



# Fire Suppression Systems Policy

## Appendix 3

For AASA sanctioned events V1.2 2023

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## Background

Risk management principles follow a hierarchy of actions, designed to reduce or eliminate hazards to health and safety. High priority actions are always more effective in managing risk and must always be implemented where possible and practical to do so. Where a higher priority action is assessed as being impractical or further action is required, actions at a lower level must be implemented. The generally accepted hierarchy is:

- Eliminate: Don't do the activity (e.g. Stop Motor Sport altogether, don't compete)
- Isolate: Separate people from the hazard (e.g. Remote controlled lights, not flags)
- Substitute: Find a safer alternative to the hazard (e.g. ceramic brake pads, not asbestos)
- Engineer: Make things safer (e.g. safety harnesses, safety cages, fuel bladders)
- Administrative: Write rules to be followed (e.g. nobody on pit wall at starts)
- Personal Protective Equipment PPE: Last line of protection (e.g. Helmets, apparel)

In the above hierarchy, Fire Suppression Systems fitted to or carried in competition vehicles represent an Engineering control as they provide a mechanical system of reducing the risk from fire. In itself, an Engineering control cannot prevent an incident nor guarantee protection from harm. It must be used in conjunction with other risk management tools. These include compliance with Regulations and Codes of Practice, as well as the use of Personal Protective Equipment (PPE).

## Hazards

We must assess Fire Suppression Systems (FSS) fitted to vehicles globally, including not just drivers, co-drivers and riders, but also crew, officials and the public. In doing so, we must consider the hazards against which FSS can provide some level of protection.

### Tier 1: Critical hazards

- Injury to the occupants from fire inside a moving vehicle resulting from a system failure or collision under competition conditions.
- Injury to the occupants from fire inside a stationary vehicle resulting from damage caused by a collision under competition conditions.
- Injury to officials/first responders resulting from fire in a competition vehicle under competition conditions.
- Injury to spectators and/or the proximate public resulting from fire in a competition vehicle.
- Injury and property damage over an extended area resulting from a wildfire ignited by a burning competition vehicle.

### Tier 2: Non-critical hazards

- Reputational damage to event promoters/sanctioning bodies as a result of competition related fire incidents.
- Financial hazards to event promoters/sanctioning bodies as a result of competition related fire incidents.
- Financial hazards to competitors as a result of fire related damage to competition vehicles.
- Financial hazards to property holders resulting from vicarious liability exposure to competition related fire incidents.



Fire Suppression systems can also introduce or exaggerate hazards under certain circumstances. These must also be taken into consideration when deciding on the appropriate levels of protection required for a particular activity.

What are the hazards that can be introduced or exaggerated by the fitment of Fire Suppression systems?

#### Tier 1: Critical Hazards

- Unintended discharge of FSS during competition causing distraction or loss of vision and resulting in an incident.
- Dislodgement of FSS components during competition causing distraction or mechanical interference to the driver and resulting in an incident.
- Injury to occupants or service crew from the explosion of stored pressure receptacles • Projectile Injury to occupants resulting from FSS components dislodged during a collision.
- Injury to occupants resulting from exposure to chemical extinguishants.

#### Tier 2: Non-critical hazards

- Damage to vehicles resulting from exposure to chemical extinguishants.
- Competitive hazards due to weight of FSS and installation requirements.
- Financial hazards due to requirements to fit and maintain FSS.

#### First Order of Fire Safety

Fire Suppression Systems fitted to or carried in competition vehicles, are restricted in both physical size and weight. As a result, their effectiveness is limited to suppressing small fires. Further, it must be assumed that, as a rule, vehicle occupants have no specific training in firefighting techniques.

It is the view of the AASA that the safety of participants takes absolute priority over the status of the competition vehicle. Therefore, the First Order of Fire Safety is that the occupant/(s) of a competition vehicle that catches fire must evacuate the vehicle as soon as practical and move away to a safe distance. They must not attempt to fight the fire.

The occupant/(s), having alighted from the vehicle, may attempt to fight the fire *only if all of the following circumstances apply.*

- The event regulations specifically permit the crew to perform work on the vehicle under competition conditions, and
- The fire-fighting equipment can be safely retrieved from the vehicle, and
- The fire-fighting equipment available can be reasonably expected to extinguish or contain the fire, and
- There is a reasonable chance that the fire may spread to the surrounding environment.

In the event that an occupant becomes trapped in a burning vehicle, fellow crewmembers and first responders from other competition vehicles that be present may use their discretion to attack the fire. In each case, first responders need to balance the risks to themselves.



## General

Each person associated with a motorsport activity, whether as a driver or co-driver, a member of a pit or service crew, supplier or event official, acknowledges that they operate within an environment of elevated risk, and that they shall be required to comply with each requirement specified in event regulations.

Because motor sport is very diverse, it is not possible to make blanket recommendations for FSS for all types of vehicle in every type of event. The nature and type of vehicle and the competition into which it is entered will dictate the most appropriate Fire Suppression System, bearing in mind the First Order of Fire Safety.

## Types of Fire Suppression Systems

At present, the permitted Fire Suppression Systems for vehicles under AASA sanction are generally referred to as 'Handheld' or 'Plumbed in'.

A Handheld extinguisher is to be used by an individual whilst they hold it in their hands. It therefore requires removal from any mounting or supporting system prior to use; it is demountable. Such extinguishers are relatively inexpensive. However, they are generally supplied with mounting hardware suitable for installation on the wall of a building. As such, specific mountings must be fabricated to suit their installation into the demanding environment of a completion vehicle.

The 'Plumbed in' suppression systems rely on a central receptacle holding an extinguishant connected to a distribution system. Such a system can have separate extinguishant nozzles located in the engine, cockpit and luggage compartments. The system may be of the stored pressure type, where the extinguishant is stored under pressure. An alternative system is the 'Remote Charge' type where the extinguishant is ejected through the action of gas released from a remote pressure vessel.

Type	Min Extinguishment	Mounting	Extinguishant
I	1 kg	Demountable	Dry Chemical AB(E)
II	1 kg	Demountable	Liquid (Halon Replacement)*
III	1 kg	Demountable	Water, Foam
IV	Varies%	Fixed	Varies*

Note: \* Any extinguishant must be marketed/recognised for motorsport use, or FAA (US) approved for Aviation cockpit use.

% Must be marketed/recognised for motorsport use

## Standards

Type I and III demountable Fire Extinguishers must comply with AS1841.5. Type II and V extinguishers must be specifically marketed as a competition Fire Suppression System and be available from a widely distributed catalogue. Type IV must comply with AS1841. Under no circumstance is the use of Halon (1311 or 1201) permitted. [Maintenance](#)



Each fire suppression system must be maintained in accordance with specific industry standards.

For Types I and III extinguishers (AS/NZS1841), maintenance should be in accordance with AS1851 Maintenance of Fire Protection Equipment – Portable fire extinguishers, fire hose reels and fire blankets. Extinguishers must be retested or replaced every five years after the manufacturer date stamped on the extinguisher.

Prior to each meeting, the entrant should remove the extinguisher(s) from its mounting, check for damage, have the pressure gauge tested and ensure contents are shaken to check for settling. The extinguisher should also be weighed as a precaution of undetected discharge before replacing and securing the unit back into its mountings.

Each Type II and Type IV Fire Suppression Systems should be maintained according to the manufacturer's guidelines. Entrants should be able to provide appropriate records detailing when maintenance has occurred (this may be in the form of an invoice detailing the unit's serial number and service provider's details).

Each entrant is reminded that, by signing the entry form they acknowledge that all maintenance requirements have been met.

### Fitment and Mounting

The general requirement for mounting a fire suppression system into a competition vehicle is that it be capable of retaining the system components at any acceleration up to 25g (245 ms<sup>-2</sup>) in any direction. This is a demanding requirement to which few mounting brackets supplied with a commercially available demountable extinguisher will comply.

Competitors using fixed or plumbed in systems must use the mounting hardware supplied by the FSS manufacturer.

Brackets for all demountable FSS must be from steel of minimum thickness 3mm, or aluminum alloy of 4mm thickness, at least 30mm in width. The bracket must be bolted to the body shell by at least two 6mm bolts with load distributing washers, or by two screwed or bolted clamps of 15mm<sup>2</sup> cross section to the safety cage.

There are many commercially available extinguisher mounts. Competitors required to fit FSS, or those wishing to fit them, are encouraged to use such mounts.

### Fire Standby Crew

A fire standby crew (FSC) must be in place at all events. The role of the FSC is to attend to any incident involving fire, either to a competitor, vehicle or the environment. They are to, as far as safety permits, assist occupants exit a vehicle and minimise the likelihood of fire spreading.

\*For specific information refer to Appendix 17 – Fire Fighting Services.

### Hierarchy

In the event of a conflict, each requirement specified in Event and Series Regulations shall take priority over the general requirements of the present Appendix.



#### Event specific requirements for Fire Suppression Systems

Event	Type of FSS	Size	Number
Speed Event	I *	1 kg	1
Circuit Race	I	1 kg	1
Tarmac Rally	I	2 kg	2
Gravel Rally	I	1 kg	1 or more
Off Road	I	2 kg	1 or more
Autokhana/Motorkhana	N	-	-
Extreme Event	N	-	-

A FSC100 Firestryker can be used with or in replacement of a 1x 1kg fire extinguisher inside the vehicle only.

Note: \* Not required if fire crew are in attendance.

#### Optional Fire Suppression Systems

A FSS may be carried in each competition vehicle, whether mandated or not at the discretion of the competitor. If carried, the FSS must be mounted and maintained in accordance with the preceding requirements. Where a vehicle mounted FSS is not required, event officials may request a poorly mounted and/or maintained FSS unit(s) be removed prior to competition.



## Firestryker

The Firestryker is a highly effective handheld fire extinguisher system. This small and compact unit is ideal to carry in your race, rally, drift or road car. The Firestryker is non-pressurised and requires no servicing. It has a 8 year competition life.

A FSC100 Firestryker can be used with or in replacement of a 1x 1kg fire extinguisher inside the vehicle only.

The FSC100 version includes the below sticker suitable for motorsport use.



For more information: Firestryker 100-Second Extinguisher Stick - Hand Held - <https://www.msbgarage.com/brand/firestryker/>

## APPROVED PART NUMBERS

Part # FSC100

Firestryker 100 Second Handheld Extinguisher Stick

Part # MSB-FSC100-R

Rollcage Mount

Part # MSB-FSC100-F

Flat Mount

