**P/N 45-N1230M-002**
**February 2005**

# Kidde Engineered Fire Suppression System

## Designed for use with 3M™ Novec™ 1230 Fire Protection Fluid

# Owner's Manual

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Kidde Fire Systems

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# FOREWORD

**Note:** This Manual, P/N 45-N1230M-002, is to be used by qualified and factory-trained personnel, knowledgeable of NFPA standards and all local codes in effect.

This manual, in no way, supercedes the Kidde Engineered Fire Suppression System designed for use with 3M™ Novec™ 1230 Fire Protection Fluid Design, Installation, Operation and Maintenance Manual, P/N 45-N1230M-001.

Kidde-Fenwal assumes no responsibility for the application of any systems other than those addressed in this manual. The technical data contained herein is limited strictly for informational purposes only. Kidde-Fenwal believes this data to be accurate, but it is published and presented without any guarantee or warranty whatsoever. Kidde-Fenwal disclaims any liability for any use that may be made of the data and information contained herein by any and all other parties.

Any questions concerning the information presented in this manual should be addressed to:

Kidde-Fenwal, Inc.
400 Main Street
Ashland, MA 01721
Phone: (508) 881-2000
Toll Free: (800) 872-6527
Fax: (508) 881-8920

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# TABLE OF CONTENTS

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# LIST OF FIGURES

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# CHAPTER 1
# GENERAL INFORMATION

## 1-1 INTRODUCTION

The Kidde Engineered Fire Suppression System designed for use with 3M™ Novec™ 1230 Fire Protection Fluid is the newest addition to our vast product line. Kidde Engineered Systems are designed to suppress fires in specific hazards or equipment located where an electrically non-conductive agent is required, where agent cleanup creates a problem, where extinguishing capability with low weight is a factor and where the hazard is normally occupied by personnel. Novec 1230 fluid is an acceptable alternative to Halon and is approved by the EPA and NFPA for use in fire suppression systems.

Key features of Novec 1230 fluid are:

- People safe at concentration levels required to suppress fire
- Zero ozone depletion potential
- Atmospheric lifetime of five days
- Colorless, with low odor with no particulate or oily residue allowing for minimal business disruption after a discharge
- Electrically non-conductive
- Space saving; quantity of agent needed to suppress fires typically required minimal cylinders, thus minimal space required.

Kidde Engineered Systems are intended to protect the following:

- Petrochemical Installations
- Gas Turbines
- Steam Turbine Generators
- Railway Traffic Controls
- Power Generation Plants
- Electrical Equipment
- Printing Facilities
- Electric Furnaces
- Food Packaging Facilities
- Packaging Plants

For hazards beyond the scope described above, the designer must consult Kidde and NFPA 2001 on the suitability of a Kidde Engineered System using Novec 1230 fluid for the protection, necessary design concentration and personnel exposure effects from that concentration.

**Note:** IMPORTANT–This owner's manual does not cover every detail of step-by-step installation procedures for the Kidde Engineered System.

The system consists of components tested within the limitations defined in the detailed design, installation, operation and maintenance manual (P/N 45-N1230M-001) which is available from Kidde. The system designer must be consulted whenever changes are planned for the system or area of protection.

A certified Kidde distributor must be consulted after the system has been discharged.

The technical data contained herein is limited strictly for informational purposes only.

**CAUTION** **It is the owner's responsibility to read this manual and to ensure proper system operation and personnel safety.**

Follow the instructions in this manual and on the Kidde Engineered System cylinder nameplates. Review this information semi-annually, or as needed. Place this manual in an accessible place near the

Kidde Engineered System for ready reference.

Kidde believes this data to be accurate, however, it is published and presented without any guarantee or warranty whatsoever. Kidde disclaims any liability for the information contained herein by any, and all, other parties.

NAME OF KIDDE DISTRIBUTOR IS:

_____

ENTER EMERGENCY NUMBER FOR THE LOCAL FIRE DEPARTMENT HERE:

_____

Before handling Kidde products, all personnel must be thoroughly trained in the safe handling of the containers as well as in the proper procedures for installation, removal, filling and connection of other critical devices, such as solenoids, cable assemblies, pressure switches and safety caps. READ, UNDERSTAND and ALWAYS FOLLOW the operation and maintenance manuals, owner's manuals, service manuals, etc., that are provided with the individual systems.

