

SPARCO 0146EMM1A

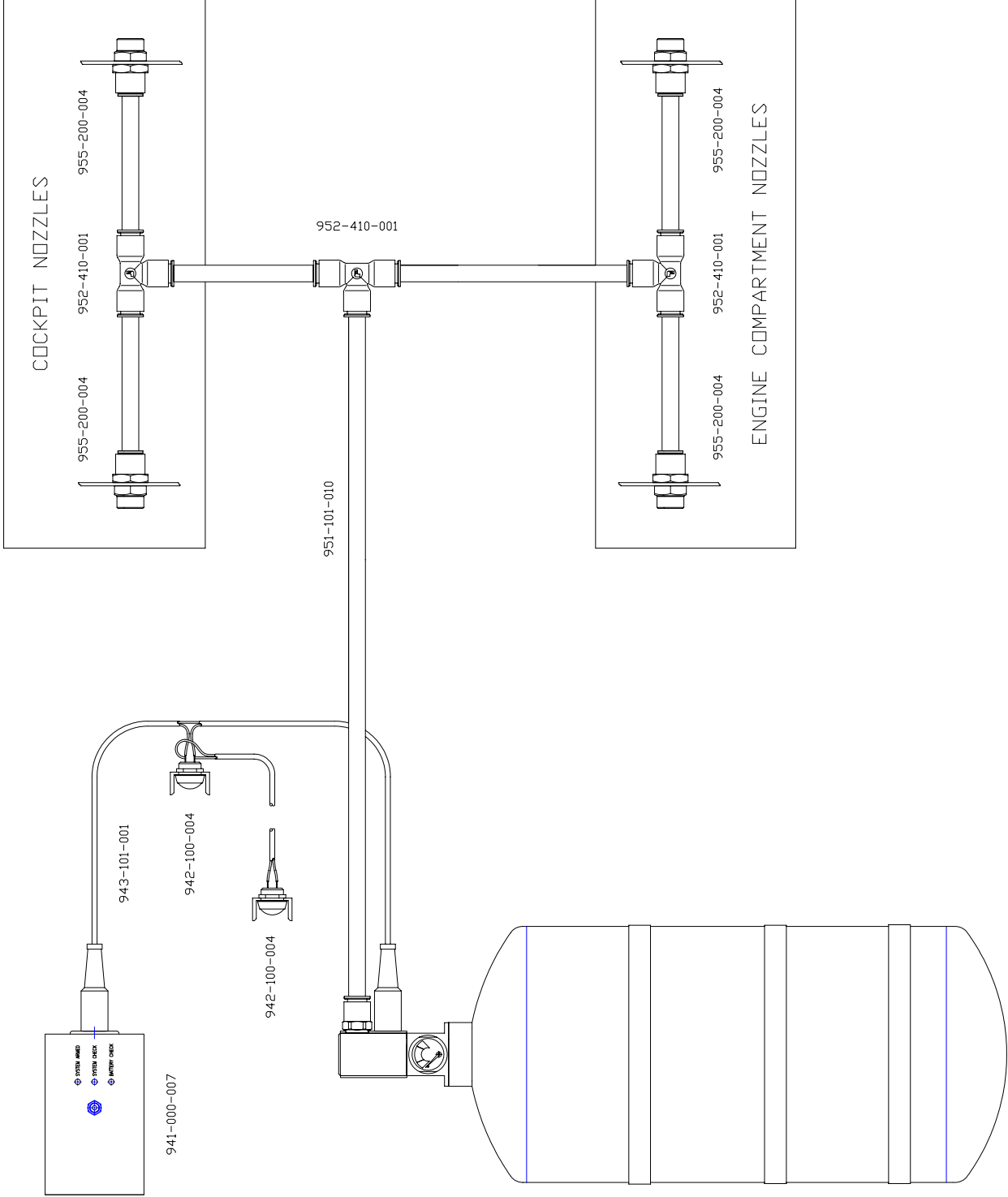
lifeline

FIRE AND SAFETY SYSTEMS LTD.
BURNSALL ROAD, COVENTRY, CV5 6BU
Tel: +44 (0) 24 7671 2999 Fax: +44 (0) 24 76712998

COMPONENT / TITLE

102-400-001, 4.0 ltr Fire Marshal
Mechanical (Steel Cylinder)

DRAWN M.D.
DATE Mar.'06.



DRAWN	M.D.
	DATE
109-101-102, 4.0 litre Steel Electric - Lico	
7,10,8	

lifeline

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COMPONENT / TITLE

KIT CONTENTS LIST

Part number: 0146EM41VA

Sparco part number crossing

n°	Part number	Description
1	0146EM41A	Complete car system
2	0146EM41A/B	System bottle
3	0146EM41A/C	Assembling bottle and bracket
4	014RL21S	Nozzle
5	014RL20T	Alloy semirigid tube
6	014RL22R	Straight connector
7	014RL23RT	T connector
8	014RL28	Bracket and straps

FITTING INSTRUCTIONS

Thank you for purchasing an FIA approved LICO 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 LICO components should be used.

