DEPARTMENT OF THE ARMY TECHNICAL MANUAL

ORGANIZATIONAL MAINTENANCE MANUAL FILTER UNIT, GAS-PARTICULATE, GED, 300 CFM, ABC-M6A1 AND EMD, 300 CFM, ABC-M6A1 (END ITEM CODE 567)

This copy is a reprint which includes current pages from Changes 1 through 3.

HEADQUARTERS, DEPARTMENT OF THE ARMY
MAY 1965

SAFETY PRECAUTIONS

Do not use the ABC-M6AI filter as a ventilating system. The ABC-M6A1 filter unit is not equipped with a bypass mechanism. Such operation will shorten the life of the filters and subsequently endanger human life.

Exercise extreme care in handling leaded gasoline. Accidental spilling on exposed areas of the body may cause severe skin irritation, and in the case of gasoline entering an open cut, lead poisoning may result. If gasoline is spilled on body, wash off with soap and water immediately.

Exercise caution when placing the electric motor driven filter unit in operation. Insure that the equipment is properly grounded. Avoid operating the electric motor in outside operation unless motor and unit. are properly shielded against adverse weather conditions. Loss of life can result if the motor and unit are not properly grounded.

If the serviceability of the canister is questionable, report to direct support maintenance personnel.

For inside installation, it is essential that the blower does not force air through the canister. The blower creates a pressure which will cause contaminated air to seep from canister into the CBR protective shelter.

For outside operation, it is essential that the blower does not pull air through the canister. The blower creates a vacuum which will cause contaminated air to leak into the canister and be forced into the CBR protective shelter.

The unit commander or senior officer in charge of the maintenance personnel assigned to remove and dispose of the contaminated gas filter must prescribe the necessary protective clothing to be worn during this operation. He should also prescribe the necessary safety measures that must be followed, including the decontamination operation that must be performed before the new gas filters are installed in the canister (TM 8-220).

Do not place exhaust tubing and air inlet hose in the same vent opening since exhaust gases containing carbon monoxide may be drawn into air inlet hose.

Changes in force: C1, C2, and C3

CHANGE

NO. 3

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, 21 May 1990

Operator's and Organizational Maintenance Manual FOR FILTER UNIT, GAS-PARTICULATE: GED, 300 CFM, ABC-M6A1 AND EMD, 300 CFM, ABC-M6A1

TM 3-4240-241-12, 4 May 1965 is changed as follows:

1. The purpose of this change is to update guidance for disposal, handling, and storage of filters.

2. Inside front cover, paragraph 7 is superseded as follows:

The unit commander or senior officer in charge of maintenance personnel assigned to remove the contaminated gas and particulate filters must prescribe the necessary protective clothing (TM 10-277) to be worn during this operation. He must also prescribe the necessary safety measures to be followed including the NBC decontamination (FM 3-5). This must be performed before the new filters are installed. Failure to wear protective clothing or follow safety measures may result in injury or death.

3. Inside front cover additional information is added to the bottom of the page as follows:

HEALTH/ENVIRONMENTAL HAZARD

Filters use ASC Whetlerite Carbon which contains Chromium VI. Chromium VI is a known carcinogen if inhaled or swallowed. Damaged or unusable filters are classified as hazardous waste:

DO NOT throw away damaged or unusable filters as ordinary trash.

DO turn in damaged or unusable filters to your hazardous waste management office or Defense Reutilization and Marketing Office (DRMO).

Filters are completely safe to handle and use if they are not damaged in such a way that carbon leaks from them. In unlikely event that carbon should leak, use protection such as a dust respirator to cover nose and mouth and put carbon in container such as self-sealing plastic bag; turn in to hazardous waste management office or DRMO.

Disposal of hazardous waste is restricted by the Resource Conservation and Recovery Act as amended (42 U.S.C.A sec 6901 et seq). Violation of these laws is subject to severe criminal penalties.

4. Page 32, para 68 Tests, warning after para c is superseded and new warning placed before para a as follows:

WARNING

DO NOT throw away damaged or unusable filters as ordinary trash.

DO turn in damaged or unusable filters to your hazardous waste management office or Defense Reutilization and Marketing Office (DRMO).

The unit commander or senior officer in charge of maintenance personnel assigned to remove the contaminated gas and particulate filters must prescribe the necessary protective clothing (TM 10-277) to be worn during this operation. He must also prescribe the necessary safety measures to be followed including the NBC decontamination (FM 3-5). This must be performed before the new filters are installed. Failure to wear protective clothing or follow safety measures may result in injury or death.

5. Page 41, add the following references:

TM 10-277	Chemical Toxicological and Missile Fuel Handlers Protective Clothing
FM 3-5	NBC Decontamination

File this sheet in front of the publication for reference purposes.

BY ORDER OF THE SECRETARY OF THE ARMY:

CARL E. VUONO
General, United States Army
Chief of Staff

Official:

WILLIAM J. MEEHAN II
Brigadier General, United States Army
The Adjutant General

Distribution:

To be distributed, in accordance with DA Form 12-28 (block 265), maintenance requirements for TM 3-4240-241-12.

Changes in force: C 1 and C 2

Change

HEADQUARTERS
DEPARTMENT OF THE ARMY
No. 2Washington, DC *7June 1972*

Operator's and Organizational Maintenance Manual
FOR
FILTER UNIT, GAS-PARTICULATE: GED, 300 CFM, ABC-M6A1
AND
EMD, 300 CFM, ABC-M6A1

TM 3-4240-24-12, 4 May 1965, is changed as follows:
Title is changed as shown above.
Inside front cover. "SAFETY PRECAUTIONS" is changed to read "WARNINGS."
So much of this manual as reads "TM 3-350" is changed to read "TM 3-221."
Page 41, APPENDIX I. Delete TM 3-350.

By Order of the Secretary of the Army:

W. C. WESTMORELAND,
General, United States Army.
Chief of Staff

Official:

VERNE L. BOWERS,
Major General. United States A rpm !,
The Adjutant General.

Distribution:

To be distributed in accordance with DA Form 12-28, Section I (qty rqr block no. 30). Organizational Maintenance requirements for Fixed Installation, Collective Protection Equipment.

Change No. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D. C. 4 *February 1972*

Organizational Maintenance Manual
FILTER UNIT, GAS-PARTICULATE, GED, 300 CFM, ABC-M6A1
AND
EMD, 300 CFM, ABC-M6A1 (END ITEM CODE 567)

TM 3-4240-241-12, 4 May 1965, is changed as follows:

Page 2, paragraph 3c is superseded as follows:

c. The reporting of errors, omissions, and recommendations for improving this publication by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to Publications) and forwarded direct to: Commanding Officer, Edgewood Arsenal, ATTN: SMUEA-DE-ET,

Edgewood Arsenal, MD 21010.

Page 32. Add the following note after paragraph number and title "68. Tests:"

NOTE
Refer to TM 3-221 for information on airflow and pressure measurement devices.

Page 41. Add the following reference:

TM 3-221 Field CBR Collective Protection

Pages 45 and 46, appendix III. Appendix is superseded as follows:

APPENDIX III
BASIC ISSUE ITEMS LIST AND ITEMS TROOP INSTALLED OR AUTHORIZED LIST

Section I. INTRODUCTION

1. Scope

This appendix lists basic issue items and items troop installed or authorized required by the crew or operator for operation of the ABC-M6AI GED and EMD filter units.

2. General

This basic issue items and items troop installed or authorized list is divided into the following sections:

a. Basic Issue Items List-Section II. Not applicable.

b. Items Troop Installed or Authorized List-Section III. A list, in alphabetical sequence, of items which-at the discretion of the unit commander-may accompany the end item, but are not subject to be turned in with the end item.

3. Explanation of Columns

The following provides an explanation of columns found in the tabular listings.

a. Source, Maintenance, and Recoverability Codes (SMR).

(1) Source code. Indicates the source for the listed items. Source codes are:

Code	*Explanation*
P	Repair Parts, Special Tools and Test Equipment supplied from the GSA/DSA, or Army supply system, and authorized for use at indicated maintenance categories.
P2	Repair Parts, Special Tools and Test Equipment which are procured and stocked for insurance purposes because the combat or military essentially of the end item dictates that a minimum quantity be available in the supply system.
P9	Assigned to items which are NSA design controlled: unique repair parts, special tools, test, measuring and diagnostic equipment, which are stocked and supplied by the Army COMSEC Logistic System and which are not subject to the provisions of AR 380-41.
P10	Assigned to items which are NSA design controlled: special tools, test, measuring and diagnostic equipment for COMSEC support, which are accountable under the provisions of AR 380-41, and which are stocked and supplied b' the Army COMSEC Logistic System.
M	Repair Parts. Special Tools and Test Equipment which are not procured or stocked, as such, in the supply system but are to be manufactured at indicated maintenance levels.
A	Assemblies which are not procured or stocked as such, but are made up of two or more units. Such component units carry individual stock numbers and descriptions, are procured and stocked separately and can be assembled to form the required assembly at indicated maintenance categories.
X	Parts and assemblies that are not procured or stocked because the failure rate is normally below that of the applicable end item of component. The failure of such part or assembly should result in retirement of the end item from the supply system.
X1	Repair Parts which are not procured or stocked. The requirement for such items will be filled by the next higher assembly or component.
X2	Repair Parts, Special Tools, and Test Equipment which are not stocked and have no foreseen mortality. The indicated maintenance category requiring such repair parts will attempt to obtain the parts through cannibalization or salvage. The item may be requisitioned with exception data, from the end item manager, for immediate use.
G	Major assemblies that are procured with PEMA funds for initial issue only as exchange assemblies at DS and GS level. These assemblies will not be stocked above the DS and GS level or returned to depot supply level.

NOTE

Cannibalization or salvage may be used as a source of supply for any items source coded above except those coded XI and air- craft support items as restricted by AR 700-42.

(2) Maintenance code. Indicates the' lowest category of maintenance authorized to install the repair part and/or use the special tool or test equipment for each application. Capabilities of higher maintenance categories are considered equal or better. Maintenance codes are:

Code	*Explanation*
C	Crew /operator maintenance
O	Organizational maintenance

(3) Recoverability code. Indicates whether unserviceable items should be returned for recovery or salvage. Items not coded are nonrecoverable. Recoverability codes are:

Code	*Explanation*
R	Applied to repair parts, (assemblies and components) special tools and test equipment which are considered economically reparable at direct and general support maintenance levels. When the item is no longer economically reparable, it is normally disposed of at the GS level. When supply considerations dictate, some of these repair parts may be listed for automatic return to supply for depot level repair as set forth in AR 710- 50. When so listed, they will be replaced by supply on an exchange basis.
S	Repair Parts, Special Tools, Test Equipment and assemblies which are economically reparable at DSU and GSU activities and which normally are furnished by supply on an exchange basis. When items are deter- mined by a GSU to be uneconomically reparable, they will be evacuated to a depot for evaluation and analysis before final disposition.
T	Higher dollar value recoverable repair parts, special tools and test equipment which are subject to special handling and are issued on an exchange basis. Such items will be repaired or overhauled at depot maintenance activities only. No repair may be accomplished at a lower levels.
U	Repair Parts, Special Tools and Test Equipment specifically selected for salvage by reclamation units be- cause of precious metal content, critical materials, high dollar value or reusable casings or castings.

b. Federal Stock Number. Indicates the Federal stock number assigned to the item and will be used for requisitioning purposes.

c. Description. Indicates the Federal item name and a minimum description required to identify the item. The last line indicates reference number followed by the applicable Federal supply code for manufacturer (FSCM) in parentheses. The FSCM is used as an element in item identification to designate manufacturer or distributor or Government agency; etc., and is identified in SB 708-42.

d. Unit of Measure (U/M). Indicates the standard

or basic quantity by which the listed item is used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation; e.g., ea, in., pr; etc., and is the basis used to indicate quantities and allowances in subsequent columns. When the unit of measure differs from the unit of issue, the lowest unit of issue that will satisfy the required units of measure will be requisitioned.

e. Quantity Authorized. Indicates the quantity of the item authorized to be used with the equipment.

4. Abbreviations

Abbreviations	***Explanation***
EMD	Electric motor driven
GED	Gasoline engine driven

Section III. ITEMS TROOP INSTALLED OR AUTHORIZED LIST

(1) SMR Code	(2) Federal Stock Number	(3) Description Ref no. & mfr Code	Usable on code	(4) Unit of Meas	(5) Qty auth
P C	7240-222-3088	CAN, GASOLINE, MILITARY steel, 5 gallon MILC1283 (81349)	GED Model	ea	1

By the Order of the Secretary of the Army:

W. C. WESTMORELAND,
General, United States Army,
Chief of Staff

Official:

VERNE L. BOWERS,
Major General, United States Army,
The Adjutant General.

Distribution:

To be distributed in accordance with DA Form 12-28, (qty rqr block No. 26) Organizational Maintenance Requirements for Collective Protection Equipment for Field.

TECHNICAL MANUAL
No. 3-4240-241-12

HEADQUARTERS
DEPARTNIENT OF THE ARMY
Washington, D.C., 4 May 1965

ORGANIZATIONAL MAINTENANCE MANUAL

FILTER UNIT, GAS-PARTICULATE, GED, 300 CFM, ABC-M6A1 AND EMD, 300 CFM, ABC-M6A1 (END ITEM CODE 567)

CHAPTER 1

INTRODUCTION

Section I. GENERAL

1. Scope

This manual is published for the operator and organizational maintenance personnel responsible for the operation and maintenance of the Filter Unit, Gas-Particulate, Gasoline Engine Driven (GED) or Electric Motor Driven (EMD), 300 CFM, ABC-M6A1. It contains operation and maintenance instructions as well as a description of the major units and their functions in relation to other components of the Filter Unit, Gas-Particulate, GED or EMD, 300 CFM, ABC-M6A1.

2. Appendixes

Appendix I contains a list of current references. Appendix II contains the maintenance allocation chart. Appendix III contains a list of basic issue items.

3. Records and Report Forms

a. General. Use the appropriate forms prescribed by TM 38-750.

b. Use DD Form 6 to report damaged or improper shipment of material.

c. The direct reporting by the individual user of errors, omissions, and recommendations for improving this manual is authorized and encouraged. DA Form 2028 will be used for reporting these improvements. This form will be completed in triplicate using pencil, pen, or typewriter. The original and one copy will be forwarded direct to: Commanding General, U.S. Army Edgewood Arsenal, ATTN: SMUEA-EIS-EM-EP, Edgewood Arsenal, MD., 21010. One information copy will be provided to the individual's immediate supervisor (e.g., officer, noncommissioned officer, supervisor, etc.).

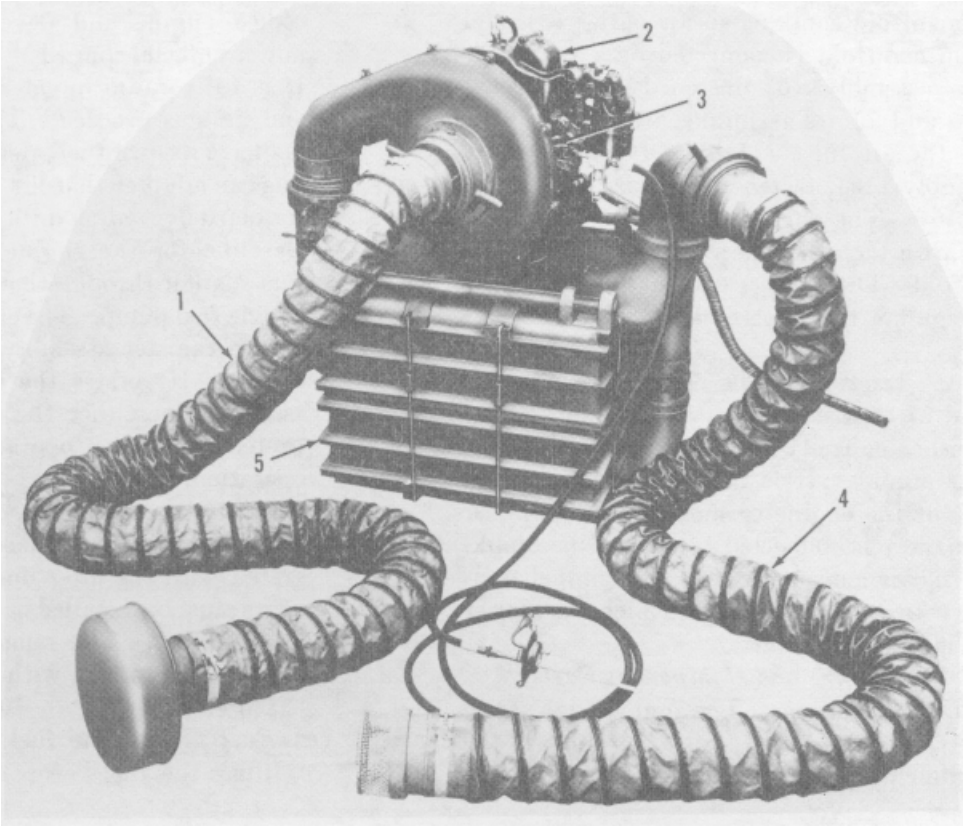
4. Allocation of Maintenance

Refer to the maintenance allocation chart (app. II) to determine maintenance personnel. Report any maintenance requirement beyond the scope of organizational maintenance to direct support maintenance personnel.

Section II. DESCRIPTION AND DATA

5. Description

a. General. The filter unit, gas-particulate, GED, 300 CFM, ABC-M6A1 (fig. 1), and the filter unit, gas-particulate, EMD, 300 CFM, ABC-M6A1 (fig. 2), are self-contained units which remove toxic gases, dust, and aerosols (solid and liquid particles) from the atmosphere and deliver 300 cubic feet of purified air per minute. The ABC-M6A1 filter unit consists principally of a canister assembly (5, fig. 1), blower assembly (3), engine and component parts (2), air inlet hose assembly (1), and air outlet hlose assembly (4). The ABC-M6A1 filter unit is powered by a gasoline engine ('2) or electric motor (2, fig. 2). The engine or motor is mounted on top of tile canister assembly and provides the power to rotate the lower impeller. The impeller moves contaminated air through the filters of tile canister and delivers purified air to the CBR protective shelter (TM 3-250). The engine or motor on the stand assembly can be rotated to position tile blower for connection either to the canister air inlet or the canister air outlet.



1 Air inlet hose assembly
2 Engine and accessories
3 Blower assembly
4 Air outlet hose assembly
5 Canister assembly

Figure 1. Filter unit, gas-particulate, GED, 300 CFM, ABC-M6A1.

