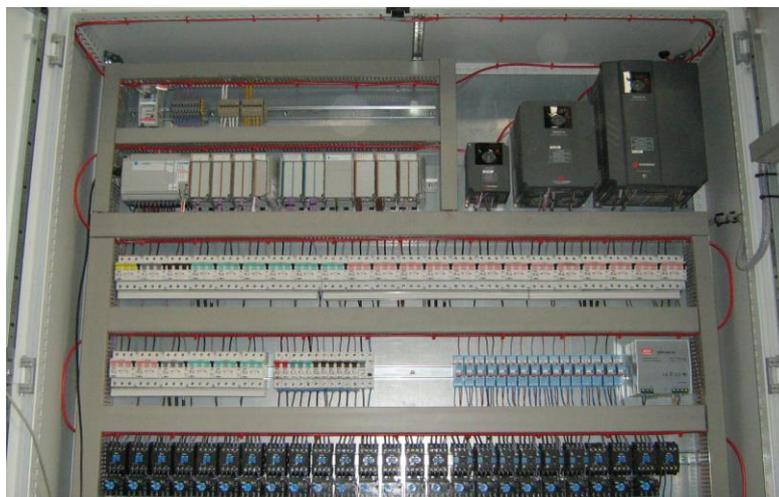


FIRETRACE[®] LTD

AUTOMATIC FIRE SUPPRESSION SYSTEMS

Firetrace™ “DIRECT” NOVEC 1230 Automatic Suppression Systems for Electrical Panel applications



Please read instructions carefully
prior to starting installation.



All systems
CE & Fully
PED
Compliant



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System Overview.

The Firetrace™ system is a simple self actuating device that is designed to suppress fires within an identified risk area.

The system works by using pressurised Firetrace™ linear detection tubing that is installed throughout the risk area. This Firetrace™ 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.



The Novec 1230 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 can be fitted with a volt free single pressure switch (FT0124) or volt free twin pressure switch (FT0124/T75) which when connected to the cylinder not only provides constant monitoring of the system but can also send a signal to indicate a discharge via a Self contained Alarm Sounder (FT0178) or building alarm.

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 by a competent engineer.

FT0178 Self Contained Alarm Sounder



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AUTOMATIC FIRE SUPPRESSION SYSTEMS

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.

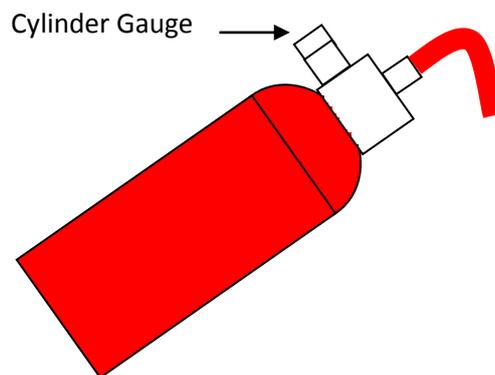
The cylinder location should ideally be in a clean area away from direct heat. The cylinder should not be placed in a location where the ambient temperature is above 80 Degrees centigrade.

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

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

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

The cylinder gauge should face uppermost to aid inspection.



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.

A free training course at our Ipswich facility is available to have a better understanding of Firetrace installation and products. Please contact us for more details.

