TM 5-4120-282-13

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

OPERATOR'S, ORGANIZATIONAL
AND DIRECT SUPPORT MAINTENANCE MANUAL
INCLUDING
REPAIR PARTS AND SPECIAL TOOL LISTS

AIR CONDITIONER, FLOOR MOUNTED, AIR COOLED
ELECTRIC MOTOR DRIVEN, 3/4 HP, 60 CYCLE AC
SINGLE PHASE, 9000 BTU/HR

(HARVEY W. HOTTEL INC. MODEL HAC-750H)
FSN 4120-00-592-4645
(KECO MODEL F-9000-2)
FSN 4120-00-679-2669
(COLUMBIA SPECIALTY MODEL CAS9000)
FSN 4120-00-926-4113
(REDMANSON MODEL A-9000)
FSN 4120-00-992-7055

This copy is a reprint which includes current pages from Changes 1 through 4. w/ch 5

HEADQUARTERS, DEPARTMENT OF THE ARMY
7 OCTOBER 1969

SAFETY PRECAUTIONS

BEFORE OPERATION

Disconnect the power supply cord assembly before performing any maintenance on the components of the electrical system. Failure to observe this warning could result in serious injury or death to the operating or maintenance personnel.

Avoid bodily contact with liquid refrigerant and avoid inhaling refrigerant gas. Be especially careful that refrigerant 12 does not contact the eyes. In case of refrigerant leak, ventilate the area immediately.

When moving the air conditioner for maintenance operations, do not use a lifting device with a capacity of less than 175 pounds.

DURING OPERATION

Shut off all power by disconnecting cord assembly before performing any maintenance on the components of the electrical system. Failure to observe this warning could result in serious injury or death to the operating or maintenance personnel.

Avoid bodily contact with liquid refrigerant and avoid inhaling refrigerant gas. Be especially careful that refrigerant 12 does not contact the eyes. In case of refrigerant leaks, ventilate the area immediately.

AFTER OPERATION

Disconnect the power supply cord assembly before performing any maintenance on the components of the electrical system. Failure to observe this warning could result in serious injury or death to the operating or maintenance personnel.

Avoid bodily contact with liquid refrigerant and avoid inhaling refrigerant gas. Be especially careful that refrigerant 12 does not contact the eyes. In case of refrigerant leaks, ventilate the area immediately.

When moving the air conditioner for maintenance operations, do not use a lifting device with a capacity of less than 175 pounds.

WARNING

The burning of polyurethane foams is dangerous. Due to the chemical composition of a polyurethane foam, toxic fimes are released when it is burned or heated. If it is burned or heated indoors, such as during a welding operation in its proximity, precautions should be taken to adequately ventilate the area. An exhaust system equivalent to that of a spray paint booth should be used. Air supplied respirators, approved by the National Institute for Occupational Safety and Health or the US Bureau of Mines, should be used for all welding in confined spaces and when ventilation is inadequate. Individuals who have chronic or recurrent respiratory conditions, including allergies and asthma, should not be employed in this type of environment.

CHANGE

NO. 6

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D. C., 1 JULY 1992

Operator's, Organizational, and Direct Support Maintenance Manual
Including Repair Parts and Special Tools Lists

AIR CONDITIONER, FLOOR MOUNTED, AIR COOLED, ELECTRIC MOTOR DRIVEN,,
3/4 HP, 60 HERTZ, AC, SINGLE PHASE, 9,000 BTU/HR,
(HARVEY W. HOTTEL INC. MODEL HAC-750H) NSN 4120-00-592-4645;
(KECO MODEL F-9000-2) NSN 4120-00-679-2669;
(COLUMBIA SPECIALTY MODEL CAS 9000) NSN 4120-00-926-4113;
(REDMANSON MODEL A-9000) NSN 4120-00-992-7055

Approved for public release; distribution is unlimited

TM 5-4120-282-13, 7 October 1969, is changed as follows:

Page 1, paragraph 2(b) is superseded as follows:

b. You can help improve this manual. If you find any mistake or if you know of a way to improve the procedure, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to: Commander, U.S. Army Troop Support Command, ATTN: AMSTR–MMTS, 4300 Goodfellow Blvd., St. Louis, MO 63120–1798. A reply will be furnished to you.

Page 43 is changed as follows:

- Preceding paragraph 74a, Releasing Refrigerant Charge, insert the following note and text:

NOTE

In accordance with Environmental Protection Agency regulations, refrigerants cannot be discharged into the atmosphere. A recovery/recycling unit must be used whenever discharging the unit.

Operation of the recovery/recycling unit must be by AUTHORIZED PERSONNEL ONLY.

- Paragraph 74a, step (3) is superseded as follows

(3) Connect and operate recovery/recycle unit in accordance with the manufacturer's instructions.

- Delete paragraph 74a, steps (4) through (11).

Page 47 is changed as follows:

- Preceding paragraph 74d., Charging the System, insert the following note:

NOTE

Whenever available, use recycled refrigerant for charging the refrigeration system.

Page C-4 is changed as follows:

- Immediately following the Maintenance Allocation Chart, add following chart and text entitled SECTION Ill. TOOLS AND TEST EQUIPMENT REQUIREMENTS as shown:

SECTION Ill. TOOLS AND TEST EQUIPMENT REQUIREMENTS

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE CATEGORY	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
	F-H	Recovery and Recycling Unit, Refrigerant	4130-01-338-2707	17500B (07295)

By Order of the Secretary of the Army:

GORDON R. SULLIVAN
General, United States Army
Chief of Staff

Official:

MILTON H. HAMILTON
Administrative Assistant to the Secretary of the Army
01606

DISTRIBUTION:
To be distributed in accordance with DA Form 12–25E, qty rqr block no. 0037.

U.S. GOVERNMENT PRINTING OFFICE: 1992 - 654-028/60197

PIN: 026139-006

CHANGE

NO. 5

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 20 NOVEMBER 1990

Operator's, Organizational and Direct Support Maintenance Manual
Including Repair Parts and Special Tools Lists

AIR CONDITIONER, FLOOR MOUNTED, AIR COOLED, ELECTRIC MOTOR DRIVEN
3/4 HP, 60 HERTZ, AC, SINGLE PHASE, 9,000 BTU/HR, (HARVEY W. HOTTEL INC.
MODEL HAC–750–H) NSN 4120–00–592–4645;
(KECO MODEL F–9000–2) NSN 4120–00–679–2669;
(COLUMBIA SPECIALTY MODEL CAS 9000) NSN 4120–00–926–4113;
(REDMANSON MODEL A–9000) NSN 4120–00–992–7055

Approved for public release; distribution is unlimited

TM 5–4120–282–13, 7 October 1969 is changed as follows:

Page 14, paragraph 17.1 is added as follows:

17.1. Operation in Extreme Heat.

NOTE

Unit Preventive Maintenance Checks and Services (PMCS) should be performed at daily intervals.

a. General. The air conditioner is designed to operate in temperatures up to 120 °F (49 °C). Extra care should be taken to minimize the cooling load when operating in extreme high temperatures.

b. Protection.

(1) Check all openings in the enclosure, especially doors and windows, to be sure they are tightly closed. Limit in and out traffic if possible.

(2) When appropriate, use shades or awnings to shut out direct rays of the sun.

(3) When possible, limit the use of electric lights and other heat producing equipment.

(4) Limit the amount of hot, outside air introduced through the fresh air damper to that essential for ventilation.

NOTE

Weatherstripping, the installation of storm doors, and windows, if appropriate, and insulation of surfaces exposed to the outside is recommended when operating in extremely high temperatures for extended periods.

c. Cleaning.

(1) Clean outside grilles, coils, filters, and mist eliminator more frequently.

Page 14, paragraph 18 is superseded as follows:

18. Operation in Dusty or Sandy Conditions.

NOTE

Unit Preventive Maintenance Checks and Services (PMCS) should be performed at daily intervals.

a. General. Dusty and sandy conditions can seriously reduce the efficiency of the air conditioner by clogging the air filter, mist eliminator, and coils. This will cause a restriction in the volume of airflow. Accumulation of dust or sand in the condenser coil and/or in the compressor compartment may cause overheating of the refrigeration system. Dust or sand may also clog the condensate trap and water drain lines.

CAUTION

Never operate the air conditioner without having the air filters in place.

b. Protection.

(1) Shield the air conditioner from dust as much as possible.

(2) Take advantage of any natural barriers which offer protection.

(3) Limit the amount of dusty or sandy outside air introduced through the fresh air damper.

(4) Roll down and secure the fabric cover on the back of the cabinet during periods of shutdown.

c. Cleaning.

(1) Keep the air conditioner as clean as possible.

(2) Pay particular attention to the outside grilles, condenser, filters, mist eliminator, louvers, and electrical components.

(3) In extreme conditions, daily cleaning of condenser, filters, and outside grilles may be necessary.

By Order of the Secretary of the Army:

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

Official:

THOMAS F. SIKORA
Brigadier General, United States Army
The Adjutant General

DISTRIBUTION:
To be distributed in accordance with DA Form 12–25E, (qty rqr block no. 0037)

☆ U.S. GOVERNMENT PRINTING OFFICE: 1991 554-123/20190

PIN: 026139-005

CHANGE
No. 4

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 20 October 1986

Operator's, Organizational and Direct Support Maintenance Manual Including Repair Parts and Special Tools Lists

AIR CONDITIONER, FLOOR MOUNTED, AIR COOLED, ELECTRIC MOTOR DRIVEN, 3/4 HP, 60 HERTZ, AC, SINGLE PHASE, 9,000 BTU/HR, (HARVEY W. HOTTEL INC. MODEL HAC-750H) NSN 4120-00-592-4645; (KECO MODEL F-9000-2) NSN 4120-00-679-2669; (COLUMBIA SPECIALTY MODEL CAS 9000) NSN 4120-00-926-4113; (REDMANSON MODEL A-9000) NSN 4120-00-992-7055

Current as of 26 March 1986.

TM 5-4120-282-13, 7 October 1969, is changed as follows:

Page 14, paragraph 17. Paragraph is superseded as follows;
17. Operation Under Usual Conditions.
a. Start the air conditioner (paragraph 15).
b. Operational Check; Final Performance Check. All maintenance levels.
(1) The assembled air conditioner shall meet the requirements of paragraph 15 and 16.
(2) The assembled air conditioner shall produce a 18°F (± 2°) temperature difference between the evaporator air input and output, under the following conditions:
(a) The compressor shall be operating for 30 minutes.
(b) The ambient air temperature on the condenser side shall be between 60° and 120°F.
(c) The ambient air temperature on the evaporator side shall be between 70° and 90°F.

Page 30, paragraph 47. Subparagraph e is added as follows:
e. Fan and Blower Check; Final Performance Check. All maintenance levels.
(1) The fan and blower assembly shall be tested as a complete unit installed in the air conditioner under test.
(2) The air conditioner shall be operating in fan mode only.

(3) The fan and blower assembly shall meet the requirements of TM 11-6105-200-50 paragraph 1-9 (except paragraphs 1-9a(1) and 1-9b(1)).

NOTE

The speed, current, and temperature ratings shall be taken from the motor nameplate, or the NSN description if the nameplate is missing.

Page D-11, Figure No. D-2, Item No. 3. Change SMR Code "X20" to read "PO".
Figure No. D-2, Item No. 8. Change SMR Code "X20" to read "PO".

Page D-12, Figure No. D-3, Item No. 8. Change SMR Code "X20" to read "AF". Column (2), add "4130-01-159-4431". Column (3), add "MANUFACTURE FROM: PLUG, NSN 5935-00-239-2539; PLUG, NSN 5935-00-222-0815; WIRE ELECTRICAL, NSN 6145-00-112-8671".

Figure No. D-3, Item No. 9., column (2), add "5935-00-239-2539".
Figure No. D-3, Item No. 10., column (21), add "5935-00-222-0815".
Figure No. D-3, Item No. 11., column (21), add "6145-00-112-8671".
Figure No. D-3, Item No. 23., change SMR code "X20" to read "P".

Page D-16, Figure D-2, Item NO. 3., change SMR code "X20" to read "PO".
Figure NO. D-2, Item NO. 8., change SMR code "X20" to read "PO".

Page D-17, Figure D-12, Item No. 8., change SMR code "X20" to read "AF". Column (2), add "4130-01-159-4431". Column (3), add "MANUFACTURE FROM: PLUG, NSN 5935-00-239-2539; PLUG, NSN 5935-00-222-0815; WIRE ELECTRICAL, NSN 6145-00-112-8671".
Figure No. D-3, Item No. 9., column (2), add "5935-00-239-2539".
Figure No. D-3, Item No. 10., column (2), add "5935-00-222-0815".
Figure No. D-3, Item NO. 11., column (2), add "6145-00-112-8671".

Page 18, Item No. 23., change SMR code "X20" to read "P".

By Order of the Secretary of the Army:

JOHN A. WICKHAM, JR.
General, United States Army
Chief of Staff

Official:

R. L. DILWORTH
Brigadier General, United States Army
The Adjutant General

DISTRIBUTION:
To be distributed in accordance with DA Form 12-25A, Operator, Organizational and Direct Support Maintenance Requirements for Air Conditioner, Floor Mounted, Air Cooled, 9000 BTU, 3/4 HP, 60HZ, AC, 1PH (MAC-750M, F-9000, A-90000) (TM 5-4120-282-13)

TM 5-4120-282-13
C 3

CHANGE
NO. 3

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC *7 June 1976*

Operator's, Organizational and Direct Support Maintenance Manual Including Repair Parts and Special Tools Lists

AIR CONDITIONER, FLOOR MOUNTED, AIR COOLED, ELECTRIC MOTOR DRIVEN, 3/4 HP, 60 HERTZ, AC, SINGLE PHASE, 9,000 BTU/HR, (HARVEY W. HOTTEL INC. MODEL HAC-750H) NSN 4120-00-592-4645; (KECO MODEL F-9000-2) NSN 4120-00-679-2669; (COLUMBIA SPECIALTY MODEL CAS 9000) NSN 4120-00-926-4113; (REDMANSON MODEL A-9000) NSN 4120-00-992-7055

Current as of 8 December 1975

TM 5-4120-282-13, 7 October 1969, is changed as follows:

NOTE

Convert all Federal stock numbers (FSN) to National stock numbers (NSN) by adding a hyphen and two zeros immediately after the Federal supply classification (FSC).
EXAMPLE: FSN 4120-992-7055 is converted to NSN 4120-00-992-7055.

Page 1, paragraph 2. Subparagraph *b* is superseded as follows:

b. You can improve this manual by recommending improvements using DA Form 2028 (Recommended Changes to Publications and Blank Forms) or DA Form 2028-2 (Test) and mail the form direct to Commander, US Army Troop Support Command, ATTN: DRSTS-MPP, 4300 Goodfellow Blvd., St. Louis, Mo 63120. A reply will be furnished direct to you.

Page 2, paragraph 4*b*(1), third line. Add "and 10,000 through 10,600" after "3500."

Page 3, paragraph 5. Paragraph is superseded as follows:

This manual covers four manufacturers of the 9000 B.t.u. air conditioner (listed in paragraphs 4*b*(1) through (4). Model HAC-750H, serial number range 10,000 through 10,600 has the following changes incorporated:

a. Condensate drain holes incorporated.
b. Evaporator compartment insulation, one piece: formed.
c. Condensator/Evaporator fan motor changed from General Electric to *Leece-Neville.*
d. Strainer/Dehydrator (Air Drier) changed from vertical position to horizontal position on drain pan floor.

Page 7. New figure 4.1 is added after figure 4.

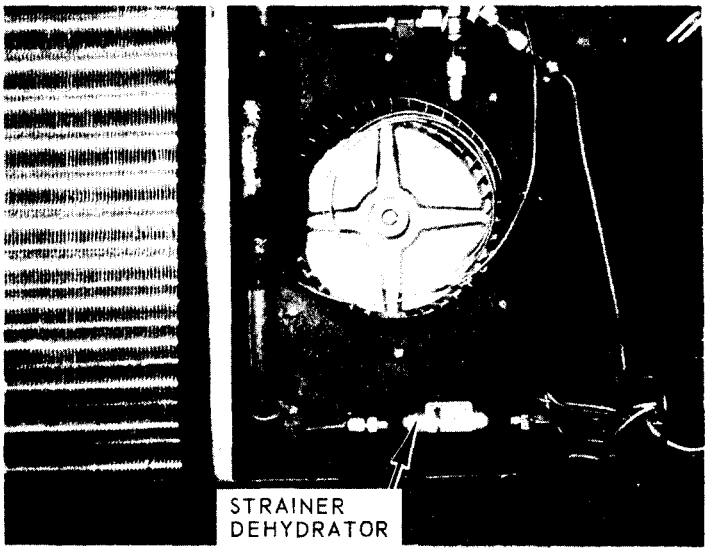


Figure 4.1. Relocation of strainer/dehydrator (Model HAC-750H, Serial Number range 10,000 through 10,600).

Page 11, paragraph 9*f*. Add following note immediately after:

NOTE

Extra condensate drain holes (1/8 in. NPT) have been added. If not required, holes should be closed with 1/8 in. NPT pipe plugs so that water cannot escape into the immediate area under the unit.

Page 13, paragraph 15*a*(3). Change "(115v, 60 cycle)" to read "(115 V, 60 Hz, 20-amp circuit)."

Page A-1, reference A-2. Change "TM 9-213" to read "TM 43-0139."

Page B-4. Paragraph B-6 is superseded as follows:

B-6. Federal Supply Code for Manufacturers

Code	*Manufacturer*
97403	US Army Mobility Equipment, Research, Development and Engineering Center

Page D-2, paragraph D-3*f*(4), lines 4 and 6. Change "U.S. Army Mobility Equipment Command" to read "US Army Troop Support Command."

Page D-7, paragraph D-7. Add codes and manufacturers as follows:

Code	*Manufacturer*
00656	Aerovox Corp, New Bedford, Ma.
14852	Bohn Heat Transfer
35197	Lau Blowers
35510	Leece-Neville (VLN - Gainesville, Ga.)
74545	Harvey Hubbel Inc.
83866	Research Products
97403	U. S. Army - MERDC

Page D-9, section II, column (2), group 03, 1st item, 2d line. Change code "(03510)" to read "(35510)."

Add new item immediately below 1st item (FSN 4120-184-8900) as follows:

CAPACITOR, FAN MOTOR
P150F735 (00656) (A)

Fifth item (FSN 5910-189-5581), 2d line. Change "21F11 (24446) (A)" to read "RFM-931-37 (00656 (A)."

Group 04, 2d item (FSN 5910-655-0535), 2d line. Change "P24310 (37942) (A)" to read "35F166BA9 (85506)

(A)."

Page D-11, section III, column (3). Change manufacturer's code "(81336)" to read "(97403)" wherever it appears in section.

Page D-12, column (3), item 7. Add usable on code "A."
Second line. Change "5KCP39DG61665 (03510)" to read "R678-H00142486E (35510)."
Item 9. Add usable on code "A."
Second line. Change "LD3323G (41326)" to read "R678-7313 (00656)."
Item 10. Add usable on code "A."
Second line. Change "GE4364-3 (41326)" to read "R678-5266 (74545)."
Item 17 (FSN 5910-189-5581). Add usable on code "A."
Second line. Change "21F11 (24446)" to read "RFM-931-37 (00656)."
Item 23, 2d line. Change "LD3325G (41326)" to read "R678-7327 (74545)."

Page D-13, column (3), group 04, item 12 (FSN 5910-655-0535). Add usable on code "A."
Second line. Change "P24310 (37942)" to read "35F166BA9 (85506)."

Page D-15, column (3), item 34, 2d line. Change "A3433-7 (60399)" to read "R678-R4120-C160 (60399)."

Page D-17, column (3), group 03, item 7, 2d line. Change "5KCP39DG61665 (03510)" to read "H00142486E (35510) with capacitor, P150F735 (00656)."
Item 9, 2d line. Change "LD3323G (41326)" to read "R678-7313 (74545)."
Item 10, 2d line. Change "GE4364-3 (41326)" to read "R678-5266 (74545)."

Page D-18, column (3), 2d item (FSN 5910-189-5581). Add usable on code "A."
Second line. Change "21F11 (24446)" to read "RFM-931-37 (00656)."
FSN 5910-014-0421, 8th item, Receptacle. Add usable on code "A."
Second line. Change "LD3325G (41326)" to read "R678-7327 (74545)."
Group 04, 1st item, 2d line. Change "BM1474-40-4" to read "MP-100-14."
Fourth item, 2d line. Change "(59431)" to read "(97450)."

Page D-19, column (3), item 12 (FSN 5910-655-0535). Add usable on code "A."
Second line. Change "P24310" to read "358166BA9-85506."
Item 18, 2d line. Change "23894" to read "R678-P519."

Page D-20, column (3), item 30, 2d line. Change "A16468" to read "R678-A16303."
Item 31, 2d line. Change "A16466" to read "R678-A14881."
Item 37 (FSN 4130-776-2715), 2d line. Change "60873" to read "R678-207C-70207-138."
Item 38 (FSN 4130-779-2342). Add usable on code "A."
Second line. Change "110-1-4M" to read "R678-110-4."
Add "CONDENSER, COIL, R678-M4506-1 (14852)" in column (3) immediately following item 40.

Page D-21, column (3). Add "EVAPARATOR COIL," part number "R678-M4507-1 (14852)," usable on code "A" immediately after item 45.
Item 51, 2d line. Change "N1628-4CU" to read "R6780FP 1425 x ½."

Page D-22, Column (3), item 11 (FSN 5930-778-9671), 2d line. Change "A301564" to read "R678-A30-1792."

Page D-23, Column (3), item 34, 2d line. Change "A3433-7" to read "R678-R4120-C160."

Page D-29, section VII. Change manufacturer's code "81336" to read "97403" throughout entire section.

By Order of the Secretary of the Army:

FRED C. WEYAND
General, United States Amy
Chief of staff

Official:

PAUL T. SMITH
Major General, United States Army
The Adjutant general

Distribution:

To be distributed in accordance with DA Form 12-25C (qty rqr block No. 534), organizational maintenance requirements for environmental equipment air conditioners, 9000 BTU.

TM 5-4120-282-13
C2

CHANGE
No. 2

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, 10 March 1975

Operator's, Organizational and Direct Support Maintenance Manual Including Repair Parts and Special Tools Lists AIR CONDITIONER, FLOOR MOUNTED, AIR COOLED, ELECTRIC MOTOR DRIVEN, 3/4 HP, 60 CYCLE, AC, SINGLE PHASE, 9,000 BTU/HR, HARVEY W. HOTTEL INC. MODEL HAC-750H, NSN 4120-00-682-4645, KECO MODEL F-9000-2, NSN 4120-00-679-2669, COLUMBIA SPECIALTY MODEL CAS9000, NSN 4120-00-926-4113, REDMANSON MODEL A-9000 NSN 4120-00-992-7055

TM 5-4120-282-13, 7 October 1969, is changed as follows:

The title is changed as shown above.

Page 2 of cover. Add the following warning to the list of safety precautions.

WARNING

The burning of polyurethane foams is dangerous. Due to the chemical composition of a polyurethane foam, toxic fumes are released when it is burned or heated. If it is burned or heated indoors, such as during a welding operation in its proximity, precautions should be taken to adequately ventilate the area. An exhaust system equivalent to that of a paint spray booth should be used. Air supplied respirators, approved by the National Institute for Occupational Safety and Health or the US Bureau of Mines, should be used for all welding in confined spaces and when ventilation is inadequate. Individuals who have chronic or recurrent respiratory conditions, including allergies and asthma, should not be employed in this type of environment.

By Order of the Secretary of the Army:

FRED C. WEYAND
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 12-25C, (qty rqr block No. 534) Organizational maintenance requirements for Environmental Equipment, Air Conditioners, 9,000, BTU.

GPO 902-406

Change
No. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D. C., *20 April 1973*

Operator's, Organizational and Direct Support Including Repair Parts and Special Tools List AIR CONDITIONER, FLOOR MOUNTED, AIR COOLED ELECTRIC MOTOR DRIVEN, 3/4 HP, 60 CYCLE AC SINGLE PHASE, 9000 BTU/HR (HARVEY W. HOTTEL INC. MODEL HAC-750H) FSN 4120-592-4645, (KECO MODEL F-9000-2) FSN 4120-679-2669 (COLUMBIA SPECIALITY MODEL CAS9000) FSN 4120-926-4113 (REDMANSON MODEL A-9000) FSN 4120-992-7055

TM 5-4120-282-13, 7 October 1969, is changed as follows:

Page B-1. Appendix B is superseded as follows:

APPENDIX B
BASIC ISSUE ITEM LIST AND ITEMS TROOP INSTALLED OR AUTHORIZED

Section I. INTRODUCTION

B-1. Scope

This appendix lists basic issue items, items troop installed or authorized which accompany the air conditioner and are required by the crew/operator for operation, installation, or operator's maintenance.

B-2. General

This basic issue items, 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.

