



5th June 2019.

Riverside Marine.
Campbell House,
Po Box 2399,
Fortitude Valley, 4006.

Attn: Mr. Gregory Truloff.

Dear Greg,

Ref: **Discharge of a FirePro generator on the vessel "McEwen" 15m Line Handler.**



The following system was installed on the vessel at the time of the discharge when changing from shore to ship power both generators discharged. The 5700g generator did not discharge correctly & a side wall tore open allowing the internal cooling spheres to escape into the engine room.

The system that was installed is as follows-

- FPX103C auto/manual fire control panel.
- 1 x 5700g generator was installed port side & 1 x 2000g generator to the starboard side of the engine.
- The cabling was in orange non shielded marine grade cabling.
- The fire detection consisted of 1 x photo-optical & 1 x thermal detector.
- Previously installed in Singapore

The generators installed were the standard red steel housing generators with anodized brackets.

The system was redesigned & replaced after the incident with an Australian manufactured control panel – AMSA compliant to NSCV C4 Marine Order 503 July



2018 – the FirePro stainless steel generators with 316SS mounting brackets- fire rated, screened continuous run cables with deutsch plug connectors.

There has been no incident since this was completed.

The following & attached are the reports including videos & additional testing of FirePro generators for your consideration –

1. Several skype interviews were undertaken directly with FirePro senior Management.
2. As part of FirePro's commitment to its certification process, they had an external company report on the rivets used in the manufacture-
 - a. In the independent report on the SS rivets used in the manufacture of the 5700 generator that did not discharge as designed was supplied by FirePro Manufacturing dated 17/12/18 – attached- from CNE technology -

COMMENTS

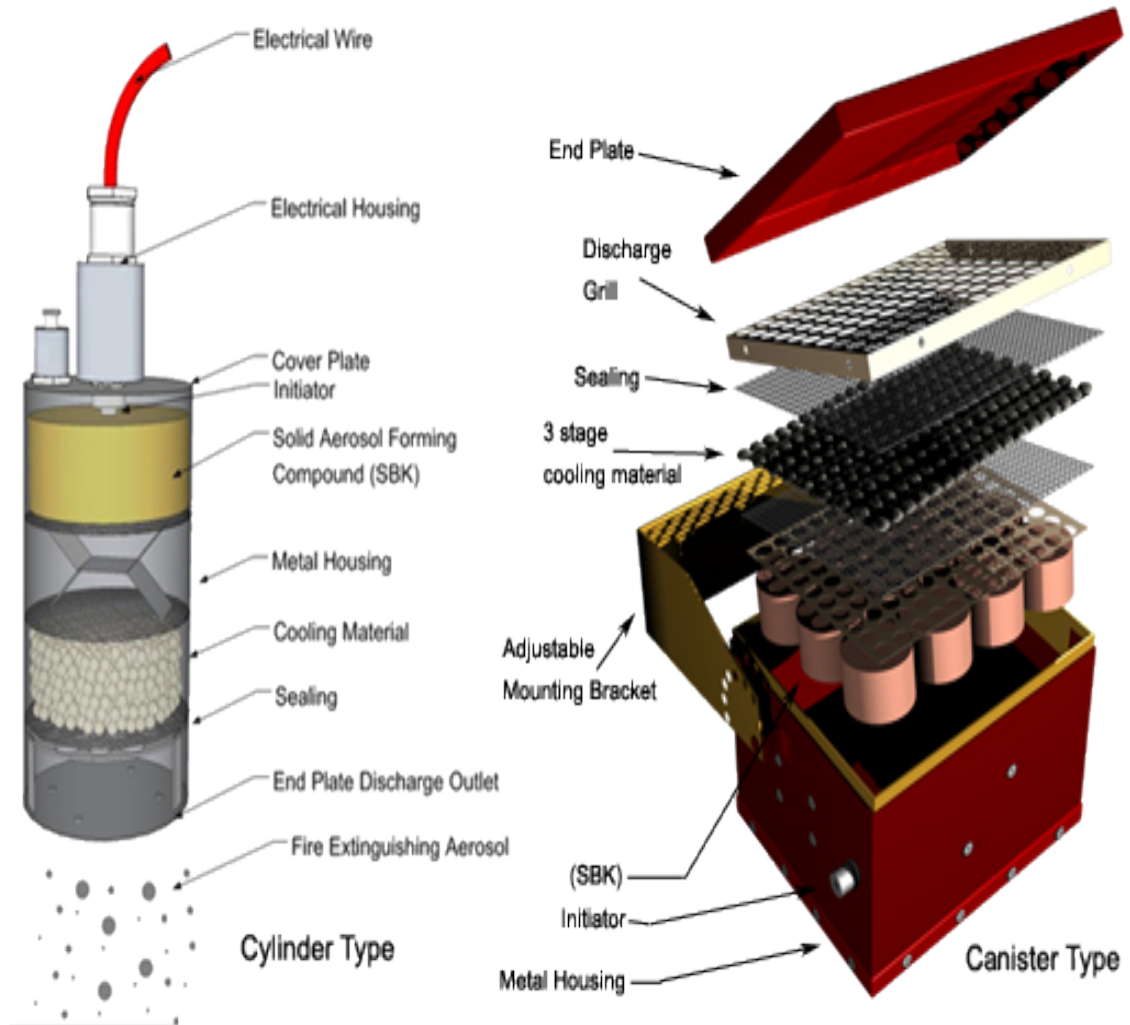
Sample 3 is stainless steel. Samples 1,2 and 4 appear to contain Aluminium rivet heads+ steel pin so are a combination of both.

