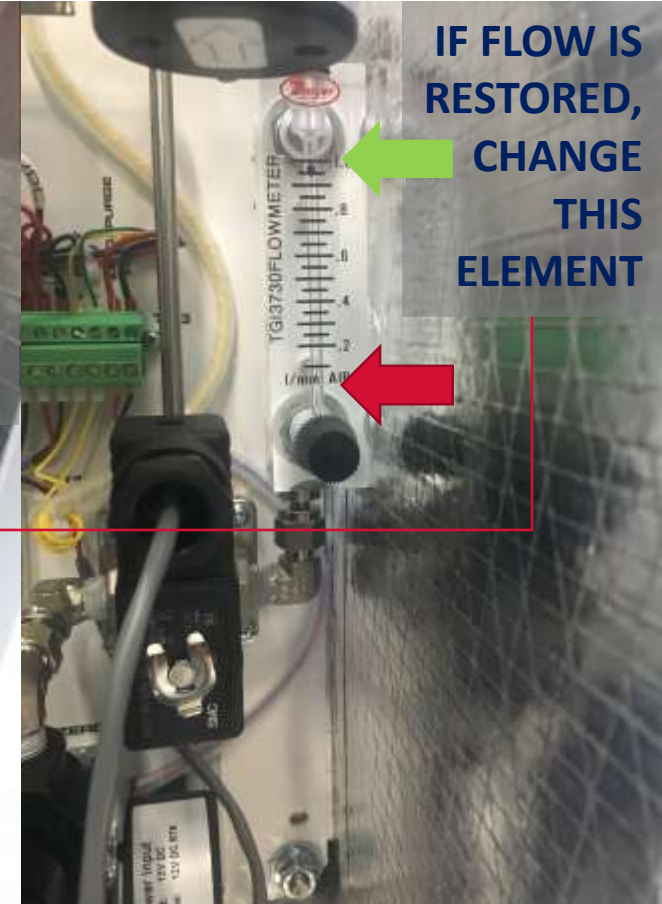
**CLOSE
SAMPLE
SHUT-OFF
VALVE**



**REMOVE
FINAL FILTER
BOWL ONCE
FLOW IS AT
ZERO**



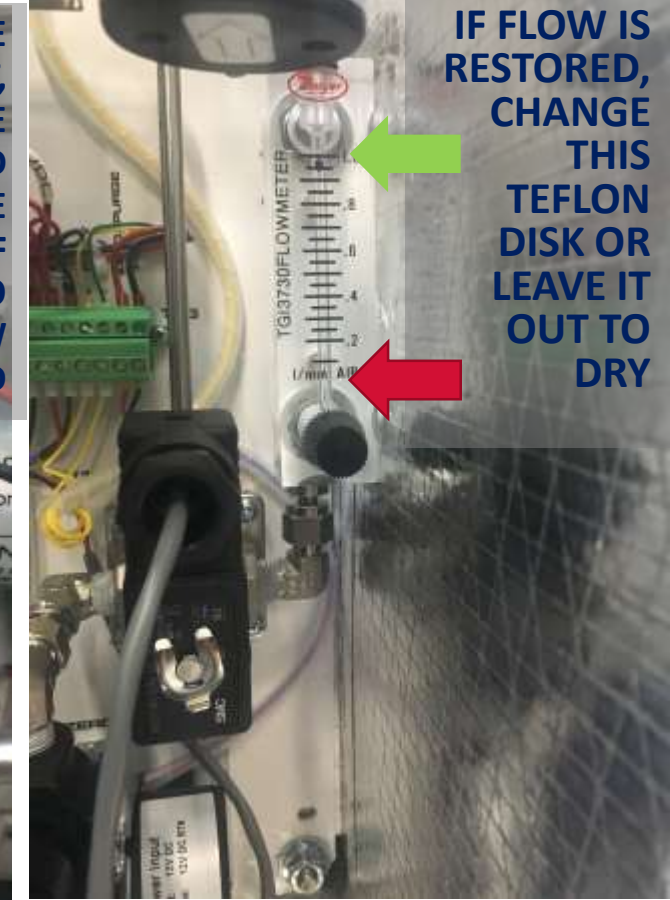
**REMOVE THE
ELEMENT,
REPLACE THE
BOWL AND
OPEN THE
SHUT-OFF
VALVE TO
SEE IF FLOW
IS RESTORED**



