TECHNICAL MANUAL

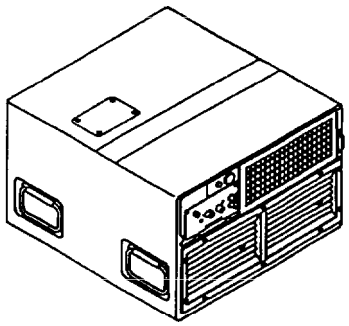
OPERATOR'S, UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE MANUAL INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST

FOR

AIR CONDITIONER HORIZONTAL, COMPACT, 9,000 BTU/HR, 115 VOLT

SINGLE PHASE 50/60 HERTZ

PART NO. S8450-9KC-1H (NSN 4120-01-456-6954) (EIC: N/A)



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HEADQUARTERS, DEPARTMENT OF THE ARMY
1 FEBRUARY 2000

WARNING SUMMARY

This warning summary contains general safety warnings and hazardous materials warnings that must be understood and applied during operation and maintenance of this equipment. Failure to observe these precautions could result in serious injury or death to personnel.

WARNING

Do not use steam, open flame, heat gun, or any other high temperature source to thaw an iced coil. Thaw an iced coil by operating unit in HIGH HEAT mode, or by leaving unit shut down until ice melts.

WARNING

Compressed air used for cleaning purposes will not exceed 30 psi (2.1 kg/cm^2). Do not direct compressed air against skin. Use goggles or full face shield.

WARNING

Avoid inhaling fumes from acid formed by burn out of oil and refrigerant. Wear gas mask if area is not thoroughly ventilated. Wear protective goggles or glasses to protect eyes. Wear rubber gloves to protect hands. Use care to avoid spilling compressor burn out sludge. If sludge is spilled, clean area thoroughly.

WARNING

Clean parts in a well-ventilated area. Avoid inhalation of solvent fumes and prolonged exposure of skin to cleaning solvent. Wash exposed skin thoroughly. Dry cleaning solvent, P-D-680 Type III, which is used to clean parts, is potentially dangerous to personnel and property. Avoid repeated and prolonged skin contact. Do not use near open flame or excessive heat. Flash point of solvent is 100 °F to 138 °F (38 °C to 59 °C).

WARNING

DEATH ON CONTACT or severe injury may result if personnel fail to observe safety precautions. Always disconnect the air conditioner from power source before performing maintenance on this equipment. If power must remain on for troubleshooting, exercise extreme care to avoid contact with any electrical component, fan, fan motor, etc.

WARNING SUMMARY - Continued

WARNING

Whenever possible, input power supply to the equipment must be shut off before beginning work. Take particular care to ground every capacitor likely to hold a dangerous potential charge. When working inside after power has been turned off, always ground every part before touching it.

WARNING

Do not operate equipment without all grilles, guards, louvers, and covers in place and tightly secured.

WARNING

The air conditioner needs two soldiers to lift the unit. Use proper lifting technique or use a mechanical lift to prevent physical injury.

WARNING

Unit contains R-22 a chemical substance which harms public health and the environment by destroying ozone in the upper atmosphere, and that the equipment is to be serviced by qualified personnel only.

WARNING

For safe operation the air conditioner must be grounded prior to use.

LIST OF EFFECTIVE PAGES

INSERT LATEST CHANGED PAGES, DESTROY SUPERSEDED PAGES

NOTE: The portion of the text affected by the changes is indicated by a vertical line in the outer margins of the page. Changes to illustrations are indicated by miniature pointing hands. Changes to wiring diagrams are indicated by shaded areas.

Dates of issue for original and changed pages are:

Original: 1 February 2000

TOTAL NUMBER OF PAGES FOR FRONT AND REAR MATTER IS 6 AND TOTAL NUMBER OF WORK PACKAGES IS 75, CONSISTING OF THE FOLLOWING:

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Technical Manual

No. 9-4120-422-I 4&P

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 1 February 2000

OPERATOR'S, UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE MANUAL INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST

FOR

AIR CONDITIONER
HORIZONTAL, COMPACT, 9,000 BTU/HR,
115 VOLT
SINGLE PHASE
50/60 HERTZ

PART NO. S8450-9KC-1 H
(NSN 4120-01-456-6954) (EIC: N/A)

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes, or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms) or DA Form 2028-2 located in back of this manual direct to: Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: AMSEL-LC-LEO-D-CS-CFO, Fort Monmouth, New Jersey 07703-5000. The fax number is 732-532-1413, DSN 992-1413. You may also e-mail your recommendations to AMSEL-LC-LEO-PUBS-CHG @cecom3.monmouth.army.mil

In any case, we will send you a reply.

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CHAPTER 1

INTRODUCTION INFORMATION WITH THEORY OF OPERATION

SCOPE

This technical manual contains instructions for operation, checks, and adjustments, and corrective maintenance for the S8450-9KC-1H Compact Horizontal Air Conditioner.

Type of Manual: Operator, Unit, Direct and General Support Maintenance Including Repair Parts and Special Tools List.

Part Number and Equipment Names: S8450-9KC-1H
Air Conditioner, Compact, Horizontal, 9,000 BTU/HR, 115 Volt, Single Phase, 50/60 Hertz.

Purpose of Equipment: The air conditioner is used primarily in van type enclosures to provide filtered, cooled or heated air, as required to maintain the service conditions necessary for the efficient operation of electronic equipment in the vans. The air conditioner also provides for the comfort of operating personnel housed within the vans.

MAINTENANCE FORMS, RECORDS, AND REPORTS

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by (as applicable) DA PAM 738-750. Functional Users Manual for the Army Maintenance Management System (TAMMS); DA PAM 738-75 1, Functional Users Manual for the Army Maintenance Management Systems - Aviation (TAMMS-A); or AR 700-138, Army Logistics Readiness and Sustainability.

REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

If your 9K air conditioner needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design or performance. Put it on an SF 368 (Product Quality Deficiency Report). Mail it to: Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: AMSEL-LC-LEO-D-CS-CFO, Fort Monmouth, New Jersey 07703-5000. The fax number is 908-532-1413, DSN 992-1413. You may also e-mail your recommendations to AMSEL-LC-LEO-PUBS-CHG@cecom3.monmouth.army.mil. We'll send you a reply.

CORROSION PREVENTION AND CONTROL (CPC)

Corrosion Prevention and Control (CPC) of Army material is a continuing concern. It is important that any corrosion problems with this item be reported so that the problem can be corrected and improvements can be made to prevent the problem in future items.

While corrosion is typically associated with rusting of metals, it can also include deterioration of other materials, such as rubber and plastic. Unusual cracking, softening, swelling, or breaking of these materials may be a corrosion problem.

If a corrosion problem is identified, it can be reported using SF 368, Product Quality Deficiency Report. Use of key words such as "corrosion," "rust," "deterioration," or "cracking" will ensure that the information is identified as a CPC problem.

The form should be submitted to the address specified in DA PAM 738-750, Functional Users Manual for the Army Maintenance Management System (TAMMS).

DESTRUCTION OF ARMY MATERIAL TO PREVENT ENEMY USE

Refer to TM 750-244-3, Procedures for Destruction of Equipment to Prevent Enemy Use, for information about destruction.

PREPARATION FOR STORAGE AND SHIPMENT

Short Term Storage

1. Disconnect power supply and remove from shelter.
2. Make sure unit is clean and dry.
3. Close all louvers and grilles.
4. Unroll canvas cover and snap into place.
5. Store in the operating (upright) position.

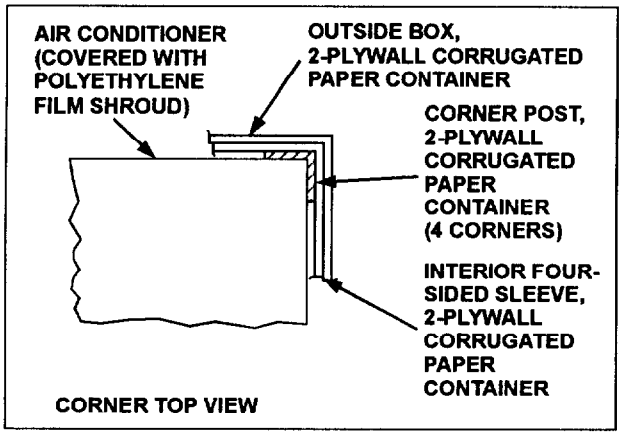
Long Term Storage

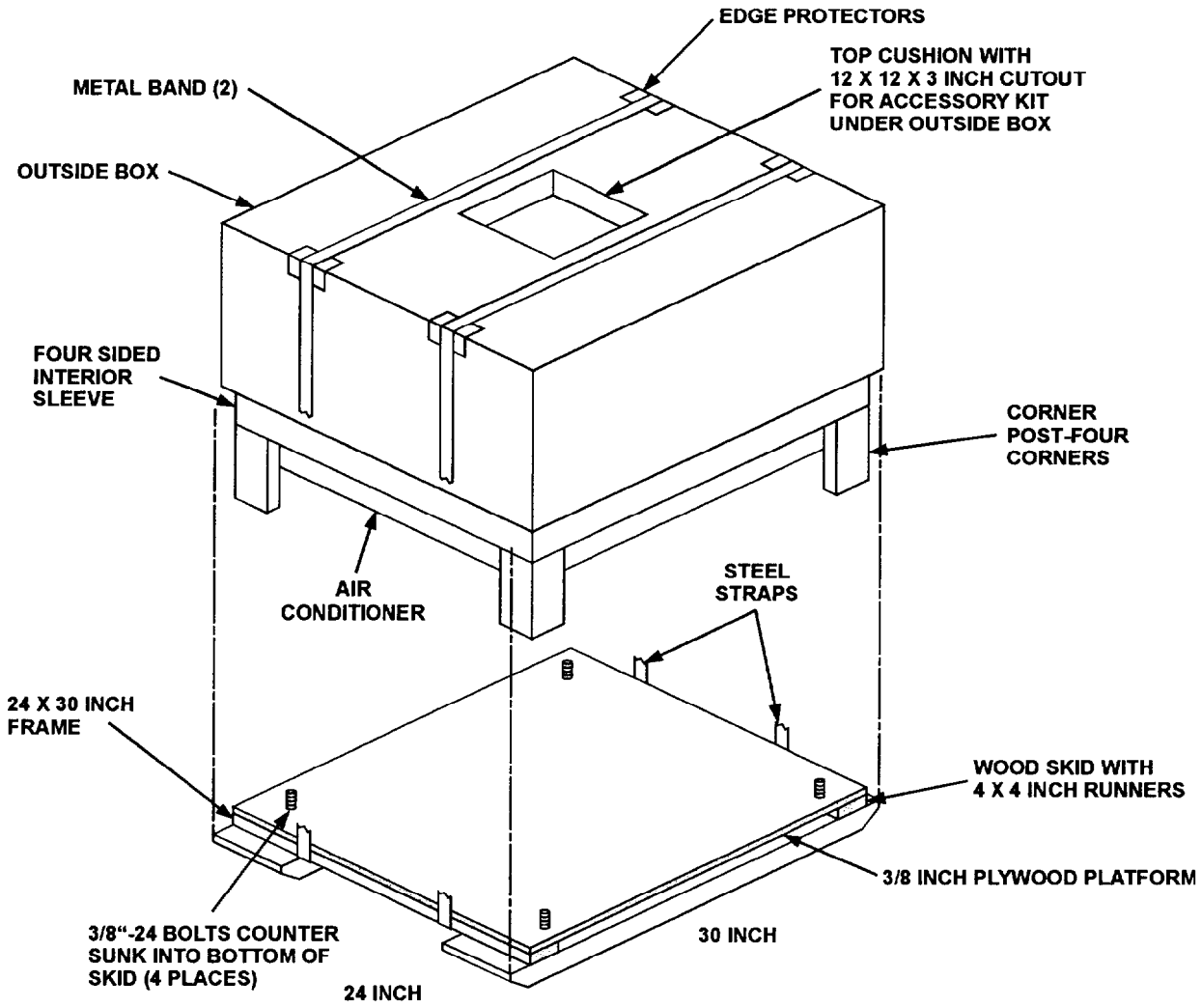
1. Disconnect power supply and remove from shelter.
2. Make sure unit is clean and dry. Blow-out condensate drains.
3. Close all louvers and grilles.
4. Unroll canvas cover and snap into place.
5. Package all hardware, cable connectors, technical manuals, etc. in a cushioned protective sack. Staple shut and secure to unit.

NOTE

Wrap cable connectors in cushioning material before packaging.

6. Seal all openings with polyethylene film and 1/2 inch pressure sensitive tape.
7. Cover the entire unit with a polyethylene film shroud and secure with 1/2 inch pressure sensitive tape.
8. Store air conditioner in a dry, dust-free space and in the operating (upright) position.
9. Storage of the air conditioner will be in accordance with TM 740-90-1, Administrative Storage of Equipment.





PACKING MATERIAL: 2 PLYWALL CORRUGATED PAPER

PREPARATION FOR STORAGE AND SHIPMENT - Continued

Preparation For Shipment

Prepare unit as prescribed for long term storage.

Shipping Container

1. Fabricate a corrugated paper shipping container conforming to ASTM-D-3951-95 Level AB, Domestic Type. A minimum of 1-inch clearance will exist between the air conditioner and walls of the box. The box will be modified with skids located so that the bolts securing the air conditioner pass through the skids. Bolt heads will be countersunk into the bottom of the skids. The bolts with washers should protrude at least 3/8 inch above the skid and not more than ½ inch.

2. The air conditioner will be packed in the shipping container and secured to the skids with four bolts (3/8-24) and washers.

3. Wood spacers will be padded with water resistant cushioning material to prevent abrasion. Corner pads constructed of corrugated paper will be used on all top and bottom edges of the air conditioner.

4. The shipping container will be closed and secured with steel strapping material.

5. The air conditioner will be stored and shipped in the operating (upright) position. The words "THIS END UP" with arrows will be placed on each side of the shipping container. The letters will be black, at least 3 inches high, and located within the upper third of each side.

WARRANTY INFORMATION

The air conditioner is warranted for 60 months from the date of acceptance for the end item air conditioner. The warranty starts on the date found in block 23 of DA Form 2408-9, Equipment Control Record. Report all defects to your supervisor, who will take appropriate action. See TB 9 4120-422-24, Warranty Technical Bulletin for S8450-9KC-1H, Compact, Horizontal Air Conditioner.

NUCLEAR HARDNESS

All hardness critical procedures in this manual are marked with the acronym HCP as follows:

1. When an entire task including all paragraphs and procedures is considered hardness critical only the task title will be marked by the acronym HCP. placed before the title.

2. When only certain processes and steps within the work package are hardness critical, only the applicable processes and steps will be marked by placement of the acronym HCP between each applicable step number and the text.

AIR CONDITIONER, COMPACT, HORIZONTAL DESCRIPTION AND DATA

0002-00

EQUIPMENT CHARACTERISTICS, CAPABILITIES AND FEATURES

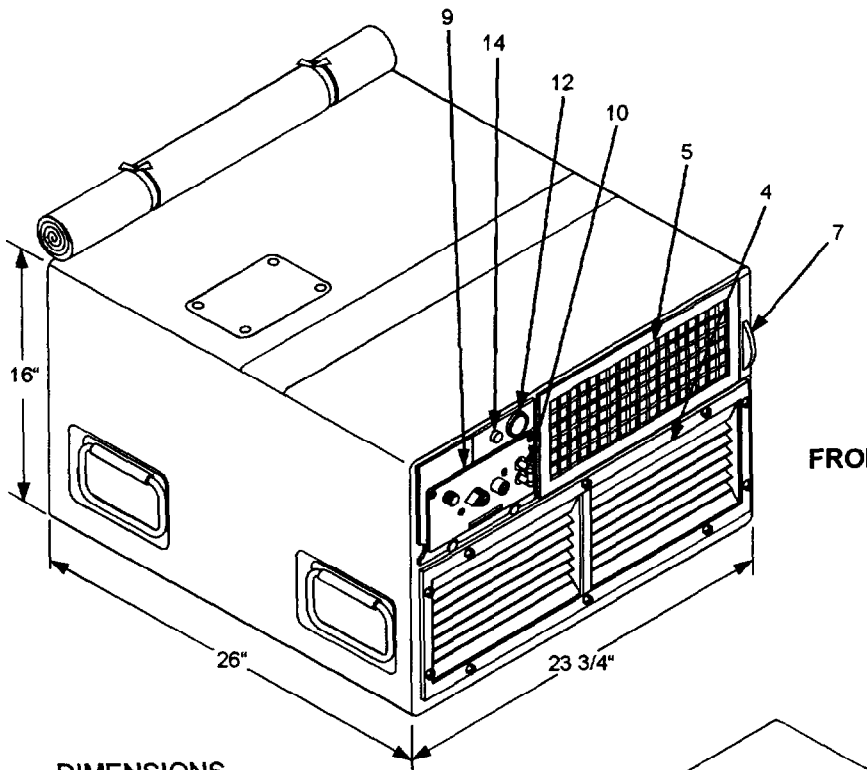
The air conditioner provides filtered, cooled or heated air for efficient operation of electronic equipment in van type enclosures. It also provides comfort to operating personnel housed within the vans. The capabilities and features of the air conditioner are as follows:

Light-weight, compact, horizontal.
Floor-mounted and air-cooled.
Electric motor driven and designed for continuous operation under varying loads.
Furnishes 10,000 BTU/HR for cooling; 7,000 BTU/HR for heating.
Handles for lifting.
Alternate power input source.
Roll-up canvas condenser cover.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

COMPONENT	DESCRIPTION
1. Canvas Cover	Protects condenser coil from extreme cold temperatures during winter months.
2. Fresh Air Screen	Filter fresh (make-up) air for evaporator compartment.
3. Condenser Guard	Protects condenser from external damage.
4. Evaporator Air Intake Louver	Horizontal adjustable louver. Directs room air into air conditioner for filtering and recycling.
5. Evaporator Air Discharge Louver	Vertical and horizontal louvers. Individually hand adjustable. Directs conditioned air into room.
6. Condenser Louver	Directs air exhaust from condenser for minimizing air recirculation and over-heating. Manually adjusted to an open or closed position based on mode of operation. (Fully closed in cold weather operation.)
7. Ventilation Actuator	Opens and closes fresh air inlet passage.
8. Condensate Drain	Allows discharge of condensate during operation.
9. Control Module	Contains operator control switches. Includes unit circuit breaker.
10. Circuit Breaker	Protects unit from electrical current overload.
11. Liquid Sight Indicator	Indicates condition and level of refrigerant.
12. Main Input Power Connection	For connections to 115 volt, 50/60 Hz, single-phase power source.
13. Alternate Input Power Connector	Provides alternate power input position. Refer to Figure 3, Wiring Diagram, WP 0075-00 for required wiring changes to use this connector.
14. Ground Stud	Provides for auxiliary grounding connection.
15. Charging Valve Access Cover	Provides entry for servicing refrigeration system.

EQUIPMENT CHARACTERISTICS, CAPABILITIES AND FEATURES - Continued



FRONT VIEW

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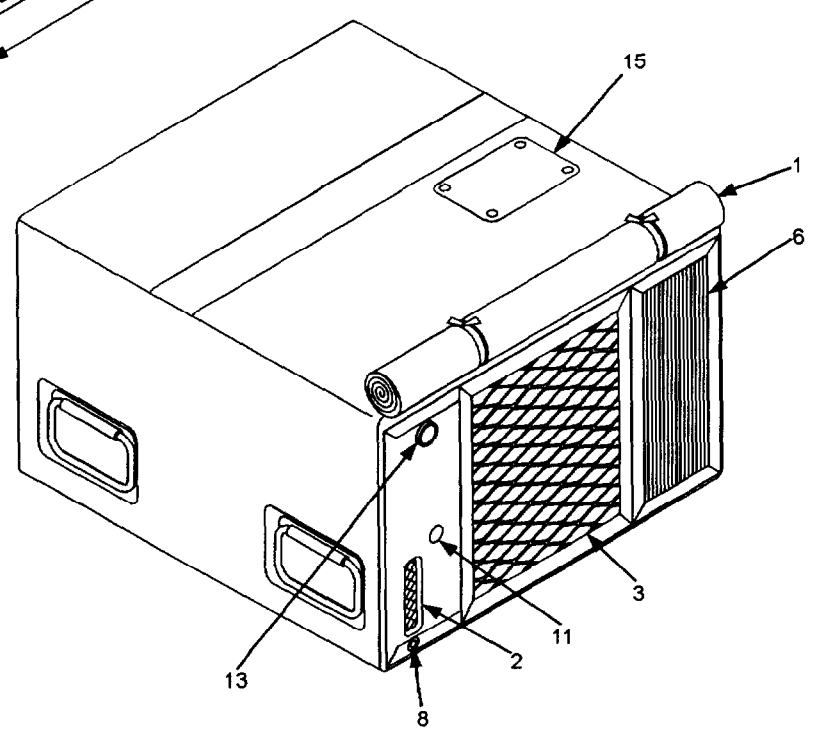
ARE NOMINAL
TOLERANCE ±1/4 IN.

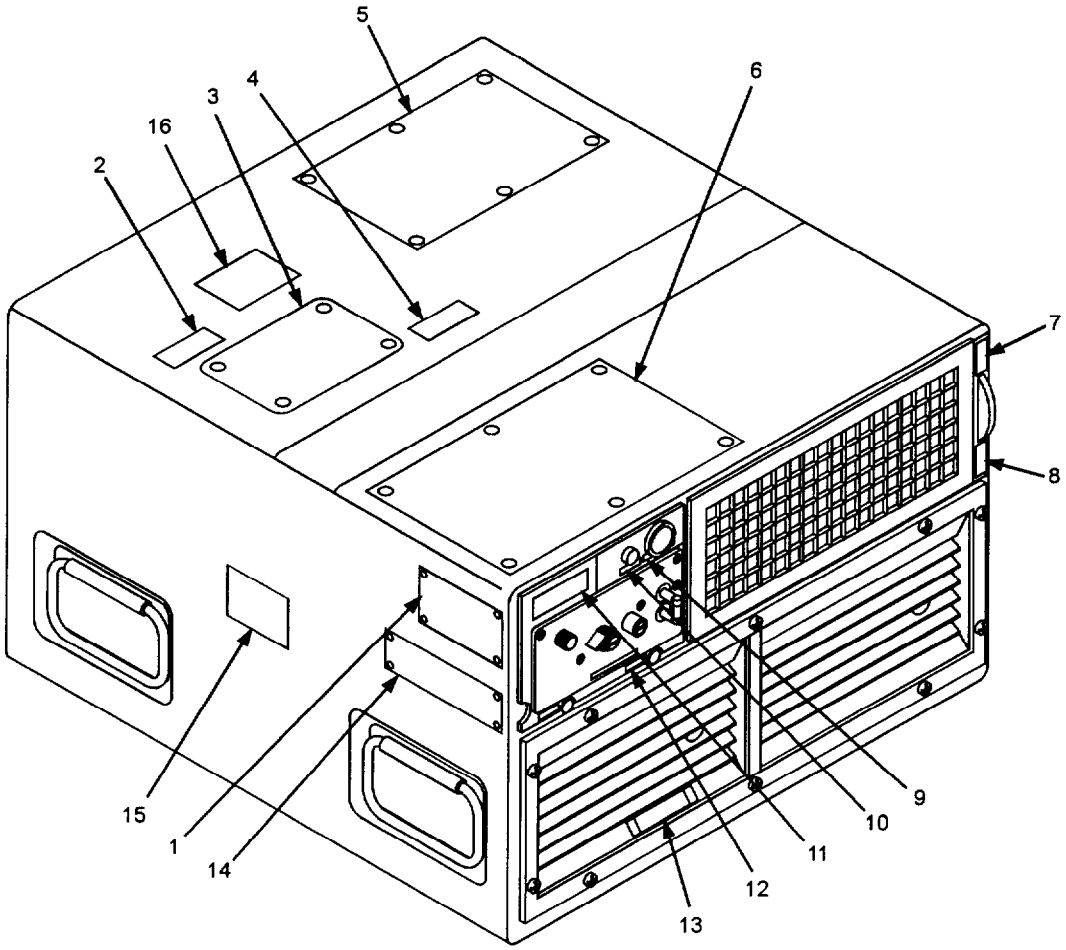


REAR VIEW

LOCATION AND CONTENTS OF IDENTIFICATION PLATES

Refer to the following list and illustration for each identification plate location as follows:

1. Identification Plate – indicates equipment data.
2. High Pressure Charging Valve Decal – locates charging valve
3. Access Cover – marking identifying charging valve access cover.
4. Low Pressure Charging Valve Decal – locates charging valve.
5. Refrigeration Diagram – indicates refrigeration components.
6. Schematic Diagram – indicates electrical components & wiring.
7. Vent Closed Decal – indicates fresh air vent position.
8. Vent Open Decal – indicates fresh air vent position.
9. Power Input Connector Plate – locates input power connection.
10. Grounding Lug Plate – locates grounding lug.
11. Caution: Grounding Decal – Grounding stud information.
12. Reset High Pressure Decal – indicates location of high pressure reset control.
13. Cold Weather Operation Decal – indicates instructions for condenser louver adjustments for cold weather operation.
14. Danger Plate – Warning instructions.
15. Two Man Lift Caution Decal – indicates requirements for moving unit.
16. Warning Decal – environmental health warning on R-22.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LOCATION AND CONTENTS OF IDENTIFICATION PLATES-Continued

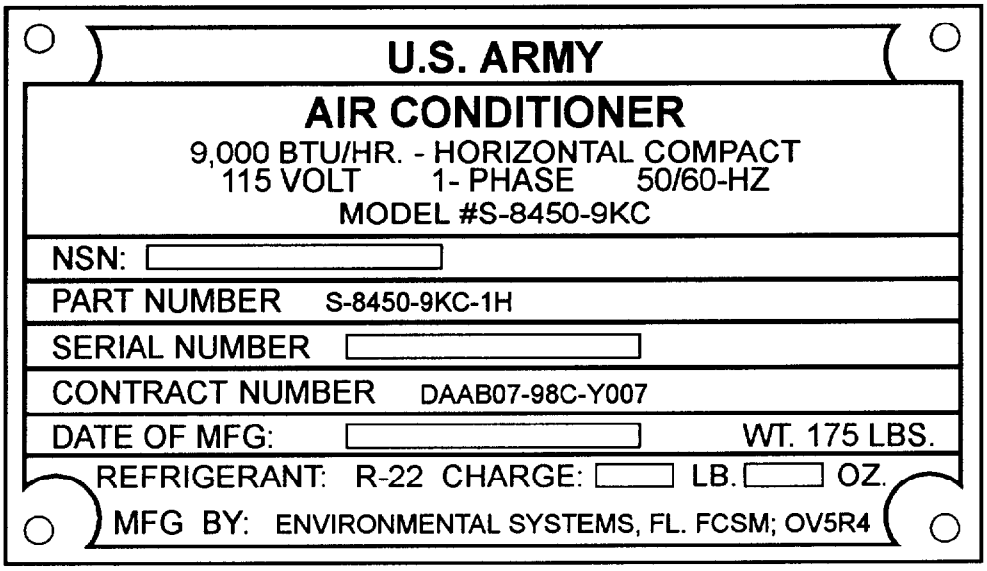


Figure 1. Equipment Data Plate

Figure 2. High Pressure Charging Valve Decal

LOCATION AND CONTENTS OF IDENTIFICATION PLATES-Continued

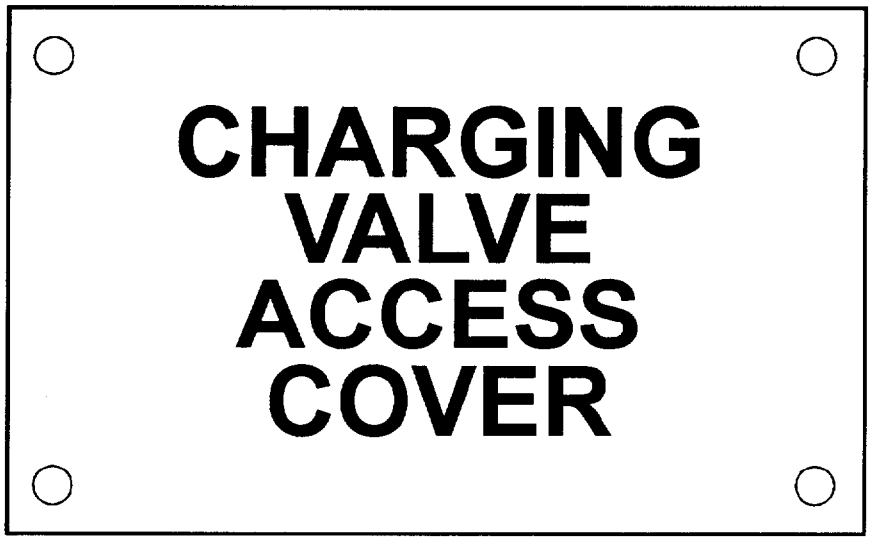
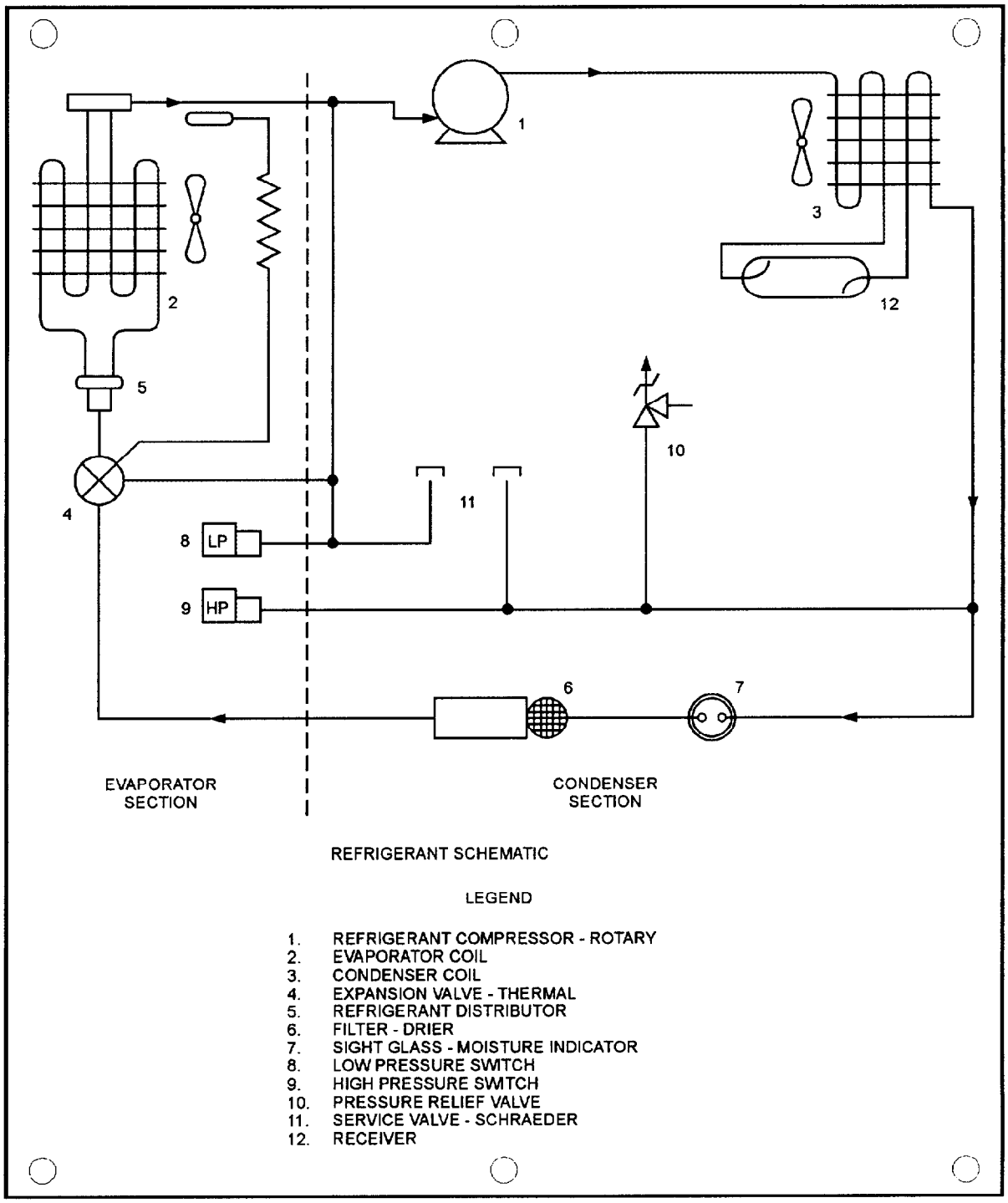


Figure 3. Access Cover Marking

Figure 4. Low Pressure Charging Valve Decal

LOCATION AND CONTENTS OF IDENTIFICATION PLATES-Continued



REFRIGERANT SCHEMATIC

LEGEND

1. REFRIGERANT COMPRESSOR - ROTARY
2. EVAPORATOR COIL
3. CONDENSER COIL
4. EXPANSION VALVE - THERMAL
5. REFRIGERANT DISTRIBUTOR
6. FILTER - DRIER
7. SIGHT GLASS - MOISTURE INDICATOR
8. LOW PRESSURE SWITCH
9. HIGH PRESSURE SWITCH
10. PRESSURE RELIEF VALVE
11. SERVICE VALVE - SCHRAEDER
12. RECEIVER

Figure 5. Refrigeration Diagram Plate

LOCATION AND CONTENTS OF IDENTIFICATION PLATES-Continued

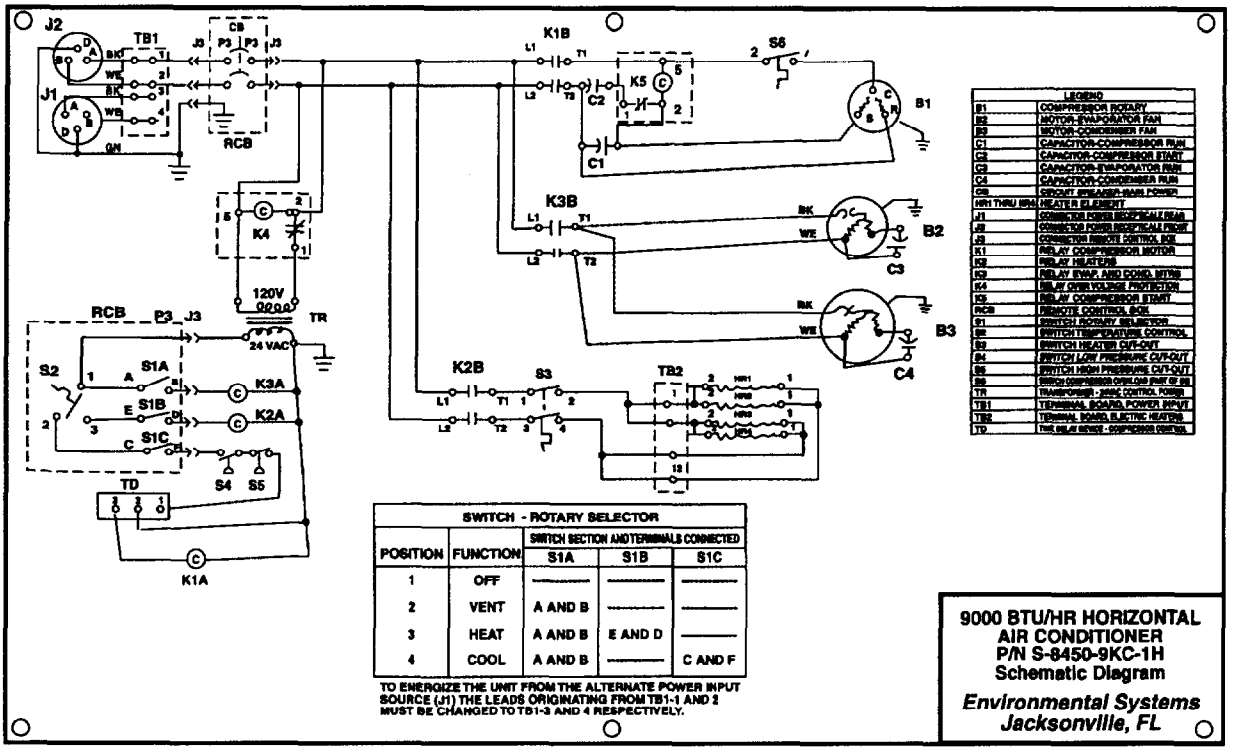


Figure 6. Schematic Diagram Plate

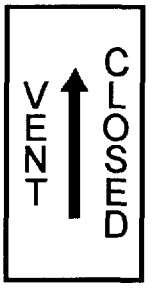


Figure 7. Vent Closed Decal

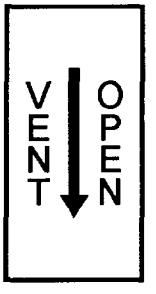


Figure 8. Vent Open Decal

LOCATION AND CONTENTS OF IDENTIFICATION PLATES-Continued

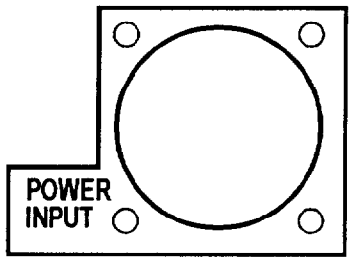


Figure 9. Power Input Connector Plate

Figure 10. Grounding Lug Plate

Figure 11. Caution-Grounding Decal

LOCATION AND CONTENTS OF IDENTIFICATION PLATES-Continued

Figure 12. Reset High Pressure Decal

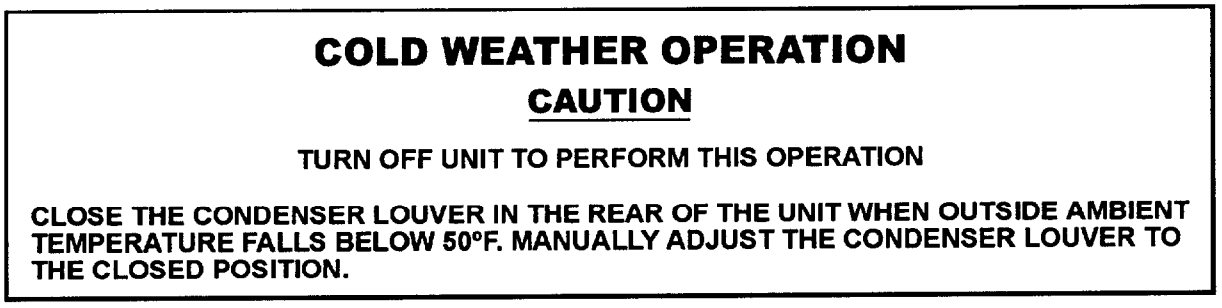


Figure 13. Cold Weather Operation Decal

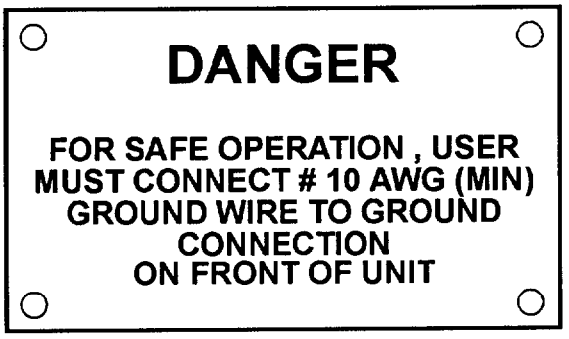


Figure 14. Danger Plate

LOCATION AND CONTENTS OF IDENTIFICATION PLATES-Continued

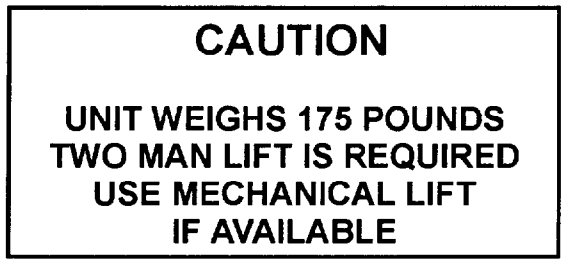


Figure 15. Two Man Lift Caution Decal

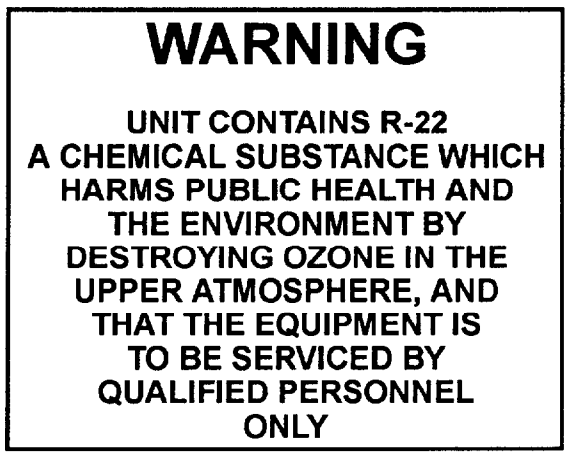


Figure 16. Warning

EQUIPMENT DATA

Air Conditioner Part S8450-9KC-1H

Nomenclature	Air Conditioner, Horizontal, Compact, 9,000 BTU/HR, 115 Volt Single Phase 50/60 Hertz
Manufacturer	Environmental Systems Corp. a Snowbird, ESC Company
Capacity:	
Cooling	10,000 BTU/HR
Heating	7,000 BTU/HR
Phase	Single
Hertz	50/60
A/C Volts	115
Current input, full load, amperes:	
Cooling	25 (maximum)
Heat	22.5 (maximum)
Ventilating	7 (maximum)
Refrigerant	R22
Amount of Charge	2 lbs.
Dimensions and Weight	
Length	26 inches (66.04 cm) Nominal
Height	16 inches (40.64 cm) Nominal
Width	24 inches (60.96 cm) Nominal
Weight	175 pounds (79.36 kg) (maximum)
Operating Temperature Range	-50°F (-45°C) to +120°F (+49°C)

END OF TASK

AIR CONDITIONER, COMPACT, HORIZONTAL **0003-00**
THEORY OF OPERATION

TECHNICAL PRINCIPALS OF OPERATION

Refrigeration Cycle (Refer to Schematic)

The refrigeration system removes heat from a given area. The refrigeration cycle is as follows:

1. The compressor (1) takes cold, low pressure refrigerant gas and compresses it to a high temperature, high pressure gas. The gas flows through the copper tubing to the condenser coil (3) and receiver (12).

2. The condenser fan draws outside ambient air over and through the condenser coil (3). The high temperature, high pressure gas from the compressor (1) is cooled by the flow of air and is changed into a high pressure liquid.

3. The sight glass moisture indicator (7) indicates the presence of moisture and quantity of refrigerant in the system.

4. The filter-drier (6) removes any moisture (water vapor) or dirt that may be carried by the liquid refrigerant.

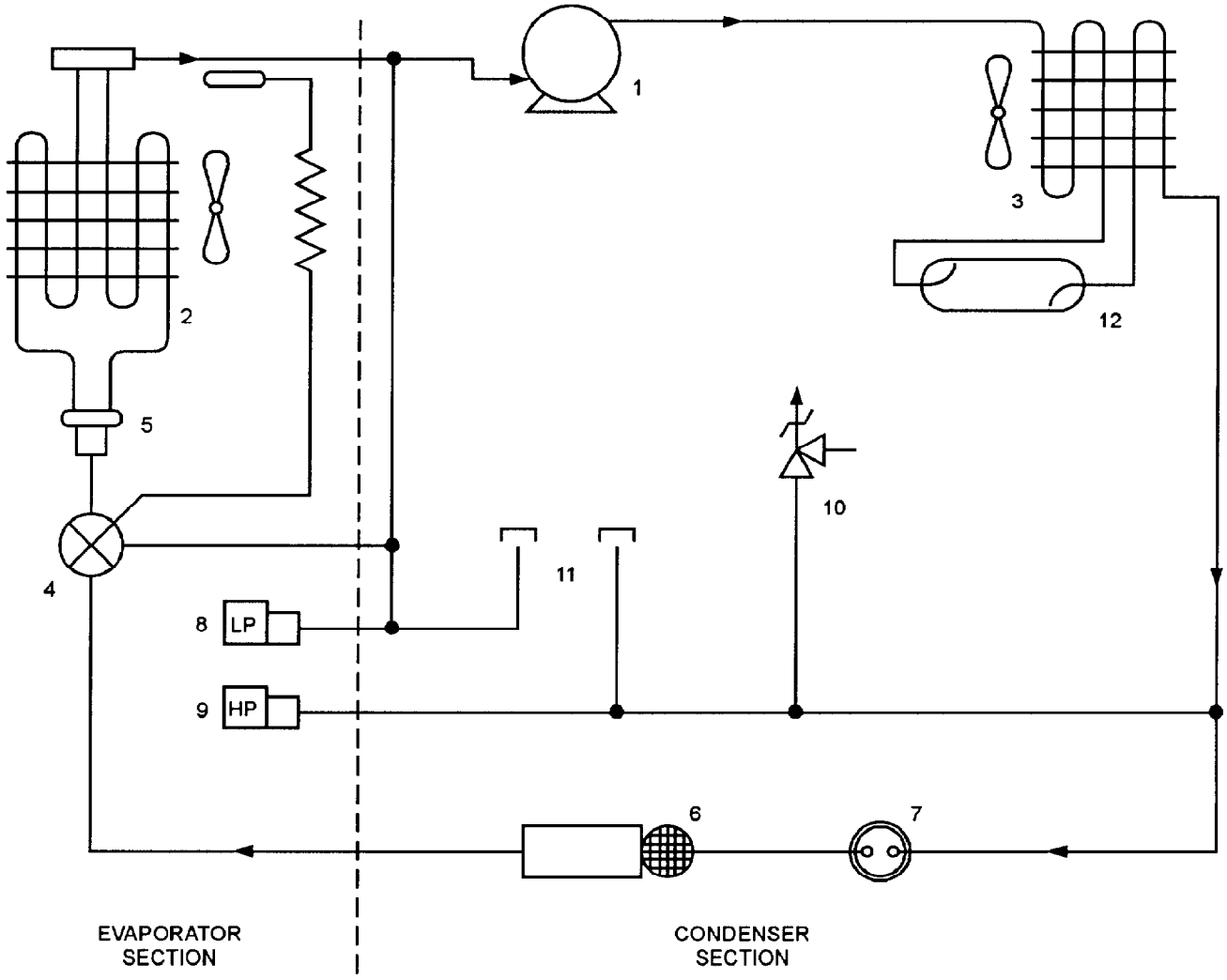
5. The expansion valve (4) senses the temperature and pressure of the refrigerant as it leaves the evaporator coil. By use of the remote bulb and "external equalizer line" the valve constantly adjusts the flow of liquid refrigerant to the evaporator coil (2).

6. As the high pressure liquid refrigerant leaves the expansion valve (4) and refrigerant distributor (5), it enters the evaporator coil (2) and "flashes" to a gas. This is due to the low pressure created in the evaporator by the compressor (1). The evaporator blower circulates the warm air, from the conditioned space, over and through the evaporator coil (2). Liquid refrigerant absorbs heat as it changes from a liquid to a gas. As the air flow from the conditioned space comes in contact with the evaporator coil (2) the air is cooled. If the air is cooled below it's "dew point" moisture will condense on the evaporator coil (2) and be carried to the condensate drain. Thus providing both cooling and dehumidification.

Heating

When the MODE SELECTOR switch is set for HEAT, four heating elements located behind the evaporator coil are energized. These elements are protected from overheating by a thermal cutout switch.

AIR CONDITIONER, COMPACT, HORIZONTAL **0003-00**
THEORY OF OPERATION - Continued



REFRIGERANT SCHEMATIC

LEGEND

1. REFRIGERANT COMPRESSOR - ROTARY
2. EVAPORATOR COIL
3. CONDENSER COIL
4. EXPANSION VALVE - THERMAL
5. REFRIGERANT DISTRIBUTOR
6. FILTER - DRIER
7. SIGHT GLASS - MOISTURE INDICATOR
8. LOW PRESSURE SWITCH
9. HIGH PRESSURE SWITCH
10. PRESSURE RELIEF VALVE
11. SERVICE VALVE - SCHRAEDER
12. RECEIVER

END OF TASK

SUPPORTING DATA FOR REPAIR PARTS, SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

0004-00

COMMON TOOLS AND EQUIPMENT

For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE), CTA 50-970, Expendable/Durable Items (Except: Medical, Class V, Repair Parts, and Heraldic Items), or CTA 8- 100, Army Medical Department Expendable/Durable Items, as applicable to your unit.

SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

No special tools and test equipment are required.

REPAIR PARTS

Repair parts are listed and illustrated in supporting information in WP 0069-00 of this manual.
END OF TASK

CHAPTER 2

OPERATOR INSTRUCTIONS

AIR CONDITIONER CONTROLS AND INDICATORS 0005-00

GENERAL

The air conditioner is a self-contained and electric powered unit that provides 10,000 BTU/HR for cooling or 7,000 BTU/HR for heating. Once started, it operates automatically due to the relationship of the components, controls and instruments.

OPERATOR'S CONTROLS

1. Cooling

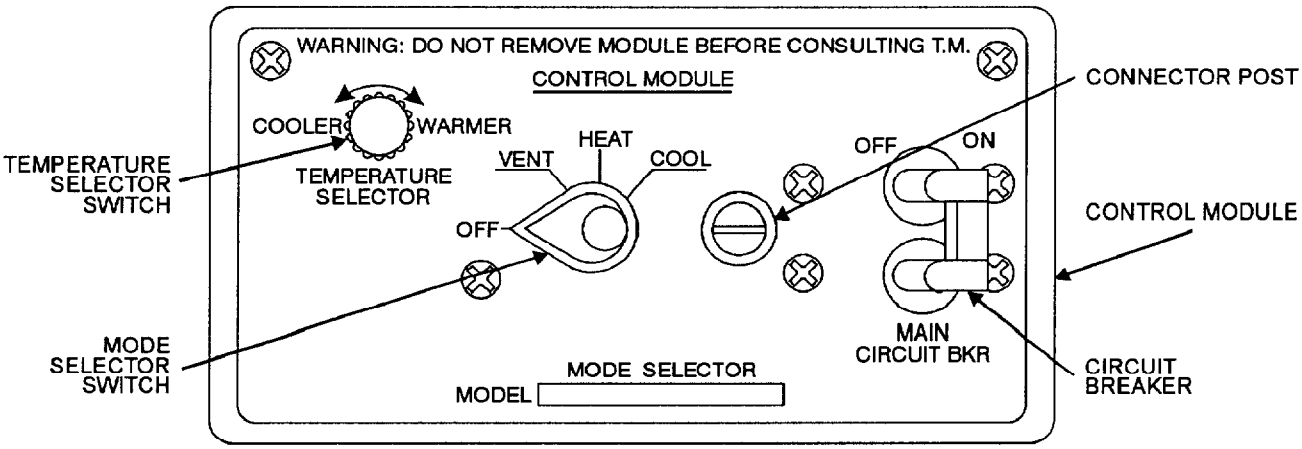
With the MODE SELECTOR switch in COOL position, the fan motors are energized. The fan motors run continuously. The temperature selector switch determines the cooling mode of unit. With the temperature selector switch calling for compressor operation, the compressor cycles with the temperature selector switch to control the flow within the refrigerant circuit. The air conditioner is protected from current overload by a circuit breaker in the control module and a thermal overload in the compressor terminal cover.

