

FEATURES

- Low pH Agent
- Proven Design
- Reliable Cartridge Operated
- Aesthetically Appealing
- UL Listed – Meets Requirements of UL 300

APPLICATION

The Ansul R-102 Restaurant Fire Suppression System is an automatic, pre-engineered, fire suppression system designed to protect the following areas associated with cooking equipment; ventilating equipment including hoods, ducts, plenums, and filters; fryers; griddles and range tops; upright, natural charcoal, or chain-type broilers; electric, lava rock, mesquite or gas-radiant char-broilers and woks.

The system is ideally suitable for use in restaurants, hospitals, nursing homes, hotels, schools, airports, and other similar facilities.

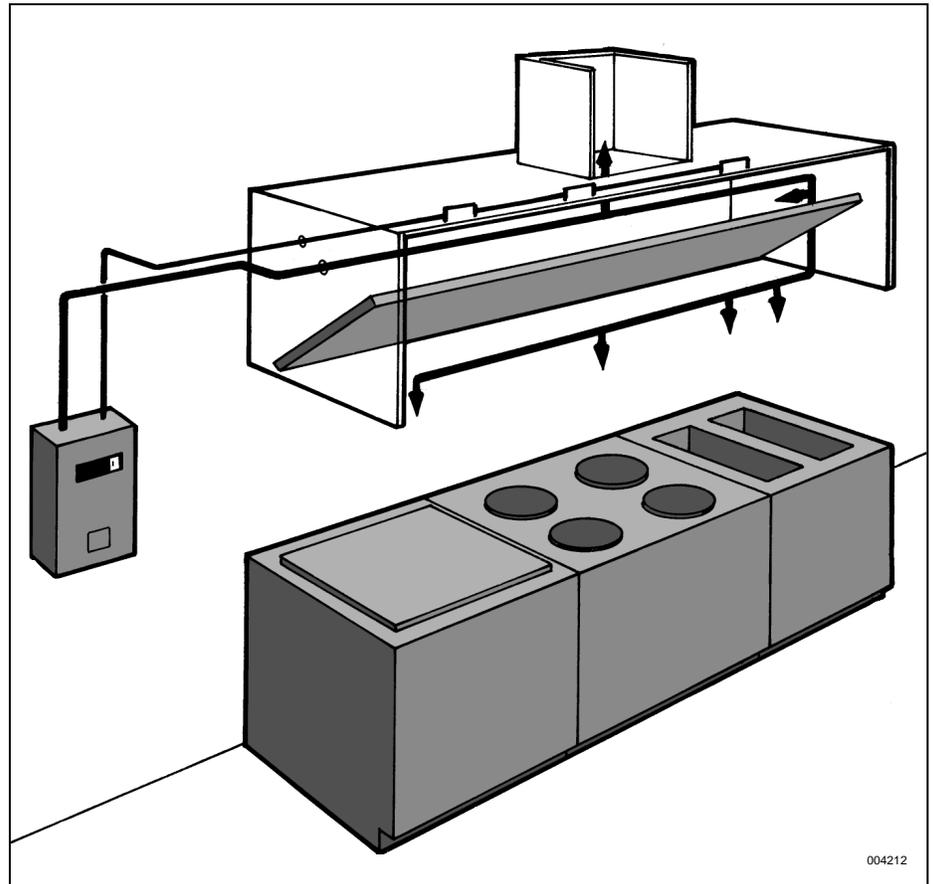
Use of the R-102 system is limited to interior applications only. The regulated release and tank assemblies must be mounted in an area where the air temperature will not fall below 32 °F (0 °C) or exceed 130 °F (54 °C). The system must be designed and installed within the guidelines of the UL Listed Design, Installation, Recharge, and Maintenance Manual.



SYSTEM DESCRIPTION

The restaurant fire suppression system is a pre-engineered, wet chemical, cartridge-operated, regulated pressure type with a fixed nozzle agent distribution network. It is listed with Underwriters Laboratories, Inc. (UL).

The system is capable of automatic detection and actuation and/or remote manual actuation. Additional equipment is available for mechanical or electrical gas line shut-off applications.



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The detection portion of the fire suppression system allows for automatic detection by means of specific alloy rated fusible links, which, when the temperature exceeds the rating of the link, the link separates, allowing the regulated release to actuate.

A system owner's guide is available containing basic information pertaining to system operation and maintenance. A detailed technical manual is also available including system description, design, installation, recharge, and maintenance procedures, plus additional equipment installation and resetting instructions.

The system is installed and serviced by authorized distributors that are trained by the manufacturer.

The basic system consists of an ANSUL AUTOMAN regulated release assembly which includes a regulated release mechanism and a wet chemical storage tank

housed within a single enclosure. Nozzle blow-off caps, detectors, cartridges, agent, fusible links, and pulley elbows are supplied in separate packages in the quantities needed for fire suppression system arrangements.

Additional equipment includes remote manual pull station, mechanical and electrical gas valves, pressure switches, and electrical switches for automatic equipment and gas line shut-off. Accessories can be added such as alarms, warning lights, etc., to installations where required.

Tanks can be used in multiple arrangements to allow for larger hazard coverage. Each tank is limited to a listed maximum amount of flow numbers.



COMPONENT DESCRIPTION

Wet Chemical Agent – The extinguishing agent is a mixture of organic and inorganic salts designed for rapid flame knockdown and foam securement of grease related fires. It is available in plastic containers with instructions for wet chemical handling and usage.

Agent Tank – The agent tank is installed in a stainless steel enclosure or wall bracket. The tank is deep drawn carbon steel finished in red enamel.

Tanks are available in two sizes: 1.5 gallon (5.7 L) and 3.0 gallon (11.4 L). The tanks have a working pressure of 100 psi (6.9 bar), a test pressure of 300 psi (20.7 bar), and a minimum burst pressure of 600 psi (41.4 bar).

The tank includes an adaptor/tube assembly. The adaptor is chrome-plated steel with a 1/4 in. NPT female gas inlet and a 3/8 in. NPT female agent outlet. The adaptor also

contains a bursting disc seal which prevents the siphoning of agent up the pipe during extreme temperature variations.

Regulated Release Mechanism – The regulated release mechanism is a spring-loaded, mechanical/pneumatic type capable of providing the expellant gas supply to one or two agent tanks, depending on the capacity of the gas cartridge used. It contains a factory installed regulator deadset at 100 psi (6.9 bar) with an internal relief of approximately 145 psi (10.0 bar). It has automatic actuation capabilities by a fusible link detection system and remote manual actuation by a mechanical pull station.

The regulated release mechanism contains a release assembly, regulator, expellant gas hose, and agent storage tank housed in a stainless steel enclosure with cover. The enclosure contains knock-outs for 1/2 in. conduit. The cover contains an opening for a visual status indicator.

It is compatible with mechanical gas shut-off devices; or, when equipped with a field or factory-installed switch, it is compatible with electric gas line or appliance shut-off devices.

Regulated Actuator Assembly – When more than two agent tanks are required, the regulated actuator is available to provide expellant gas for additional tanks. It is connected to the cartridge receiver outlet of the regulated release mechanism providing simultaneous agent discharge. It contains a regulated actuator deadset at 100 psi (6.9 bar) with an internal relief of approximately 145 psi (10.0 bar). The regulated actuator assembly contains a regulated actuator, regulator, expellant gas hose, and agent tank housed in a stainless steel enclosure with cover. The enclosure contains knockouts to permit installation of the expellant gas line.

Discharge Nozzles – Each discharge nozzle is tested and listed with the R-102 system for a specific application. Nozzle tips are stamped with the flow number designation (1/2, 1, 2, and 3). Each nozzle must have a metal or rubber blow-off cap to keep the nozzle tip orifice free of cooking grease build-up.

APPROVALS

Applicable Standards: ULI listed under EX-3470; ULC listed under CEX-747; meets requirements of NFPA 96 (Standard for the Installation of Equipment for the Removal of Smoke and Grease-Laden Vapors from Commercial Cooking Equipment); NFPA 17A (Standard on Wet Chemical Extinguishing Systems).

ORDERING INFORMATION

Order all system components through your local authorized Ansul Distributor.

SPECIFICATIONS

An Ansul R-102 Fire Suppression System shall be furnished. The system shall be capable of protecting all hazard areas associated with cooking equipment.

1.0 GENERAL

1.1 References

- 1.1.1 Underwriters Laboratories, Inc. (UL)
 - 1.1.1.1 UL Standard 1254
 - 1.1.1.2 UL Standard 300
- 1.1.2 National Fire Protection Association (NFPA)
 - 1.1.2.1 NFPA 96
 - 1.1.2.2 NFPA 17A

1.2 Submittals

- 1.2.1 Submit two sets of manufacturer's data sheets
- 1.2.2 Submit two sets of piping design drawings

1.3 System Description

- 1.3.1 The system shall be an automatic fire suppression system using a wet chemical agent for grease related fires.
- 1.3.2 The system shall be capable of suppressing fires in the following areas associated with cooking equipment: ventilating equipment including hoods, ducts, plenums, and filters; fryers; griddles and range tops; upright, natural charcoal, or chain-type broilers; electric, lava rock, mesquite or gas-radiant char-broilers.
- 1.3.3 The system shall be the pre-engineered type having minimum and maximum guidelines established by the manufacturer and listed by Underwriters Laboratories, Inc. (UL).
- 1.3.4 The system shall be installed and serviced by personnel trained by the manufacturer.

