(A) SCOPE OF WORK IN MAINTENANCE OF FIRE FIGHTING EQUIPMENT

Our service teams must ensure that:

• They have full details of the customer being visited, the location and service documents.

• They have all the necessary tools, spares and refills needed to enable them provide the service required.

• Proper code of dressing i.e. protective gear(PPE) if necessary and identification as provided by the company

• On reaching the customer's premises, proper introduction and identification must be done.

• Our service teams also have the responsibility to create good working relations with the clients. Any major challenges arising should be communicated to supervisors and managers.

(B) FIELD EQUIPMENTS & SYSTEMS

In the field, we have various equipment's and systems. These are identified as follows;

• Portable Fire Extinguishers – Those less than 25kgs gross weight.

• Trolley Fire Extinguishers – These are wheeled trolleys normally 25kgs and above.

• Hose Reel System – Pressurized water system with pipe network and reservoir tank.

• Hydrant System – Manual system that provides huge volumes of water for big fires

• Sprinkler System – Fixed automatic fire fighting system.

• Fire Alarm System – An effective means of giving warning in case of fire.

• Fire Suppression System – Capable of detecting, giving warnings and suppressing/ putting off fires. Very ideal for computer server rooms / data centers, Electrical switch rooms etc.

(1) PORTABLE FIRE EXTINGUISHERS

Portable Fire Extinguishers are equipments which do not exceed 25kgs. They come in two

Types: Pressurized and Cartridge operated.

Stored pressure

The pressurizing agent is dry gas nitrogen stored within the body of the extinguisher.

Cartridge operated

This is the case where the expellant agent, usually carbon dioxide is stored within its own metal casing and the pressure is released on actuation of the valve as the cartridge is pierced.

The different types of portable fire extinguishers are as follows;

• Water Type: Extinguishing agent is water

• Foam Type: Extinguishing agent is water mixed with foam

• Dry Powder: Extinguishing agent is dry powder i.e. potassium &sodium bicarbonate

• Carbon dioxide: Extinguishing agent is carbon dioxide gas

GENERAL CHECK- UP FOR ALL PORTABLES

Dust

All equipment's must be well dusted.

Paint

A standard color has to be maintained. A coat of paint is recommended and especially where equipment's are kept in adverse weather conditions.

Corrosion

Rust and corrosion is an indication of equipment having become old and weak and may not withstand operating pressure. Great care must be observed on those weak points as these areas might have holes. In this case, the extinguisher must be condemned, removed from site and replaced with a new one.

Operating Instructions

All equipment's must have a clear instruction label on the front side indicating how one is supposed to use the equipment in case of fire. Old torn labels must be replaced.

Wall Mounting-Loose hanging extinguishers are very dangerous and may cause injuries. Wall fixing bracketsmust be securely mounted.

Sealing-All extinguishers must be sealed after every certified service.

Safety pin / Cap / Clip-Every extinguisher must have a safety pin, clip or cap.

MAINTENANCE PROCEDURE

Stored Pressure Extinguishers

This type of extinguisher which is pressurized should not be opened in the field unless one has confirmed its empty and one has the refilling gear for it. Confirmation should be made by physically checking the pressure gauge. If it's found non- operational, refilling should be done in the workshop. Check the gauge position; turn the cylinder upside down several times to check the condition of the powder.

Extinguishers which are found to be faulty and therefore not refillable are condemned and we recommend replacement and destruction of the used ones.

For normal service, the general check-up procedure is followed for all extinguishers as well as

checking the gauge to ensure it is in the correct location. The gauge is a circular glass faced instrument on the side of the grip valve, which has three levels starting from 0 to about 18 bars. It is red in color at the left side level. When the pointer is at this level, it means that the extinguisher is empty or under charged and therefore needs pressurizing. The middle level is green, which indicates the extinguisher is okay.

The third position is red. At this point, the equipment is overcharged which is not recommended. On other extinguisher models you may find the gauges located on the cylinder body. If you find the cylinder empty and you are not carrying the filling gear, taking it to the workshop is advised.

Cartridge Type Extinguishers

Follow the general check-up for all extinguishers. Other procedures will involve opening the extinguisher to get access to the internal parts of the cylinder e.g. Cartridge, which holds the pressurizing agent and siphon tube which releases the extinguishing agent. You will also note the level of the extinguishing agent. Check on the weight of the cartridge, which is normally indicated on the body as full,empty and content weight. An exchange with a charged one is required if content weight is 10% less. Water type cartridges are P.V.C. coated to rust and corrosion.

Check whether the siphon tube and discharge hose are blocked by blowing through. Check that all the moving parts are free and well lubricated. Seals should also be in order. Broken or worn out seals should be replaced.

Foam Extinguishers

The service procedure for Foam extinguishers is the same one used for Water type. The major difference is the extra chemical added to the water in a 9Litre cylinder. The ratio of water to foam chemical is 8:1 There are various types of foam chemicals used in the field though the most common we have is AFFF (Aqueous Film Forming Foam 6%) which is clear in color.