B-3. Explanation of Columns

The following provides an explanation of columns

in the tabular list of Basic Issue Items List, Section II, and Items Troop Installed or Authorized, Section III.

a. Source, Maintenance, and Recoverability Code(s) (SMR): Not applicable.

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

c. Description. This column indicates the Federal item name and any additional description of the item required.

d. Unit of Measure (U/M). A 2 character alphabetic abbreviation indicating the amount or quantity of the item upon which the allowances are based, e.g., ft, ea, pr, etc.

e. Quantity Authorized (Items Troop Installed or Authorized Only). This column indicates the quantity of the item authorized to be used with the equipment.

Section III. ITEMS TROOP INSTALLED OR AUTHORIZED LIST

(1) SMR Code	(2) Federal Stock Number	(3) Ref. No. & Mfr Code	Description	Usable On Code	(4) Unit of Meas	(5) Qty Auth
	7520-559-9618		CASE, MAINTENANCE AND OPERATION MANUAL		EA	1

Page D-13. In line 9, column 2, change "5910-655-0535" to read "5910-655-0353".

By Order of the Secretary of the Army:

CREIGHTON W. ABRAMS
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 12-25C (qty rqr block no. 534) Organizational Maintenance requirements for Air Conditioners, 9,000 BTU.

TECHINACAL MANUAL
NO. 5-4120-282-13

HEADQUATERS
DEPARTMENT OF THE ARMY
WASHINGTON, D. C., 7 OCTOBER 1969

OPERATOR, ORGANIZATIONAL, AND DIRECT SUPPORT MAINTENANCE MANUAL, INCLUDING REPAIR PARTS AND SPECIAL TOOL LISTS

AIR CONDITIONER, FLOOR MOUNTED, AIR COOLED, ELECTRIC MOTOR DRIVEN, 3/4 HP, 60 CYCLE AC, SINGLE PHASE, 9,000 BTU/HR

(HARVEY W. HOTTEL INC. MODEL HAC-750H)
FSN 4120-00-592-4645
(KECO MODEL F-9000-2)
FSN 4120-00-679-2669
(COLUMBIA SPECIALTY MODEL CAS9000)
FSN 4120-00-926-4113
(REDMANSON MODEL A-9000)
FSN 4120-00-992-7055

Current as of 28 March 1969

* **This manual supersedes TM 5-4120-228-15,13 April 1964, including all changes and TM 5-4120-229-13, 22 November 1968.**

CHAPTER 1

INTRODUCTION

Section I. GENERAL

1. Scope

This manual contains instructions for the use of the operating, organizational, and direct support personnel maintaining the 9000 B.t.u. Air Conditioner as allocated by the MAC (Maintenance Allocation Chart). It provides information on the operation, lubrication preventive maintenance checks and services, troubleshooting, and maintenance of the equipment. This manual includes information on demolition, shipment, and limited storage.

2. Forms and Records

a. DA Forms and records used for equipment maintenance will be only those prescribed in TM 38-750 (Army Equipment Record Procedures).

b. You can improve this manual. If you find and mistake or if you know of a way to improve the procedure, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Froms) directly to: Commander, U.S. Army Troop Support Command, ATTN: AMSTR-MMTS, 4300 Goodfellow Blvd., St. Louis, MO 63120-1798. Areply will be furnished to you.

Section II. DESCRIPTION AND DATA

3. Description

a. General. The floor mounted type air conditioner (figures 1 thru 5), is a self-contained, electric motor-driven unit. With a nominal output of 9000 B.t.u. per hr and an output of 8400 B.t.u. per hr while operating at 125 degrees Fahrenheit ambient and 90 degrees Fahrenheit dry bulb, 80 degrees Fahrenheit wet bulb conditioned air temperatures. It is desinged for installation in a shelter, van or tactical vehicle. The air conditioner contains a hermetically sealed refrigerant circuit consisting of:

(1) A compressor.

(2) An air-cooled condenser.

(3) A thermostatic expansion valve.

(4) An evaporator coil.

(5) Service valves (liquid and suction).

(6) A sight glass.

(7) A liquid line dryer.

It also contains a fan motor that serves power to the condenser fan on one end and the evaporator fan on the other end. The unit (fig. 1) is operated either on fan or cooling through a selector (OFF-FAN-COOL) switch, and has a thermostat that controls the temperature to the desired setting.

b. Evaporator Blower Section. The fan of the evaporator circulation system is an integral part of the evaporator section and distributes either cooled or fresh air or filtered air as demanded by the cycle in which it is operating.

c. Condenser Blower Section. The heat generated by the compression of the gas is expelled by the movement of the air over the condenser coil by the condenser blower.

4. Identification and Tabulated Data

a. Identification.

(1) The air conditioner identification plate located on the outside panel, specifies nomenclature, manufacturer, model, FSN, serial number and capacity.

(2) The compressor plate specifies manufacturer, model, voltage and horsepower.

(3) The fan motor plate specifies manufacturer, model, type, voltage and amperes, horsepower and r.p.m.

b. Tabulated Data. Air conditioner, floor mounted, electric motor driven, 3/4 hp, 60 cycle, AC, single phase, 115 volt, 9000 B.t.u.

(1) FSN 4120-592-4645.

Manufacturer	Harvey W. Hottel
Model	HAC-750-H
Serial number range	1001 thru 1756 and 2001 thru 3500 and lO,OOO through 10,600

(2) FSN 4120-679-2669.

Manufacturer	Keco
Model	F-9000 and F-9000-2
Serial number range	59076 thru 59261 and 65036 thru 65185

(3) FSN 4120-926-4113.

Manufacturer	Columbia Specialty Co.
Model	CAS-9000
Serial number range	6001 thru 6326

(4) FSN 4120-992-7055.

Manufacturer	Redmanson
Model	A-9000
Serial number range	N/A

(5) Capacities.

Refrigerant, R-12	46 ounces

(6) Dimensions and Weight.

Length	27 5/8 inches
Width	26 1/2 inches
Height	15 5/8 inches
Wieght	175 pounds

(7) Operating Pressures.

Suction pressure	50 pounds
Discharge pressure	230 pounds

(8) Wiring Diagram (See figure 6).

5. Difference in Models

This manual covers four manufacturers B.t.u. air conditioner (listed in paragraphs 4b(1) through (4). Model HAC-750H, serial number range 10,000 through 10,600 has the following changes incorporated:

a. Condensate drain holes incorporated.
b. Evaporator compartment insulation, one piece: formed.
c. Condensator/Evaporator fan motor changed from General Electric to Leece-Neville.
d. Strainer/Dehydrator (Air Drier) changed from vertical position to horizontal position on drain pan floor.

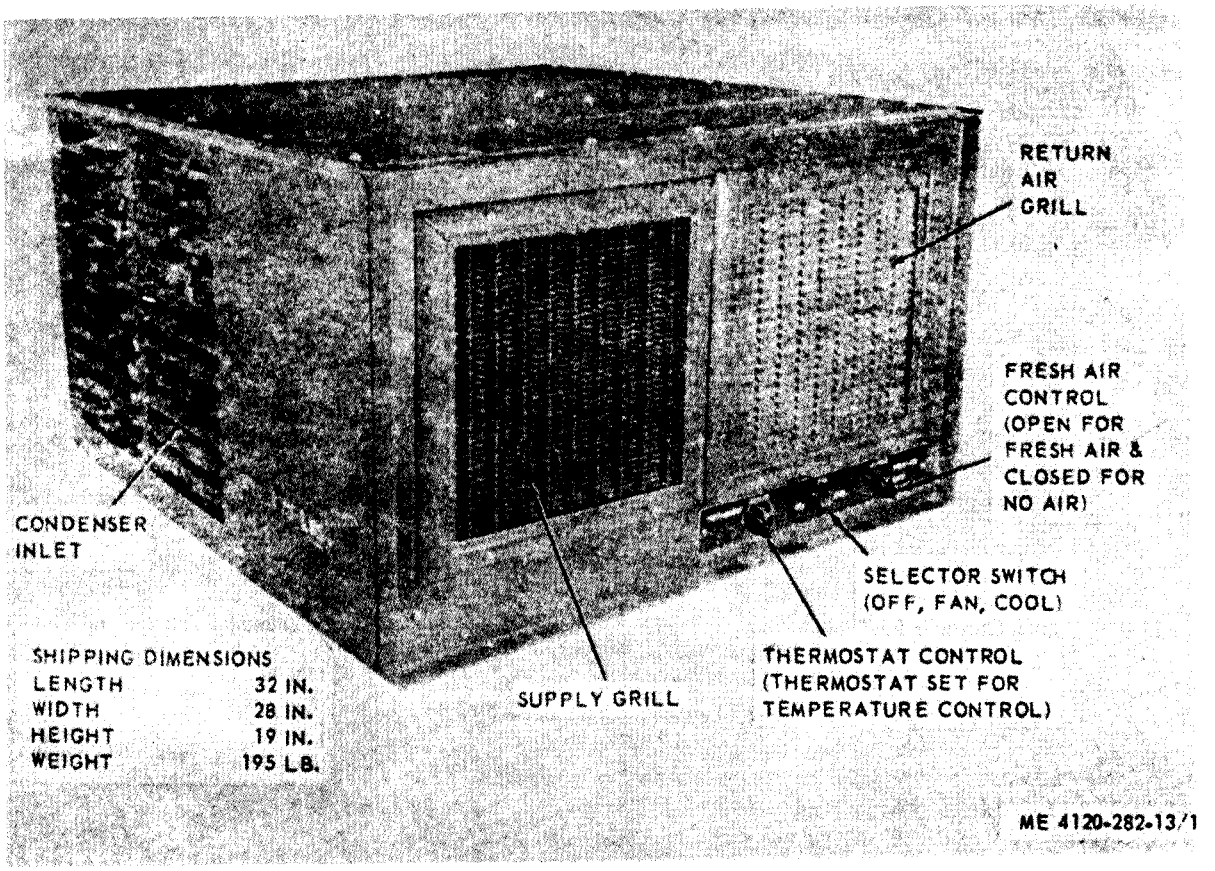


Figure No. 1 Air conditioner, left front three-quarter view

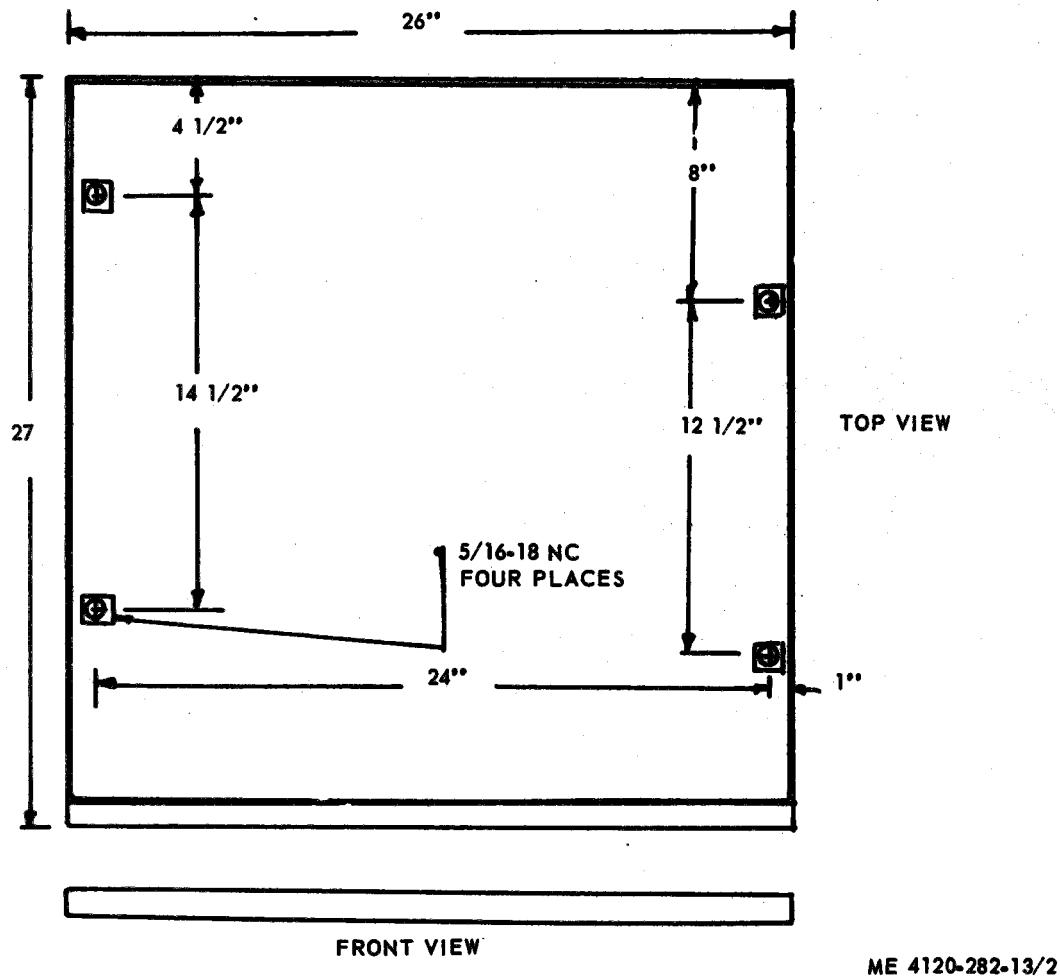


Figure No. 2 Base plan

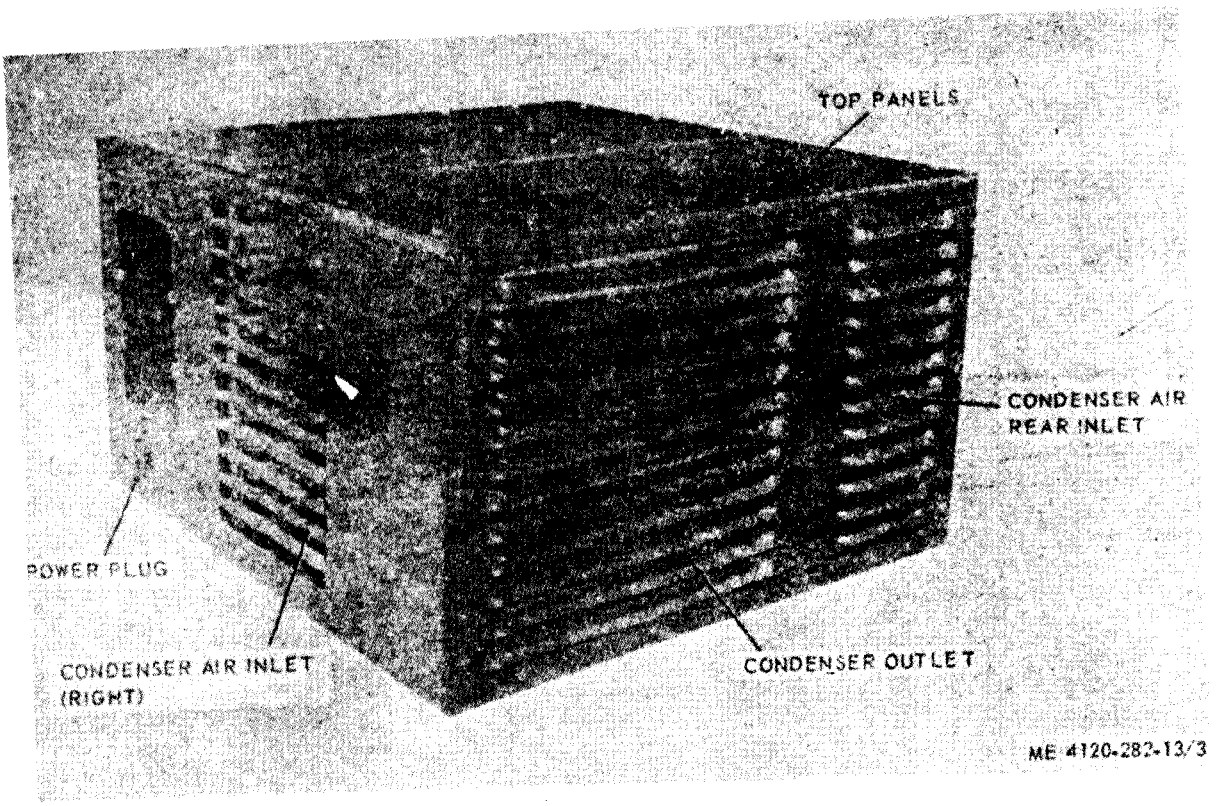


Figure No. 3 Air conditioner, right rear three-quarter view

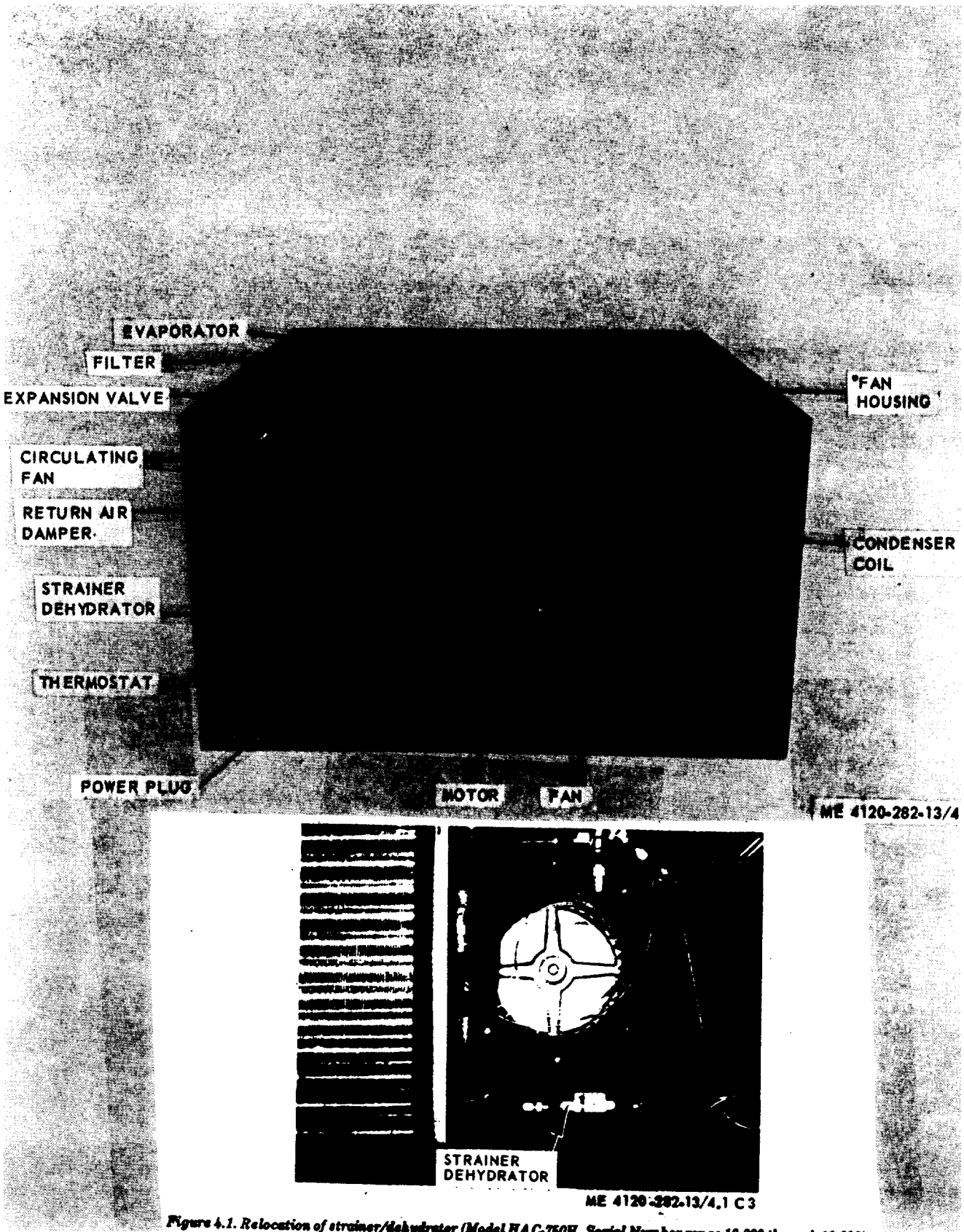


Figure 4.1. Relocation of strainer/dehydrator (Model HAC-750H, Serial Number range 10,000 through 10,600).

Figure No. 4 Air conditioner, right top view with panels removed

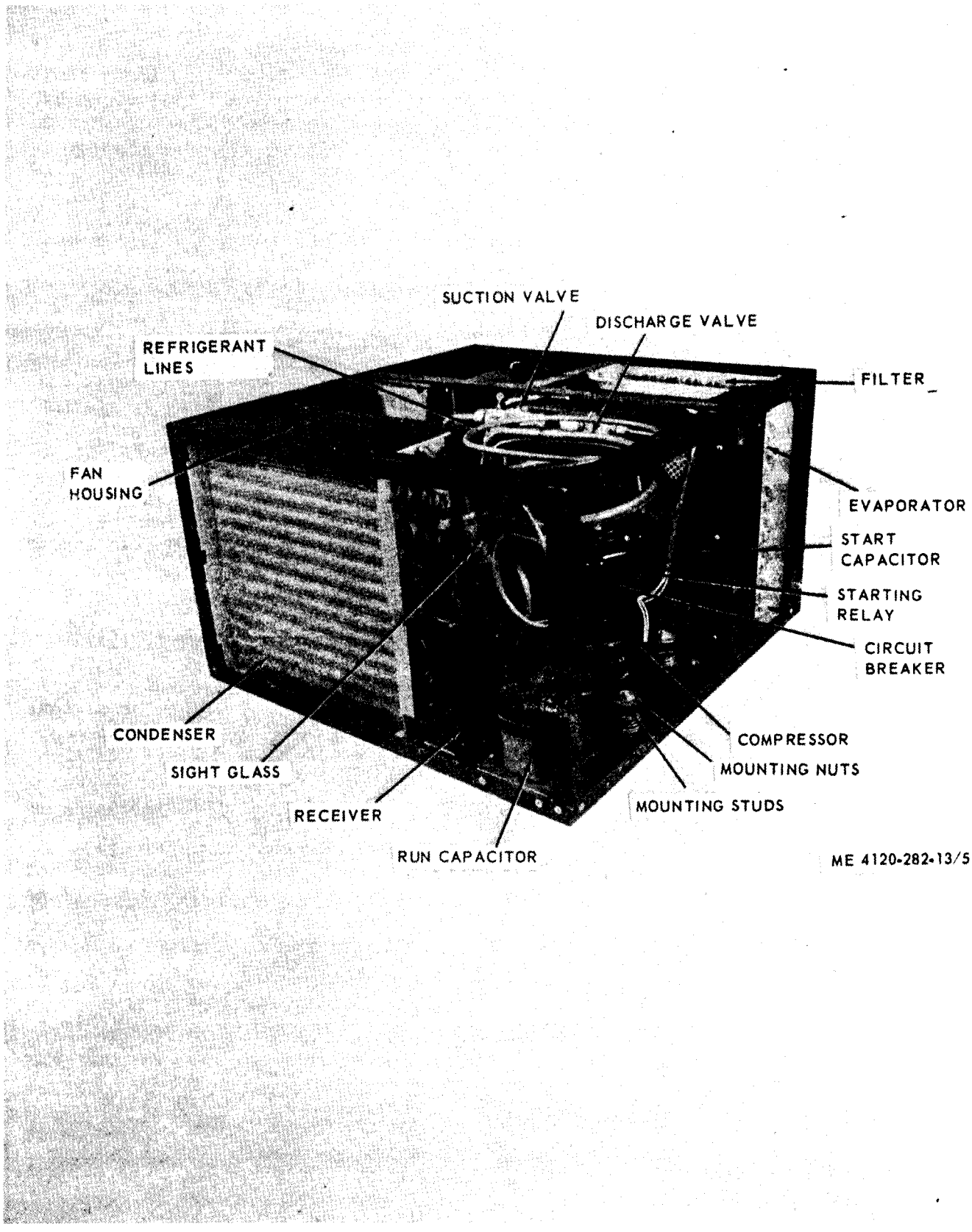


Figure No. 5 Air conditioner, left rear three-quarter view, panels removed

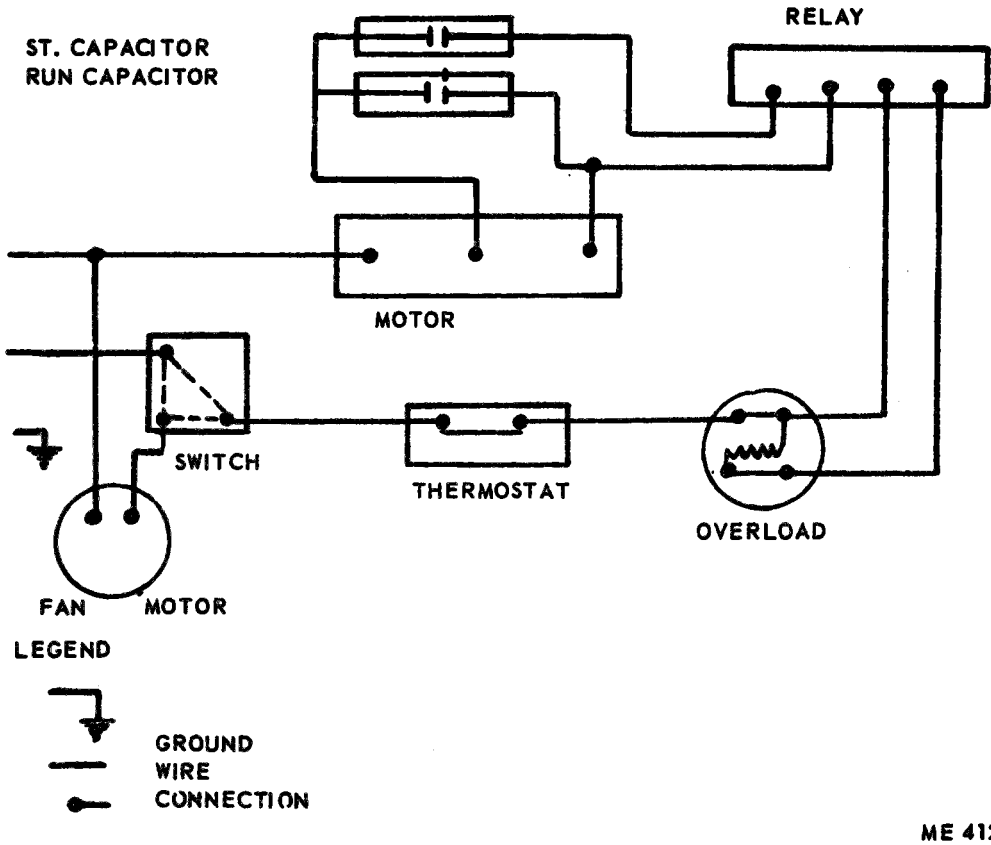


Figure No. 6 Wiring diagram

CHAPTER 2

INSTALLATION AND OPERATION INSTRUCTIONS

Section I. SERVICE UPON RECEIPT OF EQUIPMENT

6. Unloading the Equipment

a. Remove any blocking or tie down that may secure the item to the carrier.

b. Use a fork-lift or other available suitable material handling equipment to remove the air conditioner from the carrier. The unit is of size that it may be loaded or unloaded manually if material handling equipment is not available.