1.4 Quality Control

- 1.4.1 Manufacturer: The R-102 Restaurant Fire Suppression System shall be manufactured by a company with at least thirty years experience in the design and manufacture of pre-engineered fire suppression systems. The manufacturer shall be ISO 9002 registered.
- 1.4.2 Certificates: The wet agent shall be a specially formulated, aqueous solution of organic salts with a pH range between 7.8 – 8.2, designed for flame knockdown and foam securement of grease-related fires.

1.5 Warranty, Disclaimer, and Limitations

- 1.5.1 The pre-engineered restaurant fire suppression system components shall be warranted for five years from date of delivery against defects in workmanship and material.

2.0 PRODUCT

1.6 Delivery

1.6.1 Packaging: All system components shall be securely packaged to provide protection during shipment.

1.7 Environmental Conditions

1.7.1 The R-102 system shall be capable of operating in a temperature range of 32 °F to 130 °F (0 °C to 54 °C).

2.1 Manufacturer

2.1.1 Ansul Fire Protection, One Stanton Street, Marinette, Wisconsin 54143-2542, Telephone (715) 735-7411.

2.2 Components

2.2.1 The basic system shall consist of an ANSUL AUTOMAN regulated release assembly which includes a regulated release mechanism and a wet chemical storage tank housed within a single enclosure. Nozzles, blow-off caps, detectors, cartridges, agent, fusible links, and pulley elbows shall be supplied in separate packages in the quantities needed for fire suppression system arrangements. Additional equipment shall include remote manual pull station, mechanical and electrical gas valves, pressure switches, and electrical switches for automatic equipment and gas line shut-off.

2.2.2 Wet Chemical Agent: The extinguishing agent shall be a specially formulated, aqueous solution of organic salts with a pH range between 7.8 - 8.2, designed for flame knockdown and foam securement of grease related fires.

2.2.3 Agent Tank: The agent tank shall be installed in a stainless steel enclosure or wall bracket. The tank shall be deep drawn carbon steel finished in red enamel. Tanks shall be available in two sizes; 1.5 gallon (5.7 L) and 3.0 gallon (11.4 L). The tanks shall have a working pressure of 100 psi (6.9 bar), a test pressure of 300 psi (20.7 bar), and a minimum burst pressure of 600 psi (41.4 bar). The tank shall include an adaptor/tube assembly containing a burst disc union.

2.2.4 Regulated Release Mechanism: The regulated release mechanism shall be a spring-loaded, mechanical/pneumatic type capable of providing the expellant gas supply to one or two agent tanks depending on the capacity of the gas cartridge used. It shall contain a factory installed regulator deadset at 100 psi (6.9 bar) with an internal relief of approximately 145 psi (10.0 bar).

It shall have the following actuation capabilities: automatic actuation by a fusible link detection system and remote manual actuation by a mechanical pull station.

The regulated release mechanism shall contain a release assembly, regulator, expellant gas hose, and agent storage tank housed in a stainless steel enclosure with cover. The enclosure shall contain knock-outs for 1/2 in. conduit. The cover shall contain an opening for a visual status indicator.

It shall be compatible with mechanical gas shut-off devices; or, when equipped with a field or factory-installed switch, it shall be compatible with electric gas line or appliance shut-off devices.

2.2.5 Regulated Actuator Assembly: When more than two agent tanks are required, the regulated actuator shall be available to provide expellant gas for additional tanks. It shall be connected to the cartridge receiver outlet of the regulated release mechanism providing simultaneous agent discharge. The regulator shall be deadset at 100 psi (6.9 bar) with an internal relief of approximately 145 psi (10.0 bar). The regulated actuator assembly shall contain a regulated actuator, regulator, expellant gas hose, and agent tank housed in a stainless steel enclosure with cover. The enclosure shall contain knockouts to permit installation of the expellant gas line.

2.2.6 Discharge Nozzles: Each discharge nozzle shall be tested and listed with the R-102 system for a specific application. Nozzles tips shall be stamped with the flow number designation (1/2, 1, 2, and 3). Each nozzle shall have a metal or rubber blow-off cap to keep the nozzle tip orifice free of cooking grease build-up.

2.2.7 Distribution Piping: Distribution piping shall be Schedule 40 black iron, chrome-plated, or stainless steel pipe conforming to ASTM A120, A53, or A106.

2.2.8 Detectors: The detectors shall be the fusible link style designed to separate at a specific temperature.

2.2.9 Cartridges: The cartridge shall be a sealed steel pressure vessel containing either carbon dioxide or nitrogen gas. The cartridge seal shall be designed to be punctured by the releasing device supplying the required pressure to expel wet chemical agent from the storage tank.

3.0 IMPLEMENTATION

3.1 Installation

3.1.1 The R-102 fire suppression system shall be designed, installed, inspected, maintained, and recharged in accordance with the manufacturer's listed instruction manual.

3.2 Training

3.2.1 Training shall be conducted by representatives of the manufacturer.

FEATURES

- Fast Flame Knock-Down and Securement of Grease-Related Fires
- Provides a Cooling Effect Which Further Enhances Its Ability to Prevent Reflash
- Designed for a Wide Variety of Restaurant Hazards
- Listed by Underwriters Laboratories, Inc. (UL) as Part of the R-102 Restaurant System
- Ease of Recharge and Post-Fire Cleanup
- Non-Corrosive

APPLICATION

ANSULEX Low pH Liquid Fire Suppressant is designed for use only in Ansul R-102 restaurant fire suppression systems. This "liquid" agent will combat grease-related fires as found in restaurant appliances and ventilating equipment. It should **not** be used for fires involving energized electrical hazards.

DESCRIPTION

ANSULEX Low pH Liquid Fire Suppressant is a specially-formulated, aqueous solution of organic salts. The agent is pre-mixed, eliminating the need for dilution before system charging. When used as an extinguishing agent, it will produce no toxic by-products.

AGENT PROPERTIES

Appearance Color-Coded
Fluorescent
Yellow-Green

Storage Life 12 Years

Refractive Index 1.4040

Freeze Point -40 °F (-40 °C)

Boiling Point 230 °F (110 °C)

Specific Gravity 1.32

Kinematic Viscosity 5.26 centistokes

pH 7.8 – 8.2

WARNING: Care should be taken when handling the agent. If contact is made with the eyes or skin, flush with water. If the agent is swallowed, dilute with water or milk and contact a physician.

EXTINGUISHING AGENT DATA SHEET

PERFORMANCE

When used in the Ansul R-102 restaurant system, ANSULEX Low pH Liquid Fire Suppressant is extremely effective on fires in restaurant ventilating equipment – hoods and ductwork, as well as in a variety of cooking appliances – deep-fat fryers, griddles, range tops, and several types of broilers and char-broilers.

As the agent is sprayed in fine droplets (atomized) onto an appliance grease fire, it provides excellent flame knock-down, surface-cooling, and fire-securing capabilities. When the agent reacts with the hot grease, it forms a layer of foam on the surface of the fat. This soap-like blanket of foam acts as an insulator between the hot grease and the atmosphere, helping to prevent flammable vapors from escaping and reducing the chance for flame reignition.

Post-fire cleanup can be readily accomplished by flushing the area with water or steam.

Because of the composition of ANSULEX Low pH Liquid Fire Suppressant, it is compatible with metals commonly found in restaurant kitchen environments (i.e., stainless steel, aluminum, galvanized metal, mild steel, copper and brass).

ANSULEX™ LOW pH LIQUID FIRE SUPPRESSANT

APPROVALS AND LISTINGS

ANSULEX Low pH Liquid Fire Suppressant has been tested, and is listed with Underwriters Laboratories, Inc. (EX-3470) as part of the Ansul R-102 Restaurant Fire Suppression System.

ORDERING INFORMATION

ANSULEX Low pH Liquid Fire Suppressant is available in sealed containers.

Part No. 79694 1.5 gallon (5.7 L)
Part No. 79372 3.0 gallon (11.4 L)

Recharge services are available from Ansul-authorized distributors.

ANSUL is a registered trademark and ANSULEX is a trademark.