2. Heating

With the MODE SELECTOR switch in the HEAT position, air is blown by the evaporator fan as in cooling, but the heating elements are energized instead of the refrigeration system.

3. Ventilation

Placing the MODE SELECTOR switch in the VENT position energizes the evaporator fan motor (along with the condenser fan motor) which forces air out of the evaporator discharge louver into the room. The amount of outdoor air used for ventilation is determined by the position of the ventilation damper actuator.



4. Cold Weather Operation

The condenser louvers must be manually adjusted for optimum operation depending on the outside ambient temperature. When the outside ambient temperature falls below +50°F (+10°C) the condenser louvers in the rear of the unit must be closed.

OPERATOR'S CONTROLS - Continued

5. Alternate Input Power Operation

The air conditioner is shipped from the manufacturer wired for operation to use the main input power connector (J2) located in the front of the unit. To use the alternate input power connector (J1) located in the rear of the unit, a wiring change must be made as shown on Wiring Diagram, Figure 3, WP 0075-00.

END OF TASK

AIR CONDITIONER OPERATION UNDER USUAL CONDITIONS 0006-00

INITIAL SETUP:

Maintenance Level
Operator

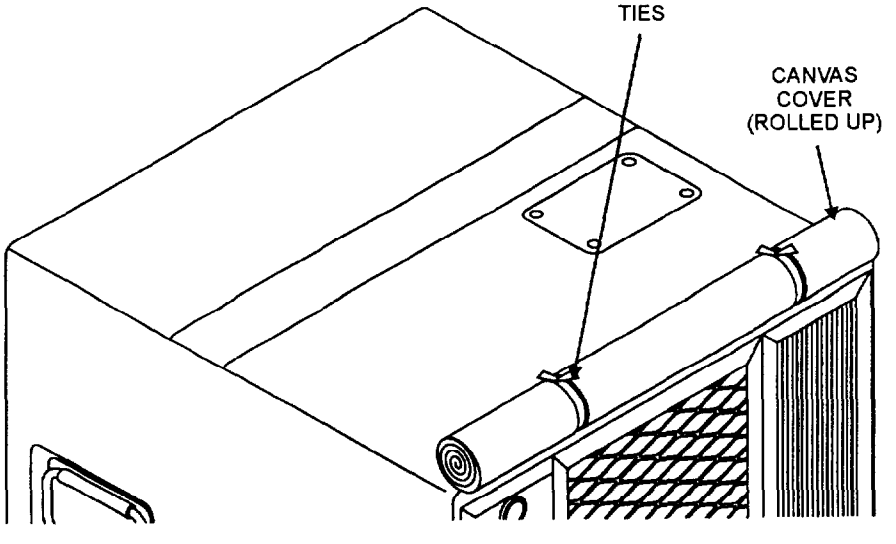
References
WP 0011-00 (PMCS)

Equipment Condition
Mode selector switch in OFF position.
Correct voltage power source (115 volts, 50/60hz) available.
Perform operator PMCS (WP 0011-00) as necessary.

STARTING AND OPERATING INSTRUCTIONS FOR COOLING

Starting

1. Perform preventive maintenance checks and services before operation.
2. Roll up and tie the canvas cover.
3. Ground the unit.
4. Check for correct voltage at power source (115 volts, 50/60 hz).
5. Connect the main power to the unit.



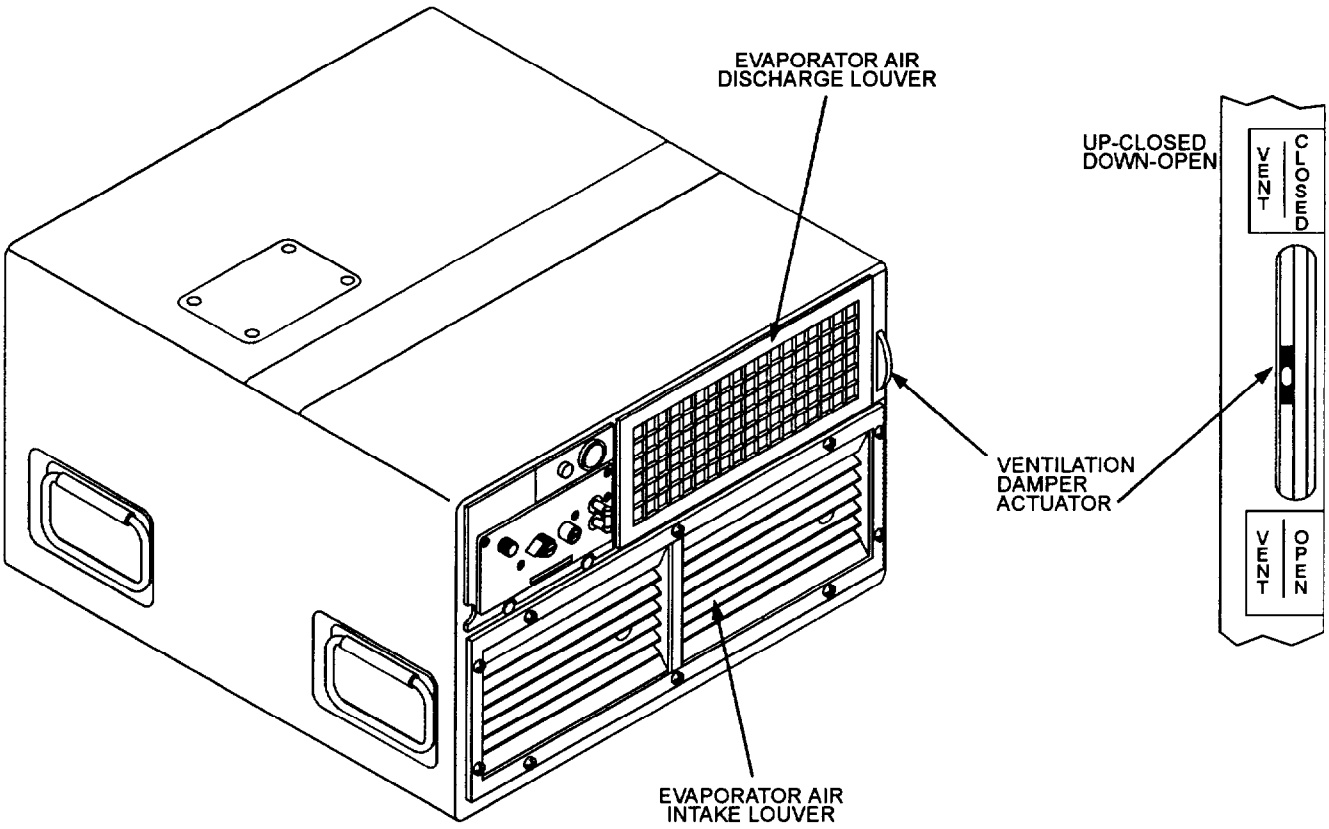
TOP REAR VIEW

AIR CONDITIONER OPERATION UNDER USUAL CONDITIONS - Continued 0006-00

STARTING AND OPERATING INSTRUCTIONS FOR COOLING-Continued

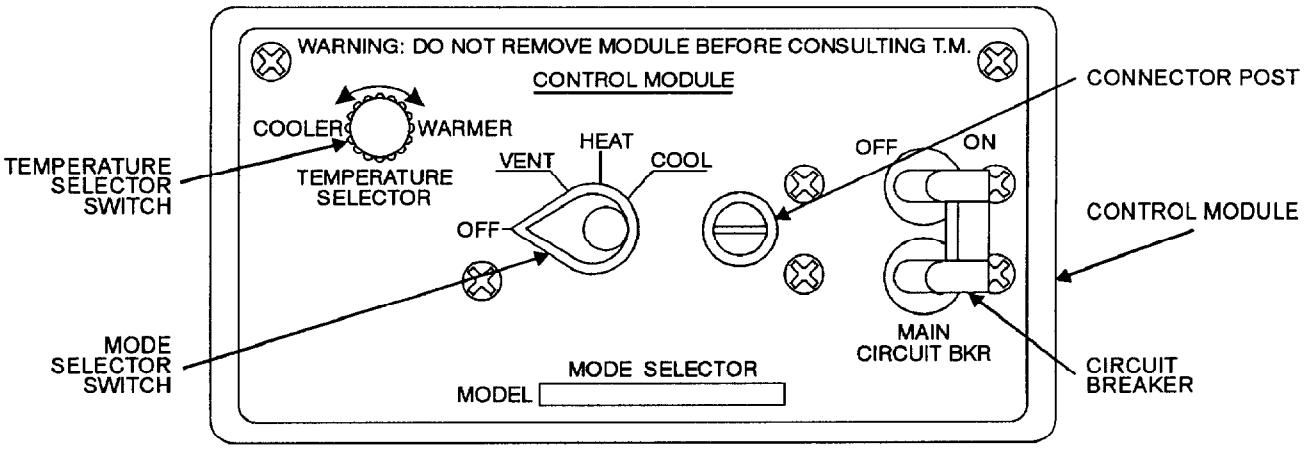
Starting-Continued

6. Open the evaporator intake louvers by moving the tabs up or down as required. Ensure evaporator discharge louvers are open by adjusting each louver individually.



7. Turn the ventilation damper actuator to close the damper door.

8. Close the condenser louver in the rear of the unit when outside ambient temperature falls below +50°F (+10°C). Manually adjust the condenser louver to a fully closed position.



STARTING AND OPERATING INSTRUCTIONS FOR COOLING-Continued

Starting-Continued

9. Turn the temperature selector switch to WARMER.
10. Position circuit breaker to "ON".
11. Position the mode selector switch to VENT, then position the mode selector switch to COOL.

Cooling Operation

After starting the air conditioner for cooling operation:

1. Leave the mode selector switch on COOL.
2. Adjust the temperature selector switch from WARMER to the degree of cooling desired. See Table 1 Operator Control Settings.
3. Compressor will begin operation. Allow 0-180 seconds delay for compressor to start.
4. Adjust the evaporator discharge louvers individually to direct the airflow as desired.

NOTE

Cool air is denser than warm air so it has a tendency to flow downward. To offset this tendency, it is often advisable to adjust the evaporator discharge louvers to direct the cool air slightly upward.

Cooling With Fresh Air

1. When the ventilation damper door is open to admit fresh air, partially close the evaporator intake louver to balance the incoming air.
2. Keep the ventilation damper door closed during heavy rain.

Stopping The Air Conditioner

1. Position the mode selector switch to OFF.
2. Close the ventilation damper by turning the ventilation damper actuator.
3. If a shutdown is to be for an extended period, cover condenser side of unit with canvas cover and disconnect the power cable.

STARTING AND OPERATING INSTRUCTIONS FOR HEATING

Starting

WARNING

For safe operation the air conditioner must be grounded prior to use.

1. Perform the preventive maintenance checks and services (WP 0011-00).
2. Check for the correct voltage (115 volts, 50/60 Hz).
3. Roll up and tie canvas cover.
4. Ground the unit.
5. Open the evaporator intake louver by moving the blades up or down as required.
6. Open the evaporator discharge louvers.
7. Turn the ventilation damper actuator to close the damper door.
8. Turn the temperature selector switch to COOLER (lowest heating position - counter clockwise).
9. Position main circuit breaker to ON.
10. Position the mode selector switch to HEAT.
    (Wait 3 to 5 minutes for heat).

Heating Operation

After starting the air conditioner in the heating mode, adjust it as follows:

1. Position the mode selector switch to HEAT.
2. Adjust the temperature selector switch from COOLER to the desired temperature. See Table 1 Operator Control Settings. Heaters will cycle to maintain setting of temperature selector switch.
3. Adjust the evaporator discharge louver blades to direct the airflow as desired.

NOTE

Warm air is less dense than cool air, so it has a tendency to rise. To obtain comfortable temperatures near the floor and lower parts of the room, it is often advisable to adjust the evaporator discharge louver blades to direct the air slightly downward.

Heating Operation With Fresh Air

1. Open the damper door by turning the ventilation damper actuator if fresh air is desired.
2. Partially close the evaporator intake louver blades.

STARTING AND OPERATING INSTRUCTIONS FOR HEATING-Continued

Stopping The Air Conditioner

1. Position the mode selector switch to OFF.
2. Close the ventilation damper by turning the ventilation damper actuator.
3. If a shutdown is to be for an extended period, cover condenser side of unit with canvas cover and disconnect the power cable.

Ventilating Operation

WARNING

For safe operation the air conditioner must be grounded prior to use.

To operate the air conditioner as a ventilating blower, without affecting temperature, proceed as follows:

1. Perform the preventive maintenance checks and services (WP 0011-00).
2. Check for the correct voltage (115 volts, 50/60 Hz).
3. Roll up and tie the canvas cover.
4. Turn the ventilation damper actuator to open the damper door.
5. Partially close the evaporator intake louver blades.
6. Position the mode selector switch to VENT.
7. Open evaporator discharge louvers.

Stopping The Air Conditioner

1. Position the mode selector switch to OFF.
2. Close the evaporator intake louver blades by pushing tabs down.
3. Close the ventilation damper by turning the ventilation damper actuator.
4. If a shutdown is to be for an extended period, cover condenser side of unit with canvas cover and disconnect the power cable.

Table 1. Operator Control Settings

Mode	Mode Selector Switch	Temperature Control Thermostat	Fresh Air Damper	Evaporator Inlet Louver	Evaporator Outlet Louver	Fabric Cover
Ventilate with 100% recirculated air	VENT	Does not operate	Closed	Open	Adjust to suit	Rolled up
Ventilate with makeup (Fresh air)	VENT	Does not operate	Open	Partially closed	Adjust to suit	Rolled up and secured
Ventilate with 100% fresh air	VENT	Does not operate	Open	Closed	Adjust to suit	Rolled up and secured
Cooling with 100% recirculated air	COOL	Desired temperature	Closed	Open	Slightly up for best results	Rolled up and secured
Cooling with makeup (fresh air)	COOL	Desired temperature	Open	Partially closed	Slightly up for best results	Rolled up and secured
Any mode with makeup air thru CBR filter	Desired mode	Desired temperature	Closed and sealed	Open	Adjust to suit	Rolled up and secured
Heating with 100% recirculated air	HEAT	Desired temperature	Closed	Open	Slightly down for best results	Rolled up or snapped closed
Heating with makeup (fresh air)	HEAT	Desired temperature	Open	Partially closed	Slightly down for best results	Rolled up and secured

END OF OPERATING PROCEDURE

AIR CONDITIONER OPERATION UNDER UNUSUAL CONDITIONS 0007-00

INITIAL SETUP:

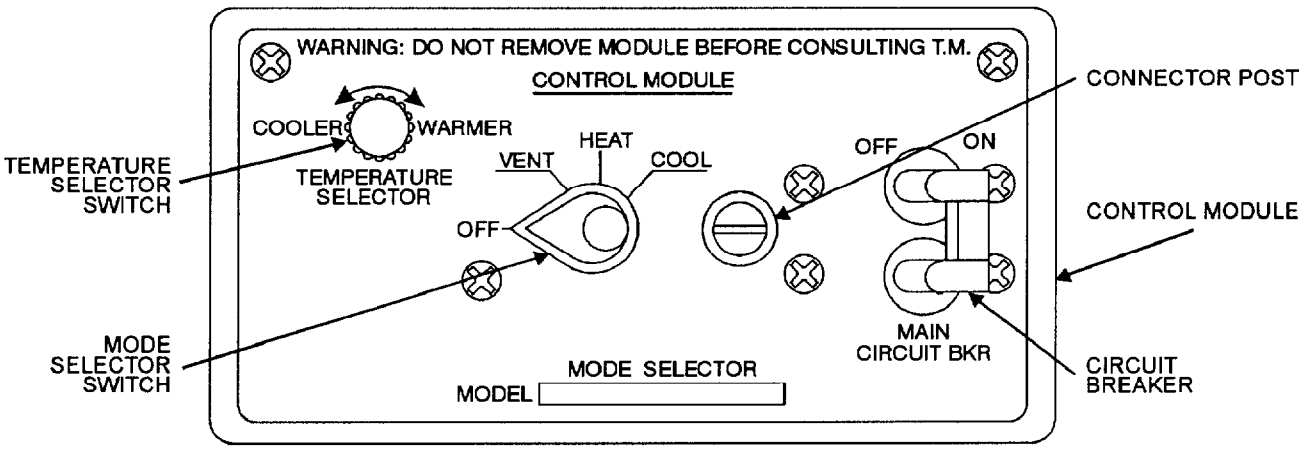
Maintenance Level
Operator

References
WP 0011-00 (PMCS)

Equipment Condition
Mode selector switch in OFF position.
Correct voltage power source (115 volts, 50/60hz) available.
Perform operator PMCS (WP 0011-00) as necessary.

NOTE

The air conditioner can be equipped for operation in chemical biological radiological (CBR) environment by connecting filtering equipment to the rectangular covered opening at the lower left side of the rear surface of the unit.



OPERATION IN EXTREME COLD

General

The air conditioner is designed to operate on the heating cycle in ambient temperatures as low as -50°F (-45°C) and on cooling cycle with 50°F (10°C) air entering the condenser and 70°F (21°C) air entering the evaporator.

Before Operation

CAUTION

Prior to operation ensure that the condenser louver in the rear of the unit is closed when the outside ambient temperature falls below +50°F (+10°C).

Before starting operation be sure canvas cover is rolled up and secured. Clear all ice and snow from openings. Be sure all dampers are in operating condition.

After Operation

Roll down and snap on canvas cover over condenser intake and outlet.

CAUTION

Do not disturb wiring during cold weather unless absolutely necessary. Cold temperatures make wiring and insulation brittle and easily broken.

OPERATION IN EXTREME HEAT

General

The air conditioner is designed to operate satisfactorily at temperatures up to 120°F (49° C). If unit is operated at condenser inlet temperatures higher than 120°F (49°C), the cooling capacity will be lowered and long periods of operation at extended temperatures may cause compressor or condenser fan motor to overheat and trip their internal overload switches or the high pressure cutout switch to shut the unit off.

Filters

To maintain the highest capacity of the unit, the evaporator intake filter and fresh air screen should be cleaned weekly or more often if necessary. Dirty filters reduce the flow of air across the evaporator coil, thereby reducing the capacity of the air conditioner.

Guards and Louvers

Keep all guards and louvers clean and free of any obstructions to maintain full air flow through the air conditioner. Ensure the condenser louver in the rear of the unit is open.

Coils

Clean evaporator and condenser coils as frequently as necessary to prevent dirt or other matter from obstructing the air flow.

OPERATION IN DUSTY OR SANDY AREAS

1. Protection. Shield the air conditioner from dust as much as possible. Take advantage of any natural barriers which offer protection.

2. Cleaning. Keep the air conditioner as clean as possible. Pay particular attention to the louvers. Use compressed air, if available, to aid in cleaning.

NOTE

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

OPERATION UNDER RAINY OR HUMID CONDITIONS

Take special precautions to keep equipment dry. If installed outdoors, cover the equipment with a waterproof cover when it is not in use. Remove cover during dry periods. Take all necessary precautions to keep the electrical components free from moisture. Keep vent damper actuator closed during heavy rain.

WARNING

Make sure power is disconnected from air conditioner before touching any wiring or other electrical parts.

OPERATION IN SALT WATER AREAS

WARNING

Disconnect power source prior to washing the air conditioner.

1. General. Wash the exterior and the condenser section of the unit, with clean fresh water at frequent intervals. Be careful not to damage electrical system with water. Special attention must be given to prevent rust and corrosion.

2. Painting. Paint all exposed areas where paint has cracked, peeled, or blistered, or report condition to unit maintenance. Coat all exposed areas of polished metal with a light coat of grease.

INTERIM NUCLEAR, BIOLOGICAL, AND CHEMICAL (NBC) DECONTAMINATION PROCEDURES

If there exists the likelihood of interim NBC contamination, the NBC cover plate must be installed in place of the fresh air filter. See WP 0054-00.

END OF OPERATING PROCEDURE

CHAPTER 3

OPERATOR TROUBLESHOOTING PROCEDURES

OPERATOR TROUBLESHOOTING INTRODUCTION 0008-00

MALFUNCTION/SYMPTOM INDEX

The malfunction/symptom index (WP 0009-00) is a quick reference index for finding troubleshooting procedures. Associated with each symptom name is a work package sequence number representing the starting point in a troubleshooting sequence. Should any one symptom require more than one troubleshooting sequence to arrive at the most likely area of investigation, the additional starting point numbers are presented.

As the troubleshooting activity progresses through to the conclusion of a particular sequence, a reference is made to the next logical troubleshooting sequence by work package sequence number or by referring to the malfunction/ symptom index to locate the next failure symptom work package. This type of activity continues until successful fault isolation is achieved.

TROUBLESHOOTING PROCEDURES

The troubleshooting work packages contain tables listing the malfunctions, tests or inspections, and corrective action required to return the air conditioner to normal operation. Perform the steps in the order they appear in the tables.

Each work package is headed by an initial setup. This setup outlines what is needed as well as certain conditions which must be met before starting the task. DON'T START A TASK UNTIL:

You understand the task.

You understand what you are to do.

You understand what is needed to do the work.

You have the things you need.

This manual cannot list all malfunctions that may occur, or all tests or inspections and corrective actions. If a malfunction is not listed or is not corrected by listed corrective actions, notify unit maintenance.

GENERAL INFORMATION

Circuit Breaker

If the circuit breaker opens after it has been reset, notify unit maintenance.

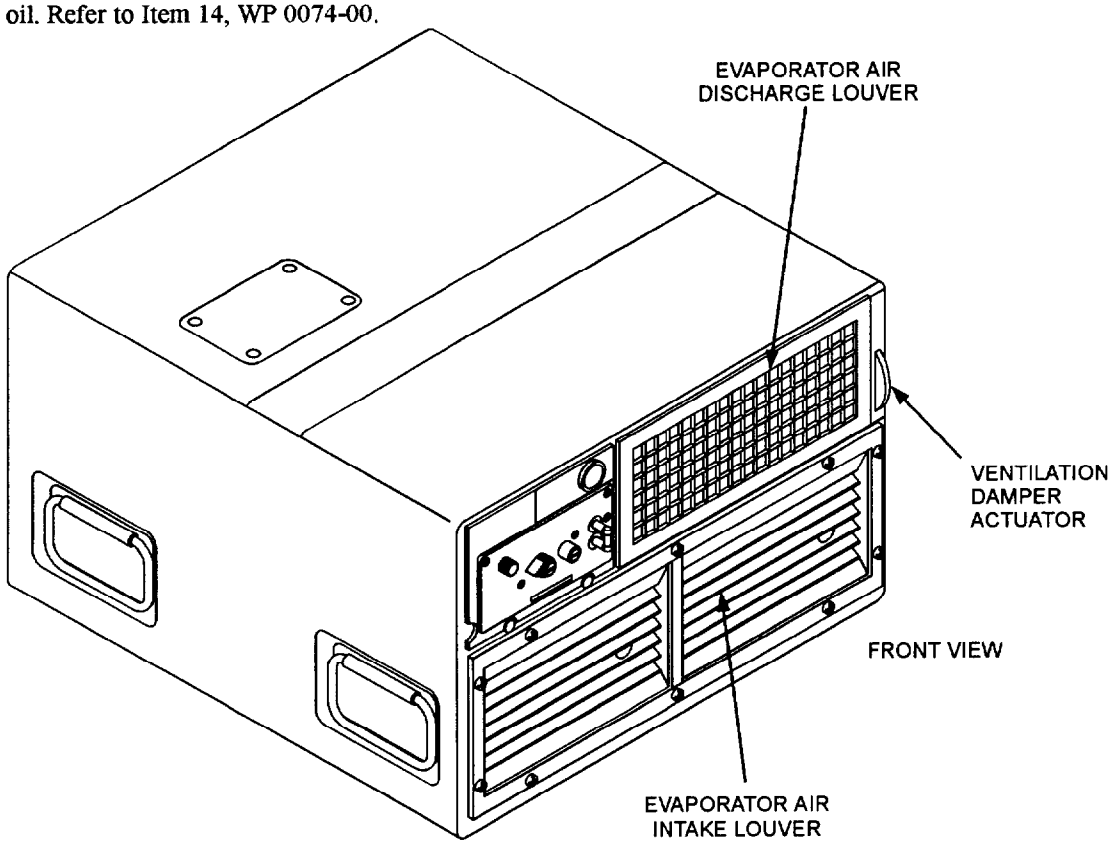
Fan and Compressor Motor Lubrications

Motors driving the evaporator fan, condenser fan and compressor are permanently lubricated. The compressor is a sealed unit complete with lubricant. The rotating parts do not need any lubrication.

GENERAL INFORMATION - Continued

Air Louvers

The evaporator louvers should operate freely. If they bind, lubricate with a small amount of lightweight general purpose machine oil. Refer to Item 14, WP 0074-00.



END OF TASK

MALFUNCTION/SYMPTOM	TROUBLESHOOTING PROCEDURE
Air Conditioner Fail to Operate	
1. Power cable not connected to proper voltage or proper connector (J1 or J2).	WP 0010-00
2. Circuit breaker is OFF.	WP 0010-00
3. Mode selector switch is in OFF position.	WP 0010-00
4. High pressure switch has not been reset.	WP 0010-00
Insufficient Cooling	
1. Mode selector switch is not properly positioned on COOL.	WP 0010-00
2. Temperature switch is not set correctly to COOLER.	WP 0010-00
3. Insufficient air is passing across the evaporator coil due to intake and discharge louver obstructions.	WP 0010-00
4. Too much outside air is entering the unit through the damper door.	WP 0010-00
5. Insufficient refrigerant in the system.	WP 0010-00
6. Insufficient air is passing through the condenser coil due to inlet and outlet louver obstructions.	WP 0010-00
No Heat or Low Heat	
1. Temperature selector switch is not set correctly to WARMER setting.	WP 0010-00
2. Insufficient air is passing over heaters due to obstructions of evaporator air intake and discharge louvers.	WP 0010-00
3. Insufficient air is passing over heaters due to evaporator air intake louver blades being closed.	WP 0010-00

NOTE

Report fault to unit maintenance personnel if any of the following conditions occurs.

Compressor Will Not Start	
1. Temperature selector switch is inoperative.	WP 0014-00
2. High-or-low pressure cut-out switch may have an open contact.	WP 0014-00
3. Possible loose electrical connections or faulty wiring.	WP 0014-00

MALFUNCTION/SYMPTOM	TROUBLESHOOTING PROCEDURE
Compressor Will Not Start - Continued	
4. Control circuit may have an open circuit.	WP 0014-00
5. Transformer winding may be faulty.	WP 0014-00
6. Time delay device may be faulty.	WP 0014-00
Evaporator or Condenser Fan Motor Fails to Operate.	
1. Faulty fan motor or bad start capacitor.	WP 0014-00
2. Evaporator or condenser fan or motor binding.	WP 0014-00
3. Poor continuity of wiring or terminals.	WP 0014-00
4. Bad fan motor relay contacts.	WP 0014-00
5. Damage of mode selector rotary switch.	WP 0014-00

END OF TASK

OPERATOR TROUBLESHOOTING PROCEDURES 0010-00

THIS WORK PACKAGE COVERS:
Air Conditioner Fails To Operate, Insufficient Cooling, No Heat or Low Heat

INITIAL SETUP:

Maintenance Level
Operator

Table 1. Troubleshooting Procedures

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. AIR CONDITIONER FAILS TO OPERATE	1. Verify that power cable is connected to proper voltage with receptacle J1 or J2.	Connect power cable to receptacle. See WP 0075-00 wiring diagram.
	2. Check to be sure that circuit breaker is ON.	Reset circuit breaker.
	3. Make sure that mode selector switch is not in OFF position.	Turn selector knob to desired operation.
	4. Check that high pressure switch has been reset.	Reset pressure switch and wait for compressor to start.
2. INSUFFICIENT COOLING	1. Check to be sure that mode selector switch is properly positioned.	Set switch to COOL.
	2. Make sure that temperature switch is set correctly.	Adjust setting to COOLER.
	3. Determine that sufficient air is passing across evaporator coil by placing a piece of paper in front of the evaporator air intake louver. The paper should be held against the louver blades by the air.	Open evaporator air intake louver blades. Remove any obstructions from evaporator air intake and discharge louvers. Refer to WP 0012-00.
	4. Make sure that there is not too much outside air entering unit.	Close or adjust damper door.
	5. Check liquid sight indicator to see whether there is sufficient refrigerant in the system.	If sight glass is not full and clean report to Direct Support Maintenance Personnel.

Table 1. Troubleshooting Procedures - Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
2. INSUFFICIENT COOLING-Continued	6. Check to see that sufficient air is passing through condenser coil by placing a piece of paper on the condenser guard. The paper should be held against the guard by the air.	Remove any obstructions from condenser inlet and outlet. Make sure that condenser louver outlet is open. Refer to WP 0012-00.
3. NO HEAT OR LOW HEAT	1. Make sure that temperature selector switch is set correctly.	Reset switch.
	2. Check for sufficient air movement over heaters by placing a piece of paper in front of the evaporator air intake louver. The paper should be held against the louver by the air.	Remove any obstructions from evaporator air intake and discharge louvers. Make sure that evaporator air intake louver blades are open. Refer to WP 0012-00.

END OF TASK

CHAPTER 4

OPERATOR MAINTENANCE INSTRUCTIONS

OPERATOR PREVENTIVE MAINTENANCE CHECKS AND SERVICES 0011-00

THIS WORK PACKAGE COVERS:
Introduction, PCMS Procedures

INITIAL SETUP:

Maintenance Level
Operator

INTRODUCTION

General

Preventive Maintenance Checks and Services (PMCS) are performed to keep the air conditioner in operating condition. The checks are used to find, correct, or report problems. Operator is to do the PMCS jobs as shown in the PMCS table. PMCS are done before and after the air conditioner is operated, using the PMCS table. Pay attention to WARNING and CAUTION statements. A WARNING means someone could be hurt. A CAUTION means equipment could be damaged.

Before you operate, do Before PMCS.

During operation, do During PMCS.

After operation, do After PMCS.

If you find something wrong when performing PMCS, fix it if you can, using troubleshooting procedures and/or maintenance procedures.

The right-hand column of the PMCS table lists conditions that make the air conditioner not fully mission capable. Write up items not fixed on DA Form 2404 for unit maintenance. For further information on how to use this form, see DA PAM 738-750.

If tools required to perform PMCS are not listed in WP 0071-00, notify unit maintenance.

NOTE

If the equipment must be kept in continuous operation, check and service only those items that can be checked and serviced without disturbing operation. Make the complete checks and services when the equipment can be shut down.

Table 1. Operator Preventive Maintenance Checks and Services (PMCS)

NOTE

Within designated intervals, these checks are to be performed in the order listed.

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABE IF:
1	Before	Ground stud	Ensure unit is grounded with stud on control module.	Unit not grounded.
2	Before	Panels	Inspect for security of attachment and cleanliness. Report damaged condition to Unit Maintenance personnel.	Panels missing or severely damaged.
3	Before	Fresh Air Screen	Inspect for obstructions and insecure mountings. Remove obstructions.	Screen missing, loose or damaged.
4	Before	Condenser Guard	Inspect for cleanliness, obstructions, damage, and security of attachment. Report damaged condition to Unit Maintenance personnel.	Guard requires cleaning, is obstructed, damaged, loose or missing.
5	Before	Evaporator Air Discharge Louver	Inspect for cleanliness, obstructions, damage, and security of attachment. Report damaged condition to Unit Maintenance personnel.	Louver requires cleaning, is obstructed, damaged, loose or missing.
6	Before	Evaporator Air Intake Louver	Inspect for cleanliness, obstructions, damage, and security of attachment. Report damaged condition to Unit Maintenance personnel.	Louver requires cleaning, is obstructed, damaged, loose or missing.
7	Before	Condenser Louver	Check for insecure mountings and damaged louver blades. Report damaged condition to Unit Maintenance personnel.	Louver requires cleaning, is obstructed, damaged or loose.
8	Before	Information Plates	Check for security and legibility.	
9	Before	Condensate Drain Tubes	Inspect drains for obstructions. Remove obstructions as required.	Obstructions cannot be removed.
10	Before	Control Module	Ensure knobs are in place and check to see that switches function properly. Report damaged condition to Unit Maintenance personnel.	Knobs are missing or switches do not function properly.

Table 1. Operator Preventive Maintenance Checks and Services (PMCS) - Continued

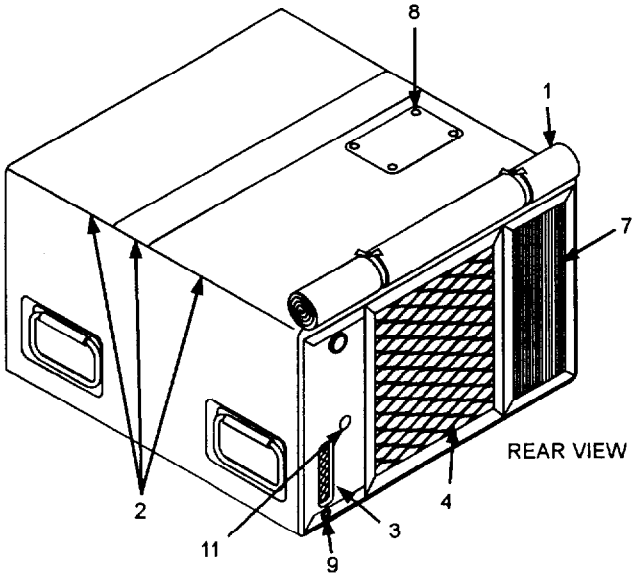
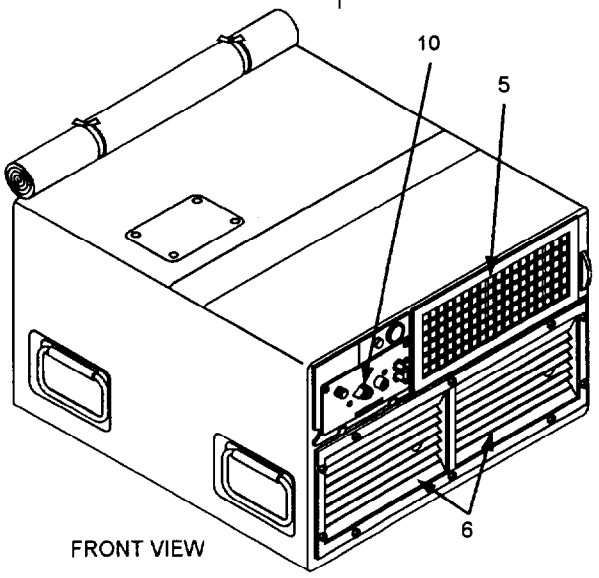
ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABE IF:
11	During	Liquid Sight Indicator	After approximately 5 minutes of operation, check for moisture and low refrigerant charge. Yellow indicates moisture; bubbles or milky appearance indicates low charge. Report abnormal condition to Direct Support Maintenance personnel.	Moisture or low charge is indicated.
			 	
12	After	Panels	Inspect for security of attachment and cleanliness. Report damaged condition to Unit Maintenance personnel.	Panels missing or severely damaged.
13	After	Fresh Air Screen	Inspect for obstructions and insecure mountings. Remove obstructions.	Screen missing, loose or damaged.
14	After	Condenser Guard	Inspect for cleanliness, obstructions, damage, and security of attachment. Report damaged condition to Unit Maintenance personnel.	Guard requires cleaning, is obstructed, damaged, loose or missing.
15	After	Evaporator Air Discharge Louver	Inspect for cleanliness, obstructions, damage, and security of attachment. Report damaged condition to Unit Maintenance personnel.	Louver requires cleaning, is obstructed, damaged, loose or missing.

Table 1. Operator Preventive Maintenance Checks and Services (PMCS) – Continued

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABE IF:
16	After	Evaporator Air Intake Louver	Inspect for cleanliness, obstructions, damage, and security of attachment. Report damaged condition to Unit Maintenance personnel.	Louver requires cleaning, is obstructed, damaged, loose or missing.
17	After	Condenser Louver	Check for insecure mountings and damaged louver blades. Report damaged condition to Unit Maintenance personnel.	Louver requires cleaning, is obstructed, damaged or loose.
18	After	Information Plates	Check for security and legibility.	
19	After	Condensate Drain Tubes	Inspect drains for obstructions. Remove obstructions as required.	Obstructions cannot be removed.

END OF TASK

OPERATOR MAINTENANCE INSTRUCTIONS 0012-00

THIS WORK PACKAGE COVERS:
Service and Cleaning of Screens and Guards,
Adjusting Louvers, Damper and Control Module

INITIAL SETUP:

Maintenance Level
Operator

Materials/Parts
Dry Cleaning Solvent
(Item 16, WP 0074-00)
Brush
Cleaning Cloth (Item 9, WP 0074-00)

WARNING

Disconnect the power source before performing any maintenance function.

WARNING

Do not use compressed air for cleaning purposes except where reduced to less than 30 psi (2.1 kg/cm^2) and then only with effective chip guarding and Personnel protective equipment.

WARNING

Clean parts in a well-ventilated area. Avoid inhalation of solvent fumes and prolonged exposure of skin to cleaning solvent. Wash exposed skin thoroughly. Dry cleaning solvent, P-D-680 Type III, which is used to clean parts, is potentially dangerous to personnel and property. Avoid repeated and prolonged skin contact. Do not use near open flame or excessive heat. Flash point of solvent is 100 °F to 138 °F (38 °C to 59 °C).

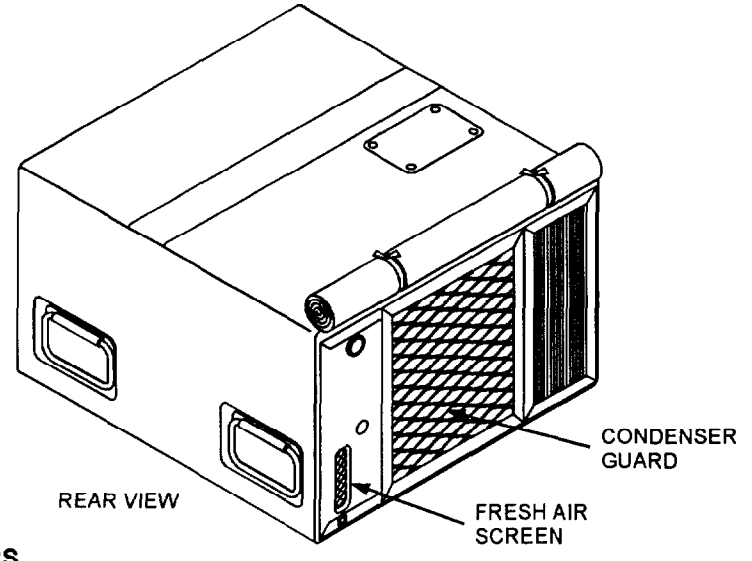
SERVICE-CLEAN

Screens and Guards

1. Brush off any loose dirt or foreign matter, and remove obstructions from the condenser guard & fresh air screen.
2. Wipe off with a cloth moistened with dry cleaning solvent (WP 0074-00).
3. Inspect for security of attachment and damage.
4. Report damaged condition to unit maintenance personnel.

SERVICE-CLEAN-Continued

Screens and Guards-Continued

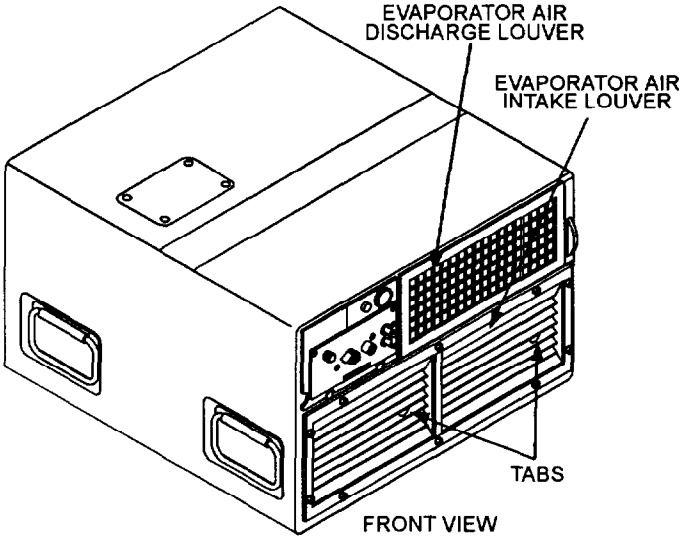


ADJUSTING LOUVERS

Evaporator Louvers

1. Using the tabs provided, position the evaporator air intake louver so that the louvers are fully open when the ventilation damper actuator is in the closed position. Partially close the evaporator inlet louver when the ventilation damper actuator is in the open position.

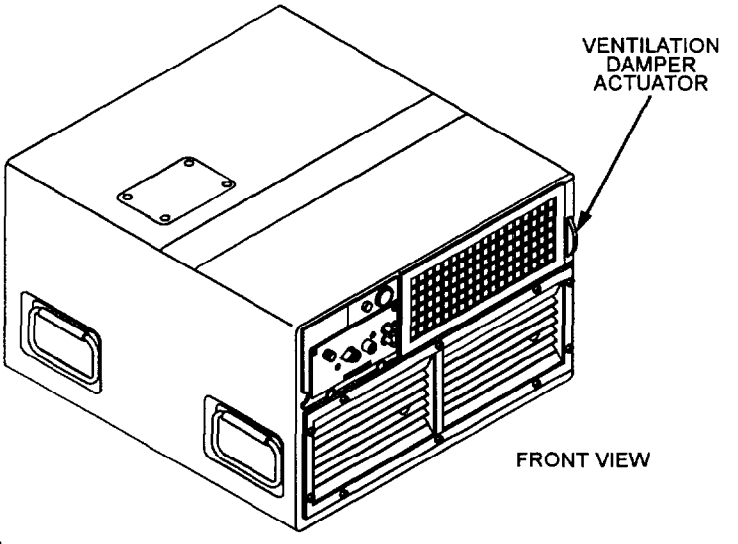
2. It is recommended that the evaporator air discharge louver be adjusted to direct the airflow slightly upward when the air conditioner is operated in the cool mode, and slightly downward when the air conditioner is operated in the heat mode.



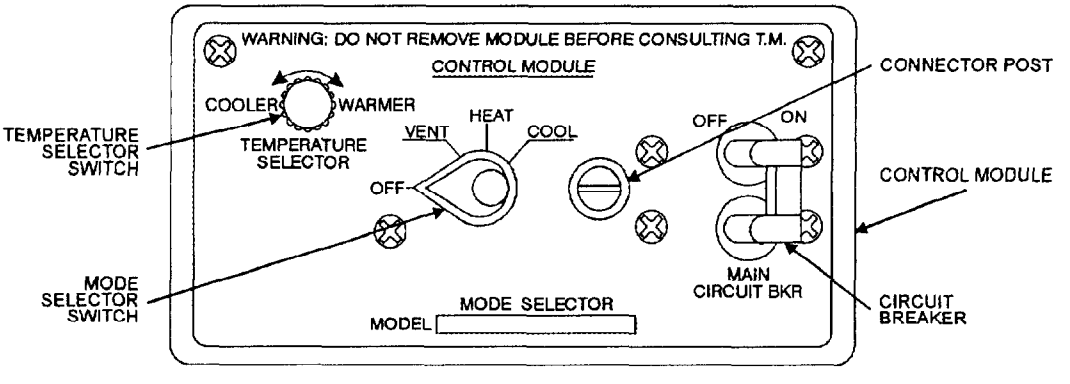
ADJUST-Continued

Ventilation Damper

1. Check for bindings; remove obstructions.
2. Brush off any loose dirt or foreign matter.
3. Inspect for security of attachment and damage.
4. Report damaged condition to unit maintenance personnel.
5. Adjust ventilation damper actuator to desired degree of fresh air.



Control Module



1. Rotate the temperature selector switch to cooler (counter-clockwise) or warmer (clockwise) while the air conditioner is being operated in either the cool or heat mode in order to achieve the desired temperature in the conditioned area.
2. Rotate the mode selector switch to the vent, heat or cool position (clockwise), or to the heat position (counter-clockwise).

END OF TASK

CHAPTER 5

UNIT TROUBLESHOOTING

UNIT TROUBLESHOOTING INTRODUCTION 0013-00

MALFUNCTION/SYMPTOM INDEX

The malfunction/symptom index (WP 0009-00) is a quick reference index for finding troubleshooting procedures. Associated with each symptom name is a work package sequence number representing the starting point in a troubleshooting sequence. Should any one symptom require more than one troubleshooting sequence to arrive at the most likely area of investigation, the additional starting point numbers are presented.

As the troubleshooting activity progresses through to the conclusion of a particular sequence, a reference is made to the next logical troubleshooting sequence by work package sequence number or by referring to the malfunction/ symptom index to locate the next failure symptom work package. This type of activity continues until successful fault isolation is achieved.

TROUBLESHOOTING PROCEDURES

The troubleshooting work packages contain tables listing the malfunctions, tests or inspections, and corrective action required to return the air conditioner to normal operation. Perform the steps in the order they appear in the tables.

Each work package is headed by an initial setup. This setup outlines what is needed as well as certain conditions which must be met before starting the task. DON'T START A TASK UNTIL:

You understand the task.

You understand what you are to do.

You understand what is needed to do the work.

You have the things you need.

This manual cannot list all malfunctions that may occur, or all tests or inspections and corrective actions. If a malfunction is not listed or is not corrected by listed corrective actions, notify unit maintenance.

GENERAL INFORMATION

Fan and Compressor Motor Lubricants

Motors driving the evaporator fan, condenser fan and compressor are permanently lubricated. The compressor is a sealed unit complete with lubricant. The rotating parts do not need any lubrication.

END OF TASK

UNIT TROUBLESHOOTING **0014-00**

THIS WORK PACKAGE COVERS:

Air Conditioner Fails To Operate, Insufficient Cooling, A Fan Motor Fails To Operate, Compressor Will Not Start, Insufficient Heating

INITIAL SETUP:

Maintenance Level
Unit

Reference
WP 0009, Malfunction/Symptom Index

General

This section provides information useful in diagnosing and correcting unsatisfactory operation or failure of the air conditioner. Each malfunction is followed by a list of probable causes and actions to take to remedy the malfunction. You should perform the tests/inspections and corrective actions in the order listed. Refer to the malfunction/symptom index (WP 0009-00) as a quick reference index for troubleshooting procedures.

This manual cannot list all malfunctions that may occur nor all tests or inspections and corrective actions. If a malfunction is not listed or is not corrected by listed corrective actions, notify your supervisor.

Control Circuit

The cause of a system's failure to operate can be greatly narrowed if the control that caused the failure can be isolated. It is the function of safety devices to open the circuit under certain conditions; therefore, additional checking may be required to determine whether the safety device is open because it is bad or because it is doing what it is supposed to do. The following steps contain instructions for checking the control circuit.

1. Disconnect power from the air conditioner and position Mode Selector rotary switch to "OFF".
2. Test continuity across each control in the affected circuit, using a multimeter. Refer to the appropriate schematic diagram and wiring diagram (WP 0075-00) as a guide to the connections in the circuit.
3. Replace defective parts.

Safety Devices

When testing the control circuit and other equipment, you must take into consideration the fact that open safety devices may not be bad. It may be normal for the device to be open under the existing conditions, or it may indicate trouble elsewhere in the air conditioner.

WARNING

Refrigerant under pressure is used in the operation of this equipment.

WARNING

HIGH VOLTAGE is used in the operation of this equipment. DEATH ON CONTACT may result if personnel fail to observe safety precautions. Never work on electrical equipment unless there is another person nearby who is familiar with the operation and hazards of the equipment and who is competent in administering first aid. When the technician is aided by operators, he must warn them about dangerous areas.

WARNING

Always ensure the input power supply to the equipment is shut off before beginning work on the equipment.

Be careful not to contact high voltage connections of 115 volts AC circuits when servicing this equipment. Whenever the nature of the operation permits, keep one hand away from the equipment to reduce the hazard of current flowing through vital organs of the body.

Do not be misled by the term "low voltage." Potentials as low as 30 volts may cause death under adverse conditions.

WARNING

Take particular care to ground every capacitor likely to hold a dangerous potential. When working inside the equipment, after the power has been turned off, always ground every part before touching it.

WARNING

Do not operate the equipment without all guards, louvers, and covers in place and tightly secured.

Table 1. Unit Troubleshooting Procedures

MALFUNCTION	TEST OR INSPECT	CORRECTIVE ACTION
NOTE Before using this table, be sure you have performed all applicable operating checks.		
1. AIR CONDITIONER FAILS TO OPERATE	1. Check to see that main power cable is connected.	Connect cable.
	2. Make sure that you are using the correct voltage.	Check line voltage with voltmeter for 115 Vac, single-phase, 50/60 Hz power.
	3. Inspect main power receptacle connections for breaks.	Replace connector. (Refer to WP 0040-00.)
	4. Check for loose electrical connections.	Tighten connections.

Table 1. Unit Troubleshooting Procedures - Continued

MALFUNCTION	TEST OR INSPECT	CORRECTIVE ACTION
1. AIR CONDITIONER FAILS TO OPERATE – Continued	5. Inspect rotary selector switch for incorrect setting. (See Table Of Operator Control Settings.)	Turn selector switch to COOL or VENTILATE.
	6. Check to see whether CIRCUIT BREAKER is in the OFF position or is defective.	1. Reset circuit breaker. 2. Make continuity check with multimeter. Refer to WP 0026-00.
	7. Disconnect control circuit transformer and make continuity check of primary and secondary windings, and from windings-to-case, using multimeter. Reset circuit breaker.	If windings do not show continuity or if windings-to-case continuity exists, replace transformer. (Refer to WP 0032-00.)
2. INSUFFICIENT COOLING	1. Check to see that Mode Selector switch is properly positioned.	Turn selector switch to COOL.
	2. Check liquid sight indicator level to see that refrigerant is colorless and clear. Yellow indicates moisture in system. Milky or bubbly refrigerant indicates low level refrigerant charge.	Report condition to Direct Support Maintenance personnel.
	3. Inspect condenser coil for dirt.	Clean coil with 25-30 psi (1.76-2.11 kg/cm^2) compressed air.
	4. Inspect evaporator air intake filter for dirt.	Clean filter.
	5. See whether Temperature Selector switch is set incorrectly or is defective.	Adjust setting or replace switch or other corrective action. (Refer to WP 0026-00.)
	6. Check evaporator air discharge louver to see whether it is bent, or stuck in the CLOSED position.	Repair or replace louver. (Refer to WP 0055-00.)
	7. Observe evaporator fan motor to see whether it is defective.	Report fault to Direct Support Maintenance personnel or replace motor. (Refer to WP 0033-00.)
	8. Check to see whether evaporator impeller fan is loose or defective.	Tighten setscrew or replace impeller fan. (Refer to WP 0033-00.)

Table 1. Unit Troubleshooting Procedures - Continued

MALFUNCTION	TEST OR INSPECT	CORRECTIVE ACTION
3. EVAPORATOR OR CONDENSER FAN MOTOR FAILS TO OPERATE	1. Make sure that power cable is properly connected.	Connect cable.
	2. Check for bad fan motor. (Refer to WP 0033-00 and WP 0036-00.) Check for bad start capacitor by using a multimeter.	Replace motor. (Refer to WP 0033-00 and WP 0036-00.)
	3. Check evaporator or condenser fan motor for binding.	Relieve binding or replace fan motor. (Refer to WP 0033-00 and WP 0036-00.)
	4. Check continuity of wiring connections. (Refer to WP 0033-00 and WP 0036-00.)	Replace or repair wiring connections. (Refer to WP 0075-00.)
	5. Disconnect condenser fan motor relay. Actuate primary contacts with 24 volt AC source, then check continuity of contacts that should be closed. (Refer to WP 0028-00.)	Replace bad relay. (Refer to WP 0028-00.)
	6. Inspect Mode Selector rotary switch for improper adjustment or damage. (Refer to WP 0026-00.)	Replace bad switch. (Refer to WP 0026-00.)

