

size for sensitive rooms

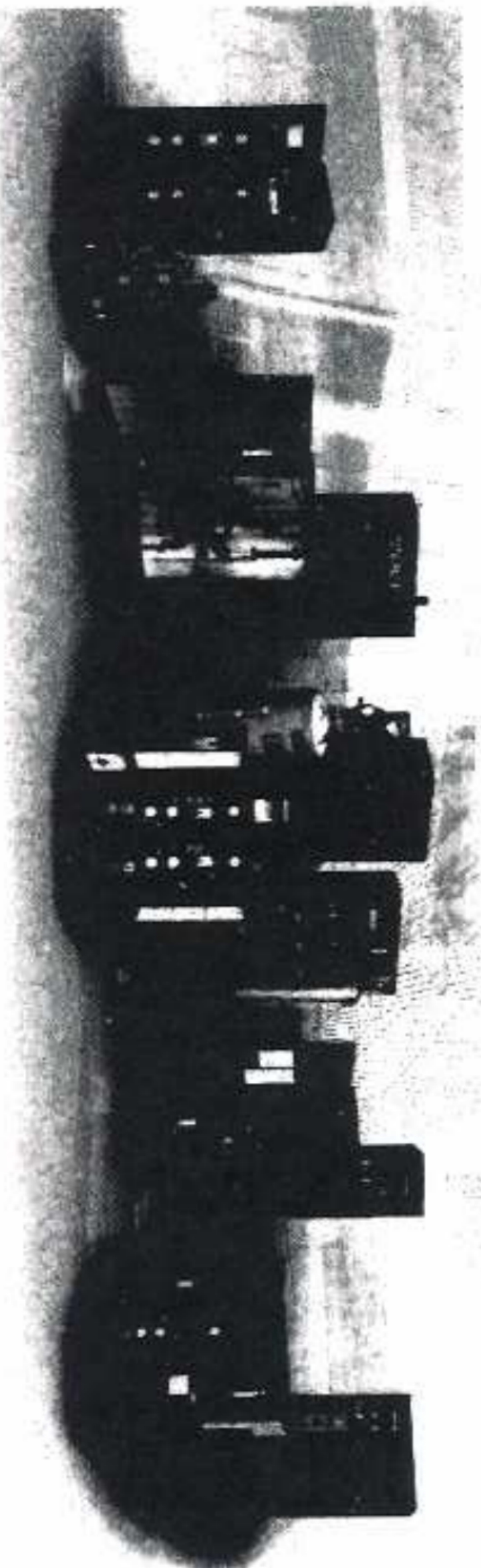
## Why Opt for an Integrated System?

## Why Choose Fireflex?

## Documentation

## Estimating

## News and Events



> Home > Our Integrated Systems > TOTALPAC®3

## TOTALPAC®3

FIREFLEX® N2-BLAST®

TOTALPAC® X

FIREFLEX® DUAL

FIREFLEx® 1230

ICAF SYSTEM

Whether you want to select,

specify, install or maintain our systems, you'll find in this section a range of useful documents related to our integrated systems.

**MORE**

NOMINATED ONCE AGAIN  
AMONG THE BEST  
EMPLOYERS IN CANADA!

TOTALPAC®3 UPDATE ON  
SEISMIC CONSTRUCTION

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Français

DESCRIPTION

## OPTIONS

DOCUMENTATION



**COMPACT AND AESTHETIC**, the new TOTALPAC® 3 set the bar for modern fire protection applications. Designed with user-friendly features, the TOTALPAC® 3 units are easy to install and maintain. To learn more, [click on the topics below](#).

1.) pre-action double interlock  
superfines.

# NIKKO

## Features

## How to order a TOTALPAC®3

Ordering a Viking TOTALPAC®3 with the Conventional Trim and the VFR-400 Releasing Panel is simple. Indeed, a basic system includes the system valve, its releasing trim and its supporting assembly, whether it is a skid, a remote controlled cabinet without control panel or a self-contained unit with control panel. And all this is included under a single part number.

You will notice that the Configuration Form resembles a matrix. For easy use, it is divided into 10 sections which follow the way the new User Manuals are also designed:

- Preaction systems (non, single & double interlock)
- ~~Deluge systems~~
- Wet pipe systems
- ~~Dry pipe systems (normal & HP)~~
- ~~Firecyclic systems~~



CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION  
OFFICE OF THE STATE FIRE MARSHAL  
FIRE ENGINEERING - BUILDING MATERIALS LISTING PROGRAM



## LISTING SERVICE

Page 1 of 1

LISTING No. 7165-0533:0106

CATEGORY: 7165 -- FIRE ALARM CONTROL UNIT (COMMERCIAL)

LISTEE: Viking Corp210 N. Industrial Park Dr, Hastings, MI 49058  
Contact: Debra Baker (269) 945-8233 Fax (269) 818-1680  
Email: dbaker@vikingcorp.com

DESIGN: Model VFR-400 fire alarm control units. Automatic, manual, noncoded, local, remote station, central station, releasing device, waterflow and sprinkler supervisory service. Refer to listee's data sheet for additional detailed product description and operational considerations.  
Minimum system components:

VFR-400 Control Unit

Suitable for use with the following modules: RA-4410RC, CA2Z, CAM, ARM-1, ARM-2 and SG-32.

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes & ordinances and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, model number, and UL label.

APPROVAL: Listed as fire alarm control units for use with separately listed electrically and functionally compatible initiating and indicating devices. Refer to listee's Installation Instruction Manual for details.

These control units do not generate a Temporal Pattern Signal. If the distinctive three-pulse Fire Alarm Evacuation Signal (for total evacuation) in accordance with NFPA 72, 2002 Edition is required, the control unit must be used with appliances that can generate the temporal pattern signal.

This control unit meets the requirements of UL Standard 864, 9th edition.

XLF: 7165-0328:0170



This listing is based upon technical data submitted by the applicant. CSFM Fire Engineering staff has reviewed the test results and/or other data but does not make an independent verification of any claims. This listing is not an endorsement or recommendation of the item listed. This listing should not be used to verify correct operational requirements or installation criteria. Refer to listee's data sheet, installation instructions and/or other

Date Issued: **July 01, 2016**

Listing Expires **June 30, 2017**

Authorized By: **DAVID CASTILLO, Program Coordinator**  
*Fire Engineering Division*



CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION  
OFFICE OF THE STATE FIRE MARSHAL  
FIRE ENGINEERING - BUILDING MATERIALS LISTING PROGRAM



## LISTING SERVICE

Page 1 of 1

LISTING No. 7645-0533;0108

CATEGORY: 7645 -- SPECIAL SYSTEM ACCESSORIES AND CONTROL VALVES

LISTEE: Viking Corp210 N. Industrial Park Dr, Hastings, MI 49058  
Contact: Debra Baker (269) 945-8233 Fax (269) 818-1680  
Email: dbaker@vikingcorp.com

DESIGN: Model "Total Pac 3" ~~deluge with electric, pneumatic and hydraulic releases; single interlock preaction with electric and pneumatic releases; not interlocked preaction with electric and pneumatic releases; double interlock preaction with electric/pneu-electric, electric/pneumatic and pneumatic/pneumatic releases; SUREFIRE single or double interlock releases; dry pipe; HP dry pipe and Fire cycle III single or double interlock, deluge and wet system valves in 1.5, 2, 3, 4, 6 and 8 inch sizes for a rated pressure of 250 psig. Refer to listee's data sheet for additional detailed product description and operational considerations.~~

AT  
ROOMS

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes & ordinances and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, model number, and FM label.

APPROVAL: Listed as special systems accessories and control valves with use with listee's Model VFR-400 fire alarm control unit (CSFM # 7165-0533;106). Refer to listee's Installation Instruction Manual for details.

11-01-13 gt



This listing is based upon technical data submitted by the applicant. CSFM Fire Engineering staff has reviewed the test results and/or other data but does not make an independent verification of any claims. This listing is not an endorsement or recommendation of the item listed. This listing should not be used to verify correct operational requirements or installation criteria. Refer to listee's data sheet, installation instructions and/or other

Date Issued: July 01, 2016

Listing Expires June 30, 2017

Authorized By: DAVID CASTILLO, Program Coordinator  
Fire Engineering Division



SYSTEM TRIM OPTIONS	SYSTEM SIZE					
	1½"	2"	3"	4"	6"	8"
Shut-off Valve & Sight Glass (Not available for Wet & Dry Pipe systems)						
Fire Department Connection (Always on right hand side)	T3SHUTV015	T3SHUTV020	T3SHUTV030	T3SHUTV040	T3SHUTV060	N/A
Semi-Flanged Inlets & Outlet: Inlet: <input type="checkbox"/> L <input type="checkbox"/> R Drain: <input type="checkbox"/> L <input type="checkbox"/> R	T3FIRDP115	T3FIRDP120	T3FIRDP130	T3FIRDP140	T3FIRDP160	N/A
	T3SEMFLG15	T3SEMFLG20	T3SEMFLG30	T3SEMFLG40	T3SEMFLG60	T3SEMFLG80

Full-Flanged Inlets & Outlet: Only available on request in 4" dia. – Check with FireFlex Systems for details and availability.

Galvanized Main Inlet & Riser Option	T3GALVOPT1
Elevator Option (not approved)	T3ELEVATOR
ANTI Column device	T3ANTCOLD1
OSHPD Seismic Option	T3SISM1Q00

VFR-400 CONTROL PANEL OPTIONS

Specify voltage: ☒ 120V / 60Hz    ☐ 220V / 50Hz

Zones Programming:	<input type="checkbox"/> Single Zone (Zone 1 OR Zone 2)	<input type="checkbox"/> Crossed Zones (Zone 1 AND Zone 2)
Firecycle III Soaking Timer Adjustment:	<input type="checkbox"/> _____ Sec. (Available 30, 60, 90 sec. & from 2 to 20 min. in 1 min. increments)	
Emergency Batteries:	Standard Systems:	<input type="checkbox"/> 12 AH (FM's 90 Hrs Stand-by) T3BAT02412
	Surefire & Firecycle III Systems:	<input type="checkbox"/> 18 AH (FM's 90 Hrs Stand-by) T3BAT02418
VFR-400 Panel Options:	<input type="checkbox"/> Remote Annunciator Panel T3VFRP4410    Qty: _____	<input checked="" type="checkbox"/> Class "A" (Style D) Initiating Circuits T3VFRPCA2Z    Qty: _____
	<input type="checkbox"/> NYFD Kit (Incl. Class A Mods) T3VFRPNYOP	<input type="checkbox"/> Relay Module T3OPTARM44

**Note:** VFR-400 panel provides 4 sets of dry contacts. When additional dry contacts are required, use Viking p/n MR-101 (SPDT), MR-201 (DPDT) and / or MR-801 (SPDT with LED). These field devices shall be installed OUTSIDE the TotalPac3 enclosure. Contact your local Viking SupplyNet representative for pricing and availability.

<input type="checkbox"/> Los Angeles City Auxiliary Contacts T3LAOPTION	<input type="checkbox"/> Chicago City Auxiliary Contacts T3CHOPTION
---	---

**Note:** The Los Angeles and Chicago City Auxiliary Contacts options are also available for remote units.

AIR SUPPLIES

Air Supplies for Skids		External air for sprinkler piping For Preaction – Surefire, Firecycle III, Dry & HP Dry Pipe				Pilot line only For System with Pneumatic Release				External air for sprinkler piping & pilot line Non or Single Inlet with Pneum. & Double Inlet Pneum. Pneum		
(Trim only)		T3ARTITSK1				T3ARTITSK2				T3ARTITSK3		
Air Supplies for Cabinets		Style "A" (Tankless Air Compressor)								7 Style "B" Air Pressure Maintenance Device for Sprinkler Piping		
Size:		1/6 HP	1/3 HP	1/2 HP	1 HP	1 ½ HP (8" unit only)	2 HP (8" unit only)					
<input type="checkbox"/> 120 V/ 60 Hz	T3AIRK0A02	T3AIRK0A03	T3AIRK0A05	T3AIRK0A10	T3AIRK0A15	T3AIRK0A20	Style "C" Air Pressure Maintenance Device for Pilot Line			Style "D" Air Shut-off Valve, Pressure Gauge, & Pressure Switch Only		
<input type="checkbox"/> 220 V/ 60 Hz	T3AIRK2A02	T3AIRK2A03	T3AIRK2A05	T3AIRK2A10	T3AIRK2A15	N/A						
220V / 50 Hz:	T3AIRK2A02	T3AIRK2A03	T3AIRK2A05	T3AIRK2A10	T3AIRK2A15	N/A	T3AIRK0B00	T3AIRK0C00	T3AIRK0D00			

- Notes:**
- Style "A" Air Supply cannot be mixed with Style "B".
  - In the case of a Preaction System with Pilot Line, order either one Style "A" with one Style "C" if you need a tankless air compressor in the cabinet for the sprinklers piping, OR, one Style "B" and one Style "C" if you want both air supplies to be located outside the system cabinet.
  - Pilot Line Air Supply will always be provided by a source located outside the TotalPac3 Cabinet, supplied by others (not FireFlex Systems).
  - Air Supply Style "D" is used when air supply and regulation is provided by others, as is the case with plant air, or with refrigerated areas when a dry air supply as described in NFPA-13 is required.
  - 1 HP Air compressor available on 4" & 6" systems only.
  - 1 ½ HP & 2 HP Air compressors available on 8" systems only.

AIR SUPPLY OPTIONS

Accelerator E-1	Without Anti-flood Device (For Preaction, Pneum. Rel. Pilot Line & HP Dry only)	With Anti-flood Device (For Standard Dry Pipe or
	T3ACCELE1P	T3ACCELE1D
Dehydrator	T3DEHYDRAT	



SYSTEM TYPE	STYLE	RELEASE	SYSTEM SIZE					
			1 1/2"	2"	3"	4"	6"	8"
WET PIPE SYSTEMS 175 psi only								
<input type="checkbox"/> DRY PIPE 175 psi	Skid Mounted	N/A	N/A	N/A	T3WETESK30	T3WETESK40	T3WETESK60	N/A
	In Cabinet	N/A	N/A	N/A	T3WETENP30	T3WETENP40	T3WETENP60	T3WETENP80
	SYSTEM OPTIONS							
	Relatd Chamber	T3WETRET00						
	Excess Pressure Pump	1/3 HP				1/2 HP		
T3WETEP00								
T3WETEP01								
DRY PIPE SYSTEMS								
<input type="checkbox"/> DRY PIPE 175 psi	Skid Mounted	N/A	N/A	N/A	N/A	T3DRYESK40	T3DRYESK60	N/A
	In Cabinet (Remote)	N/A	N/A	N/A	N/A	T3DRYENP40	T3DRYENP60	N/A
<input type="checkbox"/> HP DRY PIPE 250 psi	Skid Mounted	N/A	T3DHPESK15	T3DHPESK20	T3DHPESK30	T3DHPESK40	T3DHPESK60	N/A
	In Cabinet (Remote)	N/A	T3DHPENP15	T3DHPENP20	T3DHPENP30	T3DHPENP40	T3DHPENP60	N/A
MULTI-CYCLE SYSTEMS Specify pressure adjustment: 175 psi <input type="checkbox"/> 250 psi								
<input type="checkbox"/> PREACTION SINGLE INTERLOCK	Skid Mounted	Firecycle III	T3FSINSK15	T3FSINSK20	T3FSINSK30	T3FSINSK40	T3FSINSK60	N/A
	Without Panel (Remote)		T3FSINNP15	T3FSINNP20	T3FSINNP30	T3FSINNP40	T3FSINNP60	T3FSINNP80
	With VFR-400		T3FSINWP15	T3FSINWP20	T3FSINWP30	T3FSINWP40	T3FSINWP60	T3FSINWP80
<input type="checkbox"/> PREACTION DOUBLE INTERLOCK	Skid Mounted	Firecycle III	T3FDOSK15	T3FDOSK20	T3FDOSK30	T3FDOSK40	T3FDOSK60	N/A
	Without Panel (Remote)		T3FDOUNP15	T3FDOUNP20	T3FDOUNP30	T3FDOUNP40	T3FDOUNP60	T3FDOUNP80
	With VFR-400		T3FDOWP15	T3FDOWP20	T3FDOWP30	T3FDOWP40	T3FDOWP60	T3FDOWP80
<input type="checkbox"/> DELUGE	Skid Mounted	Firecycle III	T3FDELSK15	T3FDELSK20	T3FDELSK30	T3FDELSK40	T3FDELSK60	N/A
	Without Panel (Remote)		T3FDELNP15	T3FDELNP20	T3FDELNP30	T3FDELNP40	T3FDELNP60	T3FDELNP80
	With VFR-400		T3FDELWP15	T3FDELWP20	T3FDELWP30	T3FDELWP40	T3FDELWP60	T3FDELWP80
WET PIPE	Skid Mounted	Firecycle III	T3FWETSK15	T3FWETSK20	T3FWETSK30	T3FWETSK40	T3FWETSK60	N/A
	Without Panel (Remote)		T3FWETNP15	T3FWETNP20	T3FWETNP30	T3FWETNP40	T3FWETNP60	T3FWETNP80
	With VFR-400		T3FWETWP15	T3FWETWP20	T3FWETWP30	T3FWETWP40	T3FWETWP60	T3FWETWP80
SUREFIRE PREACTION SYSTEMS: Specify pressure adjustment 175 psi <input checked="" type="checkbox"/> 250 psi								
<input type="checkbox"/> PREACTION SINGLE INTERLOCK	Skid Mounted	Surefire ✓	T3SFSISK15	T3SFSISK20	T3SFSISK30	T3SFSISK40	T3SFSISK60	N/A
	Without Panel (Remote)		T3SFSINP15	T3SFSINP20	T3SFSINP30	T3SFSINP40	T3SFSINP60	T3SFSINP80
	With VFR-400		T3SFSIWP15	T3SFSIWP20	T3SFSIWP30	T3SFSIWP40	T3SFSIWP60	T3SFSIWP80
<input checked="" type="checkbox"/> PREACTION DOUBLE INTERLOCK see note	Skid Mounted	Surefire ✓	T3SFDOSK15	T3SFDOSK20	T3SFDOSK30	T3SFDOSK40	T3SFDOSK60	N/A
	Without Panel (Remote)		T3SFDONP15	T3SFDONP20	T3SFDONP30	T3SFDONP40	T3SFDONP60	T3SFDONP80
	With VFR-400		T3SFDOWP15	T3SFDOWP20	T3SFDOWP30	T3SFDOWP40	T3SFDOWP60	T3SFDOWP80

Note: NYFD Accepted & FM Approved for use in refrigerated areas only.



**Project name:** \_\_\_\_\_

**Purchase Order No.:**

Page 4 of 4

## PRODUCT RETURN POLICY

**Special Order Item:** TotalPac3 Units are Special Order Items and are built to order. Because of this, delivered units cannot be returned for credit without FireFlex Systems explicit authorization.

The following conditions apply for any TotalPac3 Unit returned to the factory for credit:

- Unit(s) shall be of current design, three months old maximum (after shipping date from the factory);
- Unit(s) shall be in their original packing (never unpacked) and never used. Any unit not returned in this condition is subject to additional charges to cover inspection, handling, repackaging, refurbishment, and any other expenses incurred by FireFlex Systems in accepting the unit(s).
- Minimum restocking fees will apply to every returned unit (contact your TotalPac Authorized Distributor for further details).
- The customer is responsible for return freight charges, FOB our warehouse. Any damage incurred in transit will be deducted from credit value.

