



FIRE SUPPRESSION

Fire suppression for all levels
of racing and motorsport



Photograph for illustration purposes

Installation Manual

Model Number: **CF-TEC2700EK** Part Number: **100.000.210**

2.7kg Coldfire plumbed-in fire suppression system with electric activation



Updated April 2024

Important Information

The CF-TEC2700EK, homologated to FIA 8865-2015 and forming part of the all new “CF-TEC” range of fire suppression systems from FEV. The CF-TEC range features Coldfire, an eco-friendly extinguishing agent that excels in the removal of heat from any object, offering unmatched safety and performance for both occupants and vehicles.

Coldfire is compatible with various racing fuels and is FIA approved for use with petrol + up to 85% Ethanol content. In addition, Coldfire will limit re-ignition and will encapsulate and remove hydrocarbons, thereby reducing hydrocarbon smoke and increasing occupant visibility during the event of a fire.

Please read the following before commencing any installation.

1. This manual should be read and understood before starting installation.
2. The components supplied should be used in accordance with the installation and any advice FEV provide. If you do not comply with the instructions or any such advice, without limitation, any warranty may be invalidated.
3. This product should be returned every 2 years from date of last service to FEV or an approved service agent, for a complete check and service – and re-certification for a further 2 years.
4. The control box does contain a battery, the battery supplied will need to be replaced with the same specification battery to guarantee the longest battery life.
5. Do not plug the loom into the firing head until the firing button connections are made.
6. Do not arm your system until you have completed the battery and circuit test as indicated in the ‘Setting Up & Operating The System’ section on page 12.

Please Note

FEV FIA approved Coldfire based systems are tested and rated for a temperature operation range of –15 to +80 degrees C in accordance with FIA regulations. Users should ensure that where high temperatures are anticipated adequate provision is made to locate the system away from high temperature sources (exhaust, catalyst, etc) and if necessary fit reflective insulation around the cylinder.

THIS IS A SAFETY ITEM! CHECK YOUR INSTALLATION CAREFULLY! IF IN DOUBT ASK!

BEFORE EVERY EVENT CHECK SYSTEM CONTENTS, NOZZLES ARE CLEAN AND ALL CONNECTIONS ARE SECURE.

FIA

It must be emphasised that any plumbed in fire extinguisher system is mainly designed to delay the development of the fire and consequently give the driver and co-driver time to exit the car; the system is not designed to put out the fire and prevent the car from burning.

Please do not tamper with, make changes to, or use non FEV parts on your new fire extinguisher system as this will invalidate the homologation and affect the performance of the product. If any new parts are needed, please call FEV on 0044 (0) 1243 55 55 66

If any changes have been made to this product from the original specification, it could in effect stop you racing.

Kit Contents

Qty	Description	Part Number
1	CF-TEC2700EK Complete Cylinder - Filled with 10mm x 1/4 Swivel Elbow Connector	100.000.211
1	CF-TEC2700MK & EK 2 - Part End Brackets	100.300.041
2	CF-TEC2700EK Standard Nut & Bolt Straps (526mm)	100.500.037
1	Electrical Control Unit - Binder	100.800.064.MV.UP01
1	EK Electrical Control Unit Loom - Binder	100.800.010D EK
1	External Fire Button (Momentary) & Fly Lead (Black or White)	100.800.073
1	Internal Fire Button (Momentary) with Metal Shroud	100.800.007
5.5mtr	10mm Aluminium Pipework	100.800.014
2mtr	6mm Aluminium Pipework	100.800.013A
1	CF-TEC Cockpit Roll Cage Nozzle Assembly with 10mm Straight Connector	100.800.080
1	CF-TEC2700 Footwell Nozzle Assembly with 10mm Swivel Elbow Connector	100.800.081
2	CF-TEC2700 LH/RH Engine Nozzle with 6mm Swivel Elbow Connector	100.800.082
1	CF-TEC2700 Centre Engine Nozzle with 6mm Swivel T Connector	100.800.083
1	6mm T Connector	100.900.056
1	10mm Y Connector	100.900.035
1	10mm Y Connector (with 6mm Reducer Installed)	100.900.035 (100.900.051)
10	10mm Aluminium Pipe Clips	100.800.011B
5	6mm Aluminium Pipe Clips	100.800.011C
2	Large 'E' Label	200.300.005
1	Small 'E' Label	200.300.005B

Installation Instructions

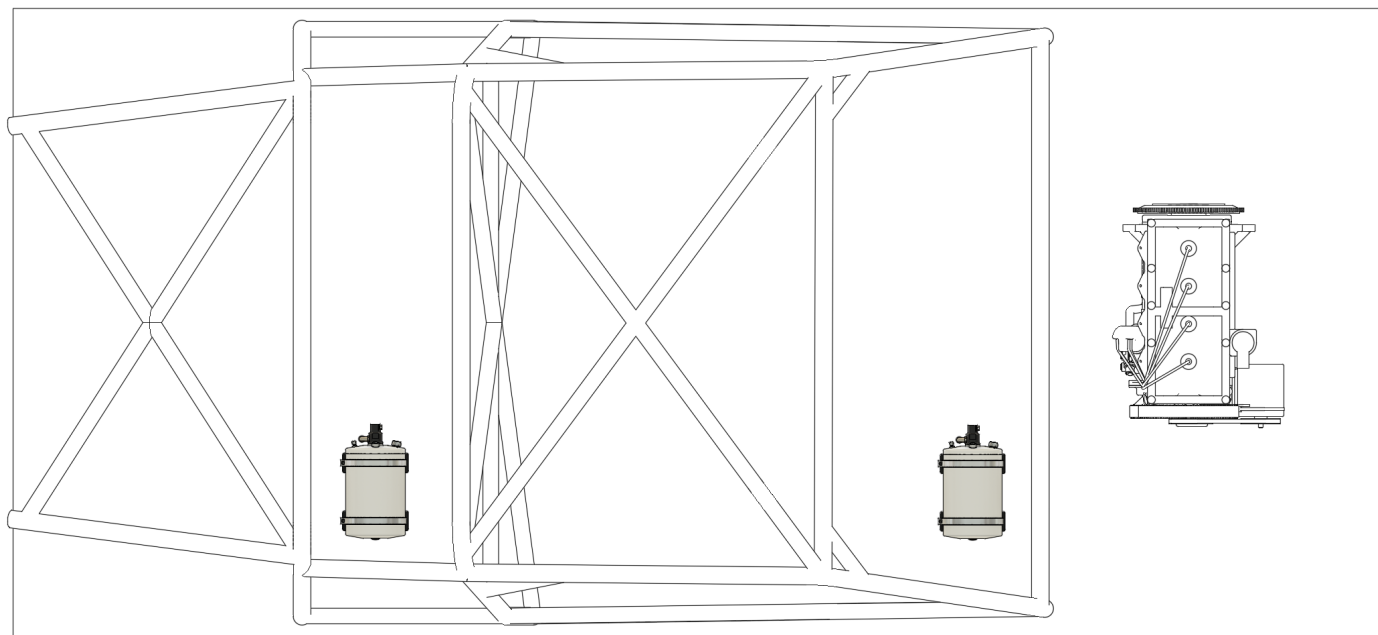
Cylinder, Cradle & Straps

Cylinder Location

Install cylinder in accordance with the following instructions and as per figure 1.

