Fire & Safety Systems Ltd.

Technical Bulletin 001 – System Care, Maintenance & Servicing

Rev5 28/02/2018

Lifeline extinguishers are a low maintenance product and simple to fit. When looked after and serviced to schedule they have a 10 year maximum life.

Once installed in your car the system requires the following care and maintenance: -

- Monitoring of the pressure gauge (where fitted) against operating pressures
- Where a pressure gauge is not fitted the cylinder must be weighed and the weight checked against that written on the serial label (Lifeline use UKAS calibrated scales when manufacturing the cylinder, it cannot be expected for this level of equipment to be available to most competitors or scrutineers and some difference may be seen)
- If required, cleaning of the cylinder should be done using a damp microfibre cloth taking care not to damage the serial label and keeping moisture away from any electrical connections
- Mechanical plumbed-in extinguishers require regular checking of the pull cords to ensure smooth movement. Recommended maintenance period is every 6 months as an absolute minimum
- Depending on use and conditions the nozzles and delivery network should be checked for blockages once a year prior to the new race season, using compressed air after removing all nozzles (2 Bar max from receiver). Nozzles checked separately by blowing through them
- The cylinder must be serviced by Lifeline or an approved service agent every 2 years, if a cylinder has gone without service for 6 years from date of manufacture it will only be serviced if it is in good condition and passes a hydrostatic pressure test (maximum lifespan when regularly serviced of 10 years)

NB the items listed above do not constitute a guarantee of performance and are basic minimum standards for most competition vehicles. Increased maintenance and checking may be required depending on use and particularly after an incident; continued performance after sale/service is the responsibility of the owner.

While preparing your car for a race it is advised to carry out the following checks: -

- Stored Pressure Systems - Check the pressure gauge indication is in the green sector.
- Remote Charge Systems - Check the piston indicator is protruding from the end cap (inlet side where fitted), or check the weight of the cylinder and compare with the weight written on the extinguisher label. If the actual weight is over 5% less than the weight on the label return the extinguisher for checking
- Check the integrity of the pipework and fittings
- Check the nozzles for obstruction and foreign bodies
- Check the cylinder for signs of damage. If there is any doubt as to the system serviceability please consult Lifeline
- Check that pull cords work or that the control box has battery power and circuit continuity

N.B. NORMAL TURNAROUND FOR A SERVICE IS 1 WEEK + DELIVERY TIME, BUT CAN BE LONGER DURING BUSY PERIODS. REFILLS CAN BE TURNED AROUND ON A PRIORITY SERVICE.
IF YOUR CYLINDER REQUIRES SERVICE, PLEASE KEEP THIS IN MIND WHEN PREPARING FOR AN EVENT.

Your extinguisher will be rejected from scrutineering if:

- The gauge reads in the red sectors, or the piston indicator does not protrude from the end cap (remote charge piston systems) (note in extreme cold conditions the indicator pin can retract due to contraction of the gas, be prepared to weigh the system)
- The tamper proof labels have been intentionally damaged
- The contents are below the specified weight
- The extinguisher label is worn, illegible or illegally modified
- The extinguisher is not within service date
- The system is in poor condition

Servicing must be carried out by Lifeline or one of our approved service agents, motorsport extinguishers contain components that are not available to unapproved agents and not replacing these risks the extinguisher not working when required. Zero 360 and Zero ZERO systems in particular require specialist tools and training. Regrettably, due to some incidents where cylinder content and components have been replaced with illegal/dangerous substances or modified components, if the cylinder has been serviced by someone other than Lifeline or one of our approved service agents, service will be refused regardless of condition to ensure the safety of our technicians.

Once your cylinder has been received by Lifeline, or one of our service agents, an assessment will be made on the condition of the cylinder. Damage which will result in servicing being refused includes but is not limited to; tampering/modification of either components or the serial label (the serial label remains the property of Lifeline and can be removed and retained), counterfeit serial label or components, damage to tamper evident seals or torque seals or physical damage to the cylinder.

Technical List 16 Extinguishers Servicing Requirements:

FIA standard for extinguishers states; ***"Bottles should be examined for signs of corrosion, abrasion, and paint finish. Should the service engineer decide that the bottle has been subject to corrosion or exhibits abrasions that may affect performance, the bottle should be discarded"***

Fatigue is the failure of a component through repeated application applied to a load; all extinguisher bottles have a limited service life partly as a result of fatigue. A relatively small defect such as a scratch or a dent to the surface of an extinguisher bottle can drastically reduce the time taken for the cylinder material to fail due to fatigue.

Dents, gouges and deep scratches cause stress concentrations which can dramatically reduce the life of the cylinder. Any cylinder exhibiting this type of damage will be refused service.

Technical List 52 Extinguisher Servicing Requirements:

Extinguisher system contents shall be replaced. Body shall be examined for signs of corrosion, abrasion and paint finish. Should the maintenance engineer decide that the body has been subject to corrosion or exhibits abrasions that may affect performance, the body shall be discarded. Extinguisher systems with poor paint finish should be refurbished. The interior of the body must also be inspected for signs of damage or corrosion. All seals should be replaced. The operating head should be cleaned and tested and repaired or replaced as necessary. Nozzles should be checked for damage/possible blockage/corrosion. They shall be tested to ensure that they are in good working order.

Examples of damage to extinguisher cylinders and components.

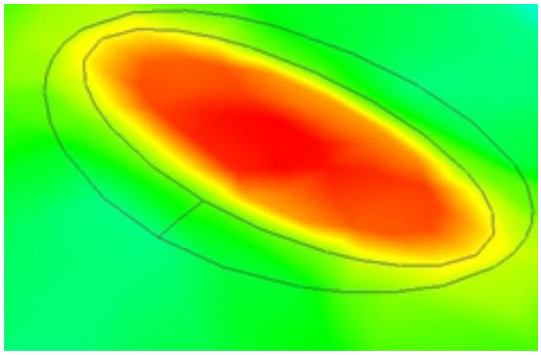

Figure 1 - Stress concentration from 30x15x0.5mm dent

Figure 2 - Burst fire extinguisher due to dent and fatigue cracking (top extinguisher shows identical damage but has yet to reach failure point). These extinguishers are steel and were wall mounted on a ship (not a Lifeline cylinder)

Figure 3 – Actuator damage due to "spanner checking"

Figure 4 - Non-approved service label

Figure 5 - Deep gouges in cylinder

Figure 6 - Deep gouge in end cap

Notes	