(1) *Inside operation.* When the ABC-M6A1 filter unit is operated inside a CBR protective shelter (fig. 3) the blower air inlet is connected to the canister air outlet by the elbow coupling. Contaminated air passes directly from the air inlet through the canister air inlet into the canister assembly. Purified air leaving the canister assembly passes through the canister air outlet into the blower air inlet. The blower forces purified air through the blower air outlet directly or through the air outlet hose assembly into the CBR protective shelter.

Warning. **Do not use the ABC-M6A1 filter unit as a ventilating system. The ABC-M6A1 filter unit is not equipped with a bypass mechanism. Such operation will shorten the life of the filters and subsequently endangered human life.**

(2) *Outside operation.* When the ABCM6A1 filter unit is operated outside the CBR protective shelter (fig. 3), the blower is repositioned and the blower air outlet is connected directly to the canister air inlet. Contaminated air passes directly from the air inlet into the blower air inlet. The blower forces the contaminated air through the blower air outlet and the canister air inlet into the canister group. Purified air leaving the canister group passes through the canister air outlet and air outlet hose assembly into the CBR protective shelter.

b. *Canister Assembly.* The canister assembly (fig. *4)* consists of a canister containing a top manifold (4), bottom manifold (9), intake manifold (19), two 150 CFM, M9A1 particulate filter (8), and two 150 CFM, M10 gas filters (11). The components of the canister are fastened together by eight turnbuckles (10). The canister is car-

ried by four retractable carrying handles (14). The top manifold contains an air outlet (3), and the bottom manifold is connected by a fabric air duct hose assembly (6) fastened by two hose clamps (5 and 7). The intake manifold is connected to the air inlet (1) by a fabric air duct hose assembly (15), fastened by two hose clamps (13 and 16). The engine or motor and blower assembly are attached to the swivel base (2) on the top manifold. The damper control handle (17) is used to regulate the inlet damper which adjusts the airflow.

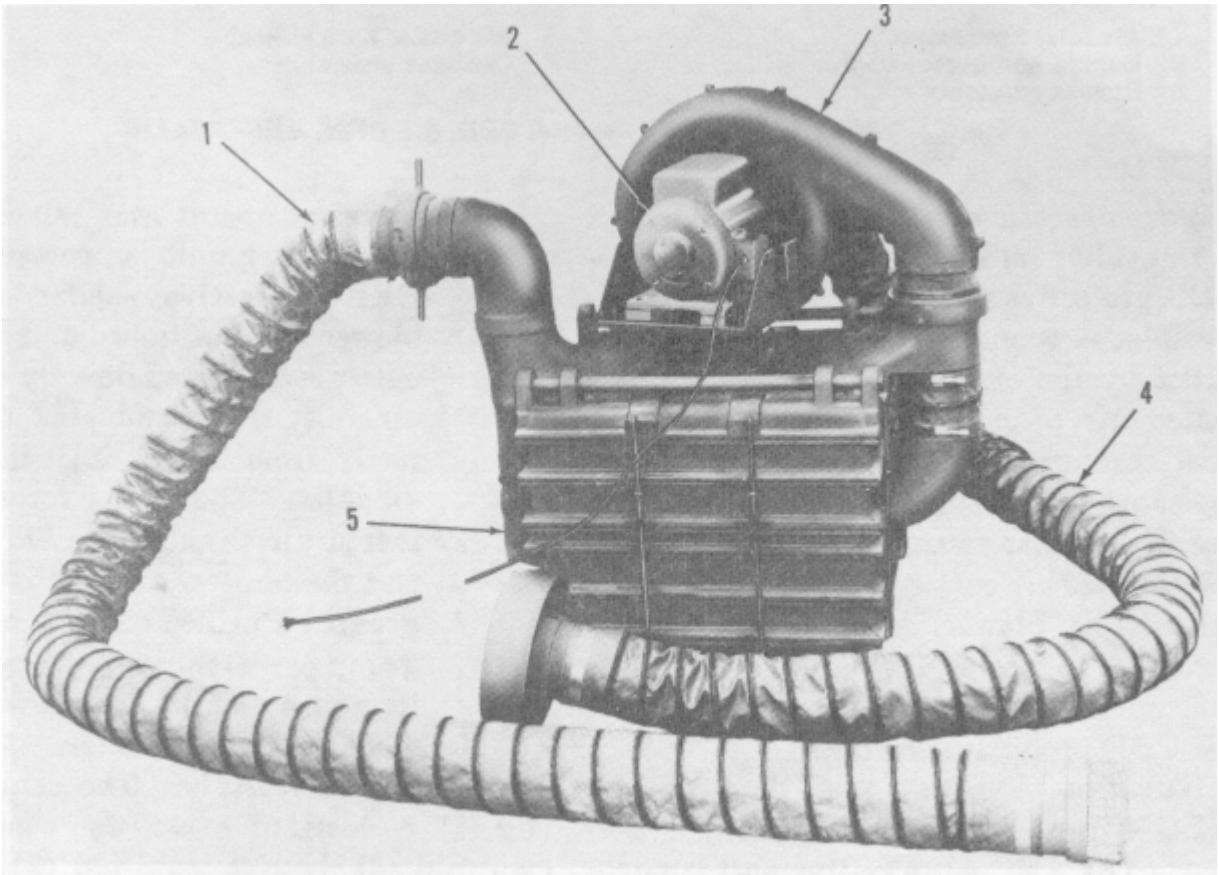
c. Blower Assembly. The blower assembly (3, figs. 1 and 2) consists of a cast aluminum rotary blower with a capacity of moving 300 cubic feet of air per minute. It is installed on the crankshaft side of the engine or motor. The impeller (blower wheel) is connected to the engine crankshaft or motor output shaft. The impeller is housed in a two-piece casting of which the blower air outlet is an integral part.

d. Gasoline Engine and Component Parts.

(1) *Gasoline engine.* The engine (figs. 5 and 6), model 1A08-2 is used to operate the filter unit. It is a military standard, one cylinder, four cycle, overhead valve, air cooled engine and develops 11/2 horse-power at 3,600 rpm (TM 5-2805-206-14). It is fully radio interference suppressed and fungus-proofed. The engines does not have its own fuel tank. It has a gasoline can adapter that fits the opening of the standard five gallon military gasoline can. Gasoline for the engine is drawn from this adapter through the fuel filter by the engine fuel pump. The engine is mounted on the canister assembly swivel base (2, fig. 4). It rotates the attached blower assembly for either the inside the CBR protective shelter operation or outdoor operation.

(2) *Component parts.* The component parts mentioned here are packed separately and crated with the filter unit. Some of the parts must be installed on the engine prior to operation. The remaining parts are used in conjunction with the operation of the filter unit.

(a) Fuel filter. The fuel filter (1, fig. 7) filters the fuel before it enters the en-



1 Air inlet hose assembly
2 Electric motor and component parts
3 Blower assembly
4 Air outlet hose assembly
5 Canister assembly

Figure 2. Filter unit, gas-particulate, RMD, 300 CFM, ABC-M6AL

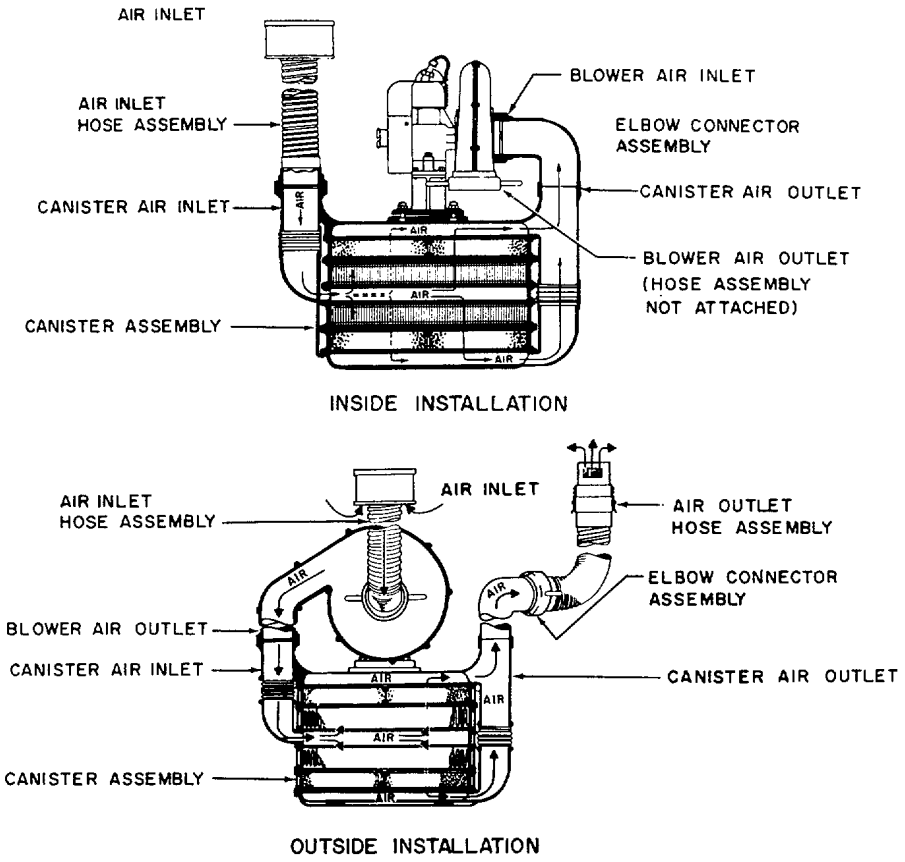


Figure 3. Airflow in inside and outside installations.

gine fuel pump. The outlet opening of the fuel filter is connected to the inlet opening of the engine fuel pump (5, fig. 5).

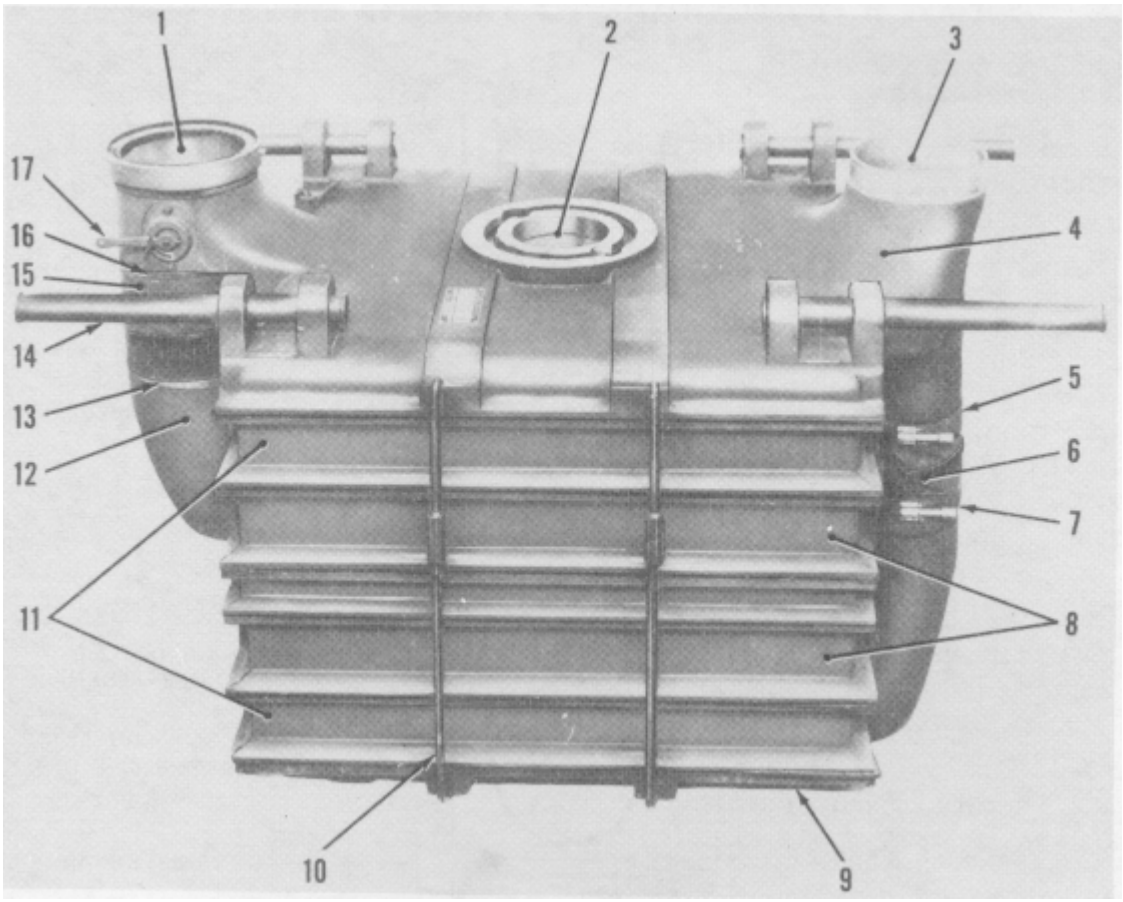
(b) Hose assembly. The hose assembly (9, fig. 7) is approximately 10 feet long. One end is connected to the fuel filter (1) marked IN. The other end is connected to the gasoline can adapter (6). The hose assembly carries t he fuel from the gasoline can adapter to the fuel filter.

(c) Gasoline can adapter. The gasoline can adapter (6) is a modified gasoline screw cap that fits the opening of a standard military 5-gallon gasoline call (7). The gasoline can is not part of the filter unit.

(d) Exhaust hose assembly. The exhaust hose assembly *(4, fig. 7*) and the exhaust tube connection (3) are connected to the exhaust manifold (4, fig. 6). When the filter unit is operated inside a shelter, one end of the flexible exhaust hose is connected to the engine exhaust manifold. The remainder of the exhaust hose is extended to the outside of the shelter to carry the carbon monoxide gases from the engine away from the shelter and into the atmosphere.

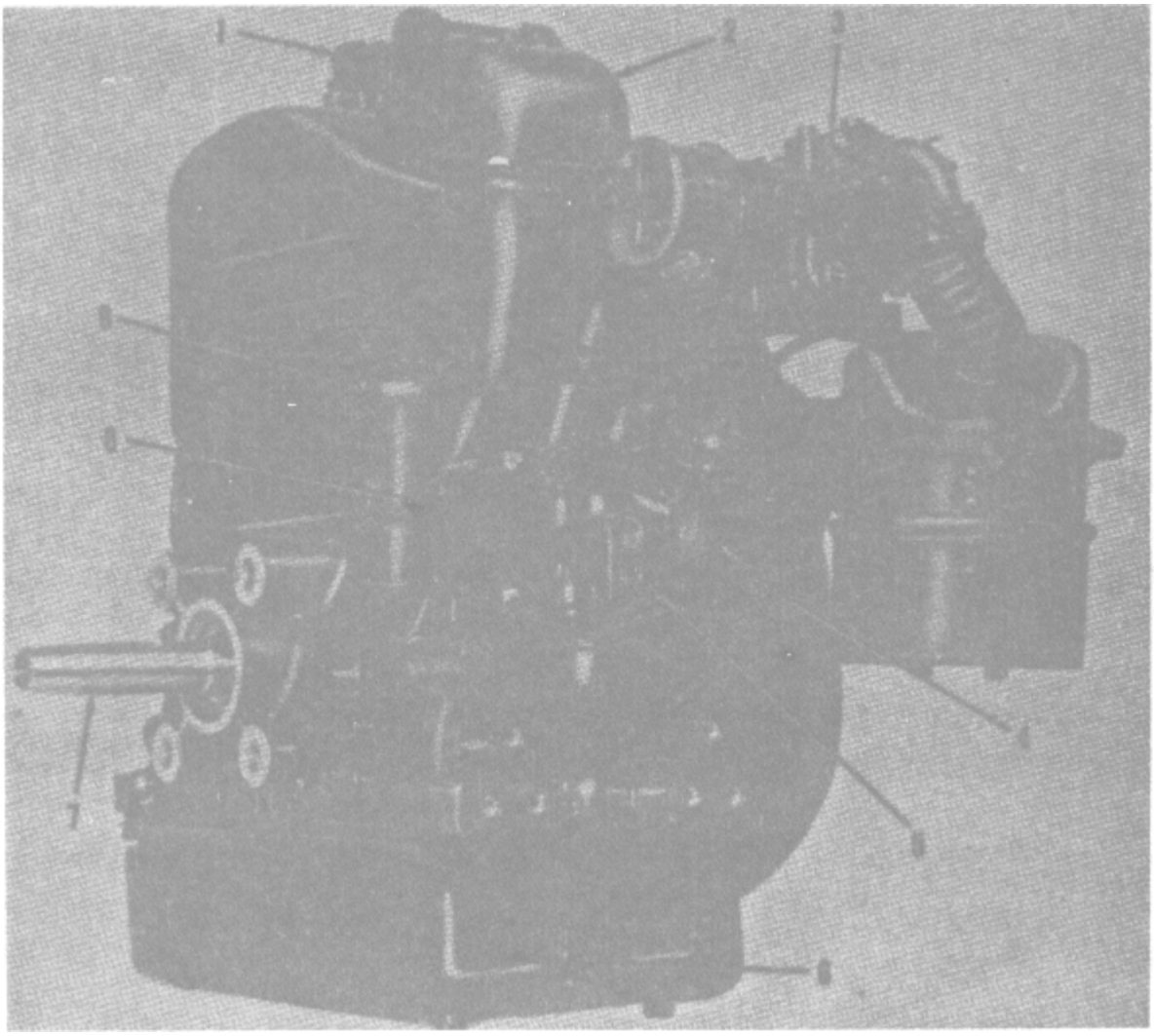
(e) Starting rope assembly. The starting rope assembly is furnished for the purpose of manually starting the engine.

(f) Manuals. Technical manuals TM 52805-206-14 and TM 5-280-206-24P are packed with each Military Standard Gasoline Engine. A copy of Lubrication Order LO 35-805-206-14 is also included in this package. These manuals and the lubrication order will remain, at all times, with the engine as part of the filter unit. They become a part of, and are to be used in conjunction with, this manual.