7. Unpacking the Equipment

a. Cut the metal straps, pull the nails, and remove the cover.

b. Remove the electrical cable from the container.

c. Carefully lift the air conditioner from the container.

d. Prepare the air conditioner for inspection and operation.

8. Inspecting and Servicing Equipment

a. Inspect the unit for external damage to panels, louvers, frameworks and missing knobs.

b. Inspect the controls on the front panel for proper movement.

c. Remove the panels (para 39) and inspect for broken or loose components, bent or broken tubing, oil leaks, or other signs of damage. Correct all deficiencies or report them to your direct support maintenance unit.

d. Refer to paragraph 25 and perform the daily preventative services.

9. Installation or Setting-Up Instructions

a. The unit may be installed in a van, shelter, or any room through an opening of 15 7/8 inches x 26 l/4 inches long or corrected to a space through ducts. Be sure the unit is installed so there is no restriction on the air flow, so that the return air will collect the greatest amount of warm air in the space to be cooled, and so as not to interfere with personnel working with or operating the equipment.

b. Make sure the unit has capacity to cool the space in which it is installed.

c. Connect the unit to 115 volt, single phase, 60-cycle only.

d. Make sure the unit is sealed so that no air will escape around the unit.

e. The unit must be installed so that there is access to either the bottom panel (filter opening) or the top panel for access to the filter.

f. Connect a drain hose to the bottom pan even though the lower filter access panel is not used. Make sure the filter has two rubber pads on the bottom and is not resting on the drain hole, or the bottom pan will flood with water. NOTE: Extra condensate drain hole (1/8 in. NPT) have been added. If not required, holes should be closed with 1/8 in NPT pipe plugs, so that water cannot escape into the immediate area under the unit.

g. Substantially brace the unit so as to resist any shock anticipated during the installation in the particular installation.

h. There are two threaded holes under the unit 1 inch from each side to which mounting bolts should be installed through the above brackets (figure 2).

Section II. MOVEMENT TO NEW WORKSITE

10. Dismantling for Movement

a. Disconnect the power supply cord assembly.

b. Remove all mounting bolts under the unit (para 9).

c. Remove all sealing angles from around unit.

d. Carefully slide the unit from the wall.

e. Use wood blocking and steel strapping to secure the unit to carrier for long distance moving.

11. Reinstallation After Movement

Reinstall after movement as specified in paragraph 9.

Section III. CONTROLS AND INSTRUMENTS

12. General

This section describes, locates, illustrates, and furnishes the operator, crew or maintenance personnel information pertaining to the various controls and instruments for proper operation of the air conditioner.

13. Controls and Insrtuments

The purpose of the controls are illustrated in Figure 1.

Section IV. OPERATION OF EQUIPMENT

14. General

a. The insructions in this section are for the information and guidance of the personnel responsible for the operation of the air conditioner.

b. The operator must know how to perform every operation of which the air conditioner is capable. This section give instructions on starting and stopping the air conditioner, selecting temperatures, and operating under vaious conditions.

15. Starting

a. Preparation for Starting

(1) Perform the necessary daily preventative maintenanoe (para 25).

(2) Be sure the air inlet and outlets on both the condenser and evaporator side are free from obstructions.

(3) Connect the cap end of the power cord into the unit first (fig. 3), then connect the male plug to the proper power source (115v, 60 Hz, 20-amp circuit)

(4) Set the thermostat control switch (fig. 1) either cooler or warmer as desired. This must be experienced by the operator since there are no temperature markings on the panel.

b. Starting.

(1) Place the Selector Switch (fig. 1) in the FAN position to start the fans.

(2) Place the selector switch in the COOL position. When the temperature in the compartment is above that of the thermosat setting, the unit will operate.

NOTE

If the unit does not operate, check the voltage supply or other reasons for failure to operate (para 33).

16. Stopping

To stop the air conditioner, refer to figure 1 and place the selctor switch in the OFF position

17. Operation Under Usual Conditions.

a. Start the airr conditioner (paragraph 15).

b. Operational Check; final Performance Check. All maintenance levels.

(1) The assembled air conditioner shall meet the requirements of 15 and 16.

(2) The assembled air conditioner shall produce a 18°F (± 2°) temperature difference between the evaporator air input and output, under the following conditions:

(a) The compressor shall be operating for 30 minutes.

(b) The ambient air temperature on the condenser side shall be between 60° and 120°F.

(c) The ambient air temperature on the evaporator side shall be between 70° and 90°F.

Page 30, paragraph 47. Subparagraph e is added as follow:

e. Fan and Blower Check; Final Performance Check. All maintenance levels.

(1) The fan and blower assembly shall be tested as a complete unit installed in the air conditioner under test.

(2) The air conditioner shall be operating in fan mode only.

(3) The fan and blower assebly shall meet the requirements of TM 11-6105-200-50 paragraph 1-9 (except paragraphs 1-9a(1) and 1-9b(1)).

NOTE

The speed current and temperature ratings shall be taken from the motor nameplate, or the NSN description if the nameplate is missing.

18. Operation in Dusty or Sandy Areas

17.1. Operation in Extreme Heat.

NOTE

Unit Preventive Maintenance Checks and Services (PMCS) should be performed at daily intervals.

a. General. The air conditioner is designed to operate in temperatures up to 120 °F (49 °C). Extra care should be taken to minimize the cooling load when operating in extreme high temperatures.

b. Protection.

(1) Check all openings in the enclosure, especially doors and windows, to be sure they are tightly closed. Limit in and out traffic if possible.

(2) when appropriate, use shades or awnings to shut out direct rays of the sun.

(3) When possible, limit the use of electric lights and other heat producing equipment.

(4) Limit the amount of hot, outside air introduced through the fresh air damper to that essential for ventilation.

NOTE

Weatherstripping, the installation of storm doom, and windows, if appropriate, and insulation of surfaces exposed to the outside is recommended when operating in extremely high temperatures for extended periods.

c. Cleaning.

(1) Clean outside grilles, coils, filters, and mist eliminator more frequently.

18. Operation in Dusty or Sandy Conditions.

NOTE

Unit Preventive Maintenance Checks and Services (PMCS) should be performed at daily intervals.

a. General. Dusty and sandy conditions can seriously reduce the effciency of the air conditioner by clogging the air filter, mist eliminator, and coils. This will cause a restriction in the volume of airflow. Accummulation of dust or sand in the condenser coil and/or in hte compressor compartment may cause overheating of the refrigeration system. Dust or sand may alo clog the condensate trap and water drain lines.

CAUTION

Never operate the air conditioner without having the air filters in place.

b. Protection.

(1) Shield the air conditioner from dust as much as possible.

(2) Take advantage of any natural barriers which offer protection.

(3) Limit the amount of dusty or sandy outside air introduced through the fresh air damper.

(4) Roll down and secure the fabric cover on the back of the cabinet during periods of shutdown.

c. Cleaning.

(1) Keep the air conditioner as clean as possible.

(2) Pay particular attention to the outside grilles, condenser, filters, mist eliminator, louvers, and electrical components.

(3) In extreme conditions, daily cleaning of condenser, filters, and outside grilles maybe necessary.

CHAPTER 3

OPERATOR AND ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

Section I. OPERATOR AND ORGANIZATIONAL MAINTENANCE INSTRUCTIONS EQUIPMENT

21. Special Tools and Equipment

No special tools and equipment are required by the operator or maintenance personnel for the maintenance of the air conditioner.

22. Basic Issue Ttools and Equipment

Tools and repair parts issued with or authorized for the air conditioner are listed in Appendix B, Basic Issue Items List.

23. Organizational Maintenance Repair Parts

Organozational maintenance repair parts are listed in Appendix D.

Section II. PREVENTIVE MAINTENANCE SERVICES

24. General

To insure that the air conditioner is ready for operation at all times, it must be inspected systematically so that defects my be discovered and corrected before they result in serious damage or failure. The necessary preventive maintenance services to be performed are listed and described in paragraphs 25 and 26. The item numbers indicate the sequence of minimum inspection requirements. Defects discovered during operation of the unit will be noted for future correction, to be made as soon as operation has closed. Stop operation immediately If a deficiency is noted during operation which would damage the equipment if operation were continued. All deficiencies and shortcomings will be recorded together with the corrective action taken on DA Form 2404 at the earliest possible opportunity.

25. Daily Preventive Maintenance Services

Refer to figure 7 for the daily preventative maintenance services which must be performed by the operator. The item numbers are listed consecutively and indicate the sequence of minimum requirements.

26. Quarterly Preventive Maintenance Services

a. Refer to figure 8 for the quarterly preventive maintenance services which must be performed by organizational maintenance personnel. The item numbers are listed consecutively and indicate the sequence of minimum requirements.

b. A quarterly interval is equal to three calendar months, or 250 hours of operation, whichever occurs first.

Section III. OPERATOR'S MAINTENANCE

27. General

The instructions in this section are published for the information and guidance of the operator to maintain the air conditioner.

28. Filter (fig. 4)

a. Removal. The filters may be removed from either the top or bottom of the unit depending upon its installation.

(1) Top Removal. Remove the evaporator section top panel (para 39) and remove the filter from its frame.

(2) Bottom Removal. Remove the gasket panel on the bottom of the unit by, removing the screws and sliding the filter downward through the opening.

b. Cleaning and Inspection.

(1) Clean the filter using a non-toxic solvent, and dry with compressed air under a low pressure.

(2) Inspect the filter for openings, breaks, tears, and distort - ion. Replace a damaged filter,.

(3) Spray the filter with a thin coat of oil after cleaning,

c. Installation.

(1) Position the filter in its frame.

(2) Install filter with arrow on filter in direction of air flow.

(3) Install the evaporator section top panel (para 39) or bottom panel as the case may be.

(4) Make sure the two rubber pads on the bottom of the filter are still in place, otherwise, the filter will rest on the drain hole and water will not drain.

29. Evaporator (fig. 4)

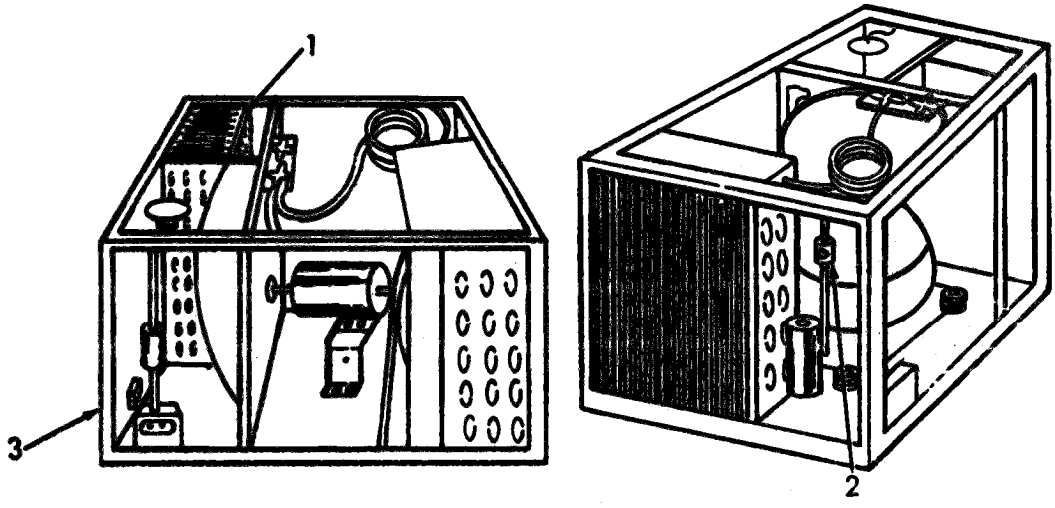
a. Remove filter (para 28).

b. Remove the front panel (para 39).

PREVENTIVE MAINTENANCE SERVICES

DAILY

TM 5-4120-282-13 AIR CONDITIONER



ITEM	LUBRICATE IN ACCORDANCE WITH CURRENT LUBRICATION ORDER	PAR REF
1	AIR FILTER. Inspect for dirt and damage. Clean dirty filter.	28
2	REFRIGERANT CHARGE. Inspect the refrigerant charge through the liquid line sight glass. The flow must be clear and free of bubbles.	74
3	CONTROLS. Inspect for improper operation.	Fig. 1

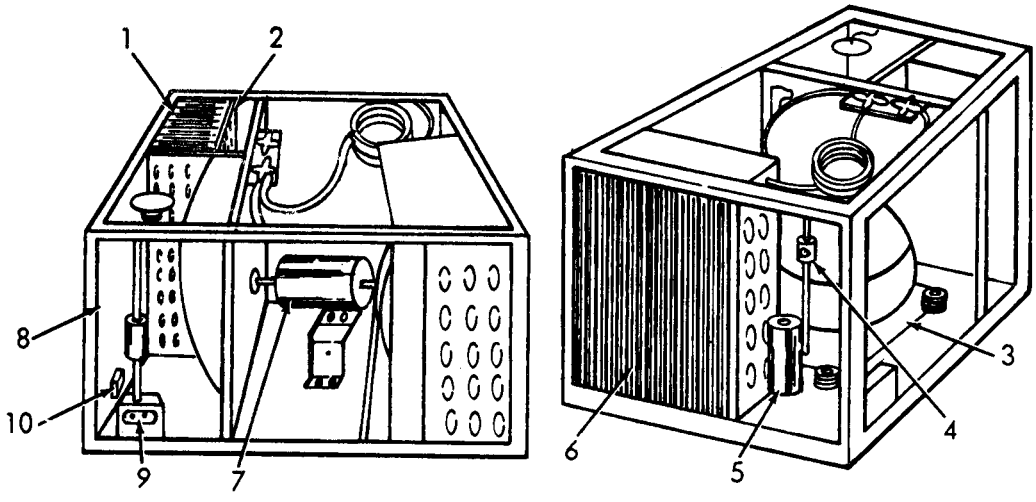
ME 4120-282-13/7

Figure No. 7 Preventive maintenance services, daily

PREVENTIVE MAINTENANCE SERVICES

QUARTERLY

TM 5-4120-282-13 AIR CONDITIONER



ITEM	LUBRICATE IN ACCORDANCE WITH CURRENT LUBRICATION ORDER	PAR REF
1	EVAPORATOR COIL. Inspect for dirt and damage. Clean with low pressure compressed air as necessary.	77
2	AIR FILTER. Inspect for dirt and damage clean dirty filter.	28
3	COMPRESSOR ASSEMBLY. Inspect compressor for loose mounting.	76
4	REFRIGERANT CHARGE. Inspect the refrigerant charge through the liquid line sight glass. The flow must be clear and free from bubbles.	74
5	LIQUID RECEIVER. Inspect receiver for loose mounting.	79
6	CONDENSER COIL. Inspect for dirt and damage. Clean with low pressure air as necessary.	78
7	ELECTRIC MOTOR AND FANS. Inspect for loose mountings, misalignment, and improper operation.	47,49, 50
8	DAMPERS. Inspect for failure to operate and tight fit.	39

ME 4120-282-13/8 ①

Figure No. 8 ① Preventive maintenance services quarterly

ITEM		PAR REF
9	MAIN POWER CONNECTION. Inspect for insecure mounting. Inspect for corrosion or pitted prongs.	31
10	CONTROLS. Inspect for proper operation.	Fig. 1

ME 4120-282-13/8 ②

Figure No. 8 ② Preventive maintenance services quarterly (cont'd.)

c. Clean the fins of the evaporator assembly thoroughly with compressed air umder low pressure. Direct the air through the coil from front to rear.

CAUTION

Use only compressed air to clean fins. Brushing or other methods of cleaning may cause damage to fins which could impair operation.

d. Install front panel (para 39).

e. Install filter (para 28).

f. Install panels.

30 Condenser (fig. 4)

a. Remove left-side and rear panels (para 39).

b. Clean the dust and dirt from the fins of the condenser assembly with compressed air under low pressure. Direct the air stream from the rear of the unit.

CAUTION

Use only compressed air to clean fins. Brushing or other methods of cleaning may cause damage to fins which could impair operation.

c. Install left-side and rear panels (para 39).

31. Main Power Cable Repair

a. Remove male Power Plug.

(2) Loosen three wire retainer screws.

(3) Remove plug.

b. Remove Female Power Receptacle.

(1) Remove 3 retainer screws from Plug.

(2) Seperate plug.

(3) Remove cable end from plug.

c. Install new or repaired cable in male plug by stripping ends and wrapping around screws.

d. Install the green wire on the ground plug.

e. Install the new or repaired female receptacle on the wire by stripping the ends and folding over the contact points.

f. Install. the three captive screws and tighten.

Section IV. TROUBLESHOOTING

32. General

This section provides information useful in diagnosing and correcting unsatisfactory operation or failure of the air conditioner and its components. Each trouble symptom stated is followed by a list of probable causes of the trouble. The possible remedy recommended is described opposite the probable cause. Any trouble beyond the scope of organizational maintenance shall be reported to direct support maintenante.

33. Air Conditioner Fails to Start

Probable Cause	Possible Remedy
a. Power off.	a. Inspect power cable for proper connection.
b. Circuit breaker not in proper position.	b. Set circuit breaker.
c. Conditioned space temperature below thermostat setting.	c. Lower thermostat setting.

34. Cooling Insufficient

Probable Cause	Possible Remedy
a. Thermostat defective.	a. Replace thermostat (para 42).
b. Evaporator coil or filter dirty.	Clean evaporator assembly (para 29). Clean filter (para 28).
c. Condenser coil dirty.	c. Clean condenser coil (para 30).
d. Refrigerant charge low.	d. Inspect charge through sight glass. Report low charge to direct support maintenance.

35. Air Conditioner Stops

Probable Cause	Possible Remedy
a. Power failure.	a. Inspect power source for loose connections.

36. Compressor Stops on High Head Pressure

Probable Cause	Possible Remedy
a. Condenser dirty.	a. Clean condenser assembly (para 30).

37. Cooling Excessive

Probable Cause	Possible Remedy
a. Thermostat defective.	a. Replace thermostat (para 42).

Section V. HOUSING PANELS

38. General

The air conditioner is enclosed by aluminum panels, mounted on a rigid aluminum frame and secured with machine screws and steel fasteners. The air inlet and outlets are provided with louvered panels.

39. Housing Panels

a. Removal.

(1) Right-Side Panel.

(a) Disconnect the power source cable assembly from the power plug (fig. 3).

(b) Loosen screws and remove the right-side panel from the unit.

(2) Front Panel.

(a) Remove the right-side panel as (1) above.

(b) Remove the mounting screws from the panel and tilt the panel forward.

(c) Disconnect the damper linkage.

(d) Remove the knobs from the thermostat and selector switch.

(e) Remove the front instruction plate.

(f) Remove screws from thermostat and selector switch.

(g) Remove front panel.

(3) Left-Side Panel, Rear Panel, and Top Panels.

(a) Remove fasteners from respective panels and remove them from the unit.

b. Cleaning and Inspection.

(1) Clean all panels with soft cloth dampened with cleaning fluid

(2) Inspect the panels for cracks, breaks, damaged louvers, defective insulation, or missing hardware.

(3) Repair or replace damaged or unserviceable panels, insulation or missing fasteners.

c. Installation.

(1) Rear panels, left-side panel, and top panels. Position the respective panel on the unit and secure with the screws.

(2) Front Panel.

(a) Install the front removable frame over the rear of the front panel.

(b) Install the thermostat, selector switch, and fresh air damper control in the front panel.

(c) Position the front panel and front removable frame on the unit and secure with the screws.

(d) Install the front instruction plate.

(e) Install the central knobs.

(f) Install. the fresh air control linkage.

(3) Right-Side panel.

(a) Position the right-side panel on the frame and install with fasteners.

(b) Connect the power source wire assembly to the power Plug.

Section VI. ELECTRICAL SYSTEM

40. General

The electrical system of the air conditioner operates on 115 v, 60 cycle current only, and requires a power supply with a minimum 1.7 kw

(kilowatts). All electrical operating switches are located behind the front panel and are identified as the selector switch and thermostat. The major electrical components are the fan motor and the compressor motor.

41. Running Capacitor (figure 5)

a. Removal.

(1) Remove the right-side panel (para 39).

(2) Remove fish paper cover (lift off).

(3) Disconnect, the running capacitor leads.

NOTE

It is not necessary to mark the leads; reversal is not possible.

(4) Remove the four screws at base of capacitor and remove the capacitor.

b. Cleaning and Inspection.

(1) Clean the running capacitor with a clean, dry cloth.

(2) Inspect the running capacitor for damaged container or damaged leads.

(3) Replace a damaged running capacitor.

c. Testing.

(1) Test the running capacitor with a suitable capacitor tester for continuity, leakage short, and capacitance. The capacitor is rated at 15 microfarads, 370 volts.

(2) Replace a defective running capacitor.

d. Installation.

(1) Position running capacitor on base and secure side clamps with screws.

(2) Solder leads to running capacitor.

(3) Install fish paper cover.

(4) Install the right panel (para 39).

42. Thermostat (figures 1 and 4)

a. Removal.

(1) Remove left-side panel (para 39).

(2) Remove all front knobs from the thermostat, selector switch, and fresh air control - loosen set screw from each.

(3) Remove three screws from front name plate.

(4) Remove the two mounting screws from the thermostat and remove from tie panel.

(5) Disconnect the wires from the thermostat and remove from the unit.

b. Cleaning and Inspection.

(1) Clean the thermostat switch with a cloth dampened with cleaning fluid.

(2) Inspect the thermostat for damage and loose terminals.

(3) Repair or replace a defective thermostat.

c. Testing.

(1) Connect leads of a multimeter to the terminals of the thermostat. Set meter on resistance.

(2) If the space temperature is above the thermostat setting, the contacts will be closed and show a low reading on the multimeter.

(3) If the space temperature is below the thermostat setting, the contacts will be open and a high resistance reading will show on the meter.

(4) If the contacts are shown as open, put the thermostat on a temperature above 80°F. and after 15 minutes the thermostat contacts should close; if not, the thermostat is defective.

(5) Replace a defective thermostat.

d. Installation.

(1) Connect the wires to the thermostat.

(2) Position the thermostat switch on the panel with two mounting screws.

(3) Position the air conditioner nameplate and secure with the three screws.

(4) Position the control knobs on the thermostat, selector switch and fresh air control and secure with set screws.

43. Selector Switch (figure 1)

a. Removal.

(1) Remove left-side panel (para 39).

(2) Remove the knobs from the thermostat, selector switch, and fresh air control knobs by loosening the set screws in each.

(3) Remove the three screws from the name plate. Remove the name plate.

(4) Remove the two mounting screws and remove the switch from the panel.

(5) Tag and disconnect the wiring harness from the selector switch and remove it from the unit.

b. Cleaning and Inspection.