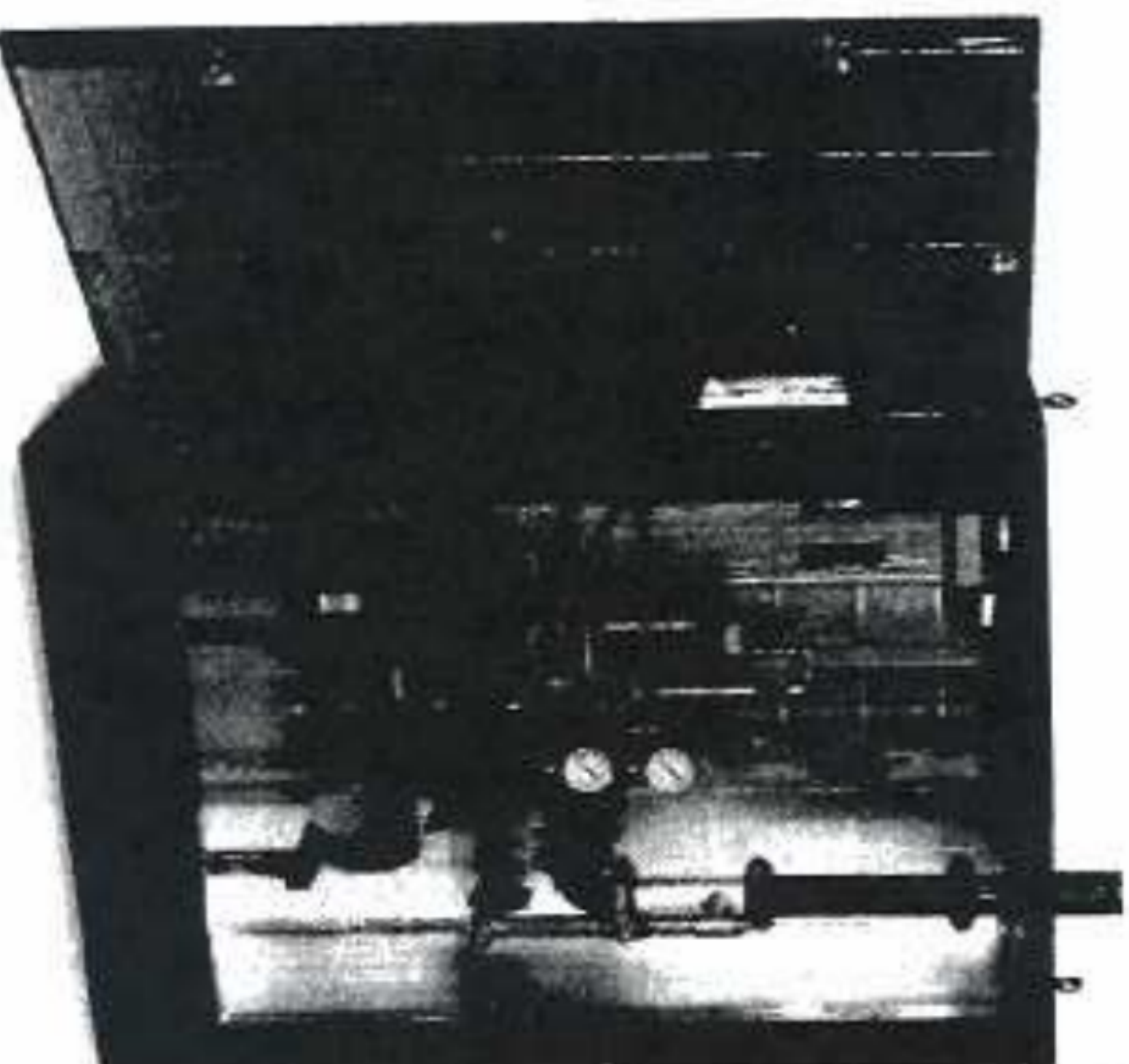
**Notes:** An RMA Number shall be obtained from your TotalPac Authorized Distributor PRIOR to returning any unit. Please provide unit(s) serial number(s) as indicated on the shipping label of the unit(s) (format: TOT3xxxx) as well as the address for us to make arrangements for pick-up.

## NOTES

[illegible]

Form completed by: \_\_\_\_\_





## DESCRIPTION

This **TOTALPac® X** integrated fire protection system by FireFlex Systems Inc. consists of a **SUREFIRE®** system trim totally pre-assembled, pre-wired and factory tested. All electrical and mechanical components of the system are contained in one single unit

**TOTALPac® X SUREFIRE®** preaction systems are built around the Viking trim using deluge valves model E-3 for 1½" (40 mm) diameter and model E-1 for 2" (50 mm) diameter and up.

**SUREFIRE®** double interlock preaction systems use closed automatic sprinklers in the sprinkler piping. A detection network is used in parallel with the automatic sprinkler system and is designed to operate before a sprinkler head fuses. This network is electric and may be actuated by manual, fixed temperature, rate-of-rise temperature, smoke or other means. Detection system operates before the sprinkler fuses and gives an alarm. In fire conditions, when the detection system operates **AND** a sprinkler head opens, the system control panel (supplied by others) activates the deluge valve.

The system piping is pneumatically pressurized to monitor the integrity of the piping, fittings and sprinklers and act as a fail-safe emergency backup to the electrical detection system. The system piping is normally dry and may be installed in locations subject to freezing. Built in with special features to minimize accidental water damage, unlike other systems, it can be installed where the detector and/or sprinklers are easily damaged or broken accidentally. In addition to special features that offer perfect fail-safe modes, the Viking **SUREFIRE®** Preaction Systems also provide excellent fire protection environment with or without electrical power. If a condition occurs that removes both the primary and secondary power supplies, the pneumatic actuator becomes the release mechanism and the system will operate as a dry pipe system.

The **SUREFIRE®** preaction system requires a **VIKING VFR-400** control panel (supplied by others).

All the valves are rated up to a maximum of 250 psi WWP (1724 kPa) max. and are available in the following diameters:

- |   |                                      |
|---|--------------------------------------|
| <input type="checkbox"/> 1½" (40 mm)            | <input type="checkbox"/> 2" (50 mm)  |
| <input checked="" type="checkbox"/> 3" (80 mm)  | <input type="checkbox"/> 4" (100 mm) |
| <input checked="" type="checkbox"/> 6" (150 mm) |                                      |

## Standard features

- NEMA 3 or NEMA 4 construction
- Factory assembled and tested under ISO-9001 standards
- Prewired to a terminal block
- Easy and compact installation
- Viking conventional trim rated at 250 psi (1724 kPa)
- Galvanized trim piping
- Serial number for easy reference
- Wide door for easy access
- Quarter turn door latches
- Lockable door to protect against tampering
- Lifting lugs provided for safe and easy handling
- Corrosion resistant paint finish
- Water supply and drain through the bottom center of the unit to avoid freeze-up potential
- Single drain connection



## Cabinet

☐ **NEMA 3**  
Enclosures constructed for either indoor or outdoor use to provide a degree of protection of the equipment inside the enclosure against ingress of solid foreign objects (falling dirt and windblown dust); to provide a degree of protection with respect to harmful effects on the equipment due to the ingress of water (rain, sleet, snow); and that will be undamaged by the external formation of ice on the enclosure.

☐ **NEMA 4**  
Enclosures constructed for either indoor or outdoor use to provide a degree of protection of the equipment inside the enclosure against ingress of solid foreign objects (falling dirt and windblown dust); to provide a degree of protection with respect to harmful effects on the equipment due to the ingress of water (rain, sleet, snow, splashing water, and hose directed water); and that will be undamaged by the external formation of ice on the enclosure.

☐ **NEMA 3X**  
Enclosures constructed for either indoor or outdoor use to provide a degree of protection of the equipment inside the enclosure against ingress of solid foreign objects (falling dirt and windblown dust); to provide a degree of protection with respect to harmful effects on the equipment due to the ingress of water (rain, sleet, snow); that provides an additional level of protection against corrosion and that will be undamaged by the external formation of ice on the enclosure.

☐ **NEMA 4X**  
Enclosures constructed for either indoor or outdoor use to provide a degree of protection of the equipment inside the enclosure against ingress of solid foreign objects (windblown dust); to provide a degree of protection with respect to harmful effects on the equipment due to the ingress of water (rain, sleet, snow, splashing water, and hose directed water); that provides an additional level of protection against corrosion, and that will be undamaged by the external formation of ice on the enclosure.

### COMPARISON OF SPECIFIC NON-HAZARDOUS APPLICATIONS

Provide a degree of protection against the following environmental conditions	Type of enclosure			
	3 <sup>a</sup>	3X <sup>a</sup>	4	4X
Incidental contact with enclosed equipment	•	•	•	•
Rain, snow and sleet	•	•	•	•
Hose down and splashing water		•		•
Corrosive agents			•	•
Ingress of solid foreign object (circulating or settling airborne dust, lint, fibers, and flyings) <sup>b</sup>	•	•	•	•
Ingress of solid foreign objects (windblown dust, lint, fibers, and flyings) <sup>b</sup>	•	•	•	•

<sup>a</sup> : these cabinet may be ventilated.

<sup>b</sup> : these fibers and flyings are non hazardous materials and are not considered class III type ignitable fibers or combustible flyings.



**Sequence of operation (see trim diagram)**

In a fire condition, operation of the detection system activates the first initiating circuit in the system control panel (supplied by others), causing an alarm to activate. When a sprinkler operates, air pressure escapes from the sprinkler piping. The air supervisory switch activates the second initiating circuit in system control panel. When BOTH initiating circuits have been activated, system control panel energizes solenoid valve (F1) open.

Pressure is released from the priming chamber of the deluge valve (A1) to the open drain manifold faster than it is supplied through the restricted orifice (B3). The deluge valve clapper opens to allow water to flow into the system piping and alarm devices, causing the alarm pressure switch (C1) and optional water motor alarm (C2) to activate. Water will flow from any open sprinklers and/or other opening in the sprinkler piping.

When the deluge valve operates, the sensing end of the PORV (B9) is pressurized, causing the PORV to open. When the PORV opens, it drains the priming water pressure to the priming chamber, preventing the deluge valve (A1) from resetting, even if the open releasing devices close. The deluge valve can only be reset after the system is taken out of service, and the outlet

**Systems hydraulic limitations**

**WARNING** The information contained herewith is for estimation and evaluation purposes only. Its use remains the responsibility of the designer.

Designers should refer to the appropriate NFPA Standards and any other applicable codes for their final design. Also refer to FireFlex Systems Inc. appropriate user manuals and to manufacturer's data sheets for additional details.

Systems limitations indicated below are nominal flow limitations.

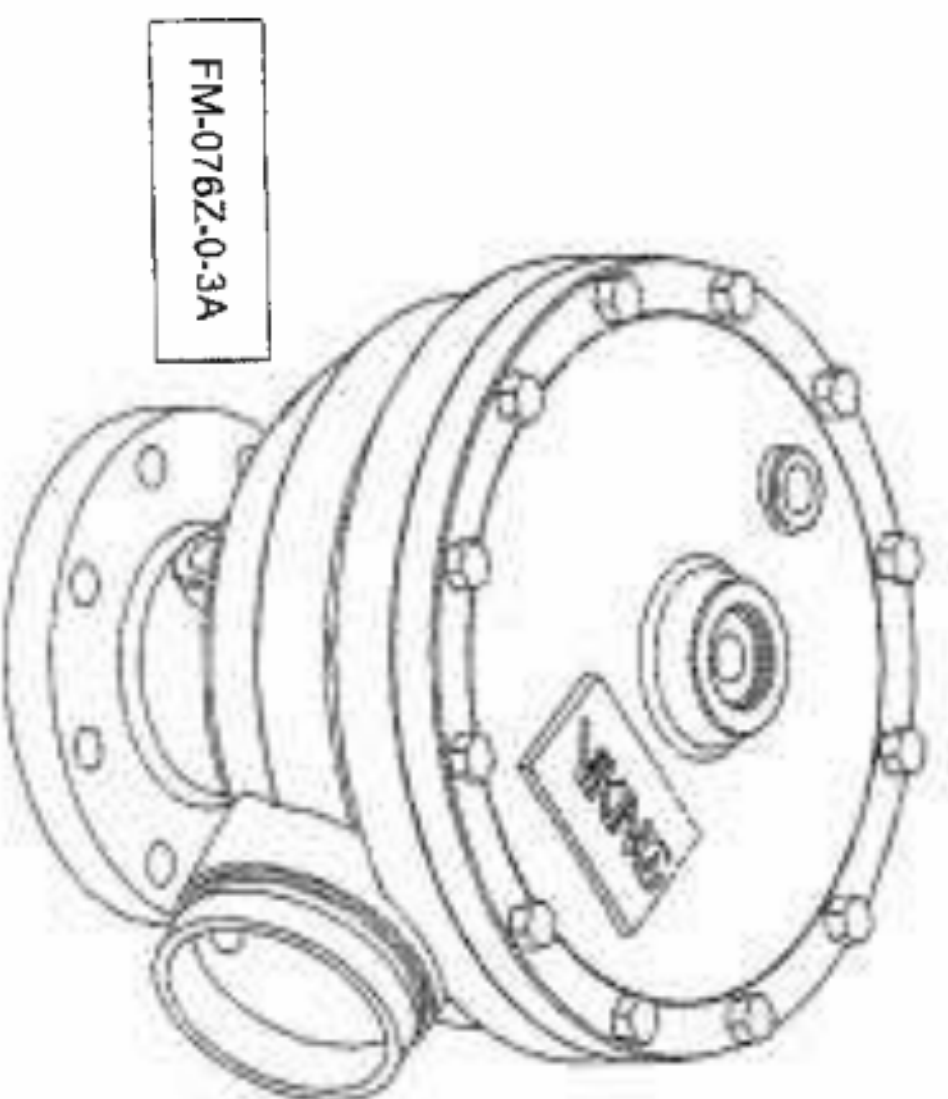
System size (in.)	Usage Range (gpm)	Piping Equivalent Lengths w/o shut off valve	
		(m.)	(ft.)
1½	0 - 200	8.6	28.2
2	0 - 330	12.9	42.3
3	125 - 700	19.8	64.8
4	250 - 1200	27	88.8
6	750 - 2800	31.2	102.4



## Standard equipment

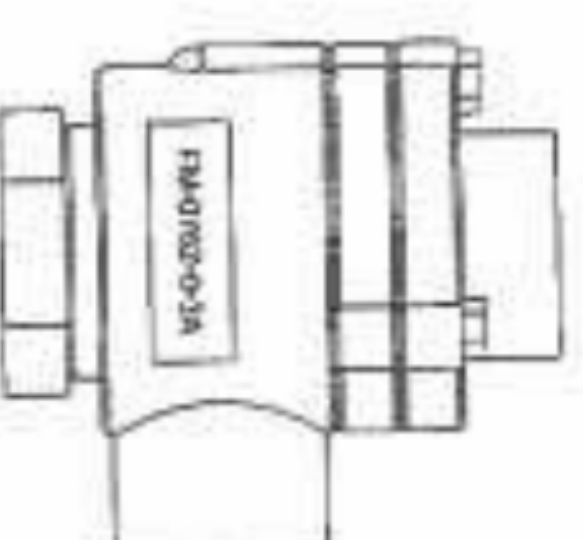
### Deluge valve

The Viking Model deluge valve is a quick-opening, differential diaphragm, flood valve with one moving mechanism. The deluge valve is used to control water flow in deluge and preaction sprinkler systems. The valve is held closed by system water pressure trapped in the priming chamber, keeping the outlet chamber and system piping dry. In fire conditions, when the releasing system operates, pressure is released from the priming chamber. The deluge valve clapper opens to allow water to flow into the system piping.



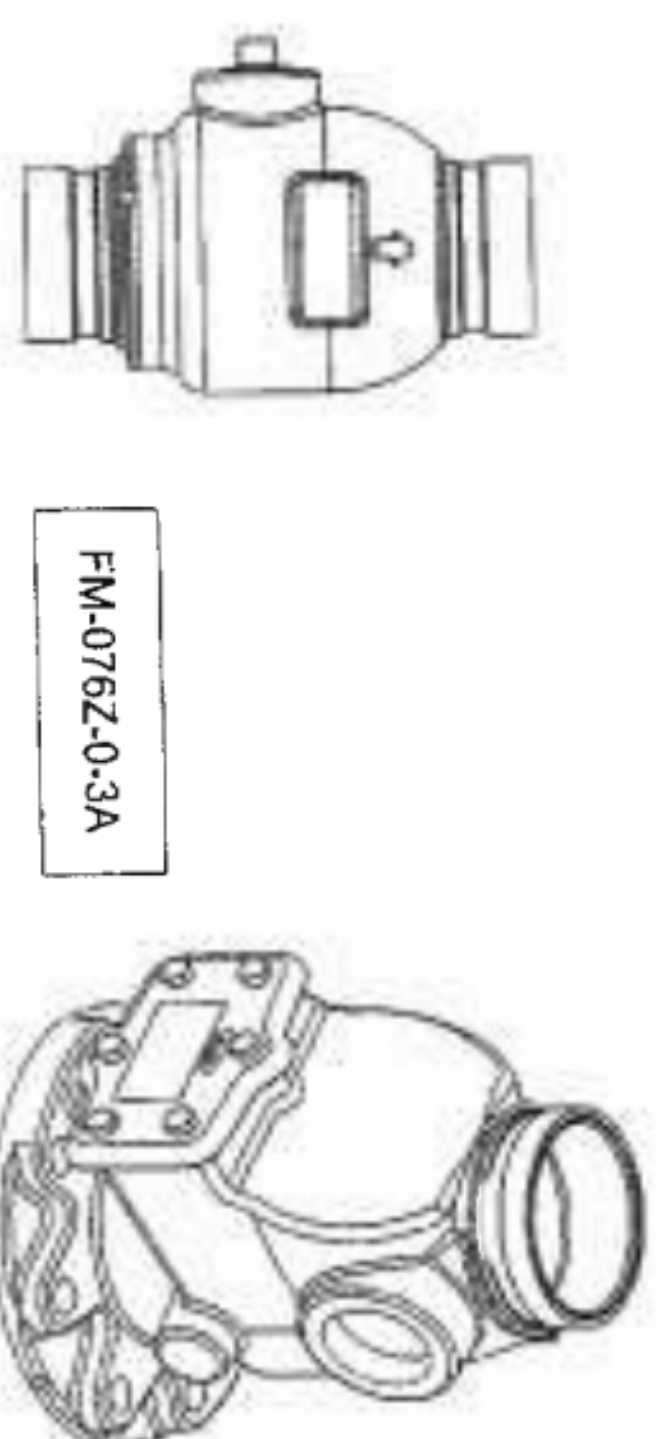
### Pneumatic actuator

Used in conjunction with the solenoid valve, the Viking Pneumatic Actuator is a spring loaded, rolling diaphragm and piston operated valve. It is used wherever a combination is required between the detection and system's loss of air.



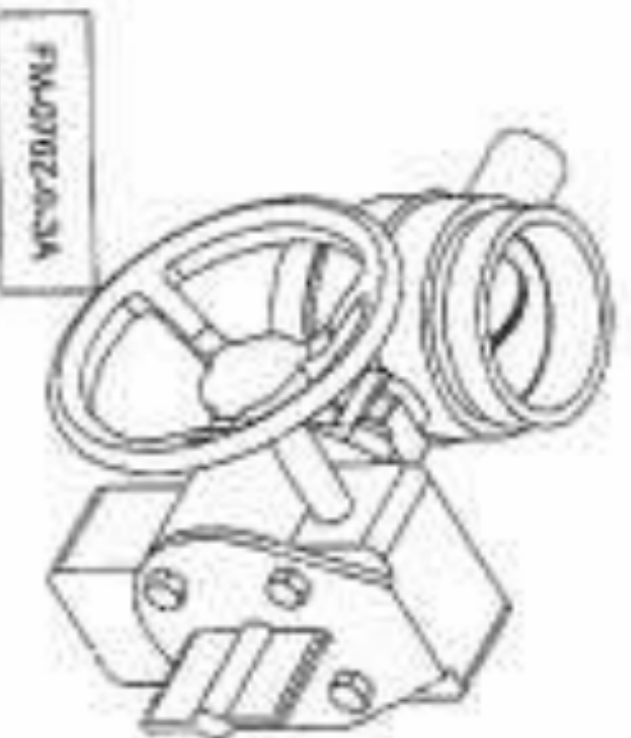
### Precision riser check valve

The Viking spring loaded In-Line check valve is a general purpose rubber-faced check valve approved for use in fire-service systems. The Spring Loaded In-Line check valve is manufactured with a brass body, brass seat, and a rubber-faced clapper assembly.



