FIRETRACE® LTD

AUTOMATIC FIRE SUPPRESSION SYSTEMS

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Firetrace® "**Direct**" Automatic Fire Fixed Suppression Systems For Ambulance Applications

Please read instructions carefully prior to starting installation

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Stops fires where they start

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System Overview

The Fixed Firetrace® system is a simple self-actuating device that is designed to suppress fires within an identified risk area. **The cylinder is not intended for portable use.**

The system works by using Firetrace® pressurised linear detection tubing that is installed throughout the risk area. This tubing is heat sensitive and when subjected to a temperature above 120 Degrees centigrade, or when touched by flame, the Firetrace® tubing will rupture and form a diffuser.

Tube burst forming diffuser

The Dry Powder extinguishant is then deployed via this diffuser directly into the heart of the fire.

The Firetrace® system requires no external power source or separate detectors and owing to its simple design ensures that all of the extinguishant is always deployed in the Fire area.

The system is supplied with a volt free twin pressure switch (FT0124/T75) which when connected to the cylinder not only provides constant monitoring of the system but can also be give a signal to indicate a discharge. The Firetrace® system requires no commissioning as the Firetrace® detection tubing comes pre-pressurised and ready to fit.

It is important that both the cylinder & Firetrace® tubing are correctly installed and that the system is subjected to a regular maintenance regime in line with BS5306-3.

Firetrace® Installation Instructions.

Cylinder

When installing the Firetrace® system it is important that a suitable cylinder location is selected and that the cylinder is orientated correctly.

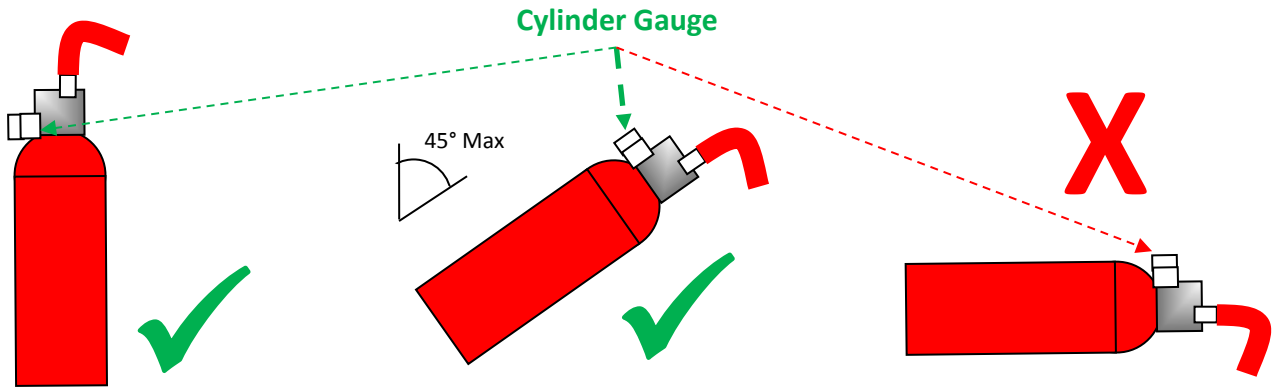
The cylinder location shall ideally be in a clean area away from the direct heat of the engine (exhaust system, turbo, etc.).

The cylinder must not be placed in a location where the ambient temperature is above 80 Degrees centigrade.

The cylinder shall be readily accessible to allow future servicing / inspections and as close as practicable to the risk area.

The cylinder shall be adequately fixed to a suitable load bearing surface.

Wherever possible the cylinder shall be **mounted vertically** and in no circumstances must the cylinder be positioned at an angle of more than 45 Degrees from vertical.



It is recommended wherever possible that Firetrace® cylinders be mounted vertically. Where vertical locating is not possible the systems can be mounted within 45° of vertical.

As indicated in the above drawing when cylinders are fitted at an angle the gauge must face uppermost.

MOST FIRETRACE® SYSTEMS ARE NOT SUITABLE FOR HORIZONTAL MOUNTING.

Firetrace® Automatic Detection Tubing

The Firetrace® Automatic Detection tubing is the key part of the system and acts not only as the detector but also as the delivery method for the Dry Powder.

The correct installation of the tubing is important to achieve optimum performance from the system.

The tubing must be mechanically protected outside the identified risk area and shall remain accessible to allow future servicing.

