



# extreme

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Model: SPAEX2.25 – 2.25KG Novec Extreme Electrical System

## Installation Instructions

FIA Homologation EX.049.18

**Please Read Carefully Before  
Attempting To Install Your Fire  
Suppression System**



DESIGN

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DESIGN

# Electrical 2.25kg Novec 1230 System



Thank you for purchasing one of our latest range of FIA Homologated EX.049.18 fire suppression systems for open cockpit applications. This manual covers the following model system SPAEX2.25. It is important that you read the following instructions carefully before attempting to install your fire suppression system. The performance of these systems could be affected if they are in any way modified or tampered with which will void its homologation. Please ensure you only use genuine SPA parts should any part need replacing. Should you require assistance with this please call below  
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# Contents List

**Model: SPAEX2.25**

## **2.25 KG Novec Extreme Fire Suppression System**

- 1 x SP147 – 5” Diameter Retaining Straps x 2.
- 1 x SP319 – Anti Torpedo Tabs x 2.
- 4.5 x SP032 – 8mm Decabon Tubing Per Meter.
- 2.5 x SP072 – 10mm Decabon Tubing Per Meter.
- 0.5 x SP181 – 12mm Decabon Tubing Per Meter.
- 1 x SP182 – 12mm – 10mm Y Piece Connector.
- 1 x SP183 – 10mm – 8mm Y Piece Connector.
- 1 x SP186 – 10mm – 8mm Straight Reducer Connector.
- 1 x SP185 – 10mm Bulkhead Connector.
- 2 x SP187 – 8mm Engine Bay Nozzle.
- 1 x SP481 - 8mm Cockpit Deflector Nozzle.
- 1 x SP007H – Power Pack Control Unit.
- 2 x SP005H – 2M Connector and Lead.
- 1 x SP011 – Internal Firing Button.
- 1 x SP012 – External Firing Button.
- 1 x SP017 – Large E Location Sticker.
- 1 x SP029 – Small E Location Sticker.
- 1 x SP530 – Manual Instructions.

## Cockpit Nozzle Location Open Cockpit

The SP481 cockpit nozzle is specially engineered as a fully multi-directional nozzle, this allows you to position the nozzle as shown in figure 1 or 2 which will cover the driver and front foot-well position.