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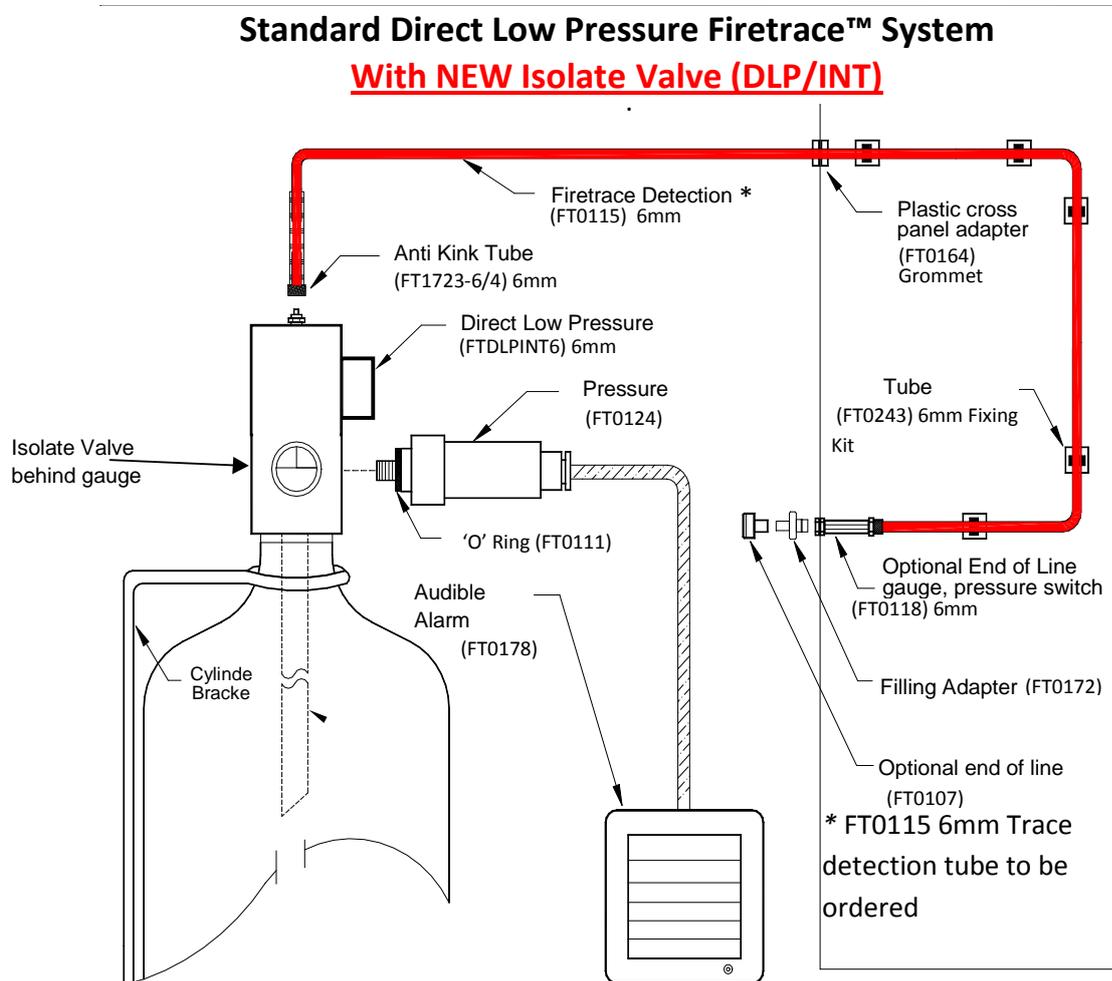
AUTOMATIC FIRE SUPPRESSION SYSTEMS

Electrical Cabinets

Where this is necessary the cylinder should be mounted in an area with good air flow and care should be taken to avoid the hottest areas.

Suitable fixings should be utilised.

Below a typical Firetrace™ system layout.



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AUTOMATIC FIRE SUPPRESSION SYSTEMS

Pat App No 1303564.7

009 - Firetrace Direct low pressure commissioning procedure



Your new Firetrace system will be delivered fully charged with safety cap fitted

System is isolated so you can now Remove Safety Cap

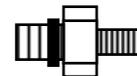


Fit Trace Detection Tube

Remove Blanking Plug from pressure switch port
(the one with two flats)



Insert charging adapter FT1072 and pressurise to 12 bar
with OFN or Dry Air



Remove Gauge from gauge port *(the one with three keyways)*
and fit into pressure switch port
Check gauge needle reads mid green and **leave system for a minimum of 10 minutes per metre of Trace detection tube to check for any leaks on the Trace detection tube**



Note position



When satisfied that pressure is good insert key into gauge port and turn $\frac{1}{4}$ turn anticlockwise until key handle is vertical. **This is vital as system is isolated until key is vertical**

Finally

Confirm valve keyway is vertical and then replace gauge into gauge port
(the front one with the three keyways)

Fit Pressure switch or blank plug into switch port
(the side one with the two flats)



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AUTOMATIC FIRE SUPPRESSION SYSTEMS

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 Novec 1230.