WARNING

Disconnect the power source before performing any troubleshooting function.

4. COMPRESSOR WILL NOT START	1. Make sure that circuit breaker or selector switch is properly set.	Reset controls properly.
	2. Check for open contacts of high-or-low-pressure cut-out switches. (Refer to WP 0059-00.)	1. Reset high pressure switch. 2. Report fault to Direct Support Maintenance personnel if condition continues.
	3. Check for loose electrical connections.	1. Tighten loose connections. 2. If wiring replacement is necessary notify direct support.

Table 1. Unit Troubleshooting Procedures - Continued

MALFUNCTION	TEST OR INSPECT	CORRECTIVE ACTION
4. COMPRESSOR WILL NOT START - Continued	4. Make continuity check of control circuit to determine whether open circuit exists. (Refer to WP 0026-00.)	Repair open circuit or replace wire. (Refer to WP 0026-00.)
	5. Check continuity across primary winding and across secondary winding of control transformer to see whether windings are good. (Refer to WP 0032-00.)	Replace bad transformer. (Refer to WP 0032-00.)
	6. Observe operation of time delay device and check continuity. (Refer to WP 0028-00.)	Replace bad time delay device. (Refer to WP 0028-00.)
5. INSUFFICIENT HEATING	1. Check that Mode Selector switch is in HEAT position.	1. Switch to HEAT position. 2. Replace bad Mode Selector switch. (Refer to WP 0026-00.)
	2. Check that Temperature Selector switch is in WARMER position.	1. Switch to WARMER position. 2. Replace bad Temperature Selector switch. (Refer to WP 0026-00.)
	3. Check that the MAIN CIRCUIT BREAKER is in the ON position.	1. Switch to ON position. 2. Replace bad MAIN CIRCUIT BREAKER. (Refer to WP 0026-00.)

END OF TASK

CHAPTER 6

UNIT
MAINTENANCE INSTRUCTIONS

UNIT MAINTENANCE **0015-00**
SERVICE UPON RECEIPT

THIS WORK PACKAGE COVERS:

Unloading, Unpacking, Checking Unpacked Equipment, Installation, Connect to Power Source, Operation Check and Adjustment

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

Tool Kit, General Mechanics (Item 1, WP 0071-00, Table 2))

References

WP 0001-00
WP 0072-00

Equipment Condition

Main power source is disconnected.

UNLOADING

The air conditioner is shipped in a corrugated paper shipping container which has a skid pallet base. It should be handled with fork lift equipment with at least 300 pound (136.2 kg) capacity. Reasonable precaution should be taken to prevent damage by dropping or bumping. Keep the unit upright during unloading.

UNPACKING

Move the equipment as close to the site of installation as possible before unpacking. Remove crating hardware and metal straps being careful not to damage the unit with the tools used in uncrating. Refer to WP 0001-00.

CHECKING UNPACKED EQUIPMENT

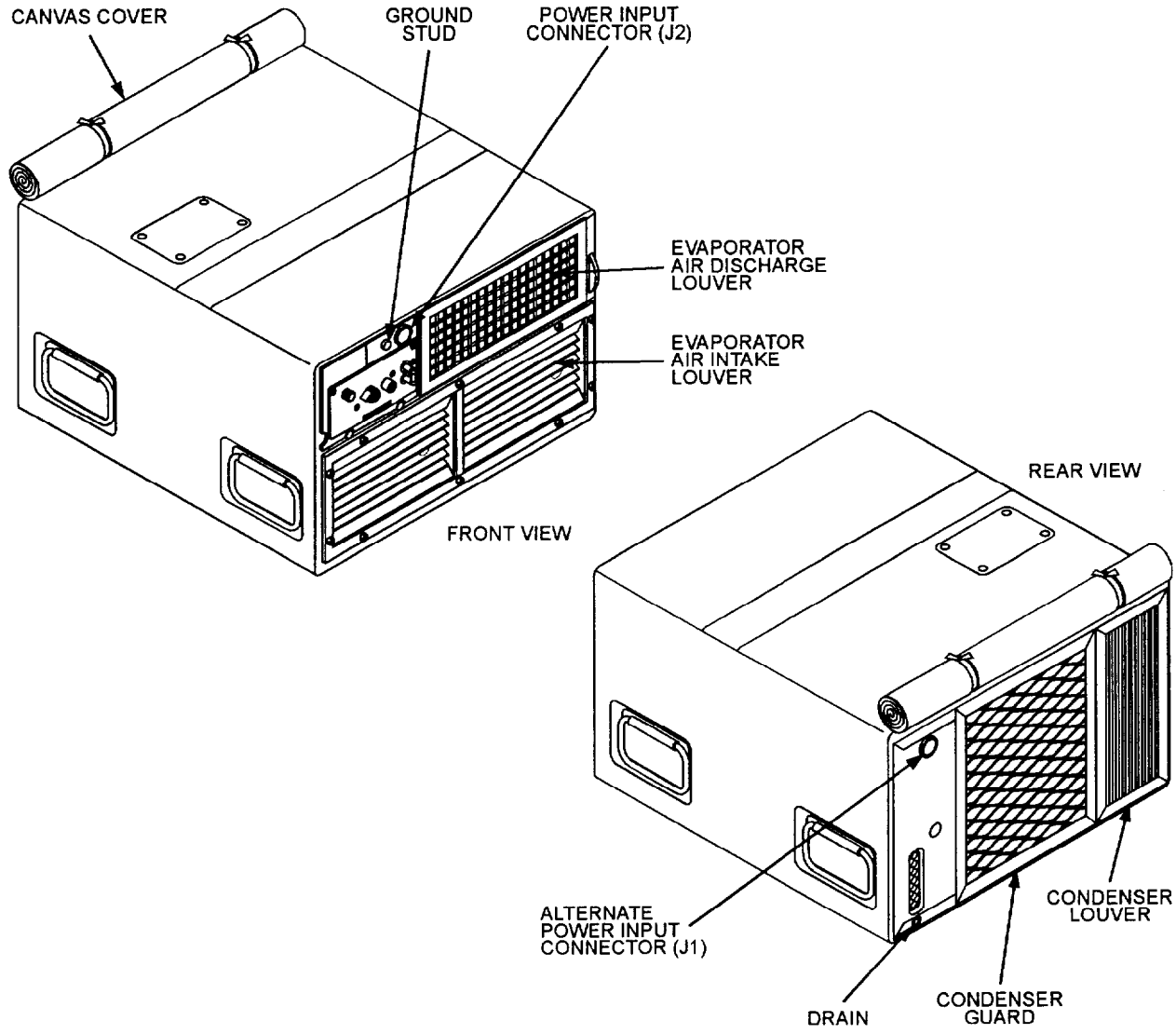
1. Inspect the equipment for damage incurred during shipment. If the equipment has been damaged, report the damage on DA Form 368 Quality Deficiency Report (QDR).

2. Check the equipment against the packing slip to see if the shipment is complete. Report all discrepancies in accordance with the instructions of DA PAM 738-750.

3. Check to see whether the equipment has been modified.

Table 1. Service Upon Receipt Checklist

Location	Item	Action	Reference
1. Exterior	Louvers, Covers, Drain Guards, Controls, Switches	Perform operator PMCS before you operate.	WP 0011-00
2. Front	Main Power Connectors	a. Inspect connector for damage.	WP 0011-00
		b. Replace damaged connector.	WP 0040-00



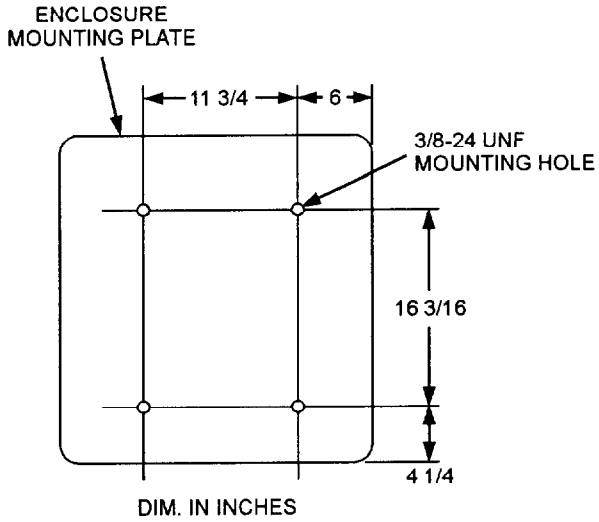
INSTALLATION

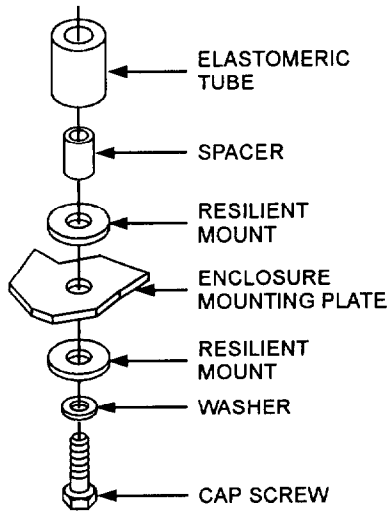
General

1. Air conditioner is assembled and ready for operation.
2. It contains full charge of refrigerant and compressor oil.

Mounting

1. Place the unit on a firm, level surface to permit proper drainage of water that condenses out of the air.
2. Position the unit so that the control panel, the condenser, and the evaporator louvers are accessible to the operator and to maintenance personnel.
3. Check that there are no obstructions in front of any air intake or discharge louvers or other openings.
4. The dimensions for base-mounting holes are shown below. The resilient mount, washer, spacer, elastomeric tube and cap screw are shipped with the air conditioner.
5. Connect a drain line if necessary.





Grounding

1. Clean front of ground connection to obtain a bright metal surface.
2. Remove insulation from ends of grounding wire (10 AWG) or use bare ends. Make loop at wire ends.
3. Using 1/4-20 nut and washer, attach one end of wire to air conditioner front panel ground stud.
4. Wrap a suitable length of perforated strap around clean surface on water pipe or grounding rod.

5. Using a 1/4-20 screw, two washers and nut, attach other end of grounding wire to strap in a manner such as to securely tighten strap to pipe or grounding rod, (10 AWG) and wire to strap. If vehicle chassis is used, secure other end of grounding wire to vehicle chassis using screw, nut, and lockwasher. The screw shall fit in a tapped hole in the chassis or frame or it shall be held in hole by nut.

CAUTION

The vehicle chassis (if used) must be grounded before power is supplied to the unit.

CONNECT POWER SOURCE

CAUTION

Make sure the mode selector switch and circuit breaker are in the OFF position.

CAUTION

For safe operation, be sure a ground wire (at least No. 10 AWG) is connected to the unit ground connection and a ground source.

1. Connect a compatible air conditioner power cable to a 115-volt, 50/60 Hz, single phase power source.
2. If auxiliary power input connector (J1) is used, refer to Wiring Diagram WP 0075-00.

OPERATION CHECK AND ADJUSTMENTS

1. Check operation of unit.
2. Check for proper fan rotation. With the fan rotating, check to see that air is sucked through evaporator air intake louver and blown out through evaporator air discharge louver.

END OF TASK

UNIT PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) 0016-00

THIS WORK PACKAGE COVERS:
Introduction, PMCS

INITIAL SETUP:

Maintenance Level
Unit

INTRODUCTION

General

To insure that the air conditioner is ready for operation at all times, it must be inspected systematically so that the defects may be discovered and corrected before the result is serious damage or failure. Defects discovered during operation of the unit shall be noted for future corrections to be made as an operation has ceased. Stop operation which would damage the equipment if operation were to continue. All deficiencies and shortcomings shall be recorded together with the corrective action taken on DA Form 2404, Equipment Inspection and Maintenance Inspection Worksheet, at the earliest opportunity. If your equipment fails to operate, troubleshoot with proper equipment. Report any deficiencies using proper forms. See DA PAM 738-750.

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) TABLE.

WARNING

Clean parts in a well-ventilated area. Avoid inhalation of solvent fumes and prolonged exposure of skin to cleaning solvent. Wash exposed skin thoroughly. Dry cleaning solvent, P-D-680 Type III, which is used to clean parts, is potentially dangerous to personnel and property. Avoid repeated and prolonged skin contact. Do not use near open flame or excessive heat. Flash point of solvent is 100 °F to 138 °F (38 °C to 59 °C).

WARNING

Do not use compressed air for cleaning purposes, except where reduced to less than 30 psi (2.1 kg/cm^2) and then only with effective chip guarding and personal protective equipment.

"Interval" Column. Weekly and quarterly intervals are shown opposite the appropriate check. A weekly check is performed weekly, If the check is accomplished quarterly, it is shown as a quarterly interval.

Table 1. Unit Preventive Maintenance Checks and Services (PMCS)

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
1	Weekly	Evaporator Air Intake Filter and Evaporator Air Intake Louver	1. Lift air filter (1) out of the evaporator air intake louver (2).	Items are damaged, missing or clogged.

Table 1. Unit Preventive Maintenance Checks and Services (PMCS) - Continued

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
			WARNING Dry cleaning solvent (Item 16, WP 0074-00) used to clean parts is potentially dangerous to personnel and property. Avoid repeated and prolonged skin contact. Do not use near flame or excessive heat. Flash point of solvent is 100°F (38°C). 2. Inspect air filter (1) for damage. Replace if damaged. 3. Clean air filter (1). 4. Inspect louver (2) for bent blades. Straighten or replace. 5. Lubricate air filter (1) with filter-kote (Item 17, WP 0074-00). Drain off excessive oil. 6. Position air filter (1) into evaporator air intake louver (2). Secure filter with two screws (3). 7. Install evaporator air intake louver (2).	

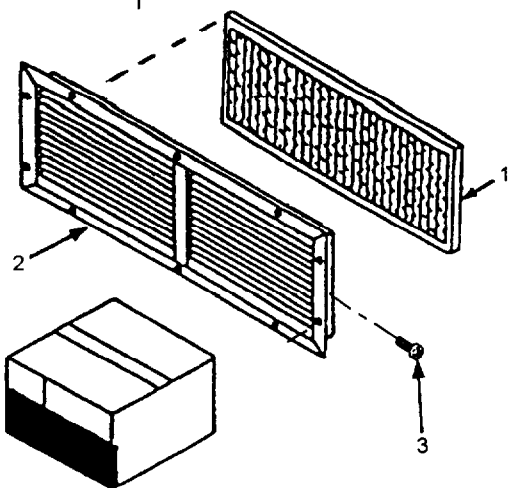


Table 1. Unit Preventive Maintenance Checks and Services (PMCS) - Continued

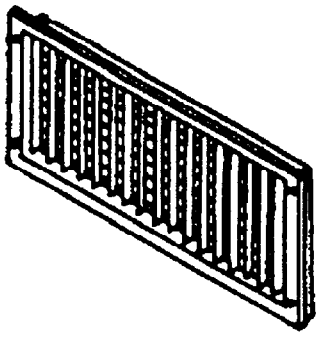
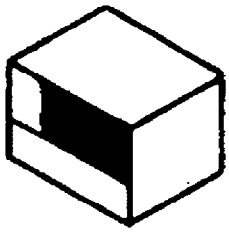
ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
2	Weekly	Evaporator Air Discharge Louver	1. Check louver for dirt or damage. 2. Clean or replace damaged parts. 3. Inspect louver for bent blades. Straighten or replace. **WARNING** Dry cleaning solvent (Item 16, WP 0074-00) used to clean parts is potentially dangerous to personnel and property. Avoid repeated and prolonged skin contact. Do not use near open flame or excessive heat. Flash point of solvent is 100°F (38°C).	Louver is missing or needs to be replaced.
		 		
3	Weekly	Mist Eliminator	1. Remove top cover (1). 2. Slide mist eliminator (2) out of the mist eliminator holder (3). 3. Inspect mist eliminator (2) for damage. Replace if damaged. 4. Clean mist eliminator (2). 5. Install mist eliminator (2) in holder (3).	Items are damaged, missing or clogged.

Table 1. Unit Preventive Maintenance Checks and Services (PMCS) - Continued

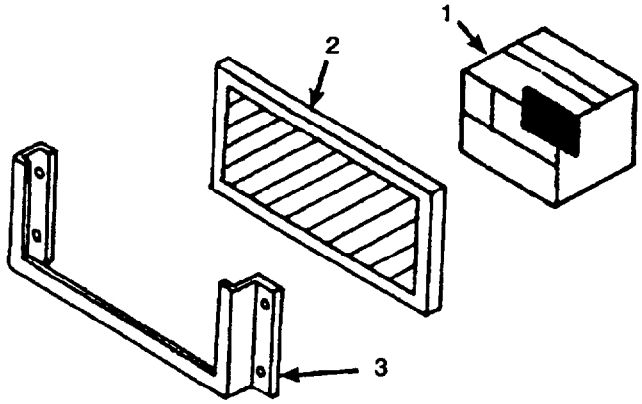
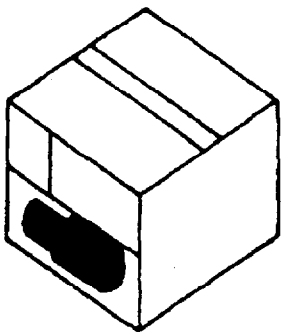
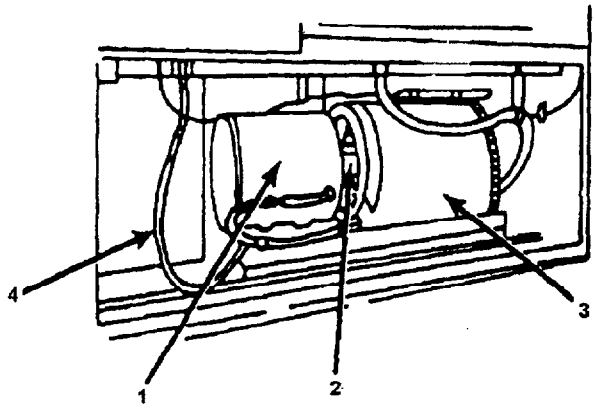
ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
				
4	Quarterly	Evaporator Impeller and Motor and Housing	1. Inspect evaporator motor (1) and impeller (2) and housing (3) for security of attachment. 2. Check wiring (4) for damage. 3. Replace damaged fan (2) or motor (1), (WP 0033-00).	Items are loose or damaged.
			 	

Table 1. Unit Preventive Maintenance Checks and Services (PMCS) - Continued

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
5	Quarterly	Heaters	**WARNING** Disconnect air conditioner power supply before doing maintenance work on the electrical system. 1. Check for breaks in wiring (1) and insulation (2). Tighten loose connections. 2. Check heating elements (3) for damage. 3. Clean heating elements (3). 4. Replace heating elements (3) if damaged.	Items are loose, or wires or elements are damaged.

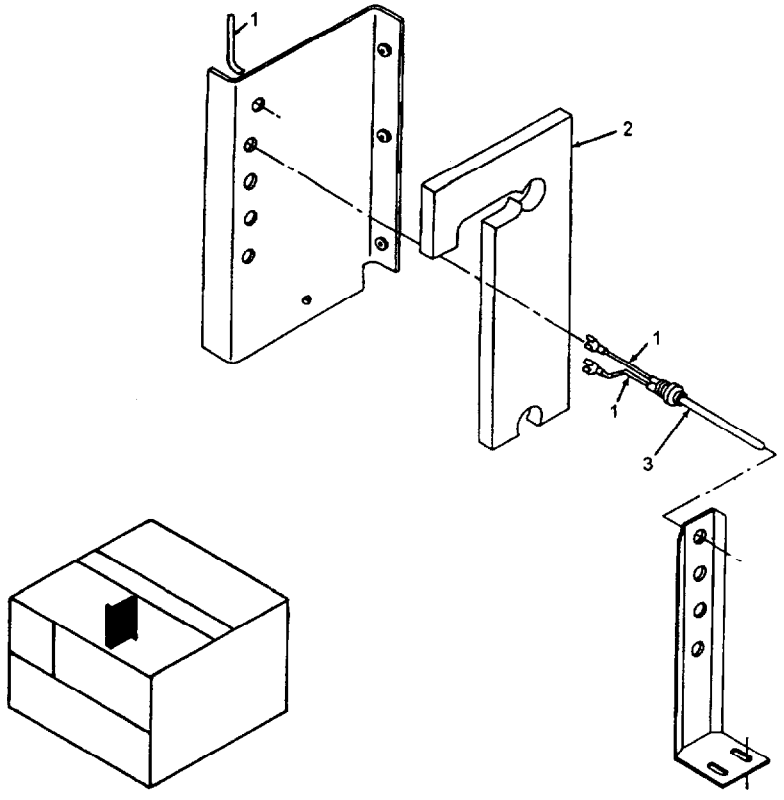


Table 1. Unit Preventive Maintenance Checks and Services (PMCS) - Continued

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
6	Quarterly	Evaporator Coil	1. Inspect evaporator coil for dirt or damage. Clean or report damage to Direct Support Maintenance personnel. 2. Inspect evaporator coil for leaks. Report damage to Direct Support Maintenance personnel.	Item is dirty, damaged or leaking refrigerant.

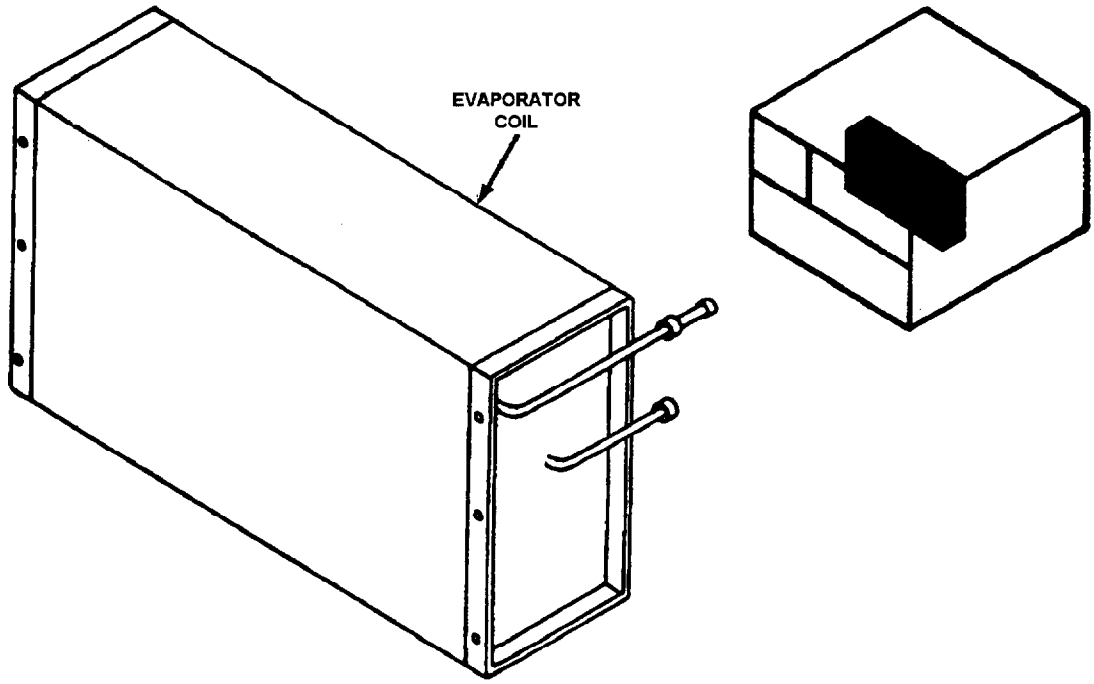
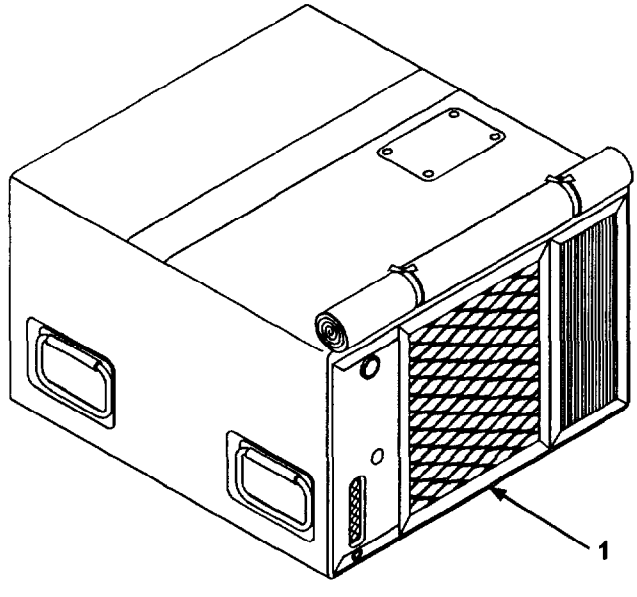


Table 1. Unit Preventive Maintenance Checks and Services (PMCS) - Continued

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
7	Quarterly	Condenser Coil	1. Inspect condenser coil (1) for dirt or damage. Clean or report damage to Direct Support Maintenance personnel. 2. Inspect condenser coil (1) for leaks. Report damage to Direct Support Maintenance personnel.	Item is excessively dirty, damaged or leaking refrigerant.
8	Quarterly	Condenser Drain Lines and Openings	1. Inspect condenser drain tubes and openings for blockage and bacteria growth. Report condition to Unit Maintenance personnel.	Drain tubes are blocked



END OF TASK

Maintenance Of Mechanical Parts

The mechanical maintenance covered in this chapter include:

WARNING

Disconnect air conditioner power supply before doing maintenance work on the mechanical assemblies.

Maintenance Of Electrical System

The electrical system is made up of:

WARNING

Disconnect air conditioner power supply before doing maintenance work on the electrical system.

Testing And Inspecting The Electrical System

Troubleshooting procedures for testing the electrical system to isolate causes of trouble are discussed in WP 0014-00. More detailed test information is contained in specific paragraphs about the electrical components.

Testing And Inspecting The Electrical System – Continued

Use a continuity tester or a multimeter set on low-resistance range to test for continuity.

Use an insulation tester or a multimeter set on a high-resistance range to test for short circuits between the circuit in a component and the outside casing of the component.

When testing an electrical component, check for visible damage, and inspect all wiring in the area for damage, overheating or loose connections.

CANVAS COVER–SERVICE 0018-00

THIS WORK PACKAGE COVERS:
Removal, Installation, Inspection and Cleaning

INITIAL SETUP:

Maintenance Level
Unit

Materials/Parts
Cloth, lint free (Item 9, WP 0074-00)
Dry cleaning solvent (Item 16, WP 0074-00)

Tools and Special Tools
Tool Kit, General Mechanics (Item 1, WP 0071-00 Table 2)

WARNING

Disconnect air conditioner power supply before doing maintenance work on the electrical system.

REMOVAL

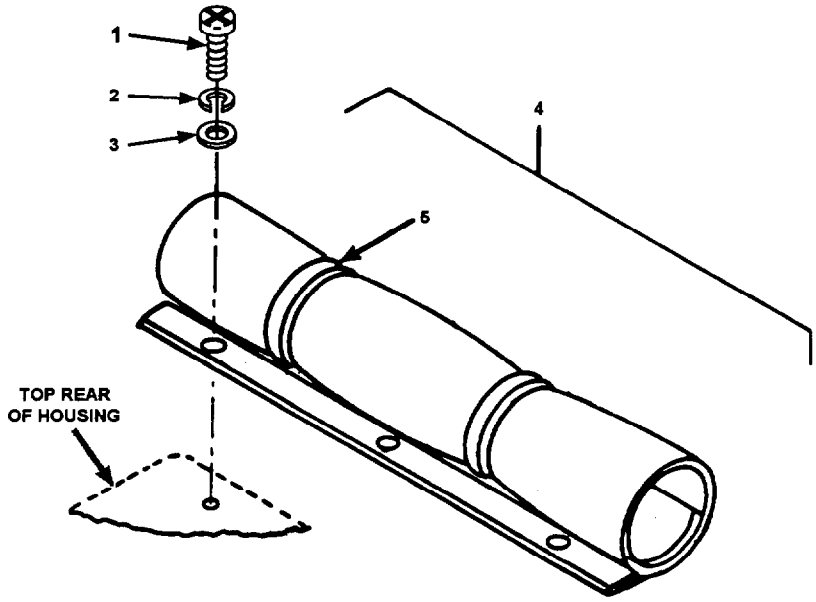
1. Remove three screws, (1) three lockwashers (2) and three flat washers (3) securing canvas cover (4) to rear top cover.
2. Roll up canvas cover (4) at rear top cover and ties (5).

NOTE

Do not leave rolled up when wet. Spread canvas cover out flat until it is dry.

3. Remove canvas cover (4) from top rear cover.

REMOVAL - Continued



INSPECTION AND CLEANING

1. Inspect for cuts, rips, tears, and fraying.

WARNING

Clean parts in a well ventilated area. Avoid inhalation of solvent fumes and prolonged exposure of skin to cleaning solvent. Wash exposed skin thoroughly. Dry cleaning solvent, P-D-680 Type III, which is used to clean parts, is potentially dangerous to personnel and property. Avoid repeated and prolonged skin contact. Do not use near open flame or excessive heat. Flash point of solvent is 100 °F to 138 °F (38 °C to 59 °C).

2. Inspect for stains, clean with detergent and water or dry cleaning solvent (Item 16, WP 0074-00) and lint free cloth.

NOTE

Do not roll up immediately after cleaning. Spread canvas cover out flat until it is dry.

INSTALLATION

Secure with three screws (1), three lockwashers (2), and three flat washers (3) to rear of top rear cover, roll up and tie.

END OF TASK

PANELS - SERVICE 0019-00

THIS WORK PACKAGE COVERS:
Removal, Cleaning and Installation

INITIAL SETUP:

Maintenance Level
Unit

Materials/Parts
Warm, soapy water

Tools and Special Tools
Tool Kit, General Mechanics (Item 1, WP 0071-00, Table 2)

Equipment Condition
Canvas Cover removed (WP 0018-00)

WARNING

Disconnect air conditioner power input connector before doing maintenance work on electrical system.

REMOVAL

Front Top Panel

1. Remove eight screws (1) securing front top cover (2).
2. Remove front top cover (2).

Rear Top Panel

1. Remove seven screws (3) securing rear top cover (4).
2. Remove rear top cover (4).

Center Top Panel

1. Remove six screws (5) securing center top cover (6).
2. Remove two screws (7) holding the thermostatic heater switch bracket (8) to the cover. Leave the switch in place.
3. Remove center top cover (6).

CLEANING

Clean dirty panels with warm soapy water.

INSTALLATION

Center Top Panel

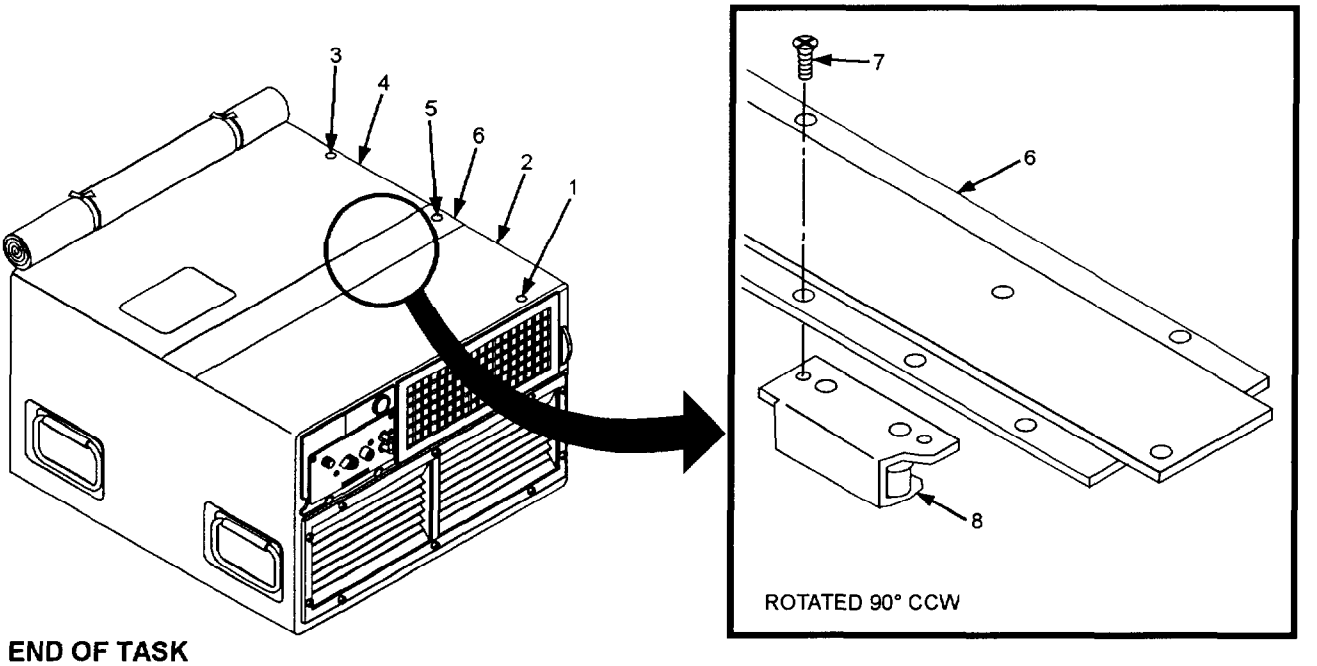
1. Secure thermostatic heater switch bracket (8) to underside of cover (6) with two screws (7).
2. Make sure heater switch wire clears heating elements.
3. Align cover (6) and secure with six screws (5).

Rear Top Panel

1. Align cover (4) and secure with seven screws (3).
2. Attach canvas cover. See WP0018-00.

Front Top Panel

Align cover (2) and secure with eight screws (1).



END OF TASK

EVAPORATOR LOUVERS - SERVICE 0020-00

THIS WORK PACKAGE COVERS:
Removal, Inspection, Cleaning and Installation

INITIAL SETUP:

Maintenance Level
Unit

Materials/Parts
Cloth, lint free (Item 9, WP 0074-00)
Dry cleaning solvent (Item 16, WP 0074-00)

Tools and Special Tools
Tool Kit, General Mechanics (Item 1, WP 0071-00, Table 2)

WARNING

Disconnect air conditioner power input connector before doing maintenance work on the electrical system.

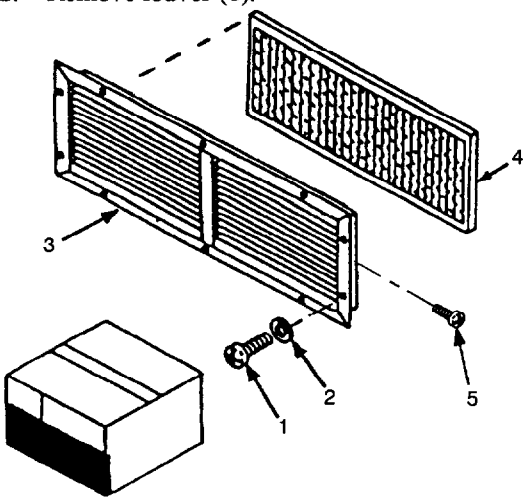
REMOVAL

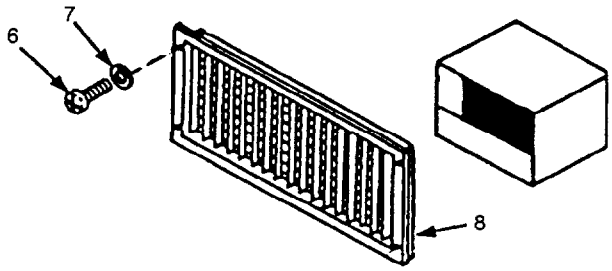
Evaporator Air Intake Louver

1. Remove eight screws (1) and eight lockwashers (2) securing louver (3) to housing.
2. Remove louver (3).
3. Remove two screws (5) holding evaporator air inlet filter (4) to louver (3).

Evaporator Air Discharge Louver

1. Remove six screws (6) and six lockwashers (7) securing louver (8) to housing.
2. Remove louver (8).





INSPECTION

1. Inspect louver blades for bends or damage and straighten.
2. Inspect evaporator air intake louver and evaporator air discharge louver for other damage.

CLEANING

1. Clear obstructions from louver blades using dry cleaning solvent or warm soapy water.
2. Clean louver blades of obstructions.

INSTALLATION

Evaporator Air Discharge Louver

Align and secure louver (8) to housing using six screws (6) and six lockwashers (7), respectively.

Evaporator Air Intake Louver

1. Install evaporator air intake filter (4) into louver (3) with two screws (5).
2. Align and secure louver (3) to housing using eight screws (1) and eight lockwashers (2), respectively.

END OF TASK

EVAPORATOR AIR INTAKE FILTER – SERVICE/REPLACE 0021-00

THIS WORK PACKAGE COVERS:
Removal, Cleaning, and Installation

INITIAL SETUP:

Maintenance Level
Unit

Materials/Parts
Hose, with running water
Filter-kote or oil (Item 17, WP 0074-00)
Dry cleaning solvent (Item 16, WP 0074-00)

Tools and Special Tools
Tool Kit, General Mechanics (Item 1, WP 0071-00)

Equipment Condition
Evaporator inlet louver removed (WP 0020-00)

WARNING

Disconnect air conditioner power input connector before doing maintenance work on electrical system.

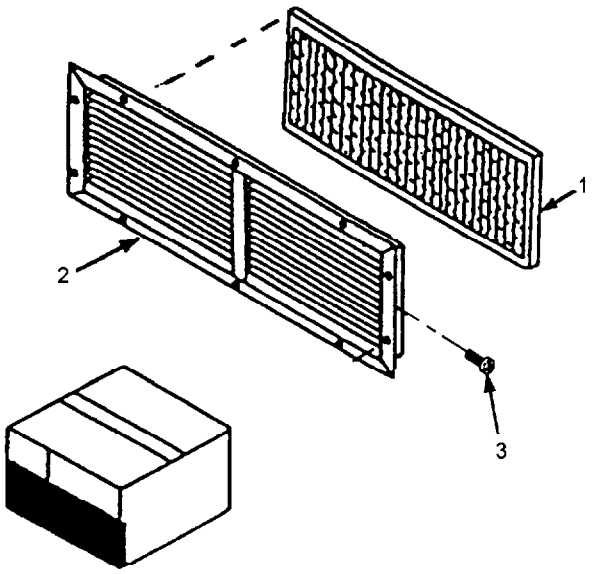
REMOVAL

Remove two screws (3) to remove air filter (1) out of evaporator air intake louver (2).

WARNING

Clean parts in a well-ventilated area. Avoid inhalation of solvent fumes and prolonged exposure of skin to cleaning solvent. Wash exposed skin thoroughly. Dry cleaning solvent, P-D-680 Type III, which is used to clean parts, is potentially dangerous to personnel and property. Avoid repeated and prolonged skin contact. Do not use near open flame or excessive heat. Flash point of solvent is 100°F to 138° F (38°C to 58°C).

REMOVAL-Continued



CLEANING

1. Inspect filter (1). Replace damaged filter. Clean with warm soapy water or dry cleaning solvent (Item 16, WP 0074-00). Hose with water in both directions.
2. Replace filters having breaks, tears, excess accumulations of dirt or grease, or other major damage.
3. Lubricate air filter with filter-kote (Item 17, WP 0074-00).

INSTALLATION

1. Position air filter (1) into evaporator air intake louver (2) and install filter with two screws (3).
2. Install evaporator air intake louver. (See WP 0020-00).

END OF TASK

MIST ELIMINATOR UNIT MAINTENANCE 0022-00

THIS WORK PACKAGE COVERS:
Removal, Cleaning, Repair and Installation

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
Tool Kit, General Mechanics (Item 1, WP 0071-00)

Equipment Condition
Front top cover removed (WP 0019-00)

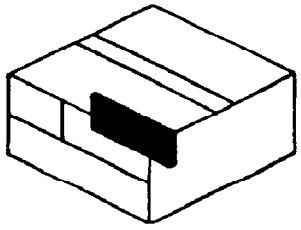
Materials/Parts
Hose, with running water

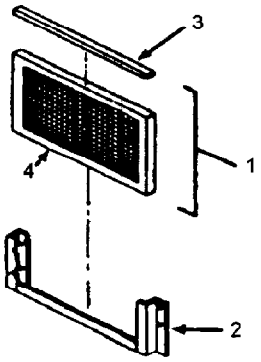
WARNING

Disconnect air conditioner power input connector before doing maintenance work on electrical system.

REMOVAL

Slide mist eliminator (1) up and out of mist eliminator holder (2).





CLEANING

1. Inspect mist eliminator for dirt, bends or warped frame.
2. Inspect for damage or missing insulation (3) on top of mist eliminator.
3. Clean mist eliminator (1) by hosing water through in opposite direction of airflow.

REPAIR

1. Replace bent or damaged mist eliminator.
2. Replace insulation (3) if it has been damaged or is missing.

INSTALLATION

1. Insert mist eliminator (1) into mist eliminator holder (2).

NOTE

Heed airflow direction arrow on mist eliminator frame.

2. Install top cover. See WP 0019-00.

END OF TASK

CONDENSER AIR DISCHARGE LOUVER UNIT MAINTENANCE 0023-00

THIS WORK PACKAGE COVERS:
Removal, Cleaning, and Installation

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
Tool Kit, General Mechanics (Item 1, WP 0071-00)

Equipment Condition
Canvas cover detached (WP 0018-00)
Rear top cover removed (WP 0019-00)

Materials/Parts
Dry Cleaning solvent (Item 16, WP 0074-00)

WARNING

Disconnect air conditioner power input connector before doing maintenance work on electrical system.

REMOVAL

Condenser Guard

Remove condenser guard (1) by removing eight screws (2) and eight lockwashers (3).

Condenser Louver

1. Remove seven screws (4) and seven lockwashers (5) securing condenser louver (6) to housing.
2. Remove condenser louver (6) from housing.

CLEANING

Condenser Guard and Louver

Straighten condenser guard bent frame.

Clean with warm soapy water or dry cleaning solvent. (Item 16, WP 0074-00)

WARNING

Clean parts in a well-ventilated area. Avoid inhalation of solvent fumes and prolonged exposure of skin to cleaning solvent. Wash exposed skin thoroughly. Dry cleaning solvent, P-D-680 Type III, which is used to clean parts, is potentially dangerous to personnel and property. Avoid repeated and prolonged skin contact. Do not use near open flame or excessive heat. Flash point of solvent is 100° F to 138°F (38°C to 58°C).

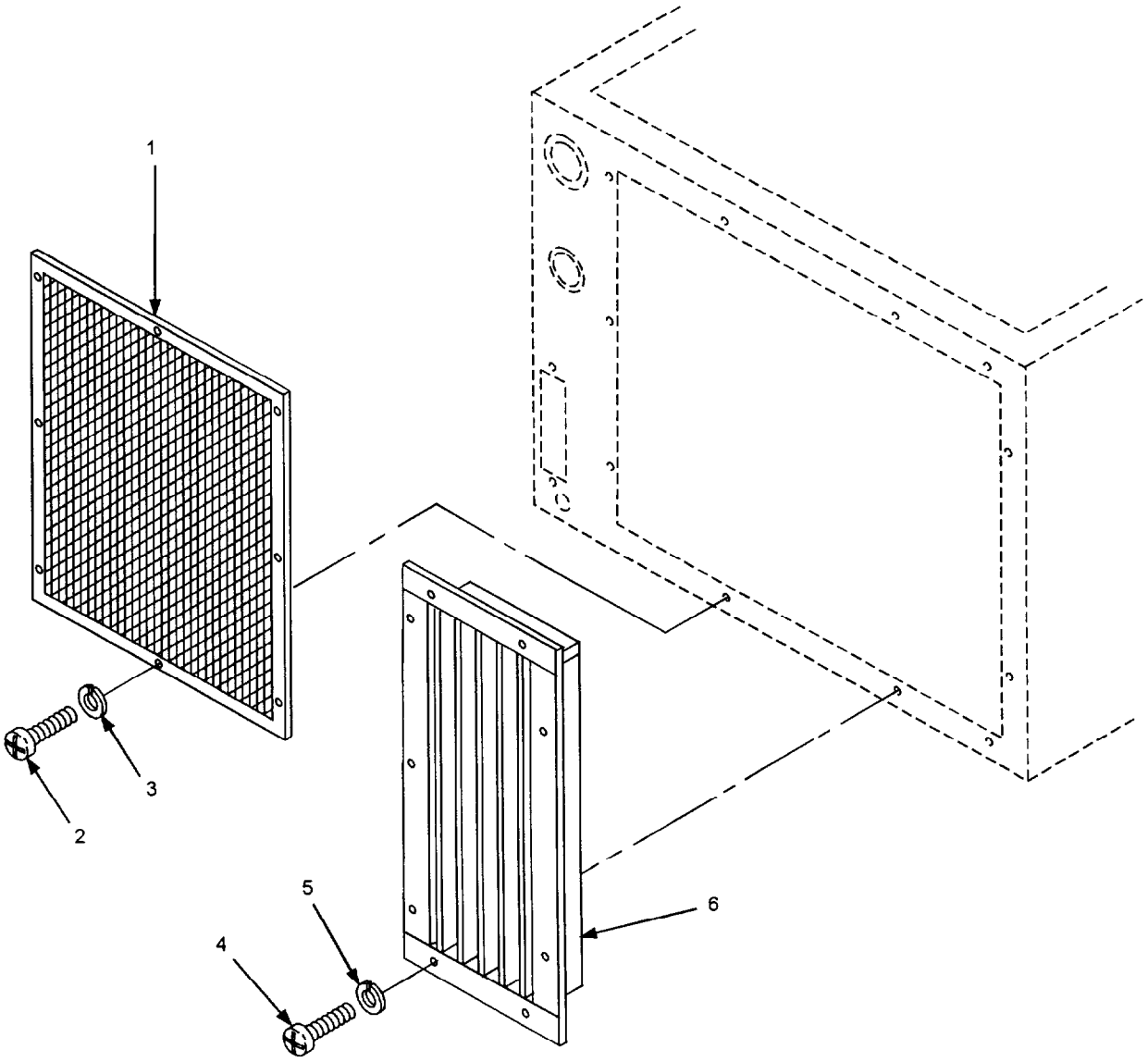
INSTALLATION

Condenser Guard

1. Install condenser guard (1) using eight lockwashers (3) and eight screws (2).
2. Attach rear top cover. See WP 0019-00.
3. Attach canvas cover. See WP 0018-00.

Condenser Louver

1. Place condenser louver assembly (6) in housing.
2. Install and tighten screws (4) and washers (5).



END OF TASK

FRESH AIR DAMPER AND ACTUATOR UNIT MAINTENANCE 0024-00

THIS WORK PACKAGE COVERS:
Removal, Inspection, Cleaning, Repair, Installation, and Adjustment

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
Tool Kit, General Mechanics (Item 1, WP 0071-00)

Equipment Condition
Top covers removed (WP 0019-00)
Evaporator inlet and outlet louvers removed (WP 0020-00)

Materials/Parts
Dry Cleaning solvent (Item 16, WP 0074-00)
Cloth, Lint free (Item 9, WP 0074-00)

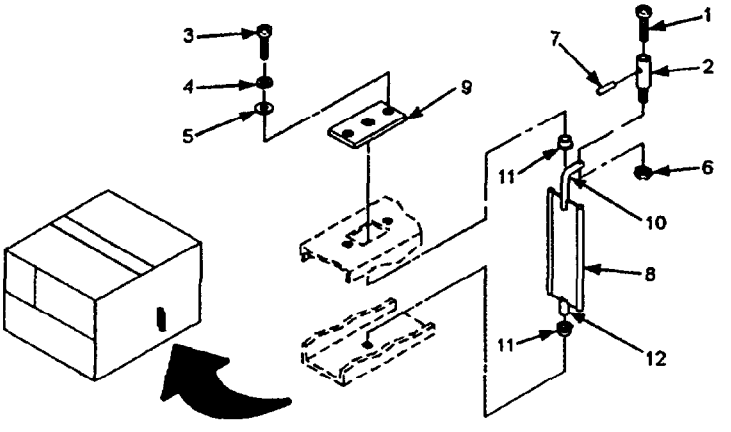
WARNING

Disconnect air conditioner power input connector before doing maintenance work on electrical system.

REMOVAL

Fresh Air Ventilation Damper

1. Loosen post screw (1) on mechanical post (2).
2. Remove two screws (3), two lockwashers (4), and two flat washers (5).



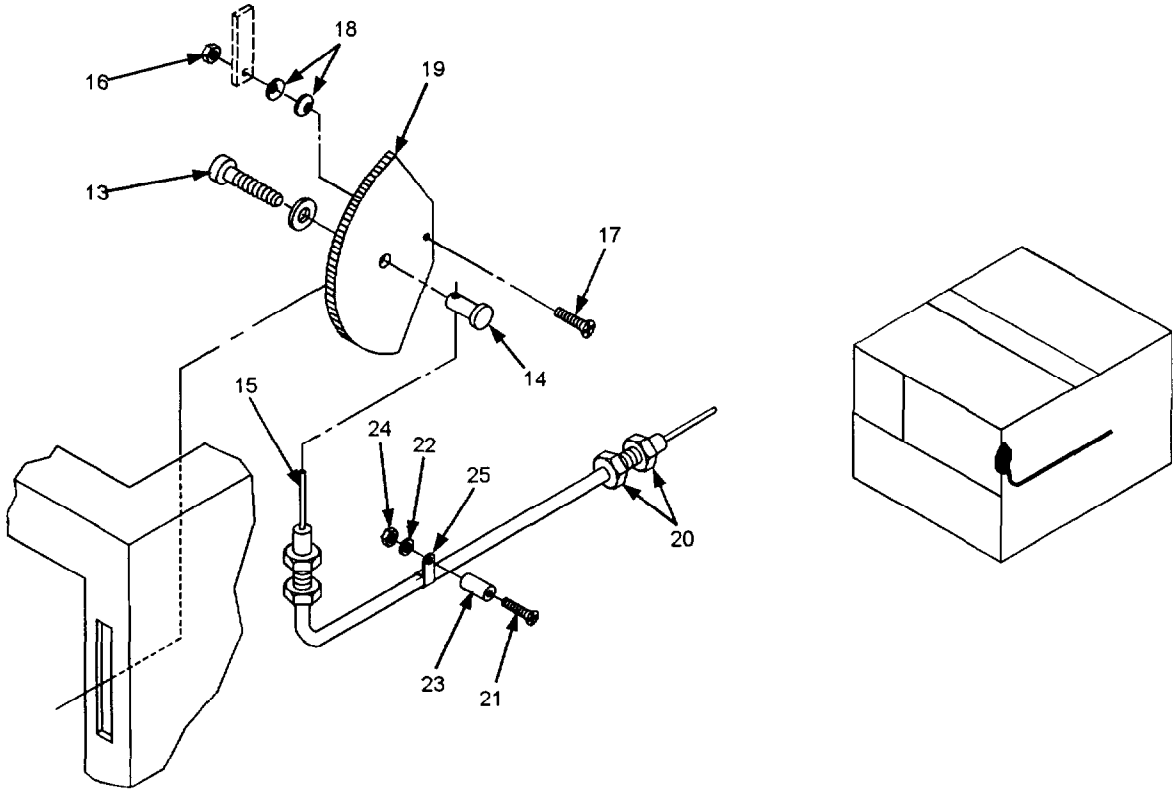
REMOVAL-Continued

Fresh Air Ventilation Damper-Continued

3. Remove hex nut (6).
4. Disconnect push-pull control cable wire (7) from mechanical post (2).
5. Lift fresh air ventilation damper assembly (8) from fresh air duct.
6. Remove the damper cover (9) from the upper damper arm (10).
7. Remove the top and bottom damper bearings (11) from the upper damper arm (10) and the lower damper arm (12).