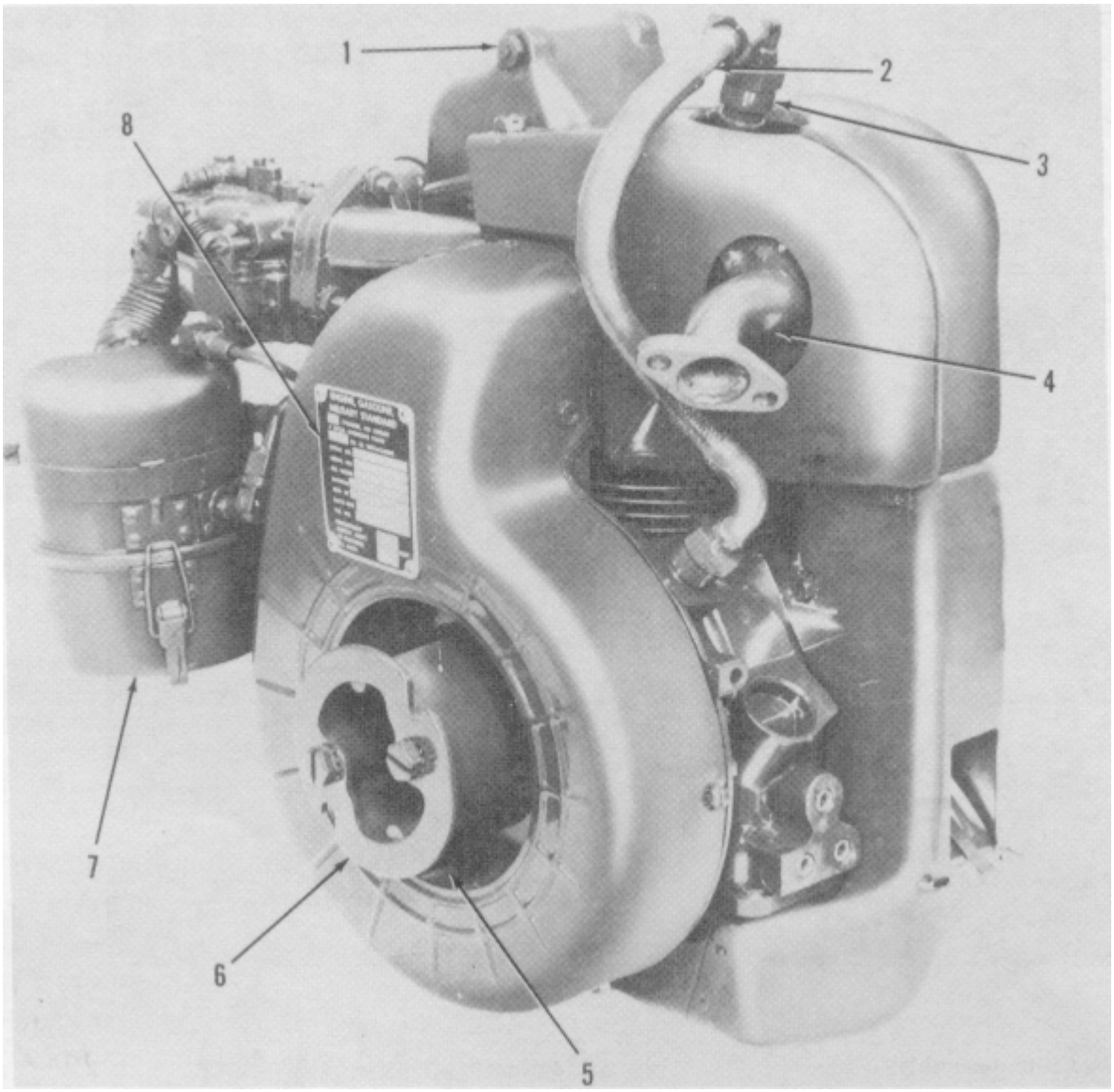
1	Air inlet	10	Turnbuckle
2	Swivel base	11	150 CFM, M10 gas filters
3	Air outlet	12	Intake manifold
4	Top manifold	13	Hose clamp
5	Hose clamp	14	Carrying handle
6	Air duct hose	15	Air duct hose
7	Hose clamp	16	Hose clamp
8	150 CFM, M9A1 particulate filters	17	Damper control handle
9	Bottom manifold		

Figure 4. Canister assembly



1 Breather line assembly
2 Rocket arm cover
3 Carburetor
4 Low-tension lead
5 Fuel pump
6 Magnetic oil drain plug
7 Crankshaft
8 Fuel pump-to carburetor fuel line assembly
9 Oil fill tube and gage rod

Figure 5. One-cylinder engine, three-quarter view (Model 1A08-2).



1	Relief valve assembly	5	Flywheel fan
2	High-tension lead	6	Starter rope flange
3	Spark plug	7	Oil bath air cleaner
4	Exhaust manifold	8	Identification plate

Figure 6. One-cylinder engine, three-quarter view (Model 1A08-2).

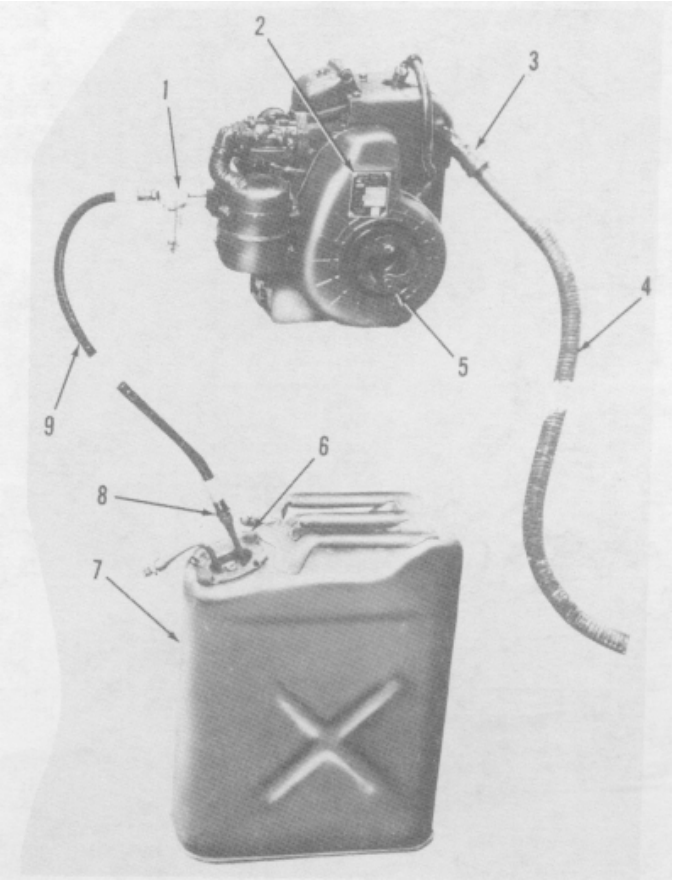


Figure 7. Gasoline engine and component parts.

e. Electric Motor Installation. The electric motor driven ABC-M6A1 filter unit is powered by a 1 horsepower general-purpose electric motor (2, fig. 2) mounted on a motor stand assembly. The motor operates on 115- or 230-volt, 60cycle, single-phase alternating current.

f. Hose assemblies and Elbow Connector Assembly. The hose assemblies used with the filter unit consist of one air inlet hose assembly (1, figs. 1 and 2) and one air outlet hose assembly (4, figs. 1 and 2).

(1) Air inlet hose assembly. The air inlet hose assembly consists of a cover assembly (2, fig. 8), locking coupling assembly (5) and an air duct assembly (4). The cover assembly and the locking coupling assembly are fastened to the air duct hose with hose clamps (3).

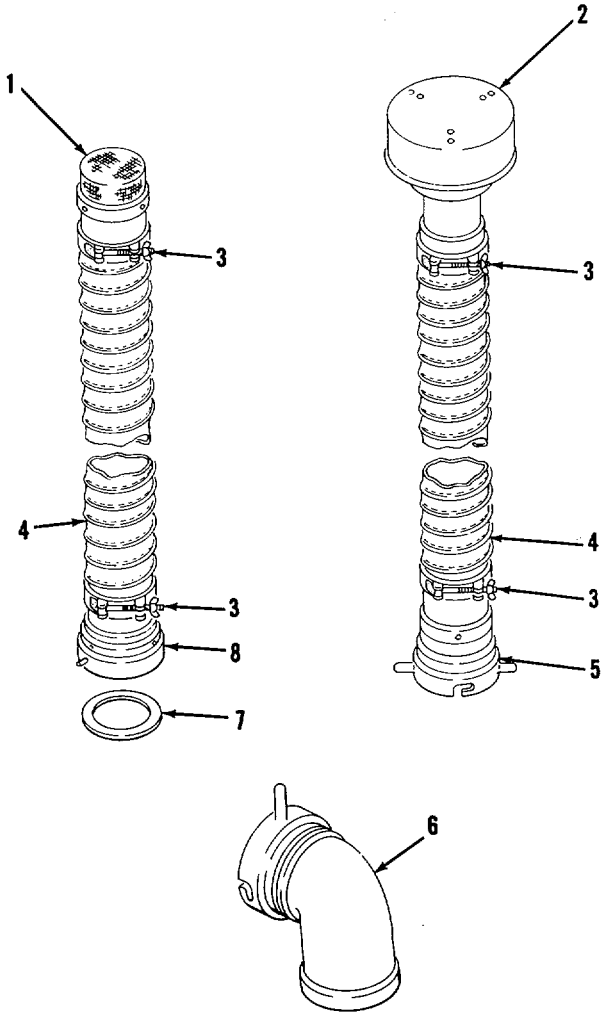
(2) *Air outlet hose assembly.* The air outlet hose assembly consists of an intake manifold (8), gasket (7), air duct hose (4) and air outlet screen assembly (1) consisting of an adapter and screen attached by rivets and washers. The intake manifold and the air outlet screen assembly are fastened to the air duct hose with hose clamps (3).

(3) *Elbow connector assembly.* The elbow connector assembly (6), is connected between the blower air inlet and the canister air outlet when the filter unit is operated inside the CBR protective shelter. For outside installation, the elbow is connected to the canister air outlet and the air outlet hose assembly.

6. Identification

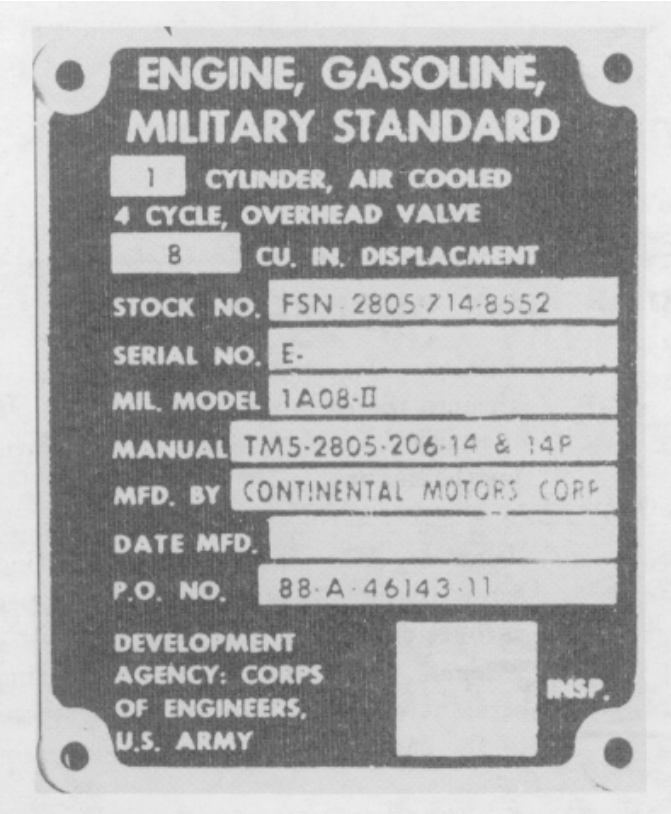
a. The ABC-M6A1 gasoline engine driven filter unit has two identification plates. The engine identification plate (A, fig. 9) furnishes information as to make, model, serial number, Federal Stock Number, and other pertinent maintenance data for the Military Standard gasoline engine. This identification plate is mounted on the flywheel cover of each engine. The filter unit identification plate (B, fig. 9) furnishes information as to make, part number, Federal Stock Number, serial number, manufacturer, and other pertinent information for the filter unit.

b. The ABC-M6A1 electric motor driven filter unit has two identification plates. The motor identification plate furnishes information as to make, model, serial number, Federal Stock Number, and other pertinent maintenance data for the electric motor. This identification plate is mounted on the electric motor. The filter unit identification plate (fig. 10) furnishes information as to make, part number, Federal Stock , Number, serial number, manufacturer, and other pertinent information for the filter unit.

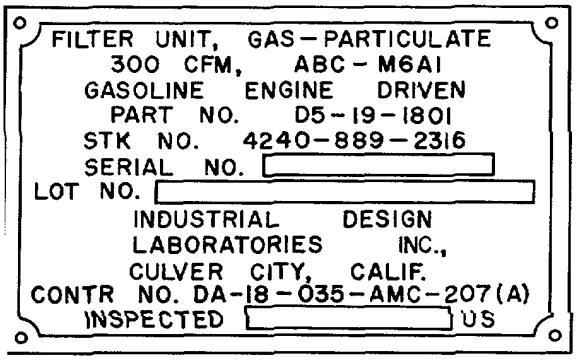


1	Air outlet hose screen assembly	5	Locking coupling assembly
2	Air inlet cover assembly	6	Elbow connector assembly
3	Hose clamp	7	Gasket
4	Air duct hose	8	Intake manifold connector

Figure 8. Hose assemblies group.



A - Engine manufacturer's identification plate



B - ABC-M6A1 filter unit identification plate

Figure 9. Gasoline engine driven ABC-M6A1 filter unit identification plates.

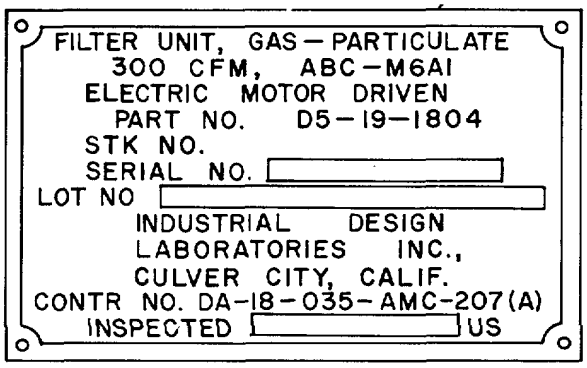


Figure 10. Electric motor driven ABC-M-6A1 filter unit identification plate.

7. Difference in models

The only difference in the two models of the ABC-M6A1 gas-particulate filter unit is in the source of power. Either the gasoline engine or the electric motor is used to power the filter unit.

8. Tabulated Data

a. Filter Unit Weights and Dimensions.

Overall length	36 in.
Overall width	31 in.
Overal height	37 in.
Weight, crated	548 lb
Weight, uncrated	325 lb
Cubage, unit crated	11 cu ft
Floor space required	7.7 sq ft

b. Gasoline Engine Classifications and Ratings.

Horsepower	11/2 at 36000 rpm
Type	Single-cylinder, overhead air cooled, 4 cycle
Rated speed	3600 rpm
Starting	Manual; rope on starting
Spark plug gap	0.025 in.
Fuel consumption	½ pt/hr
Rotation	Power shaft end (counterclockwise)

c. Electric Motor Classifications and Ratings.

Horsepower	1
Voltage	115/220
Cycle	60
Phase	Single
Rating	Continuous
Rated speed	3450 rpm
Lubrication	Sealed bearings
Degree of enclosure	Fully enclosed
Rotation	Counterclockwise

Section I. CONTROLS AND ANCILLARY ASSEMBLIES

9. General

This section describes, locates, illustrates, and furnishes the operator sufficient information pertaining to the various controls and instruments provided for the proper operation of the ABCM6A1 filter unit.

10. Controls

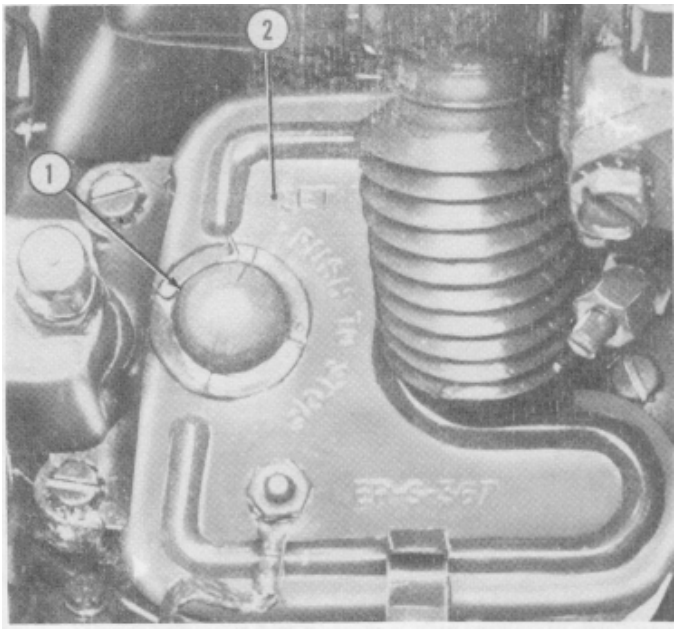
a. Engine Stop Button.

(1) *Location.* The engine stop button (1, fig. 11) is mounted on the engine accessory case cover (2).

(2) *Purpose.* The stop button stops the engine by grounding the ignition.

b. Choke Control Lever.

(1) *Location.* The carburetor choke control lever (2, fig. 12) is located in the carburetor air intake.



1. Engine stop button 2 Accessory case cover

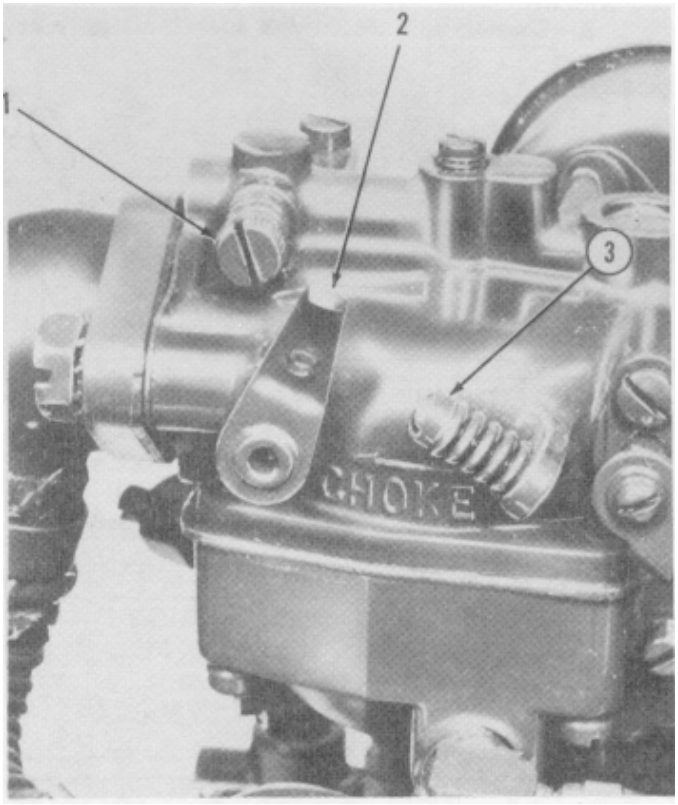
Figure 11. Engine stop button

(2) *Purpose.* The choke controls the flow of air into the carburetor. It is also used to enrich the fuel-air mixture when starting the engine.

c. Idle Speed Regulating Screw.

