SEQUENCE OF OPERATION

1. Upon activation of [illegible] smoke detector, the following will occur:
   A. Operate [illegible] detector's lamp.
   B. Sounds alarm here.
   C. The room air-conditioning system shuts down.
   D. The exact location of the alarmed detector will be annunciated on the graphic panel.
   E. The control panel will annunciate the alarmed zone.
   F. A matrix will be formed among [illegible] detector.
   G. An alarm signal will be sent to central room annunciator.

Note: * During this period of time from first detector to second detector alarm, the alarm output is operational.

2. Operation of a second smoke detector [illegible] within the first detector's matrix, will form a matrix. Simultaneous to the first, should the second alarmed detector fall within the original matrix, the following will occur:
   A. The exact location of the alarmed detector will be annunciated on the graphic panel.
   B. The Pre-Flashing light will operate, indicating the start of the 20 second countdown time delay period.
   C. The graphic panel will be locked on "go to" and further loops will not be capable of lighting. This feature will simplify the task of identifying major versus two detectors originally activated the Halon discharge.
   D. The Halon system will discharge after the 20 second evacuation time delay period has expired.

Note: * The door switch is inoperable once the second detector has activated, which is followed by the operation of the flashing light.

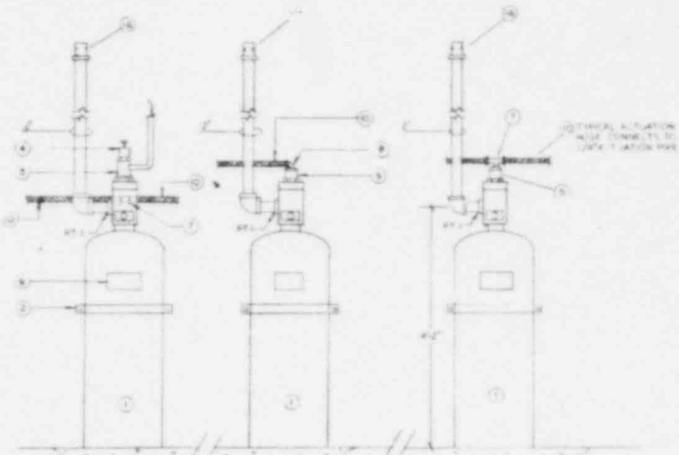
MANUAL HALON RELEASE

3. Operation of the electric remote station will cause the following to occur:
   A. Sound Alarm here.
   B. The Pre-Flashing system will shut down.
   C. The activation of the remote control will be annunciated on the graphic display.
   D. * Twisted flashing light will operate.
   E. The control panel indicates the electric remote control zone has operated.
   F. After a 20 second time delay period, the Halon system will discharge.
   G. An alarm signal will be sent to central room annunciator.

Note: * The door switch is inoperable when an electric remote control has been activated the system. Operation of an electric remote control will also eliminate the 20 second evacuation time delay period regardless where the system is tripped through the smoke detectors.

PIPING INSTALLATION NOTES

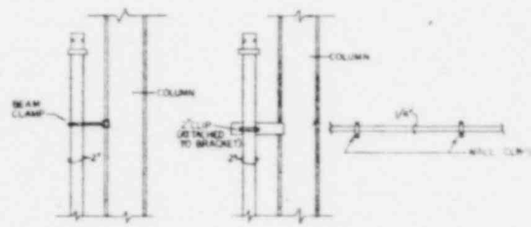
1. All dimensions are to be field checked. Any piping shown interferes with any object, Fire Equipment Inc. approved pipe changes should be secured.
2. Materials:
   A. Pipe: Ansul requires the use of schedule 40 seamless steel pipe, galvanized inside and out, conforming to ASTM A53 or A106.
      Acceptable alternates are: For non-corrosive atmospheres: schedule 40 black steel pipe conforming to ASTM A53 or A106.
      For corrosive atmospheres: schedule 40 welded steel pipe, galvanized inside and out, conforming to ASTM A53.
      Non-acceptable materials for the system piping include: Ordinary cast iron pipe, butt welded pipe, and steel pipe conforming to ASTM A120 (except to paragraph 14.1 of NFPA 12A).
   B. Fittings: Ansul requires the use of galvanized malleable iron, 300 lb. class. Screwed fittings may be of malleable iron, 300 lb. class only, ductile iron 300 lb. class only or steel 300 lb. class only. (ASTM A234).
      Note: 150 lb. class fittings may be used for 3/4 pipe or smaller.
      Non-acceptable materials for the system piping include: Ordinary cast iron fittings. (except for paragraph 14.1.1 of NFPA 12A).
3. Pipe to be reamed, blown clean and swabbed with approximate solvent or remove mill varnish and cutting oil before assembly. Some effective solvents are trichloroethylene, perchloroethylene and 1,1,1 trichloroethane.
4. Piping must be rigidly supported by U. L. listed hangers.