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

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

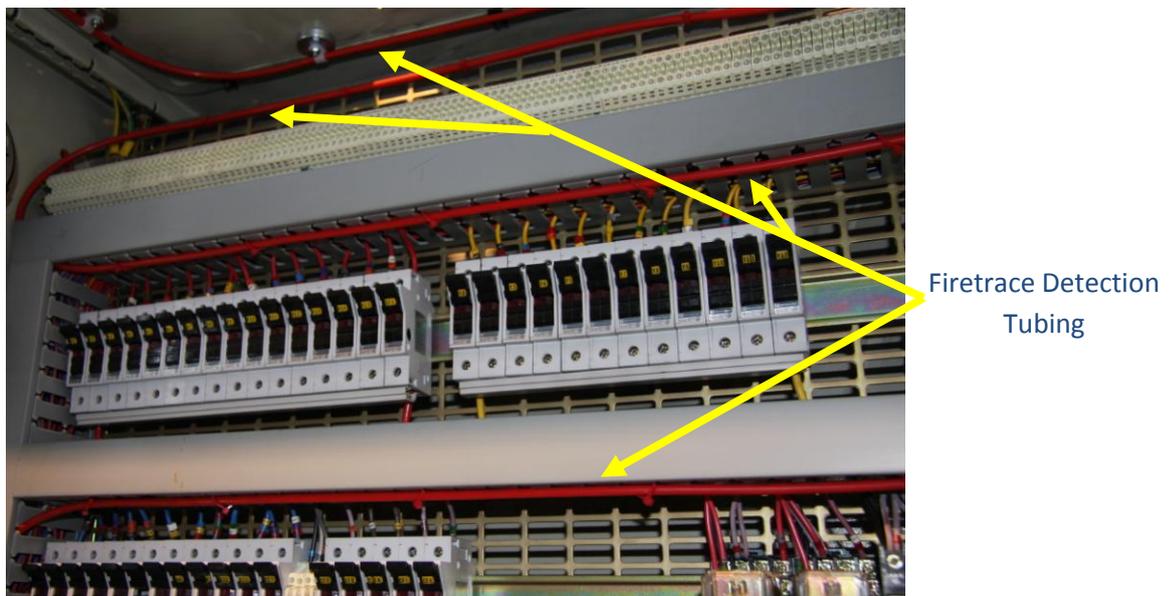
As heat rises, the Firetrace™ tubing is most efficient when mounted directly above the risk.

The tubing will activate at approximately 120 Degrees Centigrade and care should be taken to avoid attaching the tubing 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 cabinet to cabinet. The basis of the system design is to circumnavigate the electrical cabinet so that any potential risks are covered. (Please see tube bending radius guide on page 10)