(1) *Location.* The idle speed regulating screw (3, fig. 12) is located in the upper carburetor body.

(2) *Purpose.* The idle speed regulating screw is used to adjust the idling speed of the engine.



1 Idle adjustment needle 3 Idle speed regulating screw
2 Choke control lever

Figure 12. Carburetor choke control and adjustment.

d. Idle Adjustment Needle.

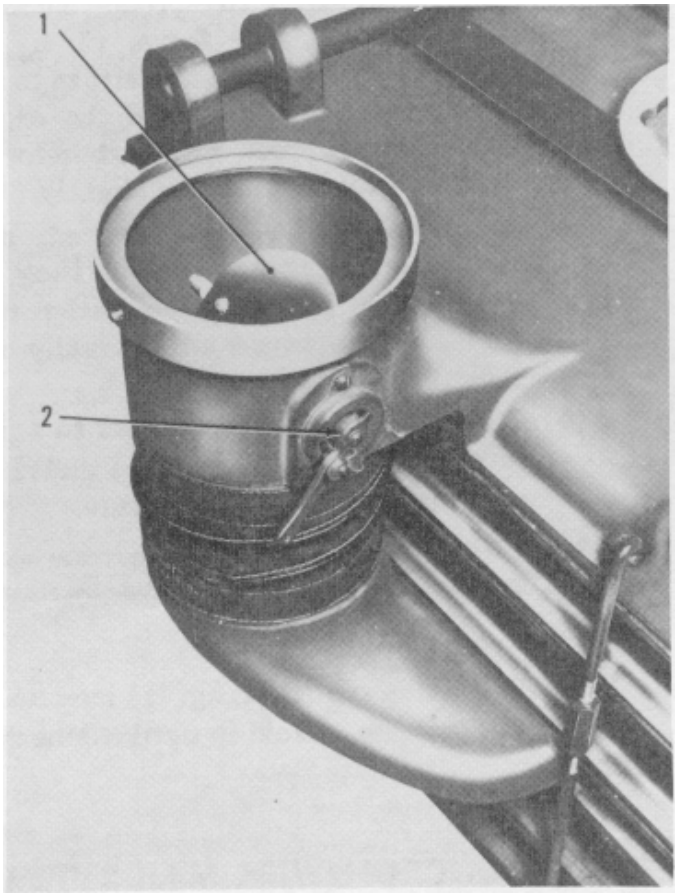
(1) *Location.* The idle adjustment needle (1, fig. 12) is located on the upper carburetor body.

(2) Purpose. The idle adjustment needle is used to adjust the fuel-air mixture at idling speed.

e. Canister Inlet Damper.

(1) *Location* The canister inlet damper (1, fig. 13) is located in the canister air inlet and is controlled by the damper control handle (2).

(2) *Purpose.* The canister inlet damper regulates the flow of air into the canister. It is set at the factory to deliver 800 cubic feet of air per minute.



1 Inlet damper 2 Damper control handle

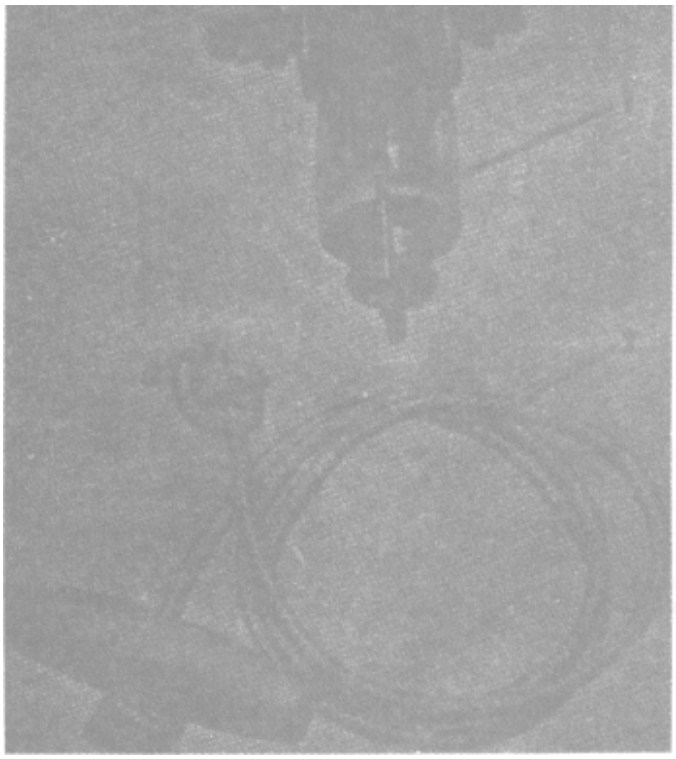
Figure 13. Canister inlet damper.

11. Engine Ancillary Assemblies

a. Starting Rope Assembly.

(1) *Location.* The starting rope assembly (2, fig. 14) is packed *separately* and crated with the filter unit.

(2) *Purpose.* The starting rope assembly is furnished for manually cranking the engine and must be kept with the engine at all times.



1. Fuel filter 2 Starting rope

Figure 14. Gasoline engine ancillary assemblies

Section II. OPERATION UNDER USUAL CONDITIONS

12. General

This section contains instructions for operating the ABC-MI6A1 filter unit under normal conditions of climate (50°F. and above). Refer to paragraphs 17 through 21 for additional instructions covering operation of the apparatus in extremes of climate and adverse environmental conditions.

13. Protective Life of Gas Filters

The unit commander will insure that the filter unit operator records the duration of each chemical attack and the type of agent used. With this record, the protective life of M10 gas filters can be computed using the information contained in table I. The operator will notify organizational maintenance personnel that the gas filters shall be replaced when 100 replacement units have been used.

Table I. Gas Filter Replacement Units

Duration of attack (minutes)	Type of attack: Ground delivered nerve agents	All blister agents except CX and air-delivered	CK (units	CX and all other agents including unidentified (units used)
2	½	1	10	6
4	1	2	20	12
6	1 1/2	3	30	18
8	2	4	40	24
10	2 1/2	5	50	30
12	3	6	60	36
14	3 1/2	7	70	42
16	4	8	80	48
18	4 1/2	9	90	54
**20	5	10	100	60

*An attack lasting less than two minutes is considered to have a duration of 2 minutes. An Attack lasting longer than 2 minutes but less than 4 minutes is considered to have a duration of 4 minutes. Similar consideration is given to attacks of up to 20 minutes.

**To calculate the number of units used in an attack longer than 20 minutes, the following formula may be used: Multiply the duration (number of minutes) by the number of units shown on line 1 of the appropriate attack column and divide by 2. For example, a filter exposed to a 30 minute air delivered nerve agent attack would use 15 replacement units as follows:

$$\frac{30 \text{ minutes} \times 1 \text{ unit}}{3} = 15 \text{ units}$$

14. Starting

a. *Before-Operating Service.* Perform the before-operation services (par. 27) before starting the gasoline engine.

b. *Starting the* Engine.

(1) Check that the gasoline can adapter is connected to a 5-gallon gasoline can filled with fuel.

(2) Completely close carburetor air choke control lever (2, fig. 12) by turning the lever counterclockwise.

(3) With the knot in the starting rope assembly, wind starter rope clockwise around starter rope flange (5, fig. 7). Pull rope with a quick, full stroke to spin the flywheel, which primes the engine. If necessary, repeat with carburetor air choke control lever opened slightly.

(4) After engine has been primed, open carburetor air choke about halfway and start engine by using the starter rope. As the engine warms up, gradually open choke until it is wide open.

(5) Adjust the control choke lever to a position between wide open and closed depending upon the temperature.

Note. **Choke requirements increase as the temperature decreases. Adjust as necessary.**

15. Stopping

Press engine stop switch (1, fig. 11) mounted on engine accessory case. Hold in until engine stops firing.

Section III. OPERATION OF MATERIAL USED IN CONJUNCTION WTH MAJOR ITEMS

16. Gasoline Can

a. Purpose. The standard military 5-gallon gasoline can (7, fig. 7) is used in conjunction with the gasoline can adapter (8, fig. 7). Gasoline from the gasoline can is supplied to the engine carburetor through the gasoline can adapter.

b. Description. The gasoline can is a standard military 5-gallon gasoline can. The gasoline can (FSN 7240-222-3088) must hi requisitioned for use with the filter unit.

Section IV. OPERATION UNDER UNUSUAL CONDITIONS

17. Operation in Extreme Cold

Provide proper lubrication for engine (TM 5-2805 206-44), using lubricant specified in the lubrication order (LO 5-2805-206-14). If the filter unit is being operated outside, shield the canister, blower and engine from wind and snow with a paulin shelter. If possible, operate the filter unit inside the CBR protective shelter (TM 3-350) during extreme cold.

18. Operation in Extreme Heat

Provide proper lubrication for engine (LO 5-2805-206-14). Insure that the filter unit is not placed in a confined space, and that sufficient air can reach the engine for proper cooling.

19. Operation Near Salt Water

Protection against corrosion is the principal consideration when operating in salt water areas. The gasoline engine is particularly vulnerable to corrosion.

a. Keep gasoline can adapter tightly capped on gasoline can to prevent seepage of moisture and salt into the system.

b. Keep equipment properly lubricated (LO 5-2805-206-14). Clean and dry all moisture from surfaces to be lubricated.

c. Wipe down equipment daily to remove moisture and salt deposit.

d. Wipe down inlet and outlet manifolds and hoses daily with clean, fresh water.

e. Protect equipment by covering it when not in use.

20. Operation Under Sandy or Dusty Conditions

a. Cover inlet with cheesecloth or any other cloth or paper filter that will reduce the amount of dust, sand, or dirt entering the particulate filter. If the air inlet or canister is partially clogged, air output will be reduced. If the filters become clogged completely, they must be replaced (para. 75).

b. Protect equipment from the wind with a tarpaulin or by placing unit on sheltered side of building.

c. Service and lubricate the oil bath air cleaner as prescribed in engine lubrication order LO 5-2805-206-14. This lubrication order is the approved lubrication order for the engine which is part of the ABC-M6A1 filter unit.

d. A local dust problem may be solved by wetting down surrounding area with water.

21. Operation in Rain or Under Humid Conditions

Make certain that water does not enter air inlet hose to canister. See that air inlet cover is in place. Protect the equipment as well as the air inlet hose with a paulin shelter.

CHAPTER 3

OPERATOR'S MAINTENANCE INSTRUCTIONS

Section I. TOOLS AND EQUIPMENT

22. Tools

No special tools are needed by the operator for maintaining the ABC-M6A1 filter unit.

23. Equipment

No special equipment is required by the operator for maintaining the ABC-M6A1 filter unit.

Section II. LUBRICATION

24. General Lubrication Information

a. Lubrication of the filter unit is required only on the Military Standard engine. Lubrication for the engine is given in LO 5-2805-206-14. A copy of this lubrication order remains with the engine as part of the filter unit. Lubrication instructions for the operator are contained in this lubrication order.

b. The lubrication orders are issued with each unit and must remain with the unit at all times. If the lubrication orders are not received with the unit, the using organization should requisition copies immediately.

c. The time intervals specified on the lubrication instruction are for normal operating procedure. These intervals are to be reduced under extreme conditions, such as excessively high or low temperature and prolonged periods of operation, continued operation in sand or dust, or immersion in water. Any one of these conditions could quickly destroy the protective qualities of the lubricant.

d. The lubrication order prescribes the lubricants to be used in the three temperature ranges: Above 32° F., +40° F. to -10° F., and 0° F. to -65° F. To determine when to change grades of lubricants, maintain a close check on operation of the apparatus during the approach to changeover periods, especially when the engine is started. Sluggish starting of the engine is one indication of thickening of the lubricant and is the signal to change to the grades prescribed for the lower temperature range.

25. Detailed Lubrication Information

a. Care of Lubricants. Keep all lubricants (grease and oil) in closed containers and store in a clean, dry place away from heat. Allow no dirt, dust, water, or foreign material to mix with the lubricants at any time. Keep all lubrication equipment clean and ready for use at all times.

b. Cleaning. Clean lubricants from application points with a clean cloth. Old or hardened lubricants may easily be removed by using an approved cleaning solvent. Keep all external parts not requiring lubrication clean from lubricants. After every lubrication operation, wipe up any spilled or excess lubricant.

c. Points of Application. Follow the detailed lubrication instructions given for each lubrication point illustrated, indicating procedures to be followed at each point. Apply the lubricant included on the current lubrication order (LO 2805-206-14).

Section III. OPERATOR'S PREVENTIVE MAINTENANCE SERVICES

26. General

The operator of the ABC-M6A1 filter unit is responsible for regular performance of preventive maintenance services to insure that the equipment operates properly and to lessen the probability of mechanical failures. These services generally con-

sist of before-, during-, and after-operation services and regularly scheduled services (such as weekly). Intervals of maintenance are based on normal operations and may be reduced under severe operating conditions.

27. Before-Operation Services

The purpose of before-operation services is to put the equipment in good operating condition. Deficiencies must be corrected if authorized or reported on DA Form 2404 to organizational maintenance personnel for correction before the equipment is placed in operation.

a. Visual Inspection.

(1) *General.* Inspect assemblies, sub-assemblies, and parts including any supporting members or connections. Determine whether the filter unit is in good condition, correctly assembled, secure, or excessively worn. Any mechanical conditions which may result in damage to the filter unit must be corrected or reported to organizational maintenance before the equipment is operated.

(2) *Foundation.* Make certain that the filter unit is on firm, level foundation.

(3) *Overall unit.* Check all parts for visible damage and be sure that assembly is correct for inside operation, para. 53b, or outside operation. para. 53c, whichever is to be used.

(4) *Air inlet and outlet hose assemblies*. Check tightness of all connections and inspect inlet and outlet hose for tears or signs of chafing. Be sure that the inlet cover is secured to inlet hose or vent opening of building to prevent moisture, insects. or other matter from entering the intake system.

(a) *Inside operation*. Be sure the engine exhaust hose assembly is placed downwind and away from air inlet hose. Be sure that the air outlet screen protects blower air outlet and that inlet hose is connected to canister air inlet, not to the blower air- inlet (para. 53b).

(b) *Outside operation*. Be sure that the inlet hose is in as nearly a vertical position as possible and is connected directly to blower air inlet. The exhaust hose assembly should also be connected to remove carbon monoxide exhaust fumes from the vicinity of the inlet filter hose (para. 53*c*).

(5) Blower and Canister. Check inlets and outlets of blower and canister for obstructions. Check air duct hose for tears or chafing. Be sure that the hose clamps form air-tight connections. See that canister inlet damper is properly adjusted.

Note. The canister Inlet damper, consisting of an inlet damper (1, fig. 13) operated by a handle (2), is set at the factory to deliver 300 cubic feet of air per minute. If damper appears to be improperly adjusted, report condition to organizational maintenance personnel.

b. Lubricant. Have reserve oil supply on hand to meet lubrication requirements for 24 hours of continuous operation of the engine. Check crankcase and air cleaner (LO 5-2805-206-14).

(1) *Crankcase*. Check oil level in crankcase and replenish if necessary. Check for leaks.

(2) *Air cleaner*. Check oil level in air cleaner and replenish if necessary.

c. *Fuel.* Have enough fuel on hand to permit 24 hours of continuous operation. See paragraph 8b for fuel consumption of engine.

Warning. **Exercise extreme care in handling leaded gasoline. Accidental spilling on exposed areas of the body may cause severe skin irritation, and in the case of gasoline entering an open cut, lead poisoning may result. If gasoline is spilled on body, wash off with soap and water immediately.**

(1) *Fuel filter.* Remove fuel filter and clean as described in TM 5-2805-206-14.

(2) *Gasoline can.* Measure the level of fuel in the 5 gallon gasoline can. Add fuel if necessary.

d. Engine. Perform the before operation services on the engine as outlined in TM 5-2805-206-14.

e. Technical Manuals and Lubrication Order. Make sure that a copy of TM 3-4240-241-12, TM 3-4240-241-20P, TM 5-2805-206-20P, TM 5-2805-206-24P and LO 5-2805-206-14 are with the equipment.

28. During-Operation Services

The purpose of during-operation services is to make certain that the equipment remains in satisfactory working order while being operated. De-

ficiencies must be corrected if authorized. Report deficiencies to organizational maintenance personnel.

a. Unusual Noises. Listen for rattles, hums, knocks, or other irregular sounds which indicate trouble.

b. Oil and Fuel. Check fuel level in gasoline can and fill when necessary. Check oil level in crankcase and air cleaner after 5 hours of continuous operation. Add oil as required.

c. Gasoline Engine Operation. If excessive vibration, overheating, smoking, or abnormal operation occurs, locate and correct the deficiency if authorized. If the condition cannot be corrected, stop the engine and report deficiency to organizational maintenance personnel.

d. Electric Motor Operation. If excessive vibration, overheating, loud clicking noises, grinding sounds, or abnormal operation occurs, locate and correct the deficiency if authorized. If the condition cannot be corrected, stop motor and report deficiency to organizational maintenance personnel.

Warning. Exercise caution when placing the electric motor driven filter unit in operation. Insure that the equipment is properly grounded. Avoid operating the electric motor in outside operation unless motor and unit are properly shielded against adverse weather conditions. Loss of life can result if the motor and unit are not properly grounded.

e. Air Inlet and Outlet Groups. Check for leaks and loose connections.

29. After-Operation Services

The purpose of after-operation services is to make certain that the equipment remains in proper operating condition and to prepare it for its next use. Correct all deficiencies if authorized, or if beyond the operator's capabilities, report. the deficiencies to organizational maintenance personnel.

a. Inspection. Inspect for rust and corrosion. Remove rust and corrosion from filter unit with dry-cleaning solvent and wipe dry. Clean all metal. Remove all incrustations of dirt, dust, sand, or salt. Inspect all components of the equipment for loose or frayed parts. Inspect all fabric for chafing. Check blower inlet and outlet for is obstructions. Inspect all connections for airtightness.

b. Canister. If canister appears deteriorated, report to organizational maintenance personnel.

c. Cleaning.