**IF FLOW IS
RESTORED,
CHANGE
THIS
ELEMENT**

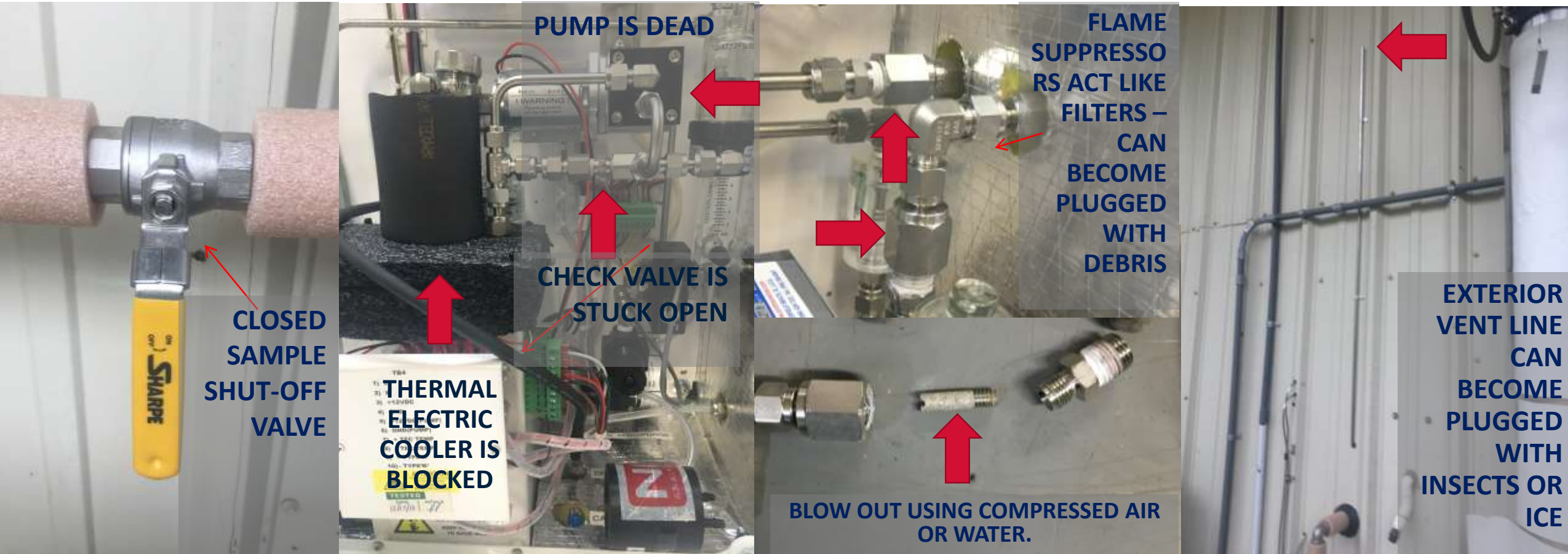
Troubleshooting - Low Flow

LIQUID BLOCKER



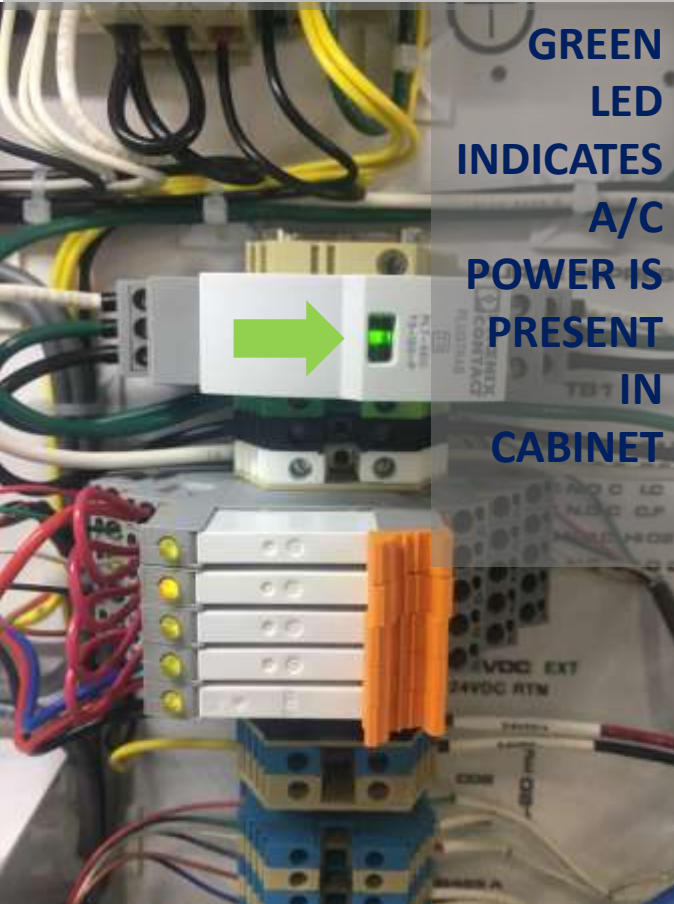
Troubleshooting - Low Flow

OTHER SOURCES



Troubleshooting – Loss of Power

WARNING: ELECTRICAL TROUBLESHOOTING MUST BE DONE BY A TRAINED