RESTAURANT FIRE SUPPRESSION SYSTEMS DATA SHEET

MECHANICAL SEALING ADAPTORS

FEATURES

- Weld-tight seal ensures structural integrity and eliminates leakage
- "Quik-Seal" version accepts threaded cut pipe or conduit
- "Compression-Seal" version is a straight-through design - eliminates cutting and threading of pipe or conduit
- Tested and listed with Underwriters Laboratories
- Solid machined steel for maximum strength and tolerance of high temperatures
- Pressure tested to 5,000 psi (34,475 kPa)
- Chrome-plated for corrosion resistance and appearance
- Available in common sizes used in installation
- Simple and inexpensive to install

DESCRIPTION

The NFPA 96 Standard establishes minimum construction requirements for the hood and duct in commercial kitchen ventilating systems. One of the requirements states that all seams and joints shall be sealed by a liquid-tight, continuous external weld or listed mechanical devices providing a liquid-tight seal.

Ansul mechanical sealing adaptors are such a mechanical means of producing weld-like, liquid-tight seals around pipe and conduit penetrations when installing fire suppression systems in hoods and ducts.

The "Quik-Seal" adaptor accepts cut pipe or conduit with threaded ends (Figure 1). The "Compression-Seal" adaptor is a straight through design requiring no cutting and threading of pipe or conduit (Figure 2).

These adaptors provide the structural integrity and stability of a welded joint without the cost or inconvenience of providing for in-field welding. Unlike torches and tanks, Ansul mechanical sealing adaptors can be easily carried and install in minutes with standard wrenches.

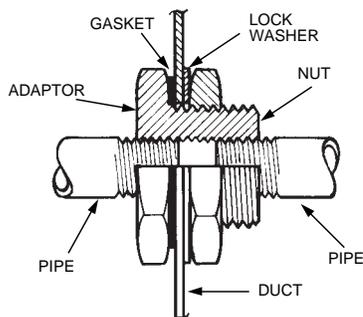


FIGURE 1

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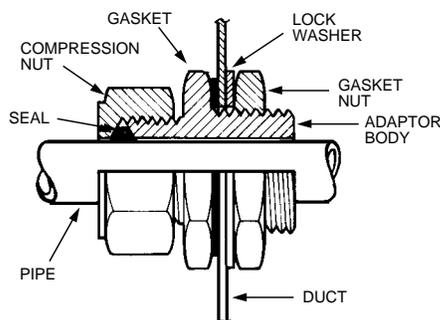


FIGURE 2

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APPLICATION

Supply and detection lines with pipe adaptor shown looking down on top of hood.



ORDERING INFORMATION

Description

- 1/4 in. "Quik-Seal" Adaptors (Package of 24)
- 3/8 in. "Quik-Seal" Adaptors (Package of 24)
- 1/2 in. "Quik-Seal" Adaptors (Package of 24)
- 3/4 in. "Quik-Seal" Adaptors (Package of 24)
- 1/4 in. "Compression-Seal" Pipe Adaptors (Package of 24)
- 3/8 in. "Compression-Seal" Pipe Adaptors (Package of 24)
- 1/2 in. "Compression-Seal" Pipe Adaptors (Package of 24)
- 1/2 in. "Compression-Seal" EMT Conduit Adaptors (Package of 24)

Part No.

- 78196
- 77285
- 77287
- 77289
- 79149
- 79151
- 79147
- 79153



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"QUIK-SEAL" ADAPTORS



004234

"COMPRESSION-SEAL" ADAPTORS

Surface nozzles in overhead position with adaptor.



The National Fire Protection Association (NFPA) recommends that employees be instructed in personal safety and the operation of the system. Ansul provides this owner's guide with each Restaurant Fire Suppression System.

This owner's guide has been provided to help you understand....

.....how your restaurant system works

.....your responsibilities for maintenance

.....what to do in case of fire

This owner's guide is not intended to cover all requirements detailed in the Installation, Operation, Recharge, Inspection, and Maintenance Manual, Part No. 418087. This guide is solely for the use of the end-user to become more knowledgeable with the fire suppression system and the steps necessary in the event of a fire.

Should the end-user want to find out more information concerning the Ansul Restaurant Fire Suppression System, your authorized Ansul distributor can furnish a detailed Installation, Operation, Recharge, Inspection, and Maintenance Manual.

YOUR ROLE IN FIRE PROTECTION

Your Ansul Fire Suppression System is of the highest quality. It has been carefully engineered to be reliable, manufactured to exacting standards, proven by over 30 years of service, and custom designed to protect your particular hazard.

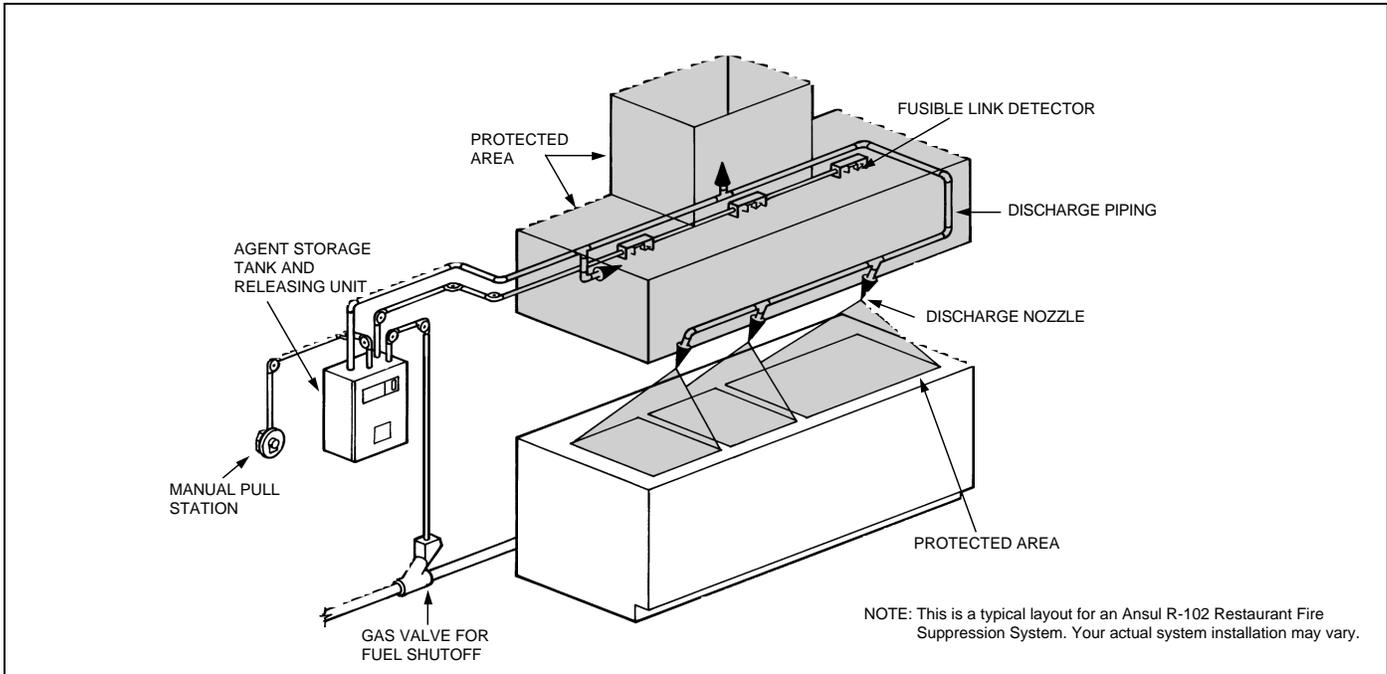
If properly maintained, your system should provide years of protection. However, the primary objective of this guide is to provide enough basic information to help you to prevent a disastrous fire. By observing some fundamental rules, you can greatly reduce the risk of serious fire damage.

1. Keep all kitchen equipment free of grease build-up.
2. Never use flammable solvents or cleaners. Flammable residues could be left in the hazard area.
3. Operate your exhaust system whenever the appliance is pre-heating, heating, cooking or cooling. This helps to prevent excessive heat build-up which could actuate the system.
4. Never operate filter-equipped exhaust systems without the filters in place. Excessive grease may build-up in the hood and duct system. Use only U.L. listed filters.
5. Never restrict air intake passages; this can reduce the efficiency of your exhaust system.
6. Operate all UL tested grease extractors by the manufacturer's instructions to ensure effective grease removal from the hood and duct system.
7. Never tamper with the system components (i.e., detectors, nozzles, agent storage container(s) or releasing unit(s)).

8. Before you revise your kitchen equipment layout or make changes which affect the basic configuration of the protected area, contact your trained, authorized Ansul distributor for a system update evaluation. The system is made up of components tested within limitations contained in the detailed installation manual. The system designer must be consulted whenever changes are planned for the system or area of protection.
9. Do not allow anyone except an authorized Ansul distributor to perform maintenance on your Ansul system. Maintenance to your system must be performed semi-annually. It is essential that the system be maintained properly.
10. Post operating instructions in an obvious place in the kitchen and make sure your employees know what to do in case of fire.
11. Make certain that hand portable extinguishers are properly placed and compatible with the restaurant system. An authorized Ansul distributor can assist your needs.