(1) *Air inlet and outlet groups.* Remove any oil stains with dry-cleaning solvent and wipe dry. Wipe fabric with dry cloth or wash fabric with a solution of mild soap or detergent when necessary.

(2) *Blower.* Remove rust and corrosion and wash with approved dry-cleaning solvent. Clean all metal. Remove all incrustations of dirt, dust, sand, or salt.

(3) *Air cleaner.* Inspect air cleaner for cleanliness. If dirty, remove, clean, and refill.

d. Lubrication. Follow directions given in paragraph 27b.

e. Fuel and Oil. Fill engine supply gasoline can. Have enough fuel and oil on hand to meet engine requirements for 24 hours of continuous operation (para. 8b).

f. *Engine.* Follow instructions given in TM 5-2805-206-14.

g. Protection. Cover blower inlet and outlet. Store reserve fuel supply in safe area.

30. Preventive Maintenance Checks and Services

a. Purpose. The preventive maintenance checks and services provide the operator with a list of maintenance services which must be performed at the intervals prescribed. Use the list each time that preventive maintenance checks and services are performed to make sure that all required maintenance is accomplished. If corrective action is not authorized alt operator's level, report equipment faults to organizational maintenance personnel.

b. Explanation of Columns. A number under the before-, during-, or after-operation heading in the "Interval and Sequence No." column indicates that the services opposite the number must be performed at the prescribed time. The number also indicates the sequence in which the service must be performed and is the "TM Item No." referred to on DA Form 2404 (TM 38-750).

Preventive Maintenance Checks and Services
Operator Daily Schedule

Interval and sequence no. Before operation	During operation	After operation	Item to be inspected	Procedure	Paragraph reference
1		13	Publications.....	See that copies of TM3-4240-241-12 TM 3-4240-241-20P TM 5-2805-206-14, TM 5-2805-206-24P, and LO 5-2805-206-14 are packed with the equipment.	27e
2			Filter unit	Make certain that the ABC-M6A1 filter unit is on firm, foundation.	27a(2)
3	9	14	Canister assembly..	Inspect all edges for tight closure. Check for holes, evidence of moisture, leakage, and for chafing or obstructions in air inlet and outlet	27a(5)
4		15	Blower assembly....	Check blower inlet and outlet for obstructions, dents, or sign of damage	27a(5)
5	10	16	Air inlet and outlet... hose assemblies.	Be sure air inlet and air outlet hose assemblies are properly connected for inside or outside operation as required. Check for loose connections and leaks.	27a(4)
6		17	Fuel	Fill fuel gasoline can. Be sure reserve fuel supply is adequate.	27c
7	11	18	Engine	Perform all Operator's daily services.....	27d
8		19	Lubrication.....	Check all oil levels in accordance with LO 5-2805-206-14. Inspect air cleaner and fuel filter as required.	27b
	12		Unusual operation..	Listen for rattles, hums or knocks	28c, d
		20	Protection	Inspect, clean and cover unit and store reserve fuel supply in safe area	29

Section IV. TROUBLESHOOTING

31. General

This section contains information useful for locating and correcting malfunctions which may develop in the ABC-M6A1 filter unit. Each malfunction is followed by a description of probable causes and possible remedies. Remedies which must be applied by higher categories of maintenance personnel include a note to this effect. See TM 5-2805-206-14 for detailed engine troubleshooting.

32. Gasoline Engine Fails to Start

Probable cause	*Possible remedy*
lack of fuel ----------	Fill five gallon engine supply can with fuel.
Carburetor flooded -----	Adjust choke and crank engine.
Water or dirt In fuel-----	Drain fuel from gasoline can, adapter, and hose assembly. Drain fuel from supply can and refill.

Note. For engine troubleshooting beyond this point refer to manual TM 5-2805-206-14, paragraph 22. This manual is part of the ABC-M6A1 filter unit and is with the engine.

33. Excessive Airflow

Probable cause	*Possible remedy*
Filter loose or damaged ----------	Report to organizational maintenance personnel.
Gasoline engine running at ..... excessive speed	Adjust engine speed (para. 8b)
Canister inlet damper not -------- correctly adjusted. ----------	Adjust canister Inlet damper(para. 27a(5)).

34. Insufficient Airflow

Probable cause	*Possible remedy*
Particulate filter clogged----------	Report to organizational maintenance personnel.
Obstruction in air inlet---------- hose, canister air Inlet, or blower air inlet	Remove obstruction.
Obstruction in air outlet---------- hose, canister air outlet, or blower air outlet	Remove obstruction
Canister inlet damper not correctly adjusted	Adjust canister inlet damper or engine speed (para 37c (5) or 8).

35. Electric Motor Fails to Start

Probable cause	*Possible remedy*
Open connection in con- nector plug.	Check plug connection
Open wiring in cord	Replace cord.
Incorrect line voltage	Check line voltage
Blown fuse	Replace fuse.
Motor jammed	Report to general support maintenance personnel.

Section V. BLOWER ASSEMBLY

36. General

This section and the following sections contain information useful to the operator in performance of operator's level maintenance on the ABCM6AI filter unit. Instructions for each unit or part that the operator is authorized to remove, disassemble, clean, inspect, assemble, adjust and install are found in these sections, with the exception of those instructions found elsewhere in this manual.

37. Description and Function

The description and function of the blower assembly is given in paragraph 5.

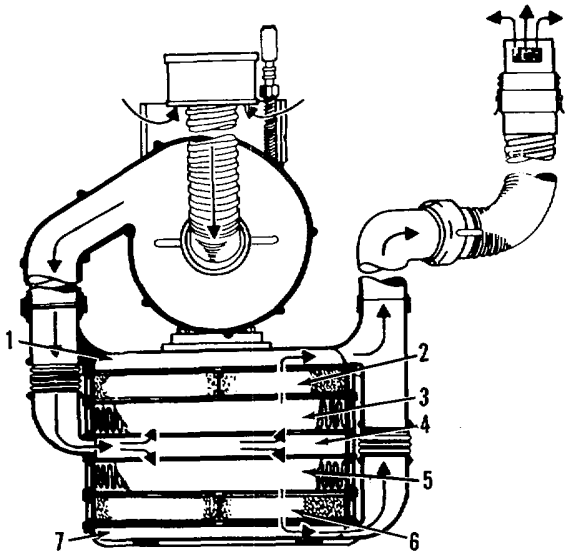
38. Maintenance

The operator is authorized to rotate the blower assembly for either inside or outside operation. It is also his responsibility to see that the proper hookup of the blower assembly with the attaching assemblies is made before operating the filter unit.

Section VI. CANISTER ASSEMBLY

39. General

The canister- assembly consists of the filter and manifold components through which the air passes for purification (fig. 15). Four filters, three manifolds, and two air duct hoses are the principal parts of the canister.



1 Top manifold
2 Gas filter
3 Particulate filter
4 Intake manifold
5 Particulate filter
6 Gas filter
7 Bottom manifold

Figure 15. Filter arrangement and air flow in canister.

40. Description

These intake manifold (12, fig. 4) is located in the center of the canister. The four filters, consisting of two gas filters (11) and two particulate filters (8), are arranged so that one gas filter and one particulate filter are stacked on either side of the intake manifold. The particulate filters (8) are adjacent to the intake manifold, and the two gas filters (11) are next in order. ']The top and bottom of the canister consists of tile top manifold (4) and bottom manifold (9), respectively. The manifolds and filters are held together by eight turnbuckles (10). The air inlet (1) is connected to the air inlet manifold by a fabric air duct hose (15) which is attached by two hose clamps (13 and 16). The top and bottom manifolds are connected by a fabric air duct hose assembly (6) which is attached by hose clamps (5 and 7). The top manifold contains a swivel base (2) to which the gasoline engine or electric motor is mounted. Four retractable carrying handles (14) are mounted in fittings on the top manifold. The elbow connector assembly (6, fig. 8) connects the canister air outlet to the blower air inlet when the filter unit is connected for inside operation. An inlet damper (1, fig. 13) is mounted in the air inlet and is adjusted for proper opening by the damper control handle (2).

41. Function

The canister removes toxic gases, dust, and aerosols (solid and liquid particles) from the atmosphere and delivers 300 cubic feet of purified air per minute. The airflow of contaminated air is given in paragraph 5.

42. Maintenance

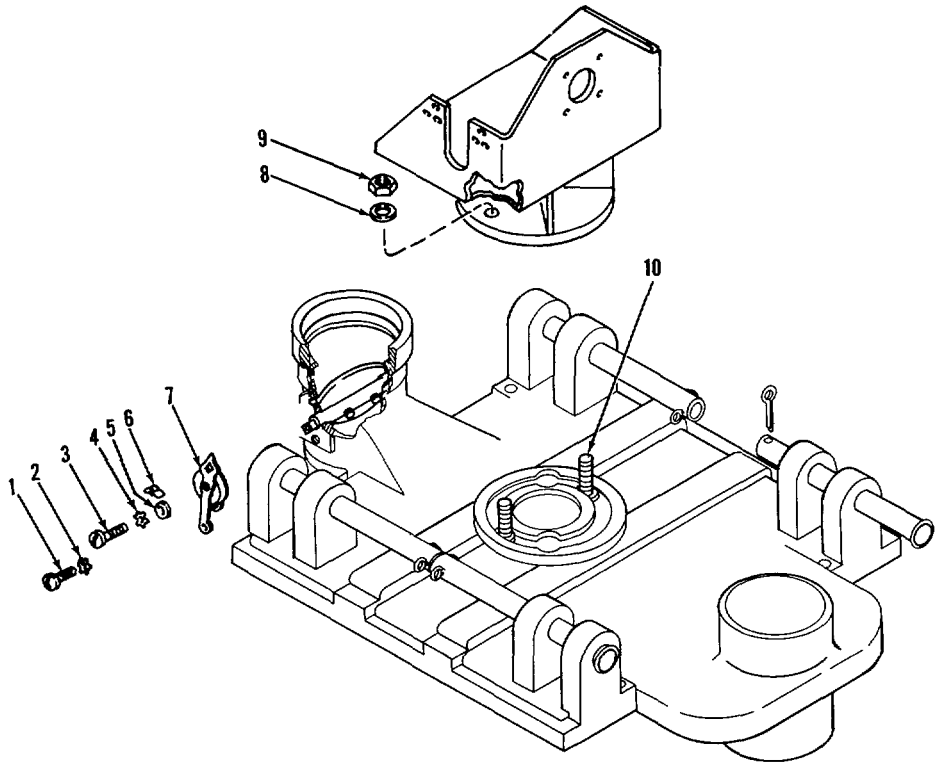
The operator is authorized to inspect, service, and adjust the following component parts of the canister assembly. Any defect should be reported to organizational maintenance personnel.

a. Hose Assemblies. Check the air hose assembly (6, fig. 4) and air hose assembly (15) to see they are connected properly and fastened securely with hose clamps (5, 7, 18 and 16). Inspect hose for damage, tears, or punctures.

b. Turnbuckle. Check turnbuckle (10) on all four sides of canister assembly. See that turn- buckles are in place and tighten if necessary.

c. Elbow Connector Assembly and Slide Bolt. Check the elbow connector assembly (6, fig. 8) to see that it is in working order. Rotate the elbow connector assembly to different locations and check for full and easy movement. Check the slide bolts (10, fig. 16), washers (8) and self- locking nut (9) for wear, and damaged threads.

d. Dial Regulator Assembly. Check the dial regulator (7, fig. 16) to see it operates properly and is in working order. Check for wear, damage, and missing parts.



1	Machine screw	6	Wing nut
2	Lock washer	7	Dial regulator assembly
3	Machine screw	8	Washer
4	Lock washer	9	Self-locking nut
5	Washer	10	Slide bolt

Figure 16. Top manifold assembly

Section VII. GASOLINE ENGINE AND COMPONENT PARTS

43. Description and Function

The description and function of the gasoline engine is described in paragraph 5.

44. Engine Maintenance

A detailed coverage of the engine maintenance is outlined in TM 5-2805-206-14.

45. Component Parts Maintenance.

Any defects should be reported to organizational maintenance personnel.

a. Gasoline Can Adapter and Hose Assembly. Check the gasoline can adapter (6, fig. 7) to see that the threads and seal are not damaged. Check the vent opening and see that it is free of any foreign material clogging the opening. Check the hose assembly (9) for damage and deterioration.

b. Exhaust Hose Assembly and Exhaust Tube Connector. See that the exhaust hose assembly (4) and the exhaust tube connector (3) are properly installed. Check for missing attaching hardware. Check the flexible exhaust hose assembly for kinks and damage. See that the exhaust end is free of dirt and foreign material.

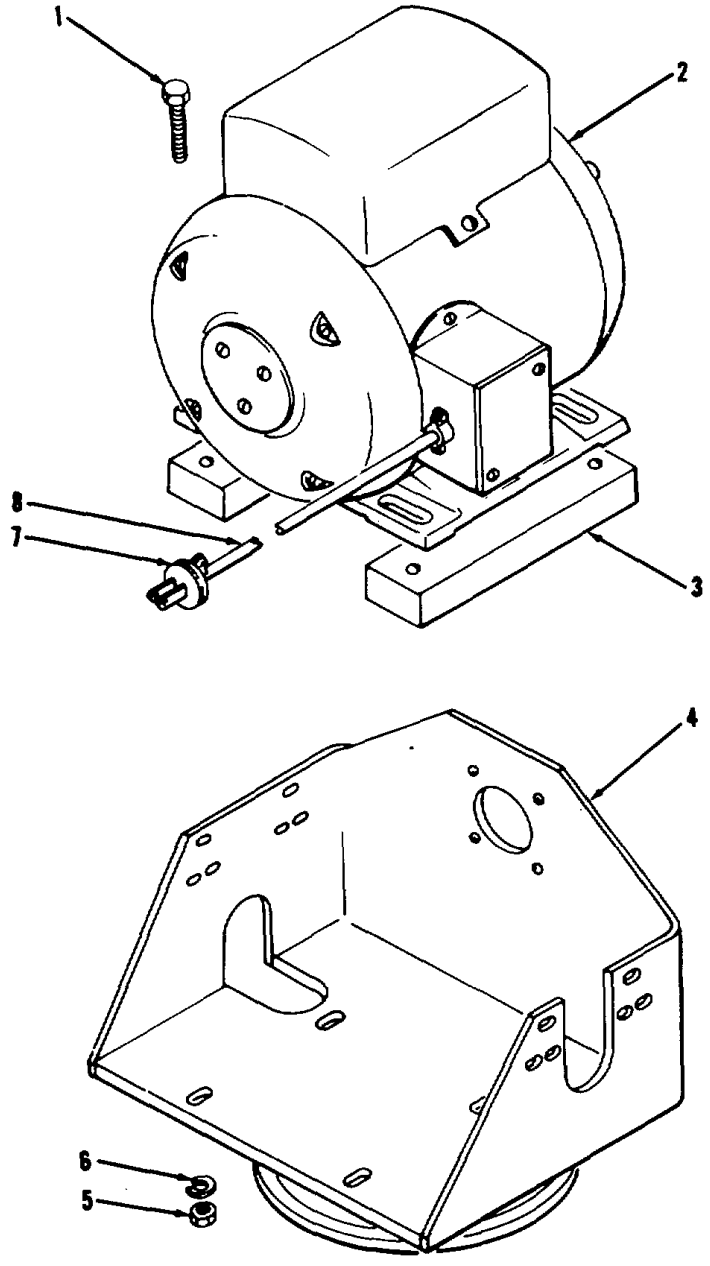
Section VIII. ELECTRIC MOTOR INSTALLATION

46. Description and Function

The description and function of the electric motor installation is described in paragraph 5.

47. Maintenance

Check the male plug connector (5, fig. 17) for cracks or damage. Check the motor stand assembly (6) for cracks or undue wear. Check the electric motor (1) for loose covers (3 and 4).



1 Electric motor
2 Cap screw
3 Cover
4 Terminal box cover
5 Spacer block
6 Motor stand assembly
7 Nut
8 Washer
9 Male plug connector
10 Electric cable

Figure 17. Electric motor installation

Section IX. AIR INLET AND AIR OUTLET HOSE ASSEMBLIES

48. Description and Function

The description and function of the hose assemblies is described in paragraph 5.

49. Maintenance

Check the air inlet hose assembly (fig. 8) and the air outlet hose assembly (fig. 8) for damage, wear, tears, and punctures. Check the cover assembly (2) to see that it is not clogged with foreign material and check the operation of the locking coupling assembly (5). Check the intake manifold (8) and the air outlet screen (3) to see it is not clogged.