(1) Clean the selector switch with a soft cloth dampened with cleaning solvent.

(2) Inspect the selector switch for damaged terminals or improper operation.

(3) Replace a defective selector switch.

c. Testing.

(1) Locate the three positions of the switch making reference to the control panel. Set the switch on OFF position.

(2) With the leads of a multimeter set on resistance, make contact between the terminal with a copper bar, and each of the other terminals should read a high resistance on the meter.

(3) Rotate the switch to FAN position. A high resistance should be read on the compressor terminal and a low resistance of the fan terminal. Otherwise, the switch is defective.

(4) Rotate the switch to COOL position. Low resistance should be between the terminal with a copper bar and each of the other two terminals. Otherwise, the switch is defective.

(5) Remove knob and replace a defective selector switch.

d. Installation.

(1) Connect the wiring to the switch.

(2) Position the selector switch on the panel and secure with the two mounting screws.

(3) Position the air conditioner name plate and secure with three metal screws.

(4) Position the knobs on the thermostat, selector switch, and the fresh air control.

(5) Install the left-side panel (para 39).

44. Starting Relay (figure 5)

a. Removal.

(1) Remove the right-side and rear panel (para 39).

(2) Remove the screws from the starting relay cover removing the cover.

(3) Tag and remove wires from starting relay.

(4) Remove mounting screws and lift the starting relay from the compressor.

b. Cleaning and Inspection.

(1) Clean the starting relay with a dry, clean cloth.

(2) Inspect the starting relay for damaged wires or burned insulation.

(3) Replace a damaged starting relay.

c. Testing.

(1) Using a multimeter, test between the leads for continuity. No continuity shows a defective starting relay. (Other faults would show up elsewhere such as burning out the capacitor).

(2) Replace defective relay.

d. Installation.

(1) Position the starting relay on the compressor and secure with screws.

(2) Connect starting relay wires.

(3) Position cover on the compressor and secure with screws.

(4) Install right-side and rear panel (para 39).

45. Circuit Breaker (figure 5)

a. Removal.

(1) Remove right -side and rear panel (para 39).

(2) Remove the screws from the compressor terminal cover and remove cover.

(3) Disconnect and tag wiring.

(4) Remove holding clamp and remove circuit breaker.

b. Cleaning and Inspection.

(1) Clean the circuit breaker with a clean, dry cloth.

(2) Inspect the circuit breaker for damaged terminals and burned or pitted contacts.

(3) Replace defective circuit breaker.

c. Testing.

(1) Test the circuit breaker for continuity with a multimeter set on ohms. If the circuit breaker shows high resistance, it is defective.

(2) Replace a defective circuit breaker.

d. Installation.

(1) Position the circuit breaker on the compressor and secure with holding clamp.

(2) Connect wiring to circuit breaker terminals.

(3) Position the compressor terminal cover and secure with slotted screw.

(4) Install the right-side and rear panel (para 39).

46. Starting Capacitor (figure 5)

a. Removal.

(1) Remove the right-side and rear panel (para 39).

(2) Remove the screw from the compressor terminal cover and remove cover.

(3) Tag and disconnect wiring from starting capacitor.

(4) Remove starting capacitor from clip using slight downward and outward pressure.

b. Cleaning and Inspection.

(1) Clean the starting capacitor with a clean, dry cloth.

(2) Inspect the starting capacitor with a suitable capacitor tester for continuity leakage, and capacitance. The capacitor is rated 243 at 110 volts.

(3) Replace a defective starting capacitor.

c. Installation.

(1) Connect wiring to starting capacitor.

(2) Position the compressor terminal cover and secure with screws.

(3) Snap start capacitor in spring bracket.

(4) Install right-side and rear panel (para 39).

47. Fan Motor (figure 4)

a. Removal.

(1) Remove the top, front, right and left panels (para 39).

(2) Remove electric leads.

(3) Loosen tine set screws in the condenser fan and the evaporator fan.

(4) Remove the fan mounting bolts from the motor base.

(5) slide the condenser fan and evaporator fan from the motor shaft as the rotor is lifted from the base.

b. Cleaning and Inspection.

(1) Clean the fan motor with a soft, clean cloth dampened with cleaning solvent.

(2) Inspect the fan motor for burned insulation, bent or rusted shaft, or other damage. Repair or replace a damaged motor.

c. Testing.

(1) Using a multimeter set on ohms, check for continuity between the fan motor leads.

(a) A high resistance reading indicates an open motor and is defective.

(b) No resistance indicates a shorted motor and is defective.

(c) Hold meter leads on one winding lead and the frame of the motor, and then the other lead and motor frame. No resistance indicates a shorted motor, therefore defective.

(2) Replace a defective motor.

d. Installation.

(1) Position the condenser and evaporator fans on the motor shaft as it is placed on the motor base.

(2) Install the fan motor to the base with mounting bolts.

(3) Position the condenser fan with 1/3 of the blade in the venturi and set with the set screw,

(4) Position the evaporator fan 1/4″ from the fan inlet and tighten fan set screws. Spin the fans by hand being sure they turn free and do not hit the shrouds.

(5) Connect the electrical leads.

(6) Install the front, left, right, and top panels (para 39).

Section VII. AIR CIRCULATION SYSTEMS

48. General

The air conditioner has two air. circulation systems. The fans of the two systems are operated by a common 1/6 hp, 115v, 60 cycle double shaft motor. The evaporator circulation system, located in the front of the unit, draws air from the conditioned space and/or through the

fresh air opening in the bulkhead. Depending on the fresh air damper location, the blower expels the air through a filter thus removing air-born particles. Then the air is forced through the evaporator coil which removes the moisture and heat. It is then distributed to the conditioned space. The condenser fan draws the air from the outside through the louvers and expels it through the condenser coil absorbing the heat from the condenser coil.

49. Condenser Fan Assembly (figure 4)

a. Removal.

(1) Remove the top, front, left and right panels from the unit (para 39).

(2) Loosen and remove four fan motor mounting bolts.

(3) Loosen set screws in the condenser fan assembly and remove fan assembly as motor is lifted from the motor base (para 47).

b. Cleaning and Inspection.

(1) Clean the condenser fan assembly with cleaning solvent and dry thoroughly.

(2) Inspect for damaged or bent blades.

(3) Repair or replace a damaged fan blade.

c. Installation.

(1) Position the fan assemblies on the motor shaft as the motor is placed on its base.

(2) Install and tighten four fan motor mounting bolts.

(3) Secure the fan assembly to the motor base with adjustments as in paragraph 47.

(4) Install the front, top, right and left panels (para 39).

50. Evaporator, Centrifugal Fan Impeller (figure 4)

a. Removal.

(1) Remove the front panel from the unit (para 39).

(2) Loosen set-screw in tine centrifugal fan impeller

(3) Remove the eight metal screws from the blower inlet ring and remove the blower inlet ring,

(4) Slide the impeller from the shaft.

b. Cleaning and Inspection.

(1) Clean the centrifugal fan impeller with cleaning fluid and dry thoroughly.

(2) Repair or replace a damaged fan impeller.

c. Installation.

(1) Position the centrifugal fan impeller on the shaft and tight set-screw on the flat of the motor.

(2) Install the blower inlet ring with the eight metal screws.

(3) Install the front panel (para 39).

CHAPTER 4

DEMOLITION, SHIPMENT, AND LIMITED STORAGE

Section I. DEMOLITION OF AIR CONDITIONER TO PREVENT ENEMY USE

51. General

When capture or abandonment of the air conditioner to an enemy is imminent, the responsible unit commander must make the decision either to destroy the equipment or to render it inoperative. Based on this decision, orders are issued which cover the desired extent of destruction. Whatever method of demolition is employed, it is essential to destroy the same vital parts of all air conditioners and all corresponding repair parts.

52. Demolition to Render Air Conditioner Inoperative

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

(1) Compressor assembly.

(2) Condenser assembly.

(3) Evaporator assembly.

(4) Fan motor.

b. Misuse. Perform the following steps to render the equipment inoperative:

(1) Cut the refrigerant suction line and pour sand or other abrasive material into the compressor along with water.

(2) Run the unit assembly until it fails.

53. Demolition by Explosives or Weapons Fire

a. Explosives. Place as many of the following charges (fig. 9) as the-situation permits and detonate them simultaneously with a detonating cord and a suitable detonator.

(1) One 1/2 pound charge inside the front panel.

(2) One 1/2 pound charge on the fan motor.

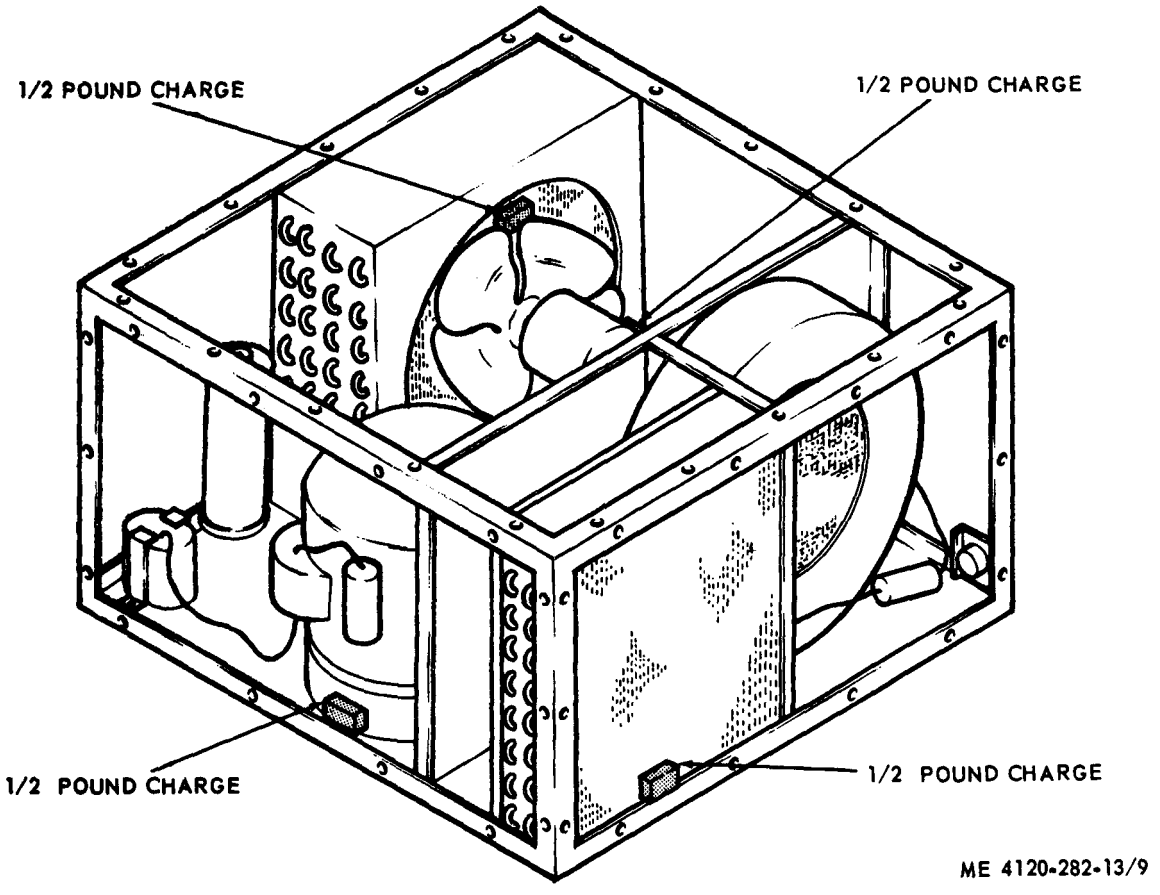


Figure No. 9 Placement of charge

(3) One 1/2 pound charge on the compressor.

(4) One 1/2 pound charge on the evaporator coil

b. Weapons Fire. Fire on the air conditioner with the heaviest pratical weapon available.

54. Other Demolition Methods

a. Scatterting and Concealment. Remove all easily accessible parts such as the themostat, expansion valve, service valve, and capacitors. Scatter them all in dense foliage, bury them, or throw them in deep water.

b. Burning. Pack rags, clothing, or canvas under, around, and inside the unit. Saturate this with gasoline, oil or fuel and ignite.

c. Submersion. Open all parts and totally submerge the unit to provide both water damage and concealment. Salt water will damage metal parts faster than fresh water.

55. Training

All operators should receive through training in the destruction of the air conditioner. Refer to FM 5-25. Simulated destruction, using all of the methods listed above, should be included in the operator's training program. It must be emphasized in training that demolition operations are usually necessitated by critical situations when time available for carrying out the destruction is limited. For this reason, It is necessary that operators be thoroughly familiar with all methods of destruction of equipment, and be able to carry out demolition instructions without reference to this or any other manual.

Section II. SHIPMENT AND LIMITED STORAGE

56. Preparation of Equipment for Shipment

a. General. Detailed instructions for the preparation of the air conditioner for domestic shipment are outlined within this paragraph. Preservation will be accomplished in sequence that will not require the operation of previously preserved components.

b. Inspection. The air conditioner will be inspected for any unusual conditions such as damage, rusting, accumulation of water, and pilferage. Inspection of the individual components and assembilies will be outlined on the “Preventive Maintenance Service Quarterly” in this manual.

c. Cleaning and Drying. All contamination shall be removed from the air conditioner by an approved method. Approved methods of cleaning

drying, types of preservatives and methods of application are described in TM 38-230.

d. Painting. Paint all surfaces where the paint has been removed or damaged. Refer to TM 9-213 for detailed cleaning and painting instructions.

e. Depreservation Guide.

(1) A properly annotated DA Form 2258 (Depreservation Guide for Vehicle and Equipment) will be completed concurrently with preservation for each item of mechanical equipment. Any peculiar requirements will be outlined in the blank spaces on the form.

(2) The completed depreservation guide will be placed with the equipment in a waterproof envelope marked "Depreservation Guide" and fastened in a conspicuous location on the equipment.

(3) Prior to placing the equipment in operation or to the extent necessary for inspection, depreservation of the item shall be performed as outlined on the depreservation guide.

f. Sealing of Openings. Openings that will permit the direct entry of water into the air conditioner shall be sealed with pressure sensitive tape conforming to PPP-T-60, Type III, Class 1.

g. Packing. The air conditioner should be packed in a suitable container for shipment. Refer to TM 38-230 for guidance in selecting, fabricating, and packing the shipping container. Pack the basic issue items and removable component in a suitable container and secure it to the shipping container.

h. Marking. Mark the air conditioner for shipment in accordance with MIL-STD-129.

57. Loading Equipment for Shipment

Use appropriate materials handling equipment of sufficient capacity to lift the air conditioner onto the carrier. Block and tie the unit to the carrier to assure that it will not move during transit.

58. Preparation of Equipment for Storage

a. Detailed instructions for preparation of the air conditioner for limited storage are provided in paragaph 56. Limited storage is defined as storage not to exceed six (6) months. Reference to TB 740-90-1.

b. Every effort should be made to provide covered storage for the air conditioner. If this is impossible, select a firm, level, well-

drained storage location, protected from prevailing winds. Position the air conditioner on heavy planking. Cover the air conditioner with a tarpaulin or other suitable waterproof covering and secure in a manner that will provide the air conditioner maximum protection from the elements.

59. Inspection and Maintenance of Equipment in Storage

a. Every 90 days, the air conditioner will be inspected as outline on the Quarterly Preventive Maintenance Services chart (fig. 8) and operated long enough to assure complete lubrication of bearings.

b. After each inspection period, the air conditioner shall be re-preserved as outlined in paragraph 58.

CHAPTER 5

DIRECT SUPPORT MAINTENANCE INSTRUCTIONS

Section I. GENERAL

60. Scope

a. The following instructions are for direct. support maintenance personnel. They contain information on the equipment maintenance that is beyond the scope of the tools, equipment, personnel, and supplies normally available to organizational maintenance.

b. The direct support maintenance repair parts are listed and illustrated in Appendix D.

61. Forms and Records

a. DA Forms 2258.

b. For other records and report forms applicable to direct support maintenance refer to TM 38-750.

Section II. DESCRIPTION AND DATA

62. Description

For a complete description of the air conditioner, see paragraph 3. The repair and maintenance instructions are described in appropriate section of this manual.

63. Tabulated Data

a. General. This paragraph contains all the overhaul data pertinent to direct support maintenance personnel. See figure 6 for wiring dia - gram.

b. Air Conditioner Classification and Rating.

Rating	9000 B.t.u./hr
Voltage	115 v (volt)
Amperes	15 a. (ampere)
Phase	1
Frequency	60 cycle
Type	Air cooled
Lubrication	Sealed
Degree of enclosure	Weather resistant
Operating temperature	125°F. a. max. (maximum)

c. Compressor Classification and Rating.

Rating	9000 B.t.u./hr
Horsepower	3/4 hp.
Type	Hermetic
Mounting	External
Refrigerant	R-12
Voltage	115 v.
Amperes	10.7
Ferequency	60 cycle
Duty classification	Continuous

d. Fan Motor Classification and Rating.

Rating	1/6 hp.
Voltage	115 v.
Frequency	60 cycle
Phase	1
Speed	1050
Duty classification	Continuous
Temperature rise	50°C. (Centigrade)
Type ----	Double shaft
Windings	Shaded pole

e. Expansion Valve Classification and Rating.

Rating	1/2 ton
Type	Thermostatic
Modification	Bleed part
Connections	1/4 in. (Male Flare)
Inlet	
Outlet	3/8 in.
Refrigerant	R-12

f. Run Capacitor Classification and Rating.

Rating	15 Microfarads
Voltage	370 v.
Type	Pyronol
Shape	Oval

g. Evaporator Coil Classification and Rating.

Type fins	Aluminum
Spacing of fins	10 / in.
Tubes	3/8 in. copper
Connections	
Inlet	3/8 in. flare (Female Flare)
Outlet	1/2 in. (Sweat)

h. Condenser Coil Classification and Rating.

Type fin	Aluminum
Fin spacing	10 / in.
Tube	3/8 copper
Connections	
Inlet	5/16 in.
Outlet	1/4 in.

Section III. REPAIR PARTS, SPECIAL TOOLS AND EQUIPMENT

64. Special Tools and Equipment

No special tools and equipment are required to perform maintenance on the air conditioner.

65. Direct Support Maintenance Repair Parts

Direct support maintenance repair parts are listed and illustrated in Appendix D.

66. Specially Designed Tools and Equipment

No specially designed tools and equipment are required by direct support maintenance personnel to perform maintenance on the air conditioner.

Section IV, TROUBLESHOOTING

67. General

This section provides information useful in diagnosing and correcting unsatisfactiry operation or failure of the air conditioner or any of its components. Each trouble symptom stated is followed by probable cause of the trouble. The possible remedy recommended is described opposite the probable cause.

68. Compressor Fails to Start

Probable Cause	Possible Remedy
a. Compressor assembly defective.	a. Replace compressor assembly (para 76).
b. overload defective.	b. Replace overload.
c. Improper power to compressor.	c. Check power to compressor.

69. Cooling Insufficient

Probable Cause	Possible Remedy
a. Expansion valve defective.	a. Replace expansion valve (para 81).
b. Compressor assembly defective.	Replace compressor assembly (para 76).
c. Refrigerant charge low.	c. Recharge refrigerant system (para 74).

70. Cooling Excessive

Probable Cause	Possible Remedy
a. Expansion valve defective.	a. Replace expansion valve (para 81).

71. Air Conditioner Noisy During Operation

Probable Cause	Possible Remedy
a. Compressor assembly defective.	a. Replace compressor assembly (para 76).

Section V. REMOVAL AND INSTALLATION OF MAJOR COMPONENTS AND AUXILIARIES

72. General

a. The air conditioner, after it is started, operates automatically. The relationship of automatic components, controls, and instruments are explained in the operation analysis for the maintenance of the air conditioner.

b. A wiring diagram (fig. 6) and refrigerant cycle diagram (fig. 11) are included for maintenance of the components.

c. Procedures for relieving refrigerant charge, leak testing, evacuation, and charging the refrigerant system are included for servicing the refrigerant system.

d. General maintenance of components such as lines, tubing, valves and fittings are included in this section.

73. Wiring Harness Leads

The electrical system in the air conditioner is complete by individual wires laced or enclosed in a harness.

a. Replace wires when frayed or worn

b. Follow the wiring diagram shown on figure 6.

c. Tag all wires being removed or replaced for proper identifica-

d. Remove tires from terminals by removing screws or soldered connections.

e. Correct the replacement leads with wires of the same specification when available.

f. Make sure all connections are tight and clean.

74. Servicing Refrigerant System

NOTE

In accordance with Environmental Protection Agency regulations, refrigerants cannot be discharged into the atmosphere. A recovery/recycling unit must be used whenever discharging the unit.

Operation of the recovery/recycling unit must be by AUTHORIZED PERSONNEL ONLY.

a. Releasing Refrigerant Cahrge.

(1) Remove the top center panel.

(2) Remove the valve system cap from the suction and discharge valve (figure 10).

(3) Connect and operate recovery/recycle unit in accordance with the manufacturer's instructions.

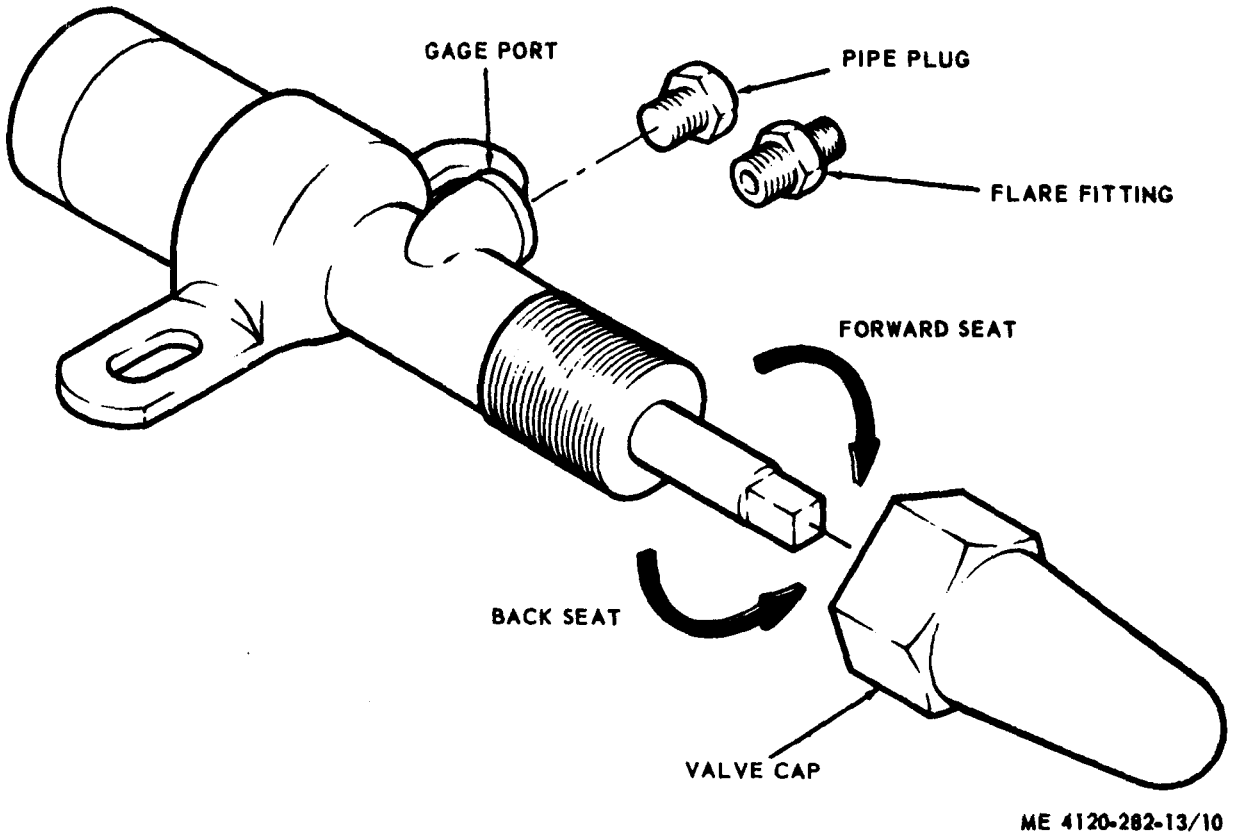


Figure No. 10 Service valve

WARNING

Do not allow the refrigerant to escape in a closed space around or near an open flame as a poisonous gas is manufactured when R12 burns.

b. Leak Testing the Refrigerant System.

(1) Remove the valve stem caps from the suction and discharge valves.

(2) Backseat the valves by turning them counterclockwise.

(3) Remove plugs from service valves.

(4) Install 1/8 inch pipe x 1/4 inch flare fitting in each valve.

(5) Attach a hose from each side of a gage set to the respective valve.

(6) Attach the common line of the gage set to a refrigerant drum and open both service valves slightly and both sides of the gage set allowing the tank pressure to build up in the system.

(7) Test the entire refrigerant system with a Halide torch.