MASTER CYLINDER LAYOUT
SCALE NONE

SLAVE 2&6 CYLINDER LAYOUT
SCALE NONE

SLAVE 1,3,4,5 CYLINDER LAYOUT
SCALE NONE



PIPING BRACKET DETAILS
NO SCALE

EQUIPMENT LIST

QTY	DESCRIPTION	NOZZLE QTY	PART NO.
1	[illegible] HALON CYLINDER WITH HIGH FLOW VALVE FILLED TO [illegible] LBS.	7	23496
2	[illegible] CYLINDER BRACKET	7	32446
3	ELECTRIC ACTUATOR [illegible]	1	32439
4	MANUAL ONEMEE	1	32434
5	PNEUMATIC ACTUATOR	6	32436
6	"A" PLATES	A/R	
7	WALL BRANCH TEE	5	3681
8	WALL ELBOW	1	32334
9	[illegible] GUN CONTROL PANEL	1	824-9006
10	ACTUATION HOSE BRACKET	12	32436
11	IONIZATION DETECTOR WITH SOCKET	12	305-2150
12	END OF LINE DEVICE	1	305-9450
13	END OF LINE RESISTOR	5	305-9450
14	MEDIA AND FLOWING [illegible]	1	Ref 32
15	[illegible] MATRIX PANEL	1	240-9019
16	[illegible] DISCHARGE NOZZLE [illegible]	7	30672 2-53
17	BATTERIES [illegible]	1 SET	760-3006
18	[illegible] BOX	1	233-1001
19	HALON RELEASE STATION WITH VALVE	1	305-3002

ASSOCIATED DRAWINGS

1. [illegible] CYLINDER PLACEMENT PIPE AND NOZZLE LAYOUT
2. [illegible] SMOKE DETECTOR LAYOUT/CONTROL PANEL LOCATION, NUMBER OF WIRES TO AND FROM DETECTORS PLUS CONTROL PANELS
3. [illegible] GUN CONTROL PANEL WIRING DIAGRAM, WIRE NOTES
4. [illegible] PNEUMATIC MATRIX CONTROL PANEL WIRING DIAGRAM DETECTOR INPUT BOARD LABEL)
5. [illegible] PIPE AND NOZZLE CALCULATIONS
6. [illegible] HVAC SHUTDOWN INTERFACE

HALON QUANTITY CALCULATIONS

Switchgear Room

[illegible] X 40'0" X 17'6" = 107100 cubic feet

5% Halon Concentration at 70°F = .0208

.0208 X 107100 cubic feet = 2206.3 lbs. required
7 Cylinders X 322 lbs. = 2254.0 lbs. supplied

FIRE PROTECTION [illegible] DRAWINGS

NOTATION SYMBOL	DESCRIPTION	SEE NO.	SHEET	DRAWING
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

16103-29346 941

JOB NO. 27989

FIRE EQUIPMENT INC.
ENGINEERING · CONSULTANTS · CONTRACTORS
27 HICKS AVENUE
MEDFORD, MASS.
391-8050 391-8691

REVISIONS				

[illegible] HOUSE HOSPITAL [illegible]
FOR THE [illegible] FOR
NORTHEASTERN UNIVERSITY SERVICE CO.
[illegible] SCALE [illegible]
[illegible] DRAWING [illegible]

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