3. The following from FirePro manufacturing confirms also the replacement Stainless Steel generators installed on the vessel did not have lower grade rivets.
 - a. **Source of Raw Materials, Parts and Accessories used in FirePro condensed aerosol generators**

“Based on invoices we confirm that rivets only from approved vendors have been used in FirePro generators manufactured in 2018. This applies to the FP-2000S units with Serial (Batch) Number SN: 1818143 which are manufactured on 10/07/2018.”
4. FirePro Management have advised in writing of their commitment to the ongoing quality of the product supplied to its distributors worldwide.
5. FirePro's Management have advised of the extensive list of Certifying Bodies that continually inspect the factory & the manufacturing process & associated Quality Certification to 9001. The Fire Suppression Testing Certifications from leading Certifiers in the US, UK, Europe & Australia including marine, land based & mobile plant for many fire related risks. **Very few fire suppression products today have gone through a similar list of certifications.**

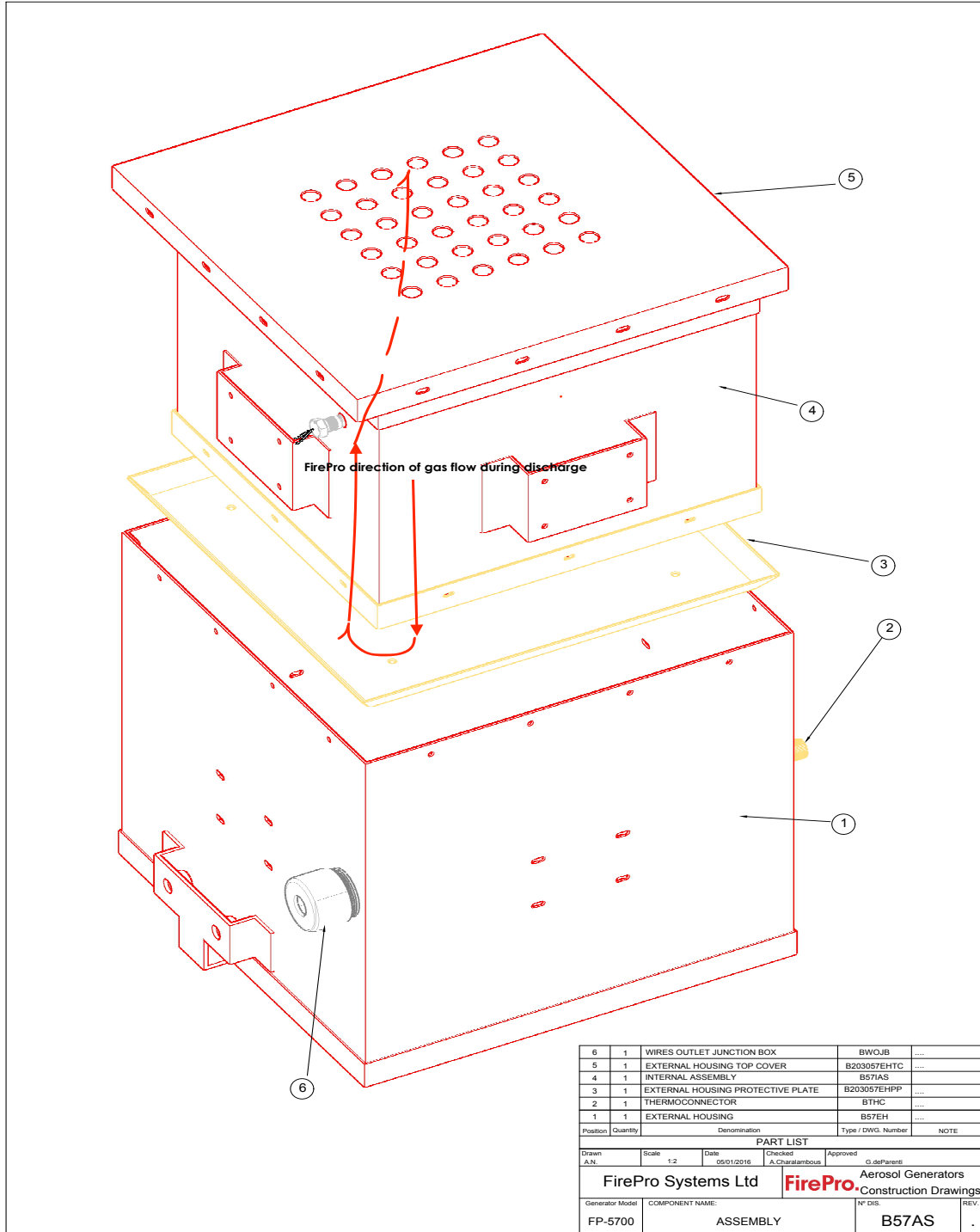
6. Attached is the General Quality Program for ISO9001 & 14001. Noting procedures 13,14,17 & 23, to ensure the incorrect use of non-approved parts in the manufacture of the generators.