Fig1

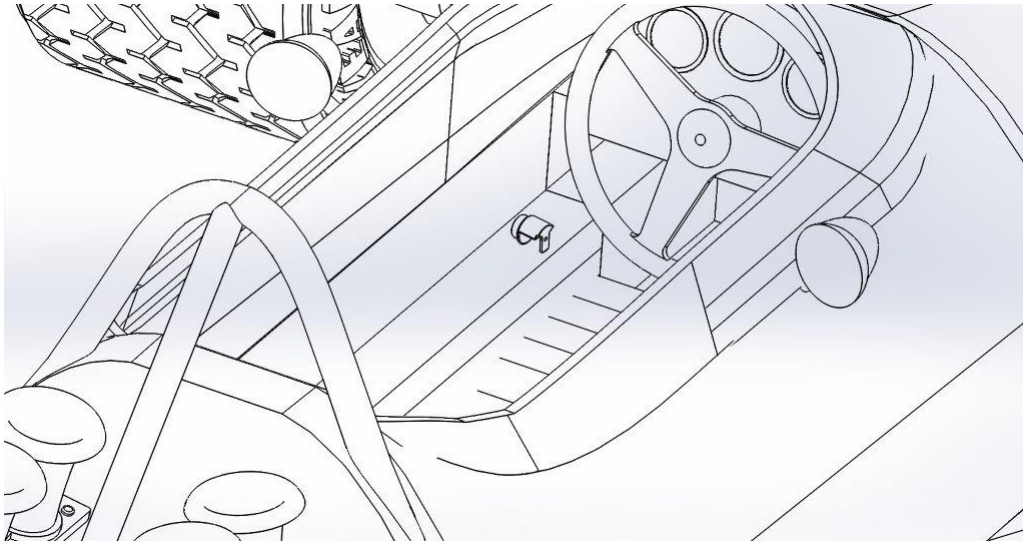
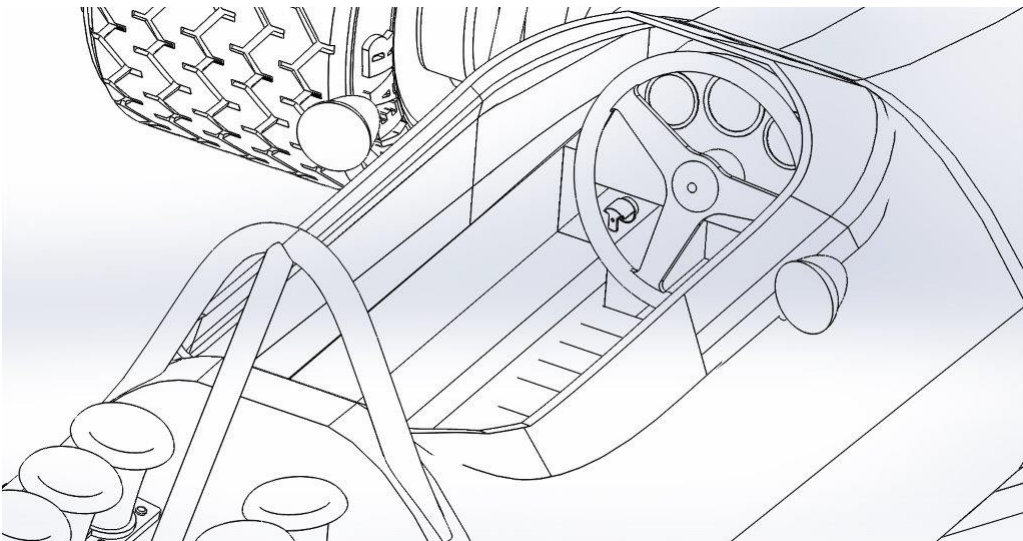
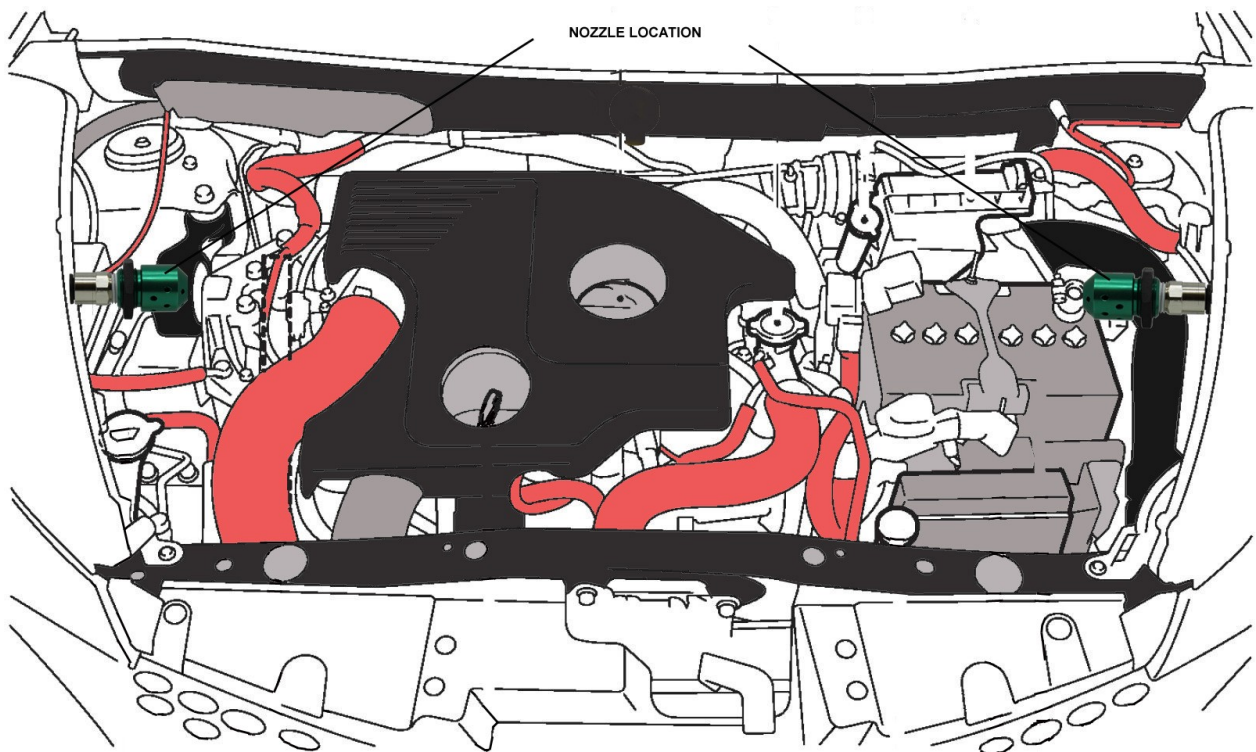