OWNER'S GUIDE

RESTAURANT FIRE SUPPRESSION SYSTEM



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HOW THE ANSUL R-102 SYSTEM OPERATES

1. A fire starts in the protected area....
2. Heat sensitive fusible link detectors activate the system.
3. Appliance energy sources are automatically shut off by accessory equipment appropriate for the type of fuel used by your cooking equipment.
4. The fire extinguishing agent is discharged into the plenum and duct and onto the cooking appliances.
5. The agent and the hot grease mix to form a foam. This temporarily seals combustible vapors, helping to inhibit re-ignition. This seal must not be disturbed.

INSPECTING YOUR R-102 SYSTEM

Your Ansul R-102 system should be inspected at least monthly. **Should you discover any irregularities, contact an authorized Ansul distributor immediately.**

1. Never use corrosive cleaning solutions on the fusible links or cables. Check to make certain there is no corrosion to any of the detection system components. Certain high alkaline cleaners could cause corrosion.
2. Ensure that metal fusible links are replaced at least annually. Deterioration of these links could cause the system to be actuated or to malfunction in case of a fire.
3. Make certain the releasing unit has not been tampered with, and that visual inspection seals are not broken or missing.

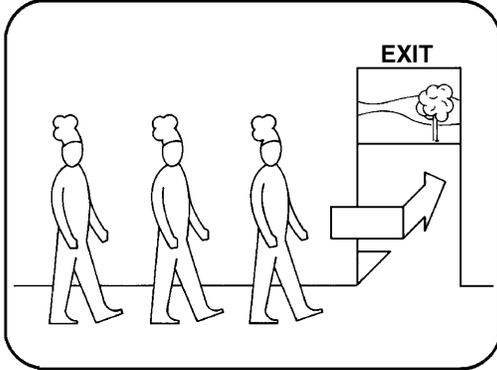
4. At daily intervals check your system for loose pipes and missing or grease covered nozzle caps. Make certain nozzle caps are in place over the ends of each nozzle. Temporarily remove cap, check to make certain it is not brittle, and snap back on nozzle.
5. Check each metal blow-off cap and make certain the cap can be turned freely on the nozzle.
6. Periodically check your visual indicator on the releasing unit to make certain the system is cocked.
7. Have your system inspected by an authorized Ansul distributor at a maximum of 6 month intervals and immediately after major hood and duct cleaning. Often fusible links are wired shut during the cleaning process to prevent accidental activation. This will prevent the system from operating automatically. It's also possible that your system might have been disconnected, damaged, or has accumulated excessive deposits of grease causing your system to become inoperative.
8. Check that the manual pull station is not obstructed, has not been tampered with, and is ready for operation.
9. Make certain that each tank and releasing unit is mounted in an area with a temperature range of 32 °F to 130 °F (0 °C to 54 °C).
10. Make certain the agent storage tank is not in an area in which the temperature can exceed 130 °F (54 °C) or can be heated to a temperature exceeding 130 °F (54 °C) due to conductivity through heated discharge piping.

OWNER'S GUIDE

RESTAURANT FIRE SUPPRESSION SYSTEM

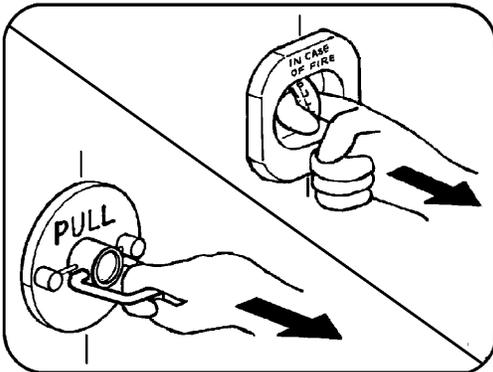
IN THE EVENT OF FIRE IN THE PROTECTED AREA

1. Evacuate others from the premises. In a loud, clear voice say: "WE HAVE A FIRE—PLEASE LEAVE THE BUILDING CAREFULLY, BUT QUICKLY."



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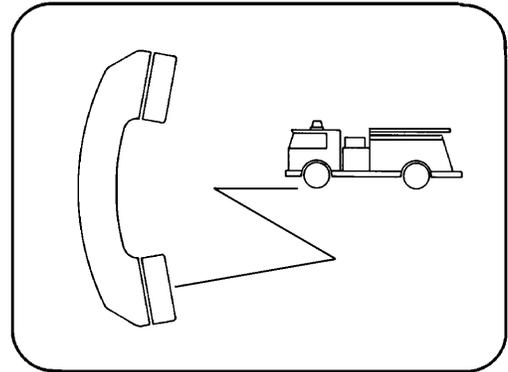
2. If the automatic actuation has not yet taken place, operate the system manually as follows:
 - Pull handle or pull ring straight out on manual pull station with enough force to actuate the fire suppression system.



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Once the fire suppression system is actuated, equipment to shut off the fuel supply to the cooking appliances will operate.

3. Call the local fire department.

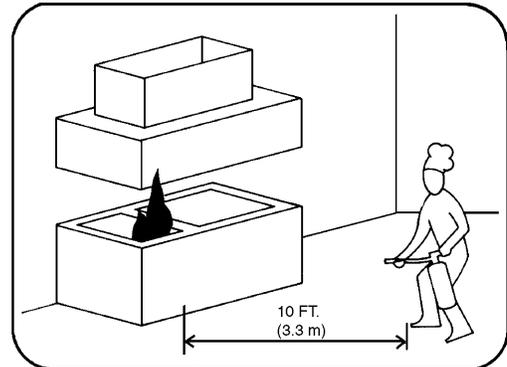


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4. Stand by with the appropriate hand portable fire extinguisher.

If you need to use it:

- a. Pull pin
- b. Stand back 10 feet
- c. Aim at base of fire, squeeze handle and sweep side to side



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CAUTION

Do not attempt to extinguish a grease fire with a hand portable fire extinguisher before the Fire Suppression System has been manually or automatically actuated.

OWNER'S GUIDE

RESTAURANT FIRE SUPPRESSION SYSTEM

BEFORE RESUMING BUSINESS

1. Immediately after discharge, call your authorized Ansul distributor to inspect and recharge your Fire Suppression System.
2. Have your Ansul distributor determine the cause of the system actuation.
3. Area must be cleaned up within 24 hours after discharge using warm water and cleaning detergents.

CLEANUP PROCEDURES

Although there is no unusual cleanup procedure of ANSULEX or ANSULEX LpH agents, due to the alkaline nature of these agents, they should be cleaned from kitchen surfaces within 24 hours after system discharge. The reaction from the wet chemical agent on cooking grease or oil produces a foamy bi-product that can be wiped up with a cloth or sponge. The following procedures should be followed:

CAUTION

Before attempting any cleanup, make certain that all fuel sources to the equipment to be cleaned have been shut off. Make certain that the exhaust hood and all appliance electrical controls have been de-energized to avoid any chance of electrical shock resulting from the cleaning process or from electrically conductive alkaline liquid agent and/or its residue.

Make certain all surfaces to be cleaned have cooled down to room temperature.

Do not use water to clean any appliances that contain hot grease or cooking oils. Doing so may result in violent steaming and/or spattering.

1. The agent is non-toxic; however, food product and cooking grease/oil that has come in contact with the agent will no longer be suitable for human consumption and should be discarded.
2. Sponge as much of the agent as possible using sponges or clean rags. Dispose of these sponges or rags in a local sanitary land fill site in accordance to local authorities.

Note: Wear rubber gloves during cleanup as sensitive skin may become irritated. If the ANSULEX agent or its residue comes in contact with skin or eyes, flush thoroughly with clean water.

3. Using hot, soapy water and either a clean cloth or sponge, wipe away all foamy residue and thoroughly scrub all surfaces that have come in contact with the agent. Note: Wear rubber gloves during cleanup as sensitive skin may become irritated. If the ANSULEX agent or its residue comes in contact with skin or eyes, flush thoroughly with clean water.
4. After thoroughly cleaning all affected surfaces, adequately rinse and allow to completely dry before re-energizing the equipment.

WARRANTY

A. Ansul Products

Except as indicated in B below, your R-102 System is warranted to you as the original purchaser for five years from date of delivery against defects in workmanship and material. Ansul Incorporated ("ANSUL") will replace or repair any metal part which, in its opinion, is defective and has not been tampered with or subjected to misuse, abuse or exposed to highly corrosive conditions.

B. Purchased Products

The following items which are not manufactured but purchased by ANSUL are warranted against defects resulting from the manufacturer's fabrication, process or parts for one year from the date of purchase: detectors, electric manual pull station, time delay relays, thermostats, solenoids, switches, fuel shut-off valves, and pressure relief valves. Evaluation of each reportedly defective relay, valve, etc., returned to ANSUL will be made by the original manufacturer or an agent thereof and their judgment shall be final.

