



30th March 2020

Atlas Copco Rental Oceania
Atlas Copco Australia Pty Limited
7 Mining Street
Bundamba, QLD, 4304.

Attn : Ms Tracy Wheeler – Rental Coordinator.

Ref : NCR 2020 –11 - Unit 10940 PNS 1250 Panel malfunction service report incident dated 4/3/20.

Dear Tracy,

The 8451 control panel was returned to our panel manufacturer in Sydney.
The following is their report on the panel.

It appeared that there was a big electrical incidence on site that caused the fire panel damage. Normally such incidence would produce a big spark, which would generate some high voltage spikes on the main power source that supplied the fire panel. The panel power input was protected by a surge suppressor (transorb SMCJ36AV7G) which would clamp a positive surge voltage at 40V, and a negative surge at 3.5V, absorbing 1500W at very short pulse interval. However, in this case, there was no sign that the surge suppressor had suffered any damage, and yet the electronics being protected were heavily blown up. In particular, the micro-processor was fried, and the 5V voltage regulator had a direct short between input and output.

Such results point to the possibility that the damaging voltage surge hit other parts of the fire system through the process of induction, particularly via the FirePro discharge lines, which were terminated with a very low resistance detonator. Such a voltage surge would have no difficulty jumping over 2 relay contacts to reach the control electronics, bypassing the protection of the surge suppressor at the main power input.

The 8451 fire panel has been tested to survive 4KV surge voltages. This particular incidence must have surges far in excess of this voltage level.

The FirePro system has been replaced - Including the control panel, generator & system discharged monitoring. The installed system was commissioned & tested before being placed back into service.

Please note the following in regards to the FirePro aerosol fire suppression system installed-

- FirePro is listed to AS5062 – 2016 - Fire Protection for Mobile and Transportable

FirePro.

Fire suppression systems backed by **research**,
committed to **people** and the **environment**



Equipment – by Global-Mark (FirePro is the only Certified & Listed aerosol fire suppression system Certified AS5062 -2006).

- The generators do not use pyrotechnics to create the discharge.
- On discharge the fire suppression gas is a white gas & is potassium carbonate (K₂CO₃) which is a commonly used base in organic chemistry.
- **EXPLOSIVE ENVIRONMENTS**
 - FirePro has been tested, as per UL 2775, for use in explosive atmospheres UL2775, Section 26 "Pyrotechnic Reaction Containment Test".
 - FirePro has also been specifically certified under ATEX guidelines for hazardous environments and can be used in:
 - Zone 1 and 2 with presence of gases of IIA, IIB and IIC hazard groups
 - Zone 21 and 22 with presence of dusts of IIIA, IIIB and IIIC hazard groups

Safety Integrity Level – (SIL is an indicator of the probability that the actuator will fail to perform properly)

- Safety Integrity Level (SIL) of FirePro Condensed Aerosol Generators.
- SIL 2 with Hardware Fault Tolerance = 0
- SIL 3 with Hardware Fault Tolerance = 1

Please advise any further information you require & especially in regard to your client & any concerns they may have.

Yours truly,

Ray Mergard, MD.