Should you experience any difficulties installing your system, please do not hesitate to contact LICO on Tel. (+55)11.56661038.

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 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.

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

Remove the extinguisher from its mounting bracket by undoing the overcentre clips. Decide the best position for the extinguisher to be mounted bearing in mind that the extinguisher label, showing its contents and pressure gauge should be clearly visible. Securely mount the extinguisher bracket to the vehicle and replace the bottle.

ELECTRICAL SYSTEM

Mount the power pack so that it is clearly visible. Mount the switches to the vehicle, noting that the switch with the red plastic shroud is for the cockpit. The switch with the flexible push button is for the outside of vehicle as it is waterproof. It should be fitted at the lower part of the windscreen mounting. The cockpit switch should be mounted so that it is within easy reach of the driver and co-driver when sitting in the normal driving position and wearing fully fastened seat belts.

• Wiring of system

All LICO 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 electric interference from the vehicle's power source. Before wiring up the extinguisher use a voltmeter to check, when the switch is in the ON position and the button is pushed, there is a voltage of not less than 7 Volt through the external terminals. When the switch is in the OFF-CHECK position and the button is pushed, use a milliamperometer to check that the current between external terminals does not exceed 1mA. Make the electrical connections as shown in the diagram.

Once the system has been wired 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.

• Operating

When the switch is in the ON position, the system is ready to be used: by pressing either the outside or inside pushbutton the extinguisher will be turned on. In all situations when it is not necessary to use the system (prolonged stopovers in the pits during races, transfer journeys, servicing and closed parks for rallies) you are advised to turn the switch to OFF-CHECK position to avoid accidental activation. When the switch is in the OFF-CHECK position, by pressing any of the start buttons, it is possible to check the following:

1. Efficiency of pushbutton which has been pushed
2. Continuity of connections between the control unit and the extinguisher; the le CIRCUIT light up if there are no breaks
3. Battery efficiency: the BATTERY led will light up only if the charging status of the battery is sufficient to guarantee extinguisher operation.

IMPORTANT: given that the battery supplies a high level of current to simulate operating conditions when the switch is in the OFF-CHECK position, you are advised to limit the duration and frequency of controls. The use of 9 Volt transistor-type alkaline-manganese batteries (IEC 6LF22) is recommended.

MECHANICAL SYSTEM

These systems are operated using pull cables. Each kit 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 driver and co-driver when sitting in the normal driving position and wearing fully fastened seat belts. The external cable is normally mounted at the lower part of the windscreen mounting. 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, this will ensure easy operation for the cables. The end of the 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 extinguisher. It is recommended that the cables are periodically lubricated and checked to prevent seizure.

NOZZLES

It is important that the correct nozzles, supplied with the system, are used. The nozzles will produce an atomized 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 meter. This should be borne in mind when locating the nozzles.

Each kit is supplied with the correct number of nozzles and T-pieces to allow the correct number of nozzles to be plumbed to either the engine or the cockpit.

- **Cockpit nozzle location for closed cars**

Two nozzles should be mounted in the cockpit area. We recommend that these are mounted under the dashboard, spraying down into the foot well of both the driver and passenger compartment.

- **Cockpit nozzle location for open car**

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

- **Engine nozzle location for both open and closed cars**

Two nozzles should be mounted in the engine compartment. These nozzles spray either side of the engine, ensuring full coverage. We recommend that the nozzles are mounted diagonally apart and approximately 200 mm below the bonnet shut line.

LICO 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 pipe work.

TUBING

Each extinguisher kit is supplied with a roll 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.

TECHNICAL SPECIFICATION OF EXTINGUISHING PRODUCT

USAGE	Racing cars, including saloon, single seaters and other cars
CONTENTS	Foam solutions, 15% with de-ionised water
DISCHARGE AREAS	Engine compartment and driver's 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 milky white liquid.
COMPOSITION	Multi-purpose synthetic foam based solution, based on salts of alkyl ether sulphates, together with solvents and foam stabilisers
APPEARANCE	Clear amber liquid in solution
SPECIFIC GRAVITY	Typically within the range of 1016 +/- 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 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 the nozzles for obstructions and foreign bodies
- Regularly check the integrity of the pipework and the fittings
- Regularly inspect the cylinder for damage
- Your system should be serviced every two years. A service date is written on 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 LICO or one of its official agents. You will need to send the cylinder, along with nozzles to be serviced
- If your system is discharged, it must be returned only to LICO or one of its agents for refilling

Your LICO fire system will be rejected from scrutineering if:

- The gauge reads in the red sector
- The tamper-proof label is not intact
- Non-genuine LICO 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 conditions