Ventilation Control Actuator

1. Loosen post screw (1) on mechanical post (2).
2. Disconnect push-pull control cable wire (15) from mechanical post (14).
3. Remove nut (16), screw (17), and two spring washers (18) from center hole of actuator (19) and housing.
4. Remove ventilation control actuator (19).



REMOVAL-Continued

Push-Pull Control Cable

1. Remove two outer sheath retaining nuts (20) on push-pull control cable (15).
2. Remove screw (21), lockwasher (22), spacer (23), nut (24), and clamp (25).
3. Remove push-pull control cable (15) from unit.

INSPECTION

Fresh Air Ventilation Damper

1. Inspect ventilation damper for bends and breaks.
2. Inspect rubber seal for damage.
3. Inspect damper plate for bending or warping.
4. Inspect bearing for cracks and excessive wear.

Ventilation Control Actuator

Inspect for cracks, chips or warps.

Push-Pull Control Cable

1. Pull control wire from sheath.
2. Inspect wire and sheath for fraying, kinking, or breaks.

CLEANING

Fresh Air Ventilation Damper

1. Wipe off dirt with clean lint free cloth, (Item 9, WP 0074-00). For stubborn dirt, wash with warm soapy water and lint free cloth.

WARNING

Clean parts in a well-ventilated area. Avoid inhalation of solvent fumes and prolonged exposure of skin to cleaning solvent. Wash exposed skin thoroughly. Dry cleaning solvent, P-D-680 Type III, which is used to clean parts, is potentially dangerous to personnel and property. Avoid repeated and prolonged skin contact. Do not use near open flame or excessive heat. Flash point of solvent is 100 °F to 138 °F (38 °C to 59 °C).

2. Carefully scrape away all adhesive from damper cover and opening, and clean with dry cleaning solvent Item 16, WP 0074-00).

CLEANING-Continued

Push-Pull Control Cable

1. Clean control cable wire and sheath using dry cleaning solvent (Item 16, WP 0074-00) and lint free cloth (Item 9, WP 0074-00). Lightly grease control wire.
2. Slide control wire into sheath.

Ventilation Control Actuator

Wipe off loose dirt using lint free cloth (Item 9, WP 0074-00). For stubborn dirt, wash with warm soapy water using lint free cloth (Item 9, WP 0074-00) and rinse.

REPAIR

Fresh Air Ventilation Damper

1. Straighten damper and cover if possible. Replace if necessary.
2. Remove and replace cellular rubber seals on damper if necessary using cellular rubber strips (Item 19, WP 0074-00) acid swab brush, and adhesive (Item 18, WP 0074-00).
3. Replace vent damper bearings as necessary.

Push-Pull Control Cable

Straighten out minor kinks and bends in control wire and sheath or replace as necessary.

Ventilation Control Actuator

Straighten if possible. Replace as necessary.

INSTALLATION

Fresh Air Ventilation Damper

1. Install the top and bottom damper bearings (11) on to lower damper arm (12), and the upper damper arm.
2. Slide damper cover (9) over the upper damper arm (10).
3. Install mechanical post (2) and screw (1) to damper arm using locknut (6).
4. Apply thin bead of adhesive (Item 18, App. E) around damper cover opening.
5. Install damper (8).
6. Slide damper cover (9) into position and firmly press down to ensure good seal.
7. Slide push-pull control cable wire (7) into mechanical post (2).
8. Install two screws (3), two lockwashers (4), and two flat washers (5) into damper cover and tighten.
9. Tighten screw (1) of mechanical post (2) atop upper damper arm (10).

INSTALLATION-Continued

Push-Pull Control Cable

1. Slide control cable (15) through housing bulkhead.
2. Slide two retaining nuts (20) over control cable wire ends (15).
3. Install clamp (25) with screw (21), spacer (23), lockwasher (22), and nut (24) to bulkhead.
4. Slide control cable wire ends into mechanical posts (14).
5. Tighten control cable retaining nuts (20).
6. Tighten screws (1) to mechanical posts (14).

Ventilation Control Actuator

1. Slide control actuator (19) into position on unit.
2. Install screw (17), two spring washers (18) and nut (16) that hold control actuator (19) in position.
3. Slide push-pull control cable wire (15) into mechanical post (14).
4. Tighten screw (13) to mechanical post (14).

ADJUSTMENT

1. Position control actuator (19) to fully closed position.
2. Loosen screw (1) from mechanical post (2) of fresh air damper.
3. Position fresh air damper to fully closed position by hand while looking down vent housing from evaporator fan motor compartment with flashlight.
4. Tighten screw (1) on mechanical post (2).
5. Shine flashlight into fresh air damper screen side of unit (read side) while looking into vent housing from evaporator fan motor compartment. Ensure no light can be seen around edges of damper seal. If fails, repeat adjustment procedure. If fails again, Service or Replace fresh air damper as necessary.
6. Install evaporator inlet and outlet louvers.
7. Install top covers.

END OF TASK

CONDENSATE DRAIN TUBE UNIT MAINTENANCE 0025-00

THIS WORK PACKAGE COVERS:
Removal, Disassembly, Cleaning and Installation

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
Tool Kit, General Mechanics (Item 1, WP 0071-00)

Equipment Condition
Front top cover removed (WP 0019-00)
Evaporator inlet louver removed (WP 0020-00)
Mist eliminator removed (WP 0022-00)

Materials/Parts
Water, warm soapy
Wire, soft 10-12 gage
Bleach and water solution, mild

WARNING

Disconnect air conditioner power input connector before doing maintenance work on electrical system.

REMOVAL

1. Loosen three tube clamps (1) attaching the tubing to the housing.
2. Remove drain tube assembly from inside evaporator inlet compartment.

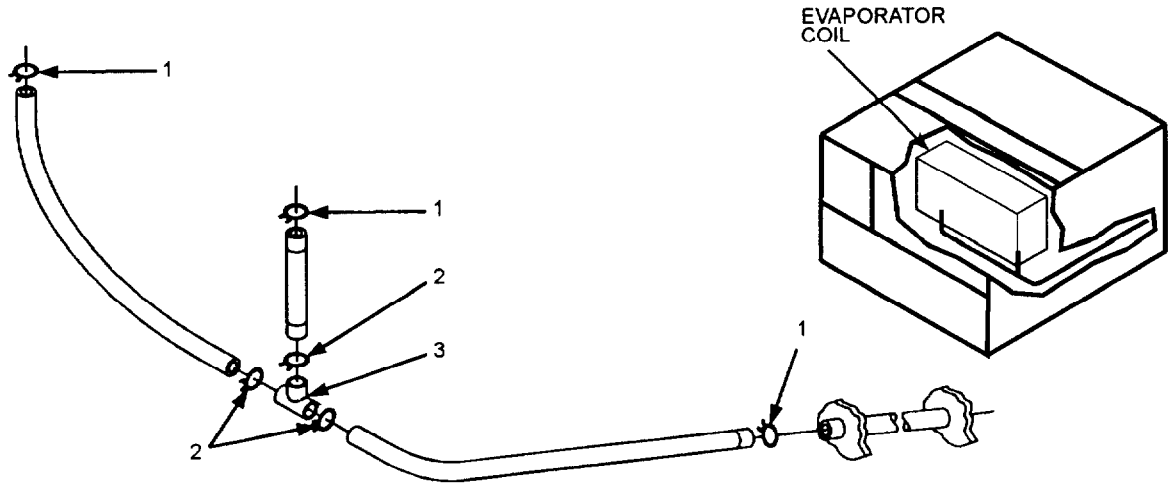
DISASSEMBLY

Remove three clamps (2) at tee fitting (3).

CLEANING

1. Clean tubing using warm soapy water or replace. Rinse with mild solution of bleach and water. Replace tubing if defective.
2. Clear obstructions from drains at bottom of evaporator compartment using soft wire. Rinse area with bleach solution.
3. Clear obstructions from drain outlet using soft wire. Insert wire from evaporator drain opening.
4. Replace damaged tubing, tee, pipe plug, mist eliminator or hose clamps as necessary.

CONDENSATE DRAIN TUBE UNIT MAINTENANCE - Continued 0025-00



INSTALLATION

1. Reassemble tubing and tee (3) using three clamps (2).
2. Install drain tube assembly on evaporator drains using three hose clamps (1). Insure tubing assembly slopes to outlet drain without trapping condensate.
3. Install mist eliminator. See WP 0022-00
4. Align and install front top cover. See WP 0019-00
5. Install evaporator inlet louver. See WP 0020-00

END OF TASK

CONTROL MODULE – UNIT MAINTENANCE 0026-00

THIS WORK PACKAGE COVERS:
Removal, Disassembly, Repair, Inspection, Test, Replacement, Reassembly and Installation

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
Tool Kit, General Mechanics (Item 1, WP 0071-00)

Materials/Parts
Solder (Item 2, WP 0074-00)
Flux (Item 15, WP 0074-00)

Test Equipment
Multimeter
Continuity Tester

References
Wiring Diagram (WP 0075-00)

Equipment Condition
Evaporator inlet louver removed (WP 0020-00).

WARNING

Disconnect air conditioner power supply before doing maintenance work on or near the electrical system.

REMOVAL

Control Module

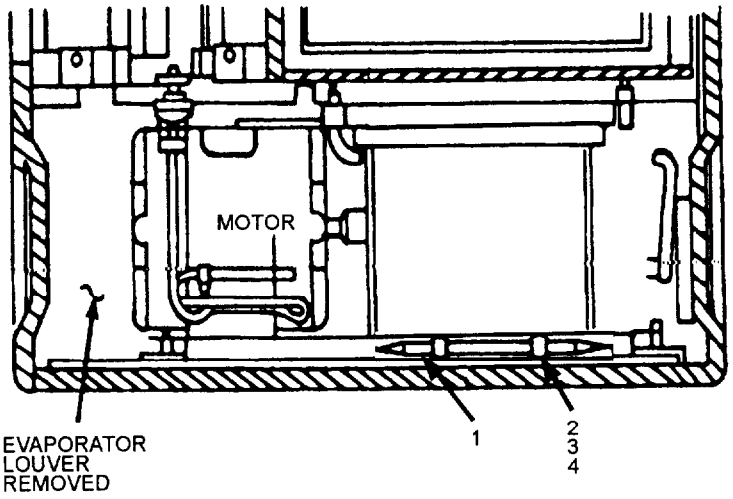


Figure 1. Front View

REMOVAL - Continued

Control Module - Continued

1. Remove temperature selector switch sensor bulb (1) from bottom of evaporator fan housing by removing two clamps (2) attached with two screws (3) and two lockwashers (4).

2. Loosen connector post screw counterclockwise until spins free. See figure 2.

NOTE

Take care not to break or kink temperature sensing line while removing from mounting plate.

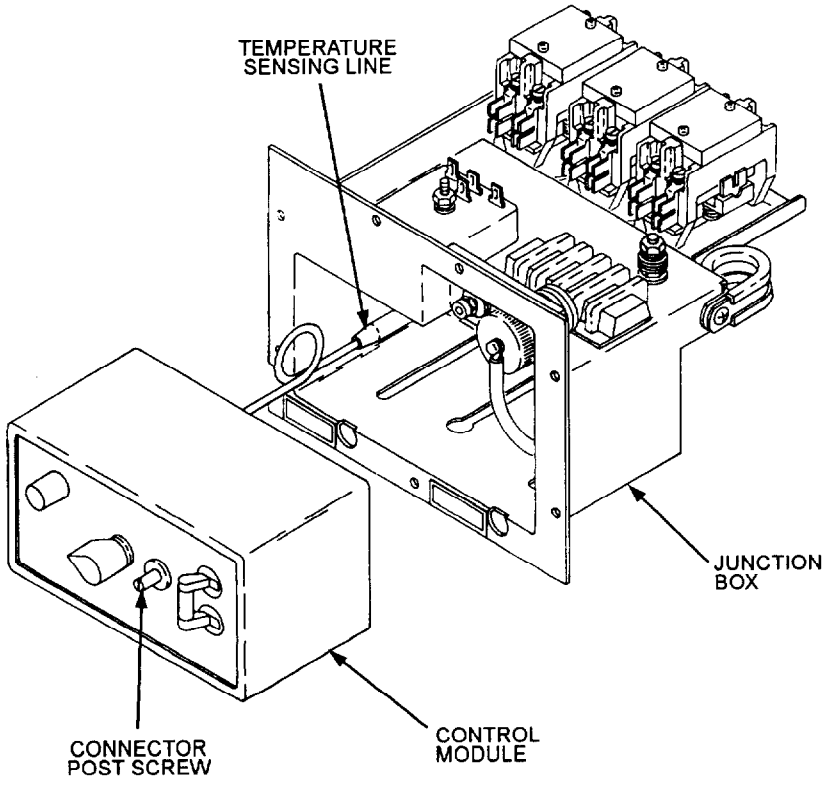


Figure 2. Control Module and Junction Box

3. Pull control module straight out of junction box. See figure 2.

4. Carefully pull temperature sensing line and bulb through slot in bottom of junction box. See figure 2.

DISASSEMBLY (Refer to exploded view figure 4)

Control Module (5)

1. Remove temperature control switch knob (6) by loosening two hex setscrews (7) and nut (8).
2. Remove four screws (9) attaching cover (10) to frame (39) and slide cover (10) from module.
3. Remove three screws (40) and three washers (41) attaching frame posts (12) that hold designation plate (14) and mounting plate (13) to frame (39).
4. Pull the plates (13 and 14) apart from frame (39) until connector posts (12) clear mounting plate (13).
5. Remove wire ties (15) from wires as required.

REPAIR

Control Module Cover (10)

1. Remove nicks, dents or deformation, if minor.
2. Prime and paint as necessary.

Designation Plate (14)

1. Remove dents or deformation, if minor. Replace if major.
2. Replace if illegible.

Mounting Plate (13) and Mounting Frame (39)

1. Remove dents or deformation, if minor. Replace if major.
2. Replace if cracked.

INSPECTION

Temperature Selector Switch (24)

1. Reassemble and turn temperature control knob (6) from stop-to-stop to ensure smooth operation. Replace if binding occurs.
2. Inspect temperature control knob (6) for chips, cracks, or if indicator line cannot be readily seen. Replace if found defective.
3. Inspect sensor bulb and line for kinks, excessive bends, nicks, breaks, or cuts. Replace if found defective.
4. Inspect sensor line grommet for tears, cracks, and general deterioration. Replace if found defective or missing.

Mode Selector Switch (30)

1. Inspect selector knob for chips, stripping out, cracks, or damage. Replace if found defective.
2. Inspect contacts. Replace switch if damaged.
3. Inspect wiring for breaks or damage. Replace if defective.
4. Inspect for distinct click when changing positions. Replace switch if not found.

INSPECTION – Continued

Unit Circuit Breaker (33)

1. Inspect toggle for chips, cracks, or damage. Replace switch if found.
2. Replace switch if damaged.
3. Inspect wiring for breaks or damage. Replace if found.
4. Inspect for distinct click and engagement of switch when placed in ON position. Replace if not found.
5. Inspect for smooth motion to OFF position. Replace if not found.

Connector With Leads (37)

1. Inspect wiring for breaks, fraying, discoloration, or damage. Replace if found.
2. Inspect soldered connections for breaks or damage. Repair or replace if found.
3. Inspect pins for bending or corrosion. Straighten bent pins if possible. Clean minor corrosion. Replace if necessary.
4. Inspect electrical contacts for corrosion. Replace or clean as necessary.

TEST

Temperature Selector Switch (24)

1. Tag and disconnect leads.
2. Check for continuity using a multimeter on the lowest ohm setting. Place probes on the red and blue terminals. See WP 0075-00, wiring diagram.
3. Turn switch to COOLER (fully counterclockwise). No continuity should exist.

NOTE

Switch operates in temperature range of 90°F to 60°F (32.2°C to 15.5°C). If out of range, immerse bulb water.

4. Turn switch to WARMER (fully clockwise). Meter should show continuity as setting becomes higher than bulb temperature.
5. Place multimeter probes on red and yellow terminals.
6. Turn switch to WARMER (fully clockwise). No continuity should exist.
7. Turn switch to COOLER (counterclockwise). Meter should show continuity as setting becomes lower than bulb temperature.
8. Replace if fails above indications.

TEST - Continued

Mode Selector Switch (30)

1. Tag leads. Leads are soldered to connector (P3). Leave leads connected during test.
2. Check continuity using a multimeter and switch position chart shown below. With switch position closed, continuity should be indicated. With switch position open, no continuity should be indicated. Check between each set of contacts and at each switch position. See WP 0075, wiring diagram.
3. Replace if fails test.

MODE SELECTOR SWITCH				
		SWITCH SECTION AND TERMINALS CONNECTED		
POSITION	FUNCTION	S1A	S1B	S1C
1	OFF	-- -- -- -- -- --	-- -- -- -- -- --	-- -- -- -- -- --
2	VENT	A AND B	-- -- -- -- -- --	-- -- -- -- -- --
3	HEAT	A AND B	E AND D	-- -- -- -- -- --
4	COOL	A AND B	-- -- -- -- -- --	C AND F

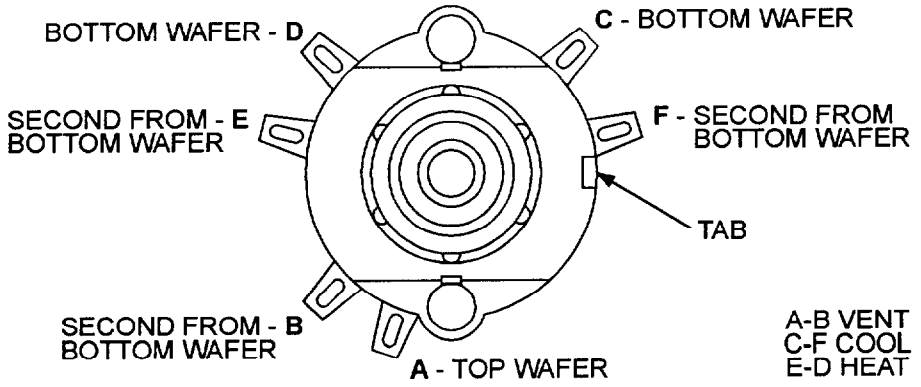


Figure 3. Mode Selector Switch

Unit Circuit Breaker (33)

1. Tag and disconnect leads.
2. Check for continuity in ON position between contacts A1 to A2 and B1 to B2. Continuity should exist. No continuity should exist between these contacts in the OFF position.
3. Replace if fails test.

TEST - Continued

Control Module Wiring

1. Tag and disconnect leads with terminal lugs. Leave soldered connections secure.
2. Check for continuity by touching the test probes of a continuity tester or multimeter set on low-resistance range, to the ends of wire and/or the corresponding pin of connector. See WP 0075, wiring diagram.
3. Replace pins and wire if not found.

REPLACEMENT

Temperature Selector Switch (24)

1. Remove screw (16), flat washer (18), post spacer (19), locknut (17), and clamp (20) securing temperature selector switch sensing line to frame (39).

NOTE

Switches are not repairable and may only be replaced.

2. Remove clamp (20).
3. Remove four screws (21), four flat washers (22), and four nuts (23) attaching switch to mounting frame (39).
4. Remove switch (24) from control module.
5. Replace switch if contacts are damaged.
6. Replace if failed test.
7. Replace grommet (25) if damaged.
8. Reassemble into control module if passed test.

Mode Selector Switch (30)

1. Remove selector knob (26) by loosening set screw (27).
2. Remove mounting nut (28) and lockwasher (29).
3. Slide switch (30) through back of plate (13).
4. Replace switch if contacts are damaged.
5. Replace if failed test.
6. Reassemble into control module if passed test.

Unit Circuit Breaker (33)

1. Remove pin and middle section of throw switch.
2. Remove four screws (31) and four flat washers (32) securing switch to front plate (14) and mounting plate (13).
3. Slide switch (33) through back of mounting plate (13).

REPLACEMENT – Continued

Unit Circuit Breaker (33) – Continued

4. Replace switch if contacts are damaged.
5. Replace if failed test.
6. Reassemble in control module if passed test.

Control Module Wiring

1. Remove screw (16), Flat washer (18), post spacer (19), locknut (17), and clamp (20) securing temperature selector switch sensing line to frame (39).
2. Remove seven screws (34), seven flat washers (35), and seven locknuts (36) securing connector plug (37) to frame (39).
3. Remove connector with leads (37) from frame (39).
4. Replace wires if damaged or failed test.
5. Desolder wire from connector pin.
6. Measure old wire and cut new wire to that length.
7. Strip insulation from wire ends.
8. Crimp required contacts on appropriate wire ends.
9. Print wire identification number on shrink sleeving and shrink on appropriate wire end.
10. Solder wire to appropriate connector pin.
11. Straighten and clean any bent or dirty pins on connector plug.
12. Replace connector plug with leads.

REASSEMBLY

Control Module Wiring

1. Install connector with leads (37) into frame (39).
2. Connect leads and remove tags.
3. Install seven screws (34), seven flat washers (35) and seven locknuts (36) and secure connector to frame (39).
4. Install screw (16), flatwasher (18), post spacer (19), locknut (17), and clamp (20) and secure temperature selector switch sensing line to frame (39).

REASSEMBLY – Continued

Unit Circuit Breaker (33)

1. Slide switch (33) into mounting plate (13) and designation plate (14) through backside.
2. Attach switch using four screws (31) and four flat washers (32).
3. Align middle section of throw switch and insert pin.
4. Connect leads and remove tags.

Mode Selector Switch (30)

1. Slide switch (30) into mounting plate (13) and designation plate (14) through backside.
2. Attach switch (30) using lockwasher (29) and mounting nut (28).
3. Install selector knob (26) and tighten set screw (27).
4. Connect leads and remove tags.

Temperature Selector Switch (24)

1. Attach switch (24) to frame (39) using four screws (21), four flat washers (22), and four nuts (23).
2. Install capillary tube clamp (2) on capillary tube.
3. Attach capillary tube clamp (20) to frame (39) using screw (16), flat washer (18), locknut (17), and spacer (19).

Control Module (5)

1. Add wire ties (15).
2. Push connector post through mounting plate (13) pressing on mounting plate (13) and designation plate (14) and frame (39).
3. Attach three frame posts (12) with three screws (40) and washer (41).
4. Attach temperature control switch knob (6) by tightening hex setscrew (7).
5. Slide cover (10) over module and attach frame to cover with four screws (9).

INSTALLATION

Control Module (5)

1. Carefully push sensing bulb and line (1) through slot in bottom of junction box.
2. Push control module (5) straight into junction box.
3. Turn connector post screw (figure 2) clockwise until post is fully engaged.
4. Attach temperature selector switch bulb (1) atop evaporator fan housing with two clamps (2), two lockwashers (4), and two screws (3).
5. Install evaporator inlet louver. See WP 0020-00.
6. Connect power.

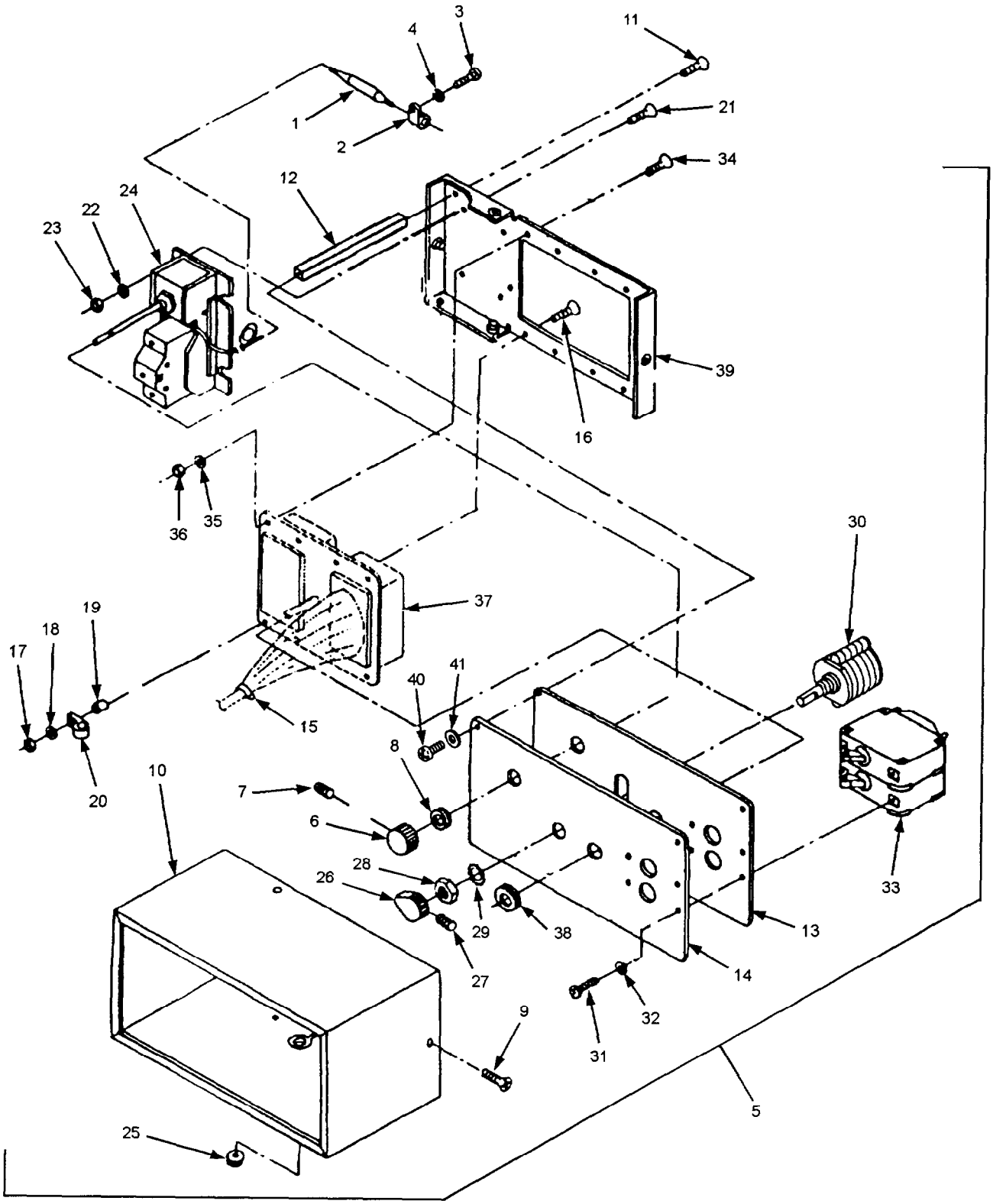


Figure 4. Exploded View-Control Module

END OF TASK

CONTROL MODULE CONNECTOR (P3) AND WIRING 0027-00

THIS WORK PACKAGE COVERS:
Inspection, Removal, Test, Repair, and Installation

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
Tool Kit, General Mechanics (Item 1, WP 0071-00)

Materials/Parts
Solder (Item 2, WP 0074-00)
Flux (Item 15, WP 0074-00)

Test Equipment
Multimeter
Continuity Tester

References
Wiring Diagram, WP 0075-00

Equipment Condition
Evaporator air intake louver removed. (WP 0020-00)
Control module removed (WP 0026-00)

WARNING

Disconnect air conditioner power supply before doing maintenance work on or near the electrical system.

INSPECTION

1. Inspect all installed wiring for cracked or frayed insulation. Pay particular attention to wires routed around sharp edges.
2. Repair or replace bad wiring.
3. Inspect electrical connector for damage.
4. Replace damaged connector.

TEST

1. Test for continuity on wiring.
2. Touch the test probes of a continuity tester or multimeter set on low-resistance range to ends of wire and/or corresponding pin of connector.
3. If continuity is not indicated, repair or replace wire or damaged connector.

REMOVAL

1. Tag all wire leads prior to removal.
2. Remove eight screws (1), eight nuts (2), two screws (3) and two nuts (4) to release connector (5), cable clamp (6) and spacer (7).
3. Disconnect all terminals.
4. Carefully remove connector from unit.

REPAIR

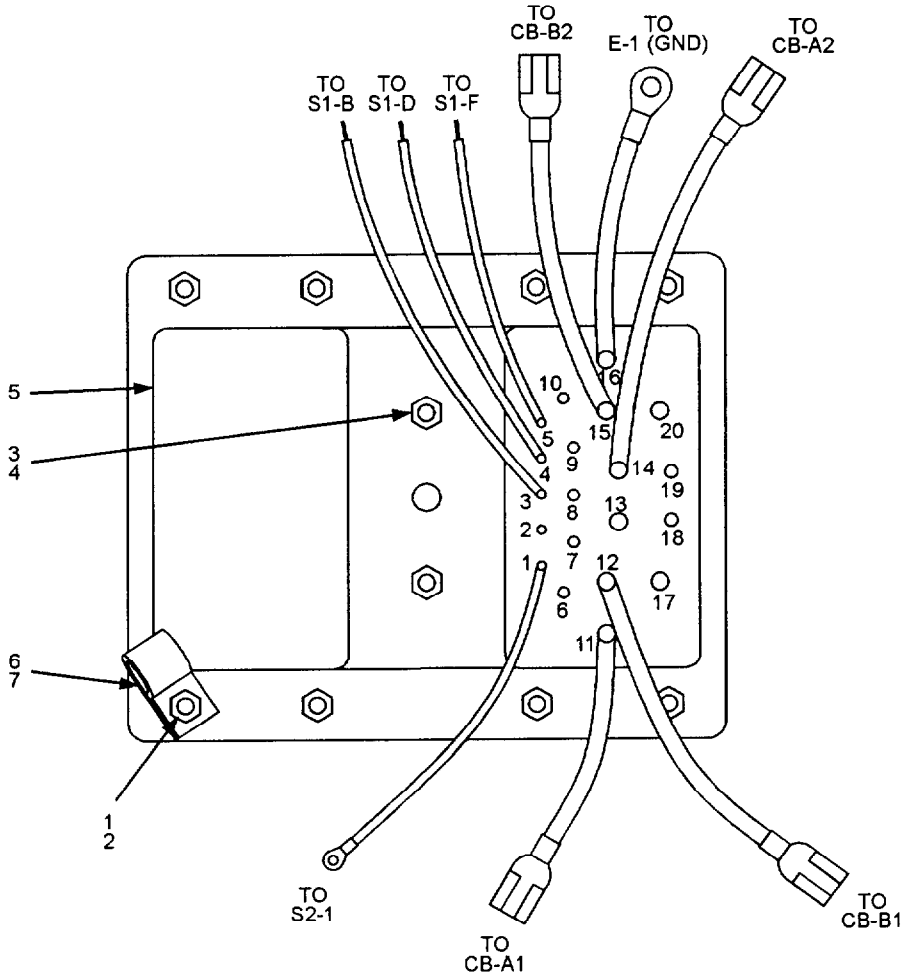
1. Remove the insulation to expose 1/2 inch/1.27 centimeters of bare wire on each side of break or damaged insulation.
2. Insert the ends into a splice-connector; splice and crimp the connector to make firm electrical contact.
3. Alternatively, heat-shrink tubing may be slipped over one end of the wire before splicing, then heated after the splice is made and soldered, so as to cover the spliced area.
4. Be sure that no bare wire is exposed after splice is complete.
5. Replace broken terminal lugs with exact duplicates.
6. Check continuity terminal-to-terminal.

INSTALLATION

1. Transfer tags to new wires.
2. Install connector (5), cable clamp (6), and spacer (7). Using eight screws (1), eight nuts (2), two screws (3) and two nuts (4).
3. Connect all terminals and remove tags. Use wiring diagram (WP 0075-00).
4. Install control module. See WP 0026-00
5. Install evaporator air intake louver. See WP 0020-00.

CONTROL MODULE CONNECTOR (P3) AND WIRING - Continued 0027-00

WIRE SIZE	FROM	TO
18G	P3-1	S2-1
18G	S2-1	S1-A
18G	P3-3	S1-B
18G	P3-4	S1-D
18G	P3-5	S1-F
18G	S2-2	S1-C
18G	S2-3	S1-E
12G	P3-16	E-1(GRD)
12G	P3-15	CB-B2
12G	P3-14	CB-A2
12G	P3-12	CB-B1
12G	P3-11	CB-A1



VIEW INSIDE CONTROL MODULE

END OF TASK

JUNCTION BOX – UNIT MAINTENANCE 0028-00

THIS WORK PACKAGE COVERS:
Removal, Inspection, Test, Repair, and Replacement

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
Tool Kit, General Mechanics (Item 1, WP 0071-00)

Materials/Parts
Solder (Item 2, WP 0074-00)
Flux (Item 15, WP 0074-00)

References
Wiring Diagram (WP 0075-00)

Test Equipment
Multimeter
Variable voltage power source (AC/DC)

Equipment Condition
Evaporator air intake louver removed (WP 0020-00)
Front top cover removed (WP 0019-00)
Control module removed (WP 0026-00)

WARNING

Disconnect air conditioner power supply before doing maintenance work on or near the electrical system.

REMOVAL

Junction Box

1. Remove seven screws (1) and seven lockwashers (2) that secure the junction box to the housing.
2. Partially remove the junction box by pulling it forward and out of the air conditioner.
3. Support the junction box to relieve strain on wiring.

NOTE

It is not necessary to remove junction box completely from unit. Most repairs and replacements can be made without removing junction box completely.

INSPECTION

Junction Box

1. Inspect junction box for damage.
2. Inspect all designation part markings for illegibility.
3. Inspect all designation plates and instruction plates for damage and illegibility.
4. Replace damaged designation markings, instruction plates and designation plates.
5. Replace junction box if damaged enough to prevent normal operation of air conditioner.

Compressor Motor Relay (K1), Heaters Relay (K2), Evaporator and Condenser Motor Relay (K3), Time Delay Device (TD)

1. Inspect relays for any external damage to housing or contacts.
2. If damaged enough to prevent normal operation of relay, replace relay.

Terminal Board (TB1) (16) and Marker Strip (17)

1. Inspect terminal board (TB1) for dents, breaks, nicks or damaged terminals.
2. If unrepairable, replace terminal board.
3. Inspect marker strip for illegibility or damage.
4. Replace marker strip if damaged.

TEST

Compressor Control Time Delay Device (TD) (4)

1. Tag and disconnect wire leads from all terminals.
2. Using a known functional relay, such as K1, connect the relay coil (A and B terminals) to time delay device terminals No.1 and No.2.
3. Apply a 24 ± 5V AC power source to terminals No.2 and No.3 on time delay device. Test relay should "pull-in" immediately.
4. Momentarily interrupt 24V AC power source to terminals No.2 and No.3. Test relay should "drop-out" and remain "out" for 3 minutes ±15 seconds.
5. Replace if it fails test.

Compressor Motor Relay (K1), Heaters Relay (K2), Evaporator and Condenser Motors Relay (K3)

1. Tag and disconnect wire leads.
2. Use a continuity tester or multimeter. Set on the lowest ohm to check continuity between terminals L1 to T1, L2 to T2. All contacts should be open. If there is continuity, replace the relay. See WP 0075, Figure 1.
3. Check continuity between terminals A and B. If there is no continuity, the coil is open. Replace the relay.
4. Apply 24 volts AC across terminals A and B and repeat continuity checks between terminals L1 to T1, L2 to T2. All three contacts should be closed. If there is no continuity, replace the relay.

REPAIR

Junction Box

1. Repair or straighten sheet metal parts.

NOTE

Disassembly is limited to replacement of individual components.

2. Tag and disconnect the leads from components to be replaced.

REPLACEMENT

Compressor Motor Relay (K1)(11), Heaters Relay (K2)(11), Evaporator and Condenser Motor Relay (K3)(11)

1. Remove the relays (K1-K3) (11) from the junction box by removing four screws (9) and four spring nuts (10).
2. Install replacement relays (K1-K3) on the junction box (31).
3. Secure relays (11) to junction box (31) with four spring nuts (10).

REPLACEMENT - Continued

Compressor Time Delay Device (TD) (4)

1. Remove time delay device (TD)(4) from junction box by removing screw (5) flat washer (6), lock washer (7) and nut (8).
2. Install replacement time delay device (TD)(4) on junction box (31). Position as shown on exploded view.
3. Secure time delay device to junction box with screw, washers and nut removed in step 1 above.

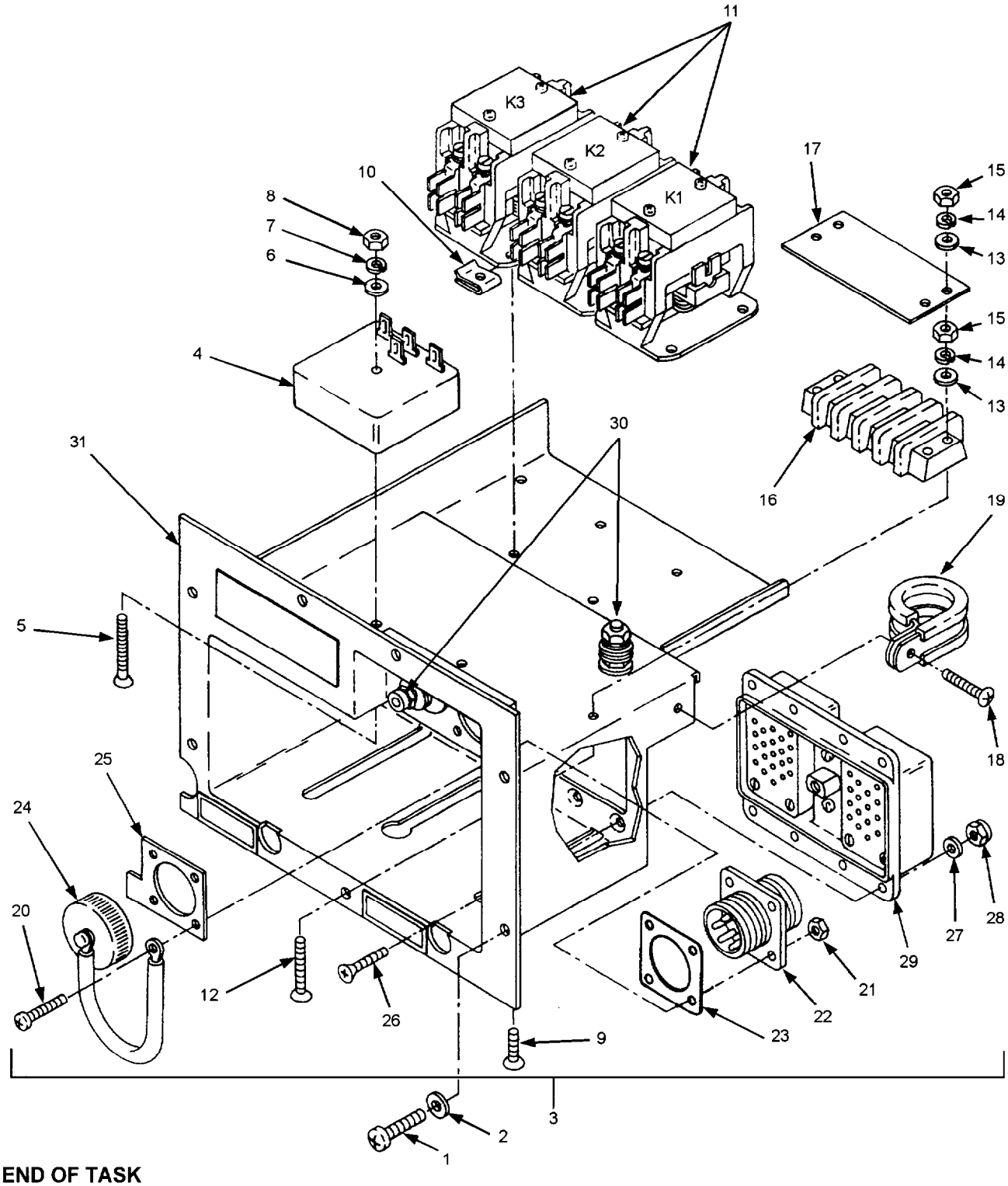
Terminal Board (TB1) (16) and Marker Strip (17)

1. Remove two screws (12), two flat washers (13), two lockwashers (14).
2. Remove terminal board (TB1)(16) and marker strip (17) from junction box (31).
3. Install replacement terminal board (TB1)(16) and marker strip (17) on junction box (31).
4. Secure to junction box using two screws (12), two lockwashers (14), two flat washers (13) and two nuts (15).

Junction Box

1. Carefully install junction box in housing and secure with seven screws (1) and seven lockwashers (2).
2. Install the control module. See WP 0026-00.
3. Install evaporator air intake louver. See WP 0020-00
4. Install top front panel. See WP 0019-00.

JUNCTION BOX – UNIT MAINTENANCE - Continued 0028-00



END OF TASK

JUNCTION BOX WIRING – UNIT MAINTENANCE 0029-00

THIS WORK PACKAGE COVERS:
Removal, Inspection, Test, Repair, and Installation

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
Tool Kit, General Mechanics (Item 1, WP 0071-00)

Materials/Parts
Solder (Item 2, WP 0074-00)
Flux (Item 15, WP 0074-00)

References
Wiring Diagram, WP 0075-00
WP 0028-00, Junction Box – Unit Maintenance

Test Equipment
Multimeter
Continuity Tester

Equipment Condition
Top covers removed (WP 0019-00)
Evaporator inlet louver removed (WP 0020-00)
Control module removed (WP 0026-00)
Junction box partially removed (WP 0028-00)

WARNING

Disconnect air conditioner power supply before doing maintenance work on or near the electrical system.

INSPECTION

1. Inspect all installed wiring for cracked or frayed insulation. Pay particular attention to wires routed around sharp edges.
2. Repair or replace bad wiring.
3. Inspect electrical connectors (J2 and J3) for damage.
4. Replace damaged connectors.

TEST

1. Test for continuity on wiring.
2. Touch the test probes of a continuity tester or multimeter set on low-resistance range to ends of wire and/or corresponding pin of connector.
3. If continuity is not indicated, repair or replace wire or damaged connector.

REMOVAL (Refer to exploded view)

1. Tag all wire leads prior to removal.
2. Remove four screws (20), four nuts (21), to release J2 connector (22), connector cap and chain (24), designation plate (25), and gasket (23).
3. Remove screw (18) to release cable clamp (19).
4. Remove eight screws (26), eight washers (27), and eight nuts (28) to release J3 connector (29) from junction box.
5. Disconnect all terminals.
6. Carefully remove connector (J2 and J3) from unit.

REPAIR

1. Remove the insulation to expose 1/2 inch (1.27 centimeters) of bare wire on each side of break or damaged insulation.
2. Insert the ends into a splice-connector; splice and crimp the connector to make firm electrical contact.
3. Alternatively, heat-shrink tubing may be slipped over one end of the wire before splicing, then heated after the splice is made and soldered, so as to cover the spliced area.
4. Be sure that no bare wire is exposed after splice is complete.
5. Replace broken terminal lugs with exact duplicates.
6. Check continuity terminal-to-terminal.

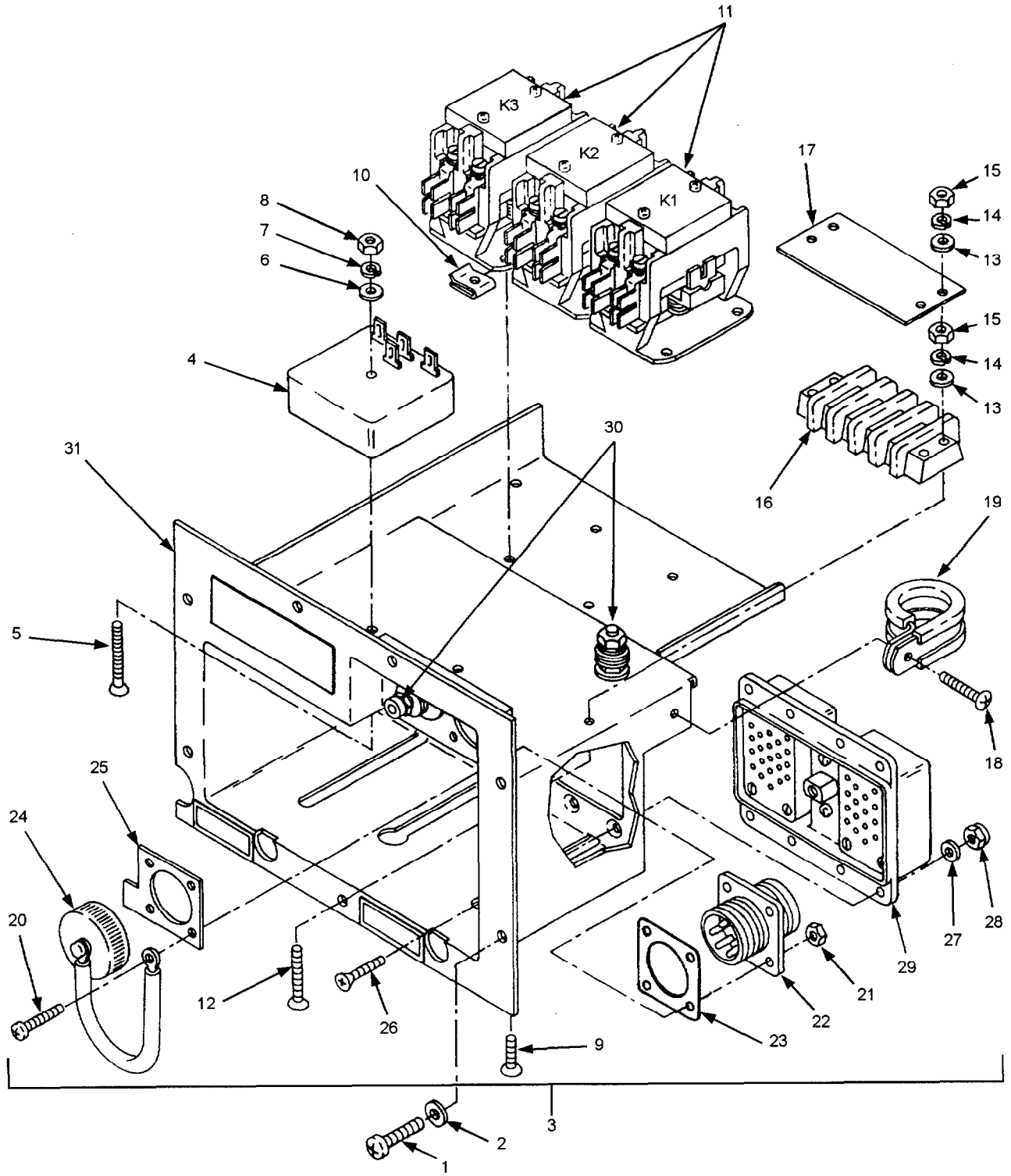
INSTALLATION

1. Transfer tags to new wires.
2. Install J3 connector (29), using eight screws (26), eight nuts and washers (27) and (28). Install cable clamp (19) with screw (18).

INSTALLATION – Continued

3. Install J2 connector (22), gasket (23), designation plate (25), and cap and chain (24) with four screws (20) and four nuts (21).
4. Connect all terminals and remove tags. Use wiring diagram (WP 0075-00).
5. Install control module. See WP 0026-00.
6. Install evaporator air intake louver. See WP 0020-00.

JUNCTION BOX WIRING – UNIT MAINTENANCE - Continued 0029-00



END OF TASK

COMPRESSOR START RELAY (K5) AND VOLTAGE PROTECTION RELAY (K4) – UNIT MAINTENANCE

0030-00

THIS WORK PACKAGE COVERS:
Removal, Test, and Installation

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
Tool Kit, General Mechanics (Item 1, WP 0071-00)

References
Wiring Diagram, WP 0075-00

Test Equipment
Multimeter
Continuity Tester

Equipment Condition
Top covers removed (WP 0019-00)

WARNING

Disconnect air conditioner power supply before doing maintenance work on or near the electrical system.

REMOVAL

Compressor Start Relay (K5)

1. Remove four screws (1), nuts (2) and lockwashers (3) securing mounting plate (4) and compressor start relay (K5) (7) to side of housing.
2. Remove two screws (5) and two washers (6) to release compressor start relay (K5) (7) from mounting plate (4).
3. Tag and disconnect leads from the compressor start relay (K5) (3).

Over Voltage Protection Relay (K4)

1. Remove two screws (8) and two washers (9) to release the over voltage protection relay (K4) (10).
2. Tag and disconnect leads from relay (K4) (10).

TEST

Compressor Start Relay (K5) or Over Voltage Protection Relay (K4)

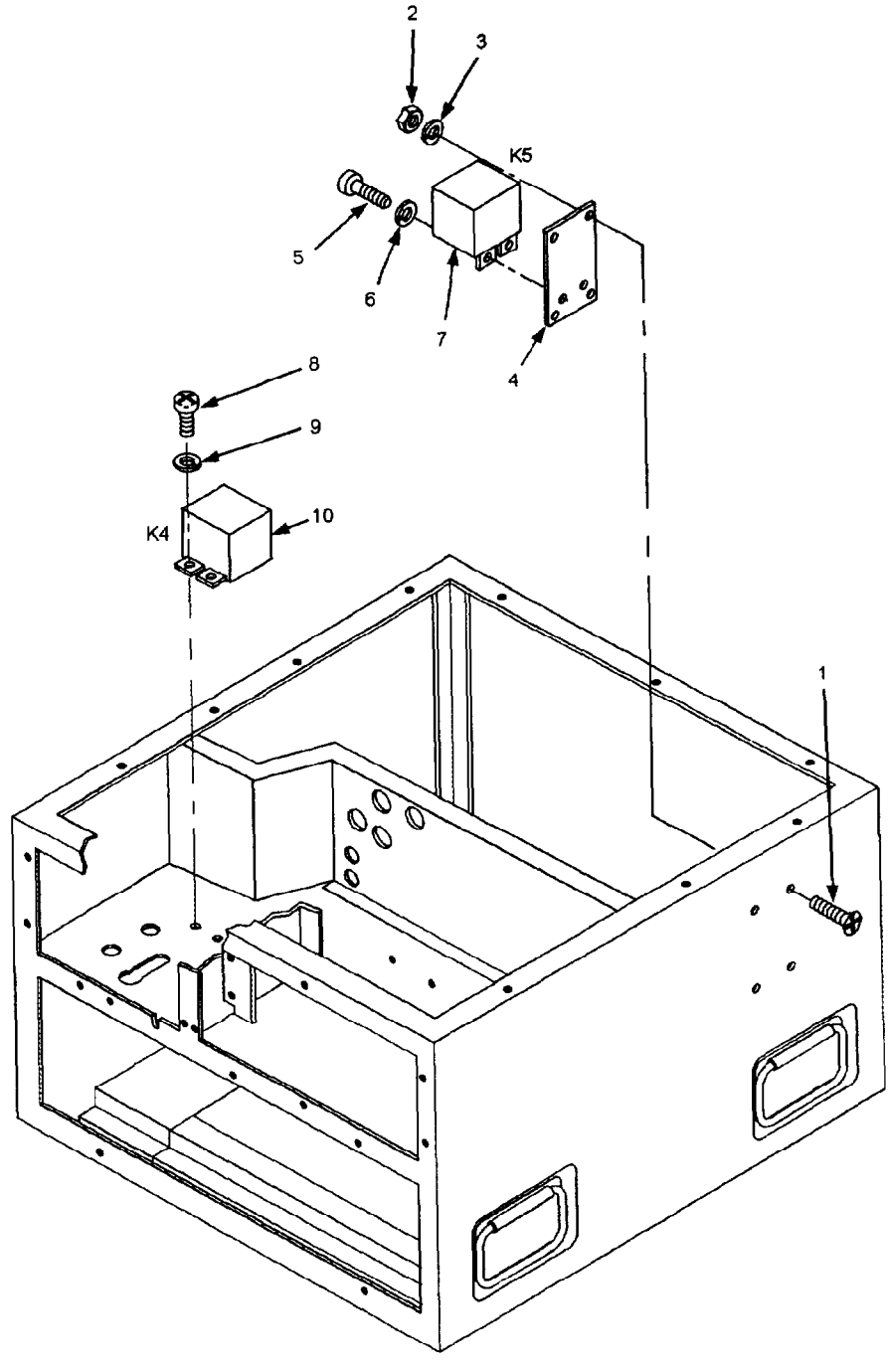
1. Inspect for cracks, bent or missing mounting tab, bent or missing terminals, dents or other obvious defects. Replace if damaged/defective.
2. Check terminals 1-5, 2-5, and 1-2 for continuity. If continuity does exist, relay is good and may be installed. If continuity does not exist, or if there is a short circuit, replace relay.