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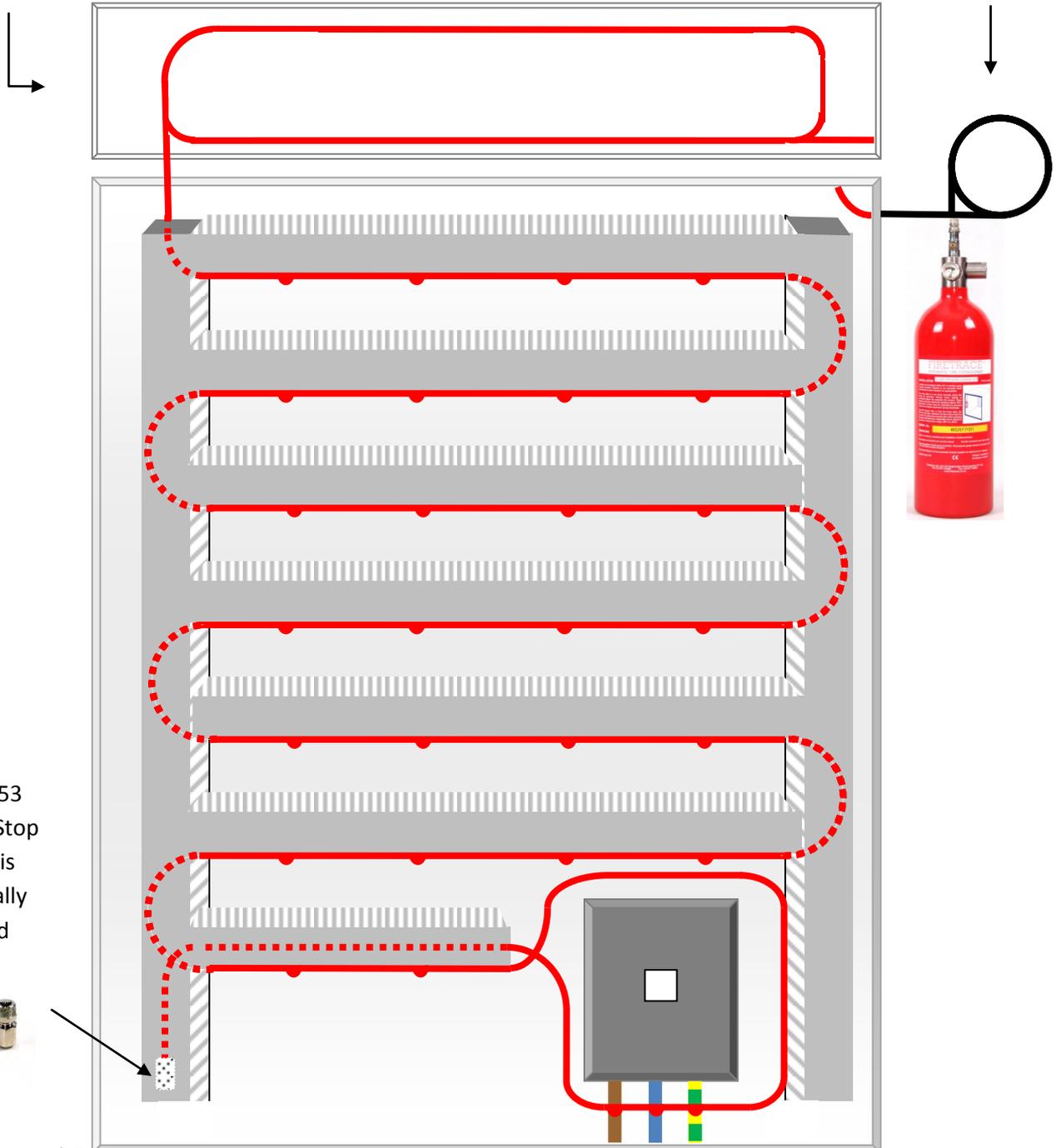
AUTOMATIC FIRE SUPPRESSION SYSTEMS

Single Cabinet Installations

The extinguishant should have no further than 20m to run from the cylinder to the furthest burst

Trace detection tube outside of the risk area should be protected by flexible conduit

