

lifeline[®]

Fire & Safety Systems Ltd.

zero

2000

MSA Approved Systems

FITTING INSTRUCTIONS

PLEASE READ CAREFULLY BEFORE ATTEMPTING TO INSTALL YOUR SYSTEM

Thank you for purchasing a MSA approved Zero 2000 Lifeline fire system. It is important that you read these instructions carefully before attempting to install your extinguisher system.

The system should in no way be modified or tampered with as by doing so you could seriously affect its performance. If you need to replace parts, only genuine Lifeline components should be used.

Should you experience any difficulties installing your system, please do not hesitate to contact Lifeline at:

Lifeline Fire & Safety Systems Ltd
Burnsall Road
Coventry CV5 6BU
Tel: 024 7671 2999 Fax: 024 7672 2998
Website: www.lifeline-fire.co.uk
Email: sales@lifeline-fire.co.uk

IMPORTANT NOTE

The purpose of any vehicle fire protection system is to provide a time envelope in which to control the fire in order to accomplish evacuation of the occupants. Ideally, the fire will be totally extinguished, but this cannot be guaranteed. Holding back the intensity of an engine or a cockpit fire to enable the occupants to evacuate or allow outside assistance to be given, is the main purpose.

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FITTING INSTRUCTIONS - ZERO 2000

Unpack the kit carefully and check that all components are complete. Lay out the components so that each may be identified.

See page 11 for kit component listings.

Remove the extinguisher from its mounting brackets by undoing the over-centre clips. Decide upon the best position for the extinguisher to be mounted bearing in mind that the extinguisher label, showing its contents etc and piston location indicator should be clearly visible. Securely mount the brackets for the extinguisher and remote charge unit and replace the system. Brackets should be bolted to the vehicle and within the safety structure where applicable.

Electrical Systems

Mount the power pack so that it is clearly visible. Mount the switches to the vehicle. The cockpit switch should then be mounted so that it is within easy reach of the driver and/or co-driver when sitting in the normal position and wearing fully fastened seat belts.

Wiring of System

See wiring diagrams on pages 6 & 7.

All Lifeline Zero 2000 electrical extinguisher kits have a separate power pack unit to provide the current needed to operate the system. The power pack should be wired independently from the vehicle's electrics as failure to do this may result in the actuation of the system due to electrical interference from the vehicle's power source.

Once the system has been wired in accordance with the appropriate wiring diagram, a test check should be carried out to ensure that the system will fire properly. Before you start the check procedure, ensure that the bottle and the power pack are connected.

On top of the power pack is a three position switch. This provides checking facilities for the battery and wiring. If the switch is pulled against its spring towards the amber LED, the LED will light if there is sufficient current in the battery. **IF THE AMBER LED DOES NOT LIGHT, OR IMMEDIATELY GOES OUT, IT SHOULD BE REPLACED. THE BATTERY SHOULD BE OF THE MAGANESE/ALKALINE LONG LIFE TYPE ONLY, TYPE PP3.**

With the switch in the centre ('system isolated') position, and the centre position only, the wiring of the circuit can be checked. With the extinguisher connected, press one of the firing buttons and the green LED should light. If it does not there is a break in the circuit. If the green LED lights before the switch is pressed, there is a short in the circuit and the system is permanently 'live'. If this occurs **DO NOT PUT THE SWITCH INTO THE 'SYSTEM ARMED' POSITION, OR YOU WILL DISCHARGE THE SYSTEM.**

If for any reason the green LED does not illuminate when the system is tested, check the wiring against the appropriate wiring diagram. If the problem persists, consult Lifeline. To arm the system place the switch in to the 'SYSTEM ARMED' position. The red LED will illuminate to indicate the system is armed.