INSTALLATION

1. Using tags as a guide, connect electrical leads to the compressor start relay (K5) (7) and over voltage relay (K4) (10).
2. Secure the compressor start relay (K5) (7) to mounting plate (4) using two screws (5) and lockwashers (6).
3. Install the mounting plate (4) and relay (K5) (7) housing using four screws (1), lockwashers (3) and nuts (2).
4. Install over voltage protection relay (K4) (10) with two screws (8) and two lockwashers (9).
5. Install top covers. Refer to WP 0019-00.

COMPRESSOR START RELAY (K5) AND VOLTAGE PROTECTION RELAY (K4) – UNIT MAINTENANCE – Continued

0030-00



END OF TASK

COMPRESSOR CAPACITORS (C1) AND (C2) – UNIT MAINTENANCE 0031-00

THIS WORK PACKAGE COVERS:
Removal, Test, and Installation

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
Tool Kit, General Mechanics (Item 1, WP 0071-00)

References
Wiring Diagram, WP 0075-00

Test Equipment
Multimeter

Equipment Condition
Top covers removed (WP 0019-00)

WARNING

Disconnect air conditioner power supply before doing maintenance work on or near the electrical system.

WARNING

Ground all capacitors before touching.

REMOVAL

NOTE

Removal is only necessary when capacitors are to be replaced.

Compressor Start Capacitor (C2)

1. Slide rubber boot (6) away from terminals of capacitor (3).
2. Using an instrument with an insulated handle, discharge capacitor.
3. Tag and disconnect leads.
4. Loosen four screws (1) securing straps (2) holding capacitor to side of housing inner wall. Do not remove bottom strap.
5. Remove capacitor (C2)(3) by sliding out from bottom strap (2).

Compressor Run Capacitor (C1)

1. Slide rubber boot (6) away from terminals.
2. Using an instrument with an insulated handle, discharge capacitor.
3. Tag and disconnect leads. Loosen four screws (1) to loosen strap (4).
4. Remove compressor run capacitor (C1)(5) from straps (4).

TEST

Compressor Start Capacitor (C2)

1. Check for internal condition by placing the test leads of a multimeter on the terminals of the capacitor.
2. Multimeter needle should move rapidly toward top of the scale; then, slowly return toward zero if the capacitor is good.
3. If needle moves to top of scale and remains there, the capacitor is internally short-circuited; if the needle does not move, the capacitor contains an open circuit.
4. Replace capacitor with short/open circuits.

Compressor Run Capacitor (C1)

1. Check for internal condition by placing the test leads of a multimeter on the terminals of the capacitor.
2. Multimeter needle should move rapidly toward top of the scale; then, slowly return toward zero if the capacitor is good.
3. If needle moves to top of scale and remains there, the capacitor is internally short-circuited; if the needle does not move, the capacitor contains an open circuit.

TEST – Continued

Compressor Run Capacitor (C1) - Continued

4. The capacitor has a metal case, check for short-circuits to case by placing a lead of the multimeter on each of the terminals of the capacitor and the other lead on the case. There will be no deflection of the multimeter needle if the capacitor is good. If the needle does deflect, and remains there, replace the capacitor.
5. Replace capacitor with short/open circuits.

INSTALLATION

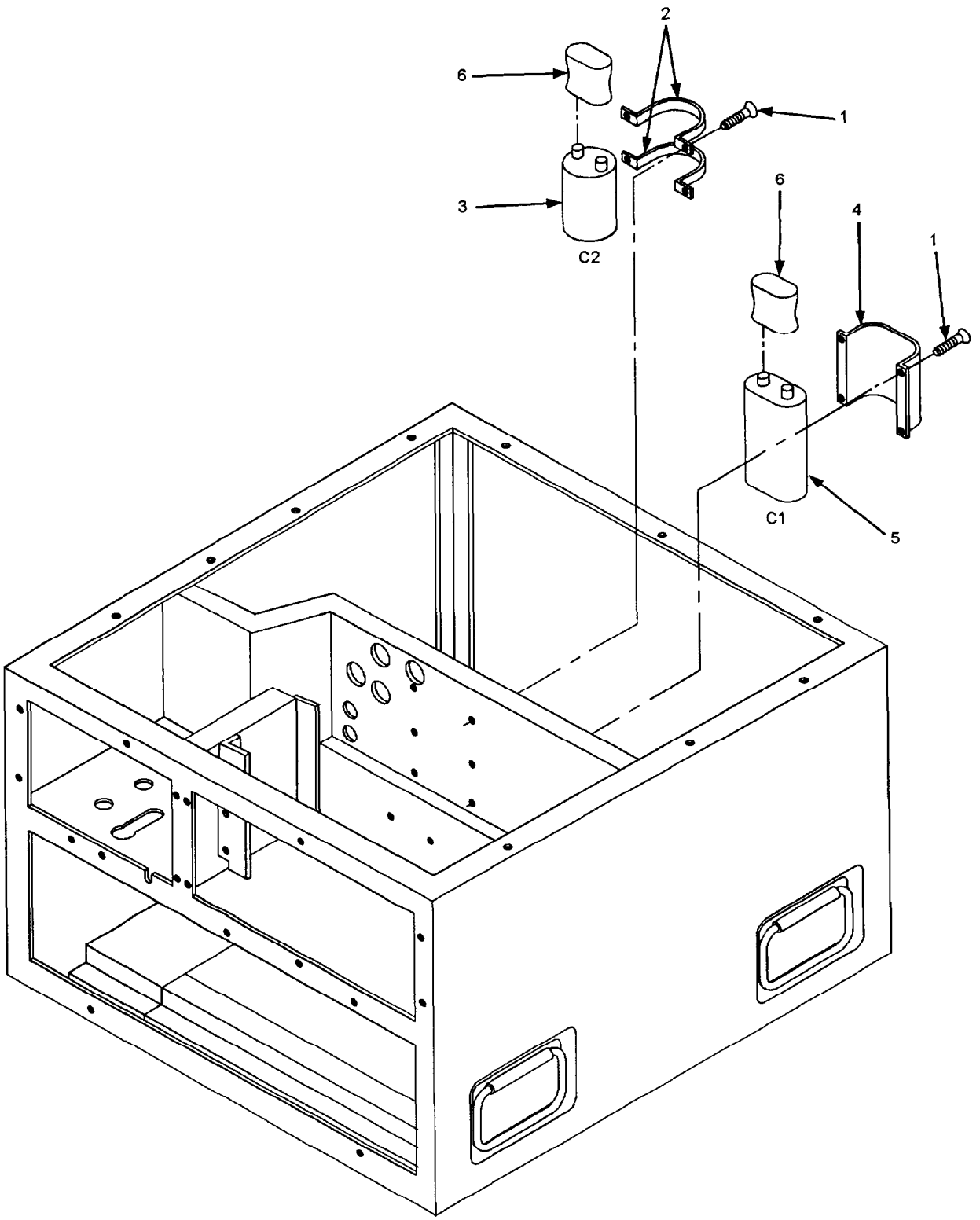
Compressor Start Capacitors (C2)

1. Install good capacitor (C2)(3) in straps (2).
2. Tighten four screws (1) attaching capacitor (C2)(3) and straps (2) to housing inner wall.
3. Reconnect wiring. Remove tags.
4. Slide rubber boot (6) over terminals.

Compressor Run Capacitor (C1)

1. Install good compressor run capacitor (C1)(5) into strap (4).
2. Tighten four screws (1).
3. Connect the leads and remove tags.
4. Slide rubber boot (6) over terminals.
5. Install the top covers (See WP 0019-00).

COMPRESSOR CAPACITORS (C1) AND (C2) – UNIT MAINTENANCE – Continued 0031-00



END OF TASK

TRANSFORMER UNIT MAINTENANCE 0032-00

THIS WORK PACKAGE COVERS:
Removal, Test, and Installation.

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
Tool Kit, General Mechanics (Item 1, WP 0071-00)

Materials/Parts
Solder (Item 2, WP 0074-00)
Flux (Item 15, WP 0074-00)

References
Wiring Diagram, WP 0075-00

Test Equipment:
Multimeter
Variable voltage power source (AC/DC)

Equipment Condition
Evaporator inlet louver removed (WP 0020-00)
Front top cover removed (WP 0019-00)
Control module removed (WP 0026-00)
Junction box partially removed (WP 0028-00)

WARNING

Disconnect air conditioner power supply before doing maintenance work on or near electrical system.

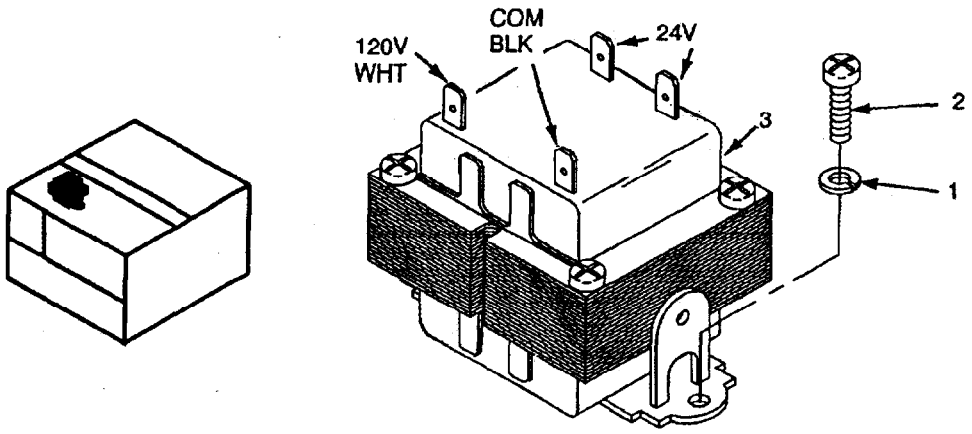
REMOVAL

1. Remove screws (2) and lockwashers (1).
2. Tag and disconnect four transformer leads (1/4 in. quick connects).
3. Lift transformer (3) out of unit.

TEST

1. Check for continuity across primary terminals "COM/BLK" and "120V/WHT".
2. Check for continuity across secondary terminals (24 volts).

TEST – Continued



3. Check for discontinuity between primary and secondary coils.
4. If transformer fails continuity test, replace.
5. Connect 115 Vac power source to primary terminals.
6. Connect multimeter to secondary terminals.
7. Check for reading of 24 to 30 Vac.
8. If transformer fails test, replace.

INSTALLATION

1. Connect four transformer leads and remove tags.
2. Secure transformer (3) to housing using screws (2) and lockwasher (1).
3. Install junction box. See WP 0028-00.
4. Install control module. See WP 0026-00.
5. Install evaporator inlet louver. See WP 0020-00.
6. Install front top cover. See WP 0019-00.

END OF TASK

EVAPORATOR FAN AND HOUSING– UNIT MAINTENANCE 0033-00

THIS WORK PACKAGE COVERS:
Removal, Disassembly, Inspection, Test, Reassembly and Installation

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
Tool Kit, General Mechanics (Item 1, WP 0071-00)

Materials/Parts
Solder (Item 2, WP 0074-00)
Flux (Item 15, WP 0074-00)

Test Equipment
Multimeter
Continuity Tester

References
Wiring Diagram, WP 0075-00

Equipment Condition
Evaporator inlet louver removed (WP 0020-00).
Evaporator drain tubing removed (WP 0025-00).
Control module removed (WP 0026-00).

WARNING

Disconnect air conditioner power supply before doing maintenance work on or near the electrical system.

REMOVAL

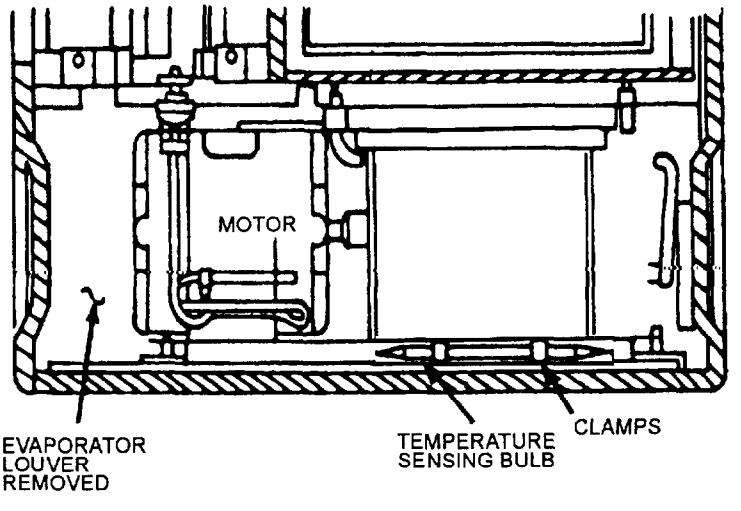


Figure 1. Front View

REMOVAL - Continued

1. Tag and disconnect the motor wiring.
2. Loosen clamps holding Temperature Selector switch sensing bulb, move bulb to clear housing. Refer to figure 1, front view illustration.
3. Remove four screws, lockwashers and flat washers (5, 6 and 7). Refer to figure 2 exploded view.
4. Remove four screws (1) and four washers (3), four nuts (2) and four mounts (4) securing the fan and motor base to the unit.
5. Lift out fan and motor assembly (8).

DISASSEMBLY

1. Remove four screws (9), washers (10) and (11), to remove brackets (12).
2. Remove eight screws (9), washers (10) and (11) to loosen inlet rings (13) and (14). Remove inlet ring (13) from fan housing (17). Inlet ring (14) remains in place.
3. Carefully withdraw housing (17) away from impeller (15) through housing opening.
4. Loosen setscrew (16) and slide off impeller (15) from motor shaft. Remove inlet ring (14).
5. Remove four screws (18), washers (19), (20), (21) and nuts (22) to remove motor (23) from base (26).

INSPECTION

1. Inspect fan inlet rings (13 and 14), impeller (15) and housing (17) for visible out-of-round conditions, dents, burrs and nicks.
2. Replace defective items.
3. Check impeller (15) for damaged or bent vanes. Straighten or replace impeller (15).

TEST

1. Inspect exterior case of motor for cracks, dents, oil, evidence of overheating or any other abnormalities. Replace defective motor.
2. Turn motor shaft by hand and listen for clicking sounds that indicate bad bearings. Replace if bearings are bad.
3. If the shaft cannot be rotated, the bearings may have seized. Replace motor.
4. Test the thrust bearings by attempting to push and pull the motor shaft axially.
5. If end play is excessive (i.e., can be felt on manual push-pull), the thrust bearings and shims are worn beyond limits and motor should be replaced.
6. Use a multimeter or continuity tester to check continuity between leads. See wiring diagram (WP 0075-00).
7. Check to be sure that continuity exists between leads. This means that open circuits do not exist. Replace motor if either open or short circuits exists.

REASSEMBLY

1. Assemble motor (23) to base (26) using four screws (18), washers (19), (20), (21) and nuts (22).
2. Position inlet ring (14) on to motor shaft. Slide impeller onto motor shaft.
3. Tighten setscrew (16) to secure impeller onto motor shaft.
4. Carefully assemble housing (17) over impeller (15).
5. Secure inlet ring (14) to housing (17) with four screws (9) and washers (10) and (11).
6. Assemble inlet ring (13) and brackets (12) with screws (9) and washers (10) and (11).
7. Check position of impeller to spin free and clear of housing. Readjust position as necessary.

INSTALLATION

1. Install evaporator fan and housing assembly using four screws (1), four washers (3), four nuts (2) and four mounts (4).
2. Secure housing (17) using four screws (5) and four washers (6 and 7).
3. Place the Temperature Selector switch sensing bulb in clamps and tighten screws. Refer to figure 1, front view illustration.
4. Install evaporator drain tubing. See WP 0025-00.
5. Reconnect motor connections and remove tags. Refer to wiring diagram, WP 0075-00.
6. Install the evaporator inlet louver. See WP 0020-00.
7. Install control module. See WP 0026-00.

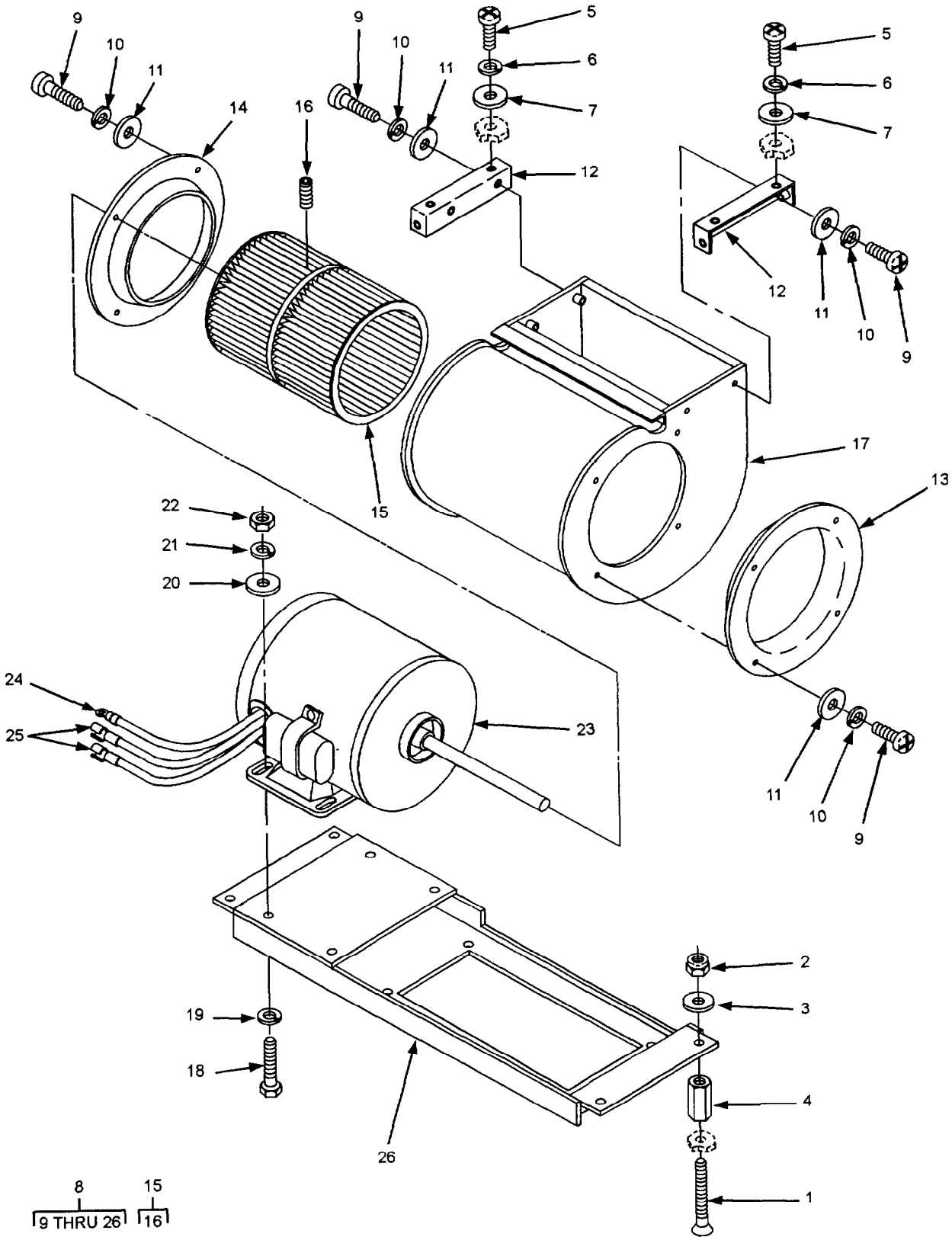


Figure 2. Exploded View

END OF TASK

HEATER THERMOSTAT UNIT MAINTENANCE 0034-00

THIS WORK PACKAGE COVERS:
Inspection, Removal, Test and Installation.

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
Tool Kit, General Mechanics (Item 1, WP 0071-00)

Materials/Parts
150-watt lamp bulb or heat gun

Test Equipment
Multimeter
Thermometer (32 °F to 212 °F) (O °C to 100 °C)

References
Wiring Diagram, WP 0075-00

Equipment Condition
Front and center covers removed (WP 0019-00)

WARNING

Disconnect air conditioner power supply before doing maintenance work on or near the electrical system.

INSPECTION

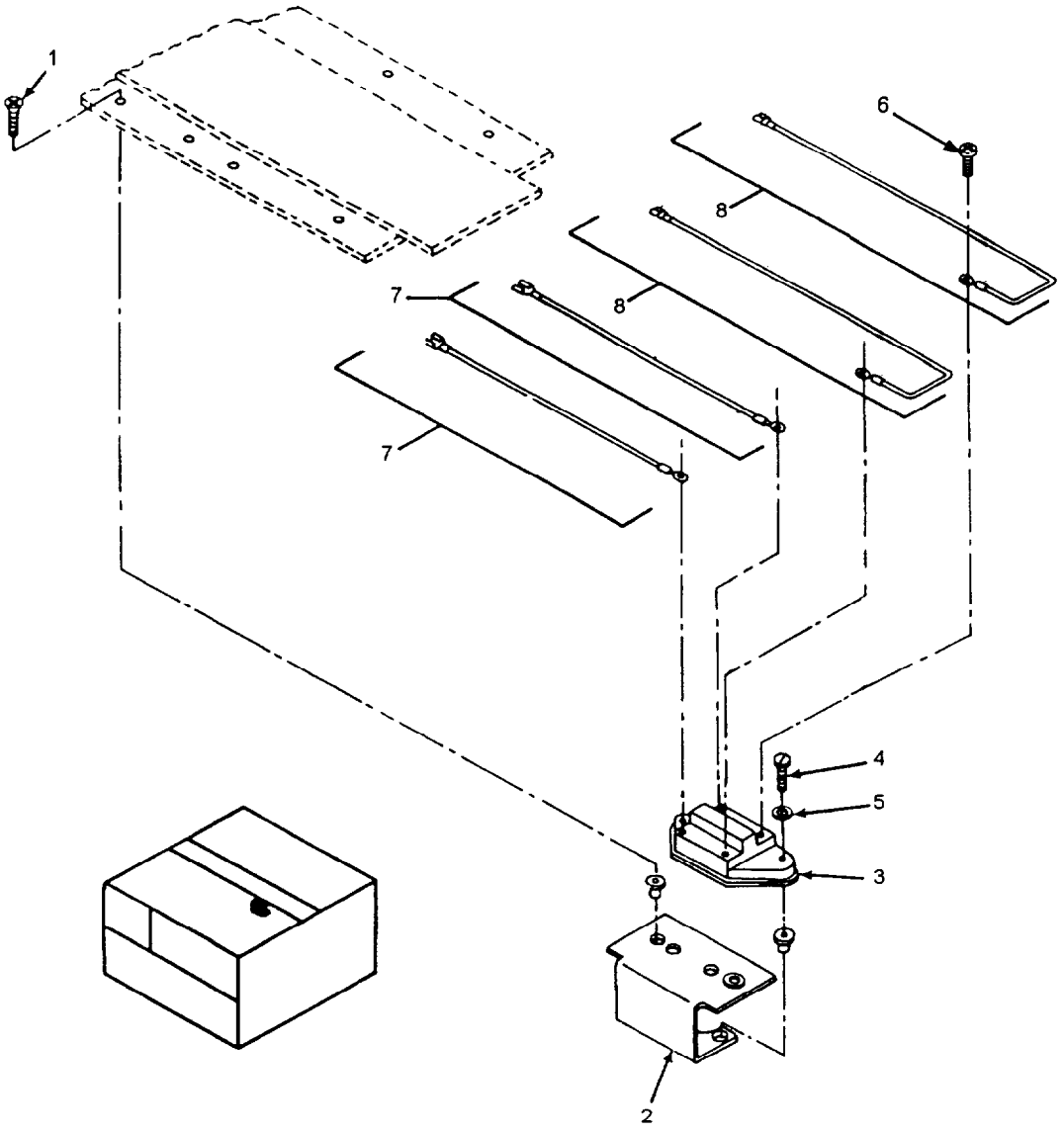
Inspect for wiring damage.

REMOVAL

1. Take out two screws (1) and remove bracket (2) and thermostat (3) from center top panel.
2. Take out two screws (4) and two lockwashers (5) and remove thermostat from bracket (2).
3. Tag leads and remove four screws (6) to disconnect four leads (7 and 8).

TEST

1. Using a multimeter on the lowest possible setting, test for continuity between contacts 1 and 2 and between contacts 3 and 4. Contacts should open on temperature rise at 145-155 degrees F (63-68 degrees C) and should close on temperature drop at 100-120 degrees F (38-49 degrees C). Use thermometer to determine temperature of sensor surface. Use 150-watt lamp bulb or heat gun as heat source for testing. See Wiring Diagram, WP 0075-00.
2. Replace if defective.



INSTALLATION

1. Connect four leads (7 and 8) to thermostat (3) with four screws (6) and remove tags.
2. Attach the thermostat (3) to bracket (2) with two screws (4) and two lockwashers (5).
3. Secure the bracket (2) to the center cover with two screws (1).
4. Install front and center top panels. See WP 0019-00.

END OF TASK

HEATER ELEMENTS UNIT MAINTENANCE 0035-00

THIS WORK PACKAGE COVERS:
Inspection, Removal, Test and Installation.

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
Tool Kit, General Mechanics (Item 1, WP 0071-00)

Materials/Parts
Dry Cleaning Solvent (Item 16, WP 0074-00)
Adhesive (Item 18, WP 0074-00)
Insulation (Item 24, WP 0074-00)
Acid Swab Brush (Item 27, WP 0074-00)

Test Equipment
Multimeter

References
Wiring Diagram, WP 0075-00

Equipment Condition
Top covers removed (WP 0019-00).
Junction box pulled half way out of unit (WP 0028-00).
Control module removed (WP 0026-00).

WARNING

Allow heating elements to cool for 15 minutes before touching.

WARNING

Disconnect air conditioner power supply before doing maintenance work on the electrical system.

INSPECTION

Heater Elements and Electrical Wiring

1. Inspect for damage to elements or leads.
2. Check heater element for continuity.
3. Replace damaged leads and bad elements.

Heater Support Bracket

1. Inspect for warping or cracking.
2. Replace as necessary.

INSPECTION - Continued

Heater Mounting Bracket Insulation

1. Inspect for damaged or missing insulation.
2. Replace as necessary.

Terminal Board (TB2)

1. Inspect TB2 for corrosion or damage.
2. Replace as necessary.

TEST

Test elements by checking for continuity between the two electrical leads (1 and 2) of each heater element (3). If continuity does not exist, replace the element.

REMOVAL

1. Tag and disconnect leads (1 and 2) from terminal board TB2 (4).
2. Remove two screws (5), two lockwashers (6), and two flat washers (7) securing heater support bracket (8) to housing.
3. Remove heater support bracket (8) from ends of heating elements (3).
4. Remove three screws (9) and three lockwashers (10) securing heater mounting bracket (11) to housing.
5. For each heater element (3), remove nut (12), lockwasher (13), flat washer (14), and insulator (15) securing heater element (3) to heater mounting bracket (11).
6. Slide each heating element (3) from heater mounting bracket (11).

NOTE

Do not remove tags from heater element wire.

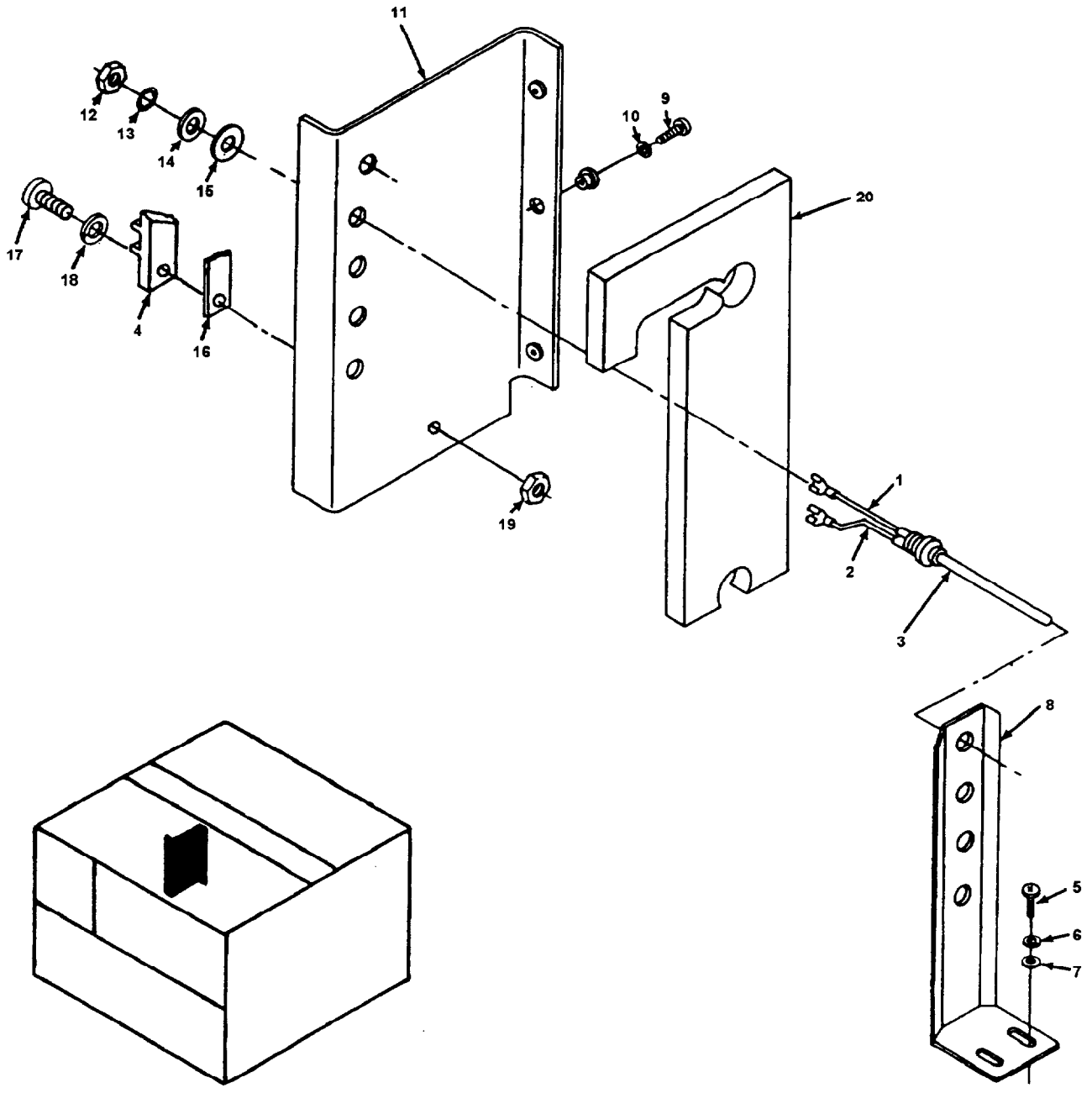
7. Remove heater mounting bracket (11) with terminal board (TB2) (4) and marker strip (16) from unit.
8. Remove two screws (17), two lockwashers (18) and two nuts (19) securing TB2 to bracket (11).
9. Remove terminal board TB2 from bracket (11).
10. Remove insulation (20) from bracket (11) using a scraper.

WARNING

Clean parts in a well-ventilated area. Avoid inhalation of solvent fumes and prolonged exposure of skin to cleaning solvent. Wash exposed skin thoroughly. Dry cleaning solvent, P-D-680 Type III, which is used to clean parts, is potentially dangerous to personnel and property. Avoid repeated and prolonged skin contact. Do not use near open flame or excessive heat. Flash point of solvent is 100 °F to 138 °F (38 °C to 59 °C).

INSTALLATION

1. Clean heater mounting bracket (11) with dry cleaning solvent (Item16, WP 0074-00) and lint free cloth (Item 9, WP 0074-00).
2. Measure and cut piece of unicellular plastic foam insulation (Item 24, WP 0074-00).
3. Apply adhesive (Item 18, WP 0074-00) to foam insulation heater mounting bracket (11) using acid swab brush (Item 27, WP 0074-00) and allow to become tacky.
4. Press foam insulation (20) firmly into place.
5. Replace terminal board TB2 if terminals are missing or unserviceable.
6. Replace marker strip (16) if cracked, missing or cannot be easily read.
7. Insert heater elements (3) and insulator (15) into heater mounting bracket (11).
8. Secure each heater element (3) to heater mounting bracket (11) using flat washer (14), lockwasher (13) and nut (12).
9. Install heater mounting bracket (11) in unit using three screws (9) and three lockwashers (10).
10. Slide heater support bracket (8) over ends of heating elements (3).
11. Secure heater support bracket (8) to housing using two lockwashers (6), two flat washers (7), and two screws (5).
12. Connect leads (1 and 2) to terminal board TB2 (4) and remove tags.
13. Install junction box. See WP 0028-00.
14. Install top covers. See WP 0019-00.
15. Control module installed.



END OF TASK

CONDENSER FAN, HOUSING AND MOTOR UNIT MAINTENANCE 0036-00

THIS WORK PACKAGE COVERS:
Removal, Disassembly, Inspection, Test, Assembly and Installation

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
Tool Kit, General Mechanics (Item 1, WP 0071-00)

Equipment Condition
Rear and center top covers removed (WP 0019-00).
Condenser louver removed (WP 0023-00).

WARNING

Disconnect air conditioner power input connector before doing maintenance work on electrical system.

REMOVAL

1. Tag and disconnect the motor leads.
2. Remove four screws (1) and four flat washers (2) securing motor mounting plate (6) to housing.
3. Remove wire ties as required.
4. Loosen the setscrew (3) on the impeller (4).
5. Separate motor shaft from impeller. Move motor (5) away from impeller (4).
6. Lift out the motor (5) and mounting plate (6) and set aside.

CAUTION

Take care to avoid damaging the condenser coil while removing motor and mounting plate from unit.

7. Remove five screws (7) to loosen scroll housing (8).
8. Remove two screws (9), two lockwashers (10) and two flat washers (11) from clamps (12) securing service valves (13) to scroll housing.
9. Remove screw (14), lockwasher (15) and flat washer (16) from clamp (17) securing high pressure relief valve (18) to scroll housing (8).

REMOVAL - Continued

CAUTION

Handle tubing at service valves and pressure relief valve with special care to avoid kinking or creating leaks at brazed joints.

10. Bend tubing back at service valves (13) and at pressure relief valve (18) with extreme care to permit scroll to be rotated.
11. Rotate scroll housing (8) so that louver opening is at top.
12. Ease base flange of scroll housing (8) up until it extends slightly above the cabinet housing.
13. Rotate scroll housing (8) towards the condenser louver opening and lift carefully from housing.

DISASSEMBLY

1. Remove three screws (19) and three flat washers (20) from inlet ring (21) and remove inlet ring (21) from scroll (8).
2. Remove impeller (4) genltly from scroll (8). (Do not force.)
3. Separate motor (5) from mounting plate (6) by removing four nuts (22), four lockwashers (23) and four flat washers (39).

INSPECTION

1. Visually inspect impeller (4), inlet ring (21), and scroll housing (8) for nicks, dents and out of round conditions.
2. Straighten bent vanes on impeller (4).
3. Replace unserviceable impeller (4).
4. Straighten bent inlet ring (21) and scroll housing (8). Replace if unserviceable.

TEST

1. Inspect exterior case of motor for cracks, dents, oil, evidence of overheating or any other abnormalities. Replace defective motor.
2. Turn motor shaft by hand and listen for clicking sounds that indicate bad bearings.
3. If the shaft cannot be rotated, the bearings may have seized.
4. Test the thrust bearings by attempting to push and pull the motor shaft axially.
5. If end play is excessive (i.e., can be felt on manual push-pull), the thrust bearings and shims are worn beyond limits and motor should be replaced.
6. Use a multimeter or continuity tester to check continuity between leads. See wiring diagram, WP 0075-00.

TEST – Continued

7. Check to be sure that continuity exists between leads. This means that open circuits do not exist. Replace motor if either open or short circuits exist.

ASSEMBLY

1. Secure motor (5) to mounting plate (6) using four nuts (22), four lockwashers (23) and eight flat washers (24).
2. Insert impeller (4) into scroll housing (8).
3. Install inlet ring (21) onto scroll housing (8) using three screws (19) and three flat washers (20).

INSTALLATION

1. Insert scroll housing (8) back into position in unit.

CAUTION

Handle tubing at service valves and pressure relief valve with special care to avoid kinking or creating leaks at brazed joints.

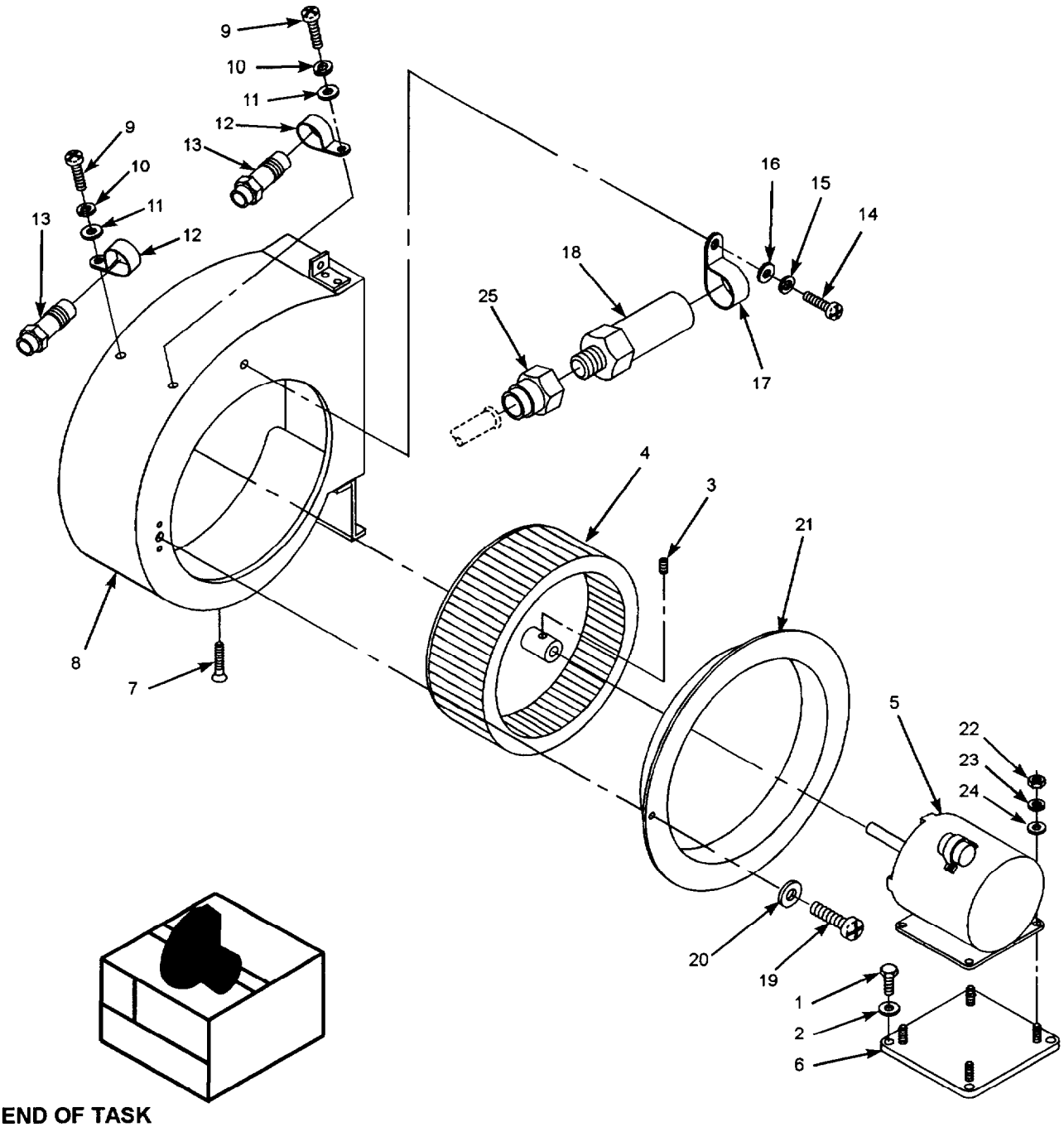
2. Bend tubing back into position at service valves (13) and at pressure relief valve (18) with extreme care.
3. Secure high pressure relief valve (18) to scroll housing (8) using screw (14), lockwasher (15), flat washer (16) and clamp (17).
4. Secure service valves (13) to scroll housing (8) using two screws (9), two lockwashers (10), two flat washers (11) and two clamps (12).
5. Install five screws (7) to secure scroll housing.

CAUTION

Take care to avoid damaging the condenser coil when installing the motor and mounting plate in unit.

6. Place motor (5) and mounting plate (6) into position in the housing.
7. Tighten the setscrew (3) on the impeller (4).
8. Secure the motor mounting plate (6) to the housing using four screws (1) and four flat washers (2).
9. Center impeller (4) in scroll housing (8) while looking through the louver opening.
10. Connect the motor connections and remove tags.
11. Install condenser louver (See WP 0023-00).
12. Install rear and center top covers (See WP 0019-00).

INSTALLATION - Continued



END OF TASK

EVAPORATOR COIL ASSEMBLY UNIT SERVICE 0037-00

THIS WORK PACKAGE COVERS:
Inspection and Cleaning

INITIAL SETUP:

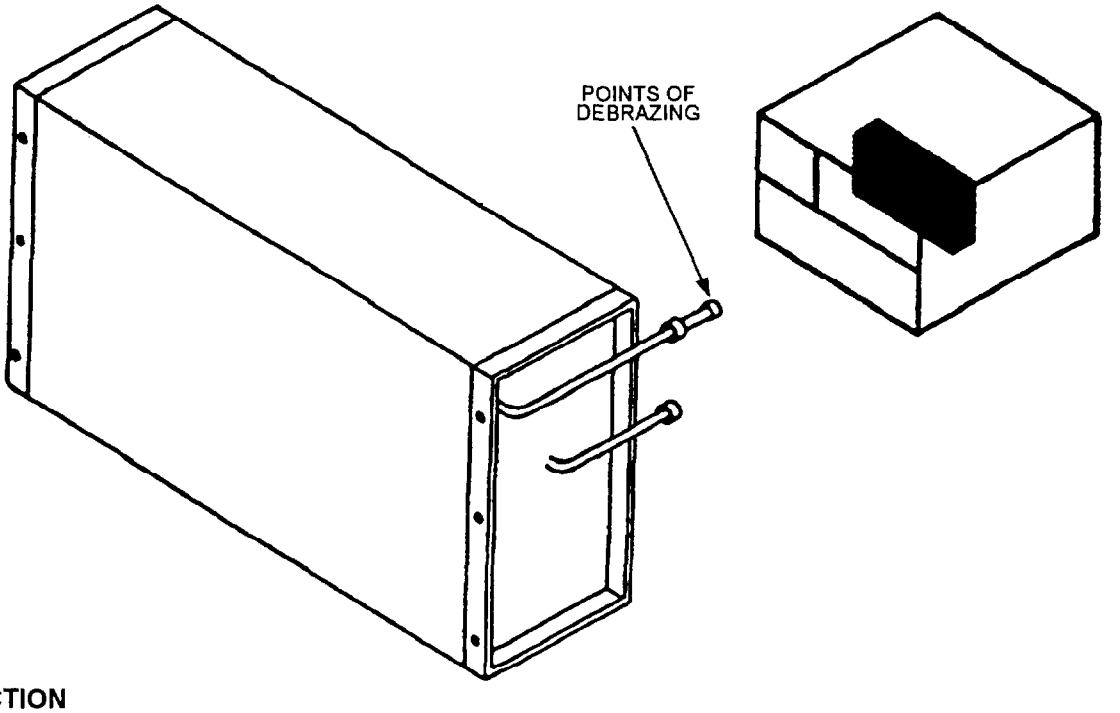
Maintenance Level
Unit

Tools and Special Tools
Tool Kit, General Mechanics (Item 1, WP 0071-00)

Equipment Condition
Front top cover removed (WP 0019-00).
Mist eliminator removed (WP 0020-00).

WARNING

Disconnect air conditioner power supply before doing maintenance work on the electrical system.



INSPECTION

1. Check to be sure power is disconnected.
2. Check for accumulated dirt. Clean if an accumulation of dirt is evident.
3. Check fins for dents, bent edges, or any condition that would block or distort airflow. Straighten all damaged fins with a plastic fin comb.

WARNING

Compressed air used for cleaning purposes shall not exceed 30 psi (2.1 kg/ cm^2).

CAUTION

Do not use steam to clean coil.

CLEANING

NOTE

Evaporator coils encounter extremely dirty and muddy conditions that may require washing with a water hose and/or some chemical cleaner. Several types of foaming spray can coil cleaners that are commercially available may be used.

Clean coil with a soft bristle brush, vacuum cleaner and brush attachment, or use compressed air at 30 psi or less from the inside of the unit to blow the dirt out. Take care to avoid fin damage. When using compressed air, wear safety glasses or goggles. Dirt can be blown into your eyes.

END OF TASK

CONDENSER COIL ASSEMBLY UNIT SERVICE 0038-00

THIS WORK PACKAGE COVERS:
Inspection and Cleaning

INITIAL SETUP:

Maintenance Level
Unit

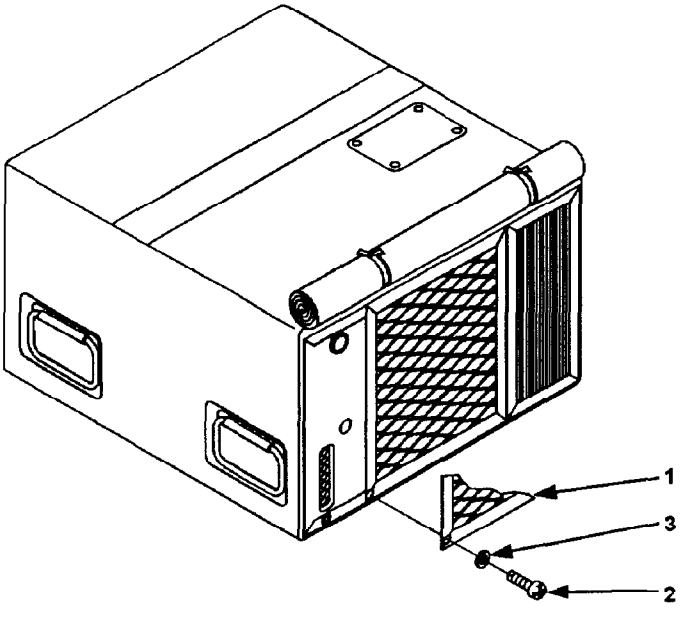
Tools and Special Tools
Tool Kit, General Mechanics (Item 1, WP 0071-00)

WARNING

Disconnect air conditioner power supply before doing maintenance work on the electrical system.

INSPECTION

1. Remove eight screws (2) and eight lockwashers (3) securing guard (1). Remove guard.
2. Check for accumulated dirt. Clean if an accumulation of dirt is evident.
3. Check fins for dents, bent edges, or any condition that would block or distort airflow. Straighten all damaged fins with a plastic fin comb.



WARNING

Compressed air used for cleaning purposes will not exceed 30 psi (2.1 kg/ cm^2).

CAUTION

Do not use steam to clean coil.

CLEANING

NOTE

Condenser coils encounter extremely dirty and muddy conditions that may require washing with a water hose and/or some chemical cleaner. Several types of foaming spray can coil cleaners that are commercially available may be used.

1. Clean coil with a soft bristle brush, vacuum cleaner and brush attachment, or use compressed air at 30 psi or less from the inside of the unit to blow the dirt out. Take care to avoid fin damage. When using compressed air, wear safety glasses or goggles. Dirt can be blown into your eyes.
2. Attach guard (1) and secure with eight screws (2) and eight lockwashers (3).

END OF TASK

HOUSING UNIT SERVICE 0039-00

THIS WORK PACKAGE COVERS:
Inspection and Service

INITIAL SETUP:

Maintenance Level
Unit

Material/Part:
Dry cleaning solvent (Item 16, WP 0074-00)
Warm soapy water

WARNING

Disconnect air conditioner power supply before doing maintenance work on the electrical system.

WARNING

Clean parts in a well-ventilated area. Avoid inhalation of solvent fumes and prolonged exposure of skin to cleaning solvent. Wash exposed skin thoroughly. Dry cleaning solvent, P-D-680 Type III, which is used to clean parts, is potentially dangerous to personnel and property. Avoid repeated and prolonged skin contact. Do not use near open flame or excessive heat. Flash point of solvent is 100 °F to 138 °F (38 °C to 59 °C).

INSPECTION

Visually inspect the housing for cleanliness, nicks, gouges, dents, bare spots in paint or other defects.

SERVICE

1. If cleaning is required, wipe off dirt or grime with a cloth moistened with warm soapy water or dry cleaning solvent (Item 16, WP 0074-00).
2. Report any necessary repairs to general maintenance personnel.

END OF TASK

MAIN POWER INPUT CONNECTOR (J2) and ALTERNATE POWER INPUT CONNECTOR (J1) – INSPECT/REPLACE UNIT MAINTENANCE

0040-00

THIS WORK PACKAGE COVERS:

Inspection, Removal, Test, Repair, and Installation

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

Tool Kit, General Mechanics (Item 1, WP 0071-00)

Materials/Parts

Solder (Item 2, WP 0074-00)
Flux (Item 15, WP 0074-00)

Test Equipment

Multimeter
Continuity Tester

References

Wiring Diagram, WP 0075-00

Equipment Condition

Top Covers removed (WP 0019-00).
Evaporator inlet louver removed (WP 0020-00).

WARNING

Disconnect air conditioner power supply before doing maintenance work on or near the electrical system.