Fig2



# Engine Bay Nozzle Location

Two nozzles should be mounted in Engine compartment  
Figure 1 All models



## Tubing

Each SPA Extreme system is supplied with Decabon tubing which is a coated aluminium tube which can be molded and flexed to suit this application.

The SPA Extreme system has been designed using this type of tube. DO NOT substitute this tube for any other type.

## MULTI-DIRECTIONAL NOZZLES

Please note that nozzle shown in Fig.A must only be used in engine bay.  
Nozzle shown in Fig.B must only be used in cockpit.

fig A



fig B



It is important that the correct nozzles supplied with the system are used, the nozzles produce a multi directional spray pattern and must be positioned as shown in Fig A.

fig A



Yes



No

Please note: Figure B Cockpit Nozzle Saloons Only

Cockpit Nozzle orientation for system model SPAEX2.25

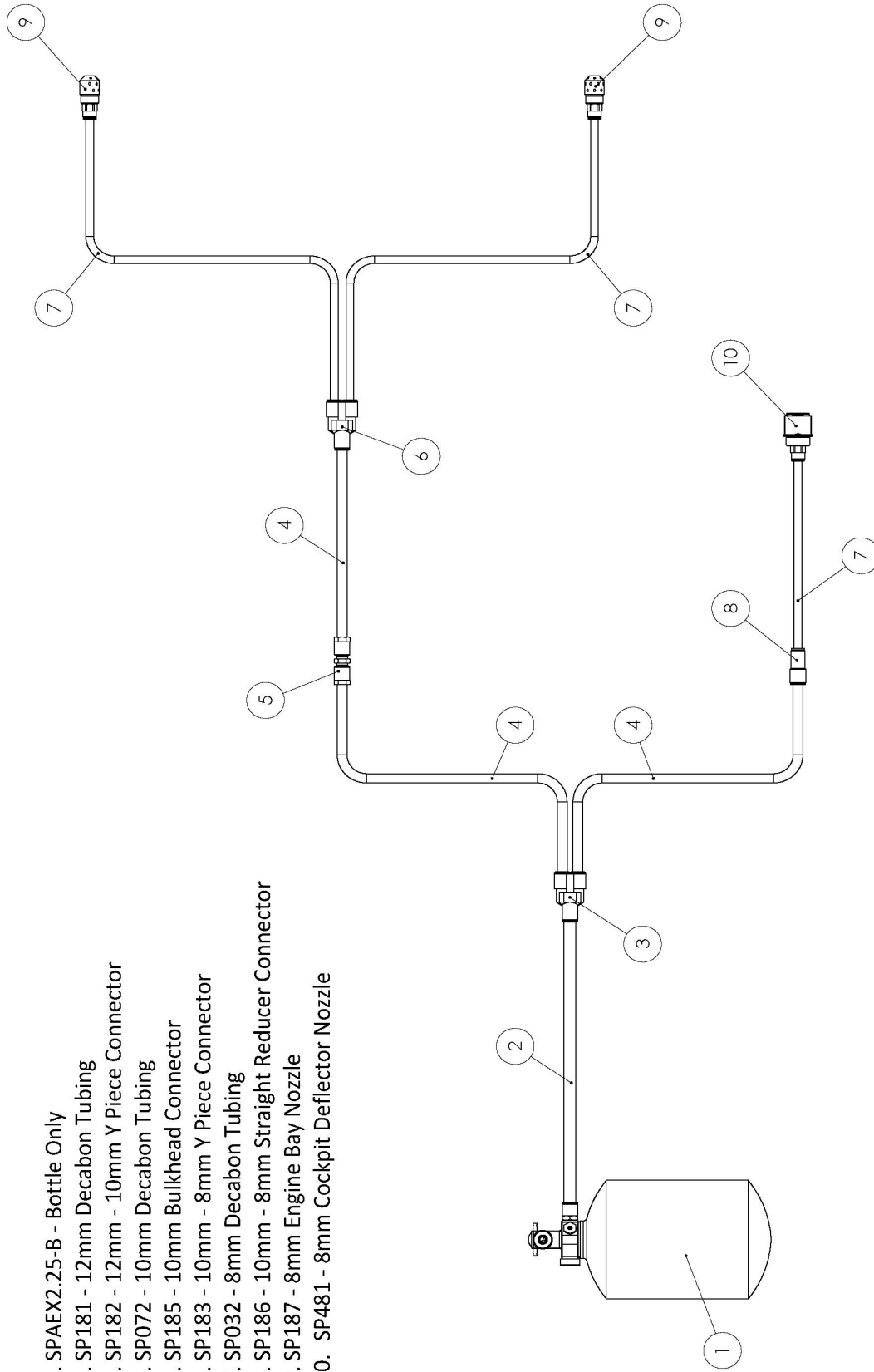


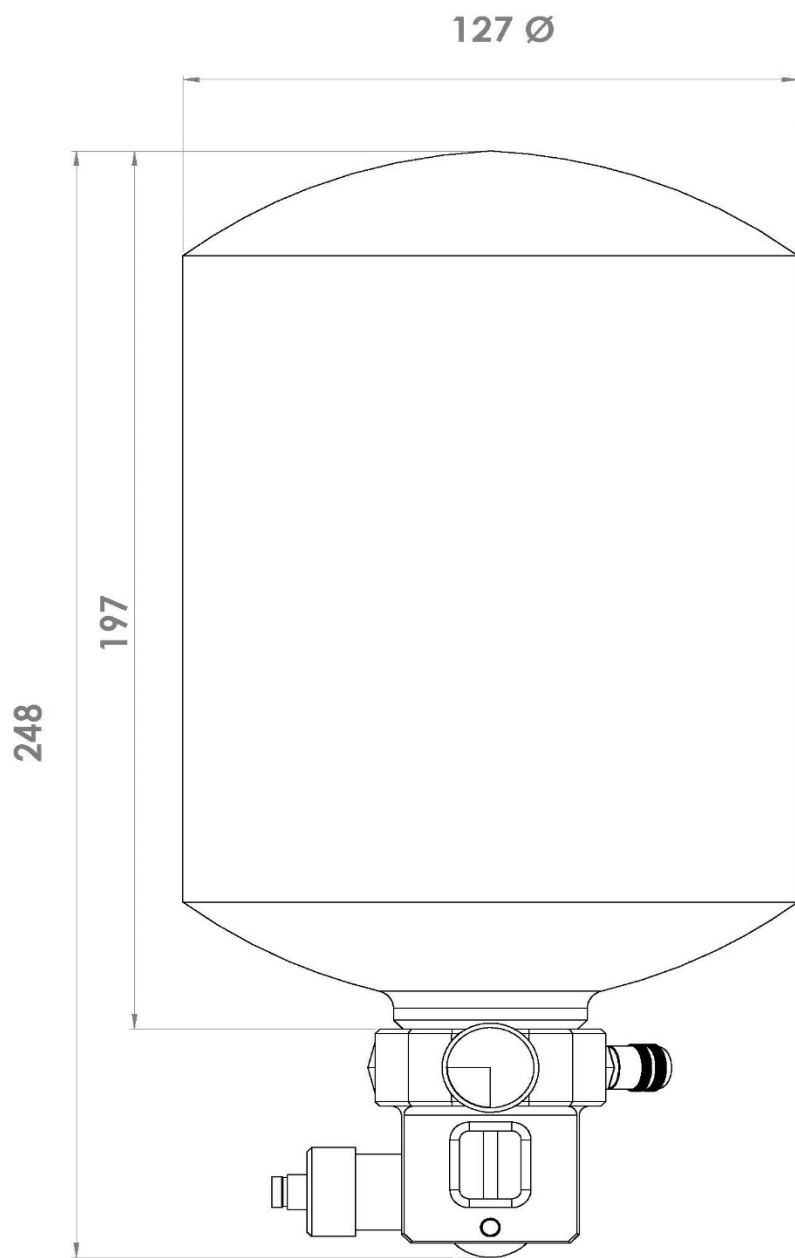
Yes



No

1. SPAEX2.25-B - Bottle Only
2. SP181 - 12mm Decabon Tubing
3. SP182 - 12mm - 10mm Y Piece Connector
4. SP072 - 10mm Decabon Tubing
5. SP185 - 10mm Bulkhead Connector
6. SP183 - 10mm - 8mm Y Piece Connector
7. SP032 - 8mm Decabon Tubing
8. SP186 - 10mm - 8mm Straight Reducer Connector
9. SP187 - 8mm Engine Bay Nozzle
10. SP481 - 8mm Cockpit Deflector Nozzle







# Automatic Head

The new activation valve fitted to certain models within the new range of SPA systems has a special safety feature, that does not interfere with the standard operating procedure of the fire suppression system.

The automatic activation feature is a standalone activation that will operate independently of user input at a temperature specified by the manufacturer.