C. Except as provided in A and B, there are no warranties, express or implied made by ANSUL, concerning this system. There are no implied warranties of FITNESS FOR PURPOSE OR MERCHANTABILITY. ANSUL shall have no liability for consequential, special or similar damages.

For repairs, parts and service of the Ansul System, contact your local Ansul representative, or Ansul Incorporated, Marinette, Wisconsin 54143-2542; 800-TO-ANSUL (862-6785).

ANSUL and ANSULEX are registered trademarks.

ANSUL®

REGULATOR
TEST AND
REPLACEMENT
INSTRUCTIONS

**R-102
RESTAURANT
FIRE
SUPPRESSION
SYSTEMS**

FOREWORD

These instructions are intended for the testing and replacement of Ansul R-102 system regulators. Those who install or service R-102 fire suppression systems should understand these instructions as well as the Ansul R-102 Fire Suppression Systems Installation, Recharge, and Maintenance Manual (Part No. 71961).

REGULATOR TEST FREQUENCY

Prior to April 1986, R-102 regulators WERE NOT date stamped. These regulators require testing at the NEXT SEMI-ANNUAL MAINTENANCE EXAMINATION and at twelve-year intervals thereafter.

Starting in April 1986, R-102 regulators WERE date stamped as shown in Figure 1. These regulators require testing TWELVE YEARS after stamped date and at twelve-year intervals thereafter. (See Date Code Table.)

Date Code Table

Month – Code	Year – Code
January A	1986 R
February B	1987 S
March C	1988 T
April D	1989 U
May E	1990 V
June F	1991 W
July G	1992 Y
August H	1993 Z
September J	1994 AA
October K	
November L	
December M	

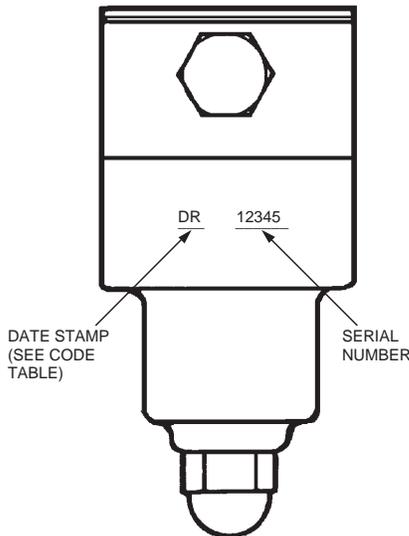


FIGURE 1
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REGULATOR TEST PROCEDURES

1. Remove enclosure cover from release mechanism (or regulated actuator).
2. Install lock bar (Part No. 14985) on cocked release mechanism.
3. Remove cartridge from regulated release mechanism (or regulated actuator). Install safety shipping cap and set cartridge aside in a safe location.

4. Regulated Release Mechanism

For First Tank: Disconnect expellant gas piping at union or remove expellant gas hose from tank. Connect regulator test kit (Part No. 56972) to hose or union. (See Figure 2.)

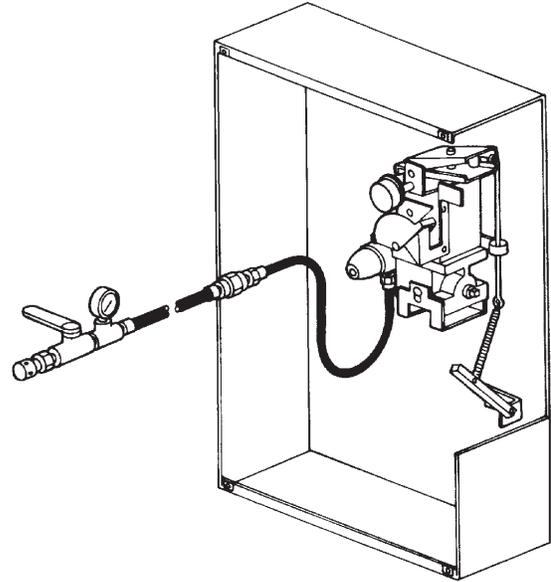


FIGURE 2
004219

For Second Tank: Disconnect expellant gas piping at union. Remove union from expellant gas piping and install pipe cap to prevent cartridge pressure from escaping during test. (See Figure 3.)

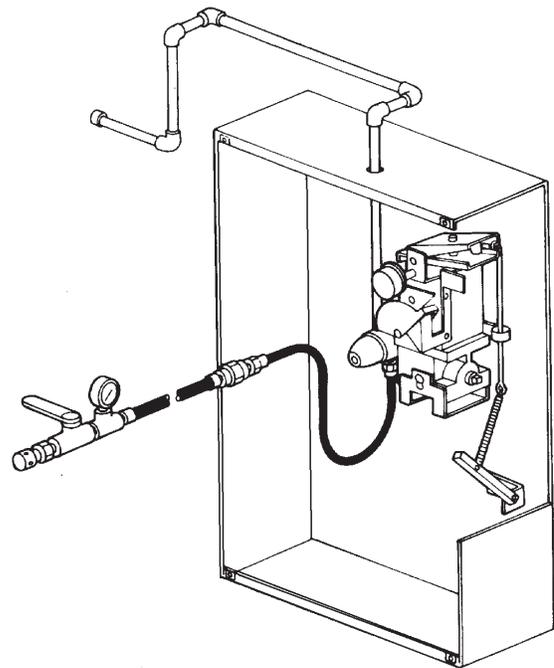


FIGURE 3
004220

REGULATOR TEST PROCEDURES (Continued)

Pressure Switch: If pressure switch is provided, it should remain connected as part of system maintenance test.

NOTICE

For multiple-tank systems, one test kit (Part No. 56972) is required for each regulator in the system.

5. Regulated Actuator

For First Tank: Disconnect expellant gas piping at union or remove expellant gas hose from tank. Connect regulator test kit (Part No. 56972) to hose or union. (See Figure 4.)

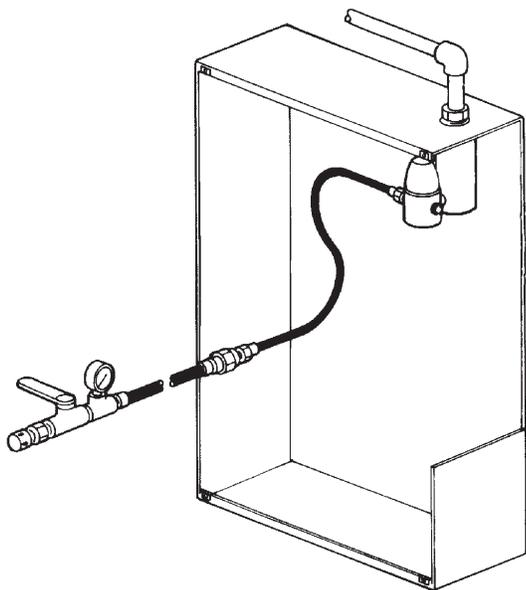


FIGURE 4
004221

For Second Tank: Disconnect expellant gas piping at union. Remove union from expellant gas piping and install pipe cap to prevent cartridge pressure from escaping during test. (See Figure 5.)

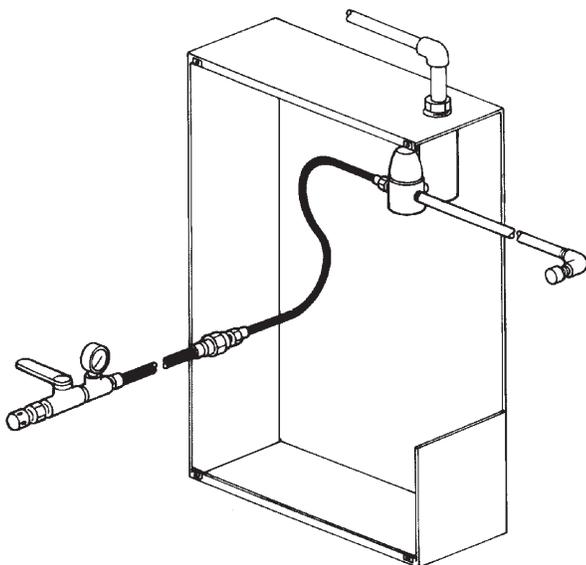


FIGURE 5
004222

NOTICE

Make certain valve is closed on regulator test kit or pressure will escape before test can be performed.