TECHNICIAN OR ELECTRICIAN AS THERE ARE MANY SHOCK HAZARDS IN THE EQUIPMENT.



**GREEN
LED
INDICATES
A/C
POWER IS
PRESENT
IN
CABINET**



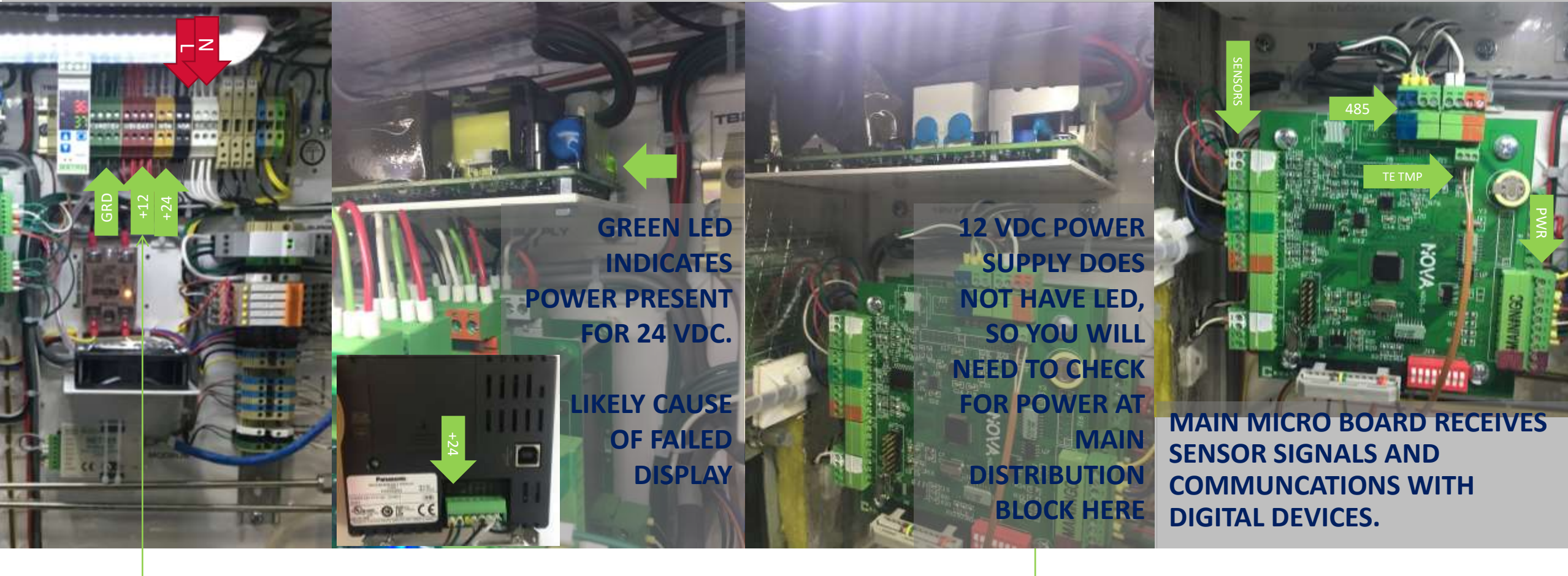
**FUSES FOR POWER A/C
DISTRIBUTION IN THE ANALYZER:
5A – CABINET AIR & HEATER
2A – ANALYZER
1A – CABINET AIR MONITOR (OPT)**