**WARNING** **Pressurized (charged) containers are extremely hazardous and if not handled properly, are capable of violent discharge. This may result in serious bodily injury, death and property damage.**

## 1-2 MOVING OF CONTAINERS

### 1-2.1 Moving by Trucks

Containers must be shipped in the upright position and properly secured in place. Containers must not be rolled, dragged, slid or allowed to be slid from tailgates of vehicles. A suitable hand truck, fork truck, roll platform or similar device must be used.

### 1-2.2 Rough Handling

Containers must not be dropped or permitted to strike violently against each other or other surfaces.

### 1-2.3 Storage

Containers must be stored standing upright and secured in place.

## 1-3 SAFETY CAP

These instructions must be followed in the exact sequence as written to prevent serious injury, death and/or property damage.

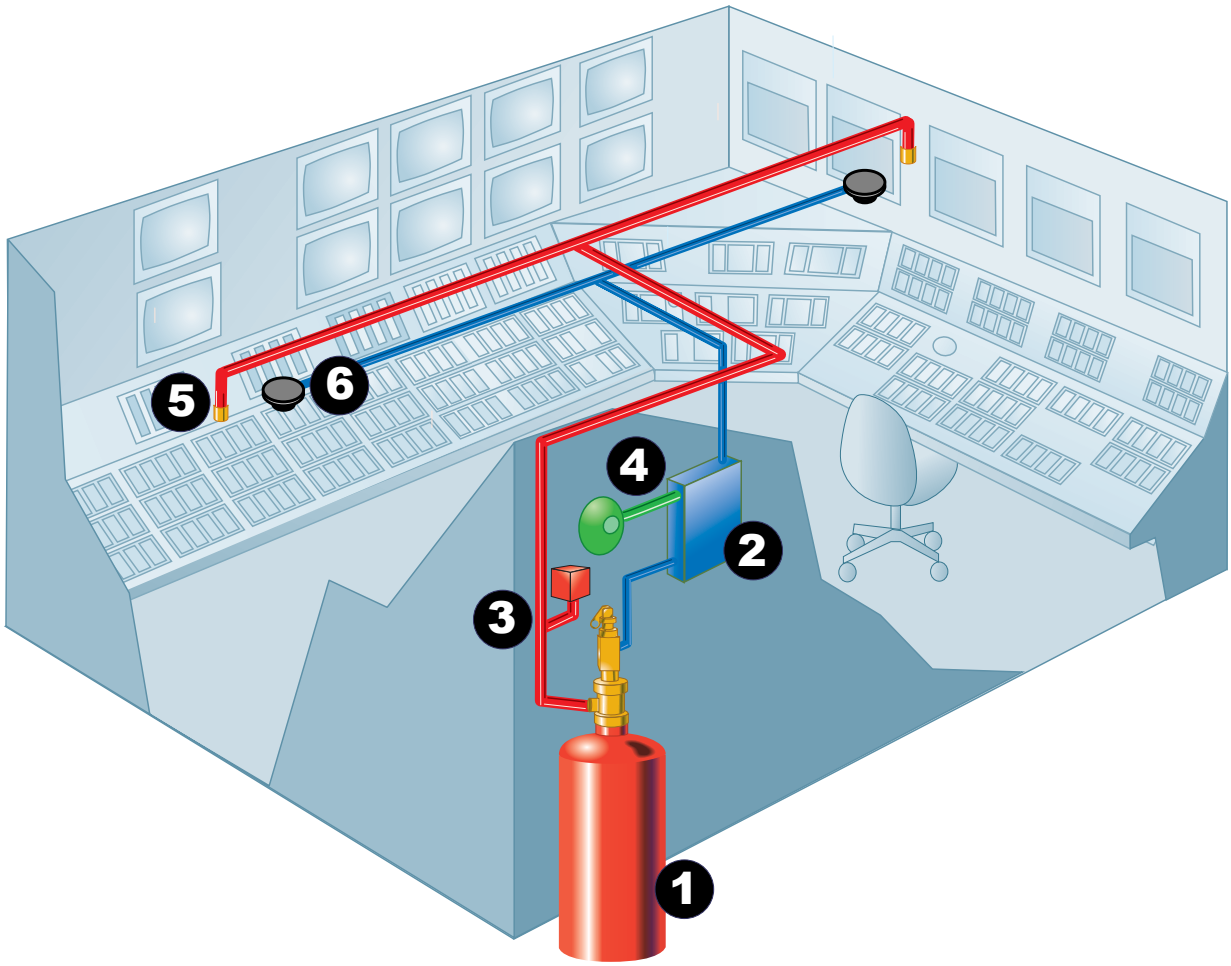
Each Kidde Engineered System cylinder is factory equipped with a safety cap installed on the cylinder outlet. This device is a safety feature and will provide controlled, safe discharge when installed in the event the container is accidentally actuated.