It is mandatory to affix the cylinder and cradle within the safety cell (as per figure 1) and with the FIA homologation and maintenance labels made visible for scrutineering. Either a transverse or longitude position can be selected. It is recommended to position the cylinder and cradle in either footwell, or in the rear of the cockpit behind the seats. Ensure adequate provisions are made to position the cylinder away from high temperature sources.

Figure 1



Cradle & Straps Installation

Install cradle and straps in accordance with the following instructions and as per figure 2 & 3.

Mount the cylinder cradle to the vehicle using M6 bolts, washers and Nyloc nuts. Do not use rivets or self-tapping screws. For vehicles experiencing high vibration levels, use suitable anti-vibration mounts.

1. Mark four fixing holes as per figure 2.
2. Drill the four marked fixing holes with a drill size appropriate for the bolt size being used.
3. Fix the cradle to the vehicle using M6 bolts, washers and Nyloc nuts as per figure 3.
4. Secure the cylinder in the cradle with the pre-installed straps, always ensure a lock nut is used for the strap bolt as per figure 3.

It is accepted to use a cradle and strap of your own specification, provided it conforms to FIA Appendix J, Art. 253 7.2.2

Figure 2

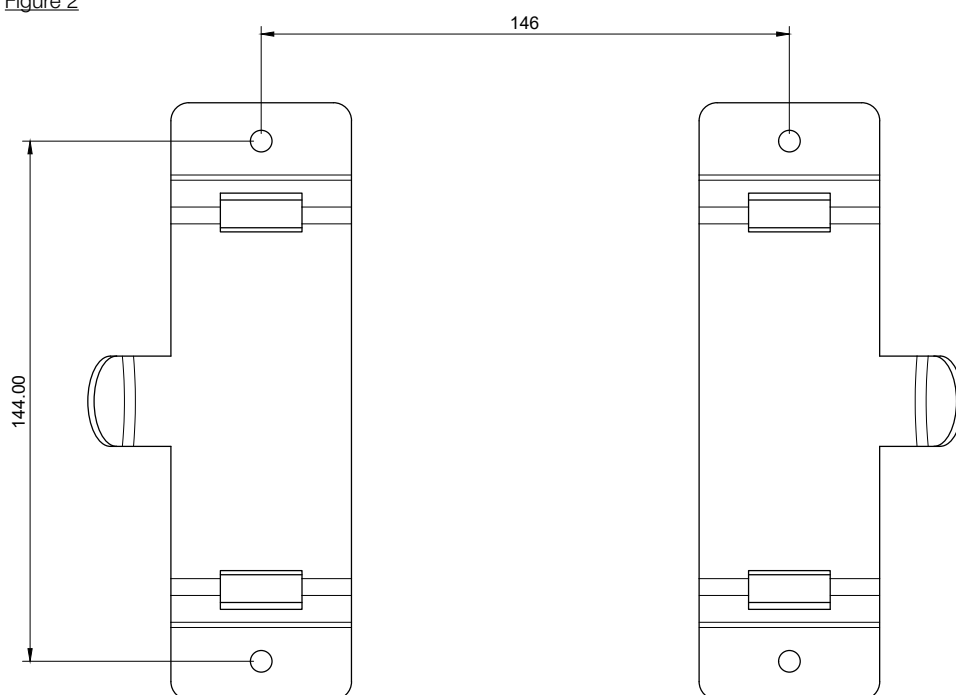
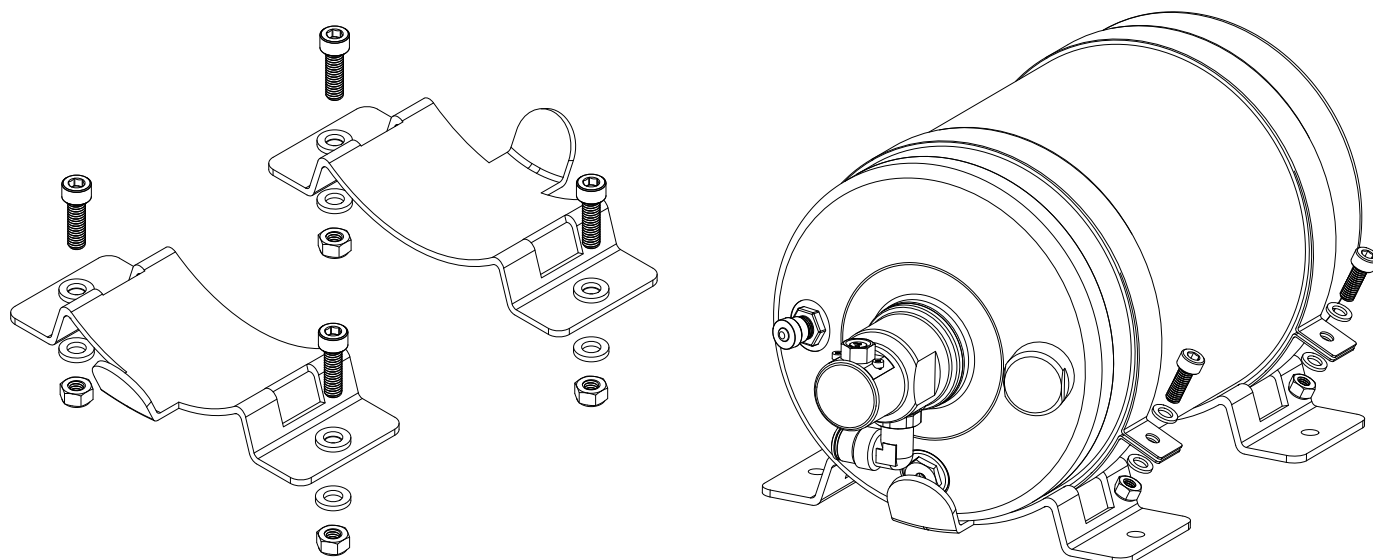


Figure 3



Pipework, Connectors & Nozzles

Pipework & Connectors Installation

Install pipework and connectors in accordance with the following instructions and as per figure 4a & 4b.

1. Correct pipe cutting and bending tooling is used.
We recommend a pipe cutter, pipe bender and a pipe straightener.
2. A minimum bend radius of 25mm for 10mm Aluminium pipework and a 15mm radius for 6mm Aluminium pipework.
3. Use O-ring lubricant on the end of each pipe before inserting into the connectors.
4. 10mm Aluminium pipe press fits into the 10mm connectors 20mm. 6mm Aluminium pipe press fits into the 6mm connectors 16mm. It is recommended to make a guide mark from the end of the pipe for ensuring a proper connection is made..
5. 10mm and 6mm Aluminium pipe is disconnected and removed from the connectors by pressing the collet in and pulling on the pipe.