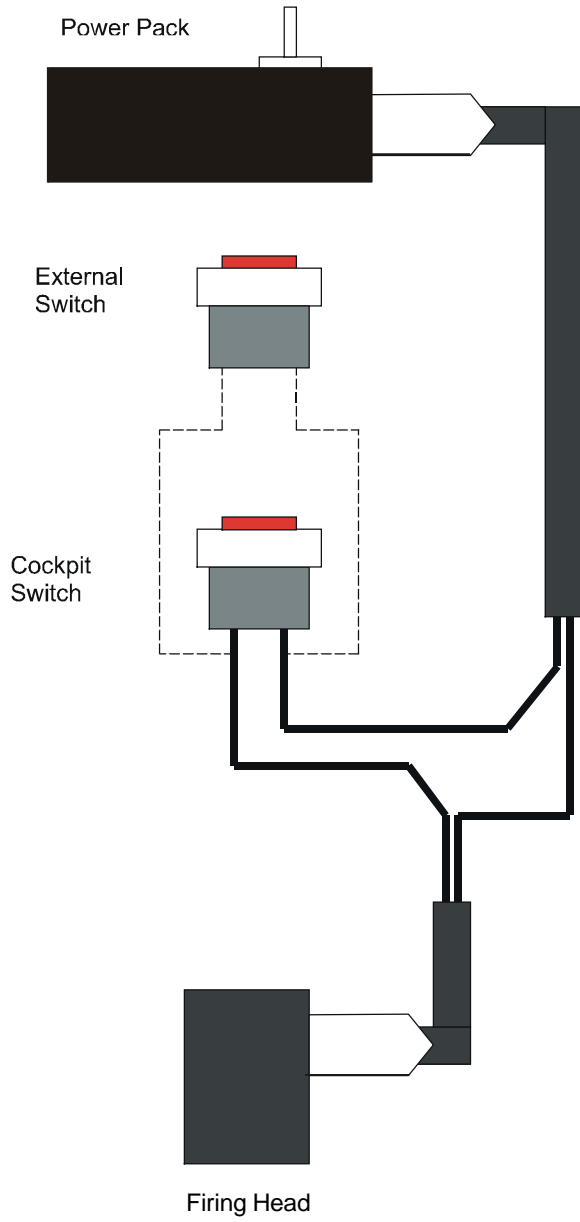
To prolong battery life and prevent accidental activation, it is recommended that the power pack switch be in the 'SYSTEM ISOLATED' position and the plug disconnected when the vehicle is not being used.

Mechanical Systems

Mechanical systems are operated using pull cables. Each system is supplied with two cables, one being 6ft in length, and the other 12ft. Decide upon the best position for the pull cables to be mounted, bearing in mind that the cable mounted in the cockpit should be accessible to the driver and/or co-driver when seated in the normal driving position and wearing fully fastened seat belts. The external pull cable is normally mounted on the front scuttle of a saloon car (below windscreen), and by the roll hoop on a single seater or open top vehicle. When installing the pull cable on a saloon car ensure that you leave sufficient clearance for the bonnet to fully open.