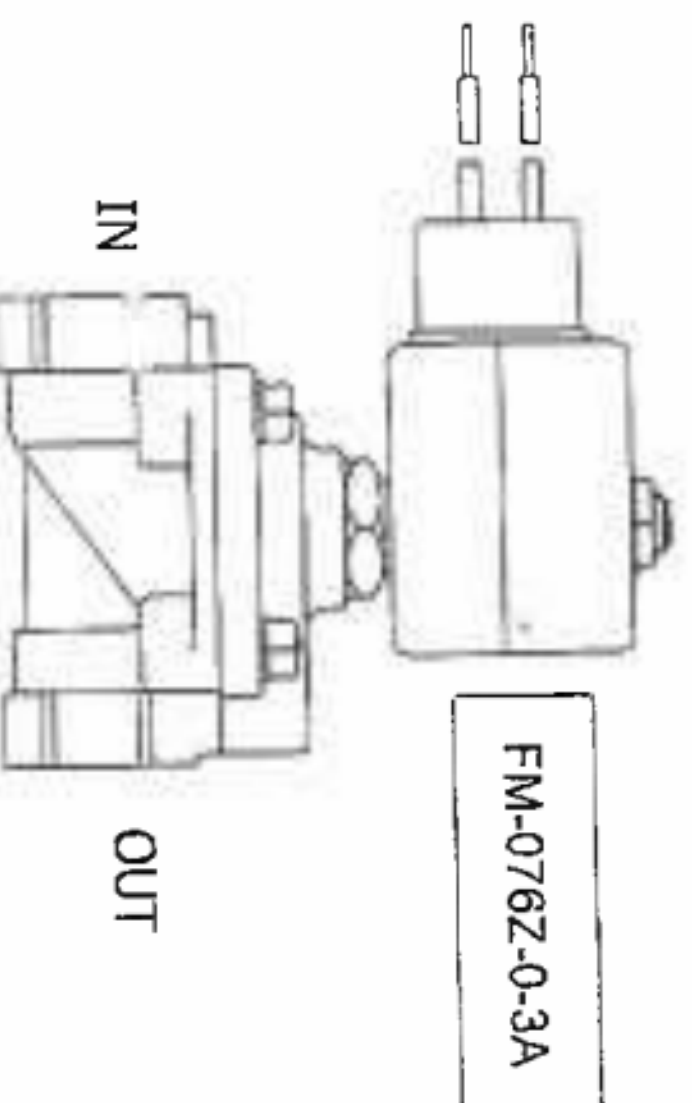
### Water supply control valve

The water inlet control valve is a supervised, indicating butterfly valve. Purpose of this valve is to manually shutoff the preaction system.



### Solenoid valve

The high pressure solenoid valve is a two-way type with one inlet and one outlet. It is a packless, internal pilot operated valve, suitable for use in releasing water pressure from the priming chamber of Viking deluge valves. The solenoid valve has floating diaphragm construction, which requires a minimum pressure drop across the valve to operate properly.

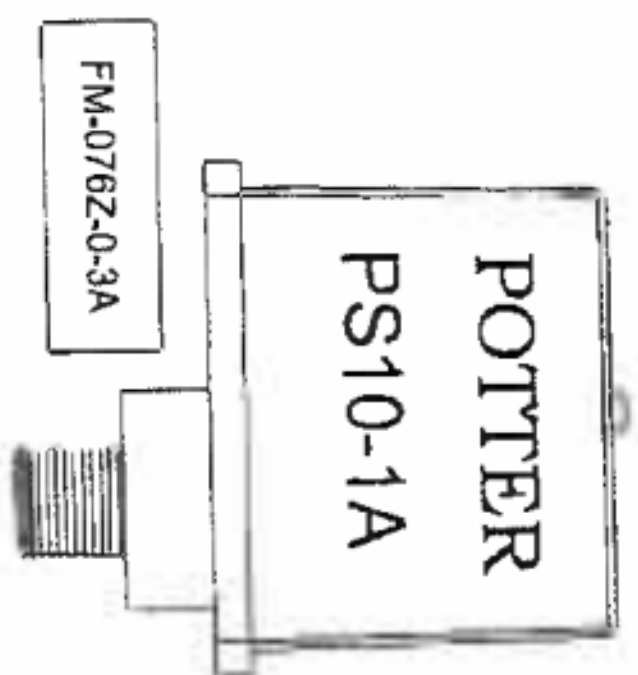




**Standard equipment (continued)**

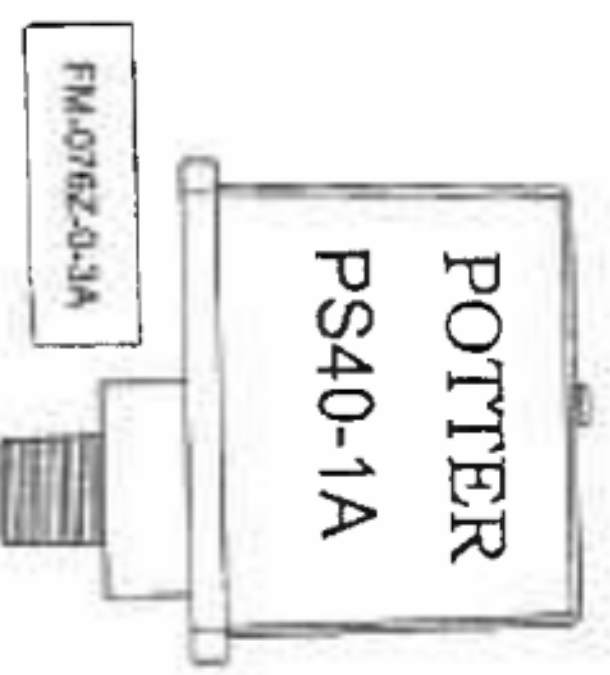
**Alarm pressure switch**

The alarm pressure switch monitors the water flow within the sprinkler piping. Should the Deluge Valve clapper opens to allow water to flow into the sprinkler piping. The alarm pressure switch will activate, indicating a water flow signal.



**Low air supervisory switch**

The low pressure switches monitors the pressure within the sprinkler piping should a loss pressure of the air below 25PSI occurs. The pressure switch contacts transfer indicating supervisory signal. Should a loss pressure of the air below 23PSI occurs. The pressure switch contacts transfer indicating alarm signal.

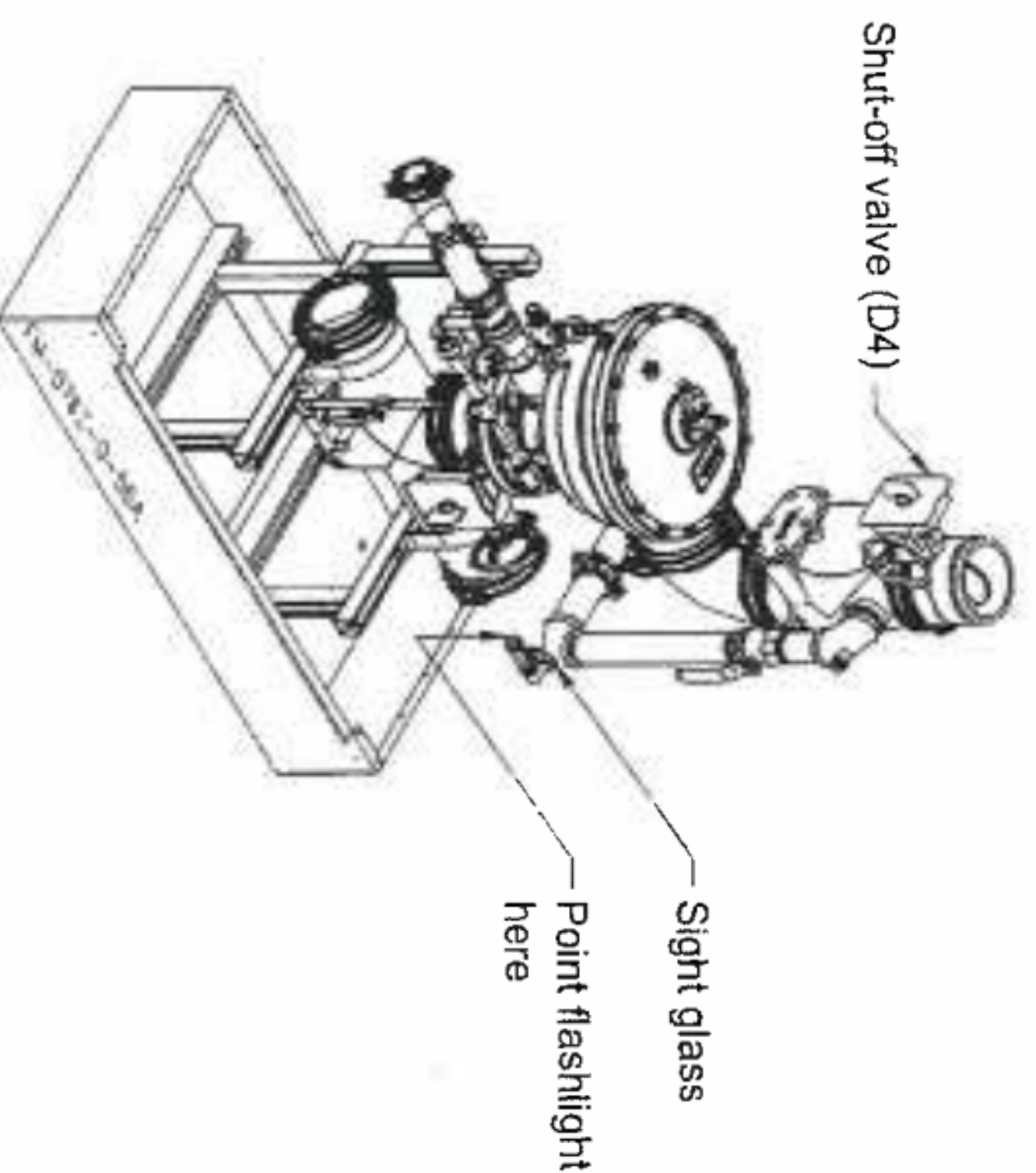




### Optional equipment

#### ☐ Shut-off valve & sight glass option

The Shut-off Valve & Sight Glass Option is intended to be used for applications where testing of the system operation without filling the sprinkler piping network is desirable and where it is critical that all functions of the preaction system be tested under actual discharge conditions.



#### ☐ Heater option

Heater option is recommended where ambient temperatures can drop below 40°F (4.5°C). The cabinet's electric heater temperature cut-out point is set at 50°F (10°C). The heater option is equipped with a low temperature sensor that will activate a supervisory signal when temperature drops below 40±5°F (4.5±3°C).

Heater option can be ordered in two supply voltage settings:

- ☐ 120Vac-60Hz. 400Watts.
- ☐ 220Vac-50Hz. 400Watts.

**Warning:** TotalPac®X cabinet is rated to provide freeze protection down to a minimum temperature of 14°F (-10°C).

#### ☐ Insulated enclosure (standard with heater option)

Insulation is made on foam core 2" thick R13 and have a foil-faced sheathing board composed of a uniform closed cell polyisocyanurate foam core bonded on each side to a triminate foil facer. One side has a foil reflective facer and the other side has a non-reflective foil facer.

#### ☐ Low temperature sensor (standard with heater option)

The low temperature sensor will close the normally open contact when the temperature drops below 40°F (4,5°C). The sensor will automatically reset to its normal state when the temperature rises above 40°F (4,5°C).

#### ☐ Light option

Optional fluorescent light is available for all cabinet configurations. Remote door switch activates the light when the door is opened.

Light option can be ordered in two supply voltage settings:

- ☐ 120Vac-60Hz.
- ☐ 220Vac-50Hz.



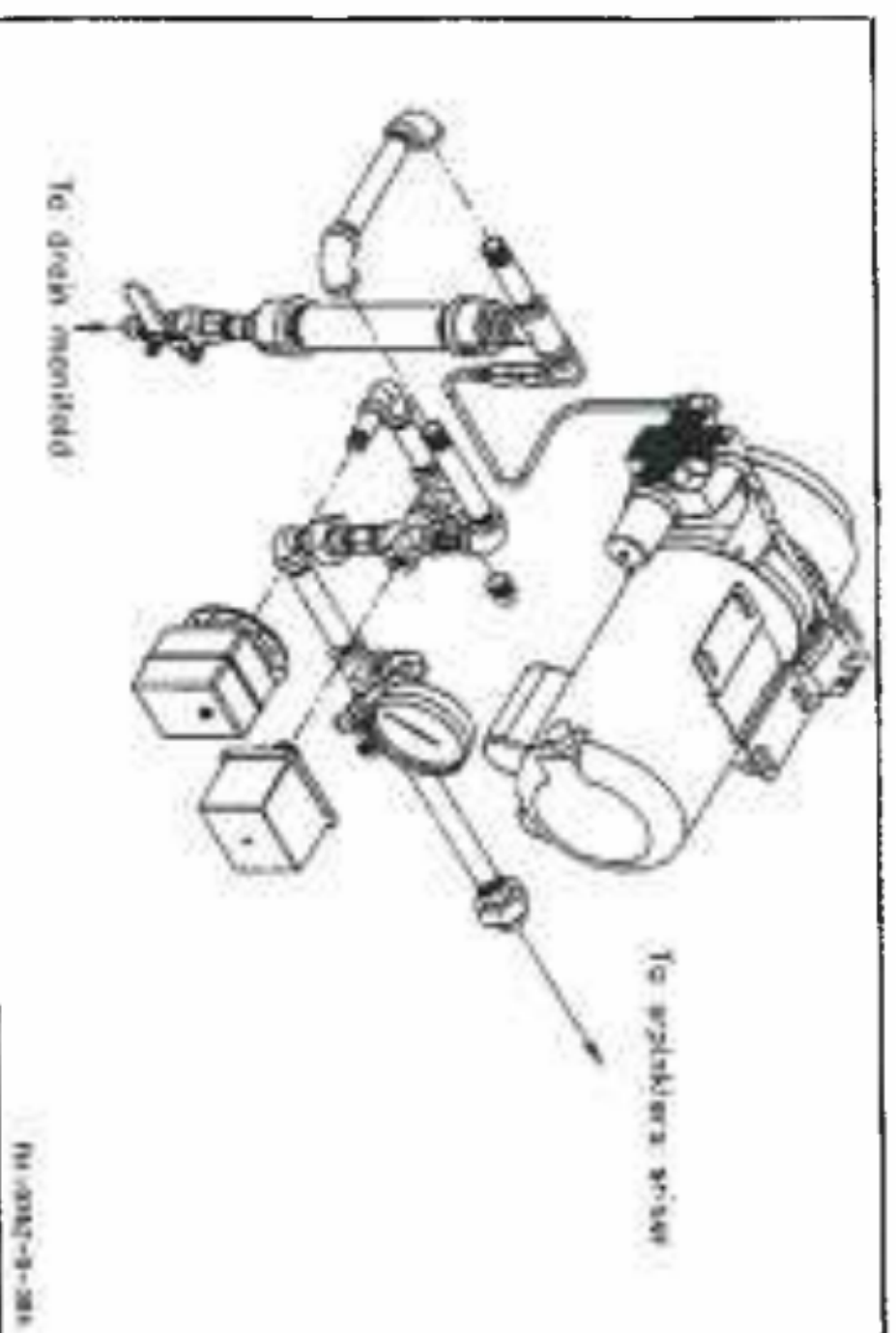
## Air supply

### Direct air compressor (Style "A")

Used only for the sprinkler piping network of the preaction system. Air supply style "A" includes the air compressor mounted inside the TotalPac<sup>®</sup>X cabinet with its supervisory trim and options. Compressors are of the tankless, oilless piston type and are factory piped to the sprinkler system riser, all within the TotalPac<sup>®</sup>X cabinet.

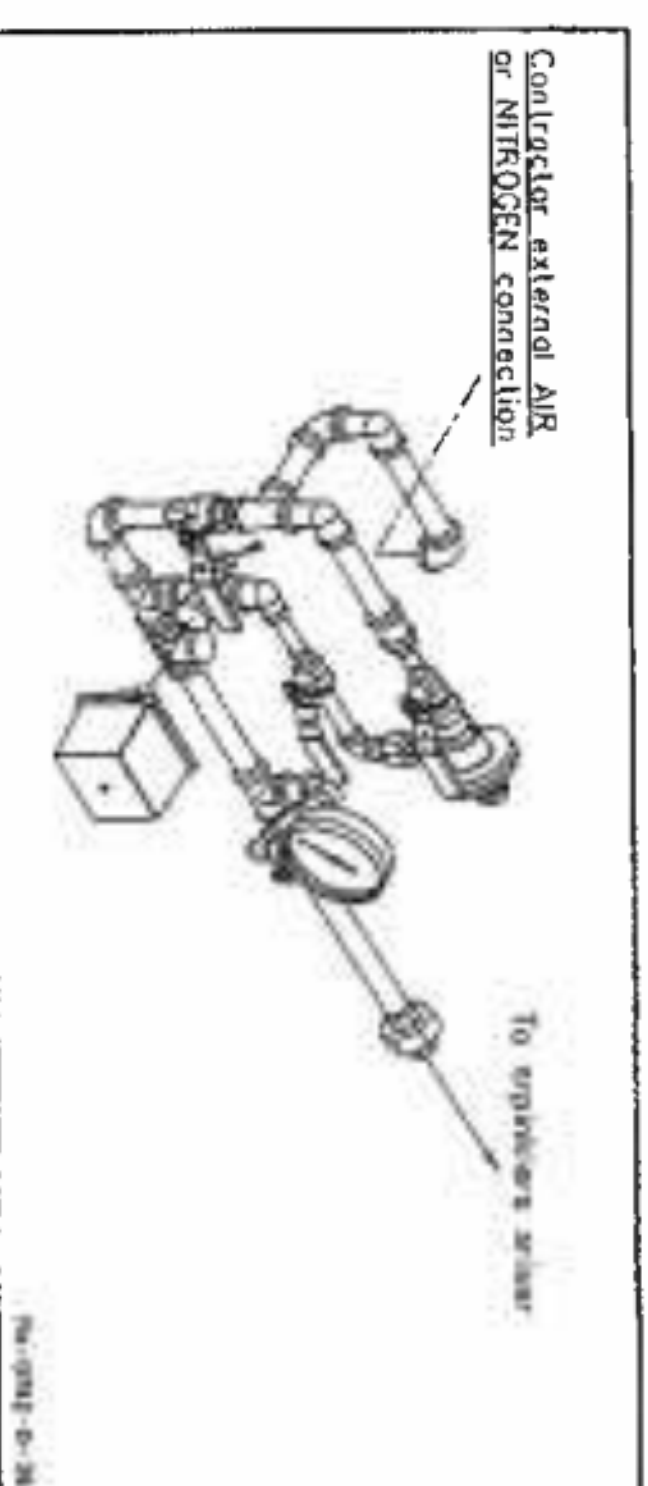
**Note:** Direct air compressor is available only with NEMA 3, 3X cabinet.

Compressors are available in four (4) sizes:  
☐ 1/6HP    ☐ 1/3HP  
☐ 1/2HP    ☐ 1HP



### ☐ Air Pressure Maintenance Device (Style "B")

Used only for the sprinkler piping network of the preaction system, when an external air supply is provided by others (tank mounted compressor, plant air or dry nitrogen cylinders) and piped to the air inlet port of the unit. Air supply style "B" provides an Air Pressure Maintenance Device (APMD) trim, factory mounted in the TotalPac<sup>®</sup>X cabinet.