Figure 4a

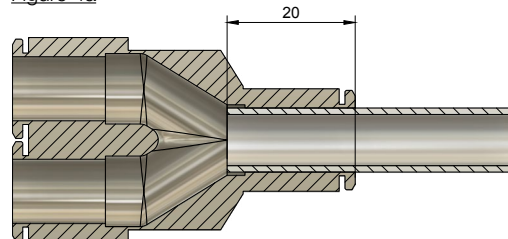
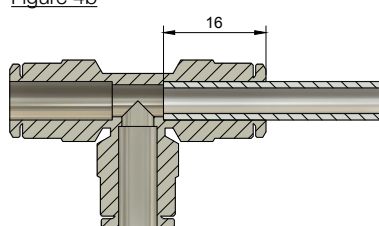


Figure 4b



Nozzle Installation

Install nozzles in accordance with the following instructions and as per figure 5a, 5b & 5c.

1. Nozzles should be installed in a way that does not obstruct the flow of the nozzles and not pointing at the head of the driver.
2. Cockpit roll cage nozzle should be mounted to a preformed bracket using x2 M4 bolts and secured centrally to the main roll bar of the roll cage using a worm drive clamp as per figure 5a. Where roll cage padding is used, please use a pre-formed bracket to ensure the nozzle sits lower than the padding and that the nozzle is not obstructed by the padding.
3. Cockpit footwell nozzle should be mounted to a preformed bracket using x2 M4 bolts and secured centrally to the transmission tunnel as per figure 5b.
4. Engine nozzle should be mounted to a preformed bracket with a 17mm through-hole and secure using the supplied nut as per figure 5c. Secure nut using Loctite 243 and mark with torque seal.
5. Install all push fit connectors into nozzles using Loctite 243 and mark with torque seal.

Figure 5a

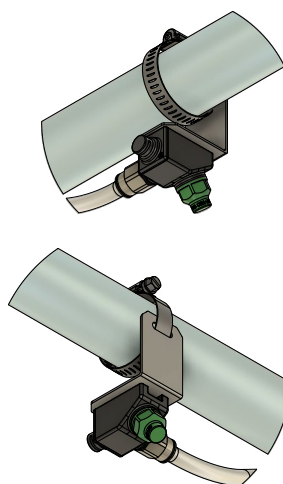


Figure 5b

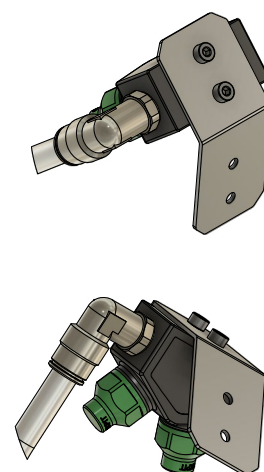
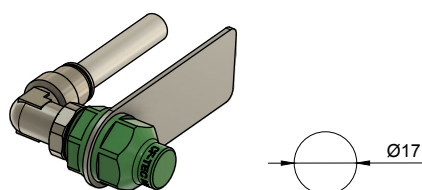


Figure 5c



Cockpit Nozzle Location for Vehicles with a Rear Cockpit Area

Install cockpit nozzle in accordance with the following instructions and as per figure 6a & 6b.

1. The roll cage cockpit nozzle should be mounted parallel to the ground and secured to the main roll bar of the roll cage with the green nozzle spraying down and towards the front of the car and the flat fan nozzle spraying down and behind the vehicles seats. Where roll cage padding is used, please use a pre-formed bracket to ensure the nozzle sits lower than the padding and that the nozzle is not obstructed by the padding.
2. The footwell cockpit nozzle should be mounted central to the vehicle and towards the front of the transmission tunnel area with the nozzles spraying down and towards the rear of the vehicle into each footwell.
3. Ensure nozzle is not obstructed and is NOT aiming towards the head of the driver/co-driver.

Figure 6a

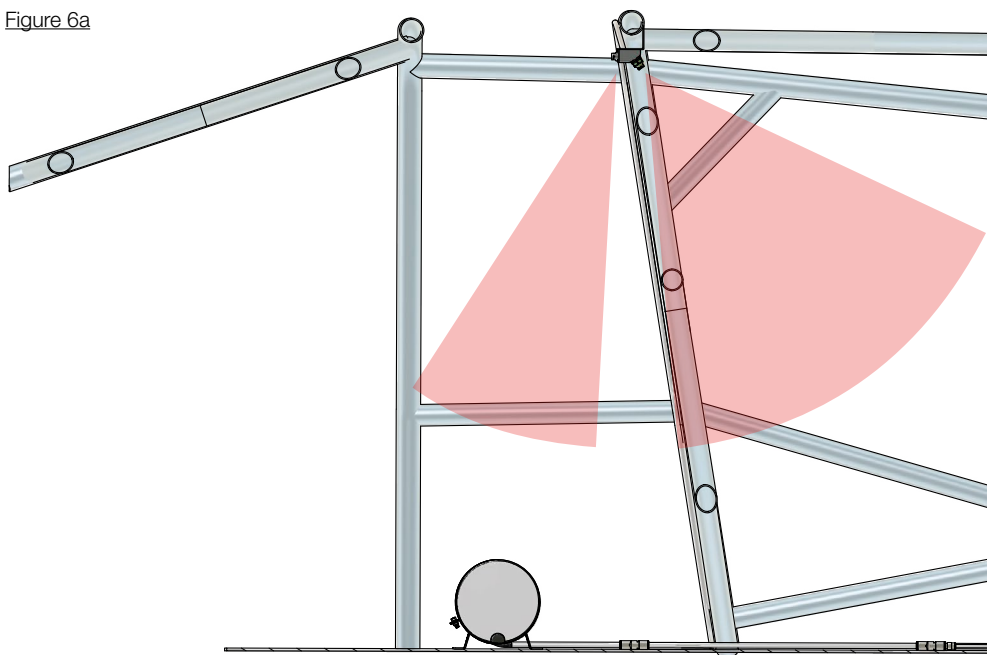
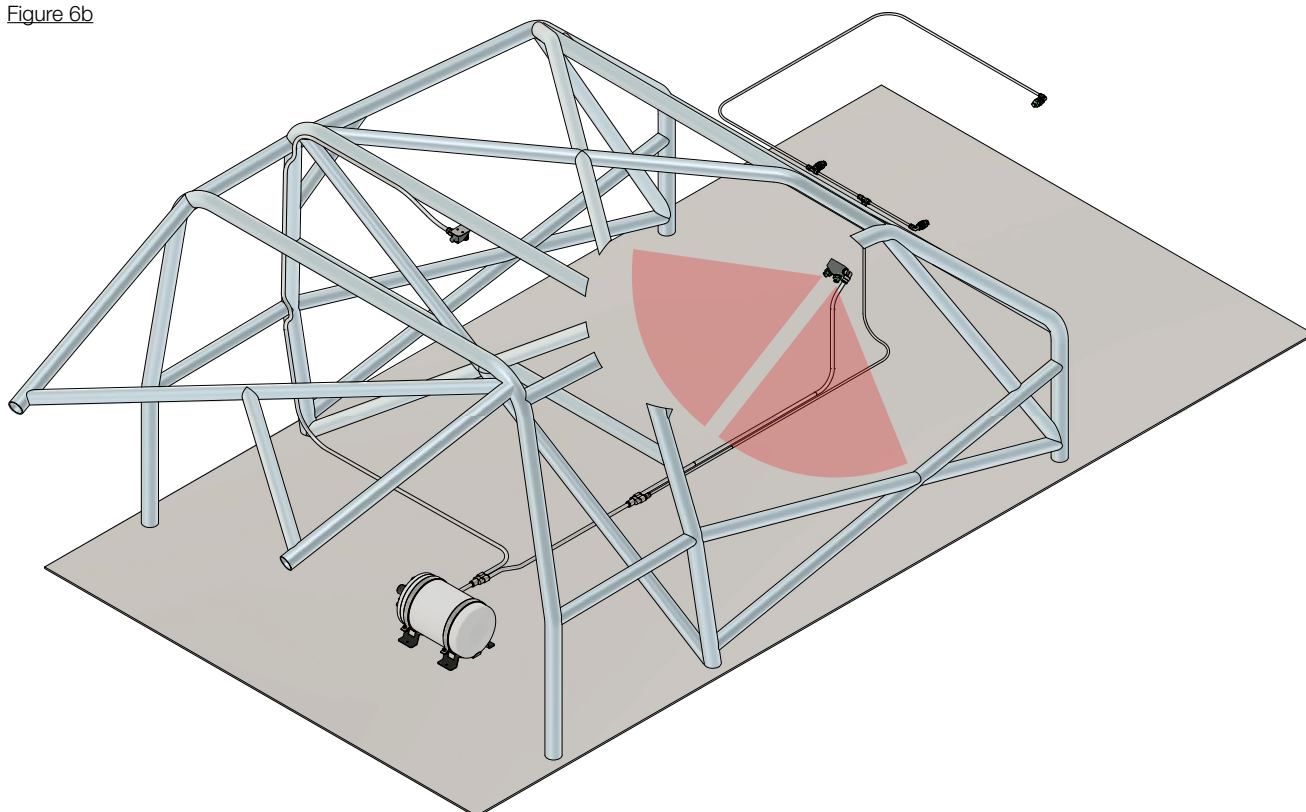