CHAPTER 4
ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

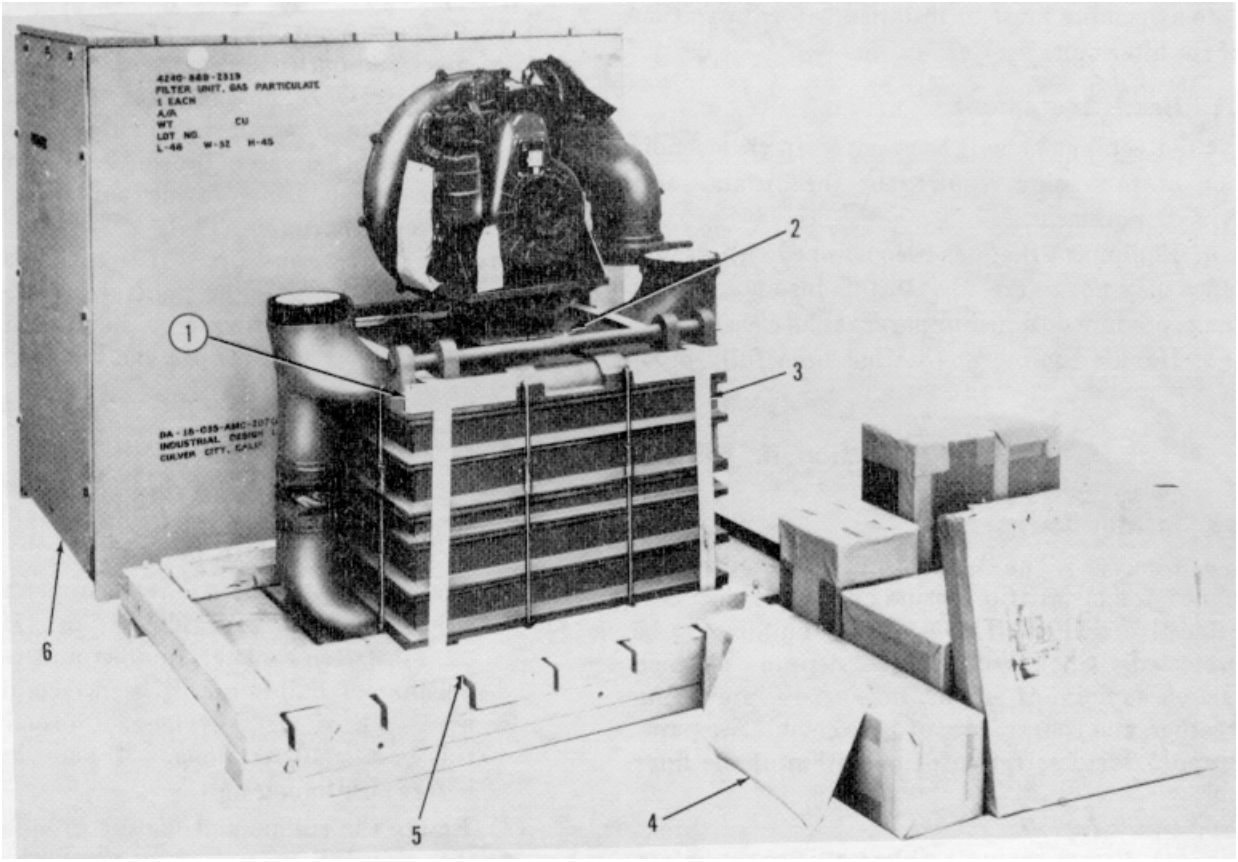
Section I. SERVICE UPON RECEIPT OF EQUIPMENT

50. New Equipment

a. General. Upon receipt of equipment, inspect for completeness and satisfactory operating condition. Report. any damage on 1)1) Form 6 and place the equipment. in a serviceable condition as soon as practicable.

b. Unpacking. After the crate has been opened (fig. 18) the equipment can be unpacked either on the carrier or at the actual site of use. In either case, the unpacking should take place as close as possible to the point of installation.

Note. **Keep top. sides, and ends of crate (6) for further use in recrating the equipment. The crate base (5) may be kept for use as a skid.**



1 Wood pieces
2 Shipping block
3 Steel straps
4 Cartons (accessories)
5 Crate base
6 Crate

Figure 18. Crating and blocking.

***Caution. Do* not remove shipping block (2), steel straps (3), or the four fitted wood pieces (1) until equipment is to be installed.**

c. Removing Protective Material. Remove barrier material from air inlets and outlets of canister and blower. Wash exterior metal surfaces, spark plug, and carburetor with dry-cleaning solvent and dry with compressed air if available. Remove tape from magneto. Drain preservative oil from crankcase by removing oil drain plug (6, fig. 5).

(1) Remove the technical manuals and the lubrication order.
(2) Attach the lubrication order near the engine with the filter unit.
(3) Provide fuel for the engine in a five gallon standard military gasoline can. Attach gasoline can adapter to fuel can.

d. Assembly. The ABC-M6A1 filter unit is shipped as a unit ready for use. Only the air inlet hose assembly or both the air inlet and air outlet hose assemblies must be installed before operation of the filter unit.

51. Used Equipment

Used equipment will be received in that condition of processing required by the distance and type of movement

a. Equipment that has been shipped a short distance may not be crated. In this instance, follow the procedure outlined in paragraphs 50*c* and *d.*

b. Handle equipment that has been fully processed for shipment in accordance with the provisions outlined in paragraph 50.

52. Inspection

a. Completeness. Upon completion of the procedures described in paragraphs 50 and 51, inspect the filter unit and separately packed component parts for evidence of damage in shipment and completeness.

b. Tightness of Parts. Check all nuts, bolts, and screws for tightness. Tighten if necessary.

c. Canister Assembly. Inspect canister for evidence of damage incurred during shipment. Inspect sides of canister for holes or signs of separation of canister frames. Inspect inlet and outlet manifold hose for tears or chafing; make sure that the hose clamps fastening to each manifold provide airtight connections.

***Warning.* If the serviceability of the canister is questionable, report to direct support maintenance personnel.**

d. Air Inlet and Outlet Hose Assemblies. Inspect for tears or punctures. Make certain that air inlet cover and outlet screen are serviceable.

e. Blower Assembly. Make certain that all barrier material has been removed from air inlet and outlet. Be sure that any protective packing placed inside fan housing during shipment or storage has been removed.

f. Gas Can Adapter and Line. Inspect gas can adapter and line for leaks or punctures. Make certain that the gas can adapter is in place, fits securely, and that air vent is open and unclogged.

Section II. INSTALLATION AND SERVICE

53. Installation

a. General. The ABC-MG6.filter unit is de- signed for installation inside or outside the CBR protective shelter (TM 3-350) or building to be protected. Choice of location depends on such factors as noise of engine, floor space, prevailing weather, and convenience of personnel. See paragraph 5 for description of operation of the filter unit.

b. Inside Installation

(1) Remove shipping block (2, fig. 18) before installation. Slide the four retractable carrying handles out to full extended position. Transfer assembled filter unit from crating and crate base to site location. Slide the four carrying handles back to full retracted position.
(2) Place assembled filter unit in proper position on firm, level foundation. Distance between canister air inlet and vent opening of building will be determined by length of air inlet hose. Normally, this hose is 10 feet long. Measure hose before positioning unit.
(3) Rotate the engine and blower group on the swivel base and align the locking coupling with the intake manifold connector. Insert the locking coupling in the mating intake manifold connector, being careful to turn the locking

coupling clockwise slowly until the key locks in the slots without too much force being applied. Then using the elbow connector assembly (9, fig. 19) and starting both ends of the elbow connector assembly over the fittings at the same time, make the connection. Secure the engine stand assembly to the swivel base of the canister by installing the two washers and locknuts when both connections are satisfactory.

Warning. **For inside installation, it is essential that blower does not force air through canister. The blower creates pressure which will cause contaminated air to seep from canister into the CBR protective structure.**

(4) Cut a hole in the shelter wall the same size as the hose. Remove coupling assembly (5) from air inlet hose (3) and slide hose from outside through hole into the shelter. Connect coupling clockwise until key locks in slot. Slide air inlet hose (3) over mouth of coupling assembly.

(5) When the filter unit is in operation, exhaust gases from the engine must be vented to the atmosphere. Install exhaust tube gasket between engine exhaust flange and exhaust tube connector and assemble exhaust hose with attaching hardware. Screw exhaust assembly (4, fig. 7) to exhaust tube connector (3). Place other end of hose through vent opening in outer wall of CBR protective shelter.

Warning. **Do not place exhaust tubing and air inlet hose in the same vent opening, since exhaust gases containing carbon monoxide may be drawn into air inlet hose.**

(6) Make certain air duct hose (12 and 21, fig. 19) are fastened securely by hose clamps (11, 13, 20, and 22) so that connections are airtight.

(7) Fasten air outlet hose into blower air outlet (8).

c. Outside Installation.

(1) For outside installation, first follow instructions given in paragraphs 50 through 52.

(2) Turn blower on swivel base so that blower air outlet (5, fig. 20) aligns with canister air inlet. Lock engine stand assembly in place on swivel base with self locking nuts. Connect blower air outlet and canister air inlet with locking coupling (4).

Warning. **For outside operation, it is essential that blower does not pull air through canister. The blower creates a vacuum which will cause contaminated air to leak into canister and be forced into the CBR protective structure.**

(3) Attach air inlet hose (3) directly to blower air inlet (6) and fasten with coupling assembly (7) and hose clamp (17).

(4) Fasten other end of air inlet hose to a tree, pole, or to the outside of the building in a vertical position. (Gas tends to concentrate near the ground.) Fasten air inlet cover (1) to hose with hose clamp (2).

(5) Connect elbow coupling assembly (8) to canister air outlet (12); fasten connector assembly (9) to elbow coupling and turn coupling clockwise until key locks in slot. Slide air outlet hose (11) over mouth of connector assembly and fasten with hose clamp (10).

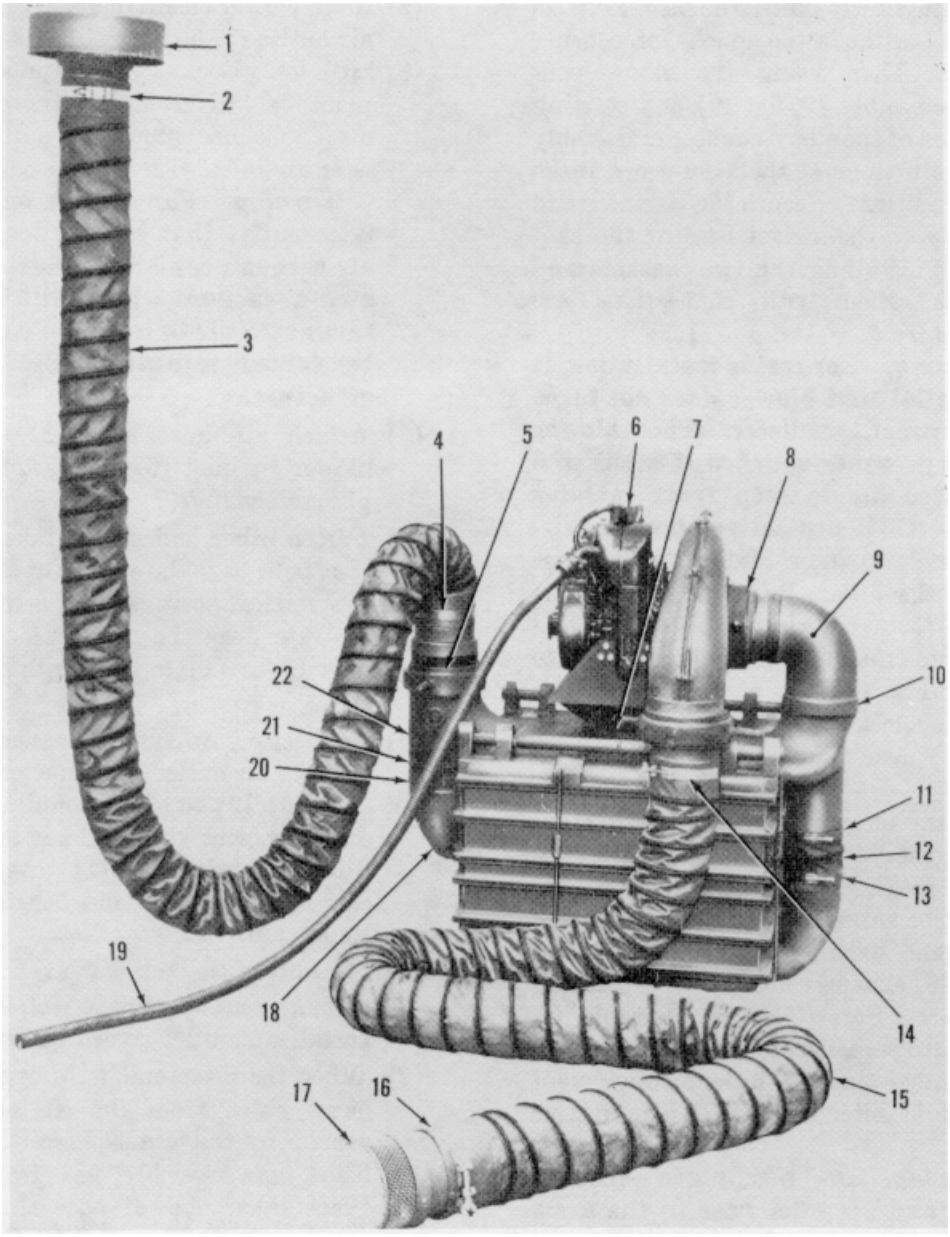
(6) Extend other end of air outlet hose through vent opening in w 1-l of building. Install air outlet screen on end of hose.

(7) When the filter unit is in operation, exhaust gases from the engine must be vented to the atmosphere. Install exhaust hose assembly, paragraph 53b(5). Place other end of hose through vent opening in outer wall of CBR protective shelter.

Warning. **Do not place exhaust tubing and air inlet hose in the same vent opening, since exhaust gases containing carbon monoxide may be drawn into air inlet hose.**

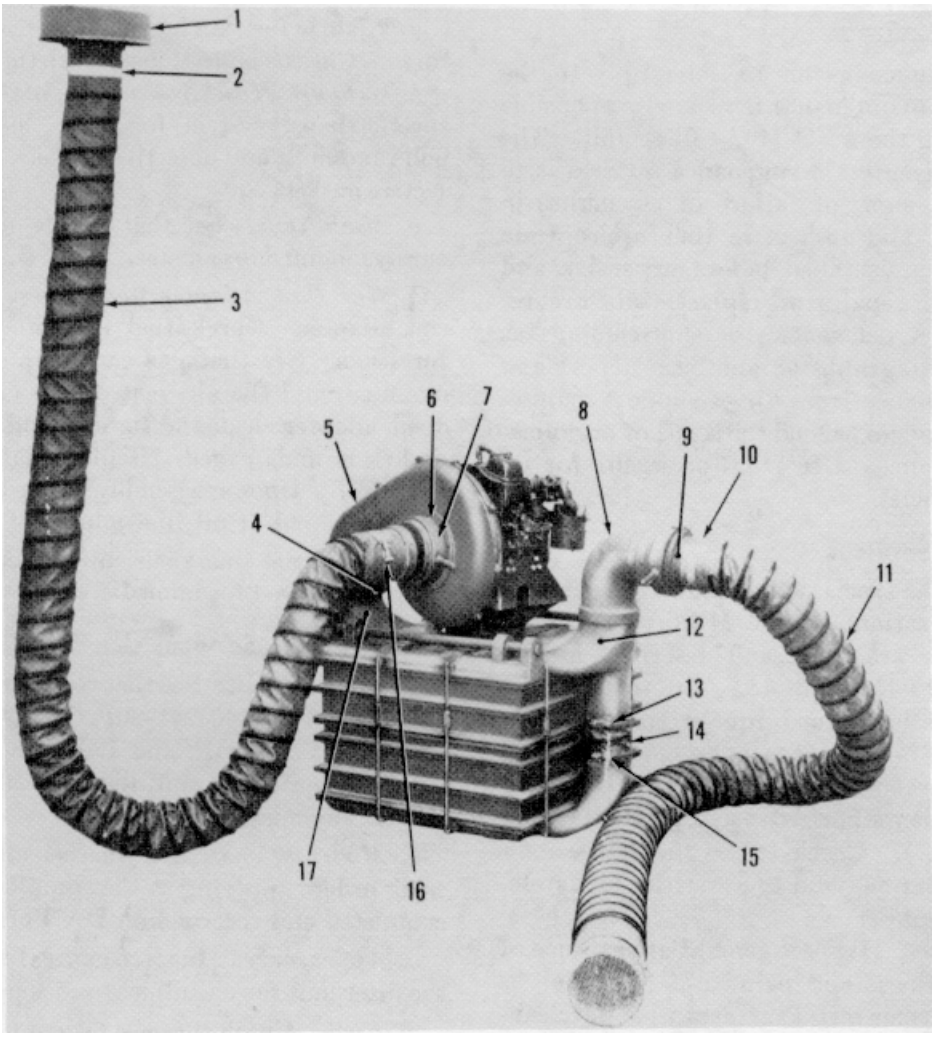
54. Servicing

Reference Lubrication Order LO 5-280-206-14 (TM 5-2805-206-14) for proper servicing in preparation to operate the filter unit. Reference paragraph 9 for operation instructions.



1	Air inlet cover	12	Air duct hose
2	Hose clamp	13	Hose clamp
3	Air inlet hose	14	Hose clamp
4	Hose clamp	15	Air outlet hose
5	Coupling assembly	16	Hose clamp
6	Gasoline engine	17	Air outlet screen
7	Swivel base	18	Canister air inlet
8	Blower air inlet	19	Exhaust hose assembly
9	Elbow connector assembly	20	Hose clamp
10	Canister air outlet	21	Air duct hose
11	Hose clamp	22	Hose clamp

Figure 19. ABC-MGA1 filter unit assembled for inside installation.



1	Air inlet cover	10	Hose clamp
2	Hose clamp	11	Air outlet hose
3	Air inlet hose	12	Canister air outlet
4	Locking coupling	13	Hose clamp
5	Blower air outlet	14	Air duct hose
6	Blower air inlet	15	Hose clamp
7	Coupling assembly	16	Hose clamp
8	Elbow coupling assembly	17	Canister air inlet
9	Connector assembly		

Figure 20. ABC-M6A1 filter unit assembled for outside installation.

Section III. PAINTING

55. General

Organizational maintenance personnel are authorized to retouch the paint on the ABC-M6A1 filter unit. When necessary, thoroughly clean the surface and repaint See TM 9-213 for general instructions for cleaning and methods of painting.

56. Paints To Be Used

a. Printer. Prime all worn and scratched surfaces with one coat of appropriate primer.

b. Exterior Surfaces. Repaint all previously painted surfaces with lusterless paint system No. 20.1 or 20.2, color olive drab, No. X34087, MIL-STD-171.

Section IV. ORGANIZATIONAL PREVENTIVE MAINTENANCE SERVICES

57. General

The instructions in this section apply to the organizational maintenance personnel responsible for maintaining the ABC-M6A1 filter unit. The purpose of preventive maintenance services is to detect the first signs of failure of assemblies in the equipment and to ensure that appropriate corrective action is taken before expensive and time-consuming repairs or replacements are required. Correct deficiencies or shortcomings as described in paragraphs 58 and 59. Report and request maintenance from direct support maintenance on all services beyond the scope of organizational maintenance. Use DA Form 2407 for reporting deficiencies.