(8) Backseat the service valves and close the gage valves and refrigerant drum valve and remove the gage set.

(9) Replace both plugs and install valve stem caps (figure 10).

c. Evacuation of the System.

(1) Remove the service valve stem caps.

(2) Backseat the valves by turning them counterclockwise.

(3) Remove plugs from valves and install 1/8 MPT x 1/4 inch flare pipe fitting.

(4) Connect refrigerant compound gage to the suction valve and a regular pressure gage to the discharge valve by means of a gage set.

(5) Connect the center hose to suction of the vacuum pump.

(6) open suction service valve slightly.

(7) Start vacuum pump and open gage valves.

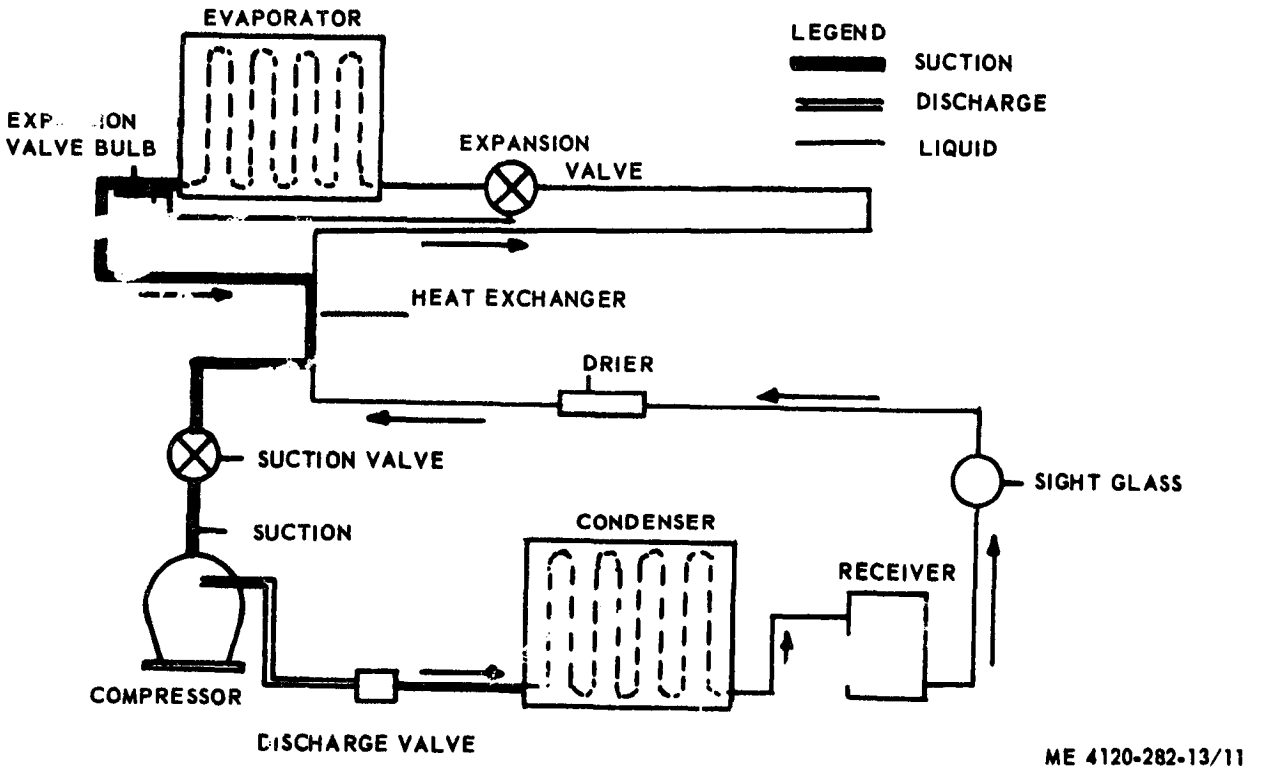


Figure No. 11 Refrigerant diagram

(8) Allow vacuum pump to run for one hour after compound gage reaches 28 inches of mercury.

(9) Shut valves on gage manifold.

(10) Stop vacuum pump and remove hose from the pump.

(11) Connect the hose to a refrigerant R-12 drum.

(12) Open high pressure valve on gage manifold and allow refrigerant to enter system on high side.

(13) Close valves after pressure equalizes.

(14) Install common hose on the vacuum pump.

(15) Allow pressure to escape by loosening the hose.

(16) Start the vacuum pump and allow to run until it reaches 28 inches vacuum.

(17) Repeat steps 11 thru 16 above three times. On final evacuation, let it run for one hour.

(18) Close valves on the gage set and observe for ten minutes. If vacuum holds, system is ready for charging. If vacuum does not hold, check for leaks in the refrigerant system.

NOTE

Whenever available, use recycled refrigerant for charging the refrigeration system.

d. Charging the System.

(1) Backseat the suction and discharge valves (figure 10).

(2) Install gage set to service valves loosely.

(3) Connect common hose to refrigerant R-12 drum. Open drum slightly to allow lines to purge. Tighten hose on suction and discharge valves.

(4) Close gage valve on discharge side.

(5) Open service valves from backseat with 1/4 turn (figure 10).

(6) Open refrigerant R-12 drum valve further.

(7) Open gage valve on suction gage side.

(8) Start compressor.

(9) Allow to operate into the system until approximately 44 ounces has entered the unit. Close the refrigerant R-12 drum valves.

(10) Close the suction service port. Disconnect the hose fan suction and discharge valve. Install valve stem cap and replace plugs (figure 10).

(11) Operate the unit and check the refrigerant for freedom of bubbles. If insufficient charge is indicated, repeat steps 1 thru 11 above.

75. Lines, Tubing, Fitting, and Valves

The refrigerant lines used on the air conditioner consist of copper tubing and necessary fittings.

a. Inspect the lines and tubing for cracks, breaks, and sharp bends.

b. Replace defective lines with same size and grade.

c. Heat soldered connections with torch to melt the soldered points.

NOTE

When soldering valves or sight glass, wrap with a wet cloth to prevent overheating.

d. Solder all piping and joints after they have bees thoroughly cleaned. Charge system (paragraph 74d).

76. Compressor

a. Removal.

(1) Remove the top, rear, left and right panels (para 39).

(2) Release refrigerant charge (para 74).

(3) Remove the four compressor mounting nuts (figure 5).

(4) Remove the flare nut connections on the discharge and suction lines of the compressor.

(5) Remove the compressor from the unit through the side.

b. Cleaning and Inspection.

(1) Clean the compressor with cleaning solvent.

(2) Inspect the compressor for leakage, cracks, and excessive noise during operation.

c. Installation.

(1) Position the compressor on the mounting studs (figure 5).

(2) Install and tighten the flare nut connections on the suction and discharge line of the compressor.

(3) Install the mounting nuts on the mounting bolts and tighten so that each bolt is flush with the top of the mounting nut.

(4) Check for leaks.

(5) Evacuate and charge system (para 74).

(6) Install top, rear, left and right panels (para 39).

NOTE

Special Instructions for Replacement of Burned-Out Compressor. A compressor motor burn-out seriously contaminates the refrigerant system with acids and gummy residue that will cause successive burn-outs unless the following procedure is followed:

a. To determine if the compressor motor is burned-out, release a small amount of refrigerant through the service valve. Refrigerant from a burned compressor motor will have a strong, peculiar odor.

b. Release remainder of refrigerant (para 74).

c. Remove expansion valve internal parts (figure 12).

d. Connect a refrigerant drum to the flare connection normally connected to the compressor suction and open the refrigerant drum momentarily flushing burned residue.

e. Connect the drum to the discharge line connection and purge the high side of the system.

f. Remove refrigerant drum.

g. Install new compressor (para 76).

h. Clean and replace expansion valve internal parts.

i. Install new strainer dehydrator (para 80).

j. Leak test, evacuate, and charge the system (para 74).

77. Evaporator Coil

a. Removal.

(1) Remove the top, left, and right panels (para 39).

(2) Release refrigerant charge (para 74).

(3) Remove air filter (para 28).

(4) Disconnect lines and tubes from the evaporator coil (para 75).

(5) Remove mounting screws at base of the coil, on the right side of the coil, and from the frame.

(6) Lift the evaporator coil from the unit.

b. Cleaning and Inspection.

(1) Clean the evaporator coil by directing compressed air under low pressure through the fins.

(2) Inspect the evaporator coil for signs of leakage or damage.

(3) Repair or replace a leaking or damaged evaporator coil.

c. Installation.

(1) Place the evaporator coil in the unit and secure with all mounting screws (figure 5).

(2) Connect all lines and tubes (para 75).

(3) Leak test, evacuate, and charge the refrigerant system (para 74).

(4) Install top, left, and right panels (para 39).

78. Condenser Coil

a. Removal.

(1) Remove the top, left, right, and rear panels (para 39).

(2) Release the refrigerant charge (para 74).

(3) Remove condenser fan housing mount screws and remove the fan housing (figure 4).

(4) Loosen setscrews in condenser fan and remove fan (figure 4).

(5) Remove condenser mounting screws (figure 4).

(6) Disconnect tubes from condenser coil (para 75).

(7) Lift the condenser coil from the unit.

b. Cleaning and Inspection.

(1) Clean the condenser coil by directing low pressure compressed air through the fins.

(2) Inspect the condenser coil for leaks or damage.

(3) Repair or replace a leaking or damaged condenser coil.

c. Installation.

(1) Place the condenser coil in the unit and secure with all mounting screws.

(2) Connect tubes to the condenser coil.

(3) Install condenser fan or motor shaft and tighten setscrews.

(4) Install condenser fan housing and secure with mounting screw

(5) Leak test, evacuate, and charge refrigerant system (para 74).

(6) Install top, left, right, and rear panels (para 39).

79. Receiver

a. Removal.

(1) Remove top, left -side, and rear panels (para 39).

(2) Release refrigerant charge (para 74).

(3) Disconnect tubes from. receiver (para 75).

(4) Remove nut from the bottom of unit (figure 5).

(5) Remove the receiver from the unit.

b. Cleaning and Inspection.

(1) Clean the receiver with solvent and dry thoroughly.

(2) Inspect the receiver for leaks or damage.

(3) Replace a defective receiver.

c. Installation.

(1) Install the receiver in the unit securing with hex nut under the unit.

(2) Connect inlet and outlet tubes (para 75).

(3) Leak test, evacuate, and charge the system (para 74).

(4) Install top, left -side, and rear panels (para 39).

80. Strainer Dehydrator (figure 4).

a. Removal.

(1) Remove the top and right-side panels (para 39).

(2) Release refrigerant charge (para 74).

(3) Disconnect the inlet and outlet tubes from the strainer (para 75).

(4) Remove the strainer (figure 4).

b. Cleaning and Inspection. Throw away the strainer and replace.

c. Installation.

(1) Place the dryer strainer in the unit and connect the tubes (para 75).

(2) Leak test, evacuate, and charge the refrigerant system (para 74).

(3) Install top and right-side panels (para 39).

81. Expansion Valve

a. Removal.

(1) Remove the top and right-side panels (para 39).

(2) Release the refrigerant charge (para 74).

(3) Disconnect the flare inlet and outlet connections. Use only a flare nut wrench (figure 4).

(4) Loosen screws in clamp and remove expansion valve from the unit.

b. Cleaning and Inspection.

(1) Clean the expansion valve externally with a clean, dry cloth (figure 12).

(2) Remove the internal parts (figure 12).

(3) Clean internal parts in refrigerant oil only.

(4) Replace an unserviceable expansion valve.

c. Installation.

(1) Install expansion valve in clamp and secure by tightening the screw.

(2) Connect the inlet and outlet flare nut connections.

(3) Leak test, evacuate, and charge the refrigerant system (para 74).

(4) Install the top and right-side panels (para 39).

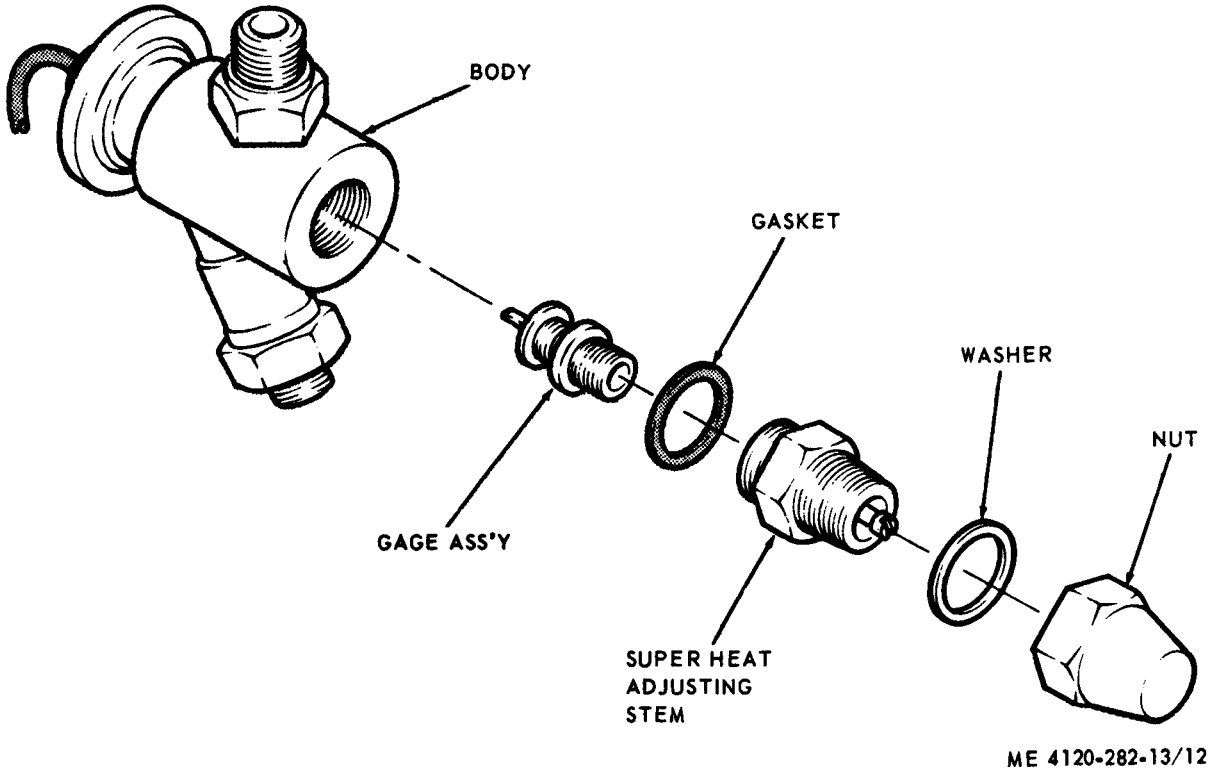


Figure No. 12 Expansion valve assembly

APPENDIX A

REFERENCES

A-1. Lubrication

C9100IL	Fuels, Lubricants, Oils and Waxes

A-2. Painting

~~TM 9-213~~ TM 43-0139	Painting Instructions for Field Use

A-3. Mainntenance

TM 5-4120-282-13	Operator, Organizational and Direct Support Maintenance Manual, Including Repair Parts and Special Tools List
TM 38-750	Army Equipment Record Procedures

A-4. Shipment and Storage

TB 740-90-1	Administrative Storage of Equipment
TB 740-93-2	Preservation of USAMECOM Mechanical Equipment for Shipment and Storage
TM 38-230	Preservation, Packaging and Packing of Military Supplies and Equipment

APPENDIX B
BASIC ISSUE ITEM LIST AND ITEMS TROOP INSTALLED OR AUTHORIZED

Section I. INTRODUCTION

B-1. Scope

This appendix lists basic issue, items troop installed or authorized which accompany the air conditioner and are required bt the crew/operator for operation, installation, or operator's maintenance.

B-2. General

This basic issue, 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.

B-3. Explanation of Columns

The following provides an explanation of columns in the tabular list of Basic Issue Items List, Section II, and Items Troop Installed or Authorized, Section III.

a. Source, maintenance, and Recoverability Code(s) (SMR): Not applicable.

b. Federal Stock Number. This column indicates the Federal stockt number assigned to the item and will be used for requisitioning purposes.

c. Description. This column indicates the Federal item name and any additional description of the item required.

d. Unit of Measure (U/M). A 2 character alphabetic abbreviation indicating the amount or quantity of the item upon which allowances are based, e.g., ft, ea, pr, etc.

e. Quantity Authorized (Items Troop Installed or Authorized Only). This cloumn indicates the quantity of the item authorized to be used with the equipment.

B-4. Special Information - (Not applicable).

B-5. Abbreviations

Abbreviations	Explanation
ea	each

B-6. Federal Supply Code for Manufacturers

Code	Manufacturer
97403	US Army Mobility Equipment, Research, Development and Engineering Center

SECTION II. BASIC ISSUE ITEMS

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NO. & MFR CODE / USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) QTY FURN WITH EQUIP	(7) ILLUSTRATION (A) FIG NO.	(7) ILLUSTRATION (B) ITEM NO.
		GROUP 31. - BASIC ISSUE ITEMS, MANUFACTURER INSTALLED					
		3100 - BASIC ISSUE ITEMS MANUFACTURER OR DEPOT INSTALLED					
PC	7520-559-9618	CASE, OPERATIONAL AND MAINTENANCE PUBLICATIONS	EA		1		
		DA TECHNICAL MANUAL TM 5-4120 282-13	EA		1		

Section III. ITEMS TROOP INSTALLED OR AUTHORIZED LIST

(1) SMR Code	(2) Federal Stock Number	(3) Ref. No. & Mfr Code / Description / Usable On Code	(4) Unit of Meas	(5) Qty Auth
	7520-559-9618	CASE, MAINTENANCE AND OPERATION MANUAL	EA	1

APPENDIX C

MAINTEANCE ALLOCATION CHART

Section I. INTRODUCTION

C-1. General

a. This section provides a general explanation of all maintenance and repair functions authorized at various maintenance levels.

b. Section II designates overall responsibility for the performance of maintenance functions on the identified end item or component. The implementation of the maintenance functions upon the end item or component will be consistent with the assigned maintenance functions.

c. Section III - Special Tools and Test Equipment. Not applicable

d. Section IV - Supplemental Instructions. Not applicable

C-2. Explanation of Columns In Section II

a. Group Number. Column 1. The functional group Is a numerical group set up on a functional basis. The applicable functional grouping indeces (obtained from TB 750-93-1, Functional Grouping Codes) are listed on the MAC in the appropriate numerical sequence. These indexes are normally set up in accordance with their function and proximity to each other.

b. Functional Group. Column 2. This column contains a brief description of the components of each functional group.

c. Maintenance Functions. Column 3. This column lists the various maintenance functions (A through K) and indicates the lowest maintenance category authorized to perform these functions. The symbol designates for the various maintenance categories are as follows:

C - Operator or crew
O - Organizational maintenance
F - Direct support maintenance

These maintenance functions are defined as follows:

A - INSPECT. To determine serviceability of an item by comparing its physical, mechanical, and electrical characteristics with established standards.

B - TEST. To verify serviceability and to detect electrical or mechanical failure by use of test equipment.

C - SERVICE. To clean, to preserve, to charge, to paint, and to add fuel, lubricants, cooling agents, and air.

D - ADJUST. To rectify to the extent necessary to bring into proper operating range.

E - ALIGN. To adjust specified variable elements of an item to bring to optimum performance.

F - CALIBRATE. To determine the corrections to be made in the readings of instruments or test equipment used in precise measurement. Consists of the comparisons of two instruments, one of which Is a certified standard of known accuracy, to detect and adjust any discrepancy In the accuracy of the instrument being compared with the certified standard.

G - INSTALL. To set up for use in an operational environment such as an emplacement, site, or vehicle.

H - REPLACE. To replace unserviceable Items with serviceable assemblies, subassemblies, or parts.

I - REPAIR. To restore an item to serviceable condition. This includes, but is not limited to, inspection, cleaning, preserving, adjusting, replacing, welding, riveting, and strengthening.

J - OVERHAUL. To restore an item to a completely serviceable condition as prescribed by maintenance serviceability standards using the Inspect and Repair Only as Necessary (IROAN) technique.

K - REBUILD. To restore an item to a standard as nearly as possible to original or new condition in appearance, performance, and life expectancy. This is accomplished through complete disassembly of the item, inspection of all parts or components, repair or replacement of worn or unserviceable elements (items) using original manufacturing tolerances and specifications, and subsequent reassembly of the item.

d. Tools and Equipment. Column 4. This column is provided for referencing by code the special tools and test equipment, (Section III) required to perform the maintenance functions (Section II).

e. Remarks. Column 5. This column is provided for referencing by code the remarks (Section IV) pertinent to the maintenance functions.

SECTION II - MAINTENANCE ALLOCATION CHART

(1) GROUP NO.	(2) FUNCTIONAL GROUP	(3) MAINTENANCE FUNCTIONS A INSPECT	B TEST	C SERVICE	D ADJUST	E ALIGN	F CALIBRATE	G INSTALL	H REPLACE	I REPAIR	J OVERHAUL	K REBUILD	(4) TOOLS AND EQUIPMENT	(5) REMARKS
01	FRAME													
	Frame Assembly								F	F				
02	PANELS													
	Panels	O							O					
03	ELECTRIC MOTOR AND BRACKETS													
	Motor		O						O					
	Brackets	O							O					
04	CONDENSER, EVAPORATOR AND REFRIGERANT PIPING													
	Refrigerant Piping		F	F					F					
	Condenser			C					F	F				
	Evaporator			C					F	F				
05	BLOWER, PANEL AND GRILL													
	Blower	O							F					
	Panel	O							O					
	Grill	O							O					

SECTION III. TOOLS AND TEST EQUIPMENT REQUIREMENTS

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE CATEGORY	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
	F-H	Recovery and Recycling Unit, Refrigerant	4130-01-338-2707	17500B (07295)

APPENDIX D

COMBINED ORGANIZATIONAL AND DIRECT SUPPORT MAINTENANCE

REPAIR PARTS AND SPECIAL TOOLS LIST

Section I. INTRODUCTION

D-1. Scope

This appendix lists repair parts, special tools and test support equipment required for the performance of organizational and direct support maintenance of the air conditioner.

D-2. General

This Repair Parts and Special Tools List is divided into the following sections:

a. Prescribed Load Allowance (PLA) - Section II. A composite listing of repair parts, special tools, test and support equipment having quantitative allowances for initial stockage at the organizational level.

b. Repair Parts - Section III. A list of repair parts authorized for the performance of maintenance at the organizational level in figure and item number sequence.

c. Special Tools, Test and Support Equiment - Section IV. Not applicable.

d. Repair Parts - Section V. A list of repair parts authorized for the performance of maintenance at the direct support level in figure and item number sequence.

e. Special Tools, test ans Support Equipment - Section VI. Not applicable.

f. Federal Stock Number and Reference Number Index - Section VII. A list of Federal sotck number in asceding numerical sequence, followed by a list of reference numbers appearing in all of the listings, in ascending alpha-numeric sequence, crosss-referenced to the illustration figure number and item number.

Note: Items not illustrated are cross-referenced to group number.

D-3. Explanation of Columns

The following provides an explanation of columns in the tabular lists in Sections II through VII.

Note: Common hardware items known to be readily available in Army supply channels are assigned Maintenance codes only. Source codes, Recoverability codes, and Maintenance Allowances are not assigned this category.

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

(1) Source Code. Indicates the selection status and source for the listed item. Source codes used are:

Code	Explanation
P	Applied to repair parts which are stocked in or supplied from DSA/GS or Army supply system, and authorized for use at indicated maintenance categories.
P2	Applied to repair parts which are procured and stocked for insurance purposes because the combat or military essentiality of the end item dictates that a minimum quantity be available in the supply system.
M	Applied to repair parts which are not procured or stocked but are to be manufactured at indicated maintenance categories.
A	Applied to assemblies which are not procured or stocked as such but are made up of two or more units, each of which carry individual stock numbers and descriptions and are procured and stocked and can be assembled by units at indite.ted maintenance categories.
X	Applied to parts and assemblies which are not procured or stocked; the mortality of which normally is below that of the applicable end item; and the failure of which should result in retirement of the end item from the supply system.
X1	Applied to repair parts which are not procured or stocked, the requirement for which will be supplied by use of the next higher assembly or component.

Code	Explanation
X2	Applied to repair parts which are not stocked. The indicated maintenance category requiring such repair parts will attempt to obtain them through cannibalization; if not obtainable through cannibalization, such repair parts will be requisitioned with supporting justification through normal supply channels.
C	Applied to repair parts authorized for local procurement. If not obtainable from local procurement, such repair parts will be requisitioned through normal supply channels with a supporting statement of nonavailability from local procurement.
G	Applied to major assemblies that are procured with PEMA (Procurement Equipment Missile Army) funds for initial issue only to be used as exchange assembles at DSU and GSU maintenance level. These assemblies will not be stocked above DSU and GSU level or returned to depot level.