### ☐ Direct air, external compressor (Style "D")

Mainly used with Preaction systems protecting refrigerated spaces and freezers, where a special dry external air supply unit is piped directly to the system riser inside the freezer itself, as shown in NFPA-13. Air supply Style "D" provides only an air supervisory and shut-off trim.

**Note:** The external air supply must be restricted to insure that it cannot replace air as fast as it escapes when a releasing device or sprinkler operates.

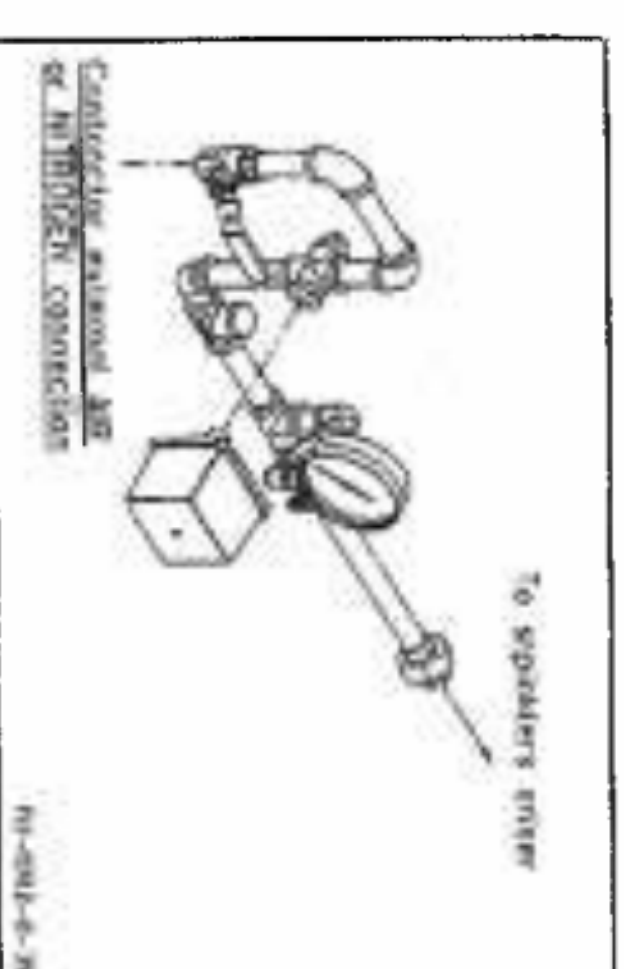
### Air compressor selection Table:

H.P.	CFM @ 40 psi	120Vac System capacity (gallon) to Pump to 40 psi in 30 Minutes	220Vac System capacity (gallon) to Pump to 40 psi in 30 Minutes
1/6	1.33	110	90
1/3	2.61	215	170
1/2	4.06	335	270
1	7.40	610	400

### Compressor Amp rating

Compressor Size (HP)	Amp. Rating at 120Vac - 60Hz	Amp. Rating at 220Vac - 50Hz
1/6	6.6 A	3.3 A
1/3	6.6 A	3.3 A
1/2	8 A	4 A
1	12.4 A	6.2 A

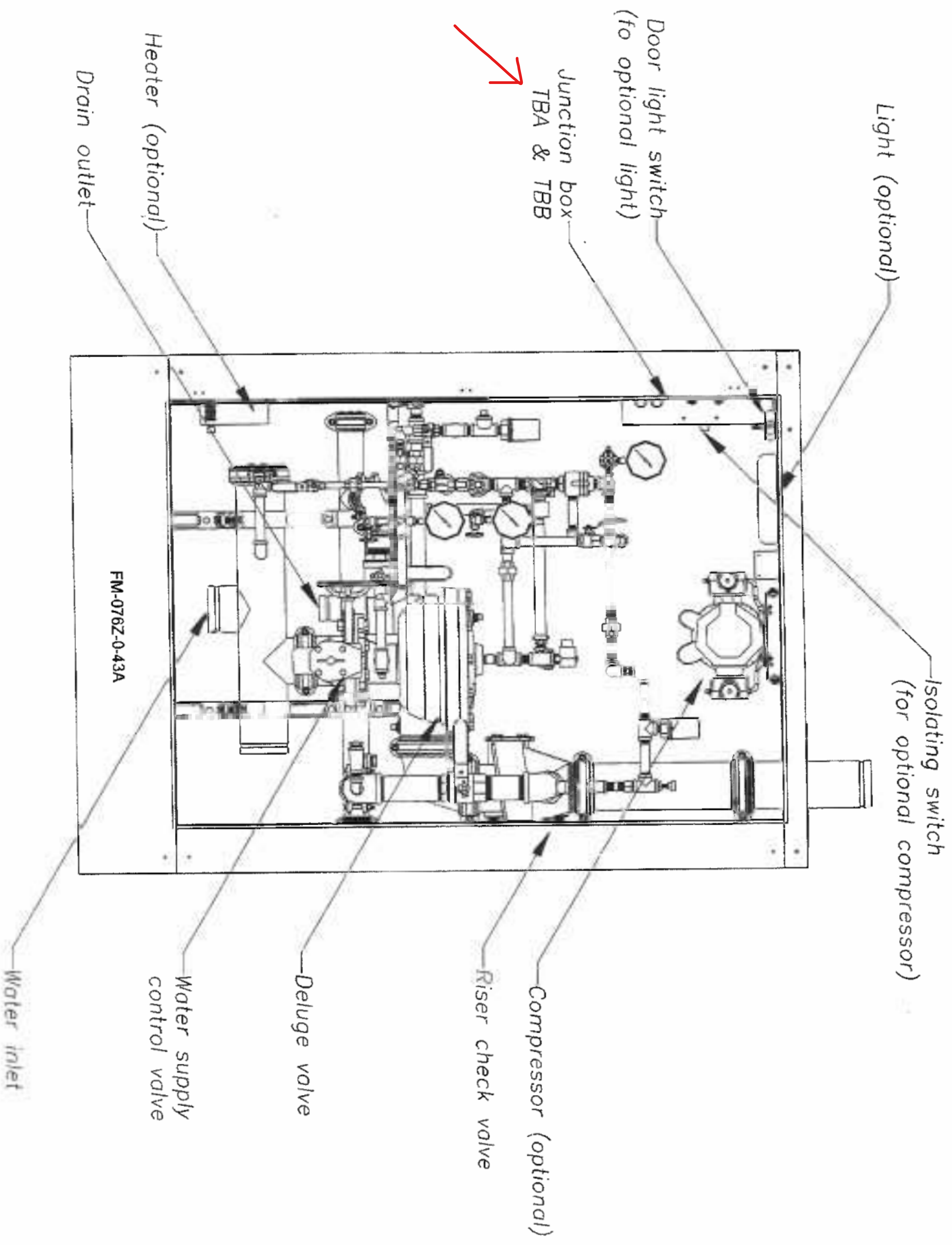
**Warning:** When air supplies style "B" or "D" is selected, the air supply should be provided and installed by the sprinkler contractor OUTSIDE of the TotalPac<sup>®</sup>X cabinet. It is NOT provided with the unit.





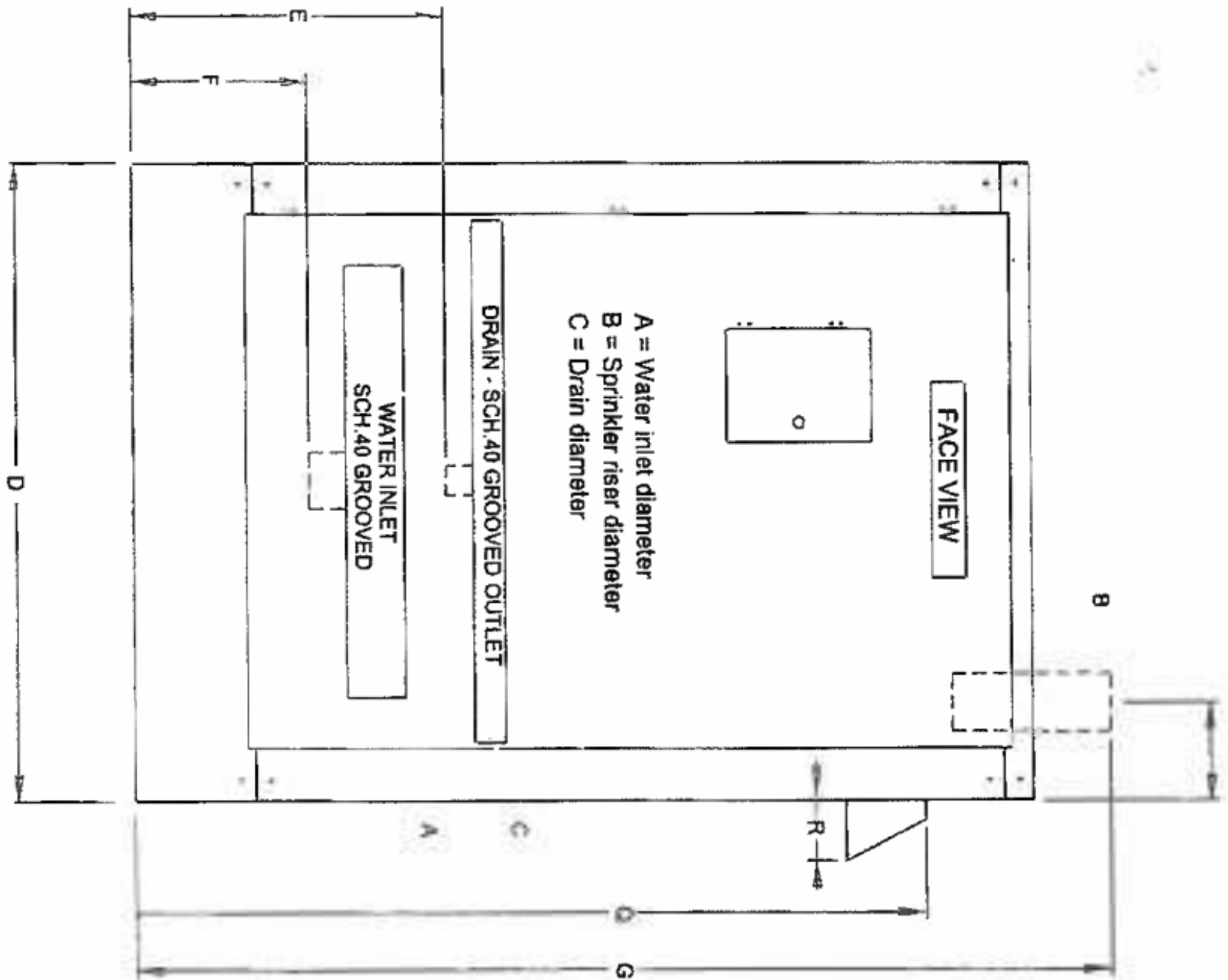
**Details & field wiring diagrams**

Cabinet with main components, shown without door

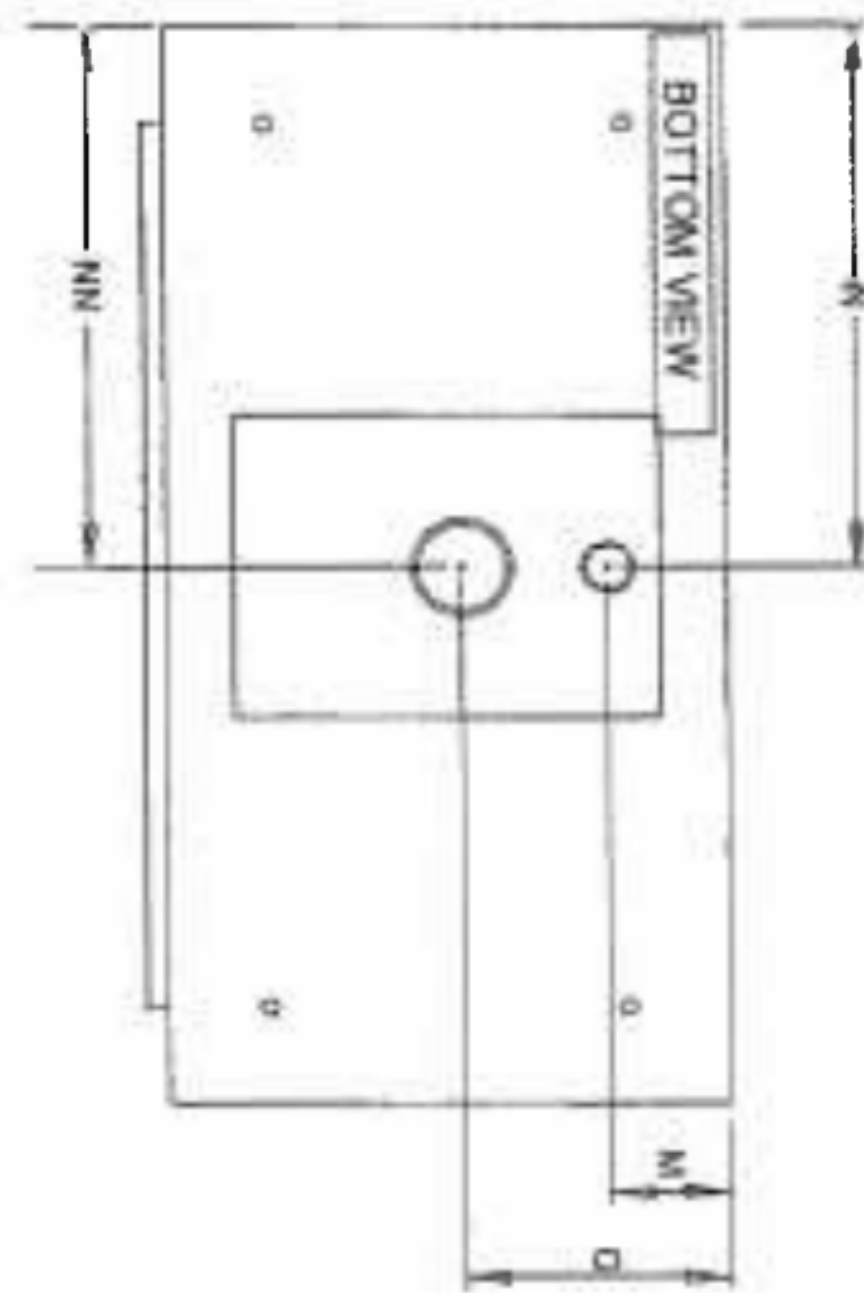
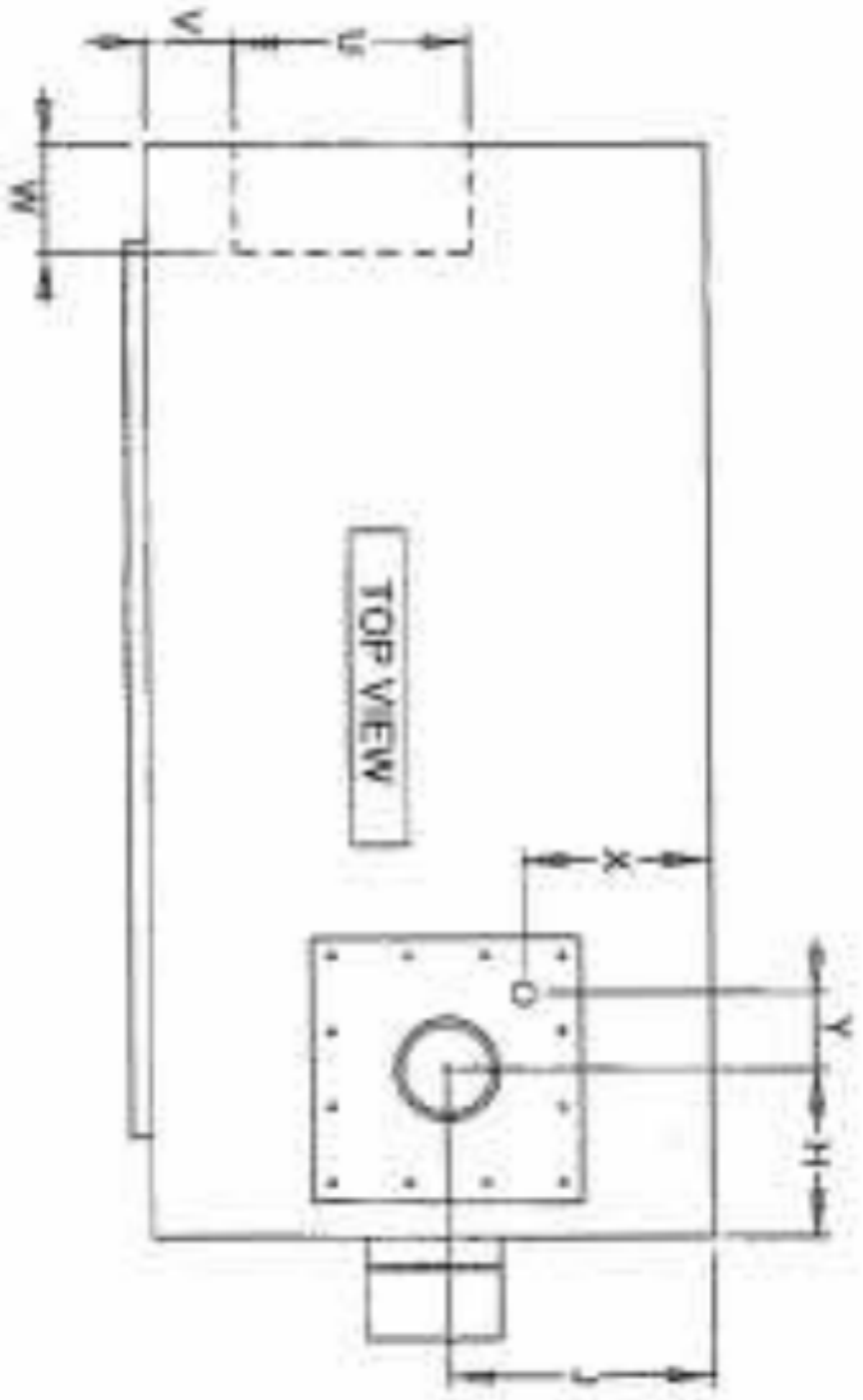
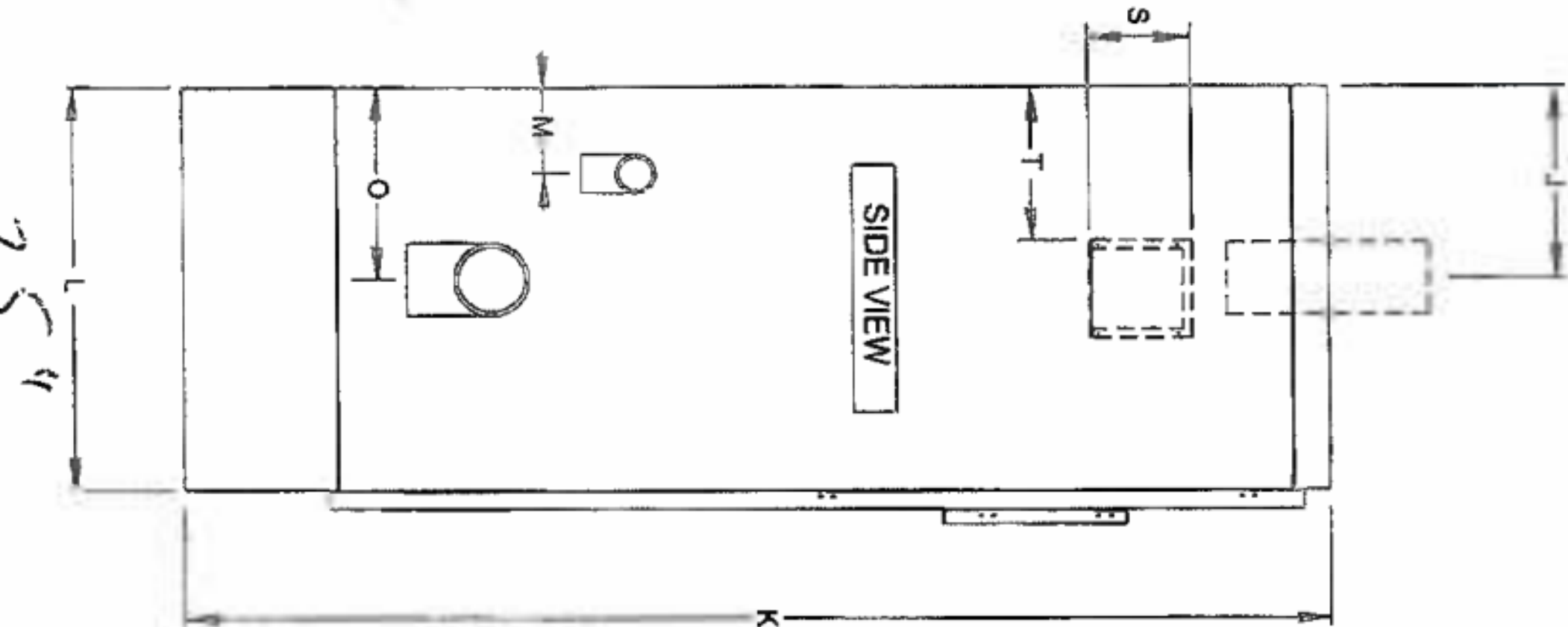