7. The Following shows the physical make up internally of the FirePro generators -



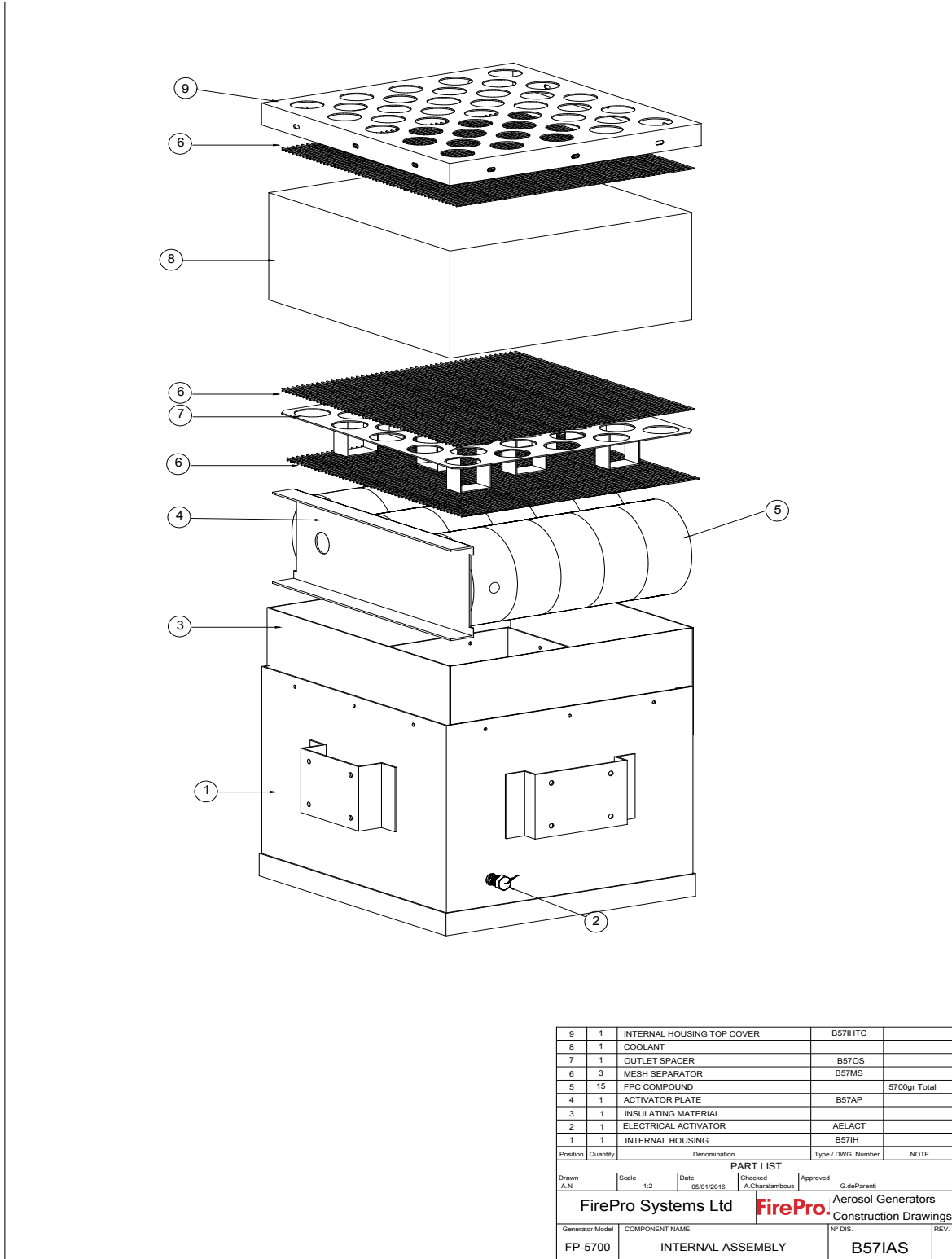


8. The following shows the direction of flow of the agent on discharge. Particularly note that the flow is initially to the rear curved plate, up along the inner side of the generator then eventually through the outer discharge port.





9. The following shows the physical parts & 3 shields that make up the generator – item 6 are the 3 separate shields to contain the spheres after & during discharge.





10. FirePro's Management have confirmed that they are unable to add additional shields within the generators due to the changes & testing required by the numerous Certifying bodies. They also firmly believe this was a very isolated incidence & has never been encountered any where else in the world. They believe that the Certifying bodies continuous fire testing of the product range & continuous monitoring & auditing of the factory processes has provided significant reliability ongoing for the product range.

As agreed with Greg we undertook a separate test of the Stainless-steel housed generator as used in Australia by FSE in our Sydney factory, on behalf of FirePro International. This is also the same SS generators (on the McEwen now is 2 x 2000g SS generators are installed as per the AMSA MCA design certification) as currently installed & commissioned.

The aim of this testing was to show the additional strength that would be encountered in the stainless-steel housing used in the generators supplied in Australia even if a highly unlikely error occurred in the manufacture of the SS generators in the future.

If you go to our web site , its in the McEwen folder-

<http://www.fsequip.com.au/mcewen> The top 2 folders are the movies. Note they are large files & will take some time to download depending on internet speed.

- Video 1 is the discharge of the 5700g SS generator.
 - This shows the 304SS rivets being removed & replaced by low grade aluminium. The generator was reassembled & electrically discharged, this is similar to the electrical discharge that happened on the McEwen & will also occur if the system is discharged manually on the vessel now.
 - After full discharge the outer case is not damaged,
 - The inner case has moved but the spheres contained as tested.
- Video 2 is the discharge of the 1200g SS generator.
 - This shows a steel plate covering 80% of the final outlet. The aim was to show a substantial blockage of the outlet.
 - You will see the full discharge & no damage to the outer casing.

Hopefully both Rivertow & BMA can be satisfied that the Stainless-Steel generators supplied & installed by our accredited distributors around the country will meet their high level of safety required for both their staff & property.

Yours truly,

Ray Mergard, MD.