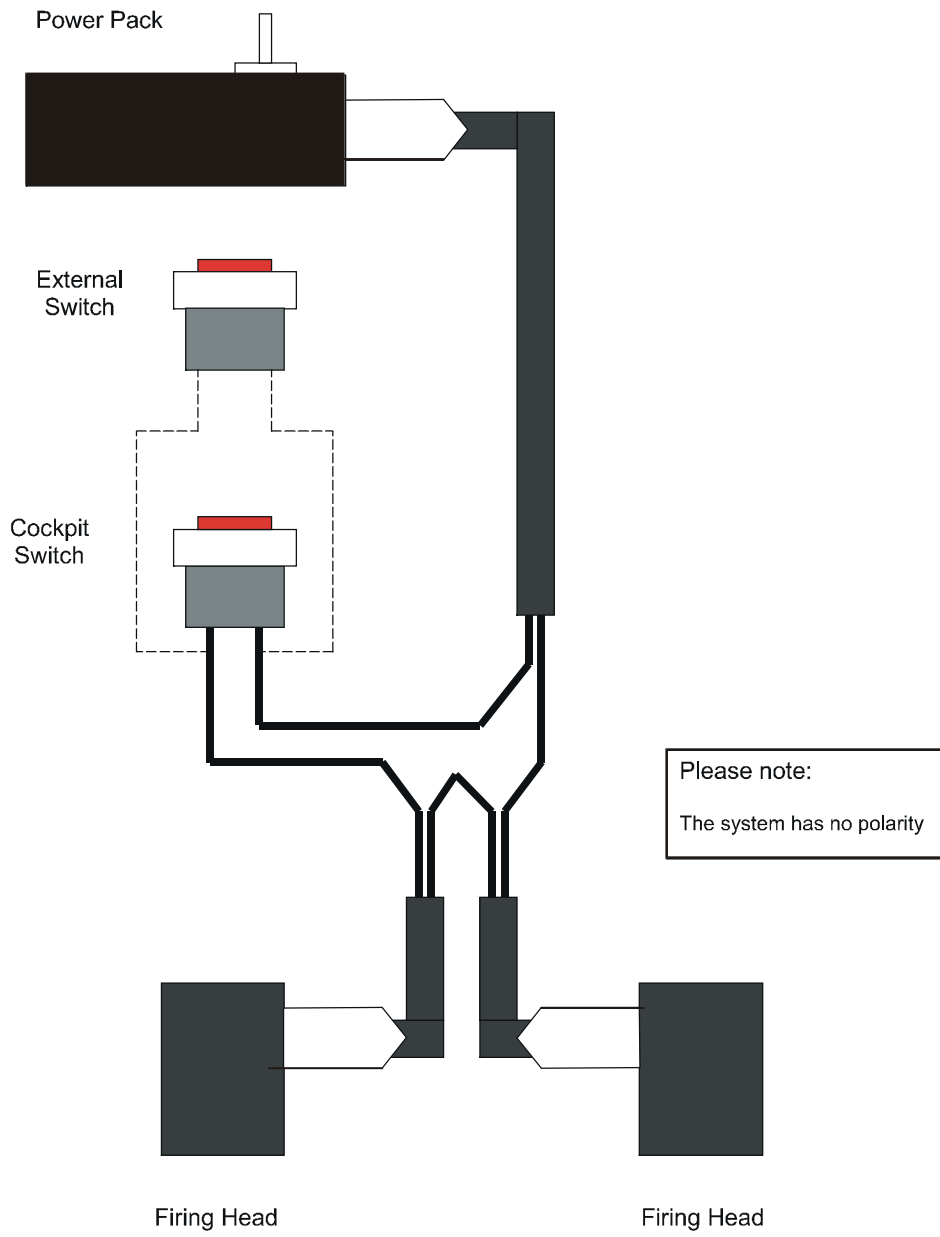
The pull cables should be routed so that there are no sharp bends or S shapes in the cable thus ensuring easy operation of the cables. The end of each cable should be passed through the levers of the extinguisher head and secured using the cable clamps attached to the end of the cables. It is advisable to leave a small amount of slack in the cable to prevent accidental firing of the extinguisher. It is recommended that the cables are periodically lubricated to prevent seizure and checked for smooth operation.

Wiring Diagram for Single Chamber Type Extinguisher



Please note:
The system has no polarity.

Wiring Diagram for Dual Chamber or Twin Bottle Type Extinguisher



NOZZLES

It is important that the correct nozzles, supplied with the system, are used. The nozzles will produce an atomised foam spray. This foam spray, with its controlled particle size, has an excellent fire knock-down and fire-out capability. It covers the area being protected with a milky foam substance which has a cooling effect and also controls re-ignition. At the end of the discharge, as pressure drops, the solution will thicken to a stiffer foam consistency. The nozzles produce a 90° full cone spray pattern, with an effective discharge range of 1 metre. This should be borne in mind when locating the nozzles.

Flow Control Kits

These kits are supplied with three nozzles. The system has been designed so that the two nozzles are mounted in the engine bay and one is positioned in the cockpit. This will give the correct division of extinguishant, i.e. 2.25 litres for the engine and 1.125 litres for the cockpit.