58. Weekly Services

a. Tools. **T**he special tools required to perform the repair operations on the Military Standard gasoline engine are listed and described in TM 5-2805-206-14, paragraph 15. The tools consist of one cylinder head nut torque wrench adapter, part no. B11479-1 and one adapter FSN 5120-240-8702. The tools are components of TOE sets. One each tool is authorized per using units (TM 5-2805-206-24P). Check to see that these tools are available and on hand to use with the maintenance of the engine.

b. Appearance. Inspect general appearance of unit for cleanliness and paint. If filter unit is dirty, wash exterior metal surfaces with dry-cleaning solvent and dry with compressed air if available. If painting is required, report condition to direct support maintenance personnel.

c. Canister Assembly. Inspect all edges for tight closure. Check for holes, evidence of moisture leakage, and for chafing or obstruction in air inlet and outlet. If airflow in canister is improper, follow instructions in paragraph 69.

d. Blower Assembly. Check air delivery of blower. Be sure that there are no obstructions in blower air inlet or outlet. Check vanes for chipped blades. Turn vanes through full arc of motion. Be sure that there are no obstructions to free movement and that the fan is securely attached to the engine or motor output shaft. Be sure that screen is intact and is-securely fixed to blower air outlet (inside operation). Replace any missing bolts, nuts, or screws.

e. Air Inlet and Outlet Hose Assemblies. Check fabric for wearing, chafing, tears, and punctures.. Check connections for airtightness.

f. Exhaust Hose Assembly and Gaskets. Inspect exhaust system for leaks, loose mounting bolts and nuts, and defective gaskets. Replace defective gaskets.

g. Mounting. See that engine or motor is securely mounted to canister.

h. Gas Can Adapter and Lines. Inspect gas can adapter. Check fuel lines and connections for leaks. See that gas can adapter is securely mounted, and the air vent of gas can adapter is open, adapter clean and tight fitting. Check that gasket is undamaged. Replace damaged gasket (par. 87). Upon reassembly of gas lines, use sealing compound at all line joints (MIL-S-45180).

i. Fuel. See that sufficient fuel is on hand and properly stowed for immediate use.

59. Monthly Services

a. Publications. See that copies of TM 3-4240-241-12, TM 3-4240-241-20P, TM 5-2805-206-14, TM 5-2805-206-24P, and LO 5-2805-206-14 are with the equipment and in serviceable condition. Report any missing publications.

b. Modifications. See whether all modification work orders applying to the equipment have been completed and recorded on DA Form 2408-5.

c. Appearance. **I**nspect general appearance of the filter unit for cleanliness and condition of unit.

d. Fuel. Check that a sufficient amount of fuel is supplied and on hand for use, operation, and test.

e. Engine. See TM 5-2805-206-14 for engine maintenance instructions.

f. Electric Motor. Check electric motor for operation. Check cord for fraying. Check plug for cracks, breaks and chipping.

g. Tests. Operate the filter unit for 1 or 2 minutes each month, or after any change of location. Inspect both the CBR protective shelter and filter unit for general condition.

60. Preventive Maintenance Checks and Services

a. Purpose. The preventive maintenance checks and services provide organizational maintenance personnel with a list of maintenance services which must be performed at the intervals prescribed. Use the list to

make sure that all required maintenance is accomplished. If corrective action is not authorized at organizational level, report equipment faults to direct support maintenance personnel.

b. Explanation of Columns. A number under the weekly or monthly heading in the "Interval and Sequence No." column indicates that the service opposite the number must be performed at the prescribed interval. Weekly services must be performed weekly or after 60 hours of operation; monthly services, monthly or after 240 hours of operation, whichever occurs first. The number also indicates the sequence in which the service must be performed and is the "TM Item No." referred to on DA Form 2404 (TM 38-750).

Preventive Maintenance Checks and Services

Organizational Weekly and Monthly Schedule

Interval and sequence No.		*Item to be inspected*	*Procedure*	*Paragraph reference*
Wk.	*Mo.*			
1	.....	Air inlet and outlet	Check fabric for wearing, chafing, tears, and punctures	58e.
	.....	groups.	Check connections for airtightness.	
2	.....	Gas can adapter and	Check gas can and adapter and connections for leaks. Check	58h.
	.....	gasket.	that the air vent of gas can adapter is open, adapter clean	
	.....		and tight fitting and gasket undamaged.	
3	.....	Mountings.....	See that engine or motor is securely mounted to canister	58g.
4	.....	Exhaust hose assembly	Inspect cylinder exhaust hose assembly for leaks, loose	58f.
	.....	and gaskets.	mounting bolts and nuts, and defective gaskets.	
5	.....	Blower output	Check air delivery of blower assembly. Check vanes for	58d.
	.....		chipped blades. Report defects to general support	
	.....		maintenance personnel.	
6	.....	Canister.....	If airflow from canister is improper, see paragraph on	69a.
	.....		adjustment.	
	7	Engine.....	Perform all organizational preventive maintenance services	TM 52805 20614, *para* 20 and 21.
	8	Tests	Operate the unit for 1 or 2 minutes each month, or after any change of location. Inspect both the CBR protective shelter and filter unit for condition.	590.
	9	Notifications.....	See whether all modification work orders applying to the equipment have been completed and recorded on DA Form 24085.	59b.
	10	Electric motor	Check electrical motor for operation. Check cord and plug for fraying and chipping.	*59f.*

Section V. TROUBLESHOOTING

61. General

This section contains information useful for locating and correcting malfunctions which may develop in the ABC-M6A1 filter unit. Each malfunction is followed by a description of probable causes and possible remedies. Remedies which must be applied by higher level maintenance personnel include a note to this effect. See engine manual TM 5-2805-206-14 for detailed engine troubleshooting.

62. Gasoline Engine Fails to Start

Probable cause	*Possible Remedy*
Lack of fuel	Fill five gallon engine supply can with fuel.
Carburetor flooded	Adjust choke and crank engine.
Water or dirt in fuel ..... system.	Clean fuel line. Gasoline can adapter and fuel filter. Drain fuel from supply can and refill

Note. **For engine troubleshooting beyond this point refer to manual TM 62806206-14. para 22 to 28 inclusive. The engine manual is part of the ABC-M6A1 filter unit and is with the engine.**

63. Electric Motor Falls to Start

Probable cause	*Possible remedy*
Fuses blown.....	Replace fuses
Defective electrical cable	Replace.
Defective electrical male plug connector.	Replace.
Mechanical failure of motor or blower.	Report to general support maintenance.

64. Excessive Airflow

Probable cause	*Possible remedy*
Filters loose or damaged	Tighten canister turnbuckles or replace filters.
Gasoline engine running at excessive speed	Reference TM 5-28 - 206-14, paras. 55 through 59 inclusive.
Canister inlet damper not correctly adjusted.	Adjust canister Inlet Damper or engine speed (para. 60).

65. Insufficient Airflow

Probable cause	*Possible remedy*
Particulate filter clogged.	Replace particulate filter on recommendation of proper authority.
Obstruction in air Inlet hose, canister air inlet, or blower air inlet.	Remove obstruction.
Obstruction in air outlet hose, canister air outlet, or blower air outlet.	Remove obstruction.
Canister inlet damper not correctly adjusted.	Adjust canister inlet Damper or engine speed (para. 69).
Gasoline engine running too slow	Adjust engine speed. Reference TM 5-2805-206-14.

66. Improper Filtering

Probable cause	*Possible remedy*
Filters loose or damaged	Tighten canister turnbuckles or replace filters.
Gas filter not functioning properly	Replace gas filter on recommendation of proper authority (para. 68).
Moisture in filters	Replace filters.

Section VI. CANISTER GROUP

67. Description and Function

The description and function of the canister assembly is given in paragraph 5.

68. Tests

The effectiveness of the canister decreases with use. It should be tested every 6 months for satisfactory filtering. The particulate filters become dirty or clogged and reduce the airflow to an unsafe level. Gas filters become ineffective after neutralizing large concentrations of gas or after prolonged use in gas-contaminated areas. Install and operate the ABC-M6A1 filter unit to perform the following tests.

*a. Particulate Filters. C*heck filter unit for proper airflow (para. 69).

b. Radiological Agents. The canister should be checked by a monitor from the unit CBR team after being used during an attach with radiological agents. The filters will be replaced when the gamma dose Irate exceeds safe limits (TM MED) 254).

c. Gas Filters. Organizational maintenance personnel will be notified by the operator when contaminated gas filters are to be replaced (para. 13).

Warning. The unit commander or senior officer in charge of the maintenance personnel assigned to remove and dispose of the contaminated gas filters must prescribe the necessary protective clothing to be worn during this operation. He should also prescribe the necessary safety measures that must be followed, including the decontamination operation that must be performed before the new gas filters are installed in the canister (TM 3-220).

69. Airflow Adjustment

a. Check the canister for proper airflow when the inlet damper (para 70) requires adjustment and when particulate filters have been replaced. Check the canister also when the speed of the gasoline engine has to be regulated (reference TM 5-2805-206-14). Prior to checking the canister and operating the filter unit, the following general inspections should be performed.

b. Visually check the air inlet and outlet hose and connections of the filter unit for improper hookup, damage, and deterioration.

c. Since the filter unit is used primarily to provide filtered air to improvised CBB protective shelters (TM 3-350), the shelter should be inspected visually for possible source of air leakage before operating the filter unit.

d. Check the shelter air locks, entrances, exits, and antibackdraft valves for proper fit, damage, and improper operation.

e. After the shelter and the filter unit have been inspected, report the deficiencies to direct support maintenance personnel.

f. To test the canister, start the filter unit motor or engine and after a warmup period, check the air pressure in the shelter (TM 3-350).

g. Adjust the speed of the gasoline engine as necessary (TM 5-2805-206-14) to maintain the positive pressure of filtered air within the shelter.

h. Adjust the inlet damper as necessary.

70. Inlet Damper Adjustment

Adjust the inlet damper when there is a need to increase or decrease the airflow in the improvised CBR protective shelter (TM 3-350). To increase the airflow, open the inlet damper (1, fig. 13) by moving the damper control handle (2) counterclockwise. To decrease the airflow, close the inlet damper by moving the damper control handle clockwise.

Section VII. BLOWER GASKET

71. Description and Function

The blower gasket is cemented in the recess of the locking coupling adapter. It provides the necessary seal against air leaks when the locking coupling adapter is connected to either the elbow connector assembly or the air inlet hose assembly.

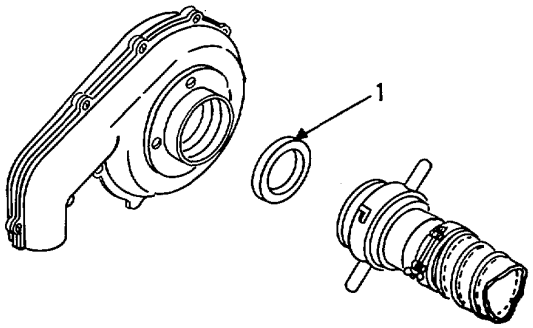
72. Maintenance

Organizational maintenance personnel are authorized to replace the blower gasket.

a. Removal. (Fig. 21)
   (1) Disconnect the locking coupling (4) from the locking coupling adapter (2).
   (2) Pry the gasket (3) out of the recess of the adapter.

b. Inspection and Maintenance.
   (1) Clean the surfaces of the adapter and remove all particles of remaining cement.
   (2) Wipe the inner ring with drycleaning solvent. Inspect inner surface for damage.

c. Installation.
   (1) Cement (MIL-A-3562) the gasket (3) in the recess of the adapter with liquid rubber adhesive.
   (2) Connect the elbow connector assembly or the air inlet hose assembly and check for proper fit and installation of the gasket.



1 Blower
2 Locking coupling adapter
3 Blower gasker
4 Locking coupling
5 Locking coupling tube

Figure 21. Blower inlet and blower gasket.

Section VIII. CANISTER ASSEMBLY

73. Description and Function

The description and function of the canister assembly is given in paragraph 5.

74. Maintenance

Organizational maintenance personnel are authorized to replace the gas filter, particulate filters, hose assemblies, and the associated hardware.

75. Disassembly

Stop engine or motor and perform the following steps:

a. Remove air inlet hose assembly (1, fig. 1) and air outlet hose assembly (4).

b. Remove eight turnbuckles (10, fig. 4), which fasten manifolds and filters together, by loosening turnbuckle screws.

c. Loosen four hose clamps (5, 7, 13 and 16) which fasten two air duct hose (6 and 15).

d. Extend the four retractable carrying handles (14) and carefully lift top manifold (4) with engine (2, fig. 1) or motor (2, fig. 2) and blower (3) attached. Place on wooden blocks, being careful not to dent or scratch manifold surfaces.

e. Remove two air duct hoses (6 and 15, fig. 4).

f. Lift off filter and manifold in the following sequence: gas filter (2, fig. 15), particulate filter (3), intake manifold (4), particulate filter (5), and gas filter (6).

76. Inspection and Maintenance

a. Do not clean filters. If air flow in particulate filter test (para. 68) was below normal, inspect for dirty or clogged filters. If airflow was above normal, inspect for dents, bends, or punctures ill filters. Replace if defective. Ordinarily, the particulate filters will be replaced when it is necessary to replace the gas filters. However, tile filters may be retained for further use if inspections show them to be intact and serviceable. A chemical officer will determine the serviceability of the filters. Replace gas filters if they fail the test in paragraph 68 or if they appear defective.

b. Clean all metal parts with drycleaning solvent, and wash air duct hose with a mild solution of soap or detergent. Dry with compressed air.

c. Inspect manifold hose for tears, holes, or punctures at connection points. Check for chafing and worn edges. Replace if damaged.

d. Make certain that dirt or foreign matter has not entered air intake manifold (12, fig. 4), top manifold (4), or bottom manifold (9). (This may happen if air inlet cover (1, fig. 19) or screen was not fitted properly.) Remove any obstructions. Also check manifolds for traces of moisture. Report any evidence of moisture to general support maintenance personnel.

77. Assembly

a. Stack the canister frames the following order: bottom manifold (7, fig. 15), gas filter (6i), particulate filter (5), intake manifold (4), particulate filter (3), and gas filter (2). Be sure filters and manifolds are properly alined.

Caution. **The filters may be placed either side up, but it is important that they be stacked as directed in a above so that air will pass through the particulate filters first and then through the gas filters. If not, dust and aerosols will damage the gas filters, and they will have to be replaced.**

b. Slide air duct hose (6, fig. 4) over bottom manifold (9) outlet and intake manifold (12) inlet, respectively.

c. Lower top manifold (4) with engine or motor and blower onto stacked frames while guiding air duct hose over top manifold inlet and outlet.

d. Tighten four hose clamps.

e. Position eight turnbuckles (10) and tighten.

Section IX. SLIDE BOLTS

78. Description and Function

The slide bolts attach the stand assembly to the canister assembly. The bolts when properly mounted allow the stand assembly to be swiveled so as to position the blower for either inside or outside operation.

79. **Maintenance**

Organizational maintenance personnel are authorized to replace the slide bolts.

a. *Removal.*
   (1) Disconnect blower from top manifold by turning locking coupling (4, fig. 20).
   (2) Remove nuts (9, *fig.* 16) and washers (8) from stand assembly.
   (3) Remove stand assembly with power unit intact.
   (4) Slide the slide bolts (10) to the key hole position in the swivel base and remove.

b. Inspection aid Maintenance.
   (1) Clean bolts, nuts and washers.
   (2) Check bolt threads and head for undue wear.
   (3) If bolts, washers, and nuts exhibit undue wear as to inhibit operation, or if damaged, replace.

c. Installation.
   (1) Clean swivel base and install bolts in key holes.
   (2) Reinstall the power unit in stand assembly, alining bolts with stand assembly holes.
   (3) Place washers over bolt and thread nuts in place (do not tighten).
   (4) Turn blower to proper position on top manifold.
   (5) Tighten nuts

Section X. TURNBUCKLES

80. Description and Function

The description and function of the turnbuckles is given in paragraph 5.

81. Maintenance

Organizational maintenance personnel are authorized to replace the turnbuckles.

a. Removal. (Fig. 4.)

(1) Use wrench, plyers, or similar tool to turn the turnbuckle (10) counterclockwise.

(2) Upon loosening, remove turnbuckles.

b. Inspection and Maintenance.

(1) Check bolt threads for undue wear or damage.

(2) Clean turnbuckle screw and threads

(3) If turnbuckle screw, threads, and/or clamp head are excessively worn or damaged, replace.

c. Installation.

(1) Reassemble, install and tighten. Check that the filter seals are in place and the top and bottom manifold are tight and in place.

Section XI. ELBOW CONNECTOR ASSEMBLY

82. Description and Function

The description and function of the elbow connector assembly is given in paragraph 5.

83. Maintenance

Organizational maintenance personnel are authorized to replace the elbow connector assembly.

a. Removal. (Fig. 20.)

(1) Turn connector assembly (9) on the hose side to disconnect hose.

(2) Lift elbow coupling assembly off top manifold.

b. Inspection and Maintenance.

(1) Inspect assembly for broken, chipped or worn ring fittings.

(2) Replace the elbow connector assembly if any part exhibits undue wear as to inhibit operation.

c. Installation

(1) Reinstall assembly by placing elbow over manifold.

(2) Reinstall connector assembly (9).

(3) Check that all connections are tight and in place.

Section XII. REGULATOR DIAL ASSEMBLY

84. Description and Function

The description and function of the regulator dial assembly is given in paragraph 5.

85. Maintenance

Organizational maintenance personnel are authorized to replace the regulator dial assembly.

a. Removal. (Fig. 16.)

(1) Remove two screws (1) holding the assembly to the intake manifold.

(2) Remove screw (3) holding damper handle to assembly and remove wing nut (6).

Then remove assembly *(7)* from top manifold.

b. Inspection and Maintenance.

(1) Inspect regulator dial assembly for bent or damaged parts.

(2) Clean all parts in dry cleaning solvent anti replace those parts that are bent, excessively worn or broken.

c. Installation.

(1) Reinstall regulator dial assembly as indicated.

(2) Set damper handle to position inlet damper in accordance with paragraph 70.

Section XIII. GAS CAN ADAPTER

86. Description and Function

The gas can adapter consists of a threaded metal cap that attaches to the standard military 5-gallon gasoline can. The adapter is equipped with a breathing vent and gasket.

87. Maintenance

Organizational maintenance personnel are authorized to replace the gas can adapter.

a. Removal. (Fig. 7.)

(1) Remove the gas can adapter (6) by unscrewing from top of standard military gasoline can (7).

(2) Loosen and unscrew coupling nut (8) and hose assembly (9) to remove hose from adapter.

b. Inspection and Maintenance.

(1) Inspect gas can adapter for dirt or damage.

(2) Test adapter by blowing through both vent and fuel tube.

(3) Wash all parts in dry cleaning solvent.

(4) Inspect condition of gasket.

(5) Replace all parts that are excessively worn or damaged.

c. Installation.

(1) Screw gasoline hose to coupling nut and to fuel outlet tube.

(2) Screw gas can adapter onto standard military five gallon gas can and hand tighten.

Section XIV. GASOLINE HOSE ASSEMBLY

88. Description and Function

The gasoline hose assembly is a 10-foot rubber and fabric hose assembly that carries the fuel from the standard military five gallon tank to the engine.

89. Maintenance

Organizational maintenance personnel are authorized to replace the gasoline]lose assembly.

a. Removal. (Fig. 7.)

(1) Remove the filter end of the hose by unscrewing the upper coupling.