(2) Maintenance Code. Indicates the lowest category of maintenance authorized to install the listed item. The maintenance codes are:

Code	Explanation
O	Organizational maintenance
F	Direct support maintenance

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

Code	Explanation
R	Applied to repair parts and assemblies which are economically repairable at DSU and GSU activities and which are normally furnished by supply on an exchange basis.
S	Applied to repair parts and assemblies which are economically repairable at DSU and GSU activities and which normally are furnished by supply on an exchange basis. When items are determined by a GSU to be uneconomically repairable they will be evacuated to a depot for evalu-

Code	Explanation
	ation and analysis before final disposition.
T	Applied to high dollar value recoverable repair parts which are subject to special handling and are issued on an exchange basis. Such repair parts are normally repaired or overhauled at depot maintenance activites.
U	Applied to repair parts specifically selected for salvage by reclamation units because of precious metal content, critical materials, high dollar value 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 any additional description of the item required. Assembly components and subassemblies are indented under major assemblies. A part number or other reference number is followed by the applicable five-digit Federal supply code for manufacturers in parenthesis. Repair parts quantities included in kits and sets are shown in front of the repair part name.

d. Unit of Measure (U/M). A 2 character alphabetic abbreviation indicating the amount or quantity of the item upon which the allowances are based, e.g., ft, ea, yr, etc.

e. Quantity Incorporated in Unit. Indicates the quantity of the item used in the functional group or the assembly group. A "V" appearing in this column in lieu of a quantity indicates that a definite quantity cannot be indicated (e.g., shims, spacers, etc).

f. 15-Day Organizational Maintenance Allowance.

(1) The allowance columns are divided into four subcolumns. Indicated in each subcolumn opposite the first appearance of each Item is the total quantity of the items authorized for the number of equipments supported. Subsequent appearances of the same item will have the letters "REF" in the allowance columns. Items authorized for use as required but not for initial stockage are identified with an asterisk in the allowance column.

(2) The quantitative allowances for organizational level of maintenance represents one initial prescribed load for a 15-day period for the number of equipments supported. Units and organizations authorized additional prescribed loads will multiply the number of presribed loads authorized by the quantity of repair parts reflected in the appropriate density column to obtain the total quantity of repair parts authorized.

(3) Organizational units providing maintenance for more than 100 if these equipments shall determine the total quantity of parts required by converting the equipment quantity to a decimal factor by palcing a decimal point before the next to last digit of the number to indicate hundredths, and multiplying the decimal factor by the parts quantity authorized in the 51-100 allowance column. Example, autorized allowance for 51-100 equipments is 12; for 140 equipments multiply 12 by 1.40 or 16.80 rounded off to 17 parts required.

(4) Subsequent changes to allowances will be limited as follows: No change in the range of items is authori ed. If additional items are considered necessary, recommendation should be forwarded to the U.S. Army TROOP SUPPORT Command for exception or reversion to the allowance list. Revisions to the range of items authorized will be made bt the U.S. Army Mobility Equipment Command based upon engineering experience, demand data, or TAERS information.

g. 30-Day DS Maintenance Allowances.

(1) The allowance columns are divided Into three subcolumns. Indicated in each subcolumn, opposite the first appearance of each item, is the total quantity of items authori ed for the number of equipments supported. Subsequent appearances of the same item will have the letters "REF" in the applicable allowance columns. Items authorized for use as required but not for Initial stockage are idetification with an asterisk, in the allowance column.

(2) The quantitative allowances for DS level of maintenance will represent initial stockage for a 30-day period for the number of equipments supported.

(3) Determination of the total quantity of parts required for maintenance of more than 100 of these equipments can be accomplished by converting the equipment quantity to a decimal factor by placing a decimal point before the next to last digit of the number to indicate hundredths, and multlplying the decimal factor by

the parts quantity authorized in the 51-100 allowance column. Example, authorized allowance for 51-100 equipments is 40; for 150 equipments multiply 40 by 1.50 or 60 parts required.

h. 1-Year Allowance Per 100 Equipments/Contingency Planning Purposes. Indicates opposite the first appearance of each item the total quantity required for distribution and contingency planning purposes. The range of items indicates total quantities of all authorized items required to provide for adequate support of 100 equipments for one year.

i. Illustration.

(1) Figure Number. Indicates the figure number of the illustration in which the item is shown.

(2) Item Number. Indicates the callout number used to reference the item in the illustration.

D-4. Special Information

a. Identification of the usable on codes

Code	Used On
A	Harvey W. Hottel Model HAC-750-H
B	Keco Models F9000 and F9000-2
C	Redmanson Model A9000
D	Columbia Specialty Model CAS9000

b. Repair parts mortality has been based on 7200 hours operation per year.

c. Parts which require manufacture or assembly at a category higher than that authorized for installation will indicate in the source column the higher category.

D-5. How to Locate Repair Parts

a. When Federal stock number or reference number is unknown:

(1) First. Using the table of contents determine the functional group, functional subgroup, or assembly group, i.e., motor assembly, compressor frame assembly, within which the repair part. belongs. This is necessary since illustrations are prepared for functional groups, functional subgroups or assembly goups, and listings are divided into the same groups.

(2) Second. Find the illustration covering the functional group, functional subgroup, or assembly group to which the repair part belongs.

(3) Third. Identify the repair part on the illustration and note the illustration figure and item number of the repair part.

(4) Fourth. Using the Repair Parts Listing, find the functional group, functional subgroup, or assembly group to which the repair part belongs and locate the illustration figure and item number noted on the illustration.

b. When Federal stock number or reference number is known:

(1) First. Using the Index of Federal Stock Numbers and Reference Numbers, find the pertinent Federal stock number or reference number. This index is in ascending FSN sequence followed by a list of reference numbers in alpha-numeric sequence, cross referenced to the illustration figure number and item number.

(2) Second. Using the Repair Fart Listing, find the functional group, functional subgroup, or assembly group of the repair part and the illustration figure number and item number referenced in the Index of Federal stock numbers and reference numbers.

D-6. Abbreviations

Abbreviations	Explanation
dia	diameter
ea	each
ft	foot (feet)
in	inch(es)
lg	long (length)
lh	left hand
mtg	mounting)
No.	number
od	outside diameter
OZ	ounce(s)
SAE	Society of Automotive Engineers
rh	right hand
thd	thread

D-7. Federal Supply Codes for Manufacturer

Code	*Manufacturer*
00656	Aerovox Corp, New Bedford, Ma.
14852	Bohn Heat Transfer
35197	Lau Blowers
35510	Leece-Neville (VLN - Gainesville, Ga.)
74545	Harvey Hubbel Inc.
83866	Research Products
97403	U.S. Army - MERDC

Code	Manufacturer
01002	General Electric Co.
03510	General Electric Co.
24446	General Electric Co.
24500	Columbia Specialty
28193	Henry Valve Co.
37942	Mallory, P. R. and Co.
39433	McQuay Inc.
41326	General Electric Co., Wiring Device Dept.
41947	Mueller Brass Co.
49742	Ranco Inc.
59431	Tecumseh Products
60399	Torrington Mfg. Co.
65149	Barber-Colman Company
72712	General Motors Overseas Operation, Division General Motors Corp.
73096	Hart Mfg. Co., The
76149	Mallory Electric Corp.
78462	Sporlan Valve Co.
78857	Tube Manifold Corp.
81336	Corps of Engineers
88044	Aeronautical Standards Group
88690	Essex Wire Co., Automotive Division
91494	A-P Controls Division, Controls Co. of America
92869	Remco Inc.
93558	Parker-Hannifin Corp. Kenmore Machine
94833	Keco Industries Inc.
95404	Allin Mfg. Co.
96906	Military Standards
97450	Hottel, Harvey W. Inc.

(1) FEDERAL STOCK NUMBER	(2) DESCRIPTION (useable on code)	(3) 15-DAY ORG MAINT. ALW (A) 1-5	(B) 6-20	(C) 21-50	(D) 51-10(
	GROUP 03 - ELECTRIC MOTOR AND BRACKETS				
4120-184-8900	MOTOR, ELECTRIC 5KCP39DG61665 (03510)			2	2
	CAPACITOR, FAN MOTOR P15F735 (00656) (A)				
4120-779-6008	SWITCH, SELECTOR 240T6HPC-B (73096) (B) (D)			2	2
4120-779-9141	SWITCH, SELECTOR 110-1-4M (73096) (A)			2	2
5910-014-0421	CAPACITOR, RUN P103F419 (00656) (C)		2	2	4
5910-189-5581	CAPACITOR, RUN RFM - 931-37 (00 656)(A)		2	2	4
5910-932-9088	CAPACITOR, RUN 72F5047(01002) (D)		2	2	4
	CAPACITOR, RUN 49F6296 (24446) (B)		2	2	4
5930-788-9671	SWITCH, SELECTOR 240T6HPC B (73096) (C)			2	2
	GROUP 04 - CONDENSER, EVAPORATOR AND REFRIGERANT PIPING				
4130-779-5998	FILTER, AIR 8471 -18-4 (81336)			2	2
5910-655-0535	CAPACITOR, START 35F166BA 9 (85506)		2	2	4
5910 -799-6077	CAPACITOR, START 85506 (76149) (B) (C) (D)		2	2	4
5925-724-8738	CIRCUIT BREAKER 83045 (59431)		2	2	4

FEDERAL STOCK NUMBER	(2) DESCRIPTION (useable on code)	(3) 15-D (A) 1-5	ORG (B) 6-20	AINT (C) 21-50	ALW (D) 51-100
	GROUP 04 - CONDENSER, EVAPORATOR AND REFRIGERANT PIPING (Cont'd)				
5945-014-0422	RELAY, START 128126-1315XA (88690) (C)		2	2	4
5945-778-9670	RELAY, START 82044-1 (59431) (A) (B) (D)		2	2	4

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(1) DESCRIPTION REF NUMBER & MFR CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 15-DAY ORGANIZATIONAL MAINTENANCE ALW (a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100	(7) ILLUSTRATION (a) FIG. NO.	(b) ITEM NO.
		GROUP 02 - PANELS									
K20		SCREW, PAN HEAD: PANEL MTG, No. 8-32 THD SIZE, 1/2 IN. LG MS35233-45 (96906)		EA	70					D2	1
K20		PANEL, TOP CENTER 8471-39-2 (81336)		EA	1					D2	2
K20		PANEL, TOP REAR 8471-39-1 (81336)		EA	1					D2	3
K20		PANEL, TOP FRONT 8471-40A (81336)		EA	1					D2	4
K20		GASKET: TOP REAR PANEL 8471 -39-1-2 (81336)		EA	3					D2	5
K20		NUT, CLINCH: PANEL MTG, No. 8-32 THDI SIZE 8471 -4-1 (81336)		EA	4					D2	6
K20		GASKET, FELT: TOP FRONT PANEL, DAMPER 8471-40A2 (81336)		EA	1					D2	7
X20		PANEL, SIDE: RH 8471-38 (81336)		EA	1					D2	8
X20		PANEL, SIDE: LH 8471-37 (81336)		EA	1					D2	13
X20		PANEL, REAR 8471-40-1 (81336)		EA	1					D2	14
X20		SCREW, PAN HEAD: FILTER COVER MTG, No. 8-32 THD SIZE x 5/8 IN. LG MS35233-46 (96906)		EA	11					D2	15
X20		COVER, FILTER 8471-8-4 (81336)		EA	1					D2	16
X20		GASKET: FILTER COVER 8471-8-5 (81336)		EA	1					D2	17
		GROUP 03 - ELECTRIC MOTOR AND BRACKETS									
X20		MOTOR ASSEMBLY 8471-23A (81336)		EA	1					D3	
X20		NUT, SELF-LOCKING: MOTOR BRACKET TO FRAME MTG, 1/4-28 THD SIZE MS21083C4 (96906)		EA	4					D3	1
X20		SCREW, CAP, HEXAGON HEAD: MOTOR BRACKET T0 FRAME MTG, 1/4-28 THD SIZE X 1/2 IN, LG MS90726-3 (96906)		EA	4					D3	2
X20		NUT, SELF-LOCKING: MOTOR TO BRACKET MTG, 1/4-28 THD SIZE MS21083C4 (96906)		EA	4					D3	3
X20	531O-187-2354	WASHER, FLAT: MOTOR TO BRACKET MTG, 1/4 IN. SCREW SIZE AN960PD416 (88044)		EA	4					D3	4
X20		SCREW, CAP, HEXAGON HEAD MOTOR TO BRACKET MTG, 1/4-28 TWO SIZE 5/8 IN, LG MS90726-5 (96906)		EA	4					D3	5

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 15-DAY ORGANIZATIONAL MAINTENANCE ALW (a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100	(7) ILLUSTRATION (a) FIG. NO.	(b) ITEM NO.
(20		BRACKET: MOTOR MTG 8471-23-2 (81336)		EA	1					D3	6
> 0	4120-184-8900	MOTOR, ELECTRIC ~~5KCP39DG61665 (03510)~~ 01-79-H0014-2486E (35510)	A	EA	1	*	*	2	2	D3	7
~~(20~~ AF	4136-01-159-4431	CORD ASSEMBLY MFGR FROM: PLUG, 5935-00-239-2539 OR 5935-00-222-0815; WIRE ELECT, 6145-00-112-8671 8471-41A (81336)		EA	1					D3	8
(20	5935-00-239-2539	PLUG ~~L09323G (41326)~~ R678-7313(00656)	A	EA	1					D3	9
(20	5935-00-222-0815	PLUG ~~8E1364-3 (41326)~~ R678-5266(74545)	A	EA	1					D3	10
(20	6145-00-112-8671	WIRE, ELECTRICAL 8471-41-1 (81336)		EA	1					D3	11
(20		SCREW, MACHINE, FLATHEAD: RECEPTACLE AND CAPACITOR ASSEMBLIES MTG, No. 8-32 THD SIZE, 1/2 IN. LG MS35190-253 (96906)		EA	4					D3	12
20		CAPACITOR ASSEMBLY, RUN 8471-28A (81336)	D	EA	1					D3	
20		NUT, SELF-LOCKING: CLIP TO BRACKET, No. 8-32 ORD503244 (96906) THD SIZE	D	EA	4					D3	13
0		SCREW, MACHINE: CAPACITOR CLIP MTG, No. 8-32 THD SIZE, 1/2 IN. LG MS35223-45 (96906)	D	EA	4					D3	14
20		CLIP 8471-28-4 (81336)	D	EA	2					D3	15
20		COVER D8471-28-2 (81336)	D	EA	1					D3	16
0	5910-932-9088	CAPACITOR, RUN 72F5047 (01002)	D	EA	1	*	2	2	4	D3	17
0		CAPACITOR, RUN 49F6296 (24446)	B	EA	1	*	2	2	4	D3	17
0	5910-189-5581	CAPACITOR, RUN ~~21F11 (24446)~~ RFM-931-37 (00656)	A	EA	1	*	2	2	4	D3	17
0	5910-014-0421	CAPACITOR, RUN P103F419 (00656)	C	EA	1	*	2	2	4	D3	17
20		BRACKET: CAPACITOR 8471-28-3 (81336)	C	EA	1					D3	18
20		NUT, SELF-CLINCH: BRACKET MTG, No. 8-32 THD SIZE 8471-4-1 (81336)	C	EA	2					D3	19
20		NUT, PLAIN, HEXAGON: RECEPTACLE ASSEMBLY MTG, No. 10-32 THD SIZE MS21083C3 (96906)		EA	2					D3	20
20		RECEPTACLE ASSEMBLY 8471-29A (81336)		EA	1					D3	
20		NUT, PLAIN, HEXAGON: RECEPTACLE MTG, No. 8-32 THD SIZE MS21083-008 (96906)		EA	2					D3	21
20		SCREW, ROUND HEAD: RECEPTACLE MTG, No. 8-32 THD SIZE X 1/2 IN. LG MS35233-45 (96906)		EA	2					D3	22
~~20~~ P		RECEPTACLE ~~L09325G (41326)~~ R678-7327(74545)		EA	1					D3	23

SMR COD	(2) FEDERAL STOCK NUMBER	DESCRIPTION REF NUMBER & MFR CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INCL IN UNIT	(6) 15-DAY ORGANIZATIONAL MAINTENANCE ALLOWANCE (a) 1-5	(b) 1-20	(c) 1-50	(d) 1-100	(7) ILLUSTRATION (a) FIG. NO.	(b) ITEM NO.
X20		BRACKET: RECEPTACLE MTG 8471-29-2 (81336)		EA						D3	24
X20		KNOB 8471-31-2 (81336)		EA						D3	25
X20		SCREW, FLATHEAD: SWITCH MTG, No. 6-32 THD SIZE, 3/8 IN. LG MS35190-253(96909		EA						D3	26
	4120-779-9141	SWITCH, SELECTOR 110-1-4M(73096)	A	EA		*	*	2	2	D3	27
	4120-779-6008	SWITCH, SELECTOR 240T6HPCB (73096)	BD	EA		*	*	2	2	D3	27
	5930-788-9671	SWITCH, SELECTOR 240T6HPCC (73096)	C	EA		*	*	2	2	D3	27
		GROUP 04 - CONDENSOR, EVAPORATOR AND REFRIGERANT PIPING									
	5945-778-9670	82044 (59431)	ABD	EA		*	2	2	4	D4	11
	5945-014-0422	RELAY, START 128126-1315XA (88690)	C	EA		*	2	2	4	D4	11
	5910-655-0353	CAPACITOR, START 35F166BA9(85506)	A	EA		*	2	2	4	D4	12
	5910-779-6007	CAPACITOR, START 85506 (59431)	BCD	EA		*	2	2	4	D4	12
	5925-724-8738	CIRCUIT BREAKER: OVERLOAD 83045 (59431)		EA		*	2	2	4	D4	13
X20		SCREW, MACHINE: CABLE CLAMP MTG, No. 8-32 THD SIZE, 3/8 IN. LG MS35233-66 (96906)		EA						D4	17
X20		BAFFLE: INSULATION MTG 8471-18-1 (81336)		EA						D4	47
	4130-779-5998	FILTER: AIR 8471-18-4 (81336)		EA		*	*	2	2	D4	48
		CABLE 8471-17-2 (81336)		EA						D4	50
		FAN ASSEMBLY N1628-4CU (60399)		EA						D4	51
		GROUP 05 - BLOWER, PANEL AND GRILL									
X20		PANEL ASSEMBLY D8471-32A (81336)		EA						D5	
X20		SCREW, PAN HEAD: INSULATION REAINER SHROUD AND PANEL MTG, No. 8-32 THD M535233-43 (96906)		EA						D5	1
X20		SCREW, SELF-TAPPING: PLATE MTG, No. 6-32, 3/8 IN. LG M335233-28 (96906)		EA						D5	2
X20		PLATE, INSTRUCTION: OPERATING 8471-36-2 (81336)		EA						D5	3
X20		SCREW, PAN HEAD: GRILL AND FRAME MTG, No. 8-32 THD SIZE, 1/2 IN. LG MS35233-43 (96906)		EA						D5	4
X20		GRILL ASSEMBLY, RETURN 8471-33A (81336)		EA						D5	5

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 15-DAY ORGANIZATIONAL MAINTENANCE ALW (a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100	(7) ILLUSTRATION (a) FIG. NO.	(b) ITEM NO.
K20		CLAMP MS21910D3 (96906)		EA	1					D5	6
K20		DAMPER ASSEMBLY VOL10X10 (65149)		EA	1					D5	7
K20		FRAME ASSEMBLY,GRILLE 8471-35-1 (81336)		EA	1					D5	
K20		FRAME 8471-35-1 (81336)		EA	2					D5	8
K20		CORE 8471-35-3 (81336)		EA	1					D5	9
X20		PANEL, FRONT 8471-36-1 (81336)		EA	1					D5	12
K20		NUT, SELF-CLINCHING: No. 8-32 THD SIZE 8471-4-1 (81336)		EA	16					D5	13
K20		RETAINER: INSULATION 8471-18-2 (81336)		EA	1					D5	14
K20		HOUSING ASSEMBLY: BLOWER 8471-12A (81336)		EA	1					D5	
K20		SCREW, SELF-TAPPING: BLOWER HOUSING RING AND SHROUD MTG, No. 6-32 THD SIZE, 5/16 IN. LG MS35233-27 (96906)		EA	8					D5	16
K20		RING: BLOWER HOUSING 8471-13-5 (81336)		EA	1					D5	17
X20		SCREW,MACHINE: CABLE CLIP MTG, No.8-32 THD SIZE 3/8 IN. LG MS35233-46 (96906)		EA	2					REF	REF
K20		CLIP, TUBE CABLE RETAINING 8471-12-1 (81336)		EA	1					D5	18
K20		SHROUD: BLOWER HOUSING 8471-14-1 (81336)		EA	1					D5	19
K20		CLIP, CABLE 8471-13-2 (81336)		EA	1					D5	20
K20		HOUSING: BLOWER 8471-15-1 (81336)		EA	1					D5	21
K20		NUT: CUTOFF MTG, No. 8-32 THD SIZE MS21083C08 (96906)		EA	2					D5	22
K20		SCREW, MACHINE: CUTOFF MTG, No. 8-32 THD SIZE MS35233-43 (96906)		EA	2					D5	23
K20		CUTOFF 8471-15-2 (81336)		EA	1					D5	24
K20		SCREW, PAN HEAD: DOOR MTG, No. 8-32 THD SIZE, 1/2 IN. LG MS35233-45 (96906)		EA	3					REF	REF
K20		DOOR ASSEMBLY 8471-24A (81336)		EA	1					D5	
K20		SCREW, MACHINE: DOOR HINGE, No. 6-32 THD SIZE, 1/4 IN. LG MS35233-42 (96906)		EA	3					D5	25
K20		HINGE 8471-25-2 (81336)		EA	1					D5	26
K20		FASTENER 8471-4-3 (81336)		EA	3					D5	27

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE — USABLE ON CODE	(4) UNIT OF EA	(5) QTY INC IN UNIT	(6) 15-DAY ORGANIZATIONAL MAINTENANCE ALW (a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100	(7) ILLUSTRATION (a) FIG. NO.	(b) ITEM NO.
X20		SEAL, DOOR 8471-25-3 (81336)	EA	2					D5	28
X20		INSULATION, DOOR 8471-25-5 (81336)	EA	1					D5	29
X20		DOOR 8471-25-1 (81336)	EA	1					D5	30
X20		SCREW: STOP TO CABLE MTG MS51963-22 (96906)	EA	1					D5	32
X20		STOP, CABLE 8471-24-1 (81336)	EA	1					D5	33
X20		WHEEL ASSEMBLY ~~A2433-7 (60399)~~ R678-R4120-C160 (60399)	EA	1					D5	34
X20		RETAINER 8471-13-4 (81336)	EA	1					D5	35
X20		SCREEN: BLOWER HOUSING 8471-13-3 (81336)	EA	1					D5	36
X20		NUT, SELF-LOCKING: CABLE CLIP MTG MS21083C06 (96906)	EA	2					D5	37
20		LAMP: DOOR CABLE MTG MS2191905 (96906)	EA	1					D5	38
20		LINKAGE ASSEMBLY 8471-34A (81336)	EA	1					D5	39

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE / USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 1-YR ALW PER 100 EQUIP CNTGY	(8) ILLUSTRATION (a) FIG. NO.	(b) ITEM NO.
		GROUP 01 -FRAME								
2F		SCREW, FLATHEAD: PAN TO FRAME MTG, 10-24 THD SIZE, 3/8 IN. LG MS35190-269 (96906)	EA	8					D1	1
2F		FRAME, FRONT D8471-5 (81336)	EA	1					D1	2
2F		FRAME ASSEMBLY 8471-6A (81336)	EA	1					D1	3
2F		PAN: FRAME BASE D8471-9 (81336)	EA	1					D1	4
2F		NUT, SELF-CLINCH: FRAME MTG, No. 10-24 THD SIZE 8471-4-2 (81336)	EA	8					D1	5
2F		NUT, SELF-CLINCH: PANEL MTG, No. 8-32 THD SIZE 8471-4-1 (81336)	EA	60					D1	6
		GROUP 02 -PANELS								
20		SCREW, PAN HEAD: PANEL MTG, No. 8-32 THD SIZE, 1/2 IN. LG MS35233-45 (96906)	EA	70					D2	1
20		PANEL, TOP CENTER 8471-39-2 (81336)	EA	1					D2	2
X20 PO		PANEL, TOP REAR 8471-39-1 (81336)	EA	1					D2	3
20		PANEL, TOP FRONT 8471-40A (81336)	EA	1					D2	4
20		GASKET: TOP REAR PANEL 8471-39-1-2 (81336)	EA	3					D2	5
20		NUT, CLINCH: PANEL MTG, No. 8-32 THD SIZE 8471-4-1 (81336)	EA	4					D2	6
20		GASKET, FELT: TOP FRONT PANEL, DAMPER 8471-40A2 (81336)	EA	1					D2	7
X20 PO		PANEL, SIDE: RH 8471-38 (81336)	EA	1					D2	8
1F		SCREW, SELF-TAPPING: IDENTIFICATION PLATE, WIRING PLATE AND REFRIGERANT PLATE MTG, No. 6-20, 1/4 IN. LG MS24638-10 (96906)	EA	12					D2	9
1F		PLATE, IDENTIFICATION 9000-1 (24500)	EA	1					D2	10
1F		PLATE, WIRING 8471-2-1 (81336)	EA	1					D2	11
1F		PLATE, REFRIGERANT 8471-17-4 (81336)	EA	1					D2	12
10		PANEL, SIDE: LH 8471-37 (81336)	EA	1					D2	13
10		PANEL, REAR 8471-40-1 (81336)	EA	1					D2	14
X20		SCREW, PAN HEAD: FILTER COVER MTG, No. 8-32 THD SIZE X 5/8 IN. LG MS35233-46 (96906)	EA	11					D2	15