Figure 6b



Cockpit Nozzle Location for Vehicles without a Rear Cockpit Area

Install cockpit nozzle in accordance with the following instructions and as per figure 7a & 7b.

1. The roll cage cockpit nozzle should be mounted parallel to the ground and secured central to the roof bars of the roll cage with the green nozzle spraying down and forwards over the dashboard and the flat fan nozzle spraying down onto the lap of the driver/co-driver. Where roll cage padding is used, please use a pre-formed bracket to ensure the nozzle sits lower than the padding and that the nozzle is not obstructed by the padding.
2. The footwell cockpit nozzle should be mounted central to the vehicle and towards the front of the transmission tunnel area with the nozzles spraying down and towards the rear of the vehicle into each footwell.
3. Ensure nozzle is not obstructed and is NOT aiming towards the head of the driver/co-driver.

Figure 7a

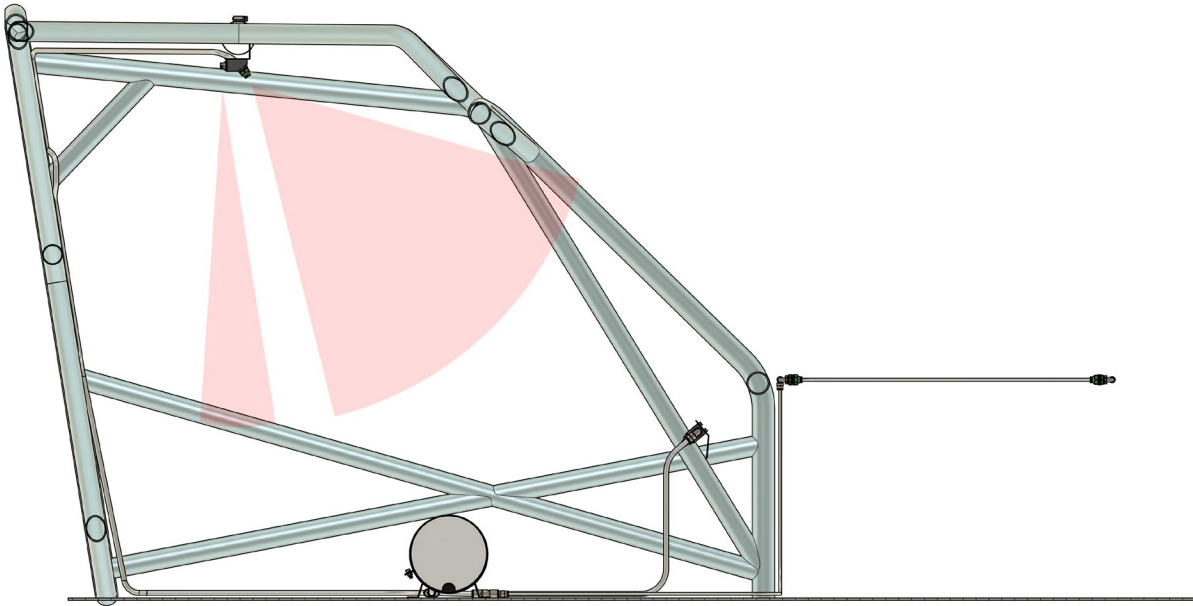
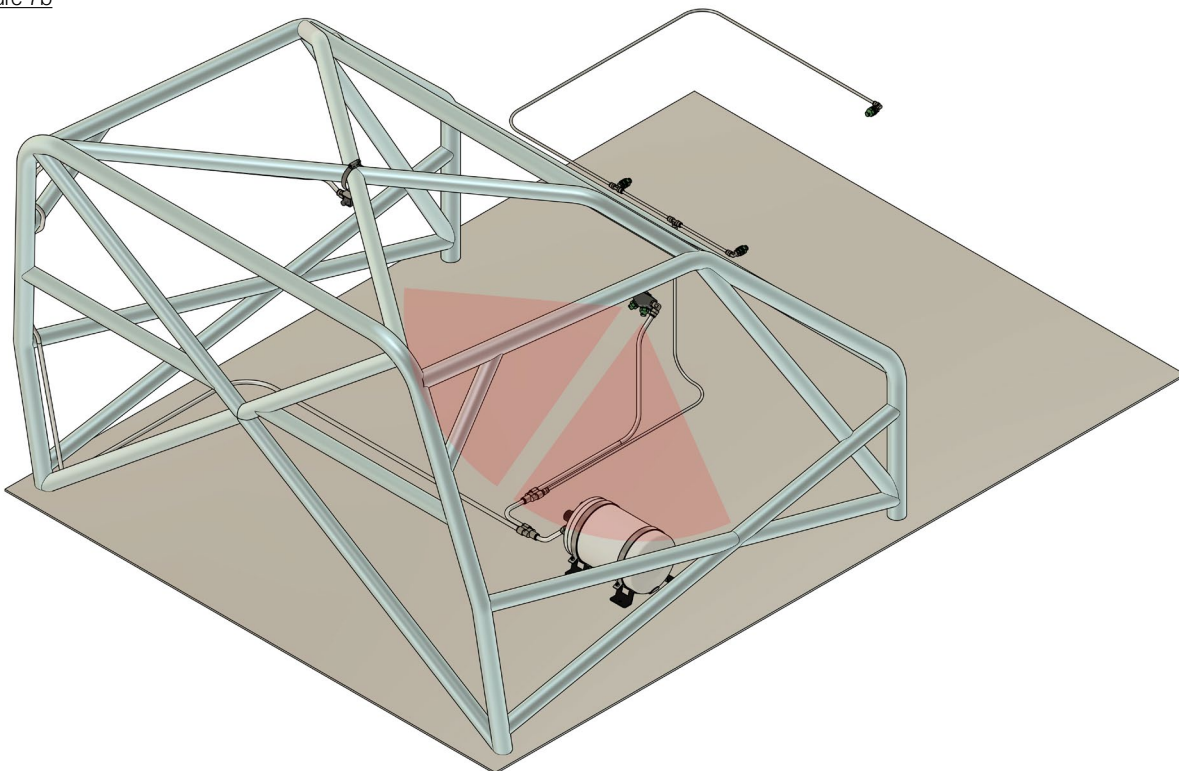


