Using this manual- The most prudent use of this practical manual and guide is to prepare your vessel's maintenance log for inspection by the "Authority Having Jurisdiction". If you contract a licensed service provider to inspect your fire equipment they should provide some documentation that the equipment on board was sufficient, it was inspected and the engine room system was function tested and certified. They may provide nothing more than an invoice and a "tag" on each piece of equipment checked.

Some companies provide a list of the equipment with serial numbers on a "serial number log" or something like that. Very few vessels put together a decent folder dedicated to the fire equipment on board. With the requisite study of what it takes to "certify" the equipment comes an increase in knowledge and understanding that results in an orderly presentation. This guide is intended to instruct those who want to put together their own equipment log in a professional looking folder and gain a thorough understanding of what you can and can not do yourself.

Fire equipment is a very serious subject with liabilities incurred in its service and use. Fire equipment inspectors are licensed by the State Department of Insurance. Liability is the reason the insurance provider usually requires you to maintain the fire equipment on board. They assume when they see a copy of the invoice from the fire equipment company, "everything is O.K."

You are suppose to check your extinguishers once each month, in addition to your annual certification. There is enough information included here to perform these monthly inspections yourself. You certainly aren't required to pay someone to do it for you every month. We are going to go over what a serviceperson has to do to write that invoice every year. He is charging for the knowledge he rightfully knows and the service of inspecting each piece of equipment and evaluating it's ability to function as the manufacturer intended. You will soon be able to perform the same evaluation and complete the forms that will, in many cases, satisfy your insurance provider that "everything is O.K.".

Putting together your fire equipment maintenance log is as easy as filling in the blanks on the enclosed forms. We are going to go over each one line by line and use this as a format for exploring the subject matter in greater detail. Alot of the details are spelled out for you on the label of your fire extinguisher, it just takes a little effort to read through the label of your fire extinguisher and find the information you need to fill in the blanks on your form. Along the way you'll pick up the reasons why each item might be important for determining the fittness of the equipment for continued use as part of the life-safety equipment on your vessel.

Most new extinguishers have a “picto-graph” label, an international symbol to indicate that it is effective for A.B.C. or B.C. types of fires.

The A stands for flammable solid material such as wood or paper, and has a little picture of a trashcan with a flame coming out. If there’s a diagonal line crossing through the picture, you should understand in any language, ***that*** extinguisher is ***not*** effective on “A” type fires, that is, flammable solids. “B” type fires are flammable liquids. The picture of a gas can and a puddle on fire tells all that these are “B” type fires. “C” type fires are electrical fires. See the picture of the electrical cord and outlet? Those types of fires are “classified” as “C” type fires. Again, no bar across the picture, the extinguisher is said to be ***effective*** on those types of fires.

This extinguisher is not ***effective*** on “A” type fires.

Inspecting Fire suppression systems

There are many types of fire suppression systems out there but only a few are Coast Guard approved for marine applications. In your folder you'll have two sheets to fill out, one a quick list of relevant facts the authority having jurisdiction will find handy and time-saving, and a more extensive "systems report" that is more like your worksheet. We'll use the same approach we used covering the portable fire extinguishers, that is go down the enclosed "systems report" line by line.

Marine approved systems can be divided into the self contained types, which are most similar to a portable fire extinguisher, and the more elaborate types that have pipe for the agent delivery from the cylinder valve to the discharge nozzle. The bigger systems are often "pre-engineered", that is for a given volume of space it has been determined by the manufacturer exactly what size cylinder, how many nozzles, what the piping limitations are etc. The system is installed per the configuration of the space with respect to "running the pipe". It is installed " in the field" by an installer using pipe

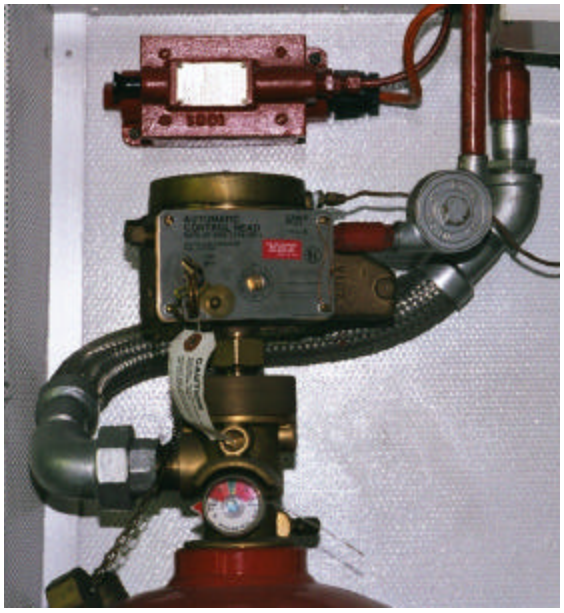
To install or remove the cable assembly from the fragile glass bulb makes this a job for someone who is mechanically inclined enough to look at it and be able to figure it out. It is actually frighteningly simple, but obviously if your a heavy-handed type you're going to set the thing off. It does resemble a T.V. character defusing a bomb " in the field", and its not that far off. The "hairy" part of the procedure is you remove the clevis pin and have to push the cable assembly ***towards*** the "hook" so you have the necessary "slack" to work the hook out of the hole.

