

## MCPE Applications:



M56 GPFU on AN-TSQ73  
"Missile Minder"



M93 GPFU with  
100 CFM M48A1 Filter



M10 PE and platform  
on TACFIRE Shelter

## Ordering Data:

### Gas-Particulate Filter Units:

Filter Unit, Gas-Particulate, 100 CFM, M93 .....	4240-01-231-6515
Filter Unit, Gas-Particulate, 200 CFM, M56 .....	4240-00-237-0227
Filter Unit, Gas-Particulate, 200 CFM, M84 .....	4240-01-149-1719
Filter Unit, Gas-Particulate, 200 CFM, M95 .....	4240-01-274-6355
Filter Unit, Gas-Particulate, 400 CFM, M59 .....	4240-00-237-0223
Filter Unit, Gas-Particulate, 400 CFM, M87 .....	4240-01-192-7234
Filter Unit, Gas-Particulate, 400 CFM, M96 .....	4240-01-274-6356
Gas-Particulate Filter, 100 CFM, M48A1 .....	4240-01-363-1311
Gas-Particulate Filter Set, 200 CFM, M98 .....	4240-01-369-6533

### Protective Entrances:

Protective Entrance, Pressurized, M10 .....	4240-00-229-2610
Protective Entrance, Pressurized, M12 .....	4240-01-048-2923
Protective Entrance, Pressurized, M13 .....	4240-01-155-9971
Protective Entrance, Pressurized, M14 .....	4240-01-105-5521
Protective Entrance, Pressurized, M15 .....	4240-01-185-6786
Protective Entrance, Pressurized, M16 .....	4240-01-240-4367
Protective Entrance, Pressurized, M18 .....	4240-01-283-0193
Protective Entrance, Pressurized, M19 .....	4240-01-283-0192
Protective Entrance, Pressurized, M20 .....	4240-01-283-0194

### Electronic Modules:

Compartment Control Module .....	4240-01-057-3378
Power Distribution Unit .....	4240-01-068-8645
Control Module, GPFU .....	4240-01-158-5904
System Control Module .....	4240-01-234-2266
Static Frequency Converter .....	4240-00-394-9571

### Installation Kits:

Installation Kit, M262 (TACFIRE) .....	4240-01063-4655
Installation Kit, M263 (MISSILE MINDER) .....	4240-01-063-7679
Installation Kit, M265 (PATRIOT) .....	4240-01-110-7617
Installation Kit, M277 (TACFIRE UCE) .....	4240-01-186-8423

Contact Item Manager for availability and current pricing information.

## For Additional Information, Contact:

Item Manager: Soldier, Biological and Chemical Command  
Attn: AMSSB-HB (RI), Rock Island, IL 61299-7390  
Phone: (309) 782-4265 or (309) 782-5455

Material Developer: Edgewood Chemical Biological Center  
Attn: AMSSB-REN-P, APG, MD 21010-5424  
Phone: (410) 436-5682 or (410) 436-5512

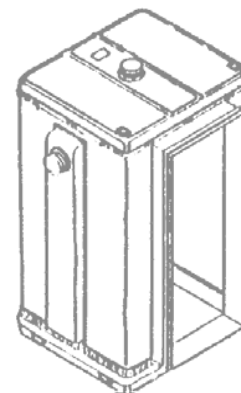
### Or Email:

colproteam@sbccom.apgea.army.mil

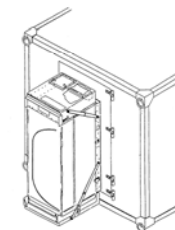


**SBCCOM**  
U.S. Army Soldier and Biological Chemical Command  
Aberdeen Proving Ground, Maryland 21010-5424

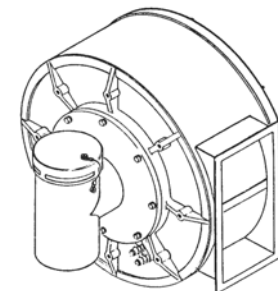
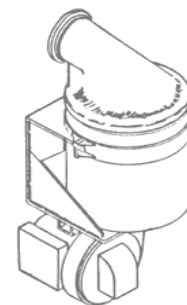
# Modular Collective Protection Equipment (MCPE)