(2) Remove the gas can adapter end by unscrewing the house from the gas can adapter (6) at lower coupling (8).

b. Inspection and Maintenance.

(1) Inspect the hose for obstructions and abrasions..

(2) Inspect the connectors for undue wear or damage.

(3) Replace the hose if it is unfit for service.

c. Installation

(1) Install as indicated.

(2) Check for leaks.

Section XV. EXHAUST TUBE ASSEMBLY

90. Description and Function

The exhaust tube assembly (4, fig. 7) is a metal hose assembly consisting of an external flexible steel tube lined with asbestos packing material. When the filter unit is operated inside a CBR protective shelter, the exhaust hose is fed through the outer wall of the shelter to direct the engine exhaust fumes and combustion noises to the outside of the shelter.

91. Maintenance

Organizational maintenance personnel are authorized to replace the exhaust tube assembly.

a. Removal. (Fig. 7). Unscrew exhaust hose assembly (4) from exhaust tube connector (3).

b. Inspection and Maintenance.

(1) Inspect hose for breaks and cracking.

(2) Replace if hose is unfit for service

c. Installation. Assemble as indicated.

Section XVI. AIR OUTLET HOSE ASSEMBLY

92. Description and Function

The description and function of the air outlet hose assembly is given in paragraph 5.

93. Maintenance.

Organizational maintenance personnel are authorized to replace portions of the air outlet hose assembly.

a. Removal.

(1) Disconnect air outlet hose from filter unit by turning connector assembly (9, fig. 20).

(2) Remove gasket (12, fig. 8).

b. Inspection and Maintenance.

(1) Insect gasket. for tears or wear and replace if not fit for service.

(2) Inspect hose clamp (5) for damage and replace it not fit for service.

(3) Clean with soap amid water and replace.

c. Installation. Assemble as indicated.

Section XVII. ELECTRICAL CABLE AND CONNECTOR PLUG

94. Description and Function

The electrical cable and connector plug provide a means to connect the electric motor to the power source.

95. Maintenance

Organizational maintenance personnel are authorized to replace the electric cable and connector plug.

a. Removal.

Note. **Remove only if inspection shows the cable to be frayed or broken.**

(1) Disconnect the connector from the power source.

(2) Remove cover (4, fig. 17) from terminal box mounted on the side of the motor (1).

(3) Disconnect the two screws attaching the cable to the terminal board, following the wiring diagram in terminal box.

(4) Remove connector plug (9).

b. Inspection and Maintenance.

(1) Inspect the connector for cracks or breaks or loose wires.

(2) Replace connector if cracked or broken.

(3) Replace electric cable.

c. Installation. Reinstall as indicated.

CHAPTER 5

SHIPMENT, LIMITED STORAGE, AND DEMOLITION TO PREVENT ENEMY USE

Section I. SHIPMENT AND LIMITED STORAGE

96. Shipment

a. Servicing.

(1) Remove air inlet and outlet hose from their connections to canister and blower. Depending upon inside or outside operation, remove inlet or outlet hose from adapter in building vent opening.

(2) Remove fuel and drain lines. Rwi en- gine until remaining fuel is exhausted.

b. Cleaning and Painting. Clean the filter twit thoroughly. For general cleaning and painting instructions reference TM 9-213.

c. Crating. It is not necessary to crate the filter unit for movement from site to site. However, the bottom of the crate should be used as a skid. Fasten canister to skid with steel straps. Use wooden pieces at top corners of canister. Place shipping block between canister and engine blower.

97. Limited Storage

a. General. It is the responsibility of the unit commander to determine the specific preventive maintenance needs when placing the filter unit in limited storage. Place the unit in shed storage. Storage conditions will determine the extent of protection required. The instructions which follow are recommended as guides for the unit commander and may be used in whole or in part, or may be supplemented at his discretion depending upon the conditions prevailing at the time. If storage exceeds 3 months, use these instructions as a checklist to repeat operations will need to be performed.

b. Inspection. Make certain that the unit Is in good operating condition and does not require overhaul or replacement of parts. Reference paragraph 27.

c. Cleaning and Painting.

(1) Thoroughly clean all exposed parts; remove all dirt, rust, grease, and other foreign matter.

(2) Paint all areas where paint has been scratched or scraped off. For painting instructions, reference TM 3-4240-241-35.

d. Protection in Storage.

(1) Gasoline engine.

(a) Remove spark plug.

(b) Spray approximately 2 ounces of preservative internal-combustion, engine lubricating oil, Type P-10 Grade 2, into cylinder.

(c) By hand, rotate rope pulley (6, *fig.* 6) clockwise through several turns.

(d) Apply P-10 Grade 2 preservative oil to threads and install spark plug.

(2) Filter unit.

(a) Collapse hose and stow in shipping carton (fig. 18).

(b) Store filter unit in *a* dry, sheltered place away from fumes of chemical agents, acids, or other corrosive materials. Do not place unit directly on the grounds If the filter unit is not crated, cover it with canvas.

Section II. DEMOLITION TO PREVENT ENEMY USE

98. Authority for Destruction

When capture or abandonment of the filter unit to the enemy is imminent, the responsible unit commander makes the decision to destroy the equipment or to render it inoperative. Based on this decision, orders are issued which cover the desired extent of demolition. Whatever method of destruction is employed, it is essential that the same parts and corresponding repair parts for all filter units are destroyed.

99. Preferred Demolition Methods

Explosives and mechanical means, either alone or in combination, are the most effective methods to employ. Listed below are the vital parts in order of priority of demolition for each preferred method. In each case, completion of the first two steps will render the unit inoperative. Completion of the additional steps will further destroy the unit.

a. Demolition by Explosives. (Fig. 22.) Place as many of the following charges of TNT or equivalent as the situation permits and detonate them simultaneously with detonating cord and a suitable detonator:

(1) A 1/2-pound charge in the air inlet of the blower.

(2) A 1/2-pound charge in the air inlet of the canister.

Note. The above charges are the minimum requirements for this method.

(3) A ½ pound charge on the engine cylinder.

(4) A ½ pound charge in the air outlet of the canister.

(5) A ½ pound charge under the canister.

b. Demolition by Mechanical Means. Use sledge hammers, crowbars, picks, axes, or any other heavy tools which may be available to destroy the following parts:

(1) The engine cylinder.

(2) The filters.

Note. The above steps are minimum requirements of this method.

(3) Tile carburetor.

(4) The blower group.

(5) The air inlet and outlet groups.

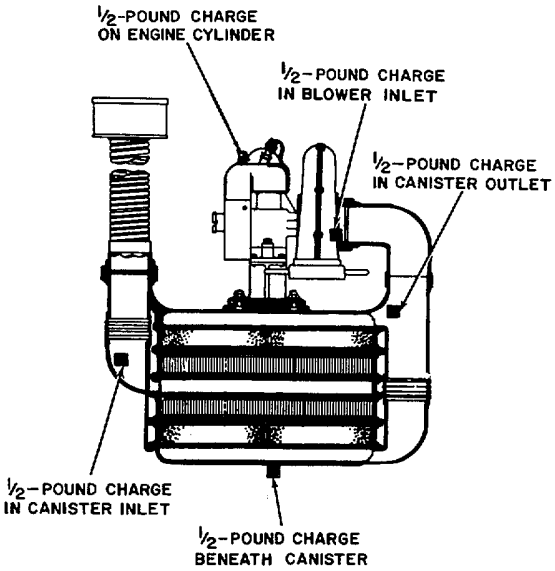


Figure 22. Placement of charges.

100. Other Demolition Methods

If the situation prohibits use of the preferred methods of demolition, use the methods listed below, either alone or in combination.

a. Demolition by Incendiary Grenades. Place and fasten AN-M14 incendiary grenades (TM 9- 1330-200) at the points where explosive charges would be placed (fig. 22). Attach a wire or rope lanyard to the pull ring of each grenade and trail the lanyards along the ground for a safe distance. Straighten the safety pin on each grenade and fire grenades by pulling the lanyards.

b. Demolition by Weapons Fire. Fire on the filter unit with tile heaviest weapons available.

c. Demolition by Scattering and Concealment. Remove all easily accessible parts, such as filters, the manifold hose, the air inlet and outlet groups, and the carburetor. Scatter them through dense foliage, bury them in dirt or sand, or throw them in a lake, stream, well, or other body of water.

d. Demolition by Burning. Pack rags, clothing, or canvas under and around the canister and hose groups. Saturate this packing with oil or diesel fuel, and ignite with incendiary grenades.

e. Demolition by submersion. Totally sub-

merge the filter unit in a body of water to provide some water damage and concealment. Salt water will do the greatest damage to metal parts.

f. Demolition by Misuse. Perform the steps listed below to make the filter unit inoperative:

(1) Start the engine and throw sand or dirt into the air inlet of the canister. Continue to do this until the particulate filter is clogged.
(2) Fill the canister with water.

APPENDIX I

REFERENCES

AR708-15	Conversion to Use of Federal Catalog Data in Army Supply Operations
TB MED 254	Permissible Dose From External Sources of Ionizing Radiation.
TM 3-220	Chemical, Biological and Radiological (CBR) Decontamination.
TM 3-350	Improvised CRB Protective Shelter.
TM 3-4240-241-20P	Organizational Repair Parts and Special Tools List, Filter Unit, Gas-Particulate, GED, 300 CFM, ABC-M6A1.
TM 5-2805-206-14	Operator, Organizational, and Field Maintenance Manual, Engine, Gasoline, Military Standard Models.
TM 5-2805-206-24P	Operator, Organizational and Field Maintenance Repair Parts and Special Tool List, Engine, Gasoline, Military Standard Models.
TM 9-312	Painting Instructions for Field Use.
TB 9-1330-200/1, -/3	Rifle and Hand Grenades.
TM 38-750	The Army Equipment Record System and Procedures.

APPENDIX II
MAINTENANCE ALLOCATION CHART

1. Explanation of Columns

a. Column 1, Index Number. Column 1 lists the number which is assigned to each group, component, assembly, or subassembly to facilitate references. The numbers are identical to and in the same sequence as those assigned to the same group, component, assembly, or subassembly in the repair parts and special tool lists.

b. Column 1, Components and Related Maintenance Operations. Column 2 lists groups, components, assemblies, and subassemblies on which maintenance can be performed; and the maintenance operations which are authorized to be performed on each.

c. Column 3, 4, 5, 6, and 7, *Maintenance Category.* Column 3, 4, 5, 6, and 7 indicate by an "X" the lowest maintenance category authorized to perform the prescribed maintenance operation.

d. Column 8, Remarks. Column 8 is used for special instructions.

2. Use of Chart

Determine from the chart the maintenance category that is authorized to perform the required maintenance operation. Refer to the text in the appropriate part of the maintenance manual for instructions in performing the authorized maintenance operations defined below:

SERVICE ---------- To clean, to preserve, and to replenish fuel and lubricants

ADJUST---------- To regulate periodically to prevent malfunction.

INSPECT ---------- To verify serviceability and to detect incipient electrical or mechanical failure by scrutiny.

TEST---------- To verify serviceability and to detect incipient electrical or mechanical failure by use of special equipment such as gages, meters, and the like.

REPLACE ---------- To substitute serviceable assemblies and subassemblies for unserviceable component parts.

REPAIR ---------- To restore an item to serviceable condition through correction of a specific failure or unserviceable condition. This function includes but is not limited to, inspecting, cleaning, preserving, adjusting, replacing, welding, riveting, and straightening.

ALINE ---------- To adjust two or more components of an electrical system so that their functions are properly synchronized.

CALIBRATE---------- To determine, check, or rectify the graduation of an instrument, weapon, or weapons system, or components of a weapons system.

OVERHAUL---------- To restore an item to completely servicable condition as prescribed by serviceability standards developed and published by heads of technical services. This is accomplished through employment of the technique of "Inspect and Repair Only as Necessary" (IROAN). Maximum utilization of diagnostic and test equipment is combined with minimum disassembly of the item during the overhaul process.

SYMBOL "X" ---------- The symbol "X" placed in the appropriate column indicates the maintenance category responsible for performing that particular maintenance operation, but does not necessarily indicate that repair parts will be stocked at that level. Maintenance categories higher than the category marked by "X" are authorized to perform the indicated operation.

SYMBOL "%%"-------- The symbol *"%%"* indicates that organizational personnel may perform the particular maintenance operation, provided the request originates from organizational level and is specifically authorized by the direct support technical service officer. In no case will performance of a "double percent" operation be directed by the direct support technical service officer, and in no case will a "double percent" operation authorize storage of parts at organizational level.

Maintenance Allocation Chart

Index No.	Component and related maintenance operations	Maint categories OP	ORG	DS	GS	DEP	Remarks
	100 - Blower assembly						
none	Blower assembly						
	Inspect	x					
	Service	x					
	Repair				x		
	Replace				x		
8	Gasket, blower						
	Replace		x				
	200-Canister assembly						
21	Bolt, slide						
	Service	x					
	Adjust	x					
	Replace		x				
22	Connector, elbow assembly						
	Service	x					
	Replace		x				
	Repair				x		
29	Filter, gas						
	Replace		x				
30	Filter, particulate						
	Replace		x				
33	Hose assembly						
	Service	x					
	Replace		x				
35	Hose assembly						
	Service	x					
	Replace		x				
42	Regulator dial assembly						
	Service	x					
	Adjust	x					
	Repair		x				
	Replace				x		
48	Turnbuckle assembly						
	Service.	x					
	Adjust	x					
	Replace		x				
	300 - electric motor installation						
56	Motor, electric						
	Inspect	x					
	Service		x				
	Replace			x			
	Repair				x		
	Overhaul					x	

Index No.	Component and related maintenance operations	Maint categories OP	ORG	DS	GS	DEP	Remarks
	300- Electric motor installation -continued						
57	Cable, electric						
	Inspect		x				
	Replace		x				
58	Connector, plug						
	Service	x					
	Replace		x				
61	Spacer block						
	Replace			x			
62	Stand assembly						
	Service	x					
	Replace			x			
	400-Gasoline engine installation						
64	Adapter, gasoline can						
	Service	x					
	Replace		x				
68	Engine, gasoline						Refer to TM 5-2805-206-14.
	Service	x					
	Adjust	x					
	Repair				x		
	Replace			x			
	Overhaul					x	
69	Gasket, exhaust tube						
	Replace		x				
70	Hose assembly, exhaust						
	Service	x					
	Replace		x				
71	Hose assembly, gasoline						
	Service	x					
	Replace		x				
	Repair		x				
77	Spacer block						
	Replace			x			
78	Stand assembly						
	Service	x					
	Replace			x			
	500-Air inlet and outlet hose assemblies						
81	Hose, air inlet						
	Service	x					
	Replace		x				
	Repair				x		
83	Clamp, hose						
	Replace		x				
86	Hose, air duct						
	Replace		x				
89	Hose, air outlet						
	Service	x					
	Replace		x				
	Repair				x		

APPENDIX III
BASIC ISSUE ITEM LIST

Section I. INTRODUCTION

1. Purpose and Scope

This appendix furnishes the user of the Filter Unit, Gas Particulate, GED, 300 CEM. ABC, M6A1 and EMD, 300 CFM, ABC M6A1 with a list of the major components and the supplies, tools, and repair parts that comprise the end item.

2. Explanation of Columns

a. Federal Stock Number. Federal stock numbers and assigned by the Federal Cataloging Program and are to be used in accordance with AR 708-15.

b. Description. The approved Federal item name appears in upper case letters. Modifiers necessary for proper identification appear in lower case letters.

c. Unit of Issue. The unit of issue for each item is indicated in this column.

d. Expendability. The symbol NX indicates that an item is nonexpendable. When no symbol appears, the item is expendable.

e. Quality Authorized. Quantities listed represent the repair parts spare assemblies, supplies, and special tools authorized for operators level maintenance. The authorized quantities for each end item must be on hand or on order at all times.

f. Illustrations. This column contains the figure number of each illustration for indicated components.

3. Abbreviations

The abbreviations used in the BIIL are defined as follows:

CFM ---------- cubic feet per minute
dr ---------- drive
ea ---------- each
EMD ---------- electric motor driven
GED ---------- gasoline engine driven
hp ---------- horsepower
in ---------- inches(es)
MM---------- millimeter
NX ---------- nonexpendable
sq ---------- square
w/---------- with

Section II. BASIC ISSUE ITEM LIST

Federal stock No.	Description	Unit of issue	Expend-ability	Quan-tity author-ized	Illustrations	
					Fig No.	Item No.
4240-889-2316	FILTER UNIT, GAS-PARTICULATE, GED, 300 CFM, ABC-M6A1.	ea	NX		1	
	MAJOR COMPONENTS					
	BLOWER ASSEMBLY	ea			2	3
2805-714-8552	ENGINE, GASOLINE, AIR COOLED IND TYPE 11/2 HP, MODEL 1A08II.	ea	NX	1	1	2
6105-066-4478	MOTOR, ELECTRIC	ea	NX	2	2	2
4240-256-9094	FILTER, GAS, 150 CFM, M10	ea		2	4	11
4240-050-8781	FILTER, PARTICULATE, 150 CFM, M9A1	ea		2	4	8
4240-639-9841	HOSE, AIR INLET ASSEMBLY	ea		1	1	1
4240-639-9842	HOSE, AIR OUTLET ASSEMBLY	ea		1	1	4
	REPAIR PARTS AND SPECIAL TOOLS					
	NONE					

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USAICDA (2)
USASWODA (2)
ARADCOM (5)
ARADCOM Rgn (b)
0S Maj. Comd (5)
USASMC (1)
USAMUCOM (5)
Armies (5)
Corps (3)
USAC (1)
Div (3)
Instl (2)
Svc Colleges (10)
Br Svc Sch (10) except
USACMLCS (50)
GENDEP (5)
Dep (5)
Army Dep (5)
USAARMC (2)
USAAMC (2)
USAMA (10)
POE (1)
USATTC (1)
Army Tm1 (1)
USA Engr Cen (2)
USA Pet Cen (2)
USAIC (2)
USAAPSA *(5)*
Arsenals (8) except Edgewood (50)
PG (5)
Units organized under following TOE's (1 copy each, except as indicated):

3-7	29-25
3-32	29-27
3-6	29-35
3-47 (2)	29-37
3-67 (2)	29-45
8-117	29-51
3-147	29-55
8 500 (AA-AC)	29-56
	29-57
29-1	29-75
29-11	29-79
29-15	20-105
29-17	20-109
29-21	29-500

NG: State AG (3); Division (1).
USAR: None.
For explanation of abbreviations used, see AR *320-50.*

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