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE	USABLE ON CODE	(4) NI OF EA	(5) ITY NC N INIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 1-YR ALW PER 100 EQUIP CNTGY	(8) ILLUS-TRA (a) FIG. NO.	(b) TE NC
K20		COVER, FILTER 8471-8-4 (81336)		EA	1					D2	
K20		GASKET: FILTER COVER 8471-8-5 (81336)		EA	1					D2	
		GROUP 03 - ELECTRIC MOTOR AND BRACKETS									
K20		MOTOR ASSEMBLY 8471-23A (81336)		EA	1					D3	
K20		NUT, SELF-LOCKING: MOTOR BRACKET TO FRAME MTG, 1/4-28 THD SIZE MS21083C4 (96906)		EA	4					D3	
K20		SCREW, CAP, HEXAGON HEAD: MOTOR BRACKET TO FRAME MTG, 1/4-28 THD SIZE X 1/2 IN. LG MS90726-3 (96906)		EA	4					D3	
K20		NUT, SELF-LOCKING: MOTOR TO BRACKET MTG, 1/4-28 THD SIZE MS21083C4 (96906)		EA	4					D3	
K20	5310-187-2354	WASHER, FLAT: MOTOR TO BRACKET MTG, 1/4 IN. SCREW SIZE AN960PD416 (88044)		EA	4					D3	
K20		SCREW, CAP, HEXAGON HEAD: MOTOR TO BRACKET MTG, 1/4-28 THD SIZE, 5/8 IN. LG MS90726-5 (96906)		EA	4					D3	
K20		BRACKET: MOTOR MTG 8471-23-2 (81336)		EA	1					D3	
P 0	4120-184-8900	MOTOR, ELECTRIC ~~5KCP39BB61665 (03510)~~ MC0142486E(35570) with Capacitor, P150F735(00656)		EA	1	2	2	2	28	D3	
~~X20~~ A	4310-01-159-4431	BOARD ASSEMBLY 8471-41A (81336) MFGR FROM: Plug, 5935-00-239-2539 (81336)		EA	1					D3	
20	5935-00-239-2539	PLUG ~~L033230 (81336)~~ R678-7313(74545)		EA	1					D3	
20	5935-00-222-0815	PLUG ~~GC4364 (81336)~~ R678-5266(74545)		EA	1					D3	1
20	6145-00-112-8671	WIRE, ELECTRICAL 8471-41-1 (81336)		EA	1					D3	1
20		SCREW, MACHINE, FLATHEAD: RECEPTACLE AND CAPACITOR ASSEMBLIES MTG, No. 8-32 THD SIZE, 1/2 IN. LG MS35190-253 (96906)		EA	4					D3	1
20		CAPACITOR ASSEMBLY RUN 8471-28A (81336)	D	EA	1					D3	
20		NUT, SELF-LOCKING: CLIP TO BRACKET, No. 8-32 THD SIZE ORD503244 (96906)	D	EA	4					D3	1
0		SCREW, MACHINE: CAPACITOR CLIP MTG, No. 8-32 THD SIZE, 1/2 IN. LG MS35223-45 (96906)	D	EA	4					D3	1
20		CLIP 8471-28-4 (81336)	D	EA	2					D3	1
20		COVER D8471-28-2 (81336)	D	EA	1					D3	1
0	5910-932-9088	CAPACITOR, RUN 72F5047 (01002)	D	EA	1	2	4	8	91	D3	1

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE	USABLE ON CODE	(4) UNIT OF MEA	(5) QTY INC IN UNIT	(6) 30-DAY (a) 1-20	(6) DS LOWAB (b) 21-50	(6) AINT CE (c) 51-100	(7) 1-YR ALW PER 100 QUIP NTGY	(8) ILLU TRAT (a) FIG. NO.
P 0		CAPACITOR, RUN 49F6296 (24446)	B	EA	1	2	4	8	91	D3
P 0	5910-189-5581	CAPACITOR, RUN ~~21F11 (24446)~~ RFM-931-37(00656)	A	EA	1	2	4	8	91	D3
P 0	5910-014-0421	CAPACITOR, RUN P103F419 (00656)	C	EA	1	2	4	8	91	D3
X20		BRACKET: CAPACITOR 8471-28-3 (81336)	C	EA	1					D3
X20		NUT, SELF-CLINCH: BRACKET MTG, No. 8-32 THD SIZE 8471-4-1 (81336)	C	EA	2					D3
~~X20~~ P		NUT, PLAIN, HEXAGON: RECEPTACLE ASSEMBLY MTG, No. 10-32 THD SIZE MS21083C3 (96906)		EA	2					D3
X20		RECEPTACLE ASSEMBLY 8471-29A (81336)		EA	1					D3
X20		NUT, PLAIN, HEXAGON: RECEPTACLE MTG, No. 8-32 THD SIZE MS21083-008 (96906)		EA	2					D3
X20		SCREW, ROUND HEAD: RECEPTACLE MTG, No. 8-32 THD SIZE X 1/2 IN. LG MS35233-45 (96906)		EA	2					D3
X20	5910-[illegible] 0421	R678-7327(74545)	A	EA	1					D3
X20		BRACKET: RECEPTACLE MTG 8471-29-2 (81336)		EA	1					D3
X20		KNOB 8471-31-2 (81336)		EA	3					D3
X20		SCREW, FLATHEAD: SWITCH MTG, No. 6-32 THD SIZE, 3/8 IN. LG MS35190-253 (96906)		EA	2					D3
P 0	120-779-9141	SWITCH, SELECTOR 110-1-4M (73096)	A	EA	1	2	2	2	28	D3
P 0	120-779-6008	SWITCH, SELECTOR 240T6HPCB (73096)	BD	EA	1	2	2	2	28	D3
P 0	930-788-9671	SWITCH, SELECTOR 240T6HPCC (73096)	C	EA	1	2	2	2	28	D3
		GROUP 04 - CONDENSOR, EVAPORATOR AND REFRIGERANT PIPING								
X2F		MOUNTING KIT: COMPRESSOR MP-ICO-14		EA	4					D4
X2F		NUT, MOUNTING KIT 11016C (59431)		EA	1					D4
X2F		GROMMET: MOUNTING KIT 70153-1 (59431)		EA	4					D4
X2F		STUD: MOUNTING KIT 3822 ~~(59431)~~ (97450)		EA	4					D4
X2F		WASHER: MOUNTING KIT 3910-1 (59431)		EA	4					D4
X2F		SPRING: MOUNTING KIT 54001 (59431)		EA	4					D4
X2F		GROMMET: MOUNTING KIT 70153-2 (59431)		EA	4					D4

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 1-YR ALW PER 100 EQUIP CNTGY	(8) ILLUSTRATION (a) FIG. NO.	(b) ITEM NO.
X2F		WASHER: FLAT 2174 (59431)		EA	4					D4	8
X2F		NUT: MOUNTING KIT 4049 (59431)		EA	4					D4	9
P F	4130-776-2712	COMPRESSOR, REFRIGERANT A51024-1 (94833)	B	EA	1	2	2	4	42	D4	10
P F	4130-776-2712	COMPRESSOR, REFRIGERANT B7616 (59431)	ACD	EA	1	2	2	4	42	D4	10
P O	5945-778-9670	RELAY, START 82044 (59431)	ABD	EA	1	2	4	8	91	D4	11
P O	5945-014-0422	RELAY, START 128126-1315XA (88690)	C	EA	1	2	4	8	91	D4	11
P O	5910-655-0535	CAPACITOR, START ~~82510 (37942)~~ 358166A9-85506	A	EA	1	2	4	8	91	D4	12
P O	5910-779-6007	CAPACITOR, START 85506 (59431)	BCD	EA	1	2	4	8	91	D4	12
P O	5925-724-8738	CIRCUIT BREAKER: OVERLOAD 83045 (59431)		EA	1	2	4	8	91	D4	13
X2F		NUT, PLAIN, HEXAGON: RECEIVER MTG, 3/8-18 THD SIZE MS17830-80 (96906)		EA	1					D4	14
X2F		NUT, SELF-LOCKING: TUBE CLAMP SCREW, No. 8-32 THD SIZE MS35233-46 (96906)		EA	2					D4	15
X2F		CLAMP, LOOP: TUBE MTG MS2191905 (96906)		EA	2					D4	16
X20		SCREW, MACHINE: CABLE CLAMP MTG, No. 8-32 THD SIZE, 3/8 IN. LG MS35233-66 (96906)		EA	1					D4	17
X2F		RECEIVER ASSEMBLY 8741-26A (81336)		EA	1					D4	
X2F		RECEIVER ~~23894~~ (78857) R678-P519		EA	1					D4	18
X2F		ELL: 1/4 IN. 2003 (41947)		EA	1					D4	19
X2F		ELL: 3/8 IN. 2009 (41947)		EA	1					D4	20
X2F		NUT, FLARE: 1/4 IN. 5051 (41947)		EA	5					D4	21
X2F		TUBE, COPPER: 5/16 IN. OD 8471-27-2 (81336)		EA	1					D4	22
X2F		HEAT EXCHANGER AND HOT GAS RETURN LINE 8479-30A (81336)		EA	1					D4	23
X2F		NUT, FLARE: 1/2 IN. A5053 (41947)		EA	1					D4	24
X2F		NUT, FLARE: 1/4 IN. A5051 (41947)		EA	1					REF	REF
X2F		TUBE, COPPER: 1/2 IN. DIA X 60 IN. LG 8479-30-1 (81336)		EA	1					D4	25
X2F		TUBE, COPPER: 1/2 IN. DIA X 55 IN. LG 8479-30-2 (81336)		EA	1					D4	26

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 1-YR ALW PER 100 EQUIP CNTGY	(8) ILLUSTRATION (a) FIG. NO.	(b) ITEM NO.
X2F		TUBE, SUCTION 8471-27-3 (81336)		EA	1					D4	27
X2F		NUT, SELF-LOCKING: SUCTION AND DISCHARGE VALVE MTG, 1/4-28 THD SIZE MS2108404 (96906)		EA	8					D4	28
X2F		BOLT, MACHINE: SUCTION AND DISCHARGE VALVE MTG, 1/2-28 THD SIZE X 1 IN. LG MS90726-8 (96906)		EA	4					D4	29
X2F		VALVE, SUCTION ~~A16468~~ (41947) R678-A16303		EA	1					D4	30
X2F		VALVE, DISCHARGE ~~A16466~~ (41947) R678-A14881		EA	1					D4	31
X2F		NUT, SELF-LOCKING: SUCTION AND DISCHARGE MTG, PLATE TO BRACKET MS21083C3 (96906)		EA	8					D4	32
X2F		SCREW, MACHINE: SUCTION AND DISCHARGE MTG, PLATE TO BRACKET, No. 10-32 THD SIZE, 1/2 IN. LG MS35233-63 (96906)		EA	4					D4	33
X2F		PLATE, VALVE: SUCTION AND DISCHARGE MTG 8471-18-3 (81336)		EA	1					D4	34
X2F		BRACKET: SUCTION AND DISCHARGE PLATE MTG 8471-18-5 (81336)		EA	1					D4	35
M F		TUBE ASSEMBLY: DISCHARGE VALVE TO EVAPORATOR MANUFACTURE FROM: TUBE, COPPER, FSN 4710-202-8396 NUT, FLARE, P/N A5239 (41947)		EA	1					D4	36
P F	4820-051-9287	VALVE, EXPANSION A51021 (94833)	B	EA	1	2	2	2	28	D4	37
P F	4820-670-4158	VALVE, EXPANSION CFE1GP8P15 (78462)	C	EA	1	2	2	2	28	D4	37
P F	4130-776-2715	VALVE, EXPANSION ~~60879~~ (91494) R678-207C-70207-138	AD	EA	1	2	2	2	28	D4	37
X2F	4130-779-2342	SIGHT GLASS ~~110-1-4M~~ (95404) R678-110-4	A	EA	1					D4	38
X2F		SIGHT GLASS A15966 (41947)	BC	EA	1					D4	38
X2F		SIGHT GLASS L1-12-1-4 (28193)	D	EA	1					D4	38
X2F		SCREW, MACHINE: CONDENSER AND EVAPORATOR MTG, No. 10-24 THD SIZE, 3/4 IN. LG MS35190-257 (96906)		EA	12					D4	39
X2F		CONDENSER 3CX104-15X14-1-2 (39433) CONDENSER, COIL R678-M450C-1 (14852)		EA	1					D4	40
X2F		SPACER 8471-19-2 (81336)		EA	2					D4	41
X2F		FASTENER 8471-4-2 (81336)		EA	10					D4	42
X2F		SCREW, SELF-TAPPING: CONDENSER SHROUD MTG, No. 8-3/8 IN. LG MS35233-43 (96906)		EA	6					D4	43

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 1-YR ALW PER 100 EQUIP CNTGY	(8) ILLUSTRATION (a) FIG. NO.	(b) ITEM NO.
X2F		SHROUD 8471-19-1 (81336)		EA	1					D4	44
X2F		EVAPORATOR 3X103-15X10-1-2 (39433)		EA	1					D4	45
X2F		EVAPORATOR, COIL, R678-M4507-1 (14852) SPACER 8471-20-1 (81336)	A	EA	2					D4	46
X20		BAFFLE: INSULATION MTG 8471-18-1 (81336)		EA	1					D4	47
P 0	4130-779-5998	FILTER: AIR 8471-18-4 (81336)		EA	1	2	2	3	35	D4	48
X2F	4730-776-1634	DRIER, AIR 3345B (97450)	A	EA	1					D4	49
X2F	4130-939-9335	DRIER, AIR 4110-032S (91494)	B	EA	1					D4	49
X2F	4120-014-0424	DRIER, AIR 2S25 (93558)	C	EA	1					D4	49
X2F		DRIER, AIR 50981 (93558)	D	EA	1					D4	49
X20		CABLE 8471-17-2 (81336)		EA	1					D4	50
X20		FAN ASSEMBLY ~~M628-1CU~~ (60399) R6780FP1425X1/2		EA	1					D4	51
		GROUP 05 - BLOWER, PANEL AND GRILL									
X20		PANEL ASSEMBLY D8471-32A (81336)		EA	1					D5	
X20		SCREW, PAN HEAD: INSULATION RETAINER SHROUD AND PANEL MTG, No. 8-32 THD SIZE X 3/8 IN. LG MS35233-43 (96906)		EA	18					D5	1
X20		SCREW, SELF-TAPPING: PLATE MTG, No. 6-32, 3/8 IN. LG MS35233-28 (96906)		EA	3					D5	2
X20		PLATE, INSTRUCTION: OPERATING 8471-36-2 (81336)		EA	1					D5	3
X20		SCREW, PAN HEAD: GRILL AND FRAME MTG, No. 8-32 THD SIZE, 1/2 IN. LG MS35233-45 (96906)		EA	16					D5	4
X20		GRILL ASSEMBLY, RETURN 8471-33A (81336)		EA	1					D5	5
X20		CLAMP MS21910D3 (96906)		EA	1					D5	6
X20		DAMPER ASSEMBLY VOL10X10 (65149)		EA	1					D5	7
X20		FRAME ASSEMBLY, GRILLE 8471-35-1 (81336)		EA	1					D5	
X20		FRAME 8471-35-1 (81336)		EA	2					D5	8
X20		CORE 8471-35-3 (81336)		EA	1					D5	9
X2F		SCREW, FLATHEAD: THERMOSTAT MTG, No. 8-32 THD SIZE X 5/8 IN. LG MS35233-46 (96906)		EA	2					D5	10

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE	USABLE ON CODE	(4) UNI OF MEA	(5) TY NC N INI	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-5	(c) 51-100	(7) 1-YR ALW PER 100 QUIP NTG	(8) ILLUSTRATION (a) FIG. NO.	(b) ITEM NO.
P F	930-778-9671	THERMOSTAT, CONTROL A301564 (49742) R678-A30-1792	AD	EA	1	2	2	4	42	D5	11
P F	930-778-9671	THERMOSTAT, CONTROL A10-1564 (49742)	C	EA	1	2	2	4	42	D5	11
P F	930-810-2330	THERMOSTAT, CONTROL A10-1564X (49742)	B	EA	1	2	2	4	42	D5	11
X20		PANEL, FRONT 8471-36-1 (81336)		EA	1					D5	12
X20		NUT, SELF-CLINCHING: No. 8-32 THD SIZE 8471-4-1 (81336)		EA	16					D5	13
X20		CTAINER: INSULATION 8471-18-2 (81336)		EA	1					D5	14
X2F		CREW, MACHINE: BULKHEAD MTG, No. 10-24 THD SIZE, 1 IN. LG MS35190-257 (96906)		EA	4					D5	15
X2F		JLKHEAD ASSEMBLY 8471-11A (81336)		EA	1					D5	
X20		HOUSING ASSEMBLY: BLOWER 8471-12A (81336)		EA	1					D5	
X20		SCREW, SELF-TAPPING: BLOWER HOUSING RING AND SHROUD MTG, No. 6-32 THD SIZE, 5/16 IN. LG MS35233-27 (96906)		EA	8					D5	16
X20		RING: BLOWER HOUSING 8471-13-5 (81336)		EA	1					D5	17
X20		SCREW, MACHINE: CABLE CLIP MTG, No. 8-32 THD SIZE, 3/8 IN. LG MS35233-46 (96906)		EA	2					REF	REF
X20		CLIP, TUBE: CABLE RETAINING 8471-12-1 (81336)		EA	1					D5	18
X20		SHROUD: BLOWER HOUSING 8471-14-1 (81336)		EA	1					D5	19
X20		CLIP, CABLE 8471-13-2 (81336)		EA	1					D5	20
X20		HOUSING: BLOWER 8471-15-1 (81336)		EA	1					D5	21
X20		NUT: CUTOFF MTG, No. 8-32 THD SIZE MS21083C08 (96906)		EA	2					D5	22
X20		SCREW, MACHINE: CUTOFF MTG, No. 8-32 THD SIZE MS35233-43 (96906)		EA	2					D5	23
X20		CUTOFF 8471-15-2 (81336)		EA	1					D5	24
X20		SCREW, PAN HEAD: DOOR MTG, No. 8-32 THD SIZE, 1/2 IN. LG MS35233-45 (96906)		EA	3					REF	REF
X20		DOOR ASSEMBLY 8471-24A (81336)		EA	1					D5	
X20		SCREW, MACHINE: DOOR HINGE, No. 6-32 THD SIZE, 1/4 IN. LG MS35233-42 (96906)		EA	3					D5	25
X20		HINGE 8471-25-2 (81336)		EA	1					D5	26

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 1-YR ALW PER 100 EQUIP CNTGY	(8) ILLUSTRATION (a) FIG. NO.	(b) ITEM NO.
20		FASTENER 8471-4-3 (81336)		EA	3					D5	27
20		SEAL, DOOR 8471-25-3 (81336)		EA	2					D5	28
20		INSULATION, DOOR 8471-25-5 (81336)		EA	1					D5	29
20		DOOR 8471-25-1 (81336)		EA	1					D5	30
2F		BULKHEAD 8471-16-1 (81336)		EA	1					D5	31
2F		FASTENER 8471-4-3 (81336)		EA	6					REF	REF
20		SCREW: STOP TO CABLE MTG MS51963-22 (96906)		EA	1					D5	32
20		STOP, CABLE 8471-24-1 (81336)		EA	1					D5	33
20		WHEEL ASSEMBLY ~~A3433-7~~ (60399) C160 R678-R4120		EA	1					D5	34
20		RETAINER 8471-13-4 (81336)		EA	1					D5	35
20		SCREEN: BLOWER HOUSING 8471-13-3 (81336)		EA	1					D5	36
20		NUT, SELF-LOCKING: CABLE CLIP MTG MS21083C06 (96906)		EA	2					D5	37
20		CLAMP: DOOR CABLE MTG MS2191905 (96906)		EA	1					D5	38
20		LINKAGE ASSEMBLY 8471-34A (81336)		EA	1					D5	39