The safety cap must be installed on the container outlet AT ALL TIMES except when the containers are connected to the system piping.

For additional information on safe handling of compressed gas containers, see CGA Pamphlet P1 titled "Safe Handling of Compressed Gases in Containers." (CGA pamphlets may be purchased from the Compressed Gas Association, Crystal Square Two, 1725 Jefferson Davis Highway, Arlington, VA, 22202).

## 1-4 FUNCTIONAL DESCRIPTION

The Kidde Engineered System provides several modes of operation/actuation to release the agent into the hazard which is being protected. Figure 1-1 illustrates a typical application of the system.




**Key**

1. Cylinder and Valve Assembly
2. UL Listed Control Panel (e.g., Kidde PEGAsys)
3. Pressure Switch
4. Alarm
5. Nozzle
6. Detector (e.g., Photoelectric, Ion)

Figure 1-1. Typical Kidde Engineered System

# CHAPTER 2
# OPERATION

## 2-1 INTRODUCTION

This chapter describes the controls and indicators for the Kidde Engineered Fire Suppression System designed for use with 3M™ Novec™ 1230 Fire Protection Fluid.

## 2-2 SYSTEM CONTROLS AND INDICATORS

### 2-2.1 General

Compressed Novec 1230 fluid is held in the cylinder by a discharge valve. When the discharge valve is actuated by a control head, the valve piston is displaced and the compressed liquid escapes through the discharge port of the valve and is directed through the distribution piping to the nozzles. The nozzles provide the proper flow rate and distribution of Novec 1230 fluid.

### 2-2.2 Operating Procedures

2-2.2.1 AUTOMATIC OPERATION

When a system is operated automatically by means of a detection and control system, everyone must evacuate the hazard area promptly upon hearing the predischarge alarm. Make sure no one enters the hazard area. Call the fire department immediately.

2-2.2.2 REMOTE MANUAL OPERATION

Operate as follows:

1. Proceed to the appropriate remote manual pull station for the hazard.
2. Operate the manual pull station.
3. Leave the hazard area immediately.
4. Allow no one to enter the hazard area. Call the fire department immediately.

**Note:** The above instructions must be displayed in the protected area.

2-2.2.3 LOCAL MANUAL OPERATION

Manual control is not part of normal system actuation and should only be used in an emergency as a last resort.

1. Proceed to appropriate Kidde Engineered System cylinder for the hazard.
2. Remove the safety pull pin from the cylinder control head.
3. Operate the lever, following the instructions on the lever or control head nameplate.
4. Leave the hazard area immediately.

**Note:** Allow no one to enter the hazard area. Call the fire department immediately.

### 2-2.3 Post-Fire Operation

After an Kidde Engineered System discharge, qualified fire suppression system maintenance personnel must perform post-fire maintenance as directed in Chapter 6 of this manual. Observe all warnings, especially those pertaining to the length of elapsed time before entering the hazard area.

**Do not enter a hazard area with an open flame or lighted smoking materials.**

**WARNING** **Flammable vapors may cause reignition or explosion. Ensure the fire is completely extinguished before ventilating the area. Ventilate the area thoroughly before permitting anyone to enter the hazard area, or use a self-contained breathing apparatus.**

## 2-3 CYLINDER RECHARGE

Recharge all Kidde Engineered System and nitrogen pilot cylinders immediately after use. Return all cylinders to a Kidde Distributor or other qualified refill agency. Refill in accordance with the procedures outlined in Chapter 6 of this manual.