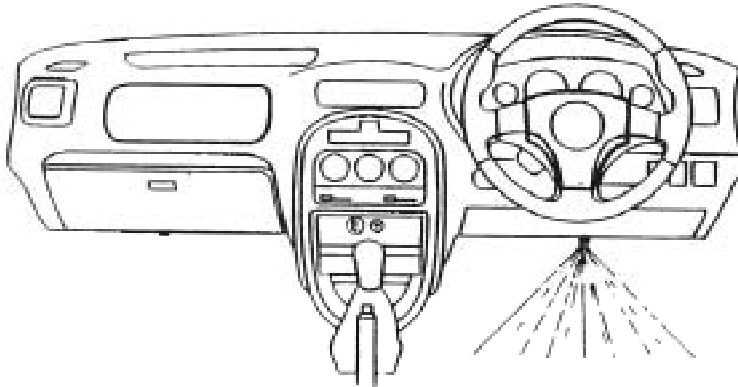


Figure 1

Location of Cockpit Nozzles for Closed Cars

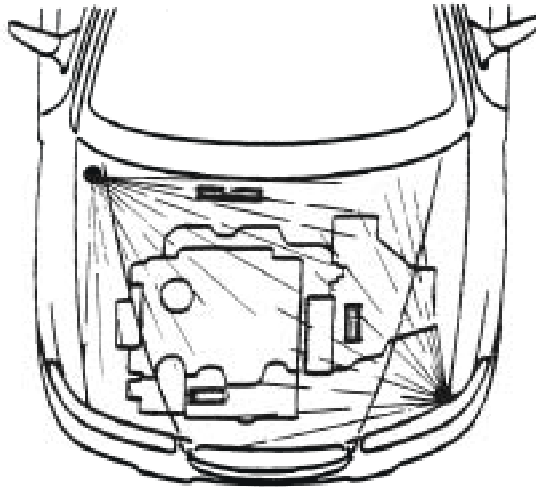
One nozzle should be mounted in the cockpit area. We recommend that this should be mounted under the dashboard, spraying down into driver's foot well. See figure 1.

Cockpit Nozzle Location for Open Cars

One nozzle should be mounted in the cockpit area of an open car. The nozzle should be aimed at the driver's midriff, in the normally seated position. Special care should be taken to ensure that the nozzle will not spray into the driver's face.

Location of Engine Nozzle for both Open and Closed Cars

The nozzle or nozzles should be mounted so that as much as possible of the engine compartment will be covered by the discharge. Particular attention should be paid to the fuel and oil systems as these are the most likely sources of fires. *See figure 2.*



● denotes nozzle location

Figure 2

Lifeline nozzles are designed so that they can be mounted through a bulkhead or to a specially made bracket. Nozzles should be mechanically secured and not be simply supported by their own pipework.

Tubing

Each extinguisher kit is supplied with a roll of plastic coated aluminium tube. The system has been designed and homologated to use this type of tube. Under no circumstances should the tubing be changed for another type.

Tube Connections

To enable a simple installation, the extinguisher and nozzles use push-in fittings for the tube. To attach the tube to the fitting, ensure that the end of the tube is cut at 90° and that the outside diameter has retained its circular shape. Insert the tube into the fitting, pushing firmly until it clicks. You should then be unable to pull the tubing back out of the fitting.

To remove the tubing, push the tube into the fitting and pull the black collar on the fitting in the same direction. Once this is done, pull the tube from the fitting.

KIT CONTENTS

LLS10026C 2.25 LITRE CLUB FIRE MARSHAL KIT

Club Fire Marshal Extinguisher c/w operating head with single outlet, bracket & straps

- (2) LLP0020 6ft Cable T Handle with nipple
- (2) LLP0024C Club Fire Marshal Nozzle
- (1) LLP0027 6mm Equal T Connector
- (3) LLP0031 Mtr Semi-rigid Alloy Tube
- (1) LLP0033 Decal Pack

LLS10026 2.25 LITRE FIRE MARSHAL KIT

Fire Marshal Extinguisher c/w operating head with single outlet, bracket & straps