## Important Note

The fire suppression system requires input by the user by either mechanical cable pull or electrical switch to operate. The automatic activation is a safety backup feature only, it is not the primary means of activation the primary means of activation is the driver using the cable pull or electrical switch depending on model purchased.

## Electrical Fitting Instructions

Unpack all parts and check components against 'kit list'.

- Remove bottle from mounting brackets if fitted by undoing the wing nuts. Decide the best position for the extinguisher – IT IS RECOMMENDED THAT THE BOTTLE SHOULD BE MOUNTED IN THE FORE AND AFT DIRECTION OF THE VEHICLE.

The extinguisher label, detailing the contents and the pressure gauge should be clearly visible for inspection, Mount the retaining brackets securely to the vehicle and put the bottle back into place.

- Mount the power pack in a clearly visible position.
- Switch with red plastic shroud to be fitted in the cockpit so that it is in easy reach of both the driver and/or co-driver when sitting in the normal driving position and wearing fully fastened seatbelts.
- The other switch with flexible red membrane (waterproof) is to be fitted to the outside of the vehicle, close to the exterior master switch (for activation by the Marshals).
- Once the system has been wired as per wiring diagrams the following tests should be carried out to check the system is fitted correctly and will operate when required.

## SPA Design Extreme Electrical Details

The SPA Extreme system uses actuators to operate valves located within the pressurized container that contains the extinguishant. These are triggered remotely using a battery-powered power pack.

In order to guarantee reliable operation, the connectors used are 1P67 and the actuators used are of a military specification with the system / battery test electronics integrated into the power pack.

The power pack electronics can test the continuity of the wiring and provides a high current pulse test to ensure system integrity before use. Unlike other systems, the battery test will not destroy or put an excessive drain on the battery during this critical test. These tests are performed using a three way switch on the power pack box and should be performed before each usage of the system, since the system is only as good as the battery that powers it and the integrity of the wiring loom and its connectors.

To check the condition of the battery press and hold up the switch on the power pack box in battery check position. **Every two seconds you will see a YELLOW** light flash, if the light flashes very dimly the battery must be replaced.

**IF IN DOUBT REPLACE THE BATTERY !!!!**

To check the continuity of the wiring, ensure that the switch on the power pack box is in the **SYSTEM INACTIVE** position to ensure that the extinguisher is not fired.

Press the internal firing button and check that the **RED** light comes on, press the external firing button, and check that this also makes the **RED** light come on.

The external button must be positioned close to the exterior master switch.

When you are ready to race after all these checks push switch into system armed position, **the control box will not illuminate in the system armed position** if either internal or external switches are pressed the system will activate.