Dry powder Extinguishers

These come in various sizes; from 0.5Kg to 12Kg. Normal general service procedure should take place first. The extinguishing agent is a fine ground powder which comes out freely on discharge. Once exposed to the moisture or after several years without service, it tends to cake together and this makes it difficult to discharge as it will block the siphon tube and discharge hose. Caked powder should be completely replaced.

In both pressurized and cartridge types, the most important thing is to ensure that the powder inside the cylinder runs freely. This is done by turning the cylinder several times upside down.

Types of Cartridges

Due to the weight difference of cylinders, the cartridge also comes in different weights ranging from a content weight of 28grams to 150grams. Others come as disposable. Weight procedure should be followed for checking cartridges and replacing them if found underweight or used

(2) TROLLEYS

These are big extinguishers, which are on a wheeled carrier for ease of movement.

Cartridge Operated Trolley Extinguisher

The content weight is normally indicated on the container body. The expellant agent normally Co2 cylinder 2kgs or 5kgs is tied beside the extinguish ant cylinder. This acts as the cartridge and the weight is also indicated as full, empty and content weight. Scale balance is used to establish weight. Always ensure that the powder content is free flow.

Pressurized Type Trolley Ext

Follow general check-up procedure. Check gauge position. Turn equipment upside down.

This can only be done by two people because of the weight.

(3) HOSE REEL SYSTEM

There are 2 common types.

Fixed Type

This is fitted in a fixed position and doesn't move and it's only suitable for areas which you don't need to rotate the plate.

Swing Type

It's fitted in areas where you need to shift the plate to the desired location. Swinging recessed is suitable for areas where the hose reel forms a part of a conform like recessed cabinets.

They all come in a standard plate comprising of hose tubing and nozzles in sizes of 1" or 3/4"and a length of 30m or 60m. The hose assists in fighting a fire at a safe distance area from a building before it spreads. The nozzle assists the water to come in high jet spray or both combined. A booster pump is connected to this system to give adequate pressure to the water. Minimum water throw should be at least 7 to 9m away from the location of the fire upwards.

MAINTENANCE PROCEDURE

• Check the free movement of the reel and condition of control arm. • Ensure that the rubber hose is not broken or worn out • Check for leakages normally caused by worn-out 'O' rings which should be replaced. • Ensure the nozzle is giving the three modes of jet, spray, and jet/spray. • Confirm the gate valve is closing and opening.

Booster pumps

These are electrically operated machines for boosting pressure to the hose reel system. They

normally operate automatically on reduction of a set pressure level. They start automatically once the hose reel valve is opened and stops once closed. If it fails to start, check whether the power supply is okay. Failure to this, check whether the pump has tripped and reset. If running but there is no pressure, pump has to be taken to workshop for further observation.

(4) HYDRANT SYSTEM

These are large manual/ automatic systems, which provide large volume of water for fighting

big fires. They are suitablewhere a fire may spread rapidly and require more water to putt off.

A hydrant system comprises of piping, hydrant valves and pump installed as required on a particular site. Hydrant valves should be supplied with fire hoses and nozzles for delivering the water to required points.

MAINTENANCE PROCEDURE

¾ On servicing, check free opening and closing of valve.

¾ Lubricate if necessary.

¾ Confirm the seals are not worn-out

¾ The fire hose should be run-out and checked for leakages

¾ The pump must be checked to ensure it is giving rated pressure

¾ Another aspect of hydrant system is that it can incorporate foam units to cater for fires involving different classes like liquids and other risks.

(5) SPRINKLER SYSTEM/ FOAM SYSTEMS

These are fixed automatic fire fighting systems. They are installed and will operate only in the installed areas and for a particular risk. Most common sprinkler employs the 'wet' system where water is held at pressure inside the piping. The sprinkler head contains quartzite liquid filled bulb designed to break at a preset temperature.

Service of these systems involves checking pressure levels, motor operations, etc.

FIRE FIGHTING EQUIPMENT SERVICES	**QUANTITY**	**RATE**
Portable Fire Extinguishers	397	
Hose Reel System	7	
Trolley Mobile Extinguishers	9	
Painting of Portable Fire Extinguishers	To be determine	
Painting of Trolley Mobile Extinguishers	To be determine	
Fire drilling and training	Maximum 35 People	
N.B-This services are carried out bi-annually		

FIRE FIGHTING EQUIPMENT PARTS	
ITEM	**RATE**
Powder Refills	
O-rings for extinguishers	
Safety pins/clips	
Carbon dioxide valve levers	
discharge hose for dry powder extinguishers	
Carbon dioxide squeeze grip valves	
Suba seals(2.5'')	
Head caps assemblies(9kg ,co2 and water)	
Head caps assemblies(1kg and kg dry powder)	
Hose reel O-rings	
Carbon dioxide extinguishers refills	
Carbon dioxide cartridge refills	
Carbon dioxide flexible hose and horn	
Foam compound(per liter)	
Instruction labels	
Clean and service fire Engine pump (Fire Tender) Make. IVECO EUROGARCO ***Tank Cap. 6000litres H2O and 1000litres Foam***	