Interior view of cabinet ceiling



FT0253
Blank Stop
end is
typically
used

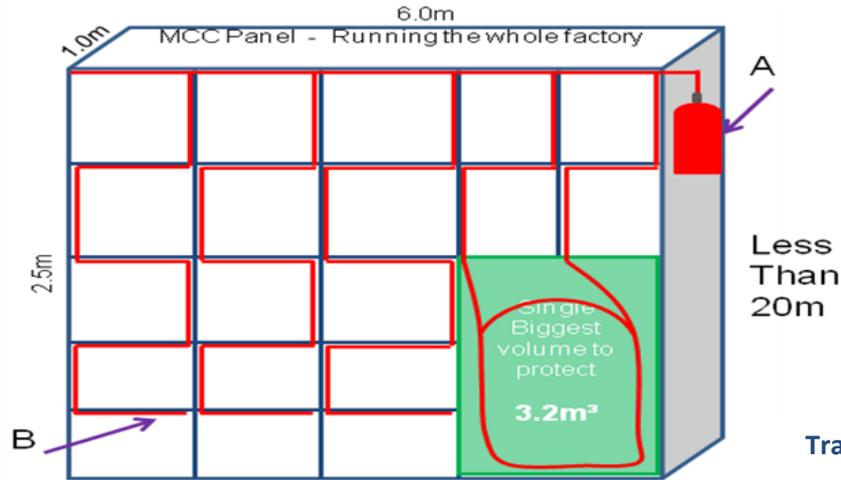


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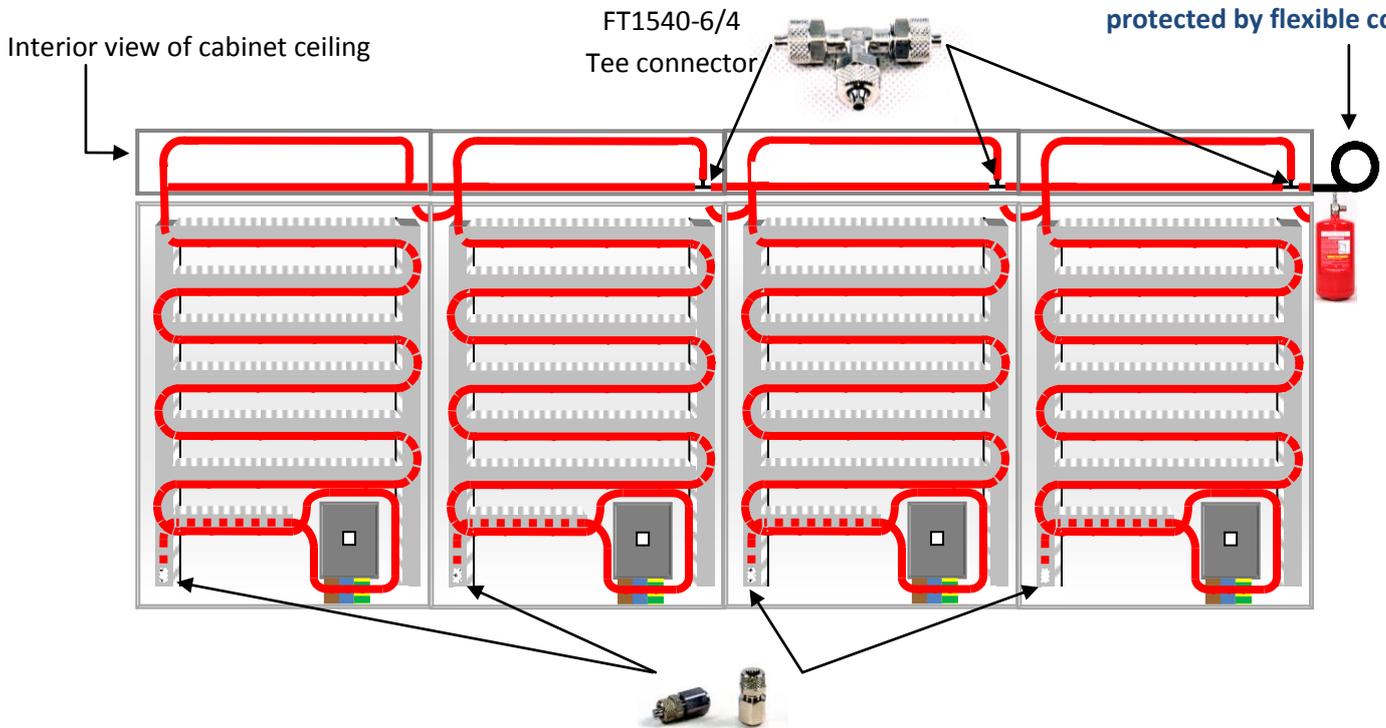
AUTOMATIC FIRE SUPPRESSION SYSTEMS