### 2-3.1 Special System Precautions

2-3.1.1 SYSTEMS ACTUATED WITH A MASTER KIDDE ENGINEERED SYSTEM CYLINDER

In systems where a master Kidde Engineered System cylinder actuates a pressure operated control head on a slave cylinder, the pressure in the flexible actuation hose line is vented into the discharge manifold following the system discharge. The pressure drop in the pilot line allows the pressure operated control head to automatically reset. However, as a precaution before reinstating the system, ensure that the control head actuating pin is in the retracted (SET) position.

2-3.1.2 SYSTEMS ACTUATED WITH A PILOT NITROGEN CYLINDER

In systems where a pilot nitrogen cylinder actuates a pressure operated control head on a slave Kidde Engineered System cylinder, nitrogen pressure is trapped in the pilot manifold when the system actuates and is not self-venting. Therefore, before reattaching a pressure operated control head to a recharged Kidde Engineered System cylinder, the following procedure must be performed to ensure that the pilot manifold is vented and the pressure operated control heads have returned to the SET position.

Vent any remaining pressure from the pilot line and remove the master control head from the nitrogen pilot cylinder(s). Reset the master control head and remove the pressure operated control head(s) from the slave cylinder(s).

Recharge and reinstall the nitrogen pilot cylinders to the correct charged pressure and reinstall the master control head.

Before installing a pressure operated control head on an Kidde Engineered System cylinder, ensure that the actuator pin is in the retracted (SET) position.

# TECHNICAL MANUAL USER FEEDBACK FORM

(Use this report to indicate deficiencies, user remarks and recommendations relating to the publication. Fold on dotted line, tape and mail to **KIDDE-FENWAL, Inc., 400 Main Street, Ashland, MA 01721, Attn. Documentation Manager** or FAX to 508-881-8920)

**DATE:**

| 1. PART NUMBER | 2. VOLUME NO. | 3. TITLE (NOMENCLATURE) |
|---|---|---|
| | | |

| 4. CHANGE NO. OR REV. DATE | 5. SYSTEM/EQUIPMENT | 6. PRIORITY OF COMMENT |
|---|---|---|
| | | |

**7. USER EVALUATION**

**MANUAL IS:** ❑ EXCELLENT ❑ GOOD ❑ FAIR ❑ POOR ❑ COMPLETE ❑ INCOMPLETE

**8.** ❑ PROBLEM ❑ QUESTION ❑ SUGGESTION ❑ COMMENT: (check one)

**9. RECOMMENDED CHANGE TO PUBLICATION**

| PAGE NO. | PARAGRAPH NO. | LINE NO. | FIGURE NO. | TABLE NO. | RECOMMENDED CHANGES AND REASON (Use Blank Continuation Sheets as Required) |
|---|---|---|---|---|---|
| | | | | | |

| 10. ORIGINATOR | 11. COMPANY NAME |
|---|---|
| | |

**12. ADDRESS**

**13. KIDDE-FENWAL USE ONLY**

| a. Received | b. Action Necessity | c. Priority | d. Comments |
|---|---|---|---|
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Ashland, MA 01721

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**LIMITED WARRANTY STATEMENT**

Kidde-Fenwal, Inc. represents that this product is free from defects in material and workmanship, and it will repair or replace any product or part thereof which proves to be defective in workmanship or material for a period of twelve (12) months from the date of purchase but not to exceed eighteen (18) months after shipment by Kidde-Fenwal Inc. For a full description of Kidde-Fenwal's LIMITED WARRANTY, which, among other things, EXCLUDES warranties of MERCHANTABILITY and FITNESS FOR A PARTICULAR PURPOSE and liability for CONSEQUENTIAL DAMAGES, please read the entire LIMITED WARRANTY on the Kidde-Fenwal Quotation, Acceptance of Order and/or Original Invoice which will become part of your sales agreement. Please contact Kidde-Fenwal directly for a return material authorization (RMA) number before returning material to the factory at Ashland, Massachusetts, shipment prepaid. Kidde-Fenwal will repair or replace and ship prepaid.



Kidde Fire Systems
400 Main Street
Ashland, MA 01721
Ph: (508) 881-2000
Fax: (508) 881-8920
http://www.kiddefiresystems.com

These instructions do not purport to cover all the details or variations in the equipment described, nor do they provide for every possible contingency to be met in connection with installation, operation and maintenance. All specifications subject to change without notice. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to KIDDE-FENWAL INC., Ashland, Masssachusetts

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