6. Install LT-30-R nitrogen cartridge(s) (Part No. 5373) into release mechanism and each regulated actuator provided with the system. (Cartridge should be conditioned to approximately 70 °F (21 °C) before test.)
7. Remove lock bar and operate red STRIKE button on release mechanism to supply pressure to each test kit.
8. Test each regulator by completing the following steps:
 - a. With test kit valve closed, check reading on pressure gauge for 10 seconds. Correct reading should be 90 to 110 psi (621 to 758 kPa). This portion of test verifies correct dead set of regulator.
 - b. Quickly open test kit valve fully and check gauge while pressure is bleeding off. Gauge reading should not fall below 80 psi (552 kPa). This portion of test verifies regulator flow.
 - c. Close test kit valve and again read pressure gauge. Gauge should again read 90 to 110 psi (621 to 758 kPa).
 - d. Open test kit valve to relieve all pressure from nitrogen cartridge.
9. Cock release mechanism using cocking lever (Part No. 14995) and insert lock bar (Part No. 14985).
10. Remove empty nitrogen cartridge(s) from release mechanism and each regulated actuator.
11. Remove test kit(s) from release mechanism and each regulated actuator.
12. If regulator test WAS NOT successful, replace regulator by referring to appropriate Regulator Replacement Procedures. If regulator test WAS successful, proceed to Step 13.
13. Reconnect all expellant gas lines.
14. Reset all accessory equipment that was operated by release mechanism.
15. Remove shipping cap and weigh each nitrogen cartridge that was removed before regulator test. Replace if weight is 1/2 ounce (14.2 g) or more below weight stamped on cartridge. See R-102 manual for replacement cartridge part numbers.
16. With release mechanism cocked and lock bar in place, screw fully charged cartridge into cartridge receiver. Then install cartridge into each regulated actuator provided with the system.
17. Hang inspection tag on regulator indicating that the regulator was tested or replaced.

CAUTION

DO NOT HIT RED "STRIKE" BUTTON WHEN INSTALLING RELEASE MECHANISM COVER OR SYSTEM WILL BE ACTUATED CAUSING DISCHARGE OF AGENT.

18. Remove lock bar and install release mechanism enclosure cover. Insert ring pin through red STRIKE button and attach visual inspection seal (Part No. 197).
19. Install enclosure cover on each regulated actuator provided with the system.

REGULATOR REPLACEMENT – SYSTEM VARIATIONS

There are three generations of R-102 release mechanism assemblies. Each generation requires a separate procedure for regulator replacement.

Also, follow applicable third generation procedures when replacing regulator in regulated actuator assembly.

First Generation Assembly

The first generation consisted of a release mechanism and regulator in a single enclosure. The regulator was connected to the cartridge receiver using a nipple only. See Figure 6.

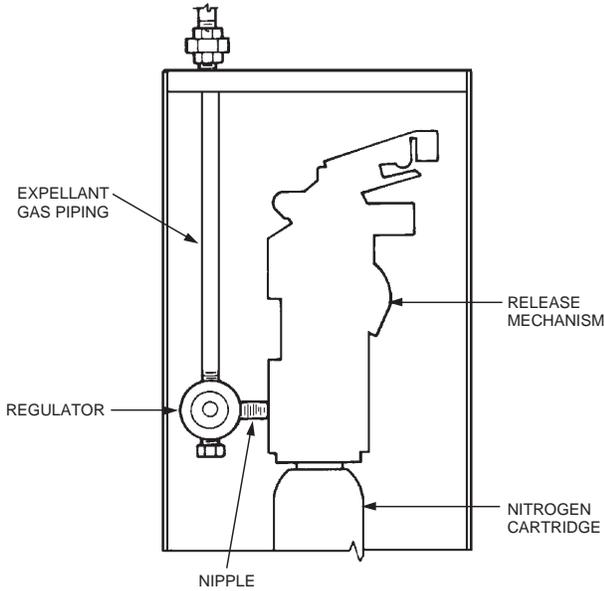


FIGURE 6
004223

Second Generation Assembly

The second generation system also contained a release mechanism and regulator in a single enclosure. The regulator was connected to the cartridge receiver using a special union. See Figure 7.

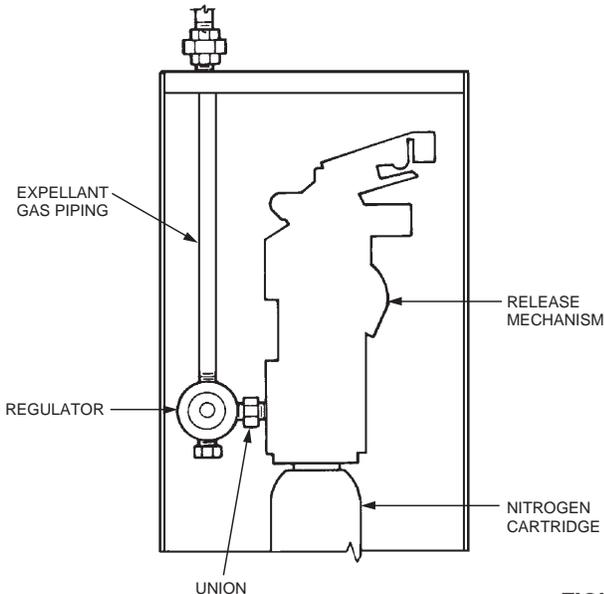


FIGURE 7
004224

Third Generation Assembly

The third generation system contains a release mechanism, regulator, and agent tank in a single enclosure. The regulator is connected to the cartridge receiver with a nipple only. The tank is connected to the regulator using expellant gas hose. See Figure 8.

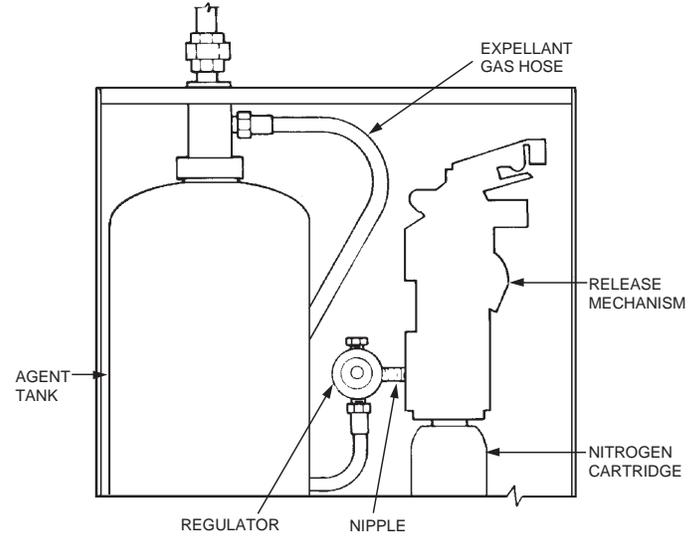


FIGURE 8
004225

FIRST GENERATION REGULATOR REPLACEMENT PROCEDURES

First generation regulator replacement requires the use of Hardware Kit (Part No. 77744) which contains the following parts:

- 1 – Replacement Regulator (Part No. 57667)
- 1 – Union (Part No. 57745)
- 1 – Expellant Gas Hose (Part No. 69337)
- 1 – 1/4 in. Coupling (Part No. 36733)
- 2 – 9/16 in. Washers (Part No. 77747)

WARNING

HAZARDOUS HIGH PRESSURE COULD CAUSE PERSONAL INJURY. BEFORE REPLACING REGULATORS, MAKE CERTAIN NITROGEN CARTRIDGES HAVE BEEN REMOVED FROM RELEASE MECHANISM AND ALL REGULATED ACTUATORS. Cartridges should have already been removed as part of Regulator Test Procedures.

1. If a pressure switch is provided, disconnect pressure switch tubing from bottom regulator outlet.
2. Remove pipe section between top regulator outlet and expellant gas line union.
3. Using a hacksaw, cut off brass nipple between regulator and cartridge receiver. Cut the nipple as close to the regulator as possible.
4. Using a No. 5 easy-out, remove remaining portion of nipple from cartridge receiver outlet.

R-102 REGULATOR TEST AND REPLACEMENT INSTRUCTIONS

FIRST GENERATION REGULATOR REPLACEMENT PROCEDURES (Continued)

5. Inspect to ensure that cartridge receiver outlet is free of dirt or other obstructions.
6. Apply pipe tape to male threads on both ends of union assembly.
7. With union fully assembled, install adaptor portion of union into cartridge receiver outlet. (Union must be assembled to provide a hex for wrench tightening.) See Figure 9 to identify adaptor portion of union.

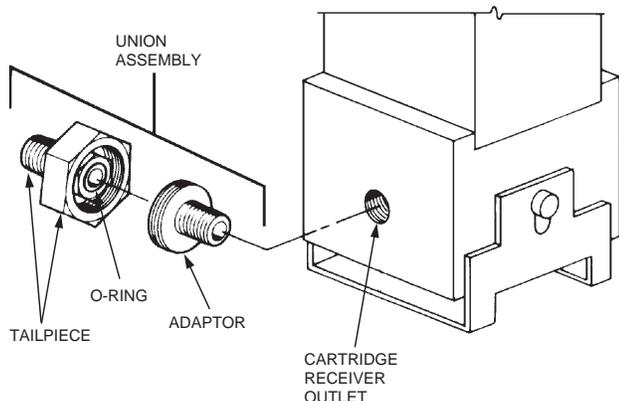


FIGURE 9
004226

8. Disassemble union leaving adaptor portion of union installed in cartridge receiver outlet.
9. Using 5/8 in. socket, install union tailpiece (with large hex nut) into inlet of replacement regulator.