Multiple Cabinet Installations

The extinguishant should have no further than 20m to run from the cylinder to the furthest burst



Trace detection tube outside of the risk area should be protected by flexible conduit



FT0253 Blank Stop end is typically used to finish each section

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AUTOMATIC FIRE SUPPRESSION SYSTEMS

Tube Fixings

The Firetrace™ detection tubing needs to be adequately fixed to retain its position and withstand the vibration of the vehicle.

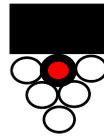
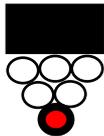
The tubing is a soft polymer and is susceptible to wear / chaffing when repeatedly rubbed against a hard or sharp surface. The tubing should be protected where it passes through holes.

The following photograph shows “Tyrap” fixing to the underside of the cable ducting.



Always leave a small loop of tubing adjacent to the cylinder. Whilst this should 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 it must be positioned on the underside of the loom and must never be located within the centre of the loom.



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AUTOMATIC FIRE SUPPRESSION SYSTEMS

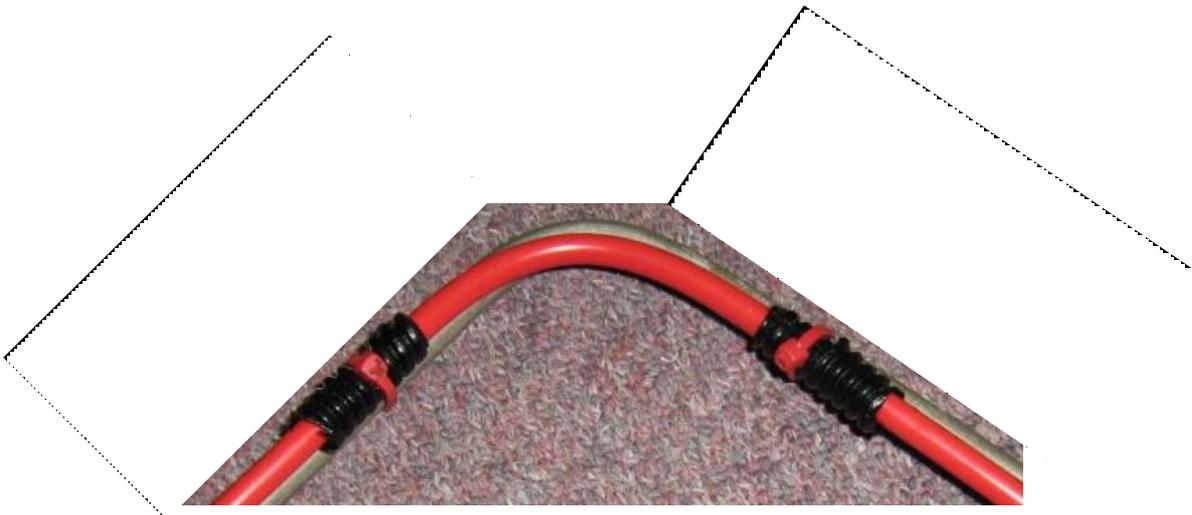
Tube bending radius

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 entire Firetrace system should be replaced:

FT0115 Firetrace™ tubing 6mm:

Minimum bending radius 60mm



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AUTOMATIC FIRE SUPPRESSION SYSTEMS

Connecting the Firetrace™ Tubing onto the fitting

All compression fittings must be secured in the following manner :

- a) Cut the tube end ensuring the cut is clean and free from burrs. Check that no debris/ swarf is left in the tube.
- b) Place the nut over the end of the tube with its threaded section towards the end of the tube.
- c) Push the tube fully home into the body.
- d) The nut should be tightened finger tight and then using a 12mm Spanner pinched up to firm hand tightness
- e) Slacken off the assembly and inspect end to ensure flange has formed correctly then reconnect and tighten down to ensure an effective seal.