- (1) LLP0020 6ft Cable T Handle c/w nipple
- (1) LLP0021 12ft Cable T Handle c/w nipple
- (2) LLP0024 Zero 2000 Nozzle
- (1) LLP0037 6mm Equal T Connector
- (4) LLP0031 Mtr Semi-rigid Alloy Tube
- (1) LLP0033 Decal Pack

LLS10029 S/R 2.25 LITRE ELECTRIC SALOON/RALLY KIT

Electric extinguisher c/w operating head with single outlet, bracket(s) & straps

- (1) LLP0011 Power Pack
- (1) LLP0012 Cockpit Switch
- (1) LLP0013 External Waterproof Switch
- (2) LLP0015 Plug & Lead
- (2) LLP0024 Zero 2000 Nozzle
- (1) LLP0027 6mm Equal T Connector
- (1) LLP0028 Bulkhead Fitting
- (4) LLP0031 Mtr Semi-rigid Alloy Tube
- (1) LLP0032 Pipe Clip Pack
- (1) LLP0033 Decal Pack

LLS10029 S/S 2.25 LITRE ELECTRIC SINGLE-SEATER KIT

Electric extinguisher c/w operating head with single outlet, bracket(s) & straps

- (1) LLP0011 Power Pack
- (1) LLP0012 Cockpit Switch
- (2) LLP0015 Plug & Lead
- (2) LLP0024 Zero 2000 Nozzle
- (1) LLP0027 6mm Equal T Connector
- (4) LLP0031 Mtr Semi-rigid Alloy Tube
- (1) LLP0032 Pipe Clip Pack
- (1) LLP0033 Decal Pack

KIT CONTENTS

LLS10033 S/R 3.375 LITRE ELECTRIC SALOON/RALLY KIT

Electric extinguisher c/w operating head with single outlet, bracket & straps

- (1) LLP0011 Power Pack
- (1) LLP0012 Cockpit Switch
- (1) LLP0013 External Waterproof Switch
- (2) LLP0015 Plug & Lead
- (2) LLP0024 Zero 2000 Nozzle
- (1) LLP0027 6mm Equal T Connector
- (1) LLP0028 Bulkhead Fitting
- (4) LLP0031 Mtr Semi-rigid Alloy Tube
- (1) LLP0032 Pipe Clip Pack
- (2) LLP0033 Decal Pack

LLS10033 S/S 3.375 LITRE ELECTRIC SINGLE-SEATER KIT

Electric extinguisher c/w operating head with single outlet, bracket & straps

- (1) LLP0011 Power Pack
- (1) LLP0012 Cockpit Switch
- (2) LLP0015 Plug & Lead
- (2) LLP0024 Zero 2000 Nozzle
- (1) LLP0027 6mm Equal T Connector
- (4) LLP0031 Mtr Semi-rigid Alloy Tube
- (1) LLP0032 Pipe Clip Pack
- (1) LLP0033 Decal Pack

LLS10034 S/R 3.375 LITRE TWIN BOTTLE ELECTRIC SALOON/RALLY KIT

Electric extinguishers c/w operating heads with single outlets, brackets & straps

- (1) LLP0011 Power Pack
- (1) LLP0012 Cockpit Switch
- (1) LLP0013 External Waterproof Switch
- (3) LLP0015 Plug & Lead
- (2) LLP0024 Zero 2000 Nozzle
- (1) LLP0028 Bulkhead Fitting
- (4) LLP0031 Mtr Semi-rigid Alloy Tube
- (1) LLP0032 Pipe Clip Pack
- (1) LLP0033 Decal Pack

LLS10034 S/S 3.375 LITRE TWIN BOTTLE ELECTRIC SINGLE-SEATER KIT

Electric extinguishers c/w operating heads with single outlet, brackets & straps

- (1) LLP0011 Power Pack
- (1) LLP0012 Cockpit Switch
- (3) LLP0015 Plug & Lead
- (2) LLP0024 Zero 2000 Nozzle
- (4) LLP0031 Mtr Semi-rigid Alloy Tube
- (1) LLP0032 Pipe Clip Pack
- (1) LLP0033 Decal Pack