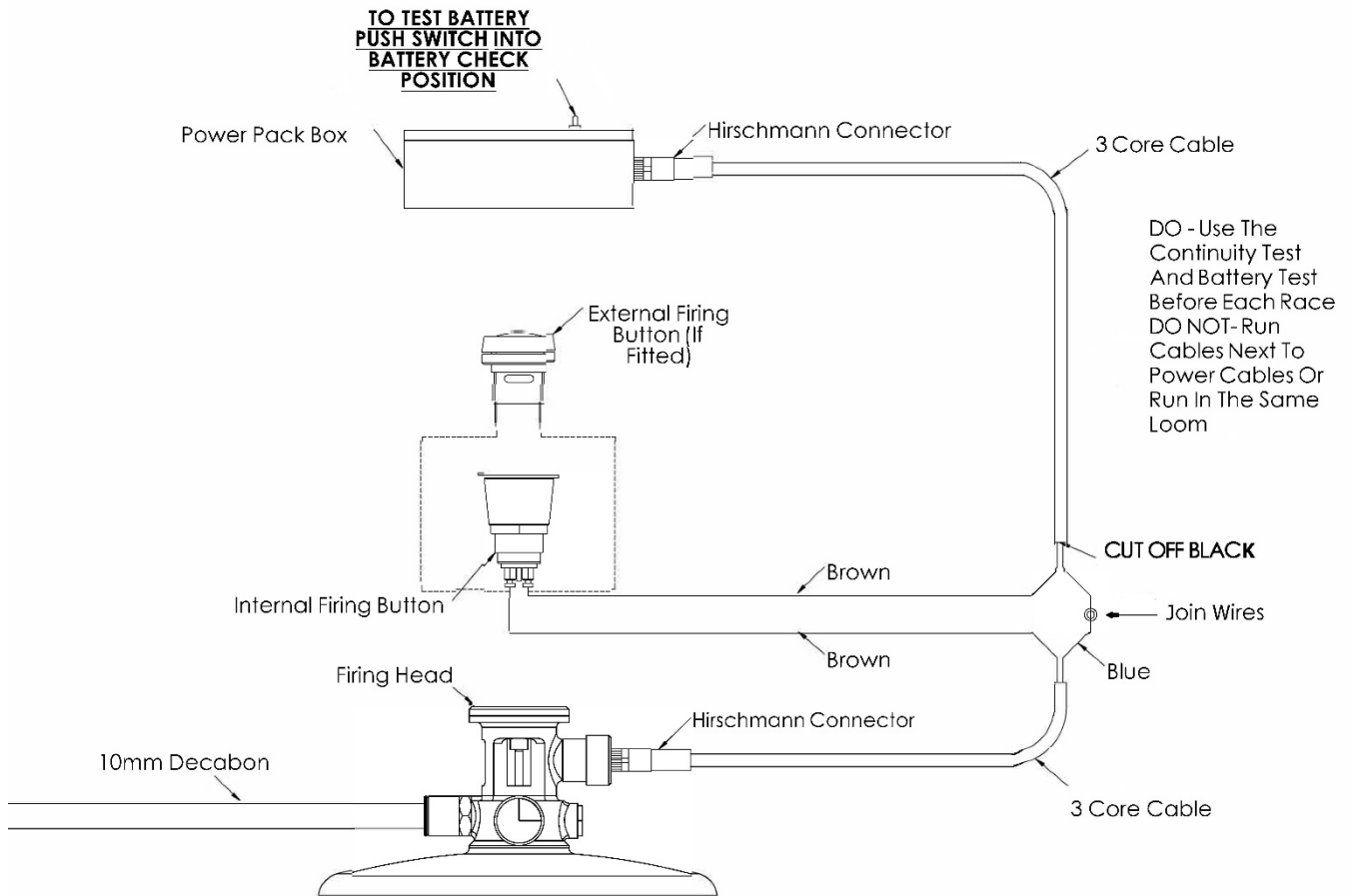
**DO** ensure that the wiring cables do not run next to looms especially if they contain ignition or battery cables

**DO** ensure that any exposed connections that are likely to get water sprayed are protected.

**DO NOT** allow cables to run through sharp edged apertures without protection

**DO NOT** fix cables to any surface that is likely to see excessive temperatures.

# Wiring Schematic



The wiring loom is 3 cable please note only the Blue and Brown are used, cut Black off.

To test the battery, push and hold control box switch upwards in the “Battery Check” position until yellow light flashes.

If the extinguisher tubing is to be removed, push the black collet in and pull the tubing out at the same time.

**RECOMMENDED:** Use the continuity test and battery test before each race.

**DO NOT:** Run the cables next to power cables, or in the same loom.

# General Maintenance Information

## Tubing

Each SPA Extreme system kit is supplied with Decabon tubing which is a coated aluminium tube which can be molded and flexed to suit this application. The SPA Extreme system has been designed and homologated using this type of tube. DO NOT substitute this tube for any other type.