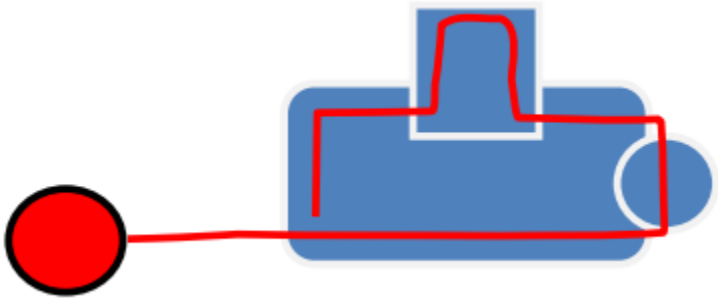
As heat rises, the Firetrace® tubing is most efficient when mounted directly above the risk.

The tubing will activate at approximately 120 Degrees Centigrade and care must be taken to avoid attaching the tubing in very close proximity to the turbo or exhaust system where temperatures above this are achieved during normal operation.

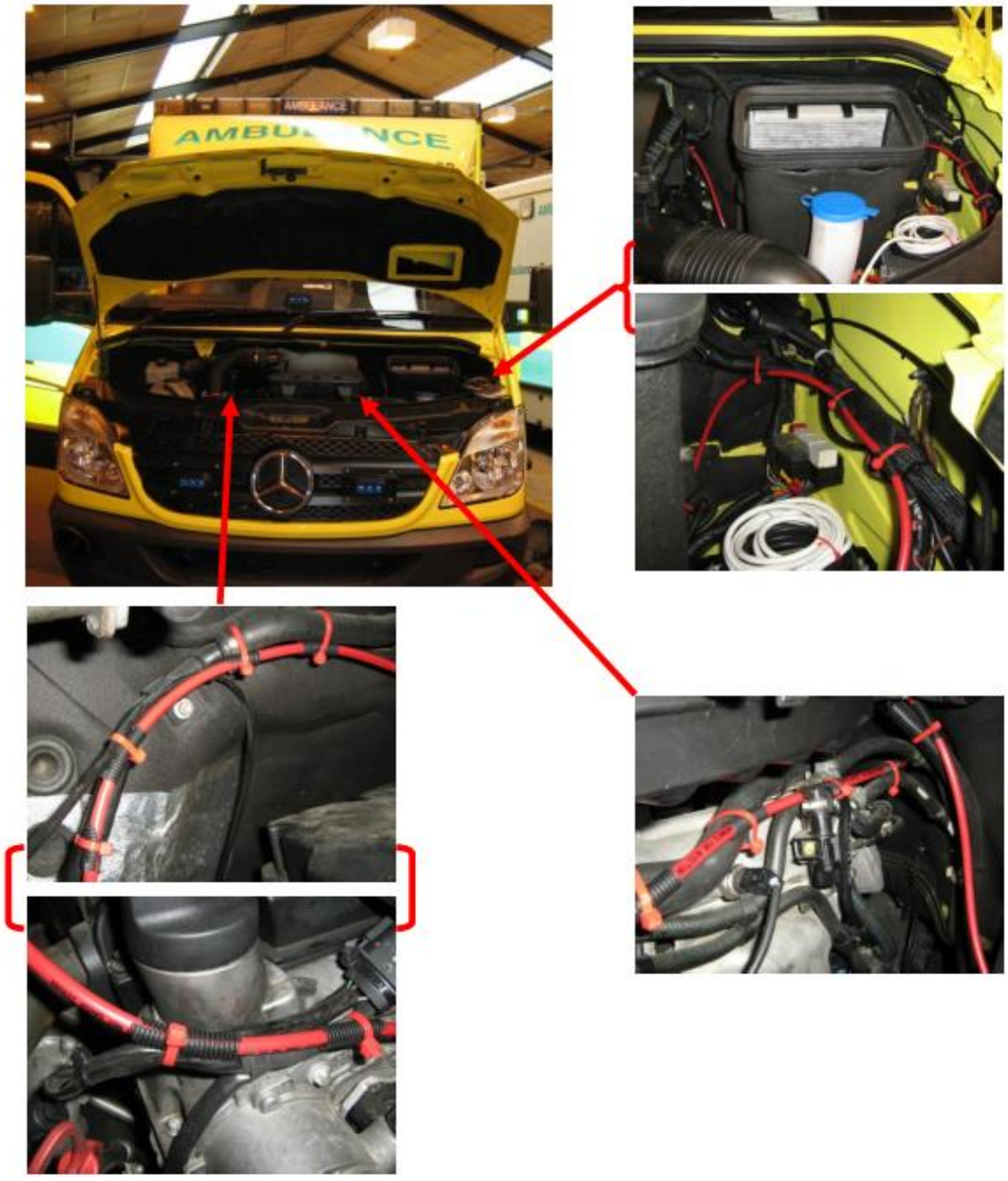
It is recommended that the tube is a minimum of 150mm away from exceptionally hot surfaces or fitted with additional sleeving to avoid false activation.