Dimensions

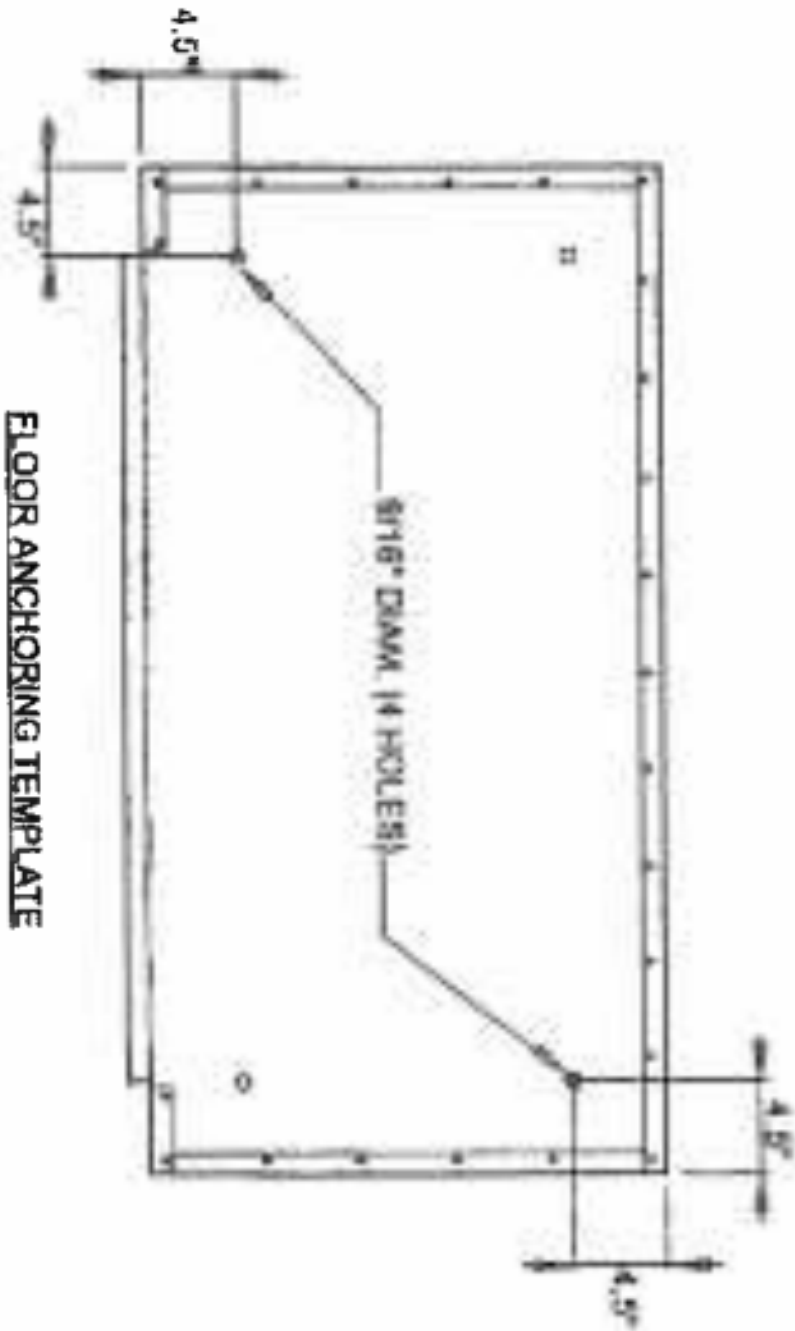


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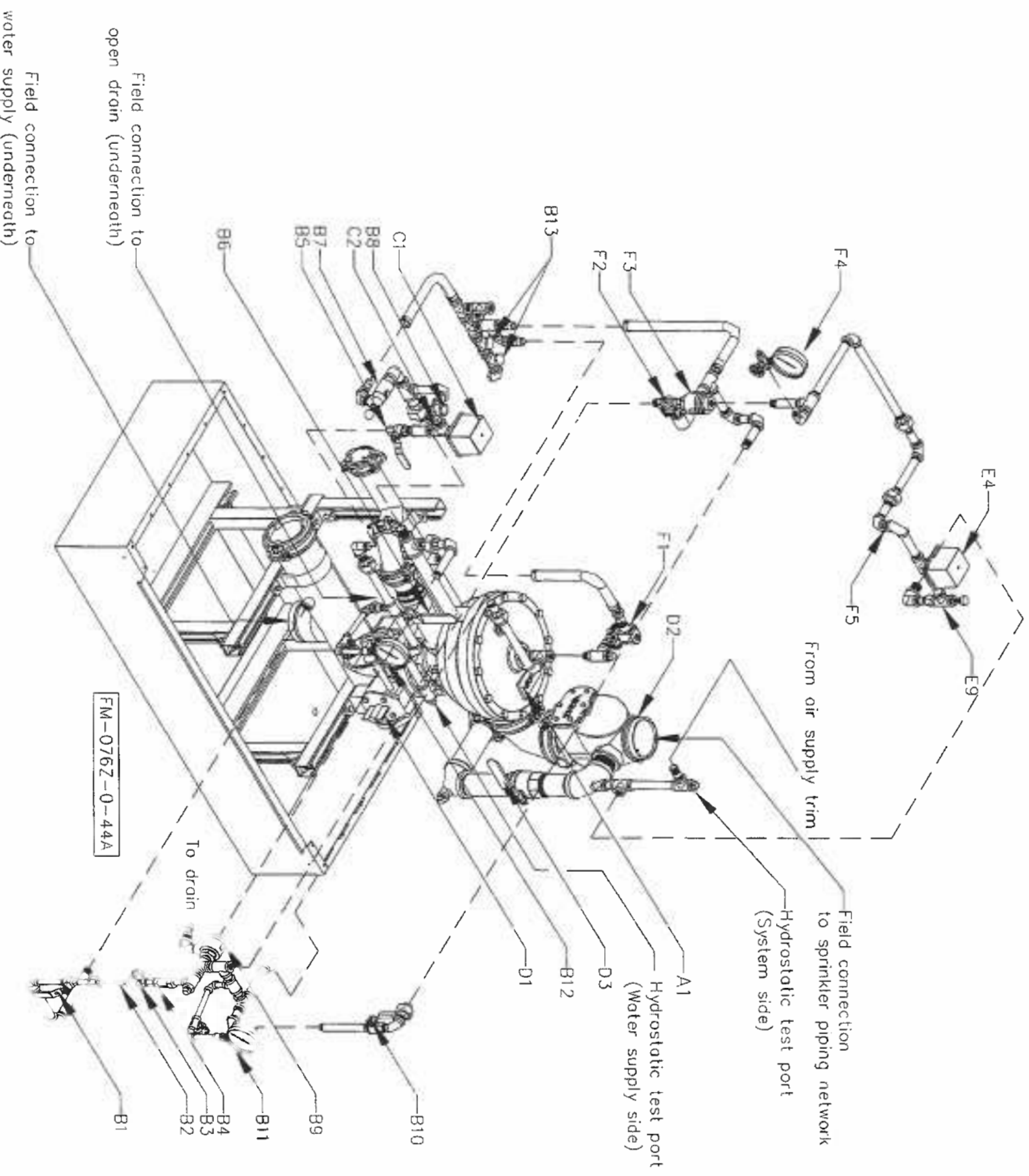
Dimensions are nominal and may vary  $\pm 1/4"$ .

Size	A	B	C	D	E	F	G	H	J	K	L	M	N	NN	O	Q	R	S	T	U	V	W	X	Y
1.5"	2"	1.5"	2"	50"	24.5"	14.5"	74"	11.5"	11"	68"	25"	5.5"	25"	25"	11"	60"	4.75"	6"	9.5"	10.5"	4"	5"	9.5"	7.75"
2"	2"	2"	2"	50"	23"	12"	74"	12"	11"	68"	25"	5"	25"	25"	11"	60"	4.75"	6"	9.5"	10.5"	4"	5"	9.5"	8"
3"	4"	3"	2"	50"	23"	12.5"	74"	8.5"	11"	68"	25"	5.5"	28.5"	22"	11"	60"	4.75"	6"	9.5"	10.5"	4"	5"	9.5"	8.5"
4"	4"	4"	2"	50"	22.5"	12.5"	74"	8"	12"	68"	25"	5.5"	25.5"	25.5"	12"	60"	4.75"	6"	9.5"	10.5"	4"	5"	9.5"	9"
6"	6"	6"	2"	50"	21"	12"	74"	8"	12"	68"	25"	5"	25"	25"	12"	60"	4.75"	6"	9.5"	10.5"	4"	5"	9.5"	9"





Trim diagram

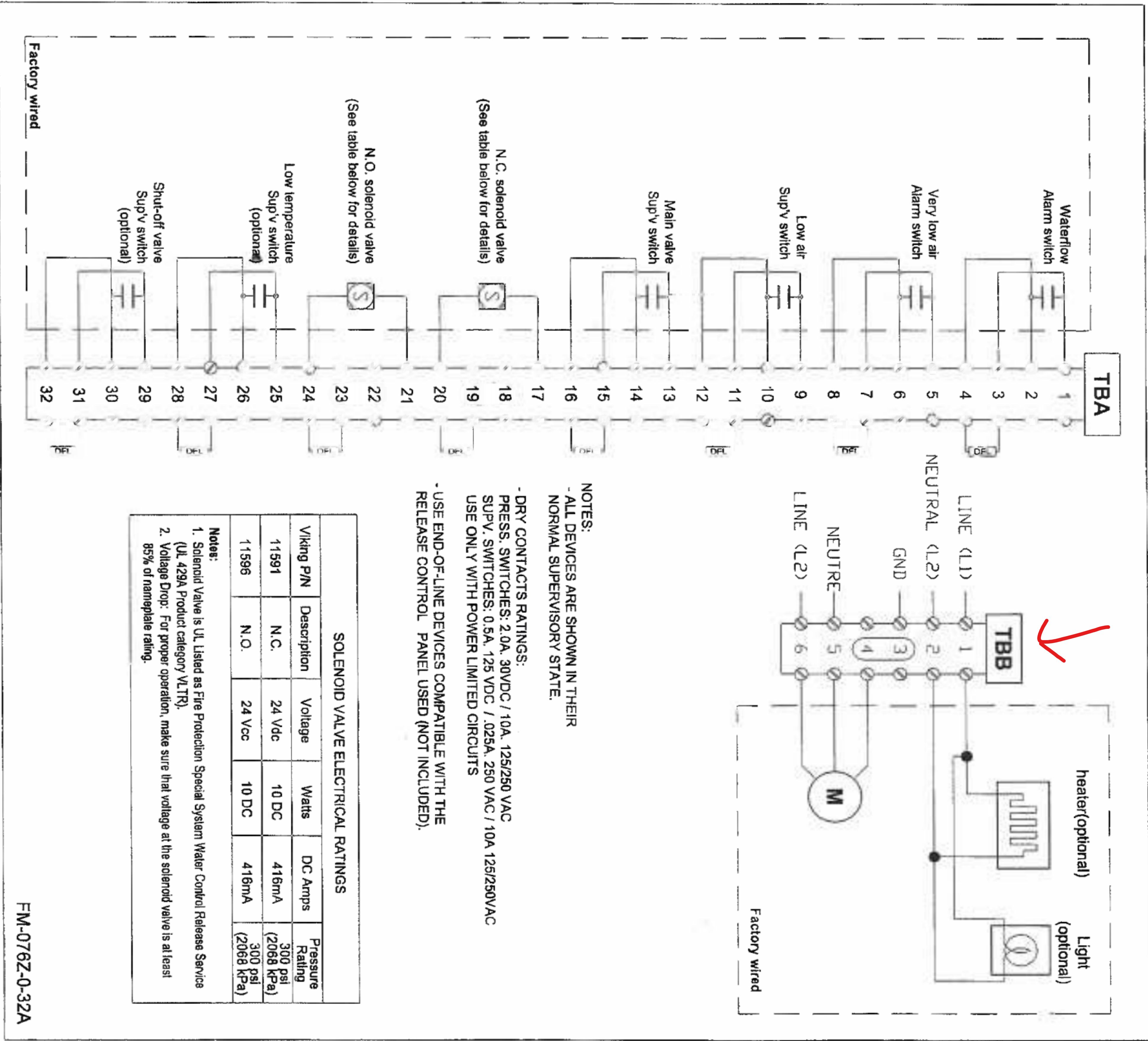


Components:

- |     |                                       |    |  |
|-----|---------------------------------------|----|--|
| A1  | Deluge valve                          | C1 | Alarm pressure switch  |
| B1  | Priming valve                         | C2 | Connection to water motor gong (strainer supplied by contractor) |
| B2  | Strainer                              | D1 | Water supply control valve                                       |
| B3  | 1/16" Restricted orifice              | D2 | Riser check valve  |
| B4  | Spring loaded check valve             | D3 | Main drain valve   |
| B5  | Alarm test valve                      | E4 | Air supervisory pressure switch                                  |
| B6  | Flow test valve                       | E9 | Float-check assembly   |
| B7  | Drip check valve                      | F1 | N.C. Solenoid valve – 24Vdc                                      |
| B8  | Drain check valve                     | F2 | N.O. Solenoid valve – 24Vdc                                      |
| B9  | Pressure operated relief valve (PORV) | F3 | Pneumatic actuator   |
| B10 | Emergency release valve               | F4 | Pneumatic actuator pressure gauge                                |
| B11 | Priming pressure water gauge & valve  | F5 | 5/64" Restricted orifice   |
| B12 | Water supply pressure gauge & valve   |    |  |
| B13 | Clapper check valve                   |    |  |



Wiring diagram



ELCC.







## TECHNICAL DATA

MULTI-HAZARD  
RELEASE CONTROL PANEL  
MODEL VFR400 

Page 1 of 8

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058  
Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

### 1. DESCRIPTION

The Viking VFR400 is a microprocessor based multi-hazard releasing control panel for use on preaction, deluge, Surefire® and Firecycle® multicycle sprinkler systems. MX-1230 Fire Extinguishing System, and MX-200 Fire Extinguishing System. The Model VFR400 is Underwriters Laboratory listed, and complies with UL Standard 864, Ninth Edition, for Local Control Units for Releasing Service. It is designed to be compatible and installed in accordance with the requirements of NFPA 13, NFPA 15, NFPA 16, NFPA 72, and NFPA 2001.

The VFR400 is housed in a steel cabinet with removable door and key lock. Standard is red with black and white trim. The panel is available for use with either 120 VAC or 220 VAC for primary power. The cabinet will house up to two (2) 12AH standby batteries, which are capable of powering the unit in excess of 90 hours in the event of an AC power failure. For (2) 18AH batteries, a separate battery box (Part Number 09866) must be used. The VFR400 Release Control Panel can be used with a wide range of compatible initiating devices, such as spot heat detectors, smoke detectors, and linear heat detectors (10,000 ft. - SAFE-FIRE) or (3,500 ft. - Protectowire).

#### A. Features

- Multi-Hazard Operation
- Supervised Microprocessor
- 32 Character Alpha-Numeric LCD Display
- Custom Banner Message Text
- Custom Zone Description Text
- On Board Menu Driven Programming Controls
- Releasing Circuits Protected from False Activation
- Four Class B Initiating Circuits
- Two Class B Supervisory Circuits\*\*
- Four Class B Output Circuits
- Programmable Cross Zoning
- Continuous or Timed Discharge
- 40 Event History Buffer
- Walktest with Automatic Time-out
- Alarm, Trouble, Supervisory Waterflow Relays
- Optional Class A Output Zone Module
- 21 Standard Programs in Panel Memory
- Password Protection for all Programming
- 24 Hour Clock
- Supervised Remote Annunciator Output up to three (3)
- Auxiliary 24 VDC Power (Constant and Resettable)

#### See Installation Manual

21 standard programs-Program option for Viking Preaction, Deluge, Surefire® Pre-action and Firecycle® Sprinkler Systems.

\*\*Can be used for Supervisory, Tamper, Low Air, High Air, or Abort Switch (Abort switch for MX-1230 or MX-200 Systems).

### 2. LISTINGS AND APPROVALS



UL Listed: Meets UL Standard 864 - 9th Edition

UL Listed: Clean Agent Extinguishing System Unit



FM Approved: Deluge Systems, Preaction Systems, Refrigerated Area Sprinkler Systems

FM Approved: Control Panel Group 4

FM Approved: Clean Agent Extinguishing System Unit



CE Certified

### 3. TECHNICAL DATA

#### Specifications:

##### A. Environment

- Temperature: 32 °F to 120 °F (0 °C to 48 °C)
- Humidity: 93% non-condensing

Form No. F\_041307 Rev. 15.1



Scan with smart phone to access  
technical and troubleshooting resources.  
The Viking Corporation's Web site at  
<http://www.vikinggroupinc.com>.  
The Web site may include a more recent  
edition of this Technical Data Page.

(Removed Firecycle® Multi-c





## TECHNICAL DATA

MULTI-HAZARD  
RELEASE CONTROL PANEL  
MODEL VFR400 

Page 2 of 8

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### B. AC Power

- Universal Input 120VAC, (60 Hz, 165VA) or 220VAC, (50 Hz, 185VA) 15 Amp Branch Line overcurrent protection required.
- System trouble is generated if voltage drops below 102V.

### C. Visual Indicators: (Visible with door OPEN):

- 33 LEDs for common signal and zone annunciation
- 32 Character Alpha-Numeric Liquid Crystal Display (LCD)

### D. LCD:

- Displays prompts for programming system. Condition or status information is not shown.