Figure 7b

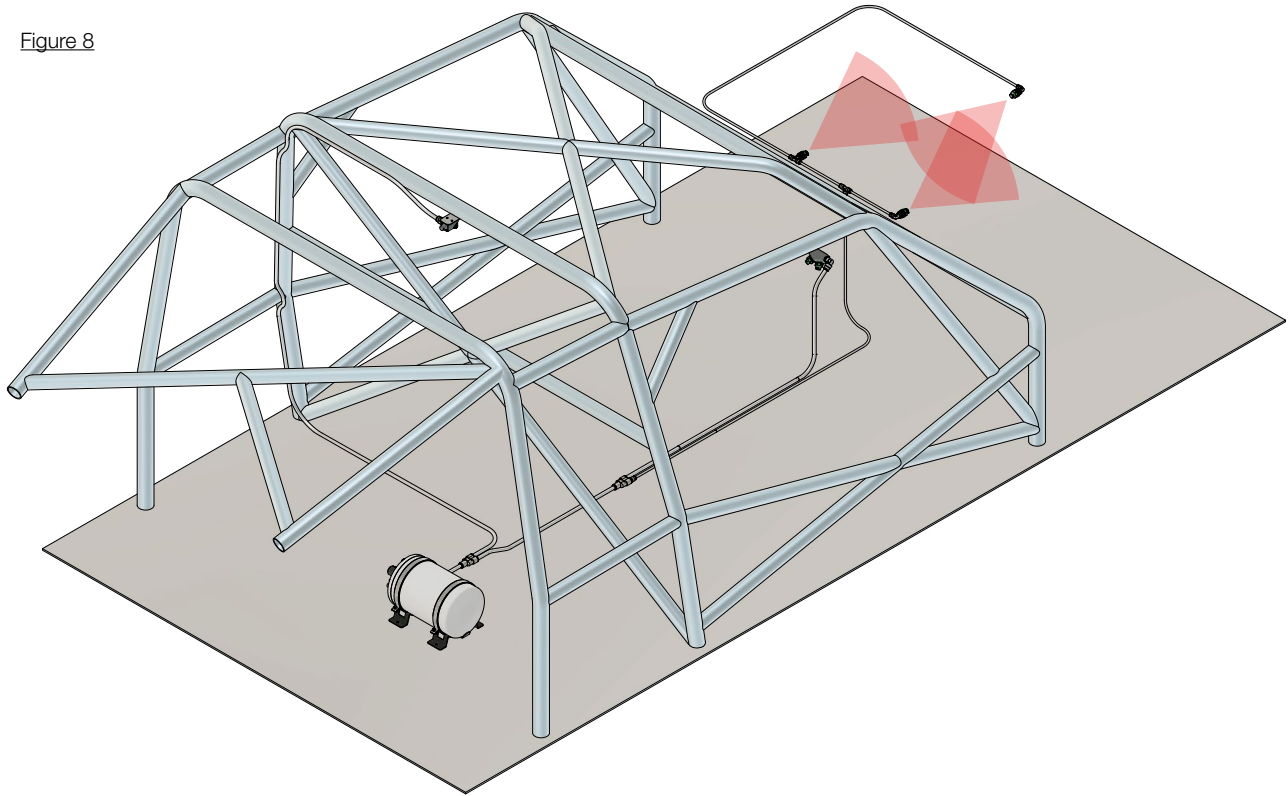


Engine Nozzles Location

Install engine nozzle in accordance with the following instructions and as per figure 8.

1. There are 3 engine nozzles, 2 of the engine nozzles should be mounted on the engine bulkhead spraying towards the front of the vehicles and aimed at likely ignition sources, the last nozzle should be mounted so that it is spraying towards the rear of the vehicle and aimed at likely ignition sources.

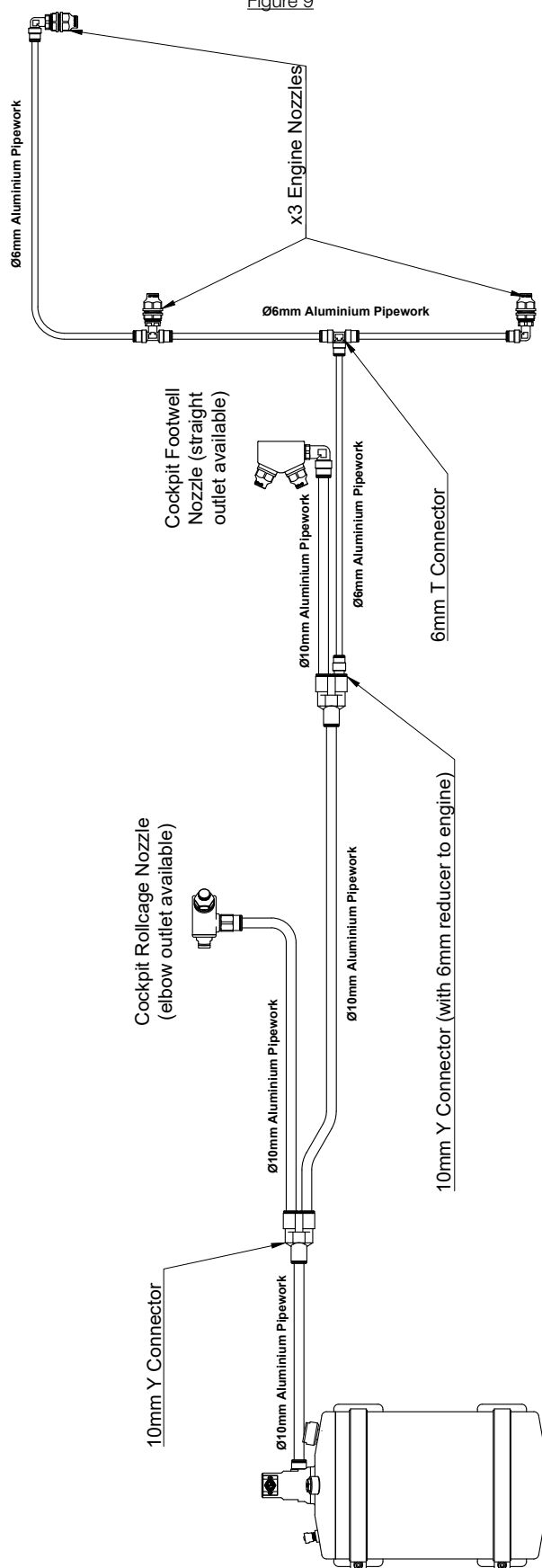
Figure 8



Pipework, Connectors & Nozzles Layout

Install the CF-TEC2700EK cylinder to the pipework, connectors and nozzles in accordance with figure 9. Take care to ensure pipework lengths, connector configuration and nozzle location are correct, incorrect installation can result in a void homologation. Use pipe clips as supplied for securing pipework to the vehicle.

