MECHANICAL EMERGENCY MANUAL RELEASE

INTRODUCTION

A Mechanical Emergency Manual Release (MEMR) enables an operator to discharge a special extinguishing system in the event that the automatic operation fails, or to initiate discharge prior to automatic operation.

Usually the most reliable and economical MEMR incorporates either pull cables or a pull-pin or strike button at accessible cylinders.

POSITION

Design MEMRs to be entirely independent of the automatic actuation facilities. The operation of any MEMR should produce the environmental and equipment status necessary for the proper functioning of the extinguishing system, including such items as air-handling system shutdown, damper or door closures, and equipment shutdown.

Pull Cables

Operate cables by a pull not exceeding 40 lbf (178 N) force or 14 in. (36 cm) of travel. The operation of a cable by a weight is not acceptable, although a selector valve may be operated by a direct free drop of a weight released by a cable. If the geometry of the hazard requires more than one MEMR, submit the information into AXA XL Risk Consulting for review.

Do not group MEMRs for two or more hazards except at the cylinder bank, to avoid the likelihood that a panic-stricken operator will pull everything within reach in the excitement of an emergency.

The MEMR should, in one operation, actuate all the selector valves and releases necessary to discharge agent into the hazard, bypassing all time delay devices. Pneumatic manual operation of the cylinder-releases from a pneumatic transmitter on the selector valve is not acceptable.

Provide separate MEMRs for main and reserve cylinders. Arrange the reserve MEMR to operate only the reserve bank of cylinders. Although the main and reserve should operate identically, design the system so that the main MEMR is operated first. Then, if agent is not discharged from the main cylinders, the reserve MEMR must be operated. Locate manual pull stations for both main and reserve cylinders in readily accessible locations.

In systems using selector valves, arrange the main and reserve MEMRs to be accessible at each separate hazard. If the MEMRs are located at the cylinder bank, clearly label all MEMRs.

Pull cables should be 1/16 in. (1.6 mm) or 3/32 in. (2.4 mm) in diameter, flexible, and made of Monel or stainless steel. Thoroughly stretch all cables after the system is installed and readjust all cable fasteners to the correct length.

Arrange all changes in the direction of cable runs so that the cable cannot slip off the pulley sheave. Run the cables in cableways of threaded steel conduit or galvanized pipe, with pulleys at all changes in direction. Support all substandard cableways and pulleys at changes in direction.

Whenever a main MEMR operates more than one device (other than a cylinder release), provide some means of equalizing the tension of the cable runs to the various releases. See Figures 1 and 2. When equalizer pulleys in closed boxes are used, pass the cable from the release devices around the pulley and the securely fastened pull cable to the pulley block. The box containing the equalizer pulley should be of sufficient length for proper operation of releases and should prevent twisting of the pulley or cables within the box.

When more than one MEMR cable performs the same operation, clamp these cables and the cable leading to the releases together within a multiple-control box of adequate length. Support each cableway entering the multiple-control box so that no tension or compression is exerted on the box. Maintain the same distance between the cylinder releases so that the MEMR pull cable will operate all releases.

Pneumatic Releases

Separately piped, pressure-supplied, supervised pneumatic MEMRs are desirable. Pneumatic manual releases used as MEMRs should be entirely independent of the automatic facilities. Any manual release that depends on that same run of pneumatic piping is considered as the normal manual release.

Close-couple the pneumatic MEMR to the discharge valve assembly or pipe. Although pneumatic supervision of the MEMR would be highly desirable, it is not required for AXA XL Risk Consulting acceptance if the normal manual release is supervised unless exposure to a large loss potential dictates otherwise.

Use pneumatic manual equipment listed by a recognized testing laboratory to ensure that an adequate gas supply and the proper pipe or tubing size is used for the length of run. Shuttle valves may be used instead of two check valves downstream of a bull head tee.

Mechanical Lever Releases

Some special extinguishing systems have control heads equipped with mechanical level switches for emergency tripping of individual discharge cylinders or the selector valves. These devices serve as MEMRs, however, they could also serve as normal manual releases on small systems where the operation of a single lever can actuate the entire system.