## Tube Connectors

All fittings for tube to nozzles and bottles are of the push-in type. Insert the tube into the fitting, push firmly until it clicks. Once in you should not be able to pull it out. To remove the tubing, push the tube into the fitting and at the same time push the black plastic collet back towards the fitting and then pull the tube from the fitting.

## Maintenance

To ensure maximum possible performance from your SPA Extreme system, the following checks and maintenance procedures should be carried out.

Regularly check Nozzles for debris or any obstructions externally & internally.

Regularly check the integrity of the pipe work and fitting.

Regularly check the cylinder for damage or corrosion.

Regularly check the mounting bracket, retaining straps and anti-torpedo tabs are secure.

Your SPA fire suppression system must be serviced every 2 years, a service due date is written on the contents label located on your cylinder. It is up to you to ensure the services are carried out at the correct intervals.

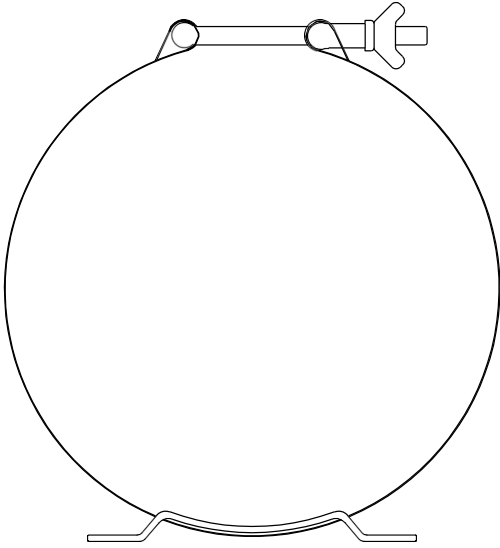
If your system has been discharged or requires a 2-year service, you must return it to SPA or a service agent approved by SPA for it to be FIA certified for continued use.

## Notes

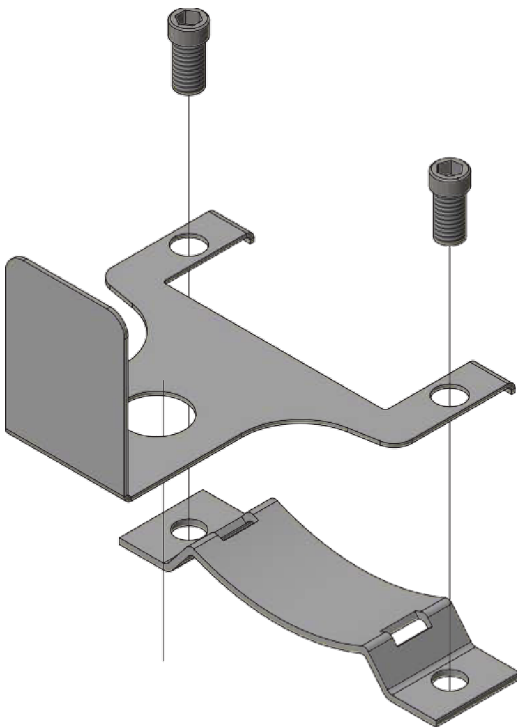
Please ensure that you monitor the following as you may not pass scrutineering

1. If the bottle contents label is worn, damaged or unreadable.
2. The system is not within service date.
3. The system is in poor condition.
4. The pressure gauge is reading in the red.

# Cylinder Mountings



SP148 - 5" Cylinder Retaining Bracket



SP319 – Anti- Torpedo Style Mounting

## Extreme Data Sheet

Application	Auto-sport industry - including saloon race cars& single seaters.
Composition	Dodecafluoro-2-methylpentan-3-one <chem>CF3CF2C(O)CF(CF3)2</chem>
Ozone depletion potential	None
Operating temperature	- 40 to + 80·C -108·C 168.7 °C
Freezing point	No observed adverse effect level and lowest observed adverse effect level for cardiac sensitization (halocarbon) and oxygen depletion (Inert gas).
Critical temperature	
Physiological properties	

A copy of the 3M™Novec™ 1230 fire protection fluid material safety data sheet can be obtained from SPA Design or SPA Technique upon request.

# NOTES