Figure 9



Electrical System

It is mandatory for the electrical system to be independent of other vehicle electrical systems, this enables the extinguisher system to still be fired in the event electrical shutdown or failure.

The electrical system must not be modified in any way, doing so can void the extinguisher systems homologation.

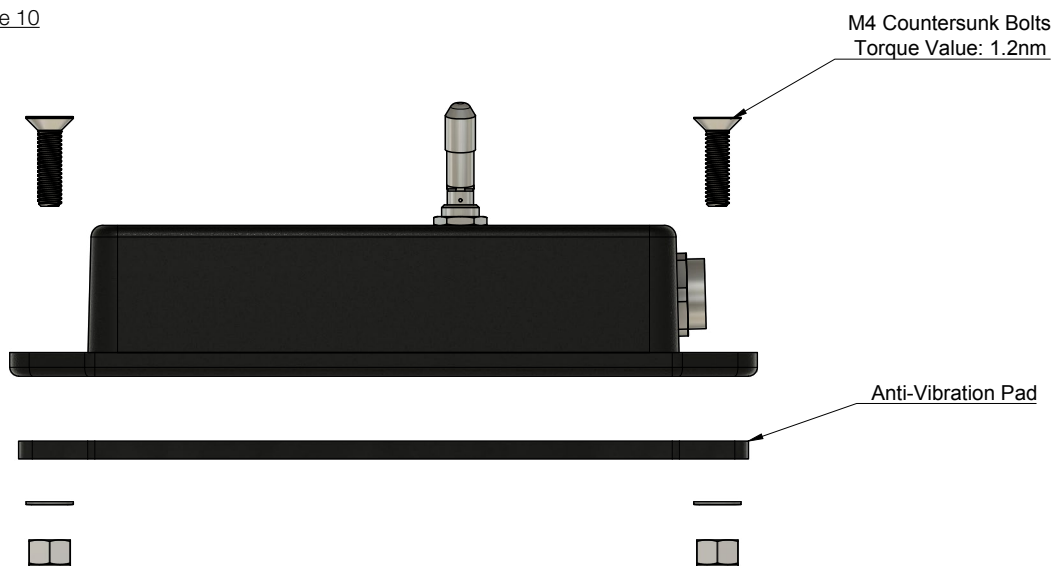
If any modifications are required, please consult FEV technical before doing so.

Electrical Control Unit

Install the electrical control unit in accordance with the following instructions and as per figure 10

1. Mount the control unit in a suitable position where it can be reached by the driver, making sure that the LED lights are visible to the driver and for scrutineering.
2. Mount the control unit on the supplied anti-vibration pad.
3. Secure the control unit using four M4 countersunk bolts and nyloc nuts.

Figure 10

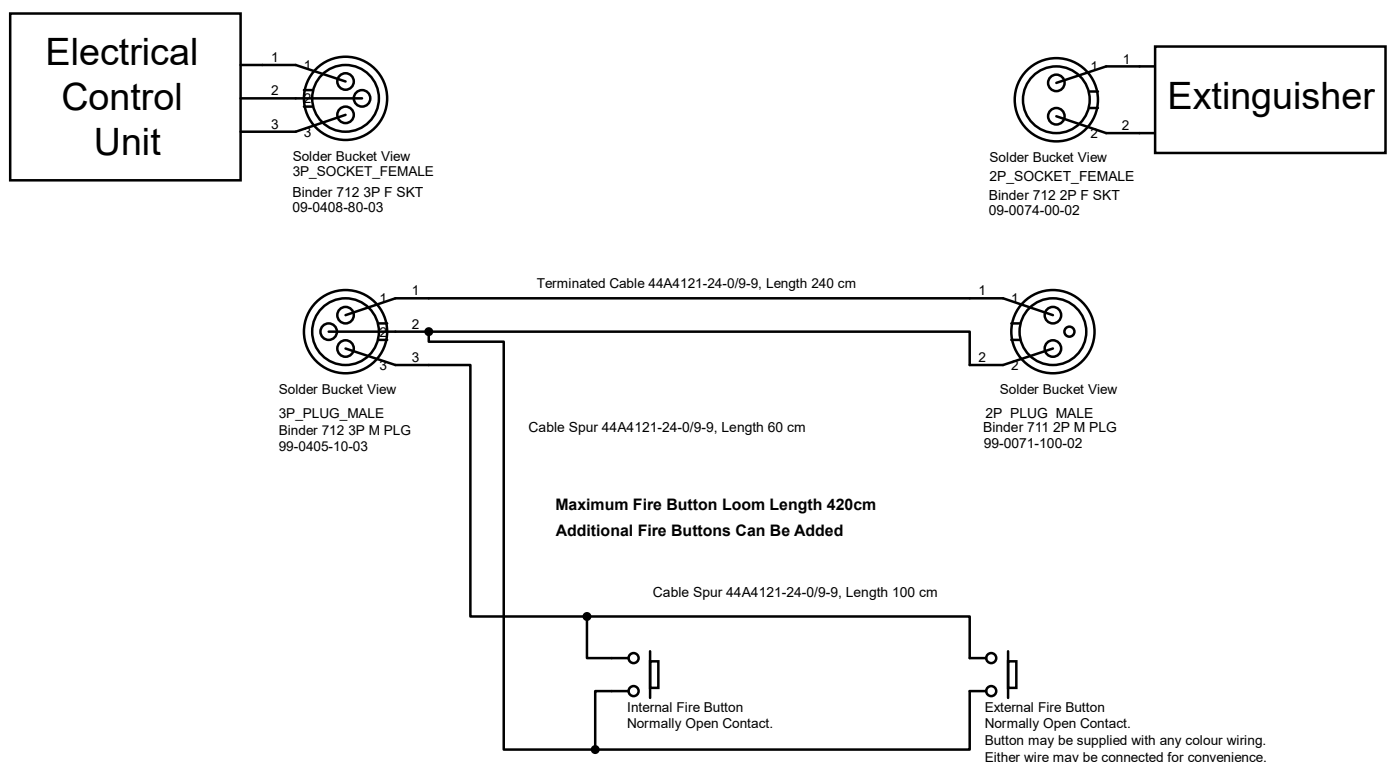


Control Unit Wiring Loom

Install and connect the control unit wiring loom in accordance with the following instructions and as per figure 11.