LLS10035 3.375 LITRE FIRE MARSHAL FLOW CONTROL KIT

Fire Marshal extinguisher c/w operating head with single outlet, bracket & straps

- (1) LLP0020 6ft Cable T Handle c/w nipple
- (1) LLP0021 12ft Cable T Handle c/w nipple
- (3) LLP0024 Zero 2000 Nozzle
- (2) LLP0037 6mm Equal T Connector
- (5) LLP0031 Mtr Semi-rigid Alloy Tube
- (1) LLP0033 Decal Pack

LLS10037 S/R 3.375 LITRE ELECTRIC FLOW CONTROL SALOON/RALLY KIT

Electric extinguisher c/w operating head with single outlet, bracket & straps

- (1) LLP0011 Power Pack
- (1) LLP0012 Cockpit Switch
- (1) LLP0013 External Waterproof Switch
- (2) LLP0015 Plug & Lead
- (3) LLP0024 Zero 2000 Nozzle
- (2) LLP0027 Equal T Connector
- (1) LLP0028 Bulkhead Fitting
- (5) LLP0031 Mtr Semi-rigid Alloy Tube
- (1) LLP0032 Pipe Clip Pack
- (1) LLP0033 Decal Pack

LLS10037 S/S 3.375 LITRE ELECTRIC FLOW CONTROL SINGLE-SEATER KIT

Electric extinguisher c/w operating head with single outlet, bracket & straps

- (1) LLP0011 Power Pack
- (1) LLP0012 Cockpit Switch
- (2) LLP0015 Plug & Lead
- (3) LLP0024 Zero 2000 Nozzle
- (2) LLP0027 6mm Equal T Connector
- (5) LLP0031 Mtr Semi-rigid Alloy Tube
- (1) LLP0032 Pipe Clip Pack
- (1) LLP0033 Decal Pack

TECHNICAL SPECIFICATION OF ZERO 2000

USAGE	Racing cars, including saloons, single seaters and other cars.
CONTENTS	Foam solutions, 10% with de-ionised water.
DISCHARGE AREAS	Engine compartment and drivers compartment.
DISCHARGE TYPE	The product is stored in a container, and discharged through atomising nozzles as a very fine mist. Upon settling, it turns to a milky white liquid.
COMPOSITION	Multi purpose synthetic foam based solution, based on salts of alkyl sulphates and alkyl ether sulphates, together with solvents and foam stabilisers.
APPEARANCE	Clear amber liquid in solution.
SPECIFIC GRAVITY	Typically within the range of 1.016 +/- 0.01
ODP	(Ozone Depletion Potential) None.
pH	8.0 +/- 0.5
CLOUD POINT	None
FREEZING POINT	- 10° Centigrade
FLASH POINT	> 100° Centigrade
SUSPENDED SEDIMENT	Less than 0.2%
MAX STORAGE TEMP.	+49° Centigrade
PHYSIOLOGICAL PROPERTIES	Harmless, non-toxic liquid in solution.

MAINTENANCE

To ensure that you get the best possible performance from your Zero 2000 fire system, the following checks and maintenance procedures should be carried out.

- * Regularly check pressure gauge or gauges are in the green sector.
- * Regularly check Zero 2000 nozzles for obstruction and foreign bodies.
- * Regularly check the integrity of the pipework and the fittings.
- * Regularly inspect the cylinder for damage.

- * Your Zero 2000 system should be serviced every 2 years. A service date is written on the extinguisher label. It is up to you to ensure that the service is carried out at the correct intervals. Servicing of the extinguisher must only be carried out by Lifeline or one of its official agents. You will need to send the cylinder, along with nozzles to be serviced.

- * If your Zero 2000 system is discharged, it must be returned only to Lifeline or one of its agents for refilling.

Your Zero 2000 system will be rejected from scrutineering if:

- * The gauge reads in the red sector.
- * The tamper-proof label is not intact.
- * Non-genuine Lifeline parts have been used.
- * The contents are below the specified weight.
- * The extinguisher label is worn or damaged.
- * The extinguisher is not within service date.
- * The system is in poor condition.

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