CAUTION

Do not use excessive force when assembling union in Step 10 as release mounting spacers could be damaged.

10. Make certain O-ring is in place in union tailpiece. Then reassemble union to connect regulator to cartridge receiver outlet.
11. Install non-swivel end of expellant gas hose into bottom regulator outlet. (Use pipe tape on male threads.) If pressure switch is provided, connect tubing to top outlet. If pressure switch is not provided, make certain top outlet is properly plugged.

NOTICE

Expellant gas hose is required in place of pipe (within the enclosure) because top regulator outlet will not line up with enclosure knockout due to installation of regulator union.

12. Place a 9/16 in. washer over swivel end of expellant gas hose and insert hose end through knockout previously used for expellant gas piping. (See Figure 10.)

13. Place other 9/16 in. washer over hose threads that extend through knockout. Install a 1/4 in. coupling on hose threads to secure hose to enclosure as shown in Figure 10. (Use pipe tape on male threads.)

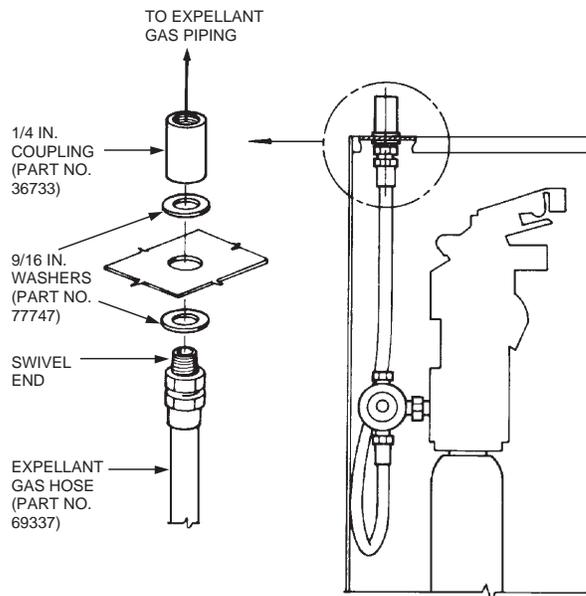


FIGURE 10
004227

14. Connect piping from 1/4 in. coupling to original expellant gas union. (Use pipe tape on male threads.)
15. Place system back into service by completing Steps 13 through 19 of Regulator Test Procedures.

SECOND GENERATION REGULATOR REPLACEMENT PROCEDURES

Replacement regulator(s) (Shipping Part No. 77745) is required to complete the following procedures.

WARNING

HAZARDOUS HIGH PRESSURE COULD CAUSE PERSONAL INJURY. BEFORE REPLACING REGULATORS, MAKE CERTAIN NITROGEN CARTRIDGES HAVE BEEN REMOVED FROM RELEASE MECHANISM AND ALL REGULATED ACTUATORS. Cartridges should have already been removed as part of Regulator Test Procedures.

1. If a pressure switch is provided, disconnect pressure switch tubing from bottom regulator outlet.

SECOND GENERATION REGULATOR REPLACEMENT PROCEDURES (Continued)

2. Disconnect pipe section between top regulator outlet and expellant gas line union.

 **CAUTION**

Do not use excessive force when disassembling union in Step 3 as release mounting spacers could be damaged.

3. Remove regulator by disassembling union between regulator and cartridge receiver. Leave adaptor portion of union installed in cartridge receiver.
4. Inspect regulator inlet screen for dirt or other obstructions that could hinder gas flow. If obstructions are found, clear inlet screen, reinstall regulator, and retest regulator. If no obstructions are found, proceed to Step 5.
5. Using 5/8 in. socket, remove union tailpiece from regulator inlet.
6. Inspect to ensure that cartridge receiver outlet is free of dirt or other obstructions.
7. Inspect to ensure that replacement regulator inlet screen is free of dirt or other obstructions.
8. Using 5/8 in. socket, install union tailpiece (with large hex nut) into inlet of replacement regulator. (Use pipe tape on male threads.)

 **CAUTION**

Do not use excessive force when assembling union in Step 9 as release mounting spacers could be damaged.

9. Make certain O-ring is in place in union tailpiece. Then reassemble union to connect regulator to cartridge receiver outlet.
10. Reconnect pipe section between top regulator outlet and expellant gas line union.
11. If pressure switch is provided, reconnect tubing to bottom regulator outlet.
12. Place system back into service by completing Steps 13 through 19 of Regulator Test Procedures.

THIRD GENERATION REGULATOR REPLACEMENT PROCEDURES

A replacement regulator is required to complete the following procedures. A 1/4 in. nipple may also be required if threads are damaged during removal. The regulator and nipple can be ordered under Shipping Part No. 77746.

These procedures should also be used to replace regulator in regulated actuator.

 **WARNING**

HAZARDOUS HIGH PRESSURE COULD CAUSE PERSONAL INJURY. BEFORE REPLACING REGULATORS, MAKE CERTAIN NITROGEN CARTRIDGES HAVE BEEN REMOVED FROM RELEASE MECHANISM AND ALL REGULATED ACTUATORS. Cartridges should have already been removed as part of Regulator Test Procedures.

1. If a pressure switch is provided, disconnect pressure switch tubing from top regulator outlet (or from expellant gas piping tee on double and multiple-tank systems).
2. Disconnect expellant gas hose from agent tank and bottom regulator outlet. For double and multiple-tank systems, disconnect pipe section between top regulator outlet and expellant gas line union.
3. Disconnect distribution piping union and remove agent tank from enclosure.

 **CAUTION**

Do not use excessive force when removing regulator in Step 4 as release mounting spacers could be damaged.

4. Unscrew regulator and remove from enclosure.
5. Inspect to ensure that cartridge receiver outlet is free of dirt or other obstructions.
6. Inspect regulator inlet screen for dirt or other obstructions that could hinder gas flow. If obstructions are found, clear inlet screen, reinstall regulator, and retest regulator. If no obstructions are found, proceed with regulator replacement.

NOTICE

If nipple remained in regulator inlet when regulator was unscrewed, it must be replaced with new 1/4 in. nipple. (Attempting to remove old nipple from regulator will damage nipple.) If nipple remained in cartridge receiver outlet, a new nipple is not required.

7. Inspect to ensure that replacement regulator inlet screen is free of dirt or other obstructions.

 **CAUTION**

Do not use excessive force when connecting regulator in Step 8 as release mounting spacers could be damaged.

8. Using 1/4 in. nipple, connect replacement regulator to cartridge receiver outlet.
9. Reconnect expellant gas hose to agent tank and bottom regulator outlet. For double and multiple-tank systems, reconnect pipe section between top regulator outlet and expellant gas line union.
10. Place agent tank into enclosure and reconnect distribution piping.
11. If pressure switch is provided, install tubing to top regulator outlet (or to expellant gas piping on double and multiple-tank systems).
12. Place system back into service by completing Steps 13 through 19 of Regulator Test Procedures.

ANSUL INCORPORATED
MARINETTE, WI 54143-2542
715-735-7411

Litho in U.S.A.

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Form No. F-87125

**ANSUL R-102 FIRE SUPPRESSION SYSTEMS
DESIGN/INSTALLATION SHEET**

Date _____

CUSTOMER

AUTHORIZED ANSUL DISTRIBUTOR

NAME _____
STREET _____
CITY, STATE & ZIP _____

NAME _____
STREET _____
CITY, STATE & ZIP _____

FILL IN ALL APPROPRIATE DATA BELOW AND CAREFULLY SKETCH HAZARD LAYOUT ON LAST PAGE

SYSTEM

Model(s) and serial numbers _____

Location _____

Number of nozzles and Part No. _____

Number of detector(s) and degree rating(s) _____

Energy shut-off devices – type and size _____

Location _____

Other accessory equipment provided (pull station, electric switches, etc.) and location _____

COOKING/VENTILATING EQUIPMENT

Number of duct(s) and size _____

Hood size and plenum size _____

Nozzle Qty.	Nozzle Desc.	Flow Nos.
_____	_____	_____
_____	_____	_____

Appliance Type*	Length	Width	Area	Fryer with Drip Board					
				Length	Width	Area			
1. _____	_____	_____	_____	_____	_____	_____	_____	_____	_____
2. _____	_____	_____	_____	_____	_____	_____	_____	_____	_____
3. _____	_____	_____	_____	_____	_____	_____	_____	_____	_____
4. _____	_____	_____	_____	_____	_____	_____	_____	_____	_____
5. _____	_____	_____	_____	_____	_____	_____	_____	_____	_____
6. _____	_____	_____	_____	_____	_____	_____	_____	_____	_____
7. _____	_____	_____	_____	_____	_____	_____	_____	_____	_____
8. _____	_____	_____	_____	_____	_____	_____	_____	_____	_____