1. Select the TEST position on the control unit by lifting and moving the toggle switch.
2. Connect the 3-pin connector from the wiring loom to the electrical control unit, tighten screw connections hand tight and secure using Loctite 243.
3. With the control unit in TEST position, connect the 2-pin connector from the wiring loom to the firing head of the extinguisher system, tighten screw connections hand tight and secure using Loctite 243.
4. The branch in the loom connects to the internal fire button, a suitable connection will need to be made using solder joints and sealed with adhesive lined heatshrink.
5. The external fire button with flying lead will need to be connected to the connections of the internal fire button, a suitable connection will need to be made with solder joints and sealed with adhesive lined heat shrink.

Figure 11



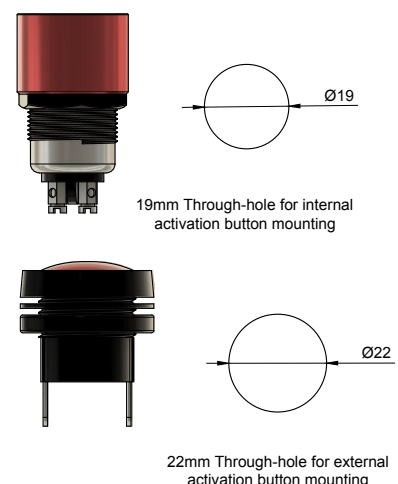
Activation Buttons Installation

Install the activation buttons in accordance with the following instructions and as per figure 12.

There are two different types of activation buttons supplied, one internal with a red metal shroud and an external with a fly lead attached.

1. Mount the internal activation button through a 19mm hole to enable operation in accordance with current regulations inside the vehicle, and within easy reach of the driver and co-driver where applicable. Apply a small E label adjacent to the internal button.
2. Mount the external activation button through an outside panel through a 22mm hole, adjacent to the electrical cut off switch and then apply the large E label adjacent to the external button.

Figure 12



Setting Up & Operating The System

The control unit has a 2 position toggle switch for selecting the function. The up position is ARM mode with a red LED and the down position is TEST mode with an orange led.

The toggle switch has a lock feature to ensure the correct switch position is kept at all times, therefore this requires the toggle switch to be lifted before moving from TEST to ARM, or ARM to TEST.



Test Mode Orange LED

Carry out the system TEST procedure as per the following instructions:

1. Lift and move the toggle switch in to the TEST position.
2. Press any one of the internal or external activation buttons. This will initiate a test of the complete electrical system.
3. If the test is successful, the orange LED will illuminate for 10 seconds. If the test is unsuccessful the orange LED will flash for 10 seconds or more, indicating a fault in one of the following:
 - a.) Low battery.
 - b.) Electrical discontinuity.
 - c.) Activation buttons.
 - d.) Firing head connector.
 - e.) Firing head actuator.
4. Make appropriate checks to the above before conducting a second test.
5. If test is still unsuccessful, contact FEV technical.

ARM Mode Red LED

If the system test is successful, the toggle switch can be LIFTED and moved to the ARM position. Whenever the toggle switch is moved from the TEST to ARM position, the control unit will run an automatic test to ascertain that there is no anomalies, only after those checks will the red LED start to flash continually every 2 seconds indicating the control unit is operational.

ONLY PRESS AND RELEASE THE ACTIVATION BUTTONS IF NEEDED, THIS WILL ACTIVATE THE SYSTEM.

Recommend After Use

Whenever the control box is not in use, always make sure the switch is in the TEST mode and all the lights are off. In the TEST mode, after 30 minutes the control box will go to sleep, giving an approximate 1-year battery life.

Preparation For Race

Check all wiring connections and run through the test position procedure before each race to test for any anomaly.

Battery Fitment

Install and replace the battery as per the following instructions and in accordance with figure 13.

1. Remove the four countersunk screws from the back of the control unit housing and remove the lid.
2. Remove and replace the Alkaline PP3 battery from the battery holder. Replace battery with 9v PP3 alkaline, we recommend Procell 6LR61 spec.
3. Re-install the lid and the four countersunk screws, ensure the four screws have O-rings installed.
4. Torque the four countersunk screws to 25-30 cN.m. Ensure housing gasket is not protruding when lid is secured.

Figure 13



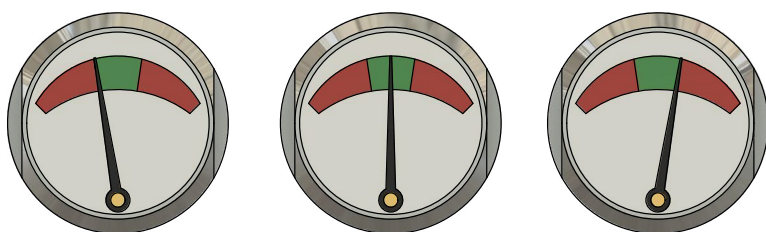
Extinguisher Checks & Maintenance

Extinguisher Pressure Gauge Check

Make a check to the pressure gauge as per the following instructions and in accordance with figure 14.

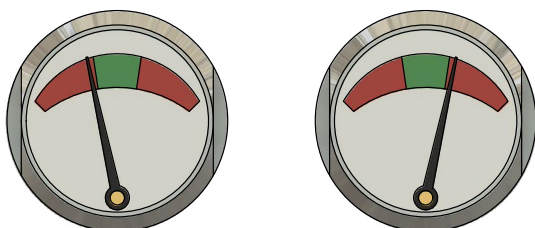
1. Check the pressure gauge prior to every event.
2. Ensure the pressure gauge needle is in the green zone of the scale. The green zone is designed for the minimum and maximum operating temperatures, some variation will be experienced in high and low temperatures, this is expected.
3. If the pressure gauge needle is in either of the red zones, remove extinguisher from service and contact FEV directly or one of FEV's approved service agents.