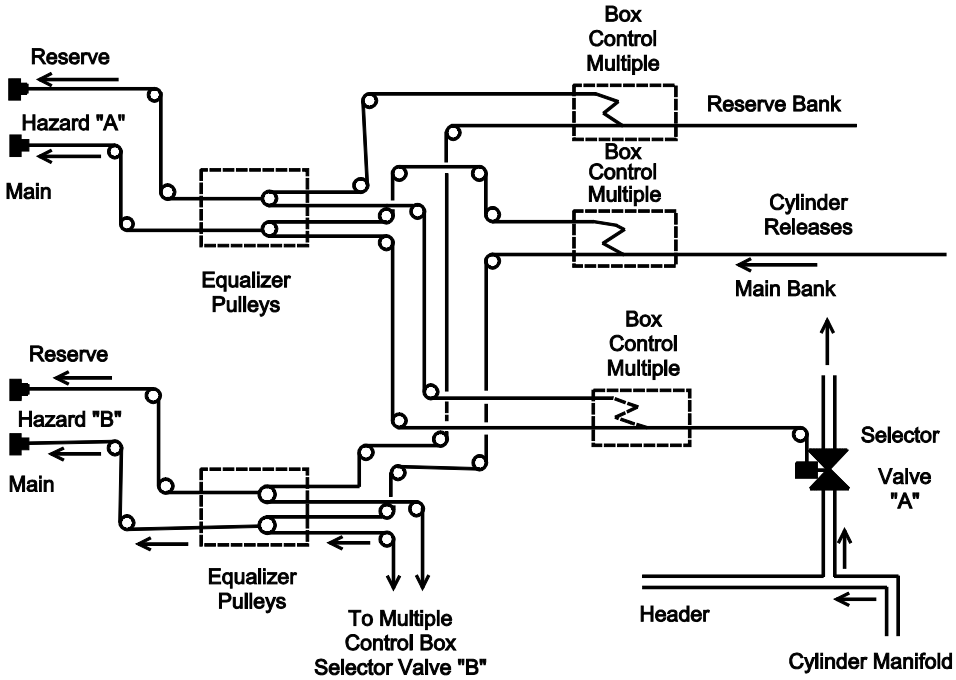

Figure 1. Manual Release Selector Valves.

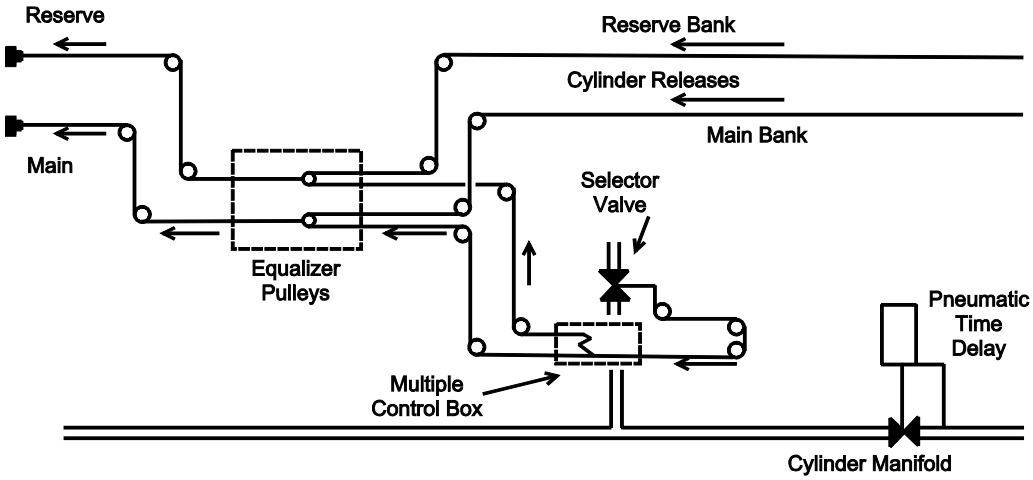

Figure 2. Manual Release Selector Valves And Time Delay.