The hook isn't actually attached to the little arm, just run through the little hole in it. It gets pulled straight back when pulled and the arm does its thing. You should be able to gently push the cable forward (only about one half inch total) with your right hand and back the hook-end out with the other hand at the same time. Its a precision move that you need to wear your safety glasses for and treat as a potentially dangerous procedure. That being said, its a little trickier hooking it ***back*** up because you also push the cable forward past where it gets clipped, slip the hook through the arm, then you have to pull ***back*** on the cable ever-so-gently with it completely hooked up at this point, until the grooves line up in the cable end and the valve, so you can push that clevis pin back into place, securing the cable. The clevis pin holds the outer coating of the cable fixed, so when the handle is pulled, you only move the cable ***inside***. Some models have a safety pin you remove once the cable is hooked up- don't forget to pull that out or whatever you do to enable the cable to do it's thing. Always hang on to the manual that comes with these systems. Read it and follow all the directions carefully. These things aren't on the label, usually. You could hurt yourself.

Fortunately or not, all the flex cables work this way except the heavy duty ***Morse*** cables which don't have such a flimsy " hook and arm" type of "connection".

The new Fireboy models are filled with FE241, and the valves still work the same basic way, with the addition of a gauge to indicate the pressure inside the cylinder. Some new models contain FM-200.

When the control head detects a ***rapid*** rate of rise, it closes the vent and the build up of expanding air in the line triggers an "automatic" release of the agent. It isn't triggered by a set temperature, but a calculated allowable rate of rise that isn't affected by the normal rising temperature of an engine room heating up when the engines start and run normally. This type of control head is called a ***rate of rise*** control head.



Ansul rate of rise type.

A control head is the mechanism that opens the valve, or "actuates" the valve. The ***remote release*** is represented at one end by some sort of pull handle, with a tamper indicator that may be breakable glass or plastic, and the other end connects to the control head. On the larger systems the pull cable is actually a stainless steel cable run through steel or brass pipe with ***corner pulleys*** at every change of direction.

The smaller systems frequently use a ***flex cable*** that resembles a lawnmower control cable. It is a flexible cable that the inner stainless steel cable slips back and forth while the outer covering doesn't move at all.

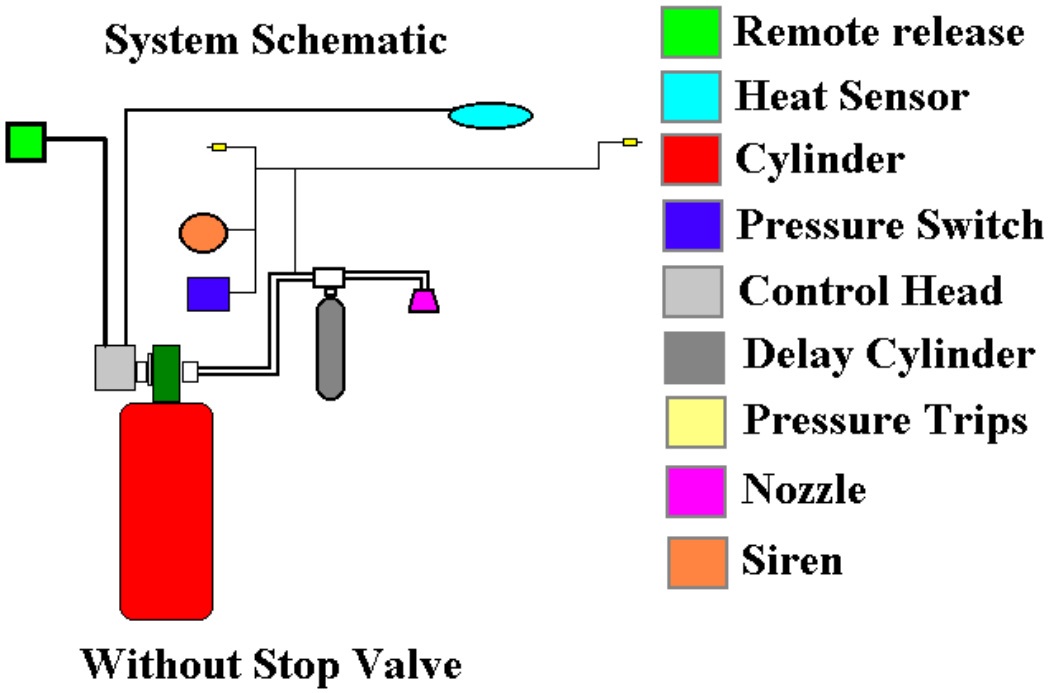
SeaFire Remote

Kidde remote

Ansul remote

System Diagrams-

Example two-



Without Stop Valve

This example shows how the discharge delay serves the purpose of the stop valve in example one. Here the agent stops at the delay cylinder until the time required for the valve to operate, usually 15, 30 or 60 seconds depending on the one being used. When the delay valve opens the agent flows ***through*** the
delay valve to the nozzle(s). There are still devices that are actuated immediately that are piped off the discharge line ahead of the delay. This example might be most typical of single cylinder systems that might use 1/2 or 3/4 inch discharge pipe. Additional options on these systems might include more than one pressure switch, dual remote pulls that might be located at two different exits from the protected space, a discharge indicator located somewhere in the discharge pipe run that "pops" out a little red indicator when the pipe has been pressurized. Some systems have a check valve and restrictor that will vent the agent overboard to relieve the manifold of pressure in case the system agent cylinder leaks or pressurizes the discharge line -especially when the agent is carbon dioxide. Discharge delays can also have an over-ride that allows you to by-pass the delay when immediate agent release is needed.