Method of Assembly

1. Tubing must be cut off square.



2. Insert tubing into tubing nut.



3. Offer the tubing to the fitting so that the tubing bottoms on the tubing stop.
(this requires a firm push if cold)



4. Hold the tubing in contact with the tubing stop and screw the tubing nut down to the recommended torque. (torque = 5.7 Nm)

The use of a tube cutter (FT0127) is recommended for an accurate cut of the Trace Detection Tube.



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AUTOMATIC FIRE SUPPRESSION SYSTEMS

6mm Trace Detection Tube Components

FT0269/1
Banjo Adapter



FT1540-6/4
Tee



FT1723-6/4
Anti Kink Spring Nut



FT1550-6/4
Elbow



FT0253
Stop End



FT1580-6/4
Straight Connector



FT0268
Single Banjo



FT1590-6/4
Bulkhead Fitting



FT0269
Double Banjo



FT0118
Optional End of Line
Adapter



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AUTOMATIC FIRE SUPPRESSION SYSTEMS

Firetrace Pressure switch (FT0124 & FT0124/T75) Optional

The optional 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 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 should be screwed into the cylinder hand tight ONLY.

The switch contains both normally open & normally closed contacts.

When connecting the pressure switch to the (FT0178) Firetrace Self-Contained Alarm Sounder the **BROWN & BLUE/GREY** wires are used. The unused wires should be sleeved / insulated.

Always leave a small loop of spare cable adjacent to the pressure switch to allow future removal.



FT0124 Monitoring Switch

Set at 5 bar falling.

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



FT0124/T75 Twin Monitoring Switch.

Switch 1 Set at 5 bar falling.

Switch 2 Set at 7 bar falling.

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

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AUTOMATIC FIRE SUPPRESSION SYSTEMS

Service & Maintenance for NOVEC 1230 Systems

The Firetrace™ systems can operate in a harsh environment and are occasionally 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 visually inspected every 3 months and then fully serviced at maximum intervals of 12 Months by a competent engineer.

All Novec 1230 systems require discharge testing at maximum 10 Year intervals.

Firetrace Limited recommend that all systems are fully serviced every 12 Months by a competent engineer

If there's no visible sign of pressure drop then;

- ✓ Remove cylinder gauge and ensure correct operation. Lubricate O ring and replace.
- ✓ *Remove pressure switch (if applicable) and ensure correct operation. Lubricate pressure switch O ring and replace switch.
- ✓ Inspect electrical cabinet and ensure Firetrace™ detection tubing is correctly installed and protecting entire risk area. Check for signs of wear/damage and tighten or replace fixings as necessary.
- ✓ Check date of manufacture and record when discharge test is required.
- ✓ Check external condition of cylinder. Replace if there is any sign of damage or wear.
- ✓ Check gauge is facing upwards (if applicable) and that cylinder is installed as upright as possible. Where necessary reposition cylinder or highlight any required modifications for return visit.
- ✓ Record details and date of service on cylinder label. Replace cylinder into bracket and ensure it is secured by clamp / Tyrap.

If there is visible sign of pressure drop then;

- ✓ Isolate the cylinder by means of the isolate valve. Drain the trace detection tube by way of depressing schrader valve in the end of line adapter or pressure switch port*.
- ✓ Remove the cylinder and check weigh.
- ✓ Remove gauge from pressure switch port, fit Schrader adapter and pressurise to **12 Bar / 175 psi using a nitrogen cylinder or air pump.**
- ✓ Remove Schrader adapter, refit pressure switch (if applicable), check gauge is reading mid-green, mark the gauge and **leave system for a minimum of 10 minutes per metre of trace detection tube.**
- ✓ When satisfied no leaks have occurred, open isolate valve slowly. **System is now live.**
- ✓ Record details and date of work carried out on the cylinder service label

Notes:

FIRETRACE[®] LTD

AUTOMATIC FIRE SUPPRESSION SYSTEMS



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