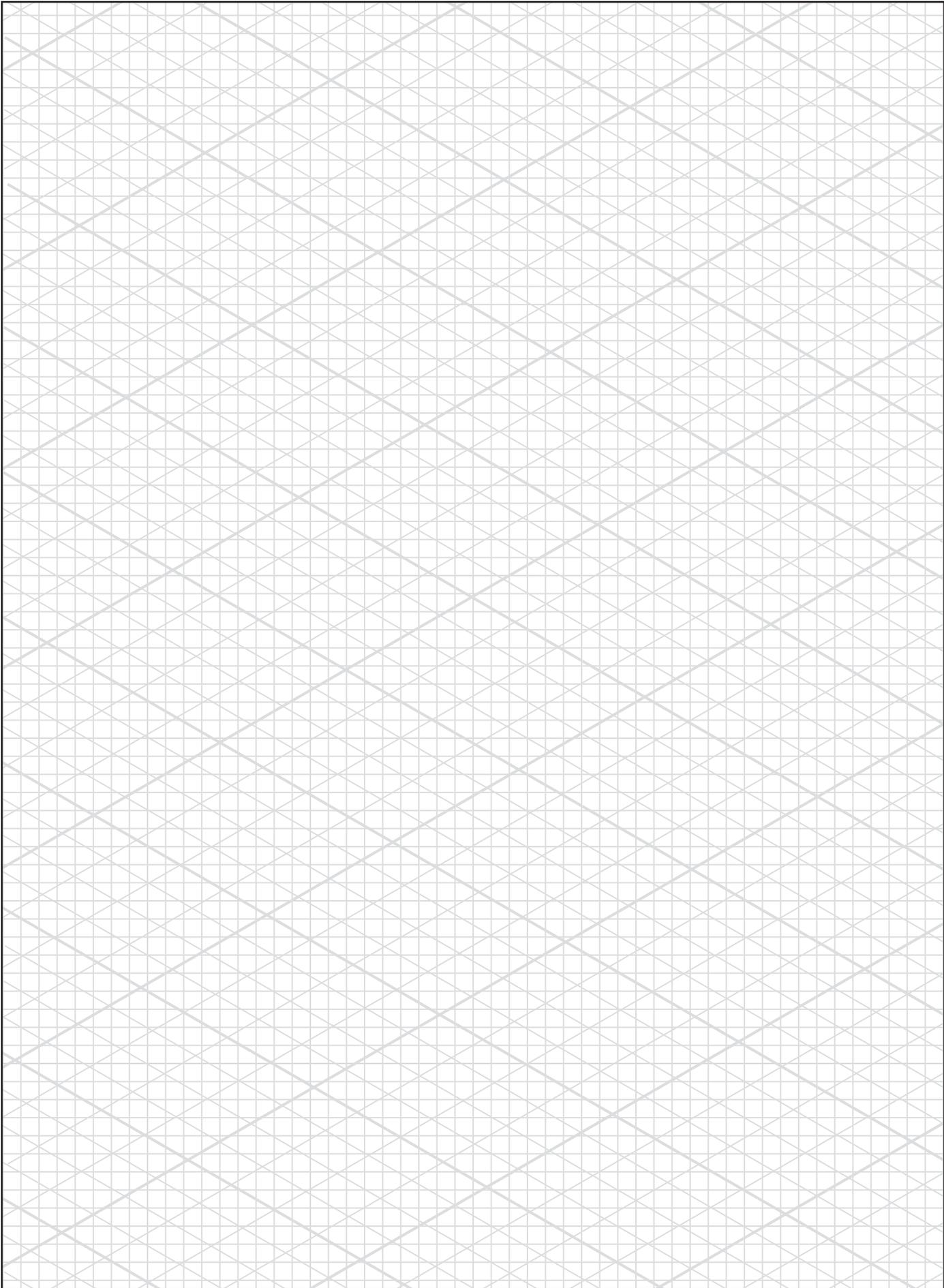
* NOTE: List appliances from left to right and indicate those being modified Total Flow Nos. _____

Maximum temperature determined at detector location(s) _____

COMMENTS

BILL OF MATERIAL WORK SHEET

<u>Part No.</u>	<u>Description</u>	<u>Quantity</u>	<u>Price Each</u>	<u>Price Total</u>
79291	1.5 Gallon Agent Tank and Mechanical ANSUL AUTOMAN	_____	_____	_____
79137	1.5 Gallon Agent Tank and Regulated Actuator	_____	_____	_____
78232	1.5 Gallon Agent Tank with Red Bracket	_____	_____	_____
78921	1.5 Gallon Agent Tank in Stainless Steel Enclosure	_____	_____	_____
79290	3 Gallon Agent Tank and Mechanical ANSUL AUTOMAN	_____	_____	_____
79292	3 Gallon Agent Tank and Electric ANSUL AUTOMAN	_____	_____	_____
79327	3 Gallon Agent Tank and Regulated Actuator	_____	_____	_____
78937	3 Gallon Agent Tank with Red Bracket	_____	_____	_____
78929	3 Gallon Agent Tank in Stainless Steel Enclosure	_____	_____	_____
419604	Two 3 Gallon Agent Tanks in Stainless Steel Enclosure	_____	_____	_____
79694	1.5 Gallon (5.7 L) ANSULEX Low pH Wet Chemical Agent	_____	_____	_____
79372	3 Gallon (11.4 L) ANSULEX Low pH Wet Chemical Agent	_____	_____	_____
_____	1N Nozzle	_____	_____	_____
_____	1W Nozzle	_____	_____	_____
_____	1/2N Nozzle	_____	_____	_____
_____	2W Nozzle	_____	_____	_____
_____	3N Nozzle	_____	_____	_____
_____	230 Nozzle	_____	_____	_____
_____	245 Nozzle	_____	_____	_____
_____	260 Nozzle	_____	_____	_____
_____	290 Nozzle	_____	_____	_____
_____	2120 Nozzle	_____	_____	_____
_____	1F Nozzle	_____	_____	_____
_____	Swivel Adaptor	_____	_____	_____
68800	Vent Plug	_____	_____	_____
78112	Silicone Sealant, 5.3 oz. Tube	_____	_____	_____
32381	Remote ANSUL AUTOMAN Release	_____	_____	_____
417369	Series Detector (Scissor Linkage)	_____	_____	_____
417368	Terminal Detector (Scissor Linkage)	_____	_____	_____
415739	Fusible Link (165 °F)	_____	_____	_____
415740	Fusible Link (212 °F)	_____	_____	_____
_____	Fusible Link (280 °F)	_____	_____	_____
_____	Fusible Link (360 °F)	_____	_____	_____
_____	Fusible Link (450 °F)	_____	_____	_____
_____	Fusible Link (500 °F)	_____	_____	_____
_____	Test Link	_____	_____	_____
_____	Pulley Elbow	_____	_____	_____
15342	Pulley Tee	_____	_____	_____
4835	Remote Pull Station Assembly (without wire rope)	_____	_____	_____
54011	Remote Pull Station Assembly (with 50' of wire rope)	_____	_____	_____
15821	Wire Rope (50 ft. (15 m))	_____	_____	_____
79653	Wire Rope (500 ft. (152 m))	_____	_____	_____
15549	Electric Switch (SPDT)	_____	_____	_____
32222	Electric Switch (DPDT)	_____	_____	_____
415868	Electric Switch (3PDT)	_____	_____	_____
32220	Electric Switch (4PDT)	_____	_____	_____





INSTALLATION-INSPECTION FOR ANSUL RESTAURANT FIRE SUPPRESSION SYSTEM

Customer Name _____

Address _____

SYSTEM ONE

Model _____

Number of nozzles and Part No. _____

Number of detector(s) and degree rating _____

Energy shut-off devices – type and size _____

Other accessory equipment provided _____

COOKING/VENTILATING EQUIPMENT

Number of duct(s) and size _____ Plenum Size _____

Cooking Appliances and size (NOTE: List appliances from left to right)

SYSTEM TWO

Model _____

Number of nozzles and Part No. _____

Number of detector(s) and degree rating _____

Energy shut-off devices – type and size _____

Other accessory equipment provided _____

COOKING/VENTILATING EQUIPMENT

Number of duct(s) and size _____ Plenum Size _____

Cooking Appliances and size (NOTE: List appliances from left to right)

TO BE COMPLETED BY INSTALLER

YES NO The restaurant fire suppression system is UL300 listed and installed in accordance with the manufacturer's instructions, NFPA Standard 96 and 17A (current issue), and all applicable state and local codes.

It is a requirement of the manufacturer and recommendation of the National Fire Protection Association that the fire system be inspected and maintained every 6 months for proper system operation.

Exceptions to other provisions of NFPA 96 that were observed are noted below.

Exceptions:

YES NO All electrical work or work provided by others to complete system installation completed.

YES NO Copy of owner's manual left with owner.

INSTALLER NAME _____ SIGNATURE _____

DISTRIBUTOR _____

ADDRESS _____

DATE _____