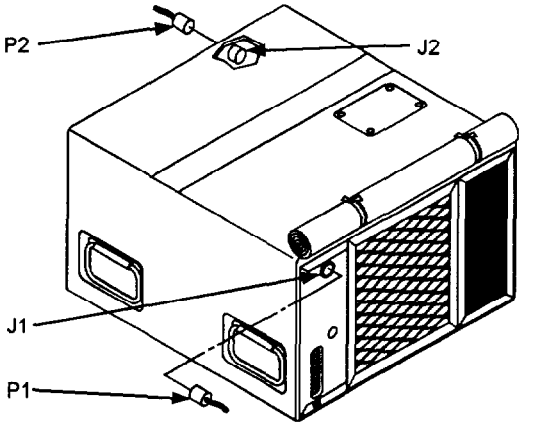
INSPECTION

1. Inspect all installed wiring for cracked or frayed insulation and loose conductor strands at connections.
2. Repair or replace bad wiring.
3. Inspect electrical connectors for damage.
4. Replace damaged connectors.

MAIN POWER INPUT CONNECTOR (J2) and ALTERNATE POWER INPUT CONNECTOR (J1) – INSPECT/REPLACE UNIT MAINTENANCE - Continued

0040-00

INSPECTION - Continued



NOTE

Use Wiring Diagram, WP 0075-00 for the following instructions.

REMOVAL

1. Tag all wire leads prior to removal.
2. Remove eight screws, eight nuts and eight flat washers to release connector from housing.
3. Disconnect all connector plugs and terminals.
4. Carefully remove harness from unit.

TEST

1. Test for continuity on wiring harness.
2. Touch the test probes of a continuity tester or multimeter, set on low-resistance range, to ends of wire and/or corresponding pin of connector
3. If continuity is not indicated, repair or replace wire or damaged connector.

REPAIR

1. Remove the insulation to expose 1/2 inch/1.27 centimeters of bare wire on each side of break or damaged insulation.
2. Insert the ends into a splice-connector; splice and crimp the connector to make firm electrical contact.
3. Alternatively, heat-shrink tubing may be slipped over one end of the wire before splicing, then heated after the splice is made and soldered, so as to cover the spliced area.
4. Be sure that no bare wire is exposed after the splice is complete.
5. Replace broken terminal lugs with exact duplicates.
6. To replace electrical plugs or connectors, tag and unsolder wires from the solder-wells of the inserts.

REPAIR - Continued

7. Insert bare ends of the wires in corresponding holes of new insert, and solder in place.
8. Check continuity terminal-to-terminal.

INSTALLATION

1. Transfer tags to new harness.
2. Install connector into junction box with nuts and washers.
3. Connect all connector plugs and terminals and remove tags. Use Wiring Diagram, WP 0075-00.
4. Install junction box. See WP 0028-00.
5. Install control module. See WP 0026-00.
6. Install Evaporator Inlet Louver. See WP 0020-00.
7. Install top covers. See WP 0019-00.

END OF TASK

INSTALLATION HARDWARE UNIT MAINTENANCE 0041-00

THIS WORK PACKAGE COVERS:
Removal, Inspection and Installation

INITIAL SETUP:

Maintenance Level
Unit

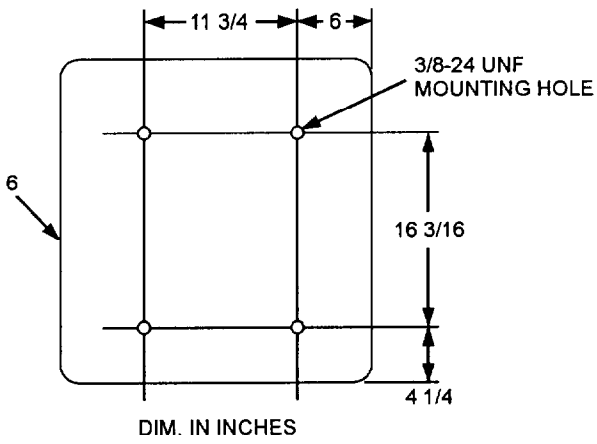
Tools and Special Tools
Tool Kit, General Mechanics (Item 1, WP 0071-00)

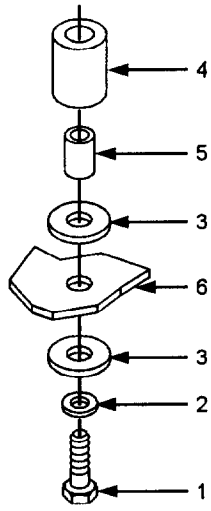
WARNING

Disconnect air conditioner power supply before doing maintenance work on or near the electrical system.

REMOVAL

1. Remove four screws (1) and flat washers (2) from bottom of air conditioner and enclosure mounting plate (6).
2. Remove four resilient mounts (3), four elastomeric tubes (4) and four spacers (5) from bottom of enclosure mounting plate (6).
3. Remove air conditioner from atop of four remaining resilient mounts (3) and the enclosure mounting plate (6).
4. Remove the remaining four resilient mounts (3) from atop of enclosure mounting plate (6).





INSPECTION

1. Inspect four screws (1) and flat washers (2) for damage.
2. Inspect eight resilient mounts (3), four elastomeric tubes (4) and four spacers (5) for damaged or worn out conditions.
3. Replace damaged hardware.

INSTALLATION

1. Assemble onto each of four screws (1), a flat washer (2), a spacer (5), an elastomeric tube (4) and a resilient mount (3).
2. Install the above screws, flat washers, spacers, elastomeric tubes and resilient mounts through the bottom of enclosure plate and then install one additional resilient mount (3) on each of the four screws (1), on top of the enclosure mounting plate (6).
3. Align the air conditioner on top of the resilient mounts (3) and screws (1), which attach the air conditioner to the enclosure mounting plate (6).
4. Tighten the screws (1) into the bottom of air conditioner.

END OF TASK

CHAPTER 7

DIRECT SUPPORT TROUBLESHOOTING PROCEDURES

DIRECT SUPPORT TROUBLESHOOTING INTRODUCTION 0042-00

MALFUNCTION/SYMPTOM INDEX

The malfunction/symptom index (WP 0009-00 and WP 0043-00) are quick reference indexes for finding troubleshooting procedures. Associated with each symptom name is a work package sequence number representing the starting point in a troubleshooting sequence. Should any one symptom require more than one troubleshooting sequence to arrive at the most likely area of investigation, the additional starting point numbers are presented.

As the troubleshooting activity progresses through to the conclusion of a particular sequence, a reference is made to the next logical troubleshooting sequence by work package sequence number or by referring to the malfunction/symptom index to locate the next failure symptom work package. This type of activity continues until successful fault isolation is achieved.

TROUBLESHOOTING PROCEDURES

The troubleshooting work packages contain tables listing the malfunctions, tests or inspections, and corrective action required to return to the normal operation. Perform the steps in the order they appear in the tables.

Each work package is headed by an initial setup. This setup outlines what is needed as well as certain conditions which must be met before starting the task. DO NOT START A TASK UNTIL:

You understand the task.

You understand what you are to do.

You understand what is needed to do the work.

You have the things you need.

This manual cannot list all malfunctions that may occur, or all tests or inspections and corrective actions. If a malfunction is not listed or is not corrected by listed corrective actions, notify your supervisor.

END OF TASK

DIRECT SUPPORT MALFUNCTION/SYSTEM INDEX 0043-00

MALFUNCTION/SYMPTOM	TROUBLESHOOTING PROCEDURE
Compressor Will Not Start	
1. Control circuit may have an open circuit	WP 0044-00
2. Faulty compressor overload switch (S6)	WP 0044-00
3. Faulty circuit breaker	WP 0044-00
4. Bad start relay or start capacitor	WP 0044-00
5. Bad continuity of compressor motor or wiring	WP 0044-00
6. Faulty HIGH or LOW pressure switch	WP 0044-00
7. Faulty power input plugs (P1 or P2)	WP 0044-00
Compressor Starts, But Stops At Once Or After Short Run Period – Due To Tripped Circuit Breaker	
1. Defective compressor run capacitor	WP 0044-00
2. Defective compressor start relay	WP 0044-00
3. Defective circuit breaker	WP 0044-00
Compressor Starts, But Stops At Once Or After Short Run Period – Due To Tripped Low Pressure Switch	
1. Dirty evaporator coil	WP 0044-00
2. Obstruction at intake or discharge louvers	WP 0044-00
3. Bad filter-drier	WP 0044-00
4. Refrigerant leaks	WP 0044-00
5. Faulty low pressure switch	WP 0044-00
6. Bad condenser fan or motor	WP 0044-00
7. Defective expansion valve	WP 0044-00
Compressor Starts, But Stops At Once Or After Short Run Period – Due To Tripped High Pressure Switch	
1. System refrigerant overcharged	WP 0044-00
2. Bad condenser fan or motor	WP 0044-00

MALFUNCTION/SYMPTOM	TROUBLESHOOTING PROCEDURE
Compressor Starts, But Stops At Once Or After Short Run Period – Due To Tripped High Pressure Switch-Continued	
3. Obstruction of air flow through condenser, grill or louvers	WP 0044-00
4. Faulty high pressure switch	WP 0044-00
Compressor Starts, But Stops At Once Or After Short Run Period – Due To Tripping Of Compressor Overload Switch (S6)	
1. Faulty compressor	WP 0044-00
2. Faulty expansion valve	WP 0044-00
Insufficient Cooling	
1. Bad filter-drier	WP 0044-00
2. Expansion valve obstructed or damaged	WP 0044-00
3. Insufficient refrigerant or leaks	WP 0044-00
4. Faulty compressor	WP 0044-00
Compressor Runs But Does Not Cool	
1. Excessively high temperature in conditioned area	WP 0044-00
2. Faulty Compressor	WP 0044-00
3. Low refrigerant charge	WP 0044-00
4. High discharge pressure	WP 0044-00
Compressor Excessively Noisy	
1. Low suction line temperature	WP 0044-00
2. Overcharge of refrigerant	WP 0044-00
Suction Pressure Too Low Or Too High	
1. Faulty expansion valve	WP 0044-00
2. Bad filter-drier	WP 0044-00

MALFUNCTION/SYMPTOM	TROUBLESHOOTING PROCEDURE
Low Heat Or No Heat	
1. Loose connections or broken wires	WP 0044-00
2. Poor continuity of mode selector switch and/or temperature selector switch	WP 0044-00
3. Faulty heating elements	WP 0044-00
4. Faulty heater cutout switch	WP 0044-00
5. Faulty heater relay	WP 0044-00
6. Bad evaporator fan or motor	WP 0044-00

END OF TASK

DIRECT SUPPORT TROUBLESHOOTING PROCEDURES 0044-00

THIS WORKPACKAGE COVERS:

Compressor Will Not Start, Compressor Starts But Stops At Once, Insufficient Cooling, Compressor Runs But Does Not Cool, Compressor Excessively Noisy, Suction Pressure Too Low or Too High, Low Heat or No Heat

INITIAL SETUP:

Maintenance Level

Direct Support

Tools and Special Tools

Tool Kit, General Mechanics (Item 1, WP 0071-00)
Tool Kit, Service, Refrigeration Unit (Item 2, WP 0071-00)
Recovery and Recycle Unit, Refrigerant (Item 5, WP 0071-00)

Test Equipment:

Multimeter
Continuity tester
Electronic refrigerant gas leak detector

References

Schematic and Wiring Diagrams WP 0075-00

Equipment Condition

Mode selector switch in OFF position.
Main power source is disconnected.
Panels removed (WP 0019-00).

WARNING

Disconnect air conditioner power supply before doing maintenance work on or near electrical system.

Table 1. Troubleshooting Procedures

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. COMPRESSOR WILL NOT START	1. Make continuity check of control circuit and components. See WP 0075-00 for control circuit schematic and wiring diagram. (Refer to WP 0026-00.)	1. Repair loose or broken connections. 2. Replace bad components. (Refer to WP 0026-00 thru WP 0029-00.)
	2. Check continuity of compressor overload switch (S6) located on compressor under terminal cover.	1. Repair loose or broken connections. 2. Replace bad switch. (See WP 0065-00.)
	3. If fans do not operate, make continuity check of circuit breaker. (Refer to WP 0026-00.)	Replace bad circuit breaker. (Refer to WP 0026-00.)

Table 1. Troubleshooting Procedures - Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. COMPRESSOR WILL NOT START – Continued	4. Test starting relay or start capacitor. (Refer to WP 0030-00 and WP 0031-00.)	Replace bad relay or capacitor (WP 0030-00 or WP 0031-00.)
	5. Check continuity of compressor motor, and leads to capacitor and leads to motor using multimeter. (Refer to WP 0065-00.)	Replace bad compressor or bad lead. (Refer to WP 0065-00.)
	6. Check continuity of HIGH and LOW pressure switches at room temperature. Continuity should exist. (Refer to WP 0059-00.)	1. If continuity does not exist, press reset button and recheck. 2. Replace faulty HIGH or LOW pressure switch. (Refer to WP 0059-00.)
	7. Check polarity of power input plugs (P1 and P2) using multimeter. With positive (+) lead in pin A and negative (-) lead in pin B, voltage should be 115 Vac. With positive (+) lead pin A and negative (-) lead in pin D, voltage should be 115 Vac. With positive (+) lead in pin B and negative (-) lead in pin D, voltage should be zero volts.	Replace power input plugs (P1 and P2) which do not pass above test.
2. COMPRESSOR STARTS, BUT STOPS AT ONCE OR AFTER SHORT RUN PERIOD - Due To Tripped Circuit Breaker	1. Test compressor run capacitor. (Refer to WP 0031-00.)	Replace defective capacitor. See WP 0031-00.
	2. Test compressor start relay. (Refer to WP 0030-00.)	Replace defective relay. See WP 0030-00.
	3. Check circuit breaker by observing amperes at moment of trip.	Replace defective circuit breaker. See WP 0026-00.
3. COMPRESSOR STARTS, BUT STOPS AT ONCE OR AFTER SHORT RUN PERIOD - Due To Tripped Low Pressure Switch	1. Leave the unit alone for three-minutes.	Wait.
	2. After three-minutes see if compressor comes on.	Wait and observe.
	3. Wait another three-minutes. **NOTE** Sequence of waiting and observing may occur several times depending on temperature.	If compressor does come on, perform continuity test on low pressure switch.

Table 1. Troubleshooting Procedures - Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
4. COMPRESSOR STARTS, BUT STOPS AT ONCE OR AFTER SHORT RUN PERIOD - Due To Tripped High Pressure Switch	1. Perform pressure testing on system to determine if an overcharge of refrigerant is indicated. See WP 0052-00.	If overcharged, partially discharge the system and retest. See WP 0046-00 and WP 0052-00.
	2. Check for proper operation of condenser fan and motor.	Replace bad motor or fan. (Refer to WP 0036-00.)
	3. Inspect condenser coil, intake grill and condenser discharge louvers for dirt, obstructions or closed discharge louver.	Clean or remove obstruction or set discharge louver to full open. See WP 0038-00.
	4. Turn off power; short-circuit ("jumper") the high pressure switch. Turn on power. For maximum of 12 seconds, cycle compressor to see whether compressor operates normally. **CAUTION** Do not exceed 12-second operating time for compressor as high pressure may develop in the refrigeration system that could cause the pressure relief valve to open or may result in damage to the system.	If operation of the unit is satisfactory, replace faulty high pressure switch. See WP 0059-00.
5. COMPRESSOR STARTS, BUT STOPS AT ONCE OR AFTER SHORT RUN PERIOD – Due To Tripping Of Compressor Overload Switch (S6)	1. Check Compressor current draw at moment of trip	1. If below specified amperes, replace faulty compressor overload switch. See WP 0065-00. 2. If over specified current draw, replace faulty compressor. See WP 0065-00.
	2. Check for proper operation of refrigerant expansion valve superheat at compressor suction.	If in excess of 25°F(-3.85°C) replace expansion valve. See WP 0058-00.

Table 1. Troubleshooting Procedures - Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
6. INSUFFICIENT COOLING	1. Feel filter-drier to see whether it is cold to the touch, or is frosted or sweating.	If so, replace filter-drier. (Refer to WP 0063-00.)
	2. Check evaporator coil for overall temperature.	If part of coil is relatively warm and evaporator inlet is sweaty or frosty, expansion valve or distributor may be obstructed or damaged. (Refer to WP 0057-00.)
	3. Check liquid sight indicator for bubbles or cloudiness, which indicates insufficient refrigerant.	Recharge system after checking for and repairing leaks. (Refer to WP 0045-00 through WP 0052-00.)
	4. Check for low discharge pressure to see whether compressor is pumping. (Refer to Table 1, WP 0052-00.)	Replace faulty compressor. (Refer to WP 0065-00.)
7. COMPRESSOR RUNS BUT DOES NOT COOL	1. Check for excessively high temperature in conditioned area.	1. Close doors, windows or other openings. 2. Insulate areas of high heat gain.
	2. Check compressor for noisy operation, high suction pressure or excessively low discharge pressure indicating leaky internal valves. (Refer to WP 0052-00 and Table 1, WP 0052-00.)	Replace compressor. (Refer to WP 0065-00.)
	3. Check liquid sight indicator for bubbles indicating low charge of refrigerant.	1. Repair leaks or replace leaking component. 2. Recharge system. (Refer to WP 0045-00 through WP 0052-00.)
	4. Check for high discharge pressure. (Refer to Table 1, WP 0052-00.)	Bleed off excess refrigerant.
8. COMPRESSOR EXCESSIVELY NOISY	1. Listen for knocking.	Check for low suction line temperature indicating that liquid refrigerant is returning to compressor. (Refer to WP 0052-00 and Table 1, WP 0052-00.)
	2. Check for high discharge pressure indicating overcharge of refrigerant. (Refer to WP 0052-00 and Table 1, WP 0052-00.)	1. Bleed off excess refrigerant. 2. Check HIGH pressure switch.

Table 1. Troubleshooting Procedures - Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
9. SUCTION PRESSURE TOO LOW OR TOO HIGH	1. Stop compressor and check expansion valve.	1. Remove remote bulb in suction line. 2. Place bulb in ice water for 1-2 minutes. 3. Start compressor. 4. Remove bulb from ice water and hold it in one hand to warm it. At the same time, check the suction line for rapid change of temperature, which indicates flood-through of liquid refrigerant. If liquid floods through valve, it is operating satisfactorily. If not, valve or remote bulb is faulty. **CAUTION** Do not let liquid flood back into compressor or compressor will be seriously damaged. 5. Replace faulty expansion valve. (Refer to WP 0058-00.)
	2. Feel filter-drier for temperature difference. Discharge end will feel cooler than input end if clogged, or discharged end may be frosty or sweaty. (For low suction pressure)	Replace filter-drier. (Refer to WP 0063-00.)
10. LOW HEAT OR NO HEAT	1. Check heater wiring and control circuit for loose connections or broken wires.	1. Tighten loose connections. 2. Replace or repair broken wires. (Refer to WP 0034-00, WP 0026-00 through WP 0029-00.)
	2. Check continuity of Mode Selector switch and Temperature Selector switch. (Refer to WP 0026-00.)	

Table 1. Troubleshooting Procedures - Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
10. LOW HEAT OR NO HEAT – Continued	3. Disconnect and remove heater elements, and apply 115-volt AC power to check for open circuit in element. Element should heat.	Replace faulty heating elements. (Refer to WP 0035-00.)
	4. Check continuity of heater cutout switch at room temperature. Continuity should exist. (Refer to WP 0034-00.)	Replace faulty switch. See WP 0034-00.
	5. Disconnect heater relay. Apply 24-28 volts DC to actuate relay and check continuity at secondary terminals. Continuity should exist. (Refer to WP 0028-00.)	Replace faulty relay. (Refer to WP 0028-00.)
	6. Check operation of evaporator fan and motor. (Refer to WP 0033-00.)	Repair or replace faulty fan or motor. (Refer to WP 0033-00.)

END OF TASK

CHAPTER 8

DIRECT SUPPORT MAINTENANCE INSTRUCTIONS

REFRIGERATION SYSTEM DESCRIPTION 0045-00

Description

WARNING

Unit contains R-22 a chemical substance which harms public health and the environment by destroying ozone in the upper atmosphere, and that the equipment is to be serviced by qualified personnel only.

WARNING

Whenever it is necessary to open the refrigeration system for any reason, discharge the refrigerant carefully. Avoid contact with liquid refrigerant. Severe freezing of body tissues can take place with extreme rapidity. Avoid excessive inhalation of refrigerant gas and ventilate the area in which it is released. Refrigerant gas in contact with flame or hot surfaces is converted to phosgene a highly toxic gas having an odor similar to newly mown grass or hay.

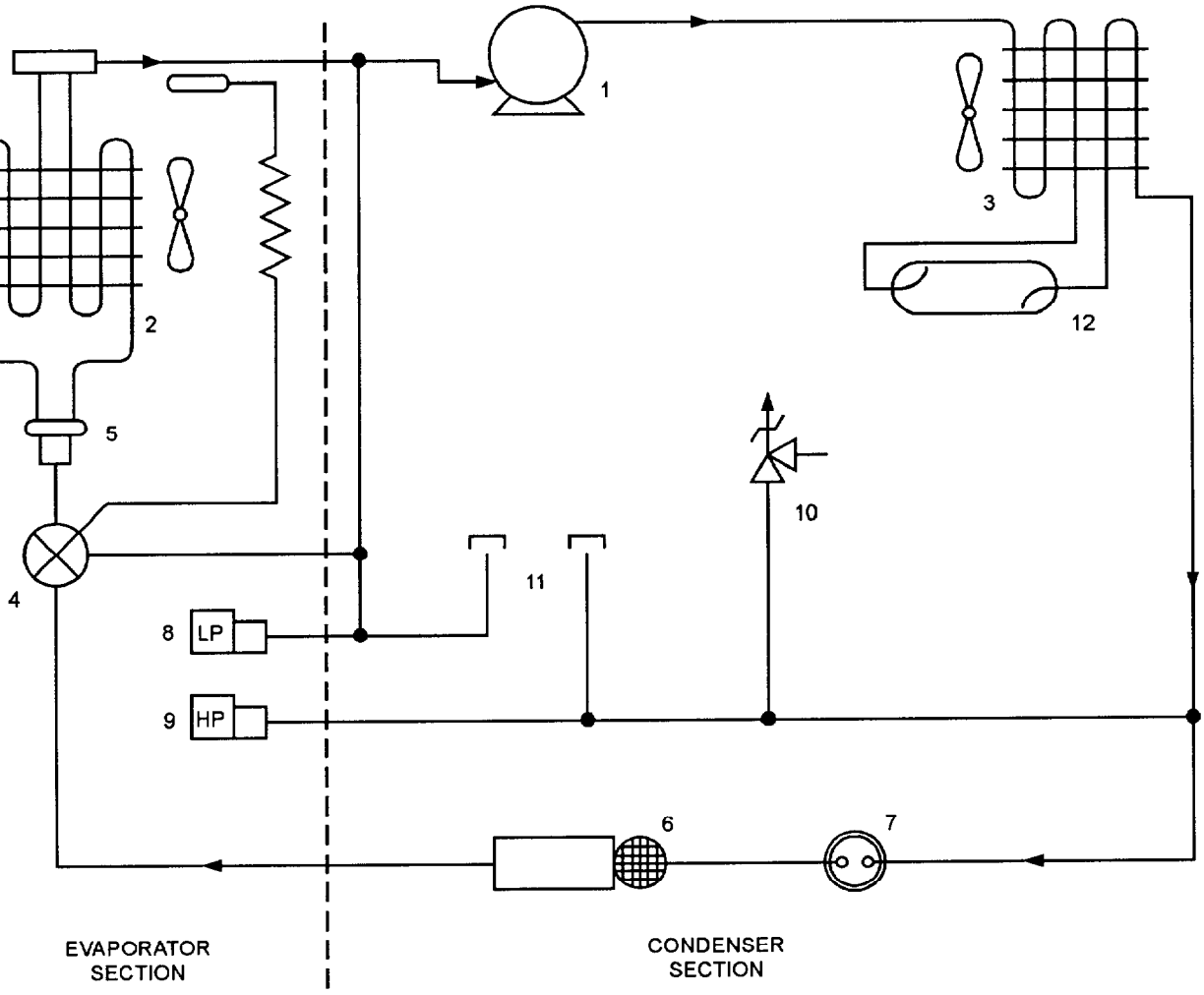
1. The refrigeration system illustrated by the refrigerant flow diagram is a mechanical, vapor-cycle circuit consisting of the evaporator thermal expansion valve, compressor, condenser, and the necessary valves and cutout devices for automatic control during operation and servicing.
2. The thermal expansion valve releases high-pressure liquid refrigerant into the evaporator at reduced pressure.
3. The liquid refrigerant begins to vaporize by absorbing heat from the air passing over the outside surface of the evaporator coil.
4. The heated vapor is sucked out of the evaporator section by the compressor, and is forced into the condenser section under high pressure where it is cooled and condensed back into a liquid.
5. The heat released during condensation is carried off by the condensing airstream.
6. The liquid refrigerant flows from the condenser to a filter-drier sight glass and then to the thermal expansion valve to repeat the cycle.
7. If the temperature control switch (evaporator return-air thermostat) becomes satisfied (the evaporator return-air temperature is lower than the point at which you have set the control) the refrigeration system will shut off.
8. When the temperature control switch again calls for cooling (the evaporator return air temperature is higher than the point at which the control is set) the refrigeration system will restart and run. If the system has been off for two-minutes or more the compressor (and condenser fan motor) will re-start immediately. If the system was shut-off (for any reason) for less than three-minutes a time delay to complete three-minutes of off-time will be encountered.

Refrigeration System Repair

The following paragraphs cover repair of commonly used hardware, tubing and valves of the refrigeration system. Re-use or repair of seals and gaskets should not be attempted; new parts should be used at assembly. When heating refrigeration piping to debraze or unsolder connections (See Work Package WP 0048-00) as well as to solder or braze them, the piping should be protected with a continuous flow of dry nitrogen to prevent scaling or oxidation of the inside surface.

REFRIGERATION SYSTEM DESCRIPTION - Continued

0045-00



REFRIGERANT SCHEMATIC

LEGEND

1. REFRIGERANT COMPRESSOR - ROTARY
2. EVAPORATOR COIL
3. CONDENSER COIL
4. EXPANSION VALVE - THERMAL
5. REFRIGERANT DISTRIBUTOR
6. FILTER - DRIER
7. SIGHT GLASS - MOISTURE INDICATOR
8. LOW PRESSURE SWITCH
9. HIGH PRESSURE SWITCH
10. PRESSURE RELIEF VALVE
11. SERVICE VALVE - SCHRAEDER
12. RECEIVER

END OF TASK

REFRIGERATION SYSTEM SERVICING - (DISCHARGING) 0046-00

THIS WORK PACKAGE COVERS:
Service (Discharging)

INITIAL SETUP:

Maintenance Level
Direct Support

Tools and Special Tools
Tool Kit, General Mechanics (Item 1, Table 2, WP 0071-00)
Tool Kit, Service, Refrigeration Unit (Item 2, Table 2 WP 0071-00)
Recovery and Recycle Unit, Refrigerant, (Item 5, Table 2, WP 0071-00)

References
WP 0071-00 (MAC)

Equipment Condition
Mode selector switch in OFF position.
Main power source is disconnected.
Panels removed (WP 0019-00).

Special Environmental Condition

NOTE

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

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

WARNING

Disconnect air conditioner power supply before doing maintenance work on or near electrical components or junction box compartment.

REAR TOP OF UNIT

Service - Discharging

1. Remove screws from service valve access cover.
2. Remove service valve access cover.
3. Unscrew hose connection protective caps from service valves.

Service – Discharging – Continued

WARNING

Death or serious injury may result if personnel fail to observe safety precautions. Use great care to avoid contact with liquid refrigerant or refrigerant gas being discharged under pressure. Sudden and irreversible tissue damage can result from freezing. Wear thermal protective gloves and a face protector or goggles in any situation where skin-eye contact is possible.

WARNING

Prevent contact of refrigerant gas with flame or hot surfaces. Heat causes the refrigerant to break down and form carbonyl chloride (phosgene), a highly poisonous and corrosive gas.

4. Connect the charging manifold hoses to the manifold and air conditioner service valves.
5. Attach a hose assembly to the center connection of the manifold.
6. The open end of the center connection hose must be connected to the recovery/recycling unit that is located in a well ventilated area.

WARNING

Discharge refrigerant in an open area and not around an open flame.

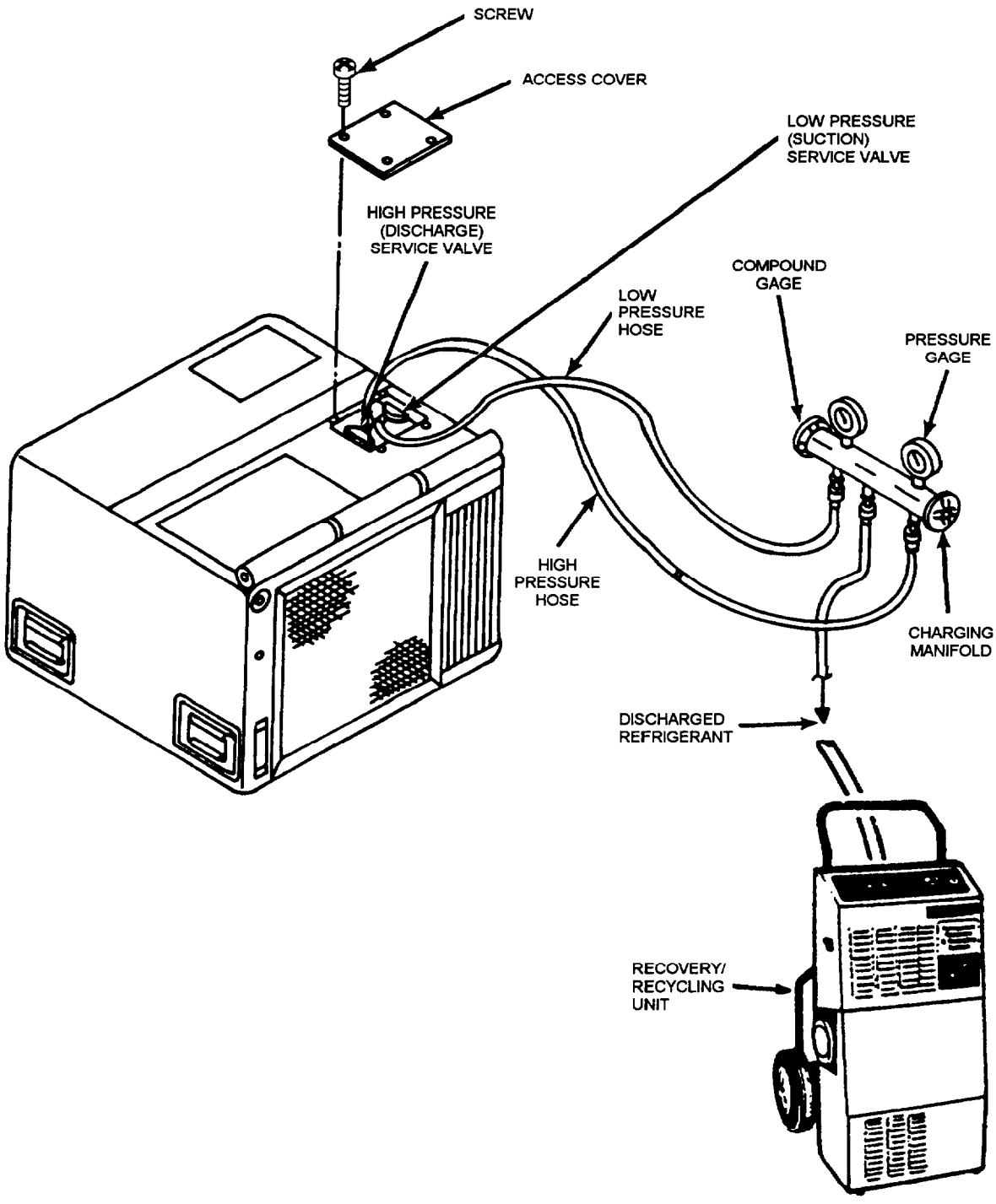
CAUTION

Do not permit the oil to escape from the unit. If oil is escaping, close the valve(s) slightly. Do not permit the refrigerant to escape fast enough to form ice or frost on either the lines or the valve.

7. Slowly open the low pressure service valve to allow refrigerant gas to flow slowly out of the hose.
8. Slowly open high pressure service valve to allow refrigerant gas to flow slowly out of the hose.
9. Check the discharge hose for the presence of oil. Adjust (close slightly) valves if necessary to prevent oil discharge.
10. When gas stops flowing, close both service valves.

REFRIGERATION SYSTEM SERVICING - (DISCHARGING) - Continued 0046-00

Service – Discharging - Continued



END OF TASK

REFRIGERATION SYSTEM SERVICING - (PURGING) 0047-00

THIS WORK PACKAGE COVERS:
Service (Purging)

INITIAL SETUP:

Maintenance Level
Direct Support

Tools and Special Tools
Tool Kit, General Mechanics (Item 1, Table 2, WP 0071-00)
Tool Kit, Service, Refrigeration Unit (Item 2, Table 2, WP 0071-00)
Nitrogen Pressure Regulator (Item 4, Table 2, WP 0071-00)

Materials/Parts
Nitrogen (Item 4, WP 0074-00)

References
WP 0071-00 (MAC)

Equipment Condition
Refrigerant system discharged (WP-0046-00).
Main power source disconnected.

WARNING

Disconnect air conditioner power supply before doing maintenance work on or near electrical system.

WARNING

The refrigeration system must be purged with dry nitrogen, during any brazing operation performed on any component. A flow of dry nitrogen at the rate of less than 1 - 2 cfm (0.028-0.057 m^3/minute) should be continued during all brazing operations to minimize internal oxidation and scaling.

CAUTION

Nitrogen cylinders are pressurized containers. The pressure in the cylinder can exceed 2000 PSI. A nitrogen pressure regulator must be used at all times when nitrogen is used for leak check or purge operations.

CAUTION

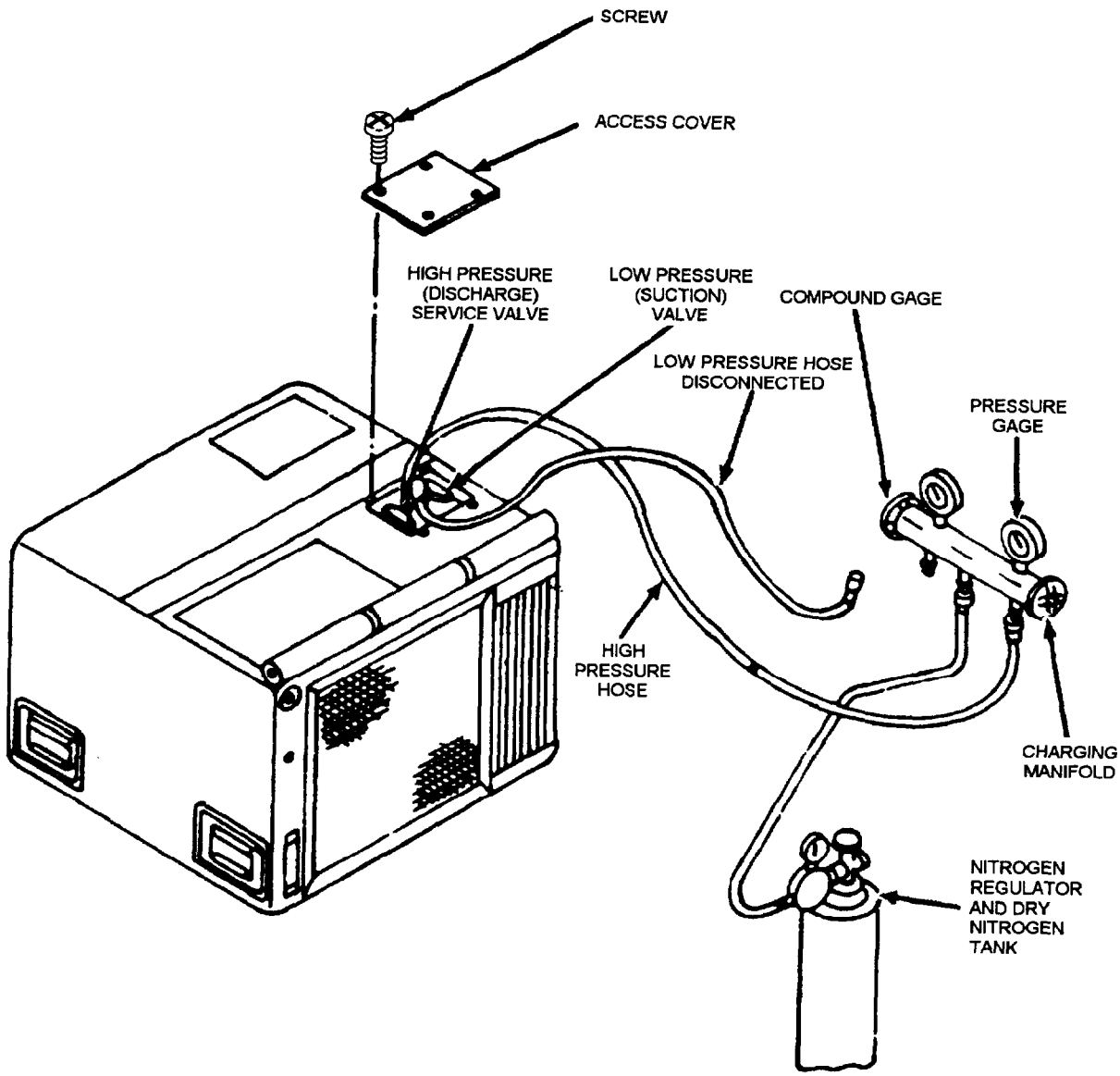
Nitrogen is an inert gas. However, it also presents danger as a suffocant and therefore, must also be discharged in a ventilated location.

Service- Purging

Assuming that the system has been discharged using a manifold as described in WP 0046-00, proceed as follows:

1. See specific component removal/ repair instructions.
2. Be sure that refrigerant has been discharged. (See WP 0046-00)
3. Connect the center hose from the charging manifold to a nitrogen regulator and dry nitrogen tank.
4. The hose from the high pressure service valve to the charging manifold must be connected.
5. The hose from the low pressure service valve must be disconnected from the charging manifold.
6. Both service valves on the unit will be open by virtue of hose connections.
7. Close the unused valve (suction) on the charging manifold, and open the one (discharge) with the nitrogen tank hooked up.
8. Open the nitrogen cylinder valve and adjust the regulator so that less than 1-2 cfm (0.028-0.057 m^3/ minute) of nitrogen flows through system.
9. Check discharge from hose attached to the low pressure service valve to be sure that no oil is being forced out of the system.
10. Allow nitrogen to sweep through the system at the rate of less than 1-2 cfm (0.028-0.057 m^3/ minute) for a minimum of 5 minutes, before starting any brazing operation. Then allow it to continue to flow at the same rate until all brazing operations are completed. (See WP 0048-00 for brazing/debrazing procedures).
11. After installation brazing operations are completed, allow nitrogen to flow for a minimum of 5 minutes.
12. Close nitrogen cylinder valve, nitrogen regulator, and charging manifold valve.
13. Disconnect the hose from the nitrogen tank regulator.
14. When all repairs are completed, go to WP 0049-00.

Service-Purging-Continued



END OF TASK

REFRIGERATION SYSTEM SERVICING - (BRAZING/DEBRAZING) 0048-00

THIS WORK PACKAGE COVERS:
Service (General Information, Filler Alloy, Debrazing, Cleaning Debrazed Joints, Reassembly, Brazing)

INITIAL SETUP:

Maintenance Level
Direct Support

Tools and Special Tools
Tool Kit, General Mechanics (Item 1, Table 2, WP 0071-00)
Tool Kit, Service, Refrigeration Unit (Item 2, Table 2, WP 0071-00)
Solder, Gun Kit (Item 9, Table 2, WP 0071-00)

Materials/Parts
Brazing alloy (silver) (Items 5 & 6, Table 1, WP 0074-00)
Nitrogen cylinder (Item 4, Table 1, WP 0074-00)
Brazing flux (Item 7, Table 1, WP 0074-00)
Abrasive cloth (Item 8, Table 1, WP 0074-00)
Rags (Item 9, Table 1, WP 0074-00)

References
WP 0071-00 (MAC)

Equipment Condition
Refrigeration system discharged (WP 0046-00).
Refrigeration system purged (WP 0047-00).
Main power source disconnected.

WARNING

Disconnect air conditioner power supply before doing maintenance work on or near electrical system.

General Information

All tubing in the refrigeration system is copper with a finish that permits thorough cleaning. All interconnecting fittings, such as elbows, tees, etc., are also copper. The bodies of all valves and all connections on other components are brass. All joints, except those provided with flare fittings, are made by brazing in accordance with MIL-B-7883, except that radiographic examination is not required.

Filler Alloy Information

Grade IV or VI brazing alloy and Type B flux, as specified in MIL-B-7883, must be used for all copper to brass joints. Grade III brazing alloy may be substituted for Grade IV or VI for copper to copper joints; flux is not required for copper to copper joints.

Debrazing

Debraze joints for removal of refrigeration system components as follows:

WARNING

All refrigerant-22 must be discharged from the system and the entire system must be purged with dry nitrogen before beginning any debrazing operation.

1. Determine which joints are to be debrazed. Due to the limited work space inside the air conditioner, it may be more convenient to remove a part of the interconnecting tubing with the component rather than debrazing the joints on the component itself.

2. Before debrazing a joint on a valve, disassemble the valve to the extent possible, then wrap all but the joint with a wet rag to act as a heat sink.

WARNING

The elastomeric foam used as insulation in the air conditioner may be damaged and break down to form toxic gasses if exposed to the flame of a torch at brazing temperature.

3. Protect insulation, wiring harnesses, cabinet, and other surrounding components with appropriate shields.

4. Be sure the work area is well ventilated and that dry nitrogen is flowing through the refrigeration system at a rate of less than 1-2 cfm (0.028- 0.057 m^3/minute.)

5. Apply sufficient heat uniformly around the joint to quickly melt the filler alloy. If heat is applied slowly, or only on one side, the entire component or length of tubing will be heated and filler alloy in adjacent joints may also be melted. Remove heat as soon as the joint separates.

Cleaning Debrazed Joints

All filler alloy must be cleaned from debrazed joints before reassembly. Heat each piece of the joint until the filler alloy is melted and then wipe it away with a dry cloth. Be sure no filler alloy or other debris are left inside any tubing, fitting or component.

Reassembly

If tubing sections or fittings were removed with a component, debraze them from the component, clean the joints, and braze them to the new component before reinstallation.

Brazing

Braze joints within the air conditioner as follows:

1. Position the component to be installed.

Brazing- Continued

2. To prepare a joint on a valve for brazing, disassemble the valve to the extent possible. Then wrap all but the joint with a wet rag to act as a heat sink.

3. Protect insulation, wiring harnesses, and surrounding components with appropriate shields.

4. Be sure the work area is well ventilated and that dry nitrogen is flowing through the refrigeration system at a rate of less than 1-2 cfm (0.028-0.057 m^3/ minute).

5. Apply sufficient heat uniformly around the joint to quickly raise it to a temperature that will melt the filler alloy. Remove heat as soon as brazing is completed.

END OF TASK

REFRIGERATION SYSTEM SERVICING - (LEAK TEST) 0049-00

THIS WORK PACKAGE COVERS:
Service (Leak Test)

INITIAL SETUP:

Maintenance Level
Direct Support

Tools and Special Tools
Tool Kit, General Mechanics (Item 1, Table 2, WP 0071-00)
Tool Kit, Service, Refrigeration Unit (Item 2, Table 2, WP 0071-00)

Test Equipment
Electronic refrigerant gas leak detector

Materials/Parts
Nitrogen (Item 4, Table 1, WP 0074-00)
Refrigerant R-22 (Item 10, Table 1, WP 0074-00)

References
WP 0046-00
WP 0047-00
WP 0051-00
TM9-4940-435-14&P

Equipment Condition
Main power source disconnected.

WARNING

Disconnect air conditioner power input connector before doing maintenance work on electrical system.

General

The entire repaired area should be thoroughly leak tested after repair or replacement of any component, before it is recharged with refrigerant-22. Leak testing is also the method for troubleshooting when a system has lost all or part of its refrigerant charge through an undetermined cause.

Testing Method

There are two acceptable methods for leak testing the refrigeration system.

1. Refrigerant gas leak detector. If an electronic refrigerant gas leak detector is available it should be used in accordance with the procedures contained in TM 9-4940-435-14&P, "Leak Detector, Refrigerant gas."

Testing Method - Continued

NOTE

The electronic refrigerant gas leak detector is highly sensitive to the presence of a minute quantity of gas in the air, due to this factor it is quite effective in the detection of a small leak. However, due to the rapid dispersion of refrigerant gas into the surrounding air, difficulty may be encountered in pinpointing large leaks. The detector must be used in a well ventilated but draft-free area.

2. Soap solutions. In this method, a strong solution of a liquid detergent and water is brushed onto all points of possible leakage while closely watching for the formulation of bubbles.

CAUTION

If the soap solution testing method is used, thoroughly rinse with fresh water after testing is completed. A residual soap film will attract and accumulate an excessive amount of dust and dirt during operation.

Testing Procedure

To perform leak testing by use of the electronic detector, it is necessary that the system be pressurized with a proportion of refrigerant gas. To perform leak testing by use of the soap solution method, the system may be pressurized with dry nitrogen alone.

1. To pressurize a system that has some refrigerant charge, for either leak testing method:

   a. Remove the hose connection protective caps from the high and low pressure service valves.

   b. Connect the hoses from a charging manifold to the service valves.

NOTE

If it is possible that the problem may not be a leak and that you may not have to replace a refrigeration system component, refrigerant-22 may be substituted for the nitrogen in the following test. If nitrogen is used, you will have to discharge, evacuate, and recharge the system after this test is completed.

   c. Connect a nitrogen pressure regulator and nitrogen bottle to the center hose connection of the charging manifold.

   d. Open the unit service valves and the charging manifold valves.

   e. Open the nitrogen tank valve and pressurize the system to 300 PSIG (21.2 kg/cm^2).

   f. Perform leak tests.

   g. If a leak is found, discharge and purge the system and repair leak. See specific instructions for components to be removed.

   h. If a leak was not found and refrigerant-22 was used to pressurize the system, see charging instructions (See WP 0051-00).

Testing Procedure - Continued

2. To pressurize a system that has been discharged and purged for leak testing with an electronic detector:

   a. Remove the hose connection protective caps from the high and low pressure service valves.

   b. Connect the hoses from a charging manifold to the service valves.

   c. Connect a cylinder of refrigerant-22 to the center hose connection of the charging manifold.

CAUTION

Connect the refrigerant-22 cylinder so that only gas will be used for pressurization.

   d. Open both unit service valves and the charging manifold valves.

   e. Open the refrigerant cylinder valve slightly and adjust as necessary to prevent formation of frost, and allow system pressure to build up until the gages read 40-50 PSI (2.8-3.5 kg/cm^2).

   f. Close the charging manifold valves and the refrigerant cylinder valve.

   g. Remove the refrigerant-22 cylinder from the center hose connection.

   h. Connect a nitrogen regulator of dry nitrogen to the center hose connection.

   i. Open the charging manifold valves and the nitrogen cylinder and regulator valve. Allow system pressure to build up until gages read 300 PSIG (21.2 kg/cm^2).

   j. Perform leak tests, then discharge and purge the system, in accordance with WP 0046-00 and WP 0047-00 before performing maintenance, or before evacuating and charging the system, as appropriate.

3. Final leak testing. Always perform a final leak test after performing any repair or replacement of components before the air conditioner is reassembled and the refrigeration system is evacuated and charged.

END OF TASK

REFRIGERATION SYSTEM SERVICING - (EVACUATION) 0050-00

THIS WORK PACKAGE COVERS:
Service (Evacuation)

INITIAL SETUP:

Maintenance Level
Direct Support

Tools and Special Tools
Tool Kit, General Mechanics (Item 1, Table 2, WP 0071-00)
Tool Kit, Service, Refrigeration Unit (Item 2, Table 2, WP 0071-00)

Test Equipment
Vacuum pump (Item 3, Table 2, WP 0071-00)

Materials/Parts
Nitrogen (Item 4, Table 1, WP 0074-00)

References
WP 0071-00 (MAC)
WP 0065-00
WP 0049-00
WP 0051-00

Equipment Condition
Refrigerant system leak tested (WP 0049-00).
Refrigerant system discharged (WP 0046-00).
Main power source disconnected.

WARNING

Disconnect air conditioner power supply before doing any maintenance work on the electrical system.

CAUTION

Do not evacuate a leaking system. The vacuum created can cause air, moisture, and dirt to enter system.

NOTE

Replace filter-dryer whenever refrigerant system is opened.

NOTE

In the event the compressor was replaced as a result of burn-out, check that compressor burn-out procedures were followed. See WP 0065-00.

Evacuation

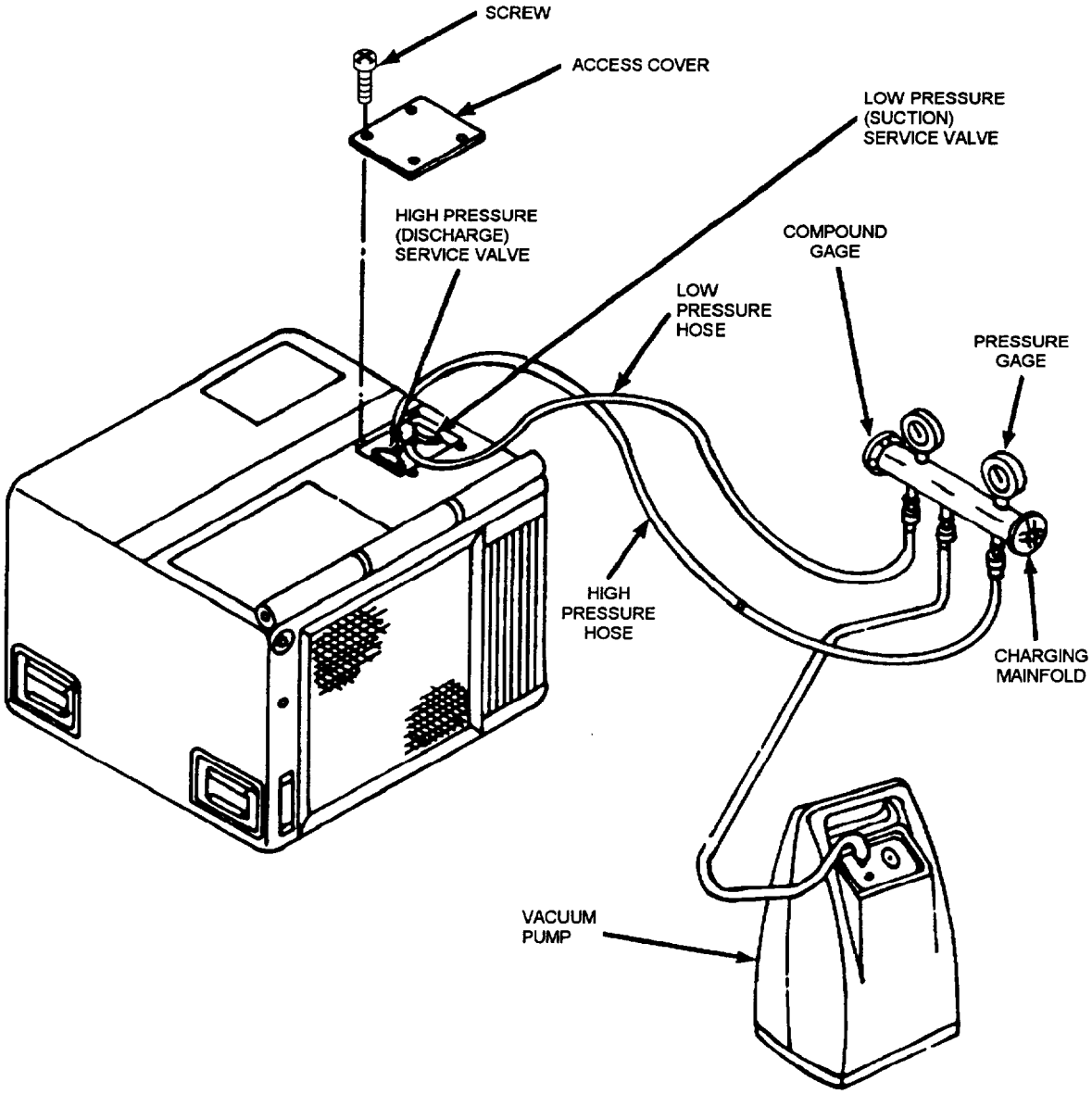
1. Connect the hose from the low pressure service valve to the compound gage side of the charging manifold. The hose from the high pressure service valve shall be connected to the high pressure gage side of the charging manifold.
2. Open both service valves.
3. Attach center hose assembly charging manifold to vacuum pump.
4. Start vacuum pump.
5. Open charging manifold valves.
6. Run the vacuum pump until approximately a 300 micron vacuum is reached.

NOTE

Inability to reach 300 microns may indicate either a leak or a problem with the pump.

7. Close manifold valves and check compound gage. Record reading. Let unit sit for one hour. Observe compound gage reading.
8. If the system holds the vacuum without change of pressure, proceed to step 10.
9. If the vacuum cannot be held for one hour, one of the following reasons may account for the problem:
   a. Presence of water vapor in the system. Continued pumping will correct this condition.
   b. Leak in the refrigeration system. Break the vacuum with dry nitrogen and retest for leaks. See WP 0049-00.
   c. Internal leakage of vacuum pump. Test the pump by connecting a vacuum gage directly to the vacuum pump intake and continue to pump. If pump still fails to reach approximately 300 microns, the pump is faulty.
10. Close charging manifold valves.
11. Stop vacuum pump.
12. Disconnect pump from center hose connection.
13. Charge system with refrigerant-22. See WP 0051-00.

Evacuation - Continued



END OF TASK

REFRIGERATION SYSTEM SERVICING - (CHARGING) 0051-00

THIS WORK PACKAGE COVERS:
Service (Charging)

INITIAL SETUP:

Maintenance Level
Direct Support

Tools and Special Tools
Tool Kit, General Mechanics (Item 1, Table 2, WP 0071-00)
Tool Kit, Service, Refrigeration Unit (Item 2, Table 2, WP 0071-00)

Test Equipment
Charging cylinder or scale

Materials
Refrigerant-22, R-22 (Item 10, Table 1, WP 0074-00

References
WP 0071-00 (MAC)

Equipment Condition
Refrigeration system evacuated (WP 0050-00).
Main power source disconnected.

WARNING

Disconnect air conditioner power supply before doing any maintenance work on the electrical system.

CAUTION

Never introduce liquid refrigerant into the low pressure (suction) service valve.

NOTE

Install top covers before charging unit.

NOTE

The system must be evacuated before charging. Using only refrigerant-22 to charge the unit.

Charging

1. Connect the hose from the low pressure service valve to the compound gage side of the charging manifold. The hose from the high pressure service valve should be connected to the high pressure gage side of the manifold.

Charging – Continued

2. Connect the center hose from the charging manifold to a well charged cylinder of refrigtrant-22, or a charging cylinder.
3. Loosen the hose connection to the center of charging manifold.
4. Open the refrigerant-22 or charging cylinder valve slightly to allow a small amount of refrigerant to purge air from the hose. Tighten the hose connection at the charging manifold.
5. Using accurate scales, measure and record the weight of the charged refrigerant-22 cylinder.
6. Fully open the refrigerant-22 cylinder valve.
7. Open the low pressure valve of the charging manifold. Allow refrigerant gas to enter the system until the system pressure has equalized.
8. Connect power to air conditioner.
9. Press and release both pressure switch reset buttons.
10. Turn air conditioner on and operate in the COOL mode with the temperature control thermostat set at a maximum COOLER position.
11. Monitor the weight of the refrigerant cylinder as the air conditioner compressor pulls additional refrigerant gas into the system until the full 2.00 pounds (0.90 kg) charge is obtained. When the system is fully charged immediately close the refrigerant cylinder valve, and the charging manifold low pressure (suction) valve.
12. Run the air conditioner in COOL mode with temperature control thermostat in full COOLER position for 15 minutes.

NOTE

Do not skip the next step.

Charging – Continued

13. After 15 minutes, observe the liquid sight indicator (sight glass) on left rear of unit.

a. Green center means the refrigerant moisture content is acceptable.

b. Yellow center means there is too much moisture in the system. It must be discharged, evacuated and charged again.

c. Milky white or bubbly liquid means the system has a low charge.

d. Clear bubble-free liquid around the center means the system is fully charged.

14. If charge is low, add more gas refrigerant.

a. Open cylinder valve and the manifold low pressure valve.

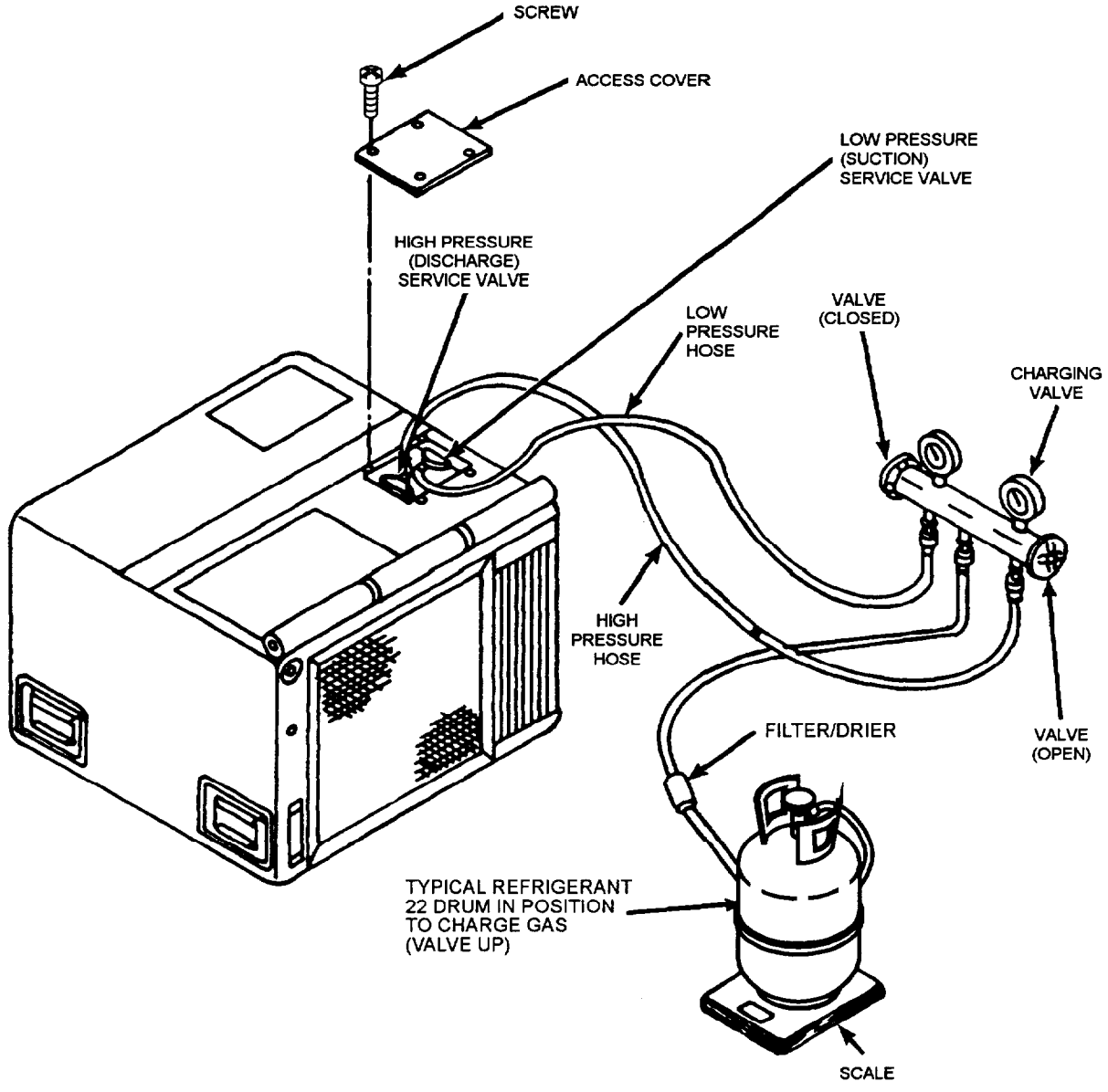
15. Check air conditioner for proper cooling. There should be at least a 15°F temperature difference between evaporator discharge air and intake air. Turn mode selector switch to OFF.

16. Remove charging manifold hoses.

17. Install service valve protective caps.

18. Secure service valve access cover using four screws.

Charging – Continued



END OF TASK

REFRIGERATION SYSTEM SERVICING - (PRESSURE TESTING) 0052-00

THIS WORK PACKAGE COVERS:
Service (Pressure Testing)

INITIAL SETUP:

Maintenance Level
Direct Support

Tools and Special Tools
Tool Kit, General Mechanics (Item 1, Table 2, WP 0071-00)
Tool Kit, Service, Refrigeration Unit (Item 2, Table 2, WP 0071-00)

References
WP 0071-00 (MAC)

Equipment Condition
Main power source is disconnected.

WARNING

Check to see that power is disconnected.

Service Valve Access Cover

1. Remove screws from service valve access cover.
2. Remove service valve access cover.

Charging Valve Caps

Remove caps from high and low pressure service valves.

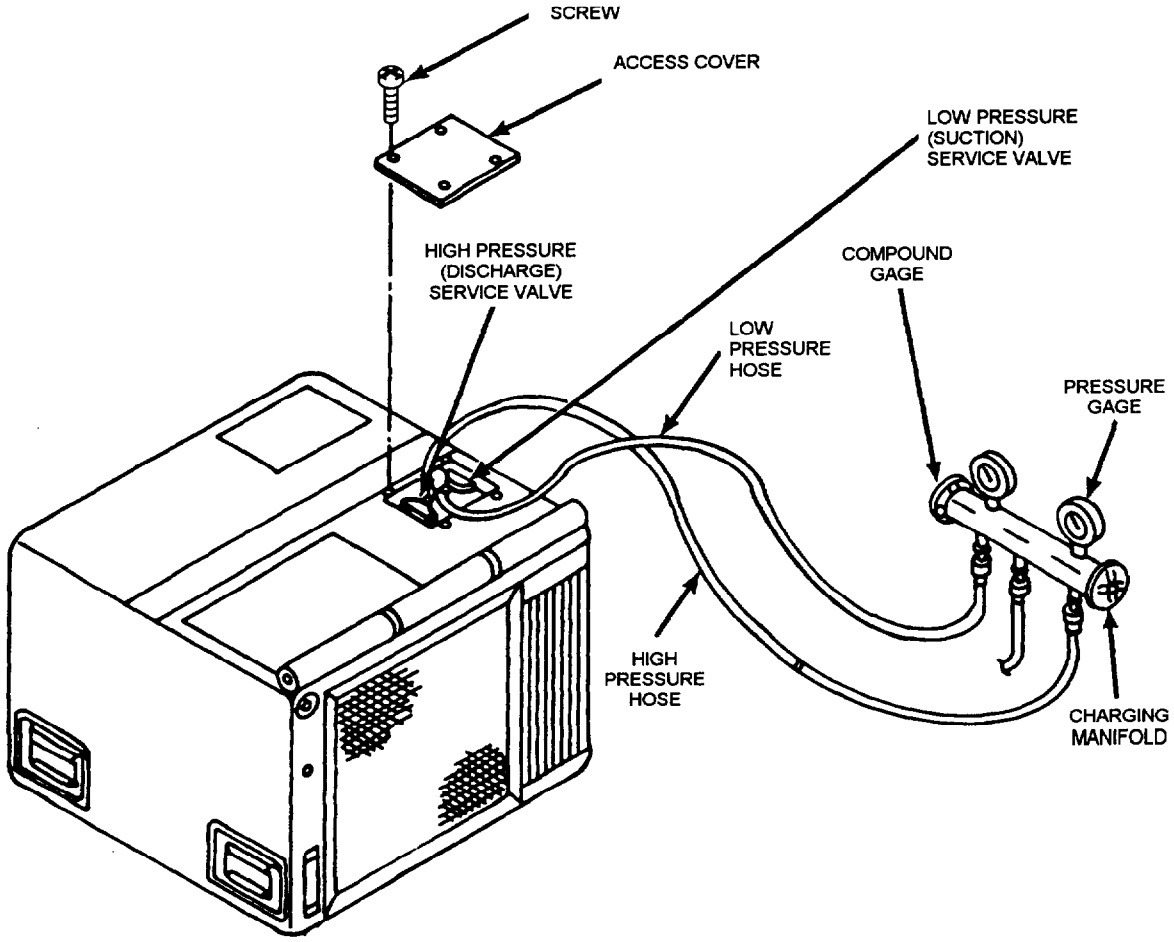
Refrigeration System Pressure Testing

1. Connect low pressure gage hose of manifold valve to suction service valve.
2. Check that manifold valves are closed.
3. Connect high pressure hose of manifold valves to discharge service valve.
4. Purge hoses - open momentarily and close discharge and suction hose connections at charging manifold
5. Start air conditioner.
6. Compare gage readings with the normal range of system pressure as shown on the Table of Normal Temperature – Pressure Relationships on the following page.
7. Disconnect gages.
8. Install service valve access cover with screws.

Refrigeration System Pressure Testing – Continued

Table 1. Normal Temperature - Pressure Relationships

Temperatures Outdoor Ambient Evaporator Intake	Pressure Range (PSIG) 50°F (10°C)	75°F (24°C)	100°F (38°C)	125°F (52°C)
90°F (32°C) Air to Unit (Dry Bulb)	55-65 Suction 150-180 Discharge	66-76 Suction 200-240 Discharge	76-86 Suction 280-325 Discharge	85-95 Suction 370-420 Discharge
80°F (27°C) Air to Unit (Dry Bulb)	50-60 Suction 140-170 Discharge	61-71 Suction 190-230 Discharge	71-81 Suction 270-315 Discharge	80-90 Suction 360-410 Discharge



END OF TASK

CANVAS COVER AND PANELS DIRECT SUPPORT MAINTENANCE 0053-00

THIS WORK PACKAGE COVERS:
Removal, Repair and Installation

INITIAL SETUP:

Maintenance Level
Direct Support

Tools and Special Tools
Tool Kit, General Mechanics (Item 1, Table 2, WP 0071-00)

References
WP 0071-00 (MAC)

Equipment Condition
Main power source is disconnected.

Materials/Parts
Flexible Elestomeric Thermal Insulation (Item 20, Table 1, WP 0074-00)
Warm, soapy water
Filter-kote or oil (Item 17, Table 1, WP 0074-00)
Cellular rubber strips (Item 19, Table 1, WP 0074-00)
Adhesive (Item 18, Table 1, WP 0074-00)
Dry Cleaning Solvent (Item 16, Table 1, WP 0074-00)

WARNING

Disconnect air conditioner power input connector before doing maintenance work on electrical system.

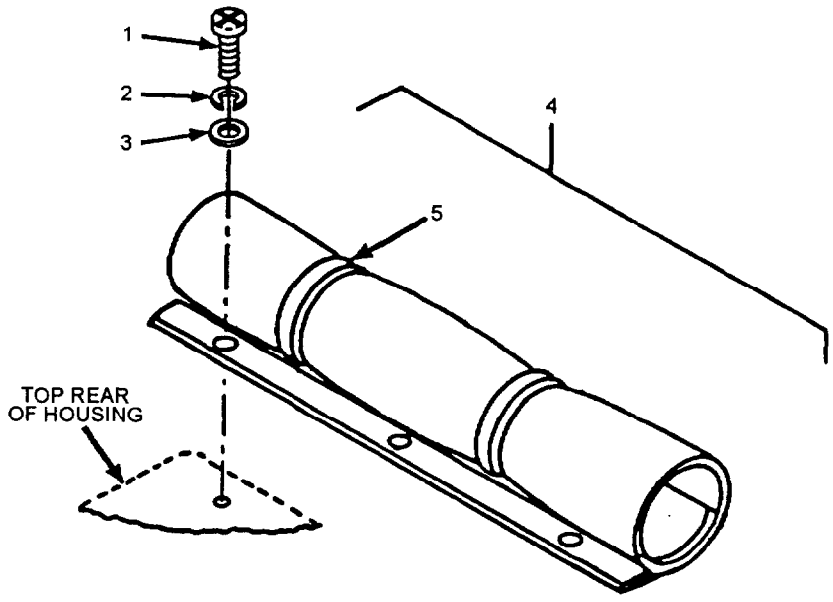
REMOVAL

Canvas Cover

1. Loosen ties (5) on canvas cover (4).
2. Roll down.
3. Remove screws (1), flat washers (3), and lockwashers (2) securing canvas cover (4).
4. Roll up canvas cover (4).
5. Refasten ties (5) around rolled canvas cover (4).
6. Set aside.

REMOVAL-Continued

Canvas Cover



Front Top Panel

1. Remove eight screws (1) securing front top cover (2).
2. Remove front top cover (2).

Rear Top Panel

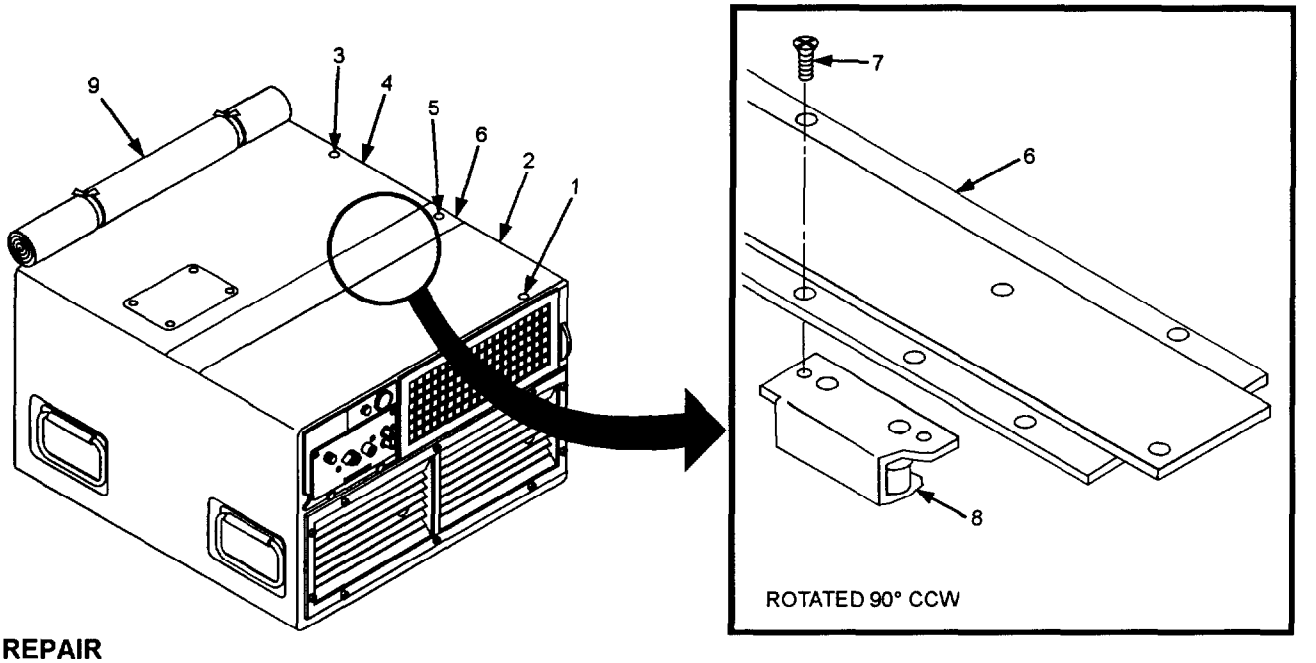
1. Remove remaining seven screws (3) securing rear top cover (4).
2. Remove rear top cover (4).

Center Top Panel.

1. Remove six screws (5) securing center top cover (6).
2. Remove two screws (7) holding the thermostatic heater switch bracket (8) to the cover. Leave the switch in place.
3. Remove center top cover (6).

REMOVAL-Continued

Top Panels-Continued



REPAIR

Top Covers

1. Inspect for bent covers, loose or missing gaskets or thermal insulation.
2. Clean dirty covers with warm, soapy water.
3. Straighten or replace damaged covers.

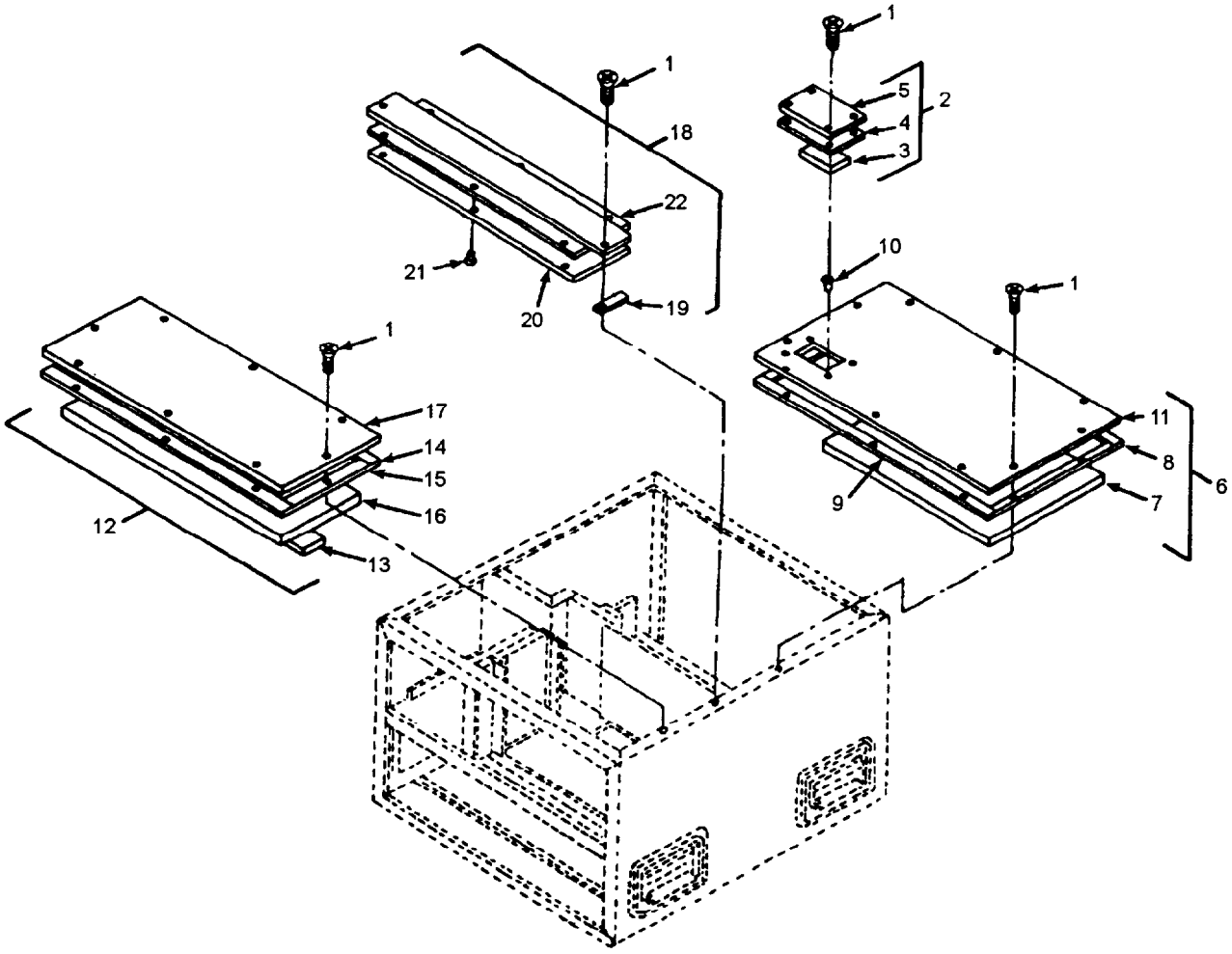
WARNING

MMM-A-121 Adhesive is flammable and its vapors can be explosive. Repeated or prolonged skin contact or inhalation of vapors can be toxic. Use in a well ventilated area and keep away from sparks or flame. Use goggles, gloves, and apron when appropriate.

4. Secure loose rubber gaskets or thermal insulation with adhesive (Item 18, Table 1, WP 0074-00).
5. Remove damaged gaskets (4), (8), (9), (15), (16) and (19).

REPAIR-Continued

Top Covers-Continued



WARNING

Clean parts in a well-ventilated area. Avoid inhalation of solvent fumes and prolonged exposure of skin to cleaning solvent. Wash exposed skin thoroughly. Dry cleaning solvent, P-D-680 Type III, which is used to clean parts, is potentially dangerous to personnel and property. Avoid repeated and prolonged skin contact. Do not use near open flame or excessive heat. Flash point of solvent is 100 °F to 138 °F (38 °C to 59 °C).

6. Clean area using dry cleaning solvent (Item 16, Table 1, WP 0074-00).

REPAIR-Continued

Top Covers-Continued

WARNING

MMM-A-121 Adhesive is flammable and its vapors can be explosive. Repeated or prolonged skin contact or inhalation of vapors can be toxic. Use in a well-ventilated area and keep away from sparks or flame. Use goggles, gloves, and apron when appropriate.

7. Replace damaged gaskets using cellular rubber strips (Item 19, Table 1, WP 0074-00).

WARNING

MMM-A-121 Adhesive is flammable and its vapors can be explosive. Repeated or prolonged skin contact or inhalation of vapors can be toxic. Use in a well-ventilated area and keep away from sparks or flame. Use goggles, gloves, and apron when appropriate.

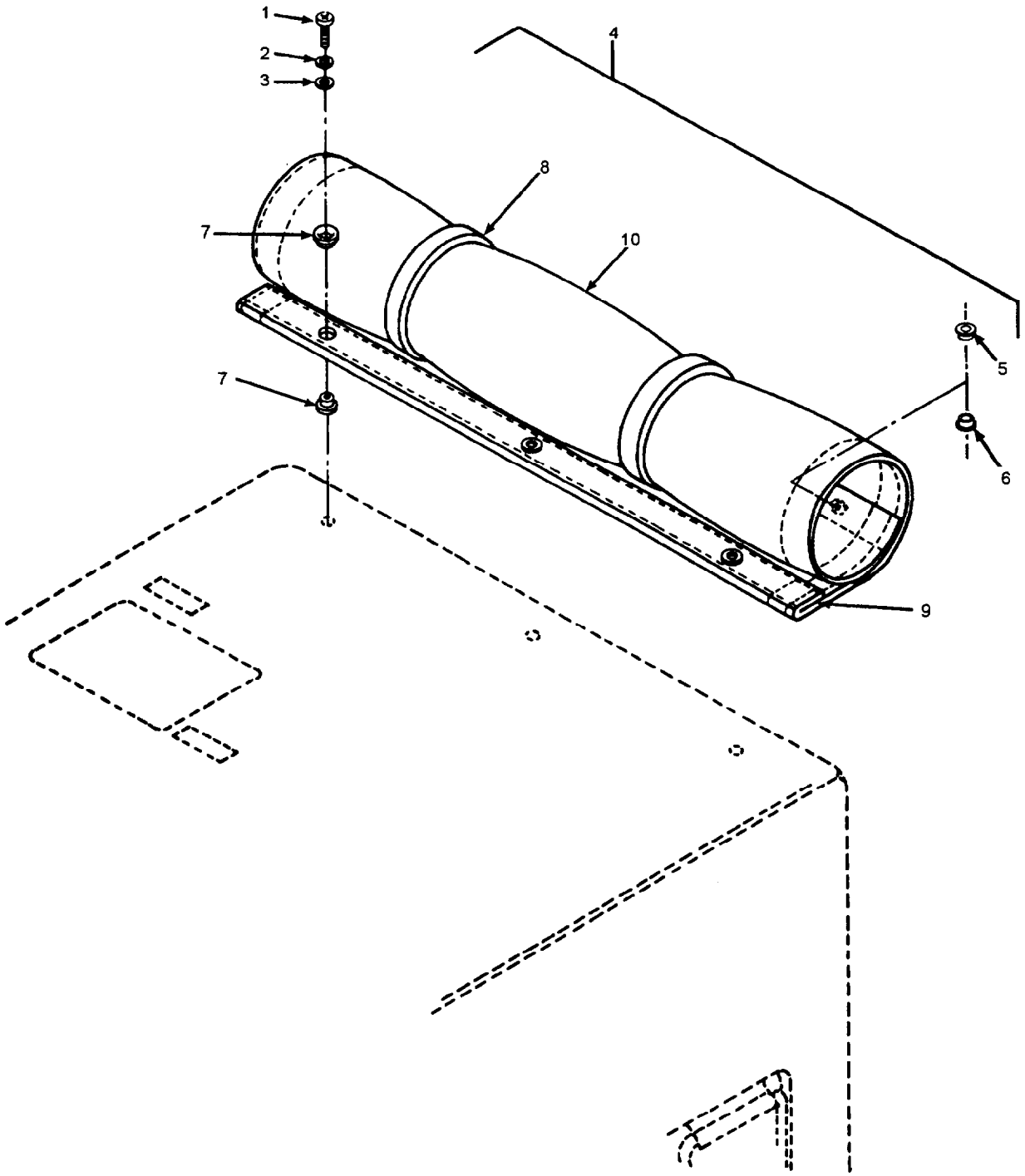
8. Replace damaged thermal insulation (3), (7), (13), (14) and (20) with flexible thermal insulation (Item 20, Table 1, WP 0074-00) and adhesive (Item 18, Table 1, WP 0074-00).

Canvas Cover

1. Repair any rips in canvas or seams.
2. Replace any damaged grommets (7) or snaps (5 and 6).
3. Replace cover (4) if heavily damaged.

REPAIR-Continued

Canvas Cover-Continued



INSTALLATION

Center Top Panel

1. Secure thermostatic heater switch bracket (8) to underside of cover (6) with two screws (7).
2. Align cover (6) and secure with six screws (5).

Rear Top Panel

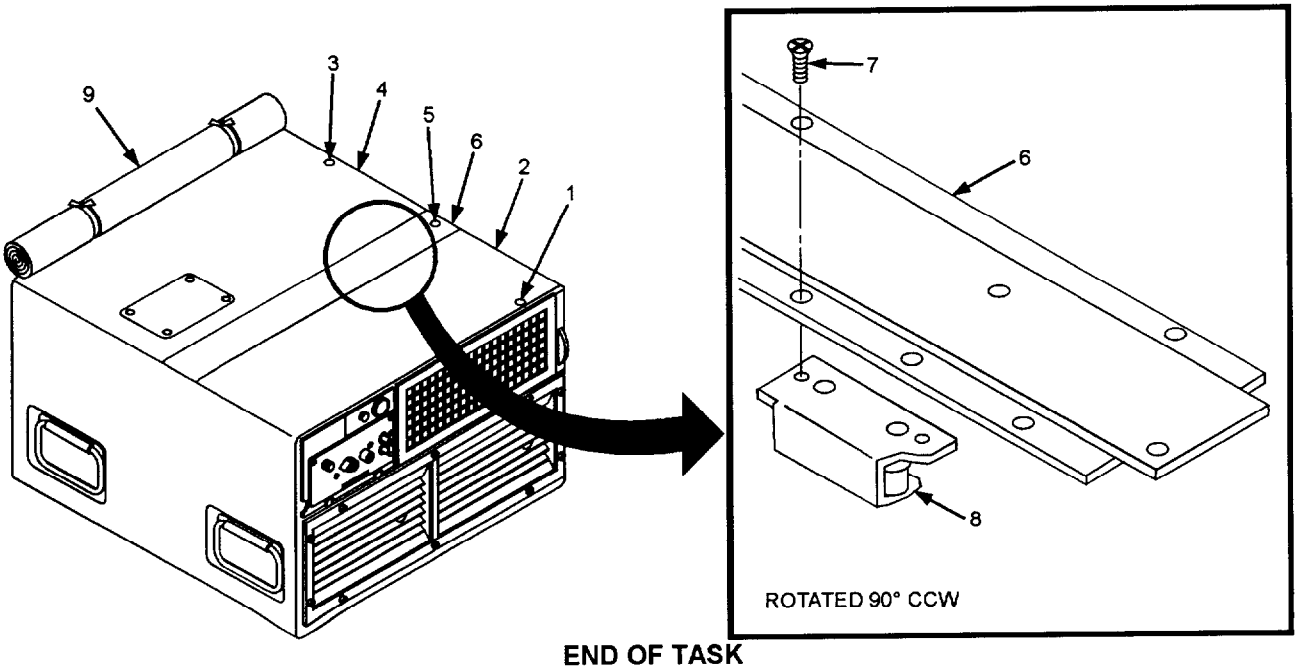
Align cover (4) and secure with seven screws (3).

Canvas Cover

Align canvas cover (9) and secure with screws, flat washers, and lockwashers.

Front Top Panel

Align cover (2) and secure with eight screws (1).



END OF TASK

SCREENS & GUARDS DIRECT SUPPORT MAINTENANCE 0054-00

THIS WORK PACKAGE COVERS:
Removal, Repair and Installation

INITIAL SETUP:

Maintenance Level
Direct Support

Tools and Special Tools
Tool Kit, General Mechanics (Item 1, Table 2, WP 0071-00)

References
WP 0071-00 (MAC)

Equipment Condition
Main power source is disconnected.

WARNING

Disconnect air conditioner power input connector before doing maintenance work on the electrical system.

REMOVAL

Condenser Guard

Remove eight screws (1 and 4) and eight lockwashers (2 and 5) securing guard (6). Remove guard.

Screens

Remove two screws (1) and two lockwashers (2) securing screen guard (3).

NBC Cover Plate

When installed, remove two screws (1) and two lockwashers (2), securing NBC cover plate (7).

REPAIR

1. Inspect for bent guards (4 and 9).
2. Straighten bent guard or replace if damaged beyond repair.
3. Replace damaged screens (5 and 6).

INSTALLATION

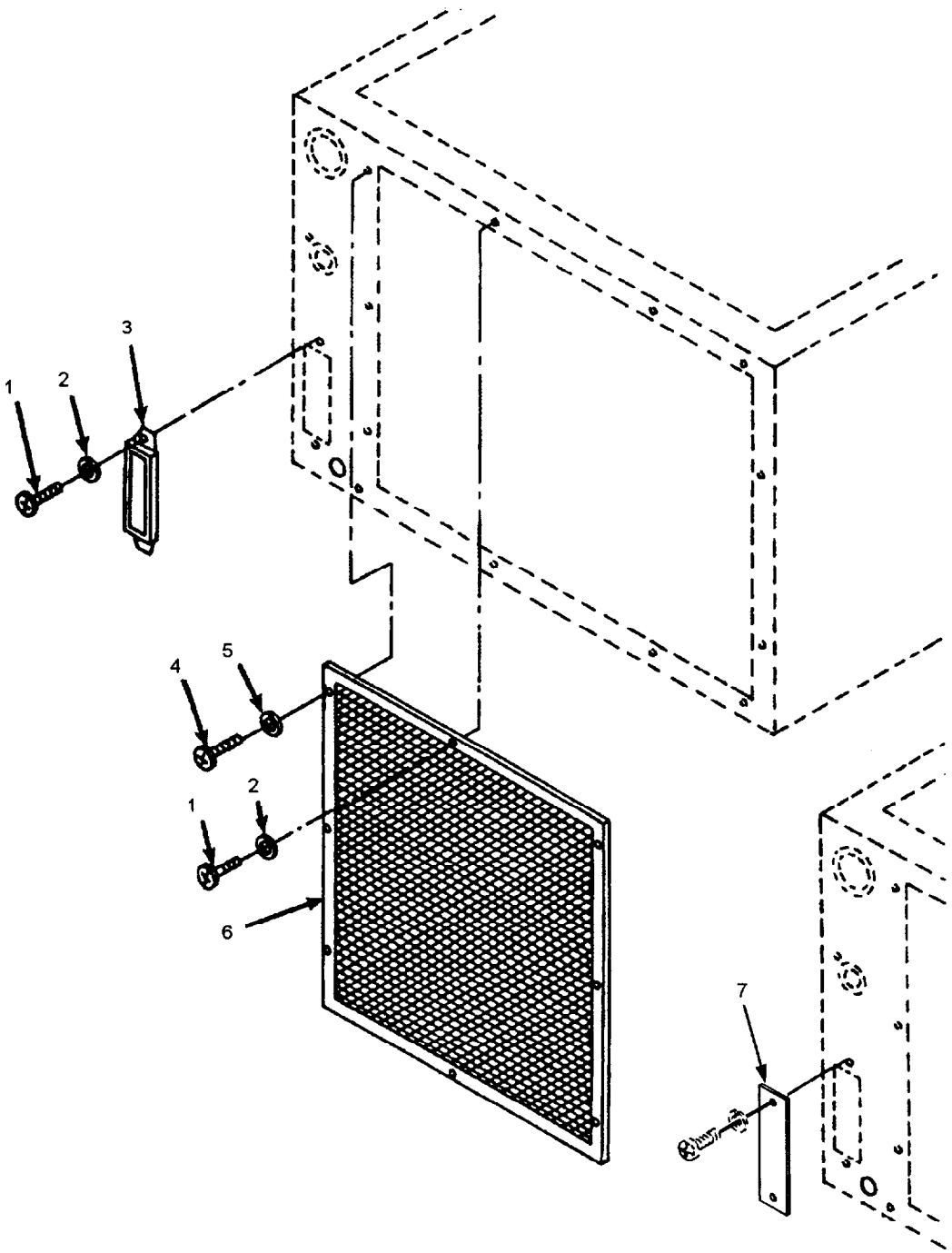
Condenser Guard

1. Install guard (9) with screws (1 and 7) and washers (2 and 8).
2. Tighten all screws securing guard (1).

INSTALLATION-Continued

Screens

1. Position screens (5 and 6) in screen guard (4).
2. Install screen guard (4) and screens (5 and 6) with two screws (1) and two lockwashers (2).



END OF TASK

EVAPORATOR LOUVERS DIRECT SUPPORT MAINTENANCE REPLACEMENT 0055-00

THIS WORK PACKAGE COVERS:
Removal, Repair and Installation

INITIAL SETUP:

Maintenance Level
Direct Support

Tools and Special Tools
Tool Kit, General Mechanics (Item 1, Table 2, WP 0071-00)

References
WP 0071-00 (MAC)

Equipment Condition
Main power source is disconnected.

Materials/Parts
Warm, soapy water
Filter-kote or oil (Item 17, Table 1, WP 0074-00)
Cellular rubber strips (Item 19, Table 1, WP 0074-00)
Adhesive (Item 18, Table 1, WP 0074-00)
Dry Cleaning Solvent (Item 16, Table 1, WP 0074-00)

WARNING

Disconnect air conditioner power input connector before doing maintenance work on the electrical system.

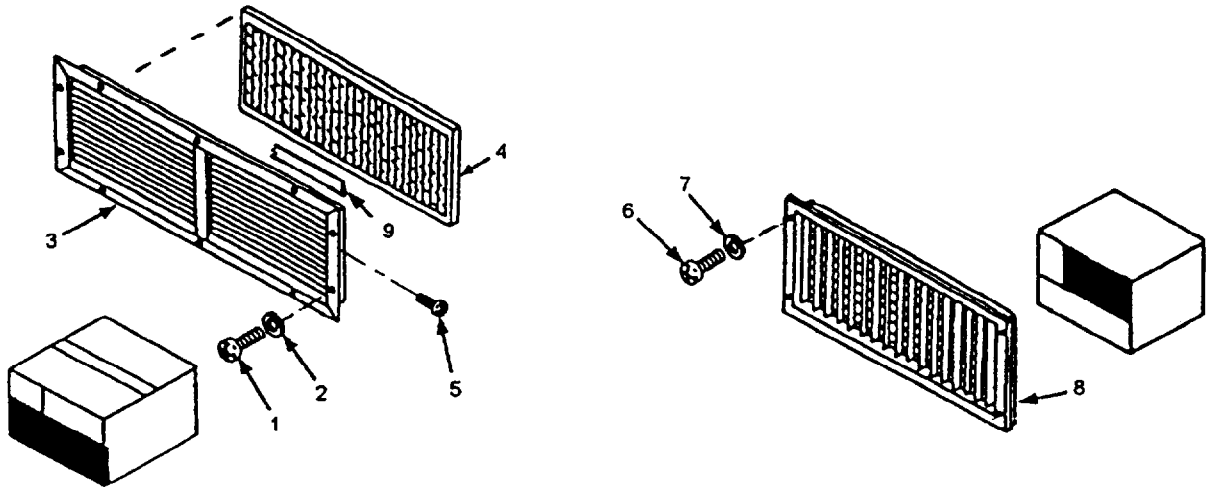
REMOVAL

Evaporator Air Intake Louver

1. Remove eight screws (1) and eight lockwashers (2) securing louver (3) to housing.
2. Remove louver (3).
3. Remove screw (5) to disassemble evaporator air intake filter (4) from louver (3).

Evaporator Air Discharge Louver

1. Remove six screws (6) and six lockwashers (7) securing louver (8) to housing.
2. Remove louver (8).



REPAIR

1. Inspect for bent louvers, loose or missing gaskets (9).
2. Clean dirty louvers with warm, soapy water.
3. Straighten or replace damaged louvers.

WARNING

MMM-A-121 Adhesive is flammable and its vapors can be explosive. Repeated or prolonged skin contact or inhalation of vapors can be toxic. Use in a well ventilated area and keep away from sparks or flame. Use goggles, gloves, and apron when appropriate.

4. Secure loose rubber gaskets (9) with adhesive (Item 18, Table 1, WP 0074-00).
5. Remove damaged gaskets (9).

WARNING

Clean parts in a well-ventilated area. Avoid inhalation of solvent fumes and prolonged exposure of skin to cleaning solvent. Wash exposed skin thoroughly. Dry cleaning solvent, P-D-680 Type III, which is used to clean parts, is potentially dangerous to personnel and property. Avoid repeated and prolonged skin contact. Do not use near open flame or excessive heat. Flash point of solvent is 100 °F to 138 °F (38 °C to 59 °C).

6. Clean area using dry cleaning solvent (Item 16, Table 1, WP 0074-00).
7. Replace damaged gaskets using cellular rubber strips (Item 19, Table 1, WP 0074-00).

INSTALLATION

Evaporator Air Discharge Louver

Align and secure louver (8) to housing using six screws (6) and six lockwashers (7), respectively.

Evaporator Air Intake Louver

1. Assemble filter (4) to evaporator air intake louver (3) with screw (5).
2. Align and secure louver (3) to housing using eight screws (1) and eight lockwashers (2), respectively.

END OF TASK

INFORMATION PLATES DIRECT SUPPORT MAINTENANCE REPLACEMENT 0056-00

THIS WORK PACKAGE COVERS:
Removal, and Installation

INITIAL SETUP:

Maintenance Level
Direct Support

Tools and Special Tools
Tool Kit, General Mechanics (Item 1, Table 2, WP 0071-00)

References
WP 0071-00 (MAC)

Equipment Condition
Main power source disconnected.

WARNING

Disconnect air conditioner power input connector before doing maintenance work on the electrical system.

REMOVAL

Reset High Pressure Decal (12)

Using a flathead screwdriver, remove high pressure reset decal (12) from junction box (19).

Cold Weather Operation Decal (13)

Using a flathead screwdriver, remove cold weather operation decal (13) from junction box (19).

High Pressure Charging Valve Decal (2)

Using a flathead screwdriver, remove high pressure charging valve decal (2) from rear top cover (20).

Low Pressure Charging Valve Decal (4)

Using a flathead screwdriver, remove low pressure charging valve decal (4) from rear top cover (20).

Caution: Grounding Decal (11)

Using a flathead screwdriver, remove caution decal (11) from front of junction box (19).

Vent Open Decal (8)

Using a flathead screwdriver, remove the vent open decal (8) from right front of air conditioner (beneath vent damper actuator wheel).

REMOVAL-Continued

Vent Closed Decal (7)

Using a flathead screwdriver, remove the vent closed decal (7) from the right front of the air conditioner (above vent damper actuator wheel).

Identification Plate (1)

WARNING

Disconnect air conditioner power supply before doing maintenance work on or near electrical components or junction box compartment.

1. Remove front top panel (21). (See WP 0019-00.)
2. Remove junction box (19). (See WP 0028-00.)

CAUTION

When removing or installing identification plate, be careful not to damage any components in the junction box compartment.

3. Using a 1/8" diameter drill, remove four rivets (17) from identification plate (1) and housing.
4. Remove identification plate (1) from housing.

Danger Plate (14)

WARNING

Disconnect air conditioner power supply before doing maintenance work on or near electrical components or junction box compartment.

1. Remove front top cover (21). (See WP 0019-00.)
2. Remove junction box (19). (See WP 0028-00.)

CAUTION

When removing or installing danger plate, be careful not to damage any components in the junction box compartment.

3. Using a 1/8" diameter drill, remove four rivets (18) from danger plate (14) and housing.
4. Remove danger plate (14) from housing.

REMOVAL-Continued

Schematic Diagram (6)

1. Remove front top cover (21). (See WP 0019-00.)
2. Using a 1/8" diameter drill, remove six rivets (16) from schematic diagram (6) and front top cover (21).
3. Remove schematic diagram (6) from front top cover (21).

Refrigeration Diagram (5)

1. Remove rear top cover (20). (See WP 0019-00.)
2. Using a 1/8" diameter drill, remove six rivets (15) from refrigeration diagram (5) and rear top cover (20).
3. Remove refrigeration diagram (5) from rear top cover (20).

Input Power Connector Plate (9)

1. Remove four screws holding input power connector plate (9) to junction box (19).
2. Remove plate, connector cap and chain from junction box.

Grounding Lug Decal (10)

1. Using a flathead screwdriver, remove grounding lug decal (10) from junction box (19).

Warning (Chemical Substance) Decal (22)

1. Using a flathead screwdriver, remove decal (22) from rear top cover (20).

Caution (Two-Man Lift) Decal (23)

1. Using a flathead screwdriver, remove caution decal (23) from side of housing (20).

INSTALLATION

Reset High Pressure Decal (12)

1. Remove protective paper from back of new reset high pressure decal (12) to expose sticky surface.
2. Align reset high pressure decal (12) to proper position on junction box (19) and press in place.

Cold Weather Operation Decal (13)

1. Remove protective paper from back of cold weather operation decal (13) and expose sticky surface.
2. Align reset low pressure decal (13) to proper position on junction box (19) and press in place.

High Pressure Charging Valve Decal (2)

1. Remove paper from back of new high pressure charging valve decal (2) to expose sticky surface.
2. Align decal (2) to proper position on rear top cover (20) and press in place.

INSTALLATION-Continued

Low Pressure Charging Valve Decal (4)

1. Remove paper from back of new low pressure charging valve decal (4) to expose sticky surface.
2. Align decal (4) to its proper position on rear top cover (20) and press in place.

Caution: Grounding Decal (11)

1. Remove paper from back of Caution: Grounding Decal (11) and expose sticky surface.
2. Align decal (11) to its proper position on junction box (19) and press in place.

Vent Open Decal (8)

1. Remove paper from back of new vent open decal (8) and expose sticky surface.
2. Align decal (8) to proper position on housing (beneath vent damper actuator wheel) and press in place.

Vent Closed Decal (7)

1. Remove paper from back of new vent closed decal (7) and expose sticky surface.
2. Align decal (7) to proper position on housing (above vent damper actuator wheel) and press in place.

Identification Plate (1)

WARNING

Disconnect air conditioner power supply before doing maintenance work on or near electrical components or junction box compartment.

1. Align identification plate (1) onto housing in proper position.

CAUTION

Be careful not to damage internal components of junction box compartment when installing identification plate.

2. Secure identification plate (1) to housing using four rivets (17).
3. Install junction box (19). (See WP 0028-00.)
4. Install front top cover (21). (See WP 0019-00.)

INSTALLATION-Continued

Danger Plate (14)

WARNING

Disconnect air conditioner power supply before doing maintenance work on or near electrical components or junction box compartment.

CAUTION

Be careful not to damage internal components of junction box compartment when installing danger plate.

1. Align danger plate (14) onto housing in proper position
2. Secure danger plate (14) to housing using four rivets (18).
3. Install junction box (19). (See WP 0028-00.)
4. Install front top cover (21). (See WP 0019-00.)

Schematic Diagram (6)

1. Align schematic diagram (6) onto proper position.
2. Secure schematic diagram (6) to front top cover (21) with six rivets (16).
3. Install front top cover (21). (See WP 0019-00.)

Refrigeration Diagram (5)

1. Align refrigeration diagram (5) onto rear top cover (20) in proper position.
2. Secure refrigeration diagram (5) to rear top cover (20) with six rivets (15).
3. Install rear top cover (20) onto air conditioner. (See WP 0019-00.)

Input Power Connector Plate (9)

1. Align input power connector plate (9) onto junction box (19).
2. Secure plate with three screws and secure the connector cap and chain with the fourth screw.

Grounding Lug Decal (10)

1. Remove paper from back of new grounding lug decal (4) to expose sticky surface.
2. Align decal (10) to its proper position on junction box (19) and press in place.

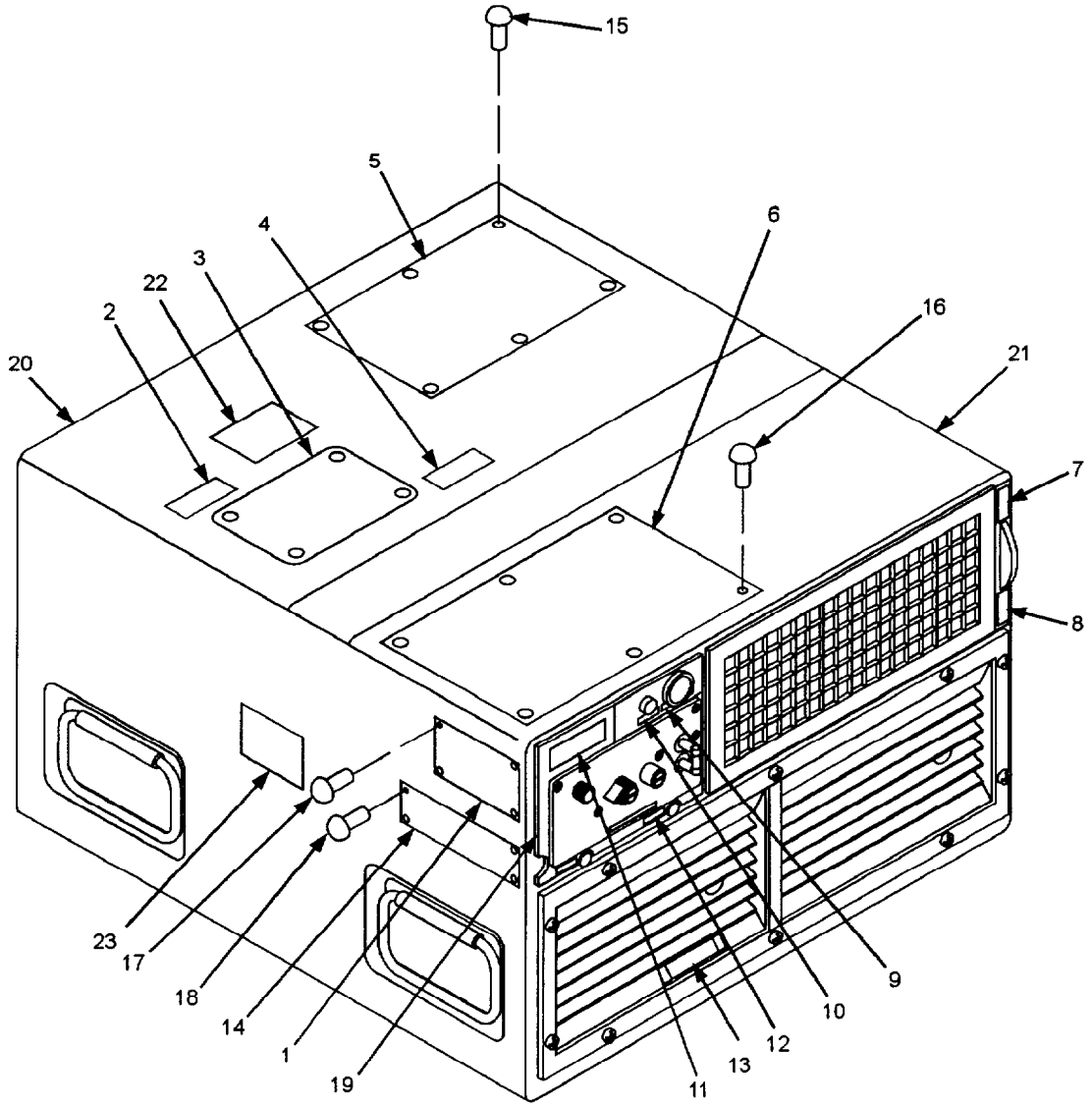
INSTALLATION-Continued

Warning (Chemical Substance) Decal (22)

1. Remove paper from back of new warning decal (22) to expose sticky surface.
2. Align decal (22) to its proper position on rear top cover (20) and press in place.

Caution (Two-Man Lift) Decal (23)

1. Remove paper from back of caution decal (23) and expose sticky surface.
2. Align decal (23) to its proper position on side of housing (20) and press in place.



END OF TASK

EVAPORATOR COIL DIRECT SUPPORT MAINTENANCE REPLACEMENT 0057-00

THIS WORK PACKAGE COVERS:
Removal, Inspection, Cleaning and Installation

INITIAL SETUP:

Maintenance Level
Direct Support

Tools and Special Tools
Tool Kit, General Mechanics (Item 1, Table 2, WP 0071-00)
Tool Kit, Service, Refrigeration Unit (Item 2, Table 2, WP 0071-00)
Recovery and Recycle Unit, Refrigerant, (Item 5, Table 2, WP 0071-00)

References
WP 0071-00 (MAC)

Equipment Condition
Mode selector switch in OFF position.
Main power source is disconnected.
Panels removed (WP 0019-00).
Evaporator outlet louver removed (WP 0020-00).
System refrigerant discharged (WP 0046-00).
Mist eliminator removed (WP 0022-00).

Test Equipment:
Electronic refrigerant gas leak detector

Materials/Parts
Dry Cleaning solvent (P-D 680) (Item 16, Table 1, WP 0074-00)
Nitrogen (Item4, Table 1, WP 0074-00)
Brazing alloy (Item 5 or 6, Table 1, WP 0074-00)
Brazing flux (Item 7, Table 1, WP 0074-00)
Warm, soapy water
Brush, wire
Cloth, lint-free (Item 9, Table 1, WP 0074-00)

Special Environmental Condition

NOTE

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

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

WARNING

Disconnect air conditioner power supply before doing maintenance work on or near electrical components or junction box compartment.

WARNING

Purge system with dry nitrogen prior to soldering or de-soldering; refrigerant heated by flame or hot surfaces creates phosgene gas, a highly toxic gas.

WARNING

Do not let refrigerant touch you or inhale refrigerant gas. Be especially careful to prevent refrigerant from coming in contact with your eyes. In case of refrigerant leaks, ventilate area at once.

WARNING

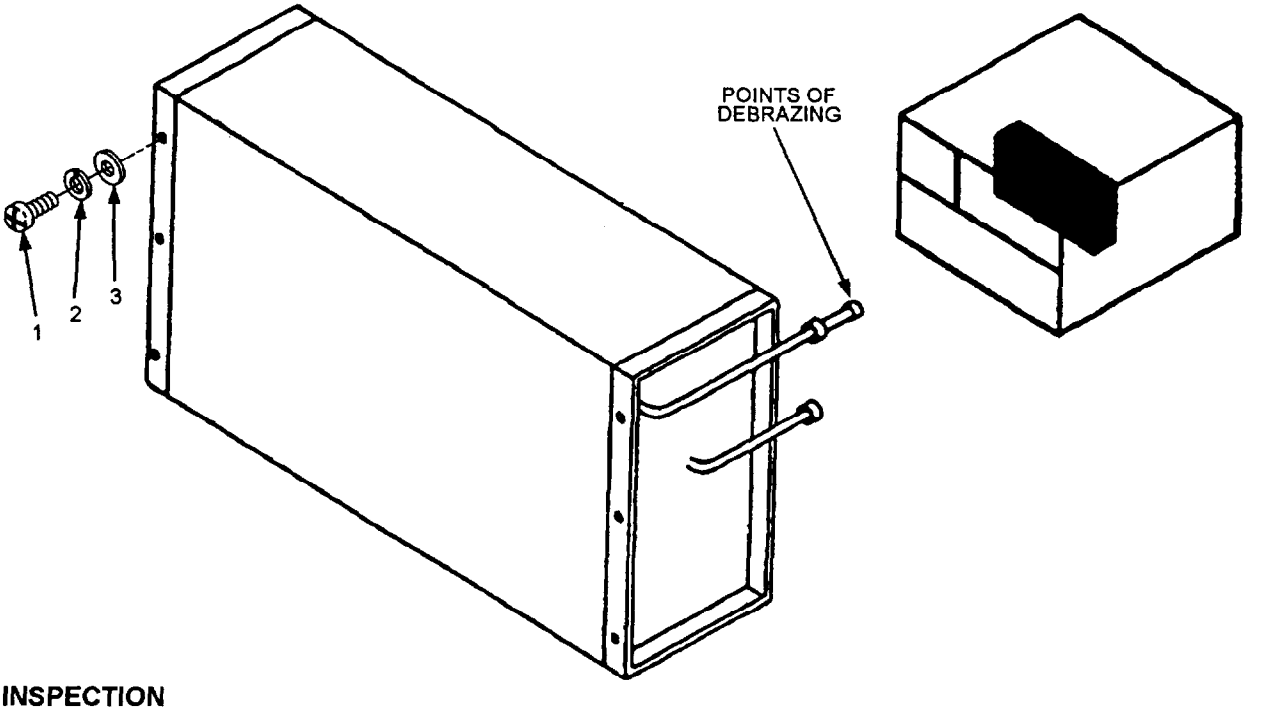
Follow general debrazing instructions given in WP 0048-00. Provide a flow of dry nitrogen through the refrigeration system while debrazing connections.

REMOVAL

1. Remove six screws (1), six lockwashers (2), and six flat washers (3) securing evaporator coil to housing.
2. Debraze tubing from evaporator coil.
3. Carefully lift the evaporator coil from the air conditioner.
4. Remove filter-drier (WP 0064-00).

EVAPORATOR COIL DIRECT SUPPORT MAINTENANCE REPLACEMENT-Continued 0057-00

REMOVAL-Continued



INSPECTION

Inspect the evaporator coil for bent or torn fins and for damaged connections.

CLEANING

WARNING

Clean parts in a well-ventilated area. Avoid inhalation of solvent fumes and prolonged exposure of skin to cleaning solvent. Wash exposed skin thoroughly. Dry cleaning solvent, P-D-680 Type III, which is used to clean parts, is potentially dangerous to personnel and property. Avoid repeated and prolonged skin contact. Do not use near open flame or excessive heat. Flash point of solvent is 100 °F to 138 °F (38 °C to 59 °C).

Clean coil using cleaning solvent (Item 16, Table 1, WP 0074-00) and soft brush.

INSTALLATION

1. Connect tubing to coil. Before brazing joints, provide a flow of dry nitrogen through refrigeration system to protect internal surfaces of the tubing and fittings. (See WP 0048-00.)
2. Place coil in air conditioner, and secure coil to housing with six screws (1), six lockwashers (2) and six flat washers (3).
3. Install new filter-dryer. (See WP 0063-00.)
4. Leak test system. (See WP 0049-00.)

INSTALLATION-Continued

5. Evacuate system. (See WP 0050-00.)
6. Charge system. (See WP 0051-00.)
7. Install evaporator outlet louver. (See WP 0020-00.)
8. Install mist eliminator. (See WP 0022-00.)
9. Install top covers. (See WP 0019-00.)

END OF TASK

EXPANSION VALVE DIRECT SUPPORT MAINTENANCE REPLACEMENT 0058-00

THIS WORK PACKAGE COVERS:
Removal and Installation

INITIAL SETUP:

Maintenance Level
Direct Support

Tools and Special Tools
Tool Kit, General Mechanics (Item 1, Table 2, WP 0071-00)
Tool Kit, Service, Refrigeration Unit (Item 2, Table 2, WP 0071-00)
Recovery and Recycle Unit, Refrigerant, (Item 5, Table 2, WP 0071-00)

References
WP 0071-00 (MAC)

Equipment Condition
Mode selector switch in OFF position.
Main power source is disconnected.
Panels removed (WP 0019-00).
System refrigerant discharged (WP 0046-00).

Test Equipment:
Electronic refrigerant gas leak detector

Materials/Parts
Nitrogen (Item 4, Table 1, WP 0074-00)
Brazing alloy (Item 5 or 6, Table 1, WP 0074-00)
Brazing flux (Item 7, Table 1, WP 0074-00)
Warm, soapy water
Cloth, lint-free (Item 9, Table 1, WP 0074-00)

Special Environmental Condition

NOTE

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

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

WARNING

Individuals who have chronic or recurrent respiratory conditions, including allergies and asthma, should not be employed in this environment.

WARNING

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

WARNING

Check that power source is disconnected. Check that system is discharged of refrigerant.

CAUTION

When performing brazing/debrazing operations, wrap valves with wet rags to act as a heat sink.

NOTE

Replace filter-drier whenever refrigerant system is opened.

REMOVAL

Expansion Valve

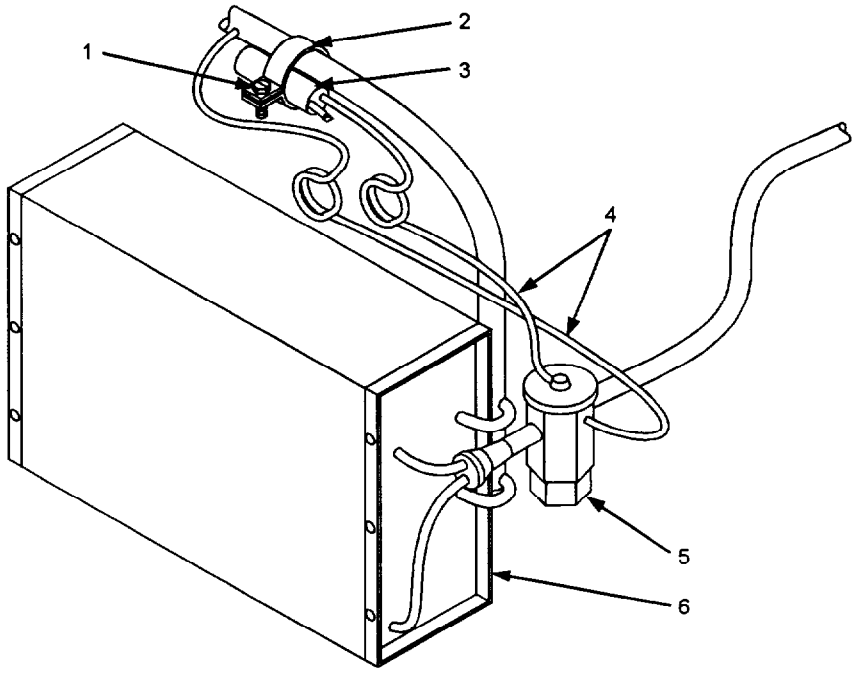
1. Locate bulb (3) strapped with clamp (1) to secure suction line.
2. Remove insulation covering clamp (2) and bulb (3).
3. Loosen screw (1), slide back clamp to release bulb (3).
4. Withdraw bulb (3) from clamp taking care to prevent damage to capillary tubes (4).

REMOVAL-Continued

Expansion Valve-Continued

5. With dry nitrogen flowing through refrigerant system, debraze tubing to valve at debrazing point (See and WP 0048-00.).

6. Remove expansion valve (5) from unit.



INSTALLATION

Expansion Valve

1. With dry nitrogen flowing through refrigeration system, braze valve to tubing (See WP 0048-00).

CAUTION

Take care to avoid kinking capillary tube.

INSTALLATION-Continued

Expansion Valve-Continued

2. Coil excess tubing.
3. Secure bulb (3) with clamp (2) and screw (1) to suction line.
4. Insulate bulb and clamp.
5. Replace filter-drier (WP 0063-00).
6. Leak test refrigeration system (WP 0049-00).
7. Evacuate refrigeration system (WP 0050-00).
8. Charge refrigeration system (WP 0051-00).
9. Install front and center top panel (WP 0019-00).

END OF TASK

PRESSURE SWITCHES DIRECT SUPPORT MAINTENANCE REPLACEMENT 0059-00

THIS WORK PACKAGE COVERS:
Inspect, Removal, Test, and Installation

INITIAL SETUP:

Maintenance Level
Direct Support

Tools and Special Tools
Tool Kit, General Mechanics (Item 1, Table 2, WP 0071-00)
Tool Kit, Service, Refrigeration Unit (Item 2, Table 2, WP 0071-00)
Recovery and Recycle Unit, Refrigerant, (Item 5, Table 2, WP 0071-00)

References
WP 0071-00 (MAC)

Equipment Condition
Mode selector switch in OFF position.
Main power source is disconnected.
System refrigerant discharged (WP 0046-00).
Panels removed (WP 0019-00).
Mist eliminator and bracket removed (WP 0022-00).
Junction box removed (WP 0028-00).

Test Equipment
Multimeter
Electronic refrigerant gas leak detector

Materials/Parts
Nitrogen (Item 4, Table 1, WP 0074-00)

Special Environmental Condition

NOTE

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

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

WARNING

Check that power source is disconnected before doing any maintenance on the air conditioner. Check that refrigerant system is discharged of refrigerant.

PRESSURE SWITCHES DIRECT SUPPORT MAINTENANCE REPLACEMENT- Continued 0059-00

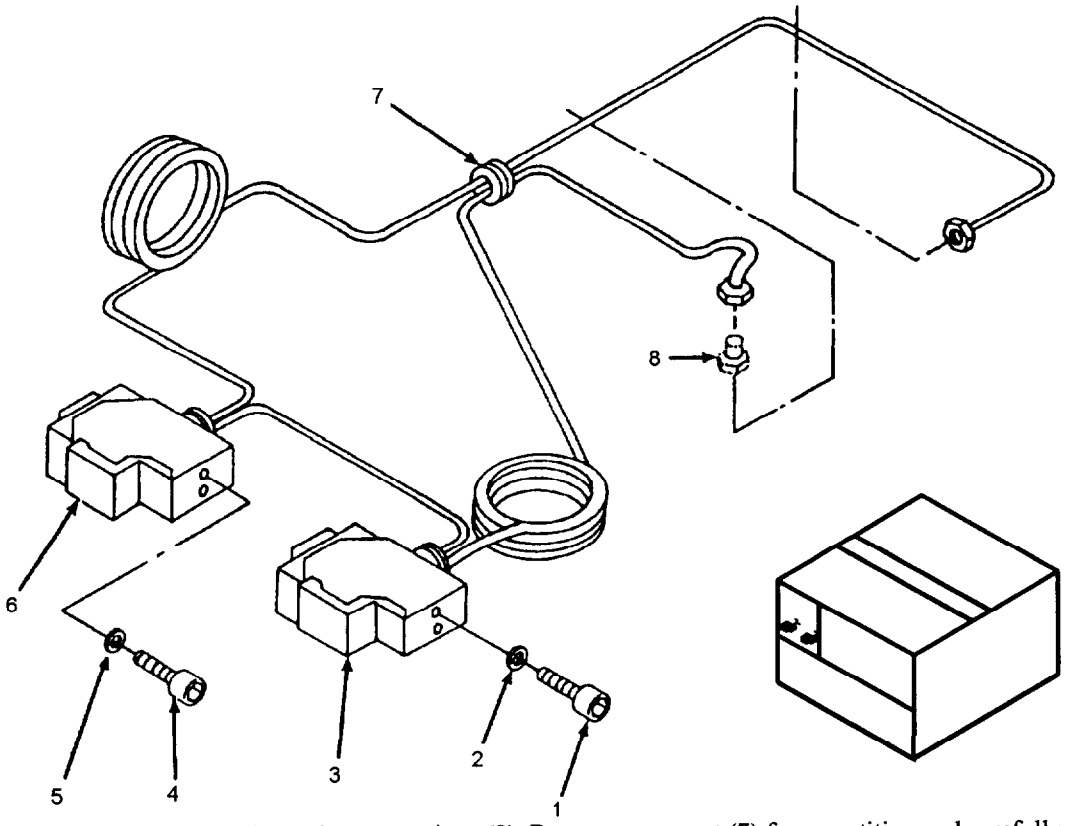
INSPECT

Front of Housing

Check wiring and sensing tube for damage.

REMOVAL

1. Remove two mounting screws (1 and 4) and two lockwashers (2 and 5) from each switch (3 and 6).
2. Unhook the electrical leads from the pressure switches. Tag leads for identification at assembly.



3. Unscrew flare nuts from capillary tube connections (8). Remove grommet (7) from partition and carefully pull capillary tubes through partition.
4. Remove pressure switches (3 and 6).

TEST

1. Test for continuity across terminals of high pressure switch (3). If no continuity exists, press the reset button and retest.
2. If the switch exhibits continuity, switch may be good.
3. If the switch does not indicate continuity, replace.
4. Using nitrogen, pressurize low pressure cutout switch (35-45 psig range/2.46-3.16 kg/cm^2 range).
5. Check for continuity across terminals.

TEST-Continued

6. If continuity does not exist, replace defective switch.
7. Using nitrogen, pressurize high pressure cutout switch (470-490 psig range/16.3-17.0 kg/cm^2 range).
8. Check for discontinuity across terminals.
9. If continuity does exist, replace defective pressure switch.

INSTALLATION

1. Insert ends of capillary tubes through hole in partition, being careful to avoid kinking tubes.
2. Install grommet (7) in the partition by sliding it over both capillary tubes.
3. Connect capillary tube flare nuts (8) to fittings.
4. Install switches (3 and 6) and secure with two screws (1 and 4) and two lockwashers (2 and 5). Keep excess capillary tubing coiled neatly without kinks.
5. Connect electrical leads and remove tags.
6. Install mist eliminator bracket.
7. Replace filter-drier (See WP 0063-00).
8. Leak test refrigerant system (See WP 0049-00).
9. Evacuate refrigerant system (See WP 0050-00).
10. Charge system (See WP 0051-00).
11. Install junction box (See WP 0028-00).
12. Install mist eliminator (See WP 0022-00).
13. Install evaporator inlet louver (See WP 0020-00).
14. Install top covers (See WP 0019-00).

END OF TASK

SERVICE VALVES DIRECT SUPPORT MAINTENANCE REPLACEMENT 0060-00

THIS WORK PACKAGE COVERS:
Inspect, Removal, and Installation

INITIAL SETUP:

Maintenance Level
Direct Support

Tools and Special Tools
Tool Kit, General Mechanics (Item 1, Table 2, WP 0071-00)
Tool Kit, Service, Refrigeration Unit (Item 2, Table 2, WP 0071-00)
Recovery and Recycle Unit, Refrigerant, (Item 5, Table 2, WP 0071-00)

References
WP 0071-00 (MAC)

Equipment Condition
Mode selector switch in OFF position.
Main power source is disconnected.
Rear top panel removed (WP 0019-00).
System refrigerant discharged (WP 0046-00).

Test Equipment
Electronic refrigerant gas leak detector

Materials/Parts
Nitrogen (Item 4, Table 1, WP 0074-00)

Special Environmental Condition

NOTE

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

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

WARNING

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

WARNING

Check that power source is disconnected. Check that system is discharged of refrigerant.

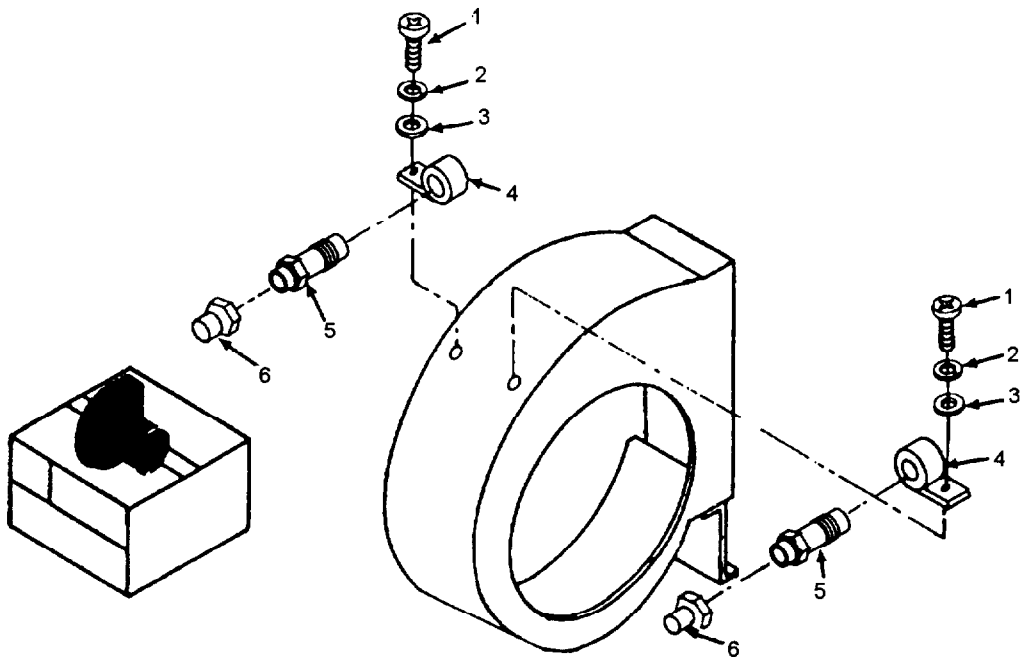
INSPECT

Interior of Housing

1. Visually inspect all valves for signs of damage.
2. Inspect valve fittings for leaks.
3. Inspect internal valve core (tire type valve). Replace if defective.

REMOVAL

1. Remove screw (1), lockwasher (2), flat washer (3), and clamp (4) from each service valve (5).
2. Unscrew and remove flare nuts (6) from suction and discharge service valves.
3. Remove refrigeration lines from valves.
4. Remove suction and discharge service valves.



NOTE

In almost every case, a defective service valve will require replacement.

INSTALLATION

1. Connect suction and discharge service valves (5) to refrigerant piping.
2. Tighten flare nuts (6) at suction and discharge service valves.
3. Secure suction and discharge service valves to condenser scroll with screws (1), lockwashers (2), flat washers (3) and clamps (4).

INSTALLATION-Continued

4. Replace filter-drier (See WP 0063-00).
5. Leak test refrigeration system (See WP 0049-00).
6. Evacuate refrigeration system (See WP 0050-00).
7. Charge refrigeration system (See WP 0051-00).
8. Install rear top panel (See WP 0019-00).

END OF TASK

PRESSURE RELIEF VALVE DIRECT SUPPORT MAINTENANCE REPLACEMENT 0061-00

THIS WORK PACKAGE COVERS:
Inspect, Removal, and Installation

INITIAL SETUP:

Maintenance Level
Direct Support

Tools and Special Tools
Tool Kit, General Mechanics (Item 1, Table 2, WP 0071-00)
Tool Kit, Service, Refrigeration Unit (Item 2, Table 2, WP 0071-00)
Recovery and Recycle Unit, Refrigerant, (Item 5, Table 2, WP 0071-00)

References
WP 0071-00 (MAC)

Equipment Condition
Mode selector switch in OFF position.
Main power source is disconnected.
Rear top panel removed (WP 0019-00).
System refrigerant discharged (WP 0046-00).

Test Equipment
Electronic refrigerant gas leak detector

Materials/Parts
Nitrogen (Item 4, Table 1, WP 0074-00)

Special Environmental Condition

NOTE

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

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

WARNING

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

WARNING

Check that power source is disconnected. Check that system is discharged of refrigerant.

PRESSURE RELIEF VALVE DIRECT SUPPORT MAINTENANCE REPLACEMENT - Continued

0061-00

INSPECT

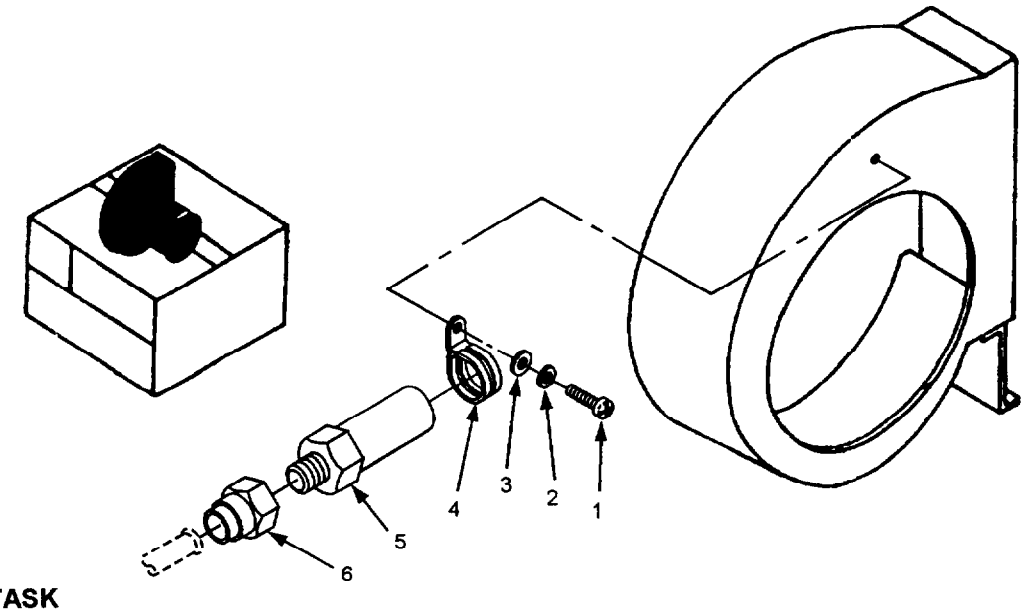
Check valve and attaching hardware for damage.

REMOVAL

1. Remove screw (1), lockwasher (2), flat washer (3) and clamp (4).
2. Unscrew valve (5) from adapter (6).

INSTALLATION

1. Install pressure relief valve (5) in adapter (6). Install loop clamp (4) on valve (5) and secure clamp with screw (1), lockwasher (2), and flat washer (3).
2. Replace filter-drier (See WP 0063-00).
3. Leak test refrigeration system (See WP 0049-00).
4. Evacuate refrigeration system (See WP 0050-00).
5. Charge refrigeration system (See WP 0051-00).
6. Install rear top panel (See WP 0019-00).



END OF TASK

CONDENSER COIL DIRECT SUPPORT MAINTENANCE REPLACEMENT 0062-00

THIS WORK PACKAGE COVERS:
Removal, and Installation

INITIAL SETUP:

Maintenance Level
Direct Support

Tools and Special Tools
Tool Kit, General Mechanics (Item 1, Table 2, WP 0071-00)
Tool Kit, Service, Refrigeration Unit (Item 2, Table 2, WP 0071-00)
Recovery and Recycle Unit, Refrigerant, (Item 5, Table 2, WP 0071-00)

References
WP 0071-00 (MAC)

Equipment Condition
Mode selector switch in OFF position.
Main power source is disconnected.
Top rear panel removed (WP 0019-00).
Condenser guard removed (WP 0023-00).
System refrigerant discharged (WP 0046-00).

Test Equipment
Electronic refrigerant gas leak detector

Materials/Parts
Dry cleaning solvent (P-D 680) (Item 16, Table 1, WP 0074-00)
Nitrogen (Item 4, Table 1, WP 0074-00)
Brazing alloy (Item 5 or 6, Table 1, WP 0074-00)
Brazing flux (Item 7, Table 1, WP 0074-00)
Warm, soapy water
Brush, wire
Cloth, lint-free (Item 9, Table 1, WP 0074-00)
Oil (Item 14, Table 1, WP 0074-00)

Special Environmental Condition

NOTE

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

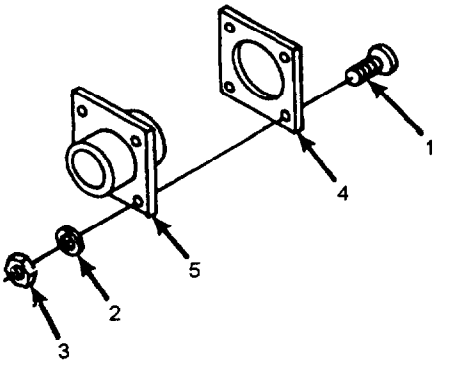
Operation of the recovery/recycling unit must be by AUTHORIZED PERSONNEL ONLY.

WARNING

Ensure power source is disconnected. Ensure refrigerant system is discharged.

REMOVAL

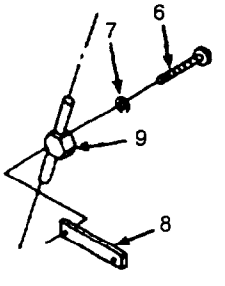
1. Remove four screws (1), four lockwashers (2), four nuts (3), and gasket (4) attaching alternate power input receptacle J1 (5) to housing.

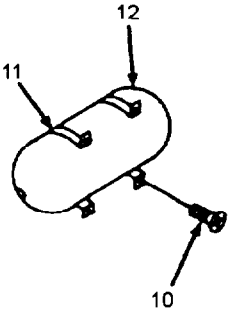


2. Move alternate power receptacle J1 (5) and wiring to aid in condenser coil removal.

3. Remove two screws (6), two lockwashers (7), and mounting plate (8) attaching liquid sight indicator (9) to housing (See WP 064-00).

4. Remove four screws (10) and two mounting clamps (11) attaching receiver tank (12) to housing.





5. Purge system (See WP 0047-00).

6. Reposition electrical wiring away from piping area to be debrazed.

7. Debraze condenser inlet tube tee (See WP 0048-00).

8. Debraze filter-drier (See WP 0063-00).

CAUTION

Use extreme care in removing condenser coil from housing to avoid damaging fins and coil piping.

REMOVAL-Continued

9. Remove condenser coil from unit.
10. Debraze receiver tank (12) and liquid sight indicator (9) from condenser coil (See WP 0048-00).

INSTALLATION

1. Braze the receiver tank (12) and liquid sight indicator (9) onto the condenser coil (See WP 0048-00).

CAUTION

Use extreme care in installing condenser coil assembly into housing to avoid damaging fins, coil, piping and refrigerant system tubing.

2. Install condenser coil assembly into air conditioner.
3. Purge system (See WP 0047-00).
4. Braze condenser inlet tube into tee (See WP 0048-00).
5. Replace filter-drier (See WP 0063-00).
6. Install condenser guard with screws and lockwashers (See WP 0023-00).
7. Install filter-drier and liquid sight indicator. Install receiver using four screws (10) and two mounting clamps (11) (See WP 0063-00 and WP 0064-00).
8. Leak test refrigeration system (See WP 0049-00).
9. Reposition electrical wiring to original position and tie as required.
10. Install alternate power receptacle J1 (5) and wiring and secure to housing using four screws (1), four lockwashers (2), and four nuts (3).
11. Install rear top panel (See WP 0019-00).
12. Evacuate refrigeration system (See WP 0050-00).
13. Charge refrigeration system (See WP 0051-00).

END OF TASK

FILTER-DRIER DIRECT SUPPORT MAINTENANCE REPLACEMENT 0063-00

THIS WORK PACKAGE COVERS:
Inspect, Removal, and Installation

INITIAL SETUP:

Maintenance Level
Direct Support

Tools and Special Tools
Tool Kit, General Mechanics (Item 1, Table 2, WP 0071-00)
Tool Kit, Service, Refrigeration Unit (Item 2, Table 2, WP 0071-00)
Recovery and Recycle Unit, Refrigerant, (Item 5, Table 2, WP 0071-00)

References
WP 0071-00 (MAC)

Equipment Condition
Mode selector switch in OFF position.
Main power source is disconnected.
Rear top panel removed (WP 0019-00).
System refrigerant discharged (WP 0046-00).

Test Equipment
Electronic refrigerant gas leak detector

Materials/Parts
Nitrogen (Item 4, Table 1, WP 0074-00)

Special Environmental Condition

NOTE

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

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

INSPECT

Check filter-drier for leaks or damage.

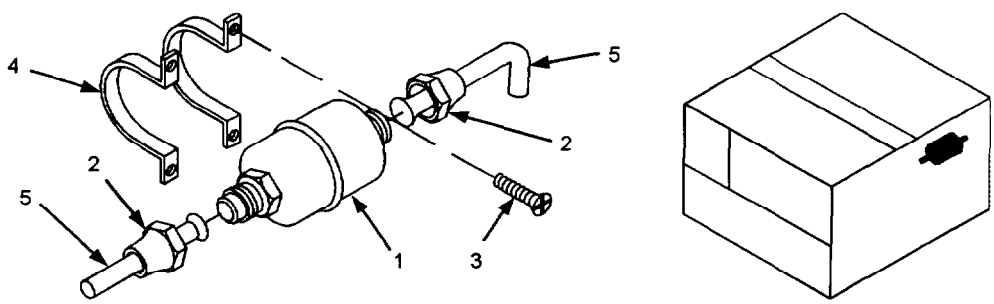
REMOVAL

Right Rear Top of Housing

WARNING

Check that power source is disconnected. Check that refrigerant system is discharged.

1. Unscrew flare nuts (2) and remove refrigerant lines (5) from filter-drier (1).
2. Remove four screws (3) and straps (4).
3. Remove filter-drier (1).



INSTALLATION

1. Check the direction arrow marked on the filter-drier (1).
2. Position filter-drier (1) between refrigerant lines (5).
3. Tighten flare nuts (2).
4. Install straps (4) with screws (3).
5. Leak test refrigerant system (See WP 0049-00).
6. Evacuate refrigerant system (See WP 0050-00).
7. Charge refrigerant system (See WP 0051-00).
8. Install top panels (See WP 0019-00).

END OF TASK

LIQUID INDICATOR DIRECT SUPPORT MAINTENANCE REPLACEMENT 0064-00

THIS WORK PACKAGE COVERS:
Removal, and Installation

INITIAL SETUP:

Maintenance Level
Direct Support

Tools and Special Tools
Tool Kit, General Mechanics (Item 1, Table 2, WP 0071-00)
Tool Kit, Service, Refrigeration Unit (Item 2, Table 2, WP 0071-00)
Recovery and Recycle Unit, Refrigerant, (Item 5, Table 2, WP 0071-00)

References
WP 0071-00 (MAC)

Equipment Condition
Mode selector switch in OFF position.
Main power source is disconnected.
Top rear panel removed (WP 0019-00).
Condenser coil removed (WP 0062-00).
System refrigerant discharged (WP 0046-00).

Test Equipment
Electronic refrigerant gas leak detector

Materials/Parts
Nitrogen (Item 4, Table 1, WP 0074-00)
Brazing alloy (Item 5 or 6, Table 1, WP 0074-00)
Brazing flux (Item 7, Table 1, WP 0074-00)

Special Environmental Condition

NOTE

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

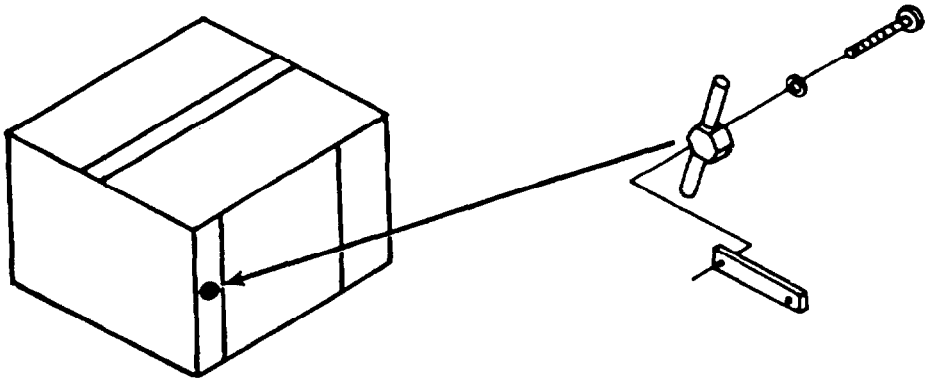
Operation of the recovery/recycling unit must be by AUTHORIZED PERSONNEL ONLY.

WARNING

Check that power source is disconnected. Check that refrigerant system is discharged.

REMOVAL

With a steady flow of dry nitrogen through refrigeration system, debraze liquid sight indicator from condenser coil and attached tubing (See WP 0047-00 and WP 0048-00).



INSTALLATION

1. With a steady flow of dry nitrogen through refrigeration system, braze liquid sight indicator onto condenser coil and tubing (See WP 0047-00 and WP 0048-00).
2. Install condenser coil assembly (See WP 0062-00).
3. Install filter-drier (See WP 0063-00).
4. Leak test refrigeration system (See WP 0049-00).
5. Evacuate refrigerant system (See WP 0050-00).
6. Charge refrigerant system (See WP 0051-00).
7. Install rear top panel (See WP 0019-00).

END OF TASK

COMPRESSOR DIRECT SUPPORT MAINTENANCE REPLACEMENT 0065-00

THIS WORK PACKAGE COVERS:
Test, Removal, Decontamination, Repair, and Installation

INITIAL SETUP:

Maintenance Level
Direct Support

Tools and Special Tools
Tool Kit, General Mechanics (Item 1, Table 2, WP 0071-00)
Tool Kit, Service, Refrigeration Unit (Item 2, Table 2, WP 0071-00)
Recovery and Recycle Unit, Refrigerant (Item 5, Table 2, WP 0071-00)

References
WP 0071-00 (MAC)

Equipment Condition
Mode selector switch in OFF position.
Main power source is disconnected.
Panels removed (WP 0019).
System refrigerant discharged (WP 0046-00).

Test Equipment:
Multimeter

Materials/Parts
Nitrogen (Item 4 Table 1, WP 0074-00)
Brazing alloy (Item 5 or 6, Table 1, WP 0074-00)
Brazing flux (Item 7, Table 1, WP 0074-00)

Special Environmental Condition

NOTE

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

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

WARNING

Disconnect air conditioner power supply before doing maintenance work on electrical system.

WARNING

Purge system with dry nitrogen prior to soldering or de-soldering; refrigerant heated by flame or hot surfaces creates phosgene gas, a highly toxic gas.

WARNING

Do not let refrigerant touch you or inhale refrigerant gas. Be especially careful to prevent refrigerant from coming in contact with your eyes. In case of refrigerant leaks, ventilate area at once.

WARNING

Follow general debrazing instructions given in WP 0048-00. Provide a flow of dry nitrogen through the refrigeration system while debrazing connections.

WARNING

Never operate compressor without the compressor terminal cover secured in place.

TEST

1. Remove nut (8) and lift off cover (9). See compressor exploded view.
2. Tag and disconnect terminal lugs. See wiring diagram, WP 0075-00.

NOTE

The cover (9) is embossed with the pin locations of C, S, and R.

3. Using a multimeter, test for continuity between pins C and S, S and R, and R and C of the compressor electrical receptacle. Continuity should exist. If not, replace compressor.
4. Check for continuity between pins C, S and R and the compressor housing. No continuity should exist. If continuity exists, replace compressor.

REMOVAL

1. With dry nitrogen flowing through refrigerant system, debraze tubing from connections (X) (Shown on Tubing and Fittings illustration)(See WP 0048-00).

NOTE

The compressor is mounted to the housing by bolts inserted from the bottom of the unit. Thus, it is necessary that the entire air conditioner be raised and placed on blocks of sufficient height to allow for removal of the bolts below the base.

2. Loosen eight screws (1) and open four access covers (2) on bottom of unit. See compressor exploded view.
3. Remove four screws (3), eight flat washers (5) and four self-locking nuts (4) securing compressor (7) to housing.

WARNING

Compressor weighs as much as 55 lbs. (25.0 kg) and could cause injury to personnel and damage to equipment if not handled properly while removing from unit.

4. Carefully lift up compressor from unit.
5. Remove eight resilient mounts (6).
6. Debraze tubing assemblies from compressor at connections (Y) (Shown on Tubing and Fitting illustration)(See WP 0048-00).

DECONTAMINATION

1. After removal of a bad compressor from the refrigeration system, tip the compressor toward the discharge port to drain sample of oil into a clear glass container.

WARNING

Avoid inhaling fumes and burns from any acid formed by burnout of oil and refrigerant.

2. If the oil is clean and clear, and does not have a burnt acid smell, the compressor did not fail because of motor burn out. If a burn out is not indicated, proceed to installing a replacement compressor.

3. If the oil is black, contains sludge, and has a burnt acid odor, the compressor failed because of motor burn out.

4. Replace complete air conditioner if motor burn out has occurred.

NOTE

Compressor failure due to a motor burnout results in the entire refrigerant system and components being contaminated with sludge and acids. Installation of a replacement compressor in a unit after a compressor motor burnout is not recommended as the residual sludge and acids will mix with the new refrigerant and compressor oil to cause repeated burnouts. To internally clean the refrigerant system and components to a reliable standard after a motor burnout is not practical in a system of this size and cost. The amount of labor for disassembly, new components, and safe and costly disposal of cleaning agents per Environmental Protection Agency regulations precludes a cost effective solution other than the salvage of non-refrigerant components.

REPAIR

Wiring

1. Remove the insulation to expose ½ inch (1.27 cm) of bare wire on each side of break or damaged insulation.

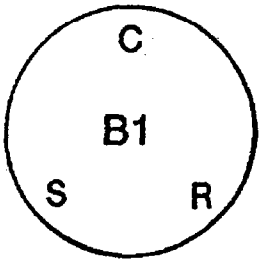
2. Insert the ends into a splice-connector; splice and crimp the connector to make firm electrical contact.

3. Alternatively, heat-shrink tubing may be slipped over one end of the wire before splicing, then heated after the splice is made and soldered so as to cover the spliced area.

4. Be sure that no bare wire is exposed after the splice is complete.

5. Replace broken terminal lugs with exact duplicates.

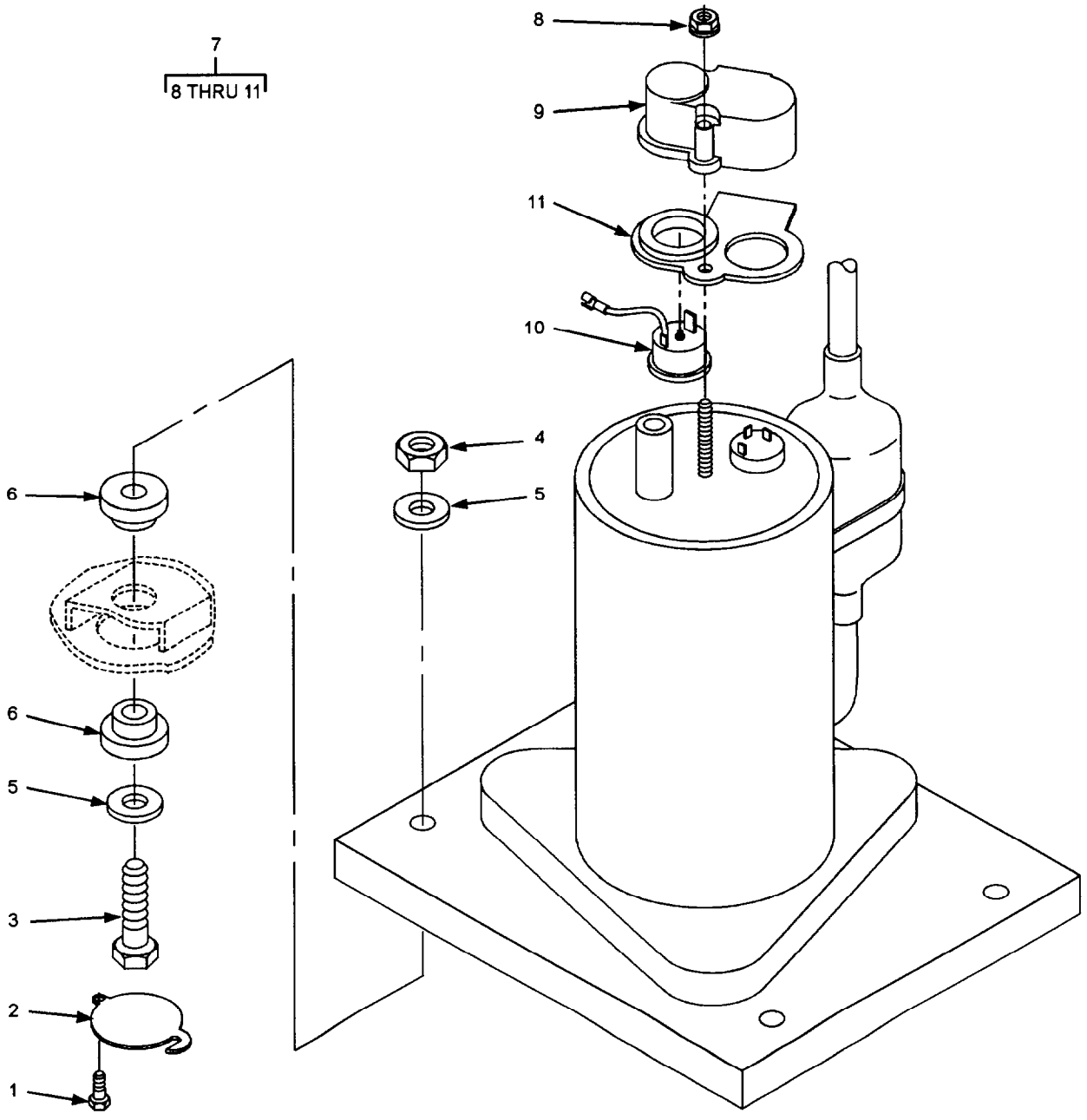
6. Check continuity terminal-to-terminal.



COMPRESSOR
PIN ARRANGEMENT

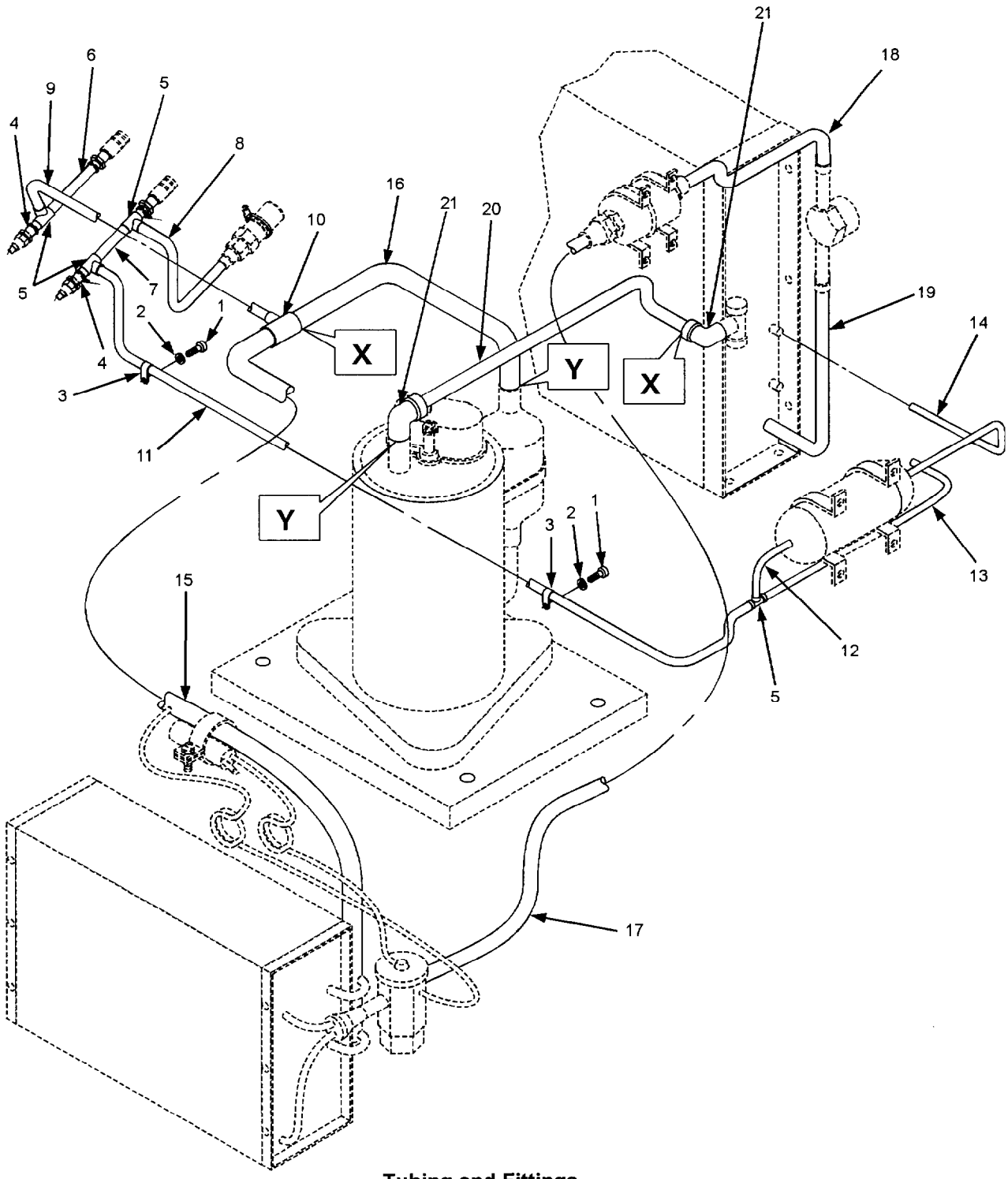
INSTALLATION

1. Install eight compressor resilient mounts (6). See compressor exploded view.
2. Install new compressor having a full and proper charge of oil.
3. Secure compressor with four screws (3), eight flat washers (5), and four locknuts (4).
4. Connect piping. Provide a flow of dry nitrogen through the system to protect inside surfaces of refrigerant piping from scaling while brazing (WP 0048-00).
5. Replace filter-drier. See WP 0063-00.
6. Leak test unit. See WP 0049-00.
7. Evacuate the system. See WP 0050-00.
8. Charge unit with refrigerant R-22. See WP 0051-00.
9. Start the air conditioner and operate the unit for 24 hours.
10. Discharge system and purge with dry nitrogen. See WP 0046-00 and WP 0047