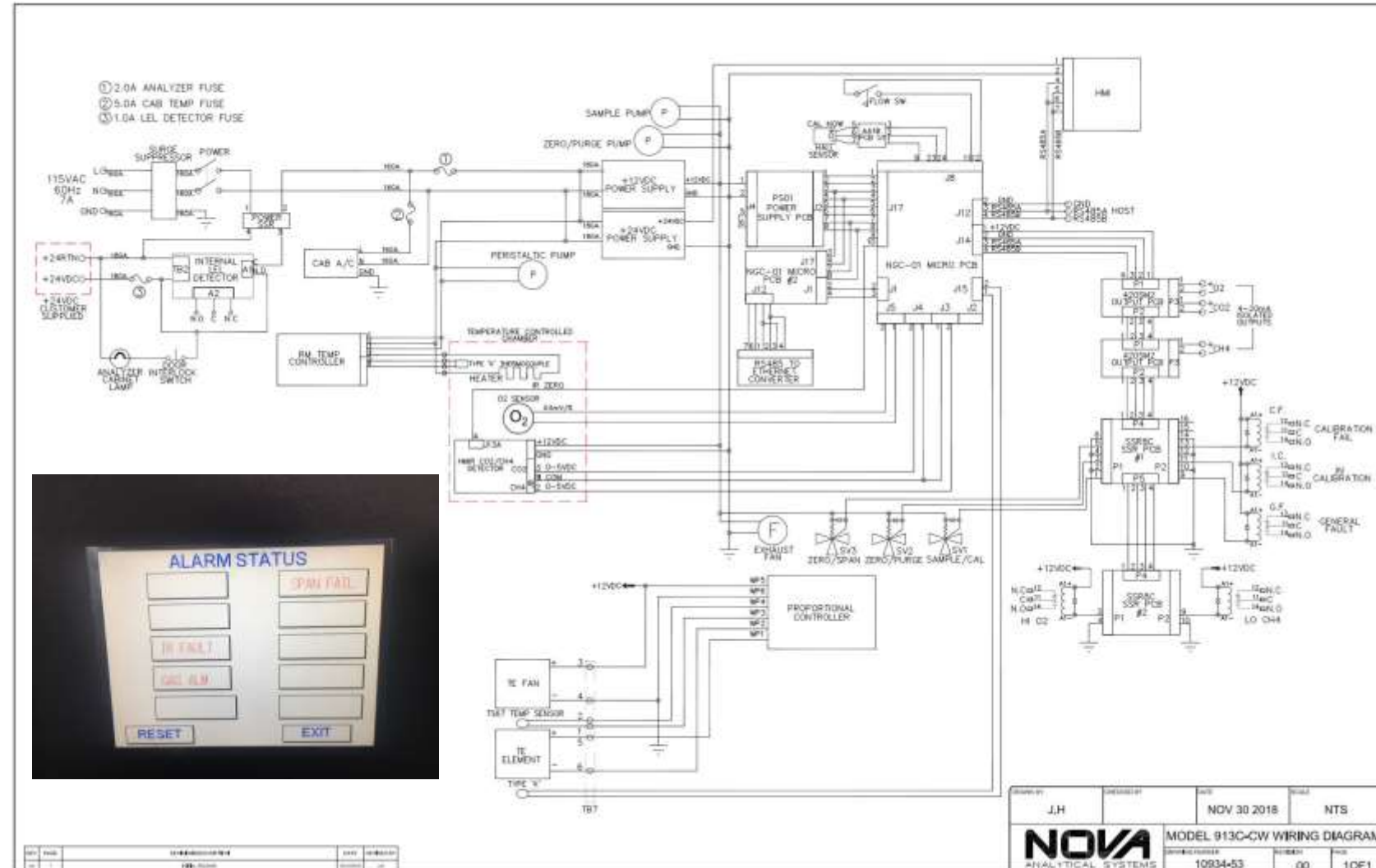
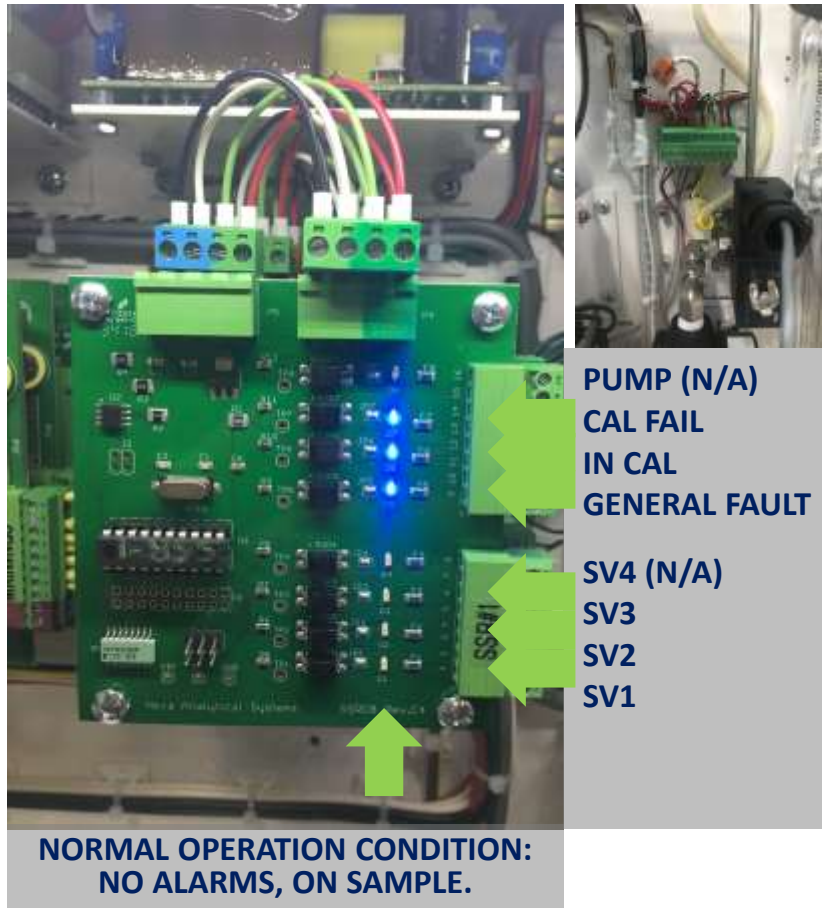
**REPLACEMENT FUSES ARE ON
THE DOOR.**