### E. Control Buttons:

- Scroll Up, Buzzer Silence
- Signal Silence - Momentary, silences signaling circuits
- Buzzer Silence - Momentary, silences the trouble buzzer and outputs programmed as supervisory bell or trouble bell.
- System Reset - Momentary, resets all alarm circuits if condition has been corrected, removes power from initiating device circuits.
- Program Switch

### F. Initiating Device Circuits: 4 Class B (Class-A Module available) (all values nominal)

- Entire system is power limited, current limited to protect two wire detectors
- Capacity, two wire detectors (per zone) 25 - 0.1 mA type; or 20 - 0.12 mA type at 24 VDC
- Line resistance - 100 ohms max. (except with linear heat detection - max. 700 ohms)
- Override of signal silence for waterflow application, if desired
- End-of-Line Resistance - 5.1K ohms
- Normal standby current - approximately 4.0 mA
- Trouble-Low current - approximately 3.3 mA
- Alarm - approximately 10 mA
- Maximum Impedance for Alarm - 1400 ohms
- Ground also causes trouble and ground indicator to come on (no zone indication on ground)
- Ripple Voltage - 0.4VDC
- Max operating voltage range - 22.5 VDC to 25.9 VDC

### G. Output/Releasing Circuits: (All values nominal)

- The indicating circuits of the VFR-400 are Non-coded. This allows the use of visual and audible appliances on the same circuit.
- Notification Appliance Circuits (Class B), reverses polarity on alarm (optional Class A Module is available)
- Current limited
- 24VDC regulated, rated 1.0 Amp continuous max. (2.5 Amps total for all outputs combined including Auxiliary Devices and RA-4410-RC)
- End-of-Line Resistance - 5.1K ohms
- Ripple Voltage - 0.3V
- For outputs programmed as RELEASING: maximum allowable line resistance = 1 divided by current draw of solenoid (In Release Mode - Requires End-of-Line diode assembly wired series for supervised circuit)
- All outputs are 24VDC, with range of 16VDC - 33VDC (Note: Release circuits kick out at <20 VDC)

### H. Dedicated Supervisory Initiating Circuit:

- Supervisory includes any of the following:
- Supervisory
- Tamper
- Low Air
- High Air
- Abort (MX-1230 and MX-200)
- One Class B/Initiating Device Circuit, latching
- Power limited
- End of Line resistance 5.1K ohms
- Resistance 100 ohms max.
- Increase in resistance causes supervisory trouble and system trouble
- Decrease in resistance causes supervisory signal
- Ripple Voltage - 0.1VDC

### I. Low/Missing Battery:

- Causes battery and system trouble if battery falls below 22 volts. Battery circuit is fused and reverse polarity protected.





## TECHNICAL DATA

**MULTI-HAZARD  
RELEASE CONTROL PANEL  
MODEL VFR400**

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

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### Material Standards:

#### Enclosure

Dimensions: 18.50" x 14.68" x 4.75"

Finish: Red Baked Enamel

Housing: 18 gauge steel

Battery - Sealed Lead Acid Type

### Ordering Information:

VFR400 Panel Part Number 14152 for Preaction Systems

VFR400 Panel Part Number 14152-1 for Clean Agent Systems and Preaction Systems

### A. Modules and Accessories

- **CA22 MODULE (CLASS A INITIATING DEVICE CIRCUIT):** (Viking Part Number 14155 - See Figure 5)  
Converts two Class B initiating device circuits to two Class A circuits.
- **CAM2 MODULE (CLASS A INDICATING APPLIANCE CIRCUIT):** (Viking Part Number 14156 - See Figure 6)  
Converts indicating appliance circuit from Class B to Class A. One model CAM (Class A Module) is required for each circuit.  
(DO NOT use this on an output programmed as "TROUBLE BELL".)
- **ARM-1/ARM-2 MODULE (AUXILIARY RELAY MODULE):** (Viking Part Number 14157 - [Arm-1 is (4) Pole] and Viking Part Number 14158 [Arm-2 - is (2) Pole] - See Figures 7 & 8)  
Activated by 24VDC Indicating and/or Releasing, polarity reversing circuits. The module provides a non-supervised DPDT Relay that can be used for fan shutdown, door release, elevator recall, etc.
- **RA-4410-RC (REMOTE ANNUNCIATOR):** (Viking Part Number 14154 - See Figure 4)  
Connects to RS-485 & 24VDC terminals. Provides 33 LEDs for each zone in alarm supervisory, or trouble, each output activated or in trouble, AC power, Power trouble, System trouble, Ground fault, Supervisory, Supervisory trouble, Alarm, Alarm silence and Pre-discharge/Discharge.  
The annunciator also has a trouble buzzer and a lamp test / trouble silence switch.
- B. Additional Accessories and Relays**
  - **MR-101/T SPDT Relay Module:** (Viking Part Number 14159)
  - **MR-201 DPDT Relay Module:** (Viking Part Number 14160)
  - **MR801/T SPDT Relay w/LED Indicator:** (Viking Part Number 14161)
  - **ELOD Resistor/Diode:** (Viking Part Number 14162)
  - **ELOR Resistor:** (Viking Part Number 14163)
  - **Trim Bezel for Panel:** (Viking Part Number 14177 - See Figure 9)
  - **Batteries (2 required)**
    - 12VDC 8 AMP (Viking Part Number 07920)
    - 12VDC 12 AMP (Viking Part Number 07921)
    - 12VDC 18 AMP (Viking Part Number 09867)

## 4. INSTALLATION

Refer to VFR400 Installation and operation Manual and Panel wiring diagrams for appropriate installation and programming requirements. All appropriate installation standards and buildings codes must be followed as required by the Authority Having Jurisdiction.

## 5. OPERATION

Refer to the appropriate Viking sprinkler system data sheets for sprinkler system operational information and proper wiring diagram and required program.

## 6. INSPECTION, TEST AND MAINTENANCE

Any system maintenance that involves placing a control valve or detection system out of service will impair the fire protection capabilities of that system. Prior to proceeding, appropriate impairment procedures per NFPA 25 shall be followed with the notification of all Authorities Having Jurisdiction. Consideration should be given to employment of a fire patrol in the affected areas.

**Failure to follow these instructions could cause improper system operation, resulting in serious personal**





TECHNICAL DATA

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RELEASE CONTROL PANEL  
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NOTICE

The building owner is responsible for maintaining the fire protection system and devices in proper operating condition. The Viking VFR400 Release Control Panel must be kept free of foreign matter and environmental conditions that could impair its operation. Refer to VFR400 Installation and Operation Manual for appropriate testing procedures. For minimum maintenance and inspection requirements, refer to NFPA 72 and NFPA 25. In addition the Authority Having Jurisdiction may have additional maintenance, testing, and inspection requirements that must be followed.

7. AVAILABILITY & SERVICE

The Viking VFR400 Multi-Hazard Release Control Panel is available through a network of domestic and international distributors. See the Viking web site or contact The Viking Corporation for the closest distributor.

8. GUARANTEES

For details of warranty, refer to Viking's current list price schedule or contact Viking directly.

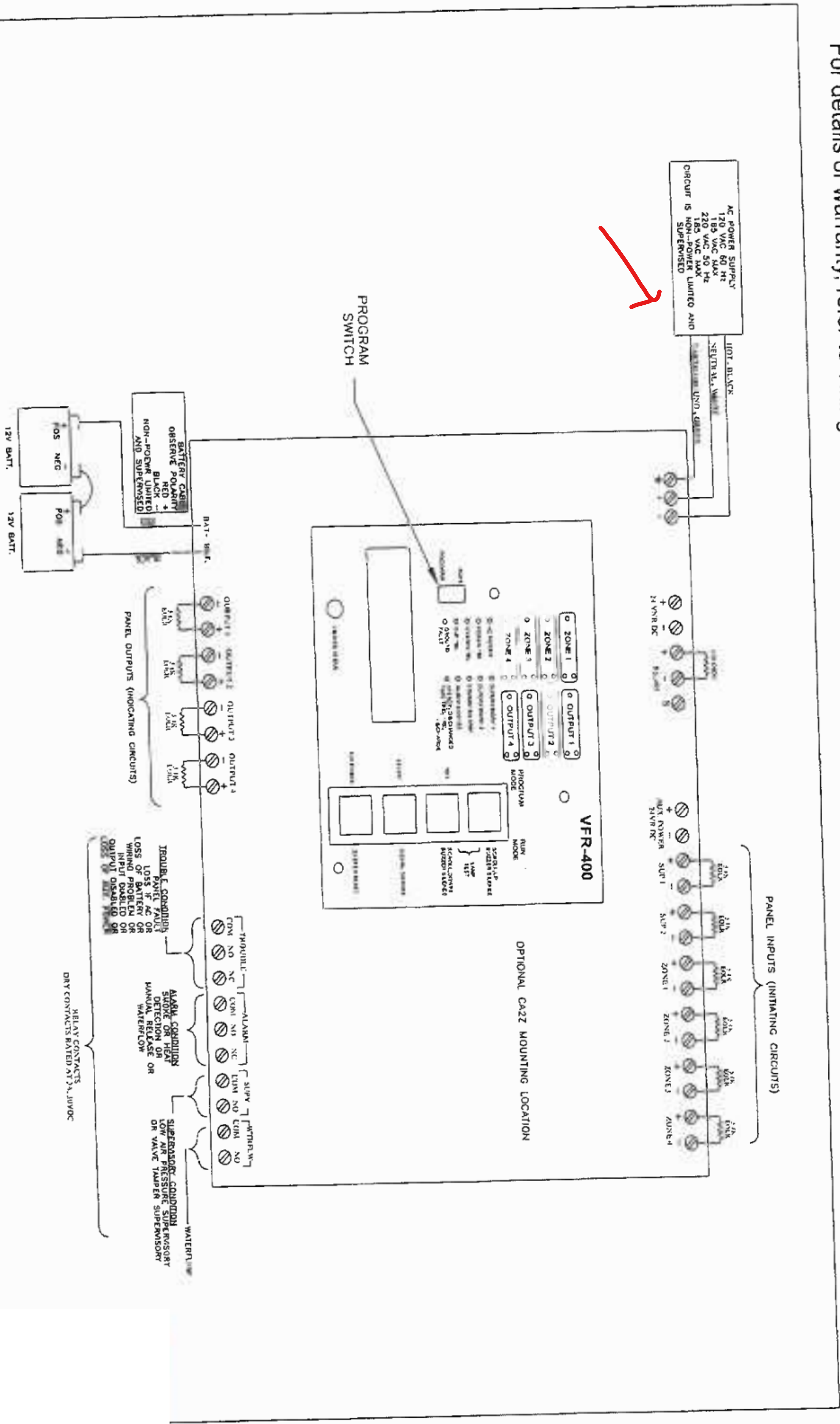


Figure 1 - Inside Panel Assembly

Table 1 - Replacement Parts

ITEM NO.	PART NUMBER	DESCRIPTION	NO. REQ'D.	NOTES
1	14153	Mother Board Assembly	1	Included
2	14163	5.1 KΩ End of Line Resistor	10	Included
Not Shown	14162	End of Line Diode Assembly	2	Included
	07920	12 VDC 8 Amp Battery	2	
	07921	12 VDC 12 Amp Battery	2	
3	09867	12 VDC 18 Amp Battery	2	Two Batteries Required

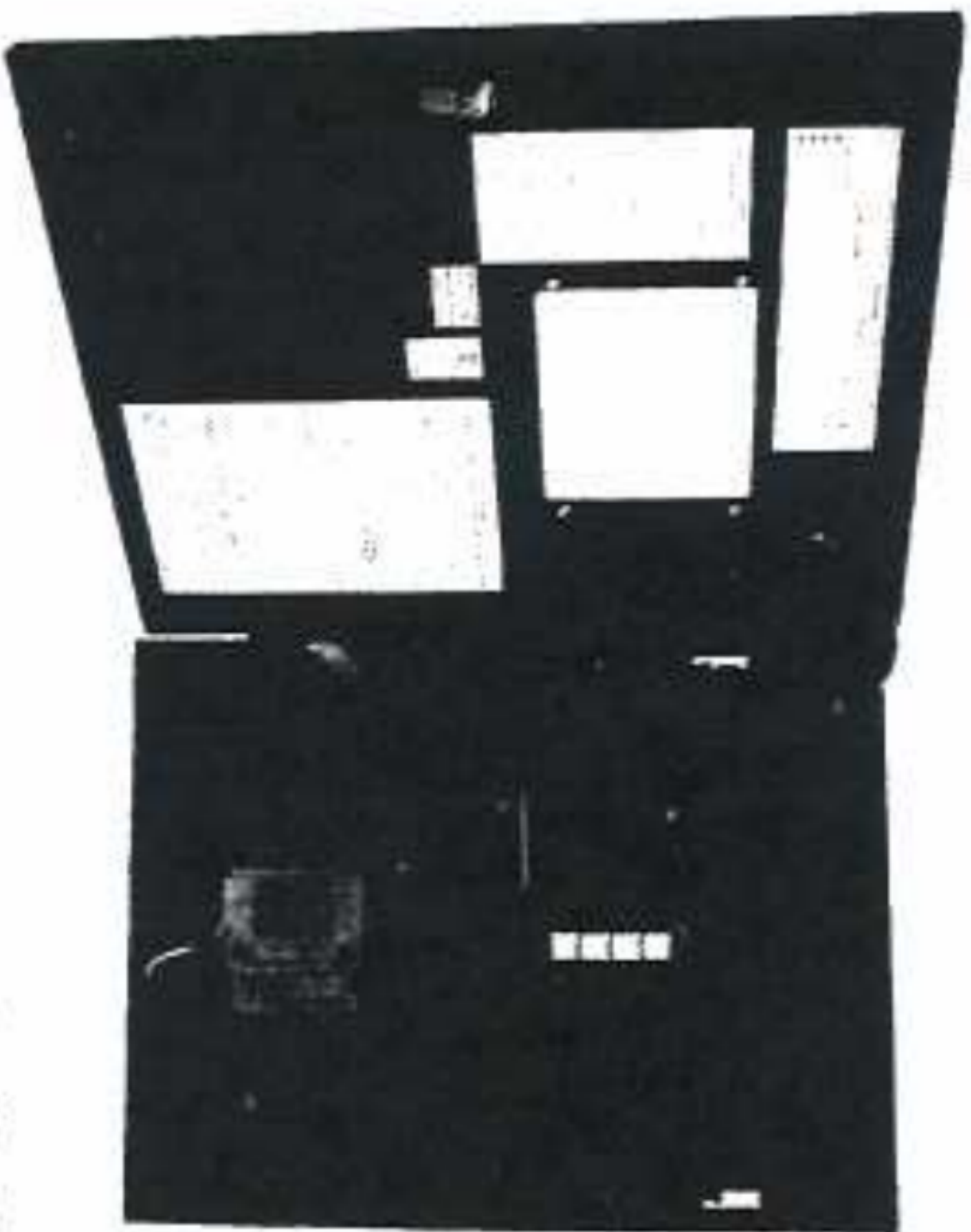




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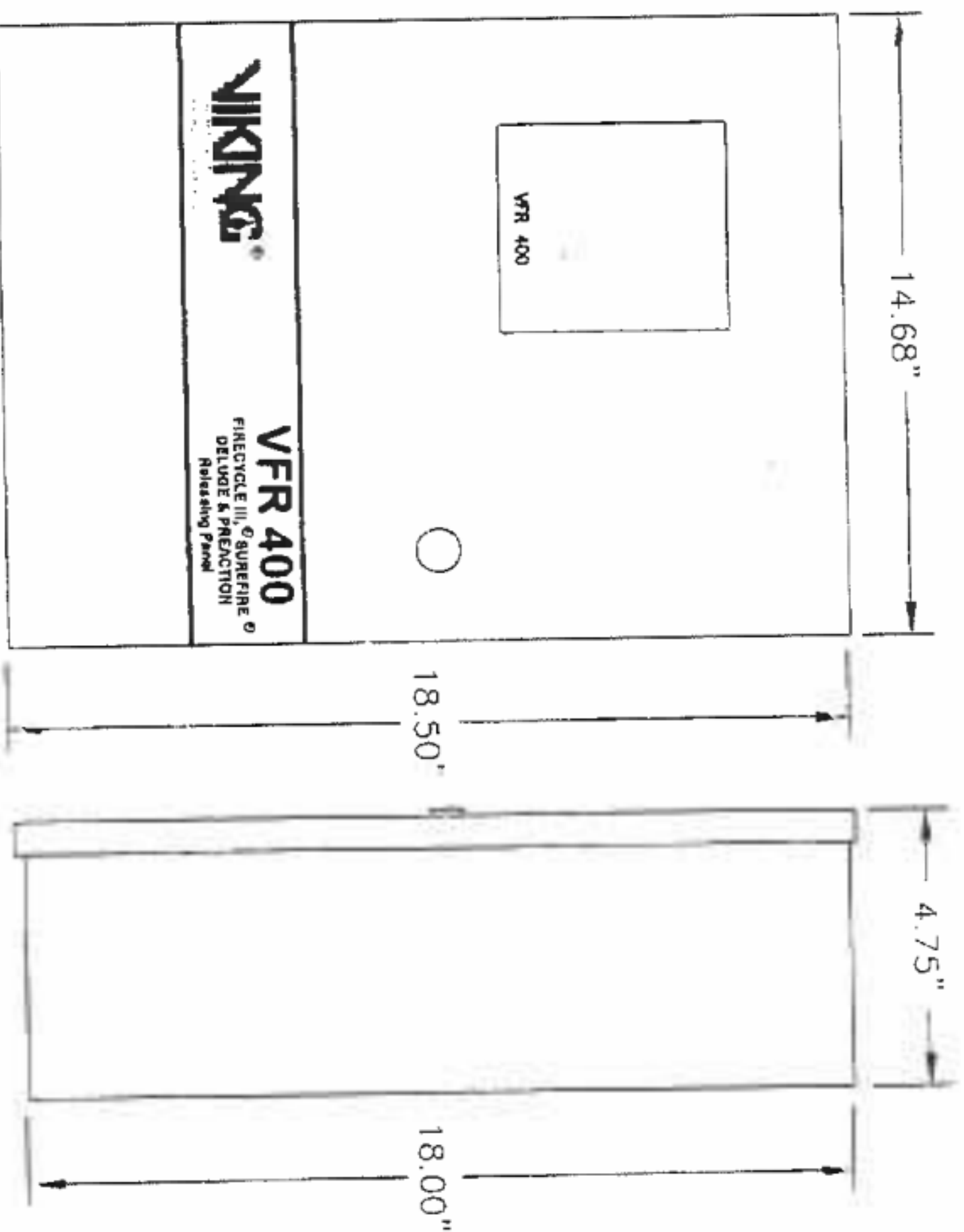
MULTI-HAZARD  
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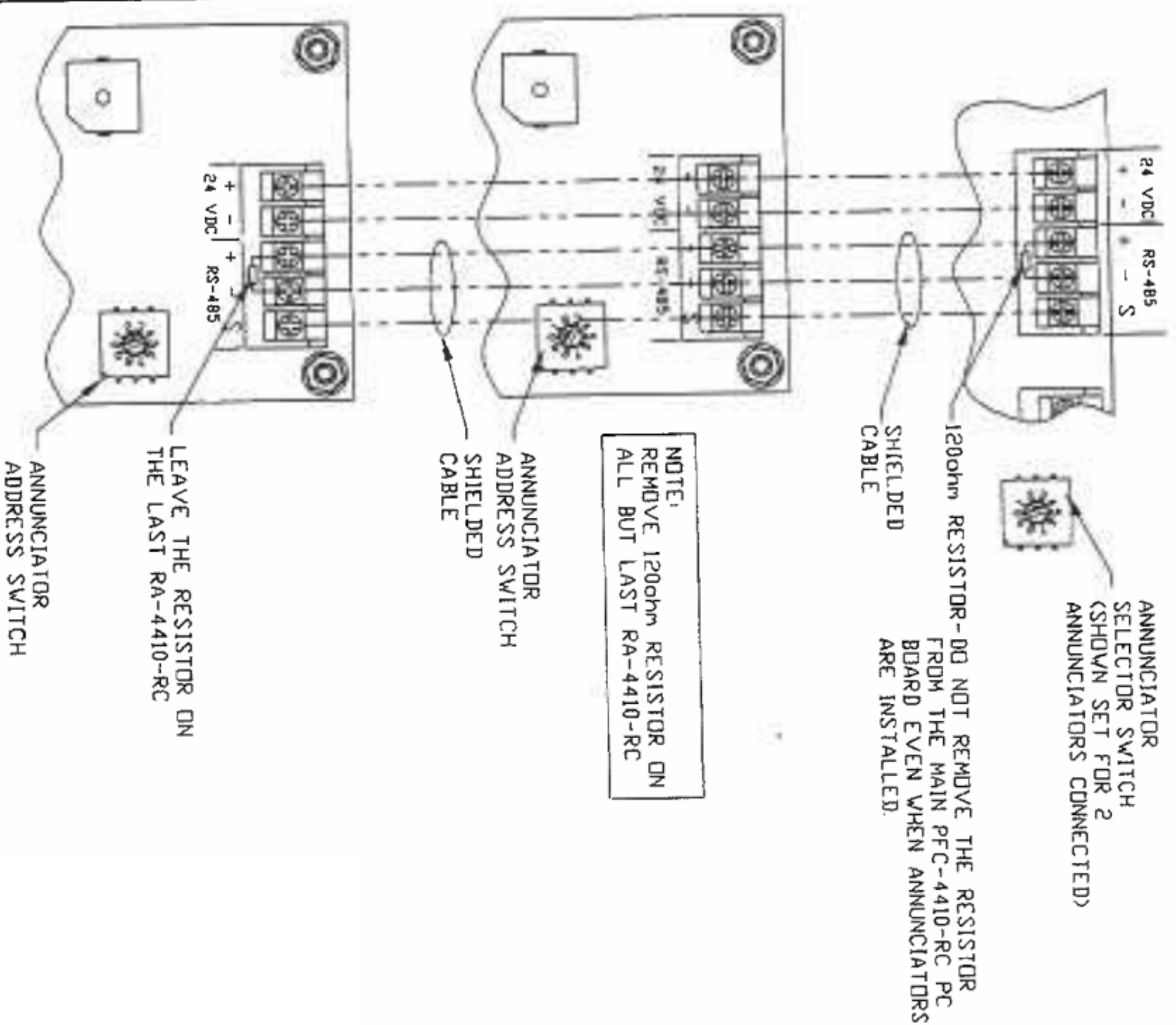