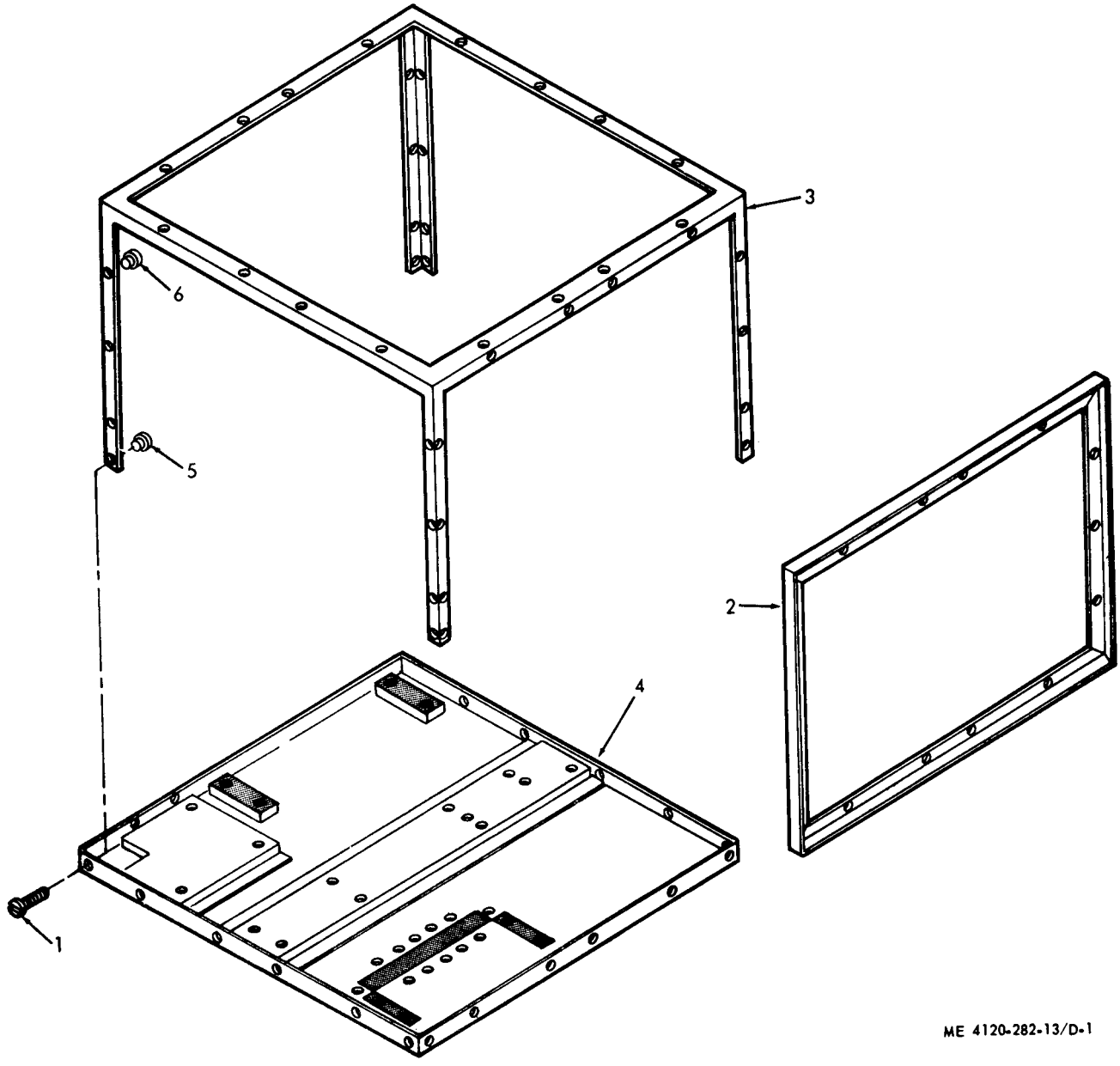


Figure No. D-1 Frame

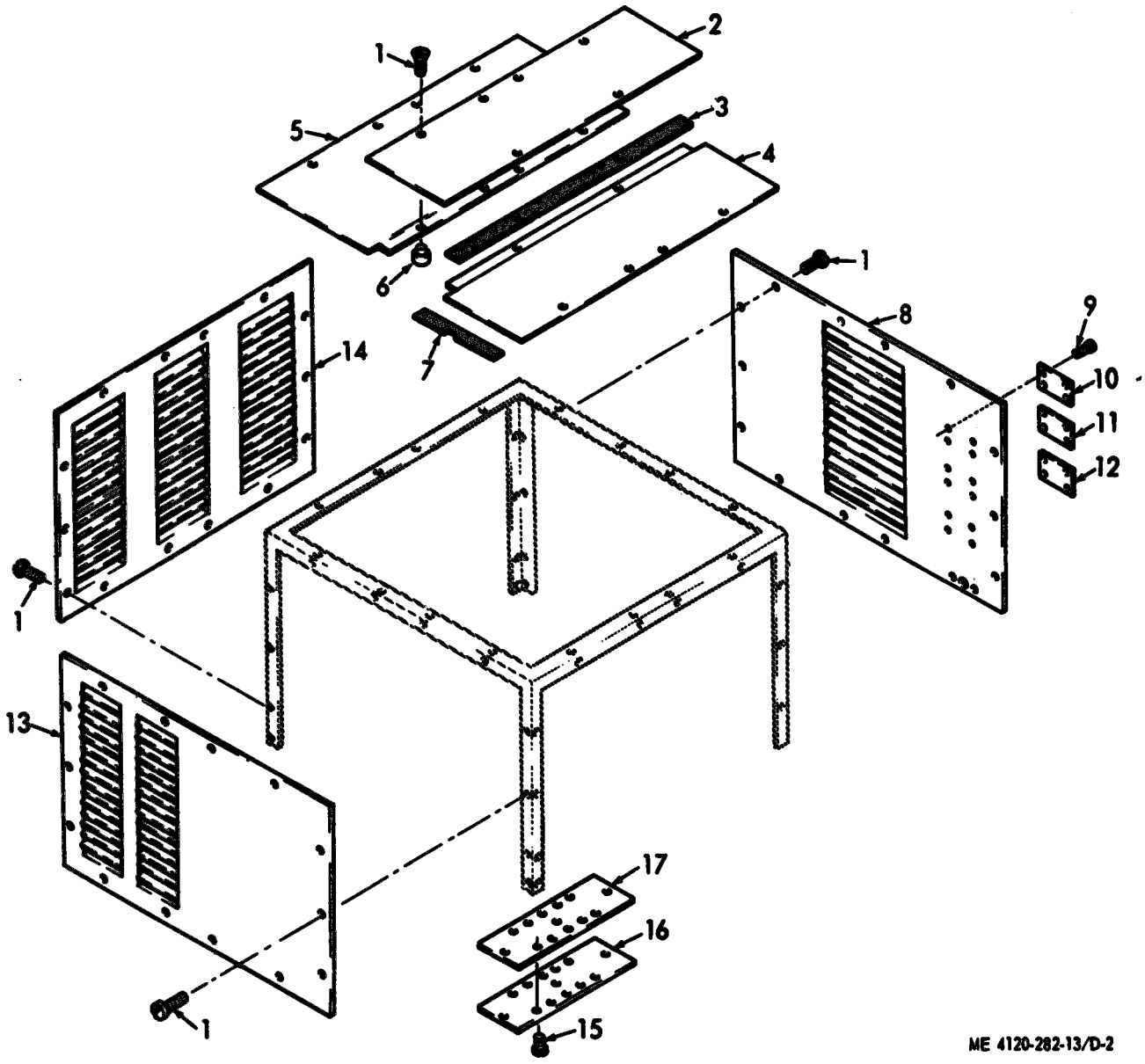


Figure No. D-2 Panels

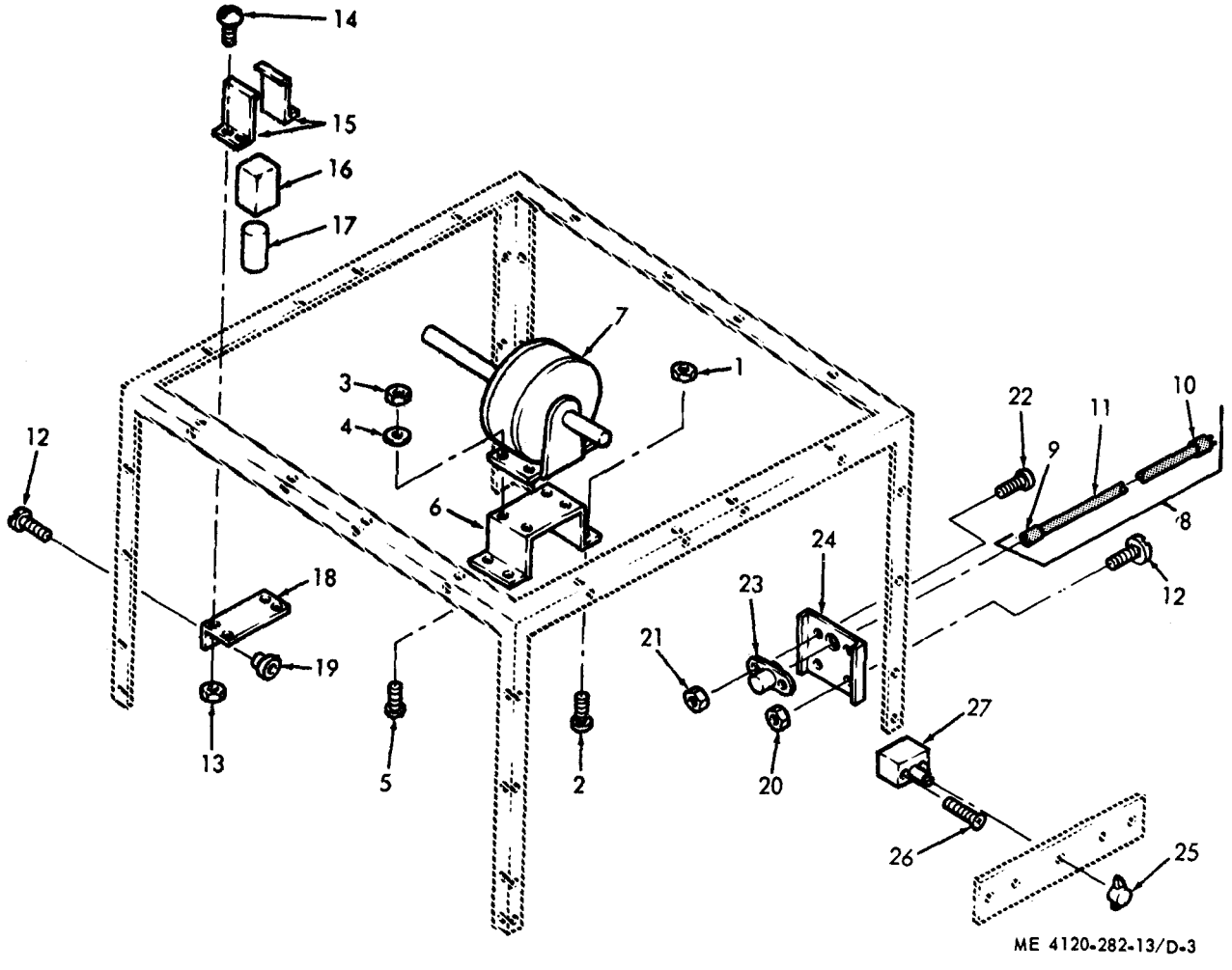


Figure No. D-3 Electric Motor And Brackets

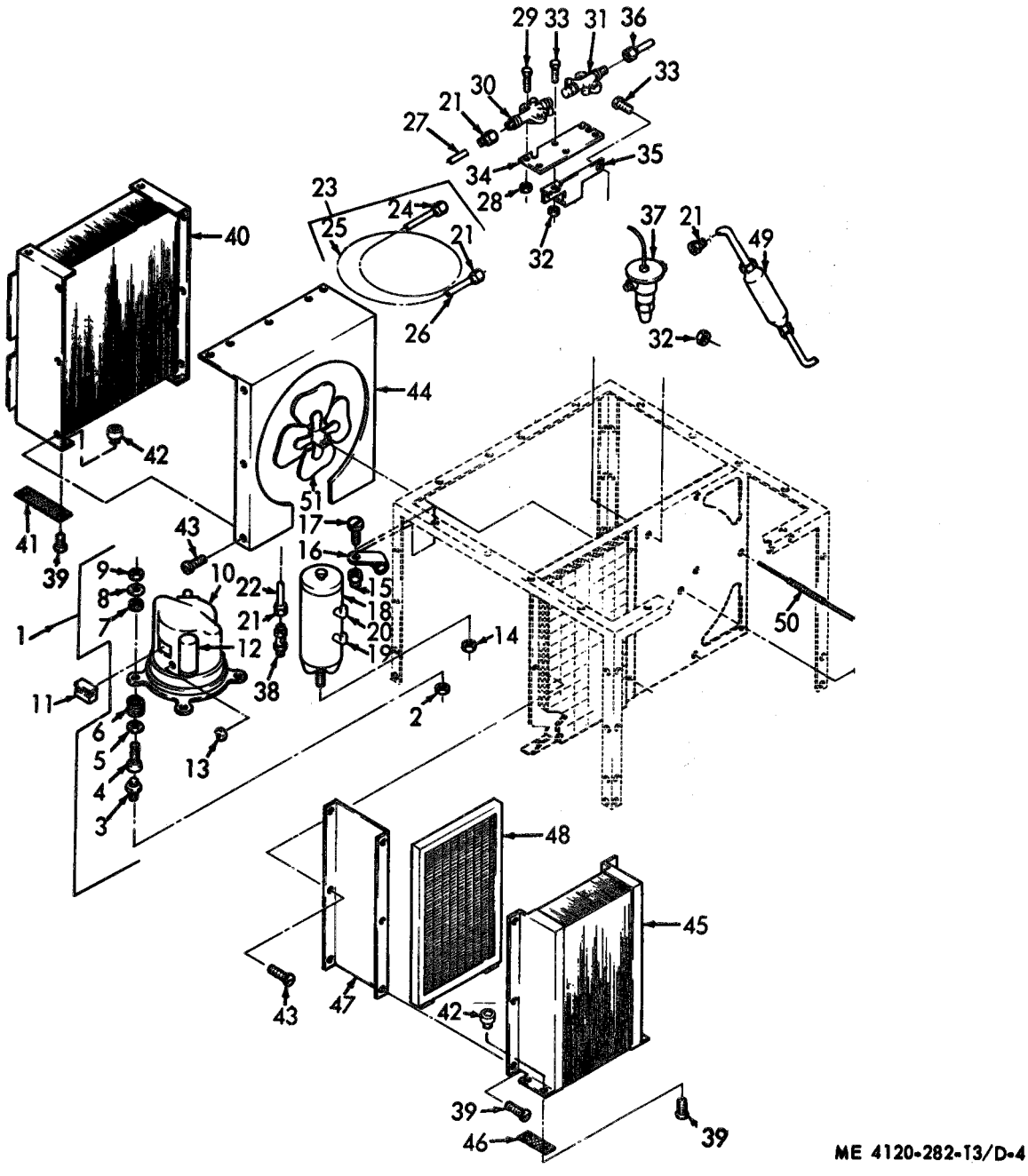


Figure No. D-4 Condenser, Evaporator And Refrigerant Piping

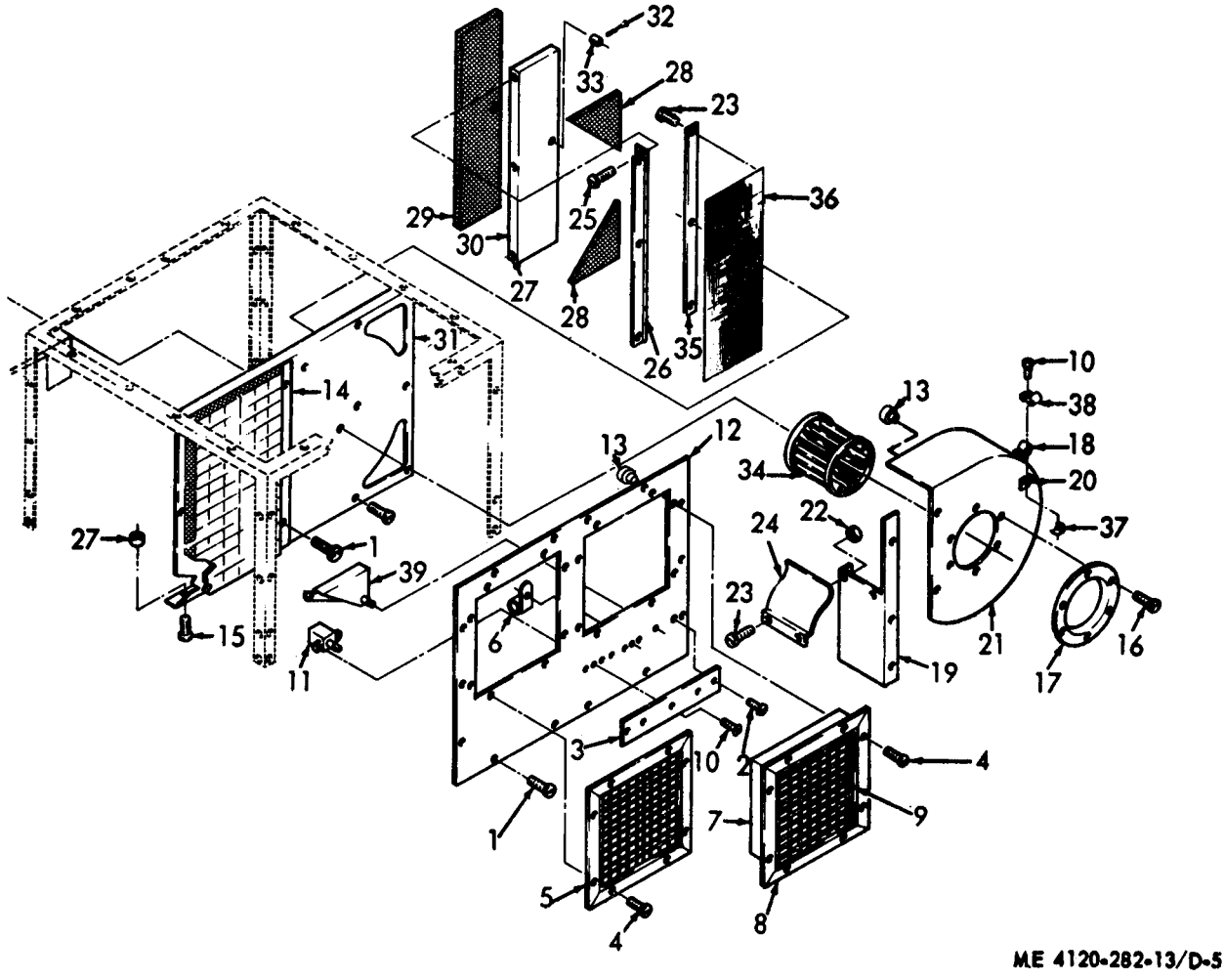


Figure No. D-5 Blower, Panel And Grill

REFERENCE No.	Mfg Code	Fig No.	Item No.
AN960PD416	88044	D3	4
A101564X	49742	D5	11
A101564	49742	D5	11
A15966	41947	D4	38
A16466	41947	D4	30
A16468	41947	D4	31
A301564	49742	D5	11
A3433-7	60399	D5	34
A5051	41947	REF	REF
A5053	41947	D4	24
A51021	94833	D4	37
A51024-1	94833	D4	10
A5239	41947	D4	36
BM1474-40-4	59431	D4	1
CFE1GP8P15	78462	D4	37
D8471-28-2	81336 97463	D3	16
D8471-32A	81336 "	D5	
D8471-5	81336 "	D1	2
D8471-9	81336 "	D1	4
GE4364-3	41326	D3	10
LD3323G	41326	D3	9
LD3325G	41326	D3	23
L1-12-1-4	28193	D4	38
MS17830-80	96906	D4	14
MS21083-008	96906	D3	21
MS21083C06	96906	D5	37
MS21083C08	96906	D5	22
MS21083C3	96906	D3	20
		D3	32
MS21083C4	96906	D3	1
		D3	3
MS2108404	96906	D4	28
MS219103	96906	D5	6
MS2191905	96906	D4	16
		D5	38
MS24638-10	96906	D2	9
MS35190-253	96906	D3	12
		D3	26
MS35190-257	96906	D4	39
		D5	15
MS35190-269	96906	D1	1
MS35233-27	96906	D5	16
MS35233-28	96906	D5	2
MS35233-42	96906	D5	25
MS35233-43	96906	D4	43
		D5	1
		D5	23
MS35233-45	96906	D2	1
MS35233-45	96906	D3	14
MS35233-45	96906	D3	22
MS35233-45	96906	D5	4
MS35233-45	96906	REF	REF
MS35233-46	96906	D2	15
MS35233-46	96906	D4	15
MS35233-46	96906	REF	REF
		D5	10
MS35233-63	96906	D4	33
MS35233-66	96906	D4	17
MS51963-22	96906	D5	32
MS90726-3	96906	D3	2
MS90726-5	96906	D3	5
MS90726-8	96906	D4	29
N1628-4CU	60399	D4	51
ORD503244	96906	D3	13
P103F419	00656	D3	17
P24310	37942	D4	12
VOL10X10	65149	D5	7
110-1-4M	95404	D4	38
110-1-4M	73096	D3	27
11016C	73096	D4	2
128126-1315XA	88690	D4	11
2525	93558	D4	49
2003	41949	D4	19
2009	41949	D4	20
21F11	24446	D3	17
2174	73096	D4	8
23894	78857	D4	18
240T6HPCB	73096	D3	27
240T6HPCC	73096	D3	27
3CX104-15X14-1-2	39433	D4	40
3X103-15X10-1-2	39433	D4	45
33458	97450	D4	49

REFERENCE No.	Mfg Code	Fig No.	Item No.
3822	73096	D4	4
3910-1	73096	D4	5
4049	73096	D4	9
4110-032S	91494	D4	49
49F6296	24446	D3	17
5KCP39DG61665	03510	D3	7
5051	41949	D4	21
50981	93558	D4	49
54001	59431	D4	6
60873	91494	D4	37
70153-1	59431	D4	3
70153-2	59431	D4	7
72F5047	01002	D3	17
82044	59431	D4	11
83045	59431	D4	14
85506	59431	D4	12
8471-11A	81336	D5	
8471-12-1	81336	D5	18
8471-12A	81336	D5	
8471-13-2	81336	D5	20
8471-13-3	81336	D5	36
8471-13-4	81336	D5	35
8471-13-5	81336	D5	17
8471-14-1	81336	D5	19
8471-15-1	81336	D5	21
8471-15-2	81336	D5	24
8471-16-1	81336	D5	31
8471-17-2	81336	D4	50
8471-17-4	81336	D2	12
8471-18-1	81336	D4	47
8471-18-2	81336	D5	14
8471-18-3	81336	D4	34
8471-18-4	81336	D4	48
8471-18-5	81336	D4	35
8471-19-1	81336	D4	44
8471-19-2	81336	D4	41
8471-2-1	81336	D2	11
8471-20-1	81336	D4	46
8471-23-2	81336	D3	6
8471-23A	81336	D3	
8471-24-1	81336	D5	33
8471-24A	81336	D5	
8471-25-1	81336	D5	30
8471-25-2	81336	D5	26
8471-25-3	81336	D5	28
8471-25-5	81336	D5	29
8471-26A	81336	D4	
8471-27-2	81336	D4	22
8471-28-3	81336	D3	18
8471-28-4	81336	D3	15
8471-28A	81336	D3	
8471-29-2	81336	D3	24
8471-29A	81336	D3	
8471-31-2	81336	D3	25
8471-33A	81336	D5	5
8471-35-1	81336	D5	8
8471-35-3	81336	D5	9
8471-36-1	81336	D5	12
8471-36-2	81336	D5	3
8471-37	81336	D2	13
8471-38	81336	D2	8
8471-39-1	81336	D2	3
8471-39-1-2	81336	D2	5
8471-39-2	81336	D2	2
8471-4-1	81336	D1	6
	81336	D2	6
	81336	D3	19
	81336	D5	13
8471-4-2	81336	D1	5
	81336	D4	42
8471-4-3	81336	D5	27
		REF	REF
8471-40A	81336	D2	4
8471-40A2	81336	D2	7
8471-40-1	81336	D2	14
8471-41-1	81336	D3	11
8471-6A	81336	D1	3
8471-8-4	81336	D2	16
8471-8-5	81336	D2	17
8479-30A	81336	D4	23
8479-30-1	81336	D4	25
8479-30-2	81336	D4	26
8479-30-3	81336	D4	27

Stock Number	Figure No.	Item No.
4120-014-0424	D4	49
4120-184-8900	D3	7
4120-779-6008	D3	27
4120-779-9141	D3	27
4130-776-2712	D4	10
4130-776-2715	D4	37
4130-779-2342	D4	38
4130-779-5998	D4	48
4130-939-9335	D4	49
4710-202-8396	D4	36
4730-776-1634	D4	49
4820-051-9287	D4	36
4820-670-4158	D4	37
5310-187-2354	D3	4
5910-014-0421	D3	17
5910-189-5581	D3	17
5910-655-0535	D4	12
5910-779-6007	D4	12
5910-932-9088	D3	17
5925-724-8738	D4	13
5930-778-9671	D5	11
5930-810-2330	D5	11
5930-788-9671	D3	27
5943-778-9670	D4	11

ITEMS NOT ILLUSTRATED

Reference No.	Mfg Code	Group No.
8471-23A	81336	03
8471-28A	81336	03
8471-29A	81336	03
8471-26A	81336	04
D8471-11A	81336	05
8471-12A	81336	05
8471-24A	81336	05
8471-32A	81336	05
8471-35-1	81336	05

INDEX

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DATE 16 DEC 74

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TM5-6115-200-20 AND P	1 APR 72	GENERATOR SET 10 KW NSN 6115-00-231-7286

BE EXACT. . .PIN-POINT WHERE IT IS

PAGE NO.	PARAGRAPH	FIGURE NO.	TABLE NO.	IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:
6	2-1 a			In line 6 of paragraph 2-1a the manual states the engine has 6 cylinders. The engine on my set only has 4 cylinders. Change the manual to show 4 cylinders
81		4-3		Callout 16 on figure 4-3 is pointing at a bolt. In the key to fig. 4-3, item 16 is called a shim. Please correct one or the other.
125	line 20			I ordered a gasket, item 19 on figure B-16 by NSN 2910-00-762-3001 I got a gasket but it doesn't fit supply says I got what I ordered so the NSN is wrong Please give me a good NSN

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REVERSE OF DA FORM 2028-2 (TEST)

THE METRIC SYSTEM AND EQUIVALENTS

'NEAR MEASURE

. Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
1 Kilometer = 1000 Meters = 0.621 Miles

'VEIGHTS

Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
1 Kilogram = 1000 Grams = 2.2 lb.
1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

SQUARE MEASURE

1 Sq. Centimeter = 100 Sq. Millimeters = 0.155 Sq. Inches
1 Sq. Meter = 10,000 Sq. Centimeters = 10.76 Sq. Feet
1 Sq. Kilometer = 1,000,000 Sq. Meters = 0.386 Sq. Miles

CUBIC MEASURE

1 Cu. Centimeter = 1000 Cu. Millimeters = 0.06 Cu. Inches
1 Cu. Meter = 1,000,000 Cu. Centimeters = 35.31 Cu. Feet

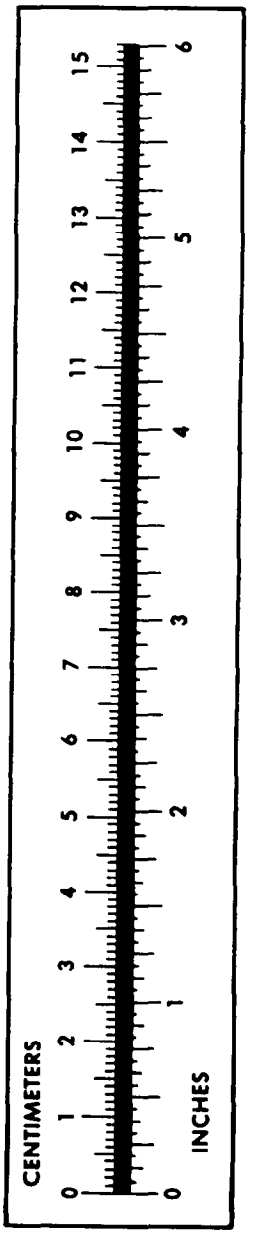
TEMPERATURE

5/9(°F - 32) = °C
212° Fahrenheit is evuivalent to 100° Celsius
90° Fahrenheit is equivalent to 32.2° Celsius
32° Fahrenheit is equivalent to 0° Celsius
9/5C° + 32 =°F

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
ıts	Liters	0.473
arts	Liters	0.946
allons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds per Square Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
ers	Gallons	0.264
ms	Ounces	0.035
ograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pounds-Feet	0.738
Kilopascals	Pounds per Square Inch	0.145
lometers per Liter	Miles per Gallon	2.354
meters per Hour	Miles per Hour	0.621



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