Troubleshooting – Loss of Power

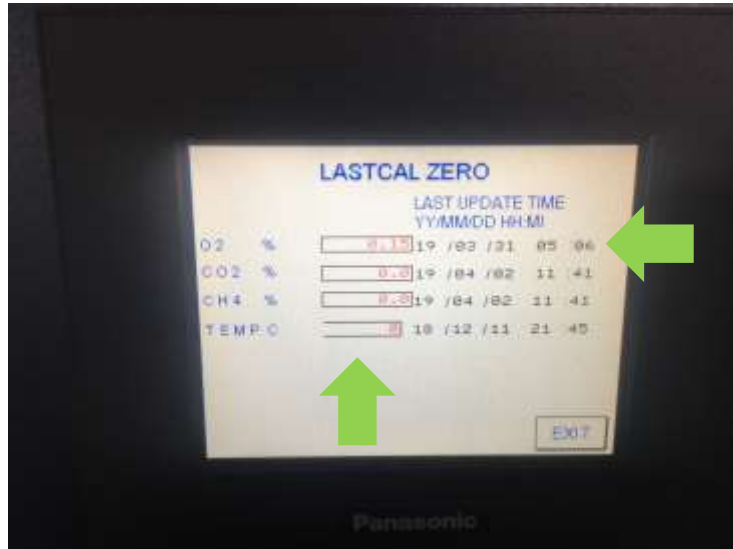
WARNING: ELECTRICAL TROUBLESHOOTING MUST BE DONE BY A TRAINED TECHNICIAN OR ELECTRICIAN AS THERE ARE MANY SHOCK HAZARDS IN THE EQUIPMENT.