Inside Panel Assembly

Figure 2



VFR400 Dimensions  
Figure 3



RA-4410-RC (Remote Annunciator )  
Viking Part Number 14154  
Figure 4

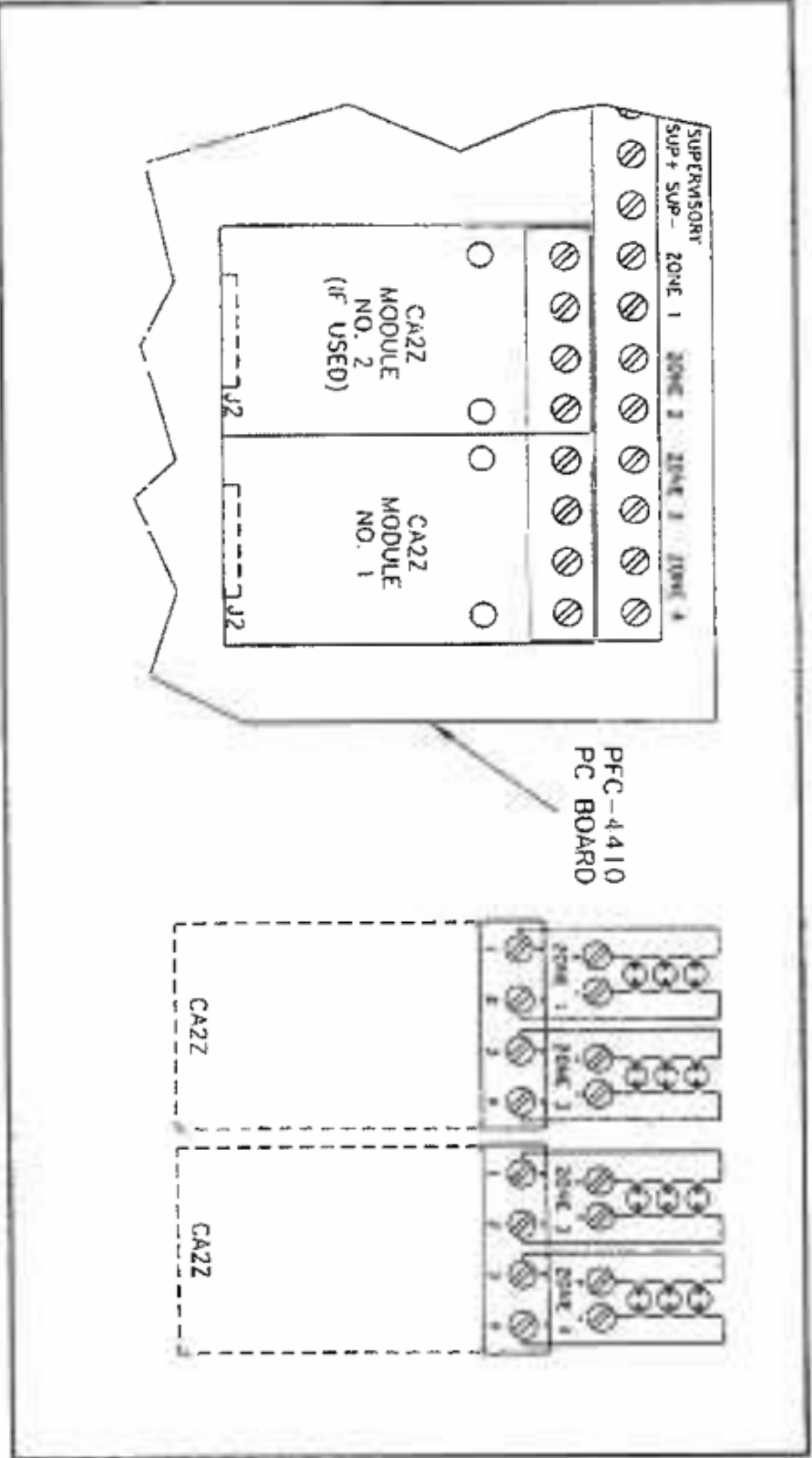




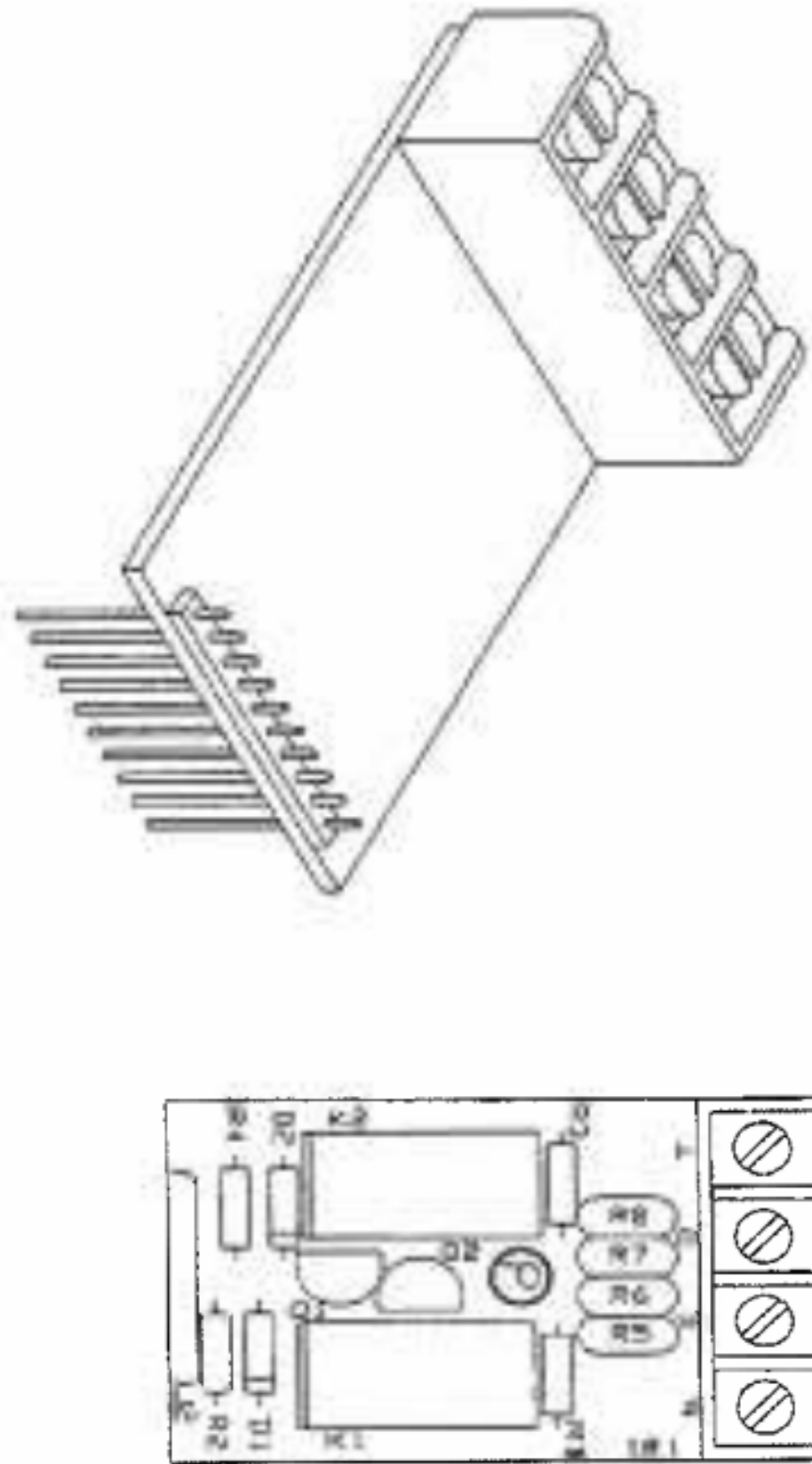
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RELEASE CONTROL PANEL  
MODEL VFR400

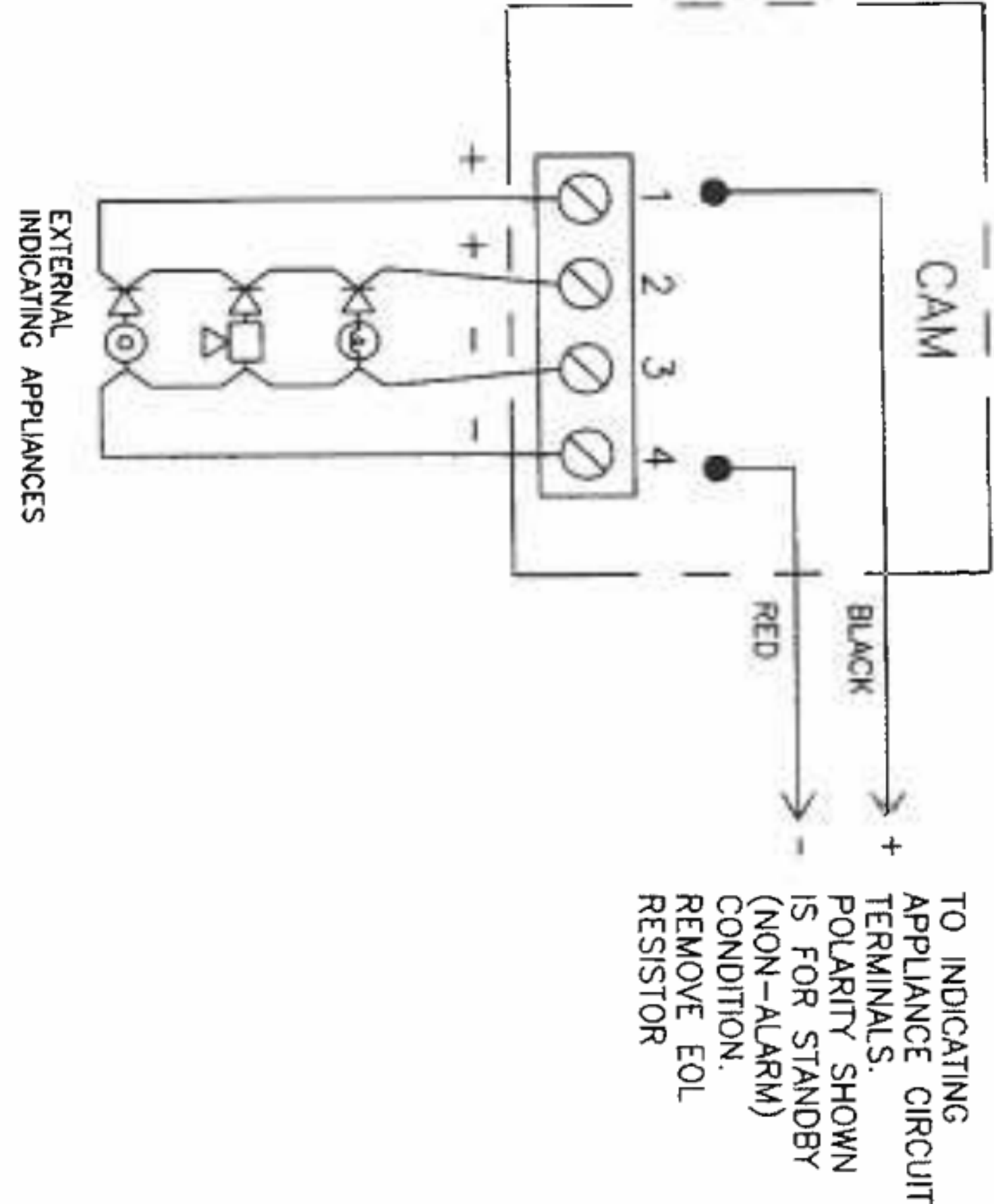
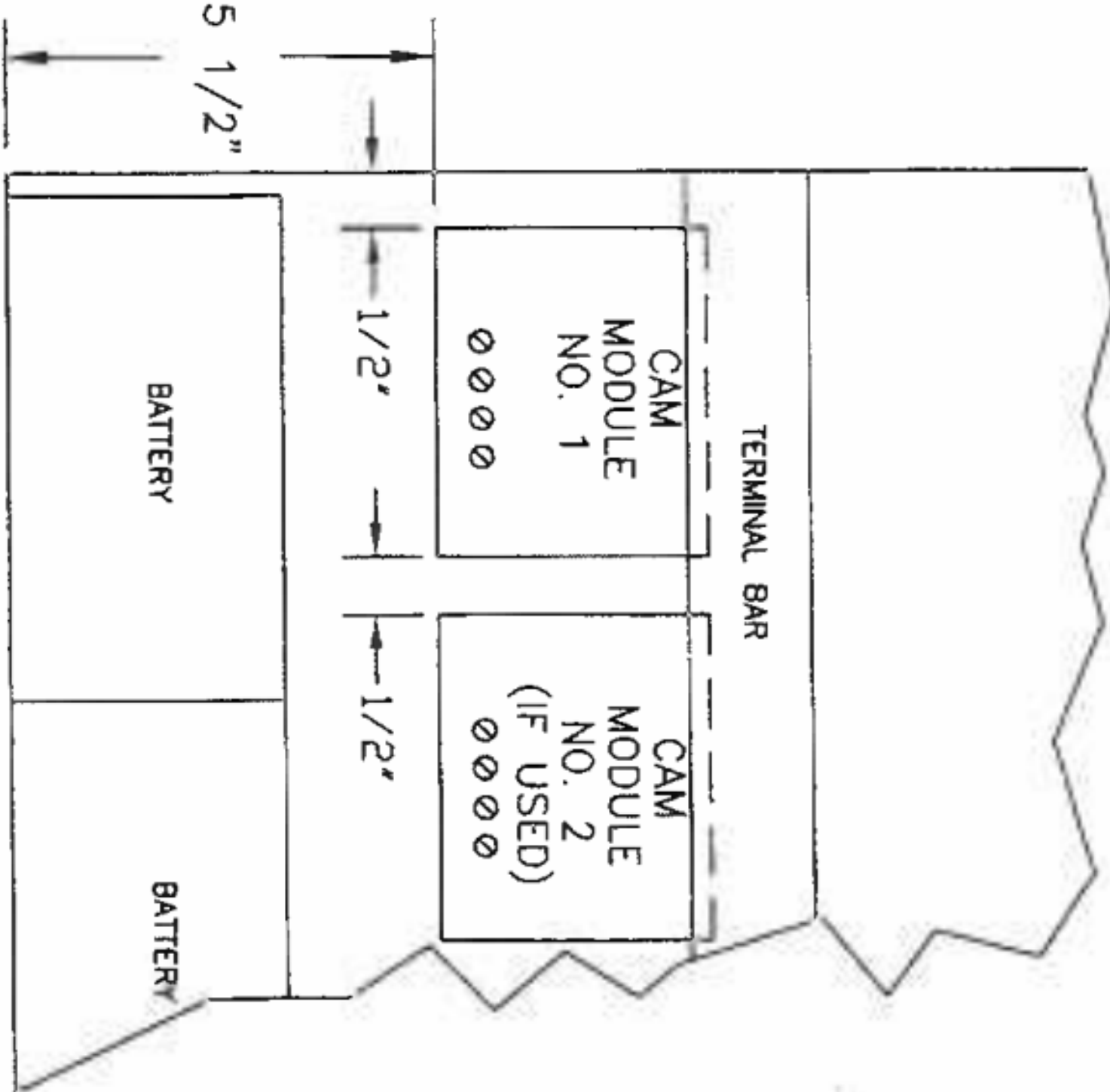
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CA22 Module (Class A Initiating Device Circuit)  
Viking Part Number 14155  
Figure 5



CAM2 Module (Class A Initiating Appliance Circuit)  
Viking Part Number 14156  
Figure 6