Figure 14



The above pressure gauge needle positions shall be deemed acceptable

The below pressure gauge needle positions shall be deemed **NOT** acceptable

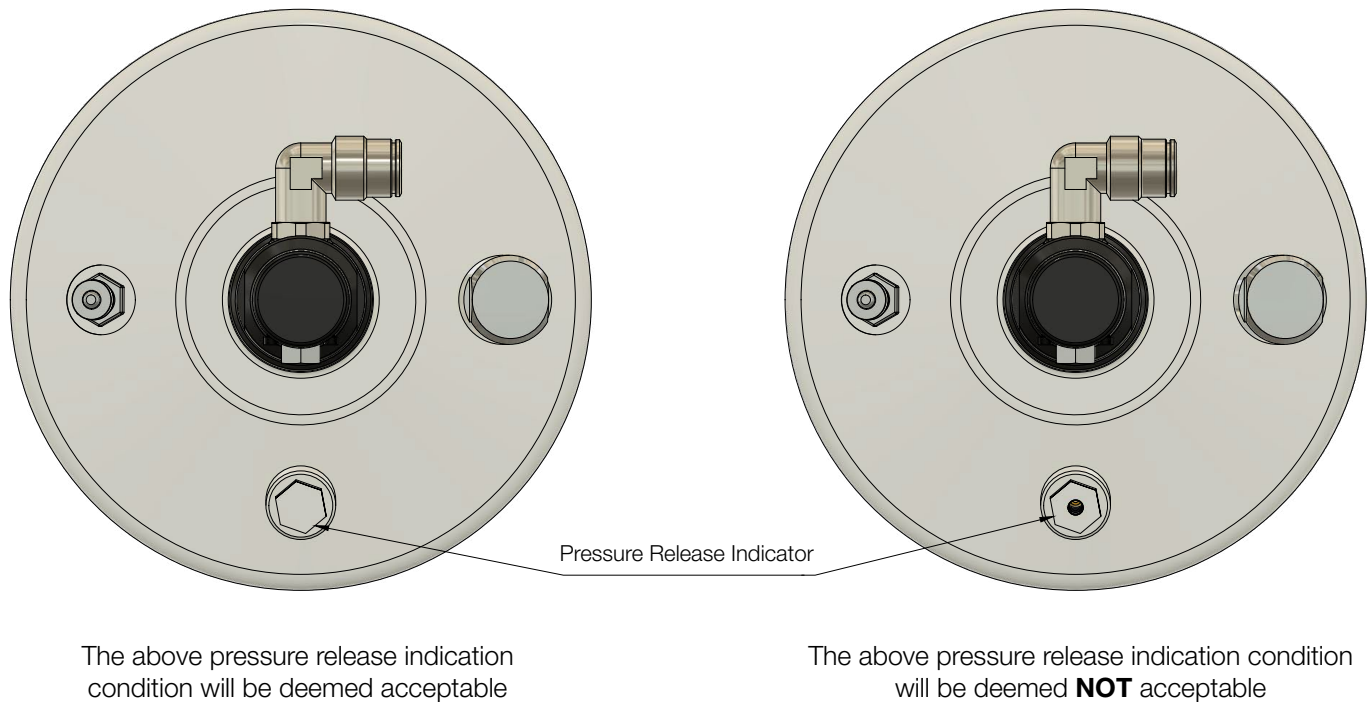


Pressure Release System Check

Make a check to the pressure release system as per the following instructions and in accordance with figure 15.

1. Check the pressure release prior to every event.
2. Ensure the pressure release indicator is not damaged or removed.
3. If the pressure release indicator is damaged or has been removed, remove the extinguisher from service and contact FEV directly or one of FEV's approved service agents.

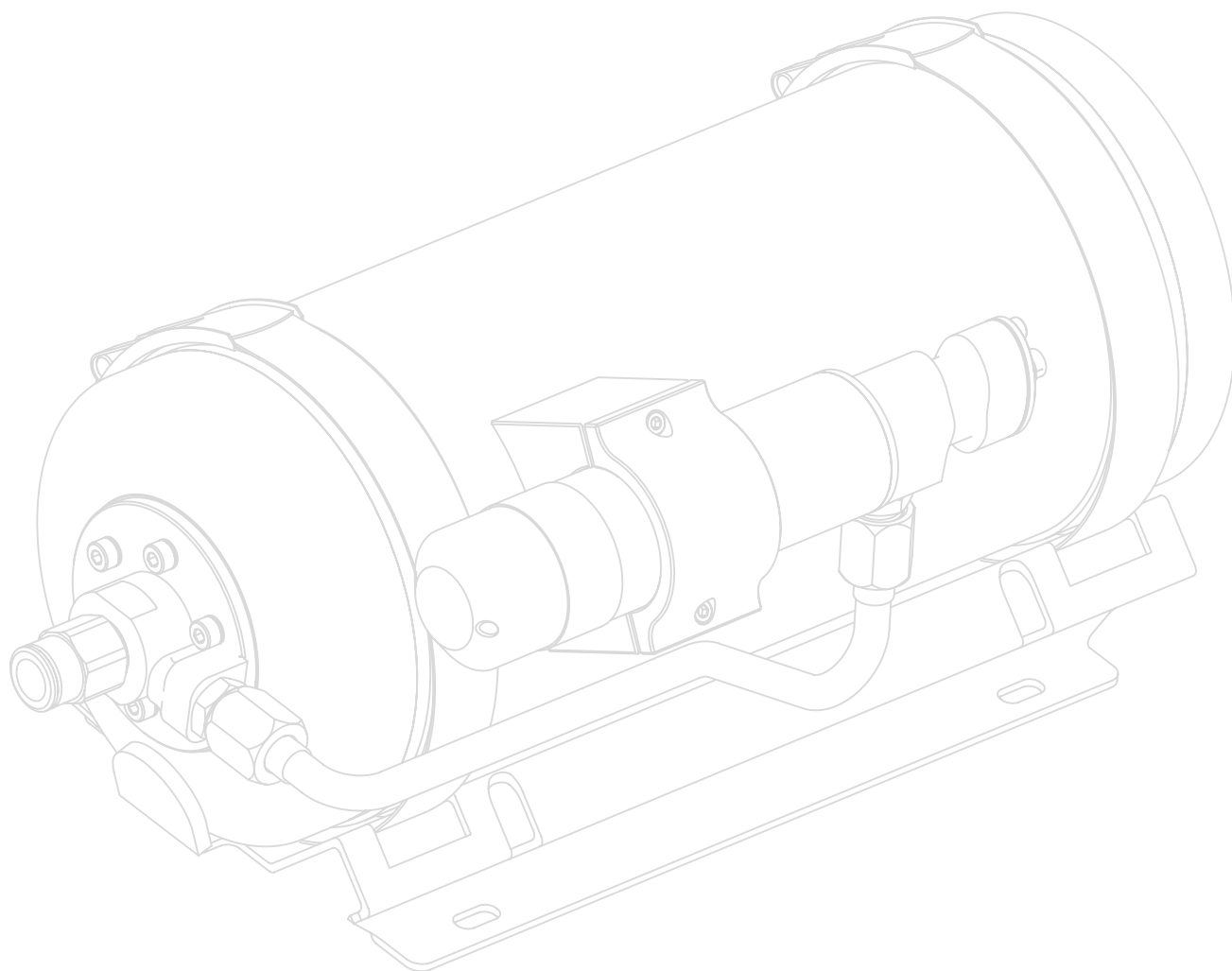
Figure 15



Extinguisher Maintenance

The following maintenance should be carried out on every extinguisher:

1. Prior to each event, check that the FIA homologation, maintenance and (AQ) hologram labels are valid and can clearly be read during scrutineering checks.
2. Prior to each event, check system pipework, connectors and nozzles to ensure no damage or blockage.
3. Make routine checks to the bottle weight, pressure gauge and pressure release system.
4. The system should be serviced every 2 years to comply with FIA regulations. This can only be carried out by either FEV or an approved FEV service agent.
5. Never attempt to modify or service an extinguisher system yourself or by a unapproved FEV service agent, doing so can impact the FIA homologation and therefore could stop the vehicle from being approved to race.
6. If the fire extinguisher is discharged without a fire, clean nozzles, connectors and pipework through with water until no residue is remaining.
7. After the event of a fire, replace any nozzles, connectors or pipework that have been damaged by the fire.



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