Troubleshooting – SSR Boards



Troubleshooting – Other Helpful items



**LASTCAL ZERO
UNDER
PASSWORD1
SHOWS DATE OF
LAST GOOD ZERO
AND READING
PRIOR
CORRECTION**



**SD CARD IN
DISPLAY LOGS GAS
AND ALARM DATA
WITH A NEW FILE
EVERY 24 HOURS.**



**LASTCAL SPAN
UNDER
PASSWORD1
SHOWS DATE OF
LAST GOOD SPAN
AND READING
PRIOR
CORRECTION**



**EACH ALARM HAS
FIRST LEVEL
TROUBLESHOOTING
GUIDE WITHIN.**

Troubleshooting – Other Helpful items

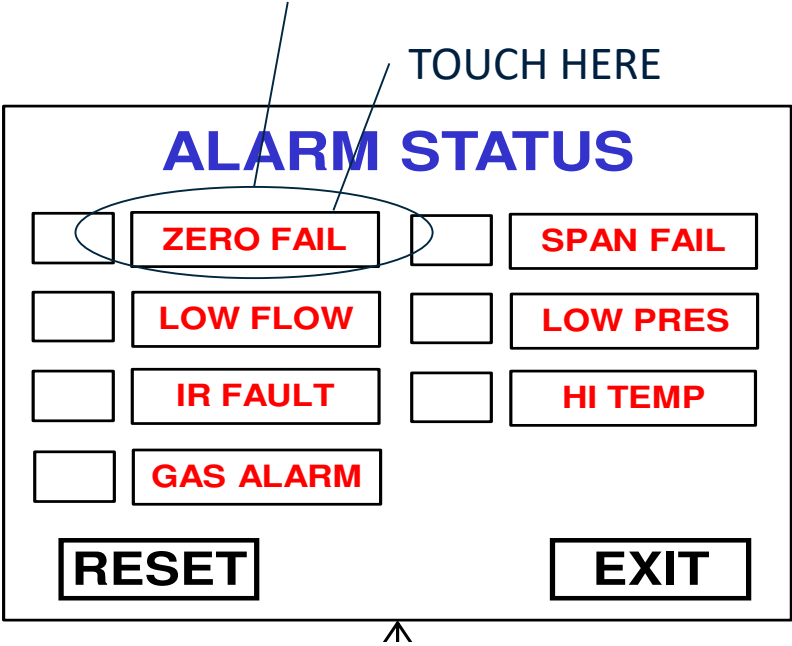


ZERO FAIL: There is a greater than 25% full scale difference between the current display reading and the previous reading taken during a ZERO operation. This indicates that the wrong ZERO gas is being used, one of the calibration solenoid valves is leaking, or there is no flow, due to a failed pump or blocked vent, during the zero calibration sequence. CHOOSE MORE TO SEE WHICH GAS(ES) FAILED

LOW FLOW: Check the sample pre-filter filter for plugging. This can be done by temporarily removing the incoming sample line to see if the flow resumes. If so, the pre-filter is plugged (Also check the internal pressure gauge). If the sample filter is OK, check that the flow control valve is opened sufficiently to give 1 LPM on the flow meter.

IR FAULT: There is a greater than 50% full scale difference between the current display reading and the previous reading taken. This indicates that there is a problem with the infrared detector and that it requires service or replacement. An IR Fault alarm will result in a CAL FAIL alarm contact closure. CHOOSE MORE TO SEE WHICH GAS(ES) FAILED

EACH ALARM HAS A TROUBLESHOOTING GUIDE



GAS/HI TEMP ALARMS (OPTIONAL): One or more of the gas or temperature alarm set points has been reached. Touch 'ALARMS' to view the triggered alarm(s). Alarm set points may be adjusted in the PASSWORD area. Contact Nova for more additional information.

SPAN FAIL: There is a greater than 25% full scale difference between the current display reading, and the previous reading taken during a SPAN operation or the SPAN setting. This indicates that the wrong SPAN gas is being used or that one of the calibration solenoid valves is leaking or there is no flow, due to a failed pressure regulator or blocked vent, during the span calibration sequence. CHOOSE MORE TO SEE WHICH GAS(ES) FAILED

LOW PRES: There is low ZERO or SPAN gas pressure. Check to make sure the calibration gas cylinder(s) are turned on, that there is pressure in the cylinders and that the pressure regulator is set to about 5 PSI. An auto cal will not be allowed if this alarm has been activated.

THANK YOU