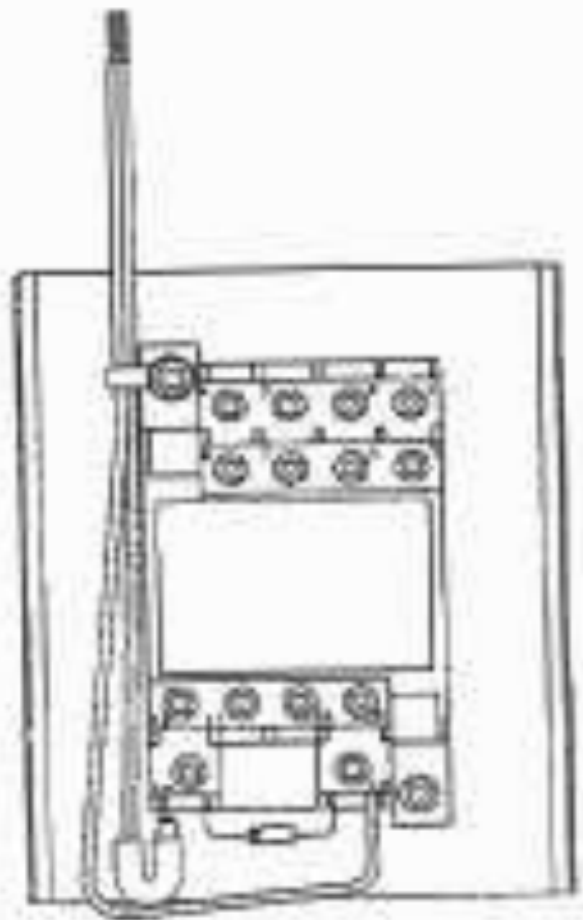
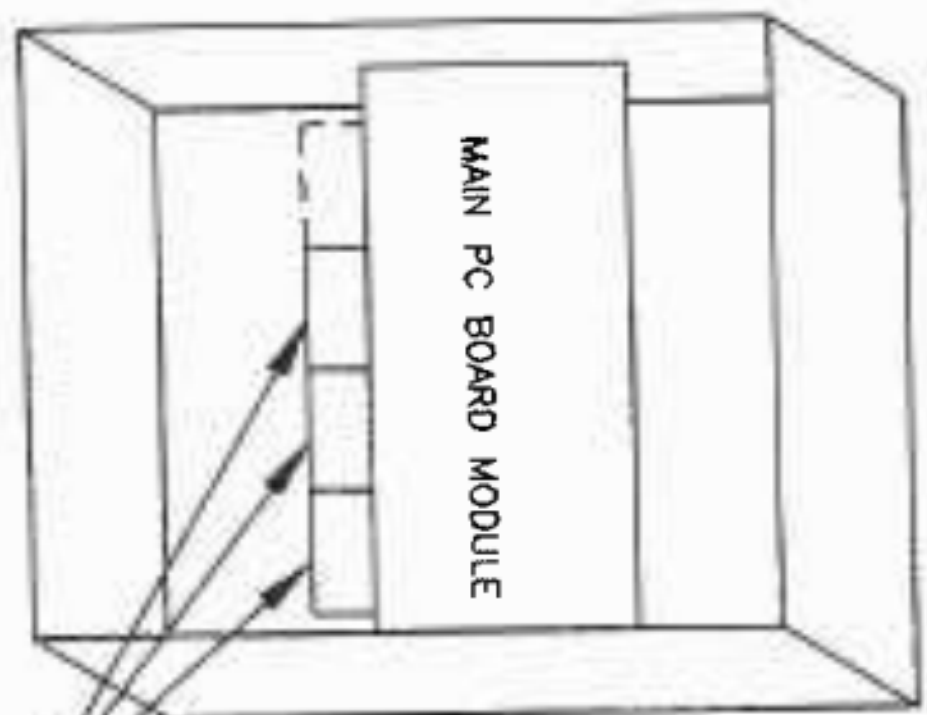
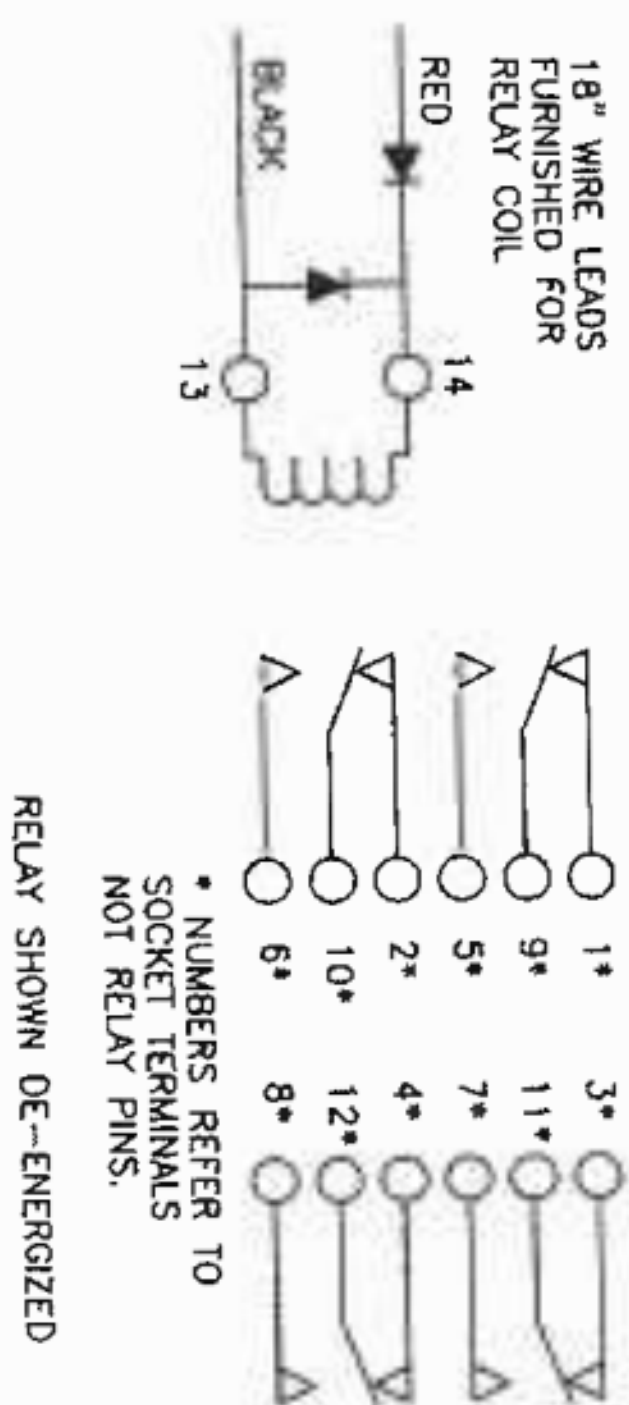




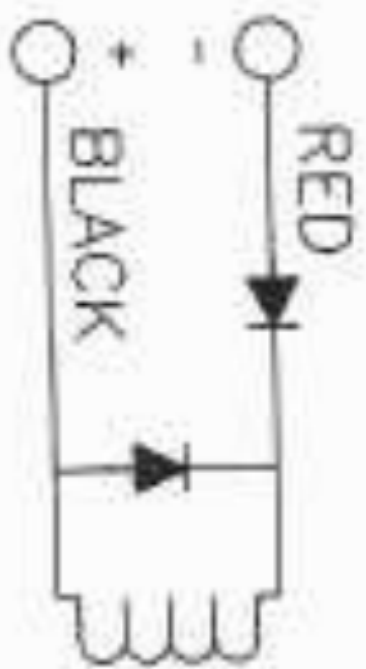
TECHNICAL DATA

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RELEASE CONTROL PANEL  
MODEL VFR400

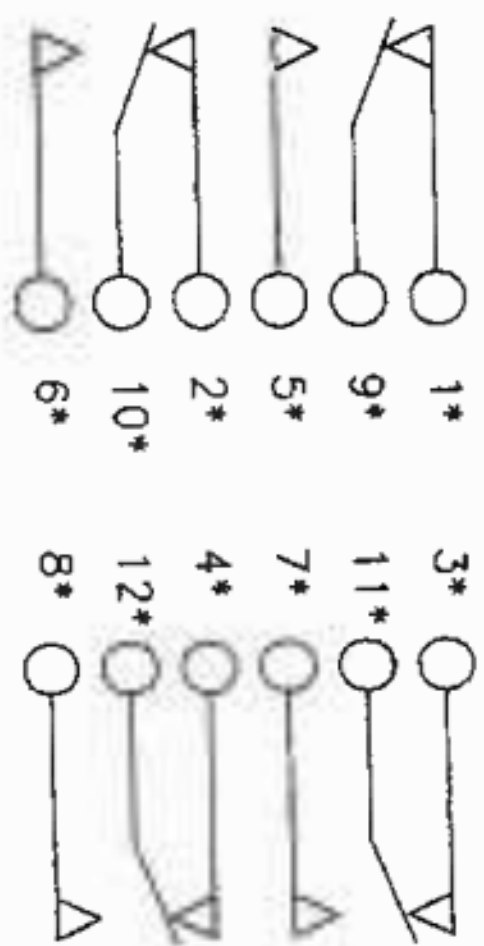
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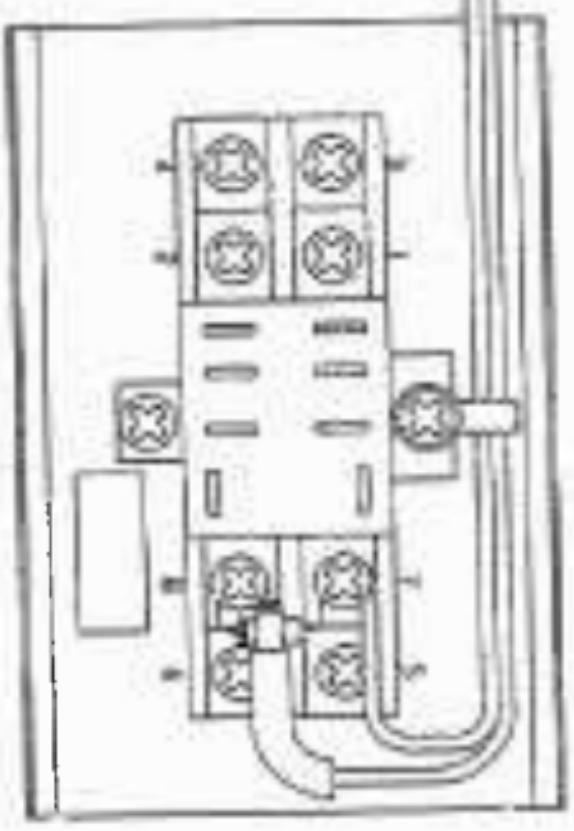
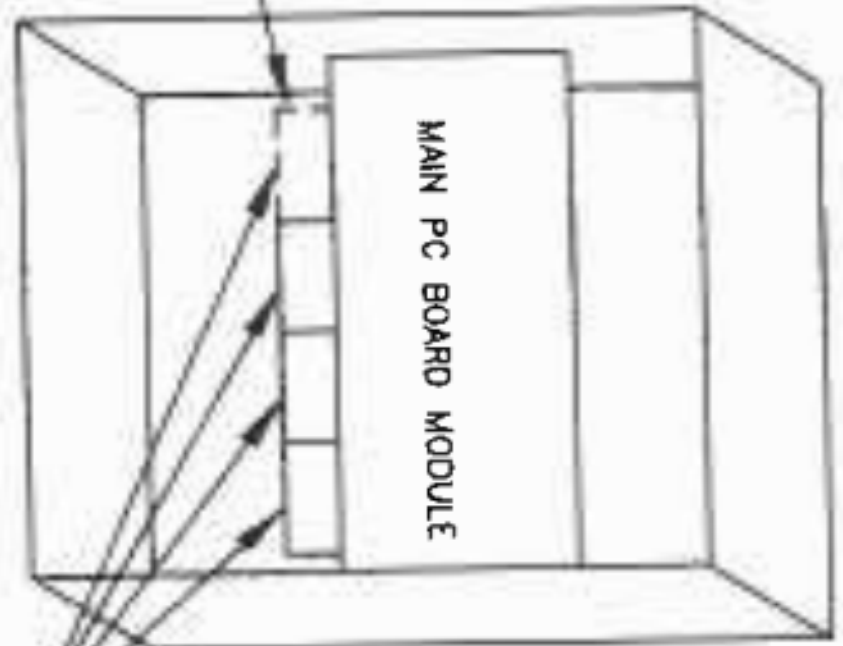
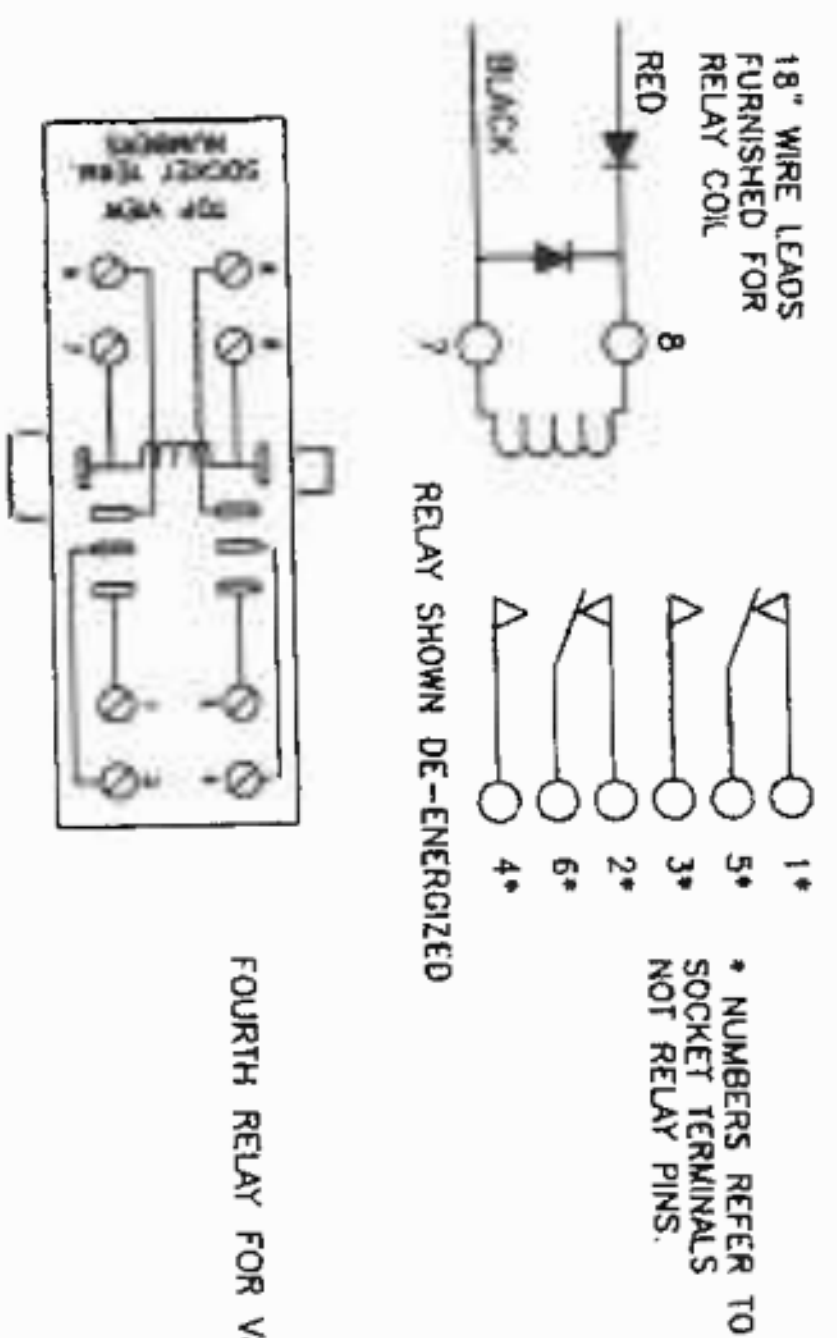
CONNECT ARM-1  
TO OUTPUT CIRCUIT



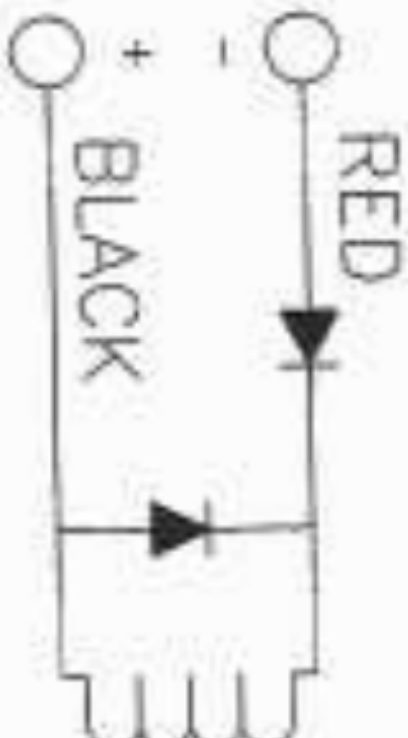
VFR400 - OUTPUT TERMINALS



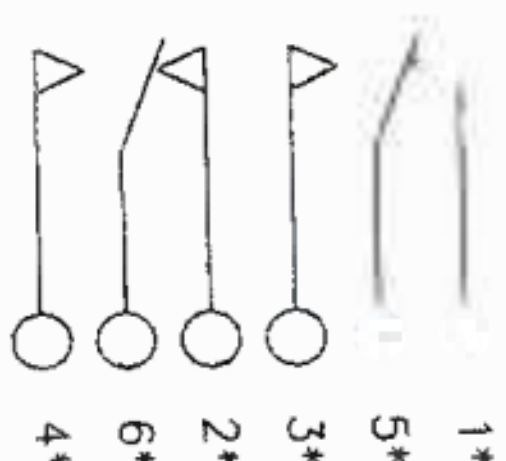
ARM-1 Module (Auxiliary Relay Module)  
Viking Part Number 14157  
Figure 7



CONNECT ARM-2  
TO OUTPUT CIRCUIT



VFR400 - OUTPUT TERMINALS



ARM-2 Module (Auxiliary Relay Module)  
Viking Part Number 14158  
Figure 8

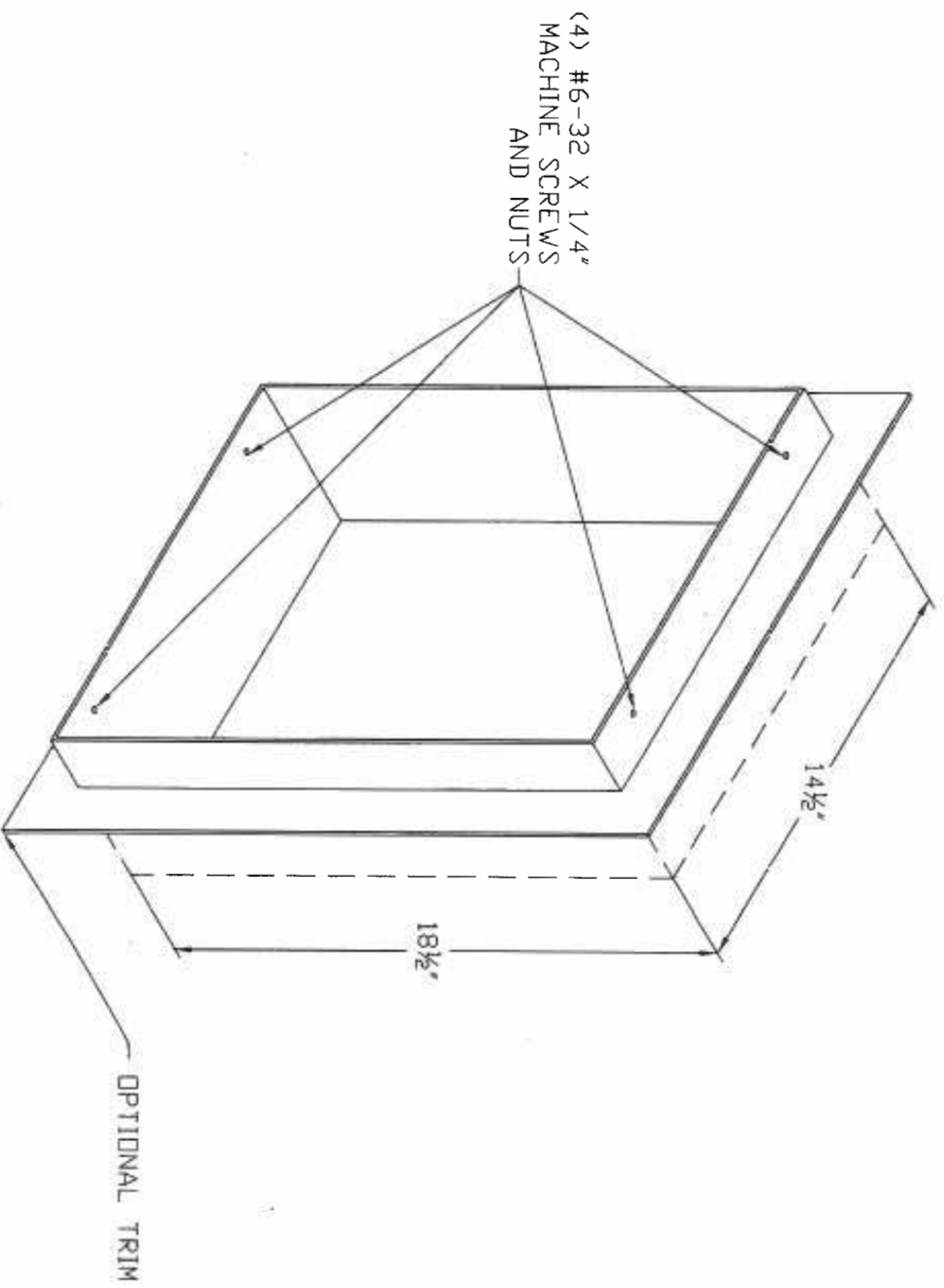




## TECHNICAL DATA

MULTI-HAZARD  
RELEASE CONTROL PANEL  
MODEL VFR400 

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058  
Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com



Trim Bezel for Panel  
Viking Part Number 14177  
Figure 9