Protective Entrances



Gas-Particulate Filter Units



Family of  
NBC Equipment for  
Shelters and Enclosures

## MCPE System Elements:

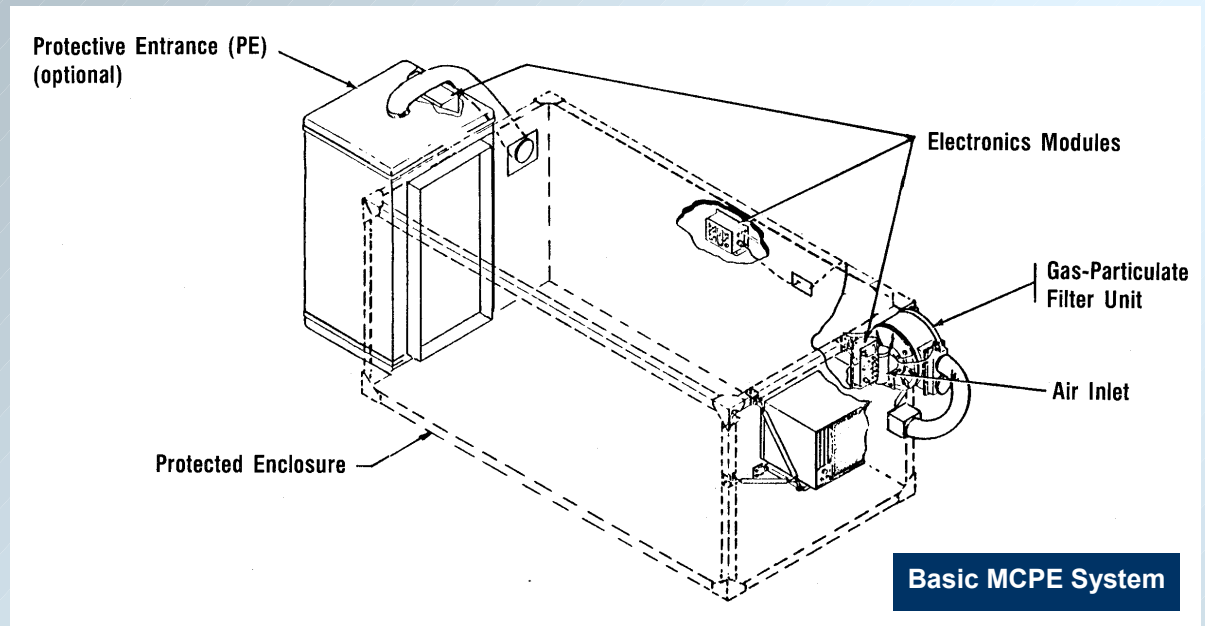
**Enclosure.** Since fully equipped vans and shelters are not air-tight, protection against intrusion of contaminants is ensured by maintaining enclosure pressure above that of the surrounding atmosphere using clean, filtered air to meet all ventilation and equipment cooling requirements, to provide make-up air for environmental control units and enclosure leakage.

**Gas-Particulate Filter Unit (GPFU).** A GPFU is the source of clean air for the protected enclosure. The filter unit houses a blower that routes incoming air through the first-stage particulate filter and second-stage gas filter, and provides pressurization of the enclosure. MCPE has a 100 CFM capacity GPFU that uses the 100 CFM M48A1 Gas-Particulate Filter, as well as 200 CFM and 400 CFM GPFUs that use the 200 CFM M98 Gas-Particulate Filter Set

**Protective Entrance (PE).** A PE, when used, provides a pressurized transition area between the protected enclosure and the surrounding contaminated atmosphere. It allows the shelter pressure to be maintained during entry and exit of the protected enclosure and while individual decontamination procedures are being performed. The PE operates at a lower pressure than the main enclosure to guard against unwanted flow of air back into the main enclosure. MCPE PEs are collapsible for compact stowing, and are available in both "integral" and "detachable" versions. Integral PEs can be deployed either inside or outside of the enclosure. Adapters allow detachable PEs to interface with a variety of enclosure doors.

**Electronic Modules.** Electronics modules regulate the supply of ac and dc power to the MCPE system, and provide control and warning functions for the enclosure and PE. A control module located inside the protected enclosure, uses an ambient pressure reference to sense enclosure pressure, provide indications of MCPE system status for the crew, and activate visual and audible warnings in the event of low enclosure pressure or loss of power. In most applications, the control module provides signals to electronic

## MCPE Application Considerations:



- **Personnel Ventilation.** A GPFU must have sufficient capacity to provide 100 percent of the required ventilation air for personnel operating in the enclosure.
- **Enclosure Leakage.** Air leakage must be minimized in order to reduce the GPFU airflow requirement. Special attention should be paid to obvious leakage points, air conditioning units and fuel-burning heaters.
- **Equipment Ventilation.** Equipment cooling has a major impact on overall heat load, enclosure leakage, complex sealing, pressure reference and decontamination. Using filtered, conditioned air from the enclosure is preferred.
- **Protective Entrance Airflow.** Airflow can be provided either directly from the GPFU (through ducting) or from the pressurized enclosure.
- **Air Conditioning.** Temperature rise from air flowing through the GPFU increases overall shelter heat load. Also, air conditioner interface points must be sealed to minimize the loss of conditioned air and ensure that contaminants cannot enter the system at low pressure
- **Electrical Interfaces.** Power for MCPE may be provided from either an internal circuit panel or an external power source.
- **Mounting Locations.** Weight, volume and access requirements of the GPFU are key when selecting mounting locations. Shelter mounting is preferred.
- **Electronics Module.** The control module inside the protected enclosure is located for easy access and maximum visibility of indicators and warnings. Other electronics modules may be located inside or outside the enclosure.
- **Nuclear Hardening.** The GPFU can withstand the nuclear environment with proper modifications.
- **Ducting.** Either flexible or rigid, low-profile ducting can be used.
- **Noise.** The operating GPFU and resulting airflow may be sources of noise. The impact of MCPE on total system noise level inside the protected enclosure depends on the baseline noise level of