Tube Routing

As the Firetrace® detection tube is flexible the exact tube route can vary from vehicle to vehicle. The basis of the system design is to circumnavigate the engine bay ensuring that the cylinder head, alternator and any other potential risks are covered.



Trace Detection tube routing guide



The above pictures are for guidance only.

Actual routing may vary from vehicle to vehicle.

Tube Fixings

The correct installation of the tubing is important to achieve optimum performance from the system.

The tubing must be physically protected outside the identified risk area using Kopex or another flexible conduit and shall remain accessible to allow future servicing.

The detection tubing must to be adequately fixed to retain its position and withstand the vibration.

The tubing is a soft polymer and is susceptible to wear / chaffing when repeatedly rubbed against a hard or sharp surface. The tubing shall be protected using nylon Kopex at all fixing points and where it passes through holes.

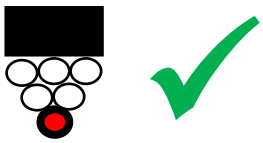
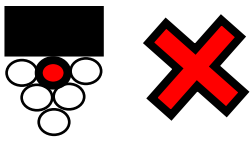
The following photographs show both “Tyrap” and “P clip” fixings all of which are acceptable.



The Detection tubing shall be supported at maximum intervals of 150mm.

Always leave a small loop of tubing adjacent to the cylinder. Whilst this shall also be secured it must be releasable to allow future servicing of the cylinder.

Where the tubing is installed with a group of other cables/pipes it must be positioned on the underside of the loom and must never be located within the center of the loom.

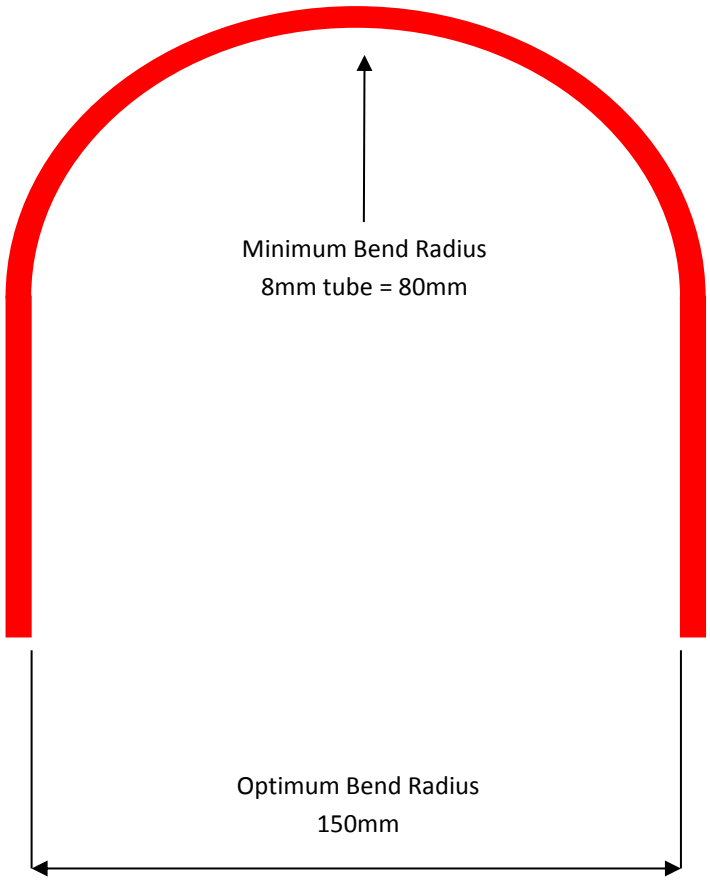



Tube bending radius

The Firetrace® tubing acts as the detector and provides the delivery of the extinguishant. It is imperative that the tubing is not kinked or crushed and the following minimum bending radius must be adhered to.

Should the tubing be kinked or damaged in anyway then the complete Fixed Firetrace® system must be replaced:

FT0180 Firetrace® tubing 8mm **Minimum bending radius 80mm**



Firetrace® Pressure switch FT0124/T75

The Firetrace® pressure switch is used to monitor the system pressure and will activate in the event of a pressure drop.

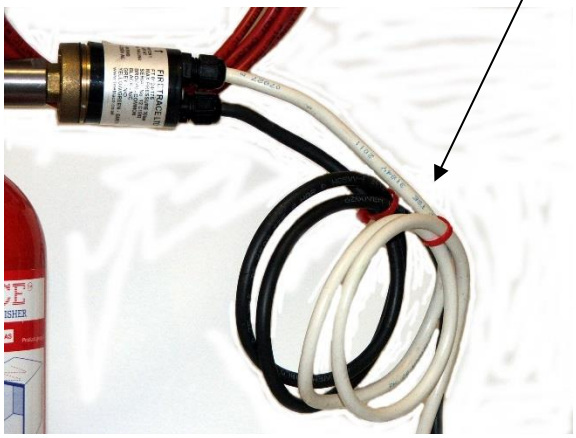
The switch can be introduced and removed from the cylinder whilst it is under pressure. This allows its operation to be proven both during commissioning and future servicing.

The Pressure switch is fitted with a black rubber “o ring” which provides the air tight seal. This ‘o` ring must be lubricated with silicone grease and free of any dirt or debris. Failure to ensure the ‘o` ring is clean can lead to a leak which will require the system needing replacement.
The switch shall only ever be screwed into the cylinder hand tight.

Whenever the switch is removed for maintenance or testing, a blank plug *(available from Firetrace® - FT0112)* must be inserted in to the pressure switch port as soon as the pressure switch is removed. This plug must be removed just before the pressure switch in refitted.

The switch contains both normally open & normally closed contacts.

Always leave a small loop of spare cable adjacent to the pressure switch to allow future removal. Where water is present, leave a drip loop on the cable.



FT0124/T75 Twin Monitoring Switch.

Switch 1 Set at 5 bar falling.
Switch 2 Set at 7 bar falling.

Brown - Common
Grey - Normally open
Black - Normally closed
Green/yellow - Earth

Service & maintenance

The Firetrace® systems often operate in a harsh environment and are subjected to high temperatures and extreme vibration. It is essential that the systems are regularly serviced to ensure their correct operation.

In order to comply with British Standard BS 5306 (section three) the following maintenance tasks should be carried out periodically.

The British standard recommends that each system is inspected every 3 months and then fully serviced in accordance with the manufacturers recommendations by a competent engineer.

All powder systems require discharge testing at maximum 5 Year intervals from date of installation.

Every three (3) months.

System Pressure Good

System Pressure Low

The following checks shall be carried out.

- Check the pressure gauge is reading mid-green
- Carry out a visual check of the trace detection tube.
- Check all detection tube fittings for soundness.
- Ensure physical changes of protected areas haven't affected cylinder suitability.
- Check external surface of the cylinder for evidence of rust or corrosion.
- Report any potential problems immediately via your normal reporting routes.

Every Six (6) months

In addition to the **3 monthly checks**, the following shall also be carried out.

- Remove the cylinder by removing the 2 x adjacent red cable ties, heavy duty black cable tie and undo strap holding the cylinder.
- Agitate contents of cylinder by inverting the cylinder 2 – 3 times. *The powder can be felt moving within the cylinder on the first or second inversion. If this isn't felt tap the base of the cylinder with a rubber mallet.*
- Mark cylinder label accordingly with indelible ink.
- Check cylinder mounting bracket and fixings for soundness. Check any bracket insulation is present and intact.
- Replace the cylinder in to the bracket, secure the trace detection tube with cable ties. A heavy-duty cable tie shall be used to secure the cylinder.

Care must be taken not to damage the trace detection tube when removing, agitating or replacing the cylinder

In harsh environments where the system is subject to higher than average vibration, the system can be agitated more frequently

Every Twelve (12) months

In addition to the **6 monthly checks**, the following shall also be carried out.

- Remove pressure Gauge & test operation. The needle must return fully to the left. Ensure Pressure Gauge thread and 'O' ring is clean, greased and in good condition.

REPLACE GAUGE STRAIGHT AWAY. DO NOT LEAVE THE GAUGE PORT OPEN FOR A PROLONGED PERIOD AS PRESSURE CAN ESCAPE!

If you are changing the 'O' ring or have any reason to not replace the gauge immediately, then a blanking plug should be fitted (FT0112 available from Firetrace)

- Remove the pressure switch & test operation. (With ignition on, check voice activation). Ensure Pressure switch thread and 'O' ring is clean, greased and in good condition.

REPLACE SWITCH STRAIGHT AWAY. DO NOT LEAVE THE SWITCH PORT OPEN FOR A PROLONGED PERIOD AS PRESSURE CAN ESCAPE!

If you are changing the 'O' ring or have any reason to not replace the switch immediately, then a blanking plug must be fitted (FT0112 available from Firetrace).

Please Note: All Firetrace® Dry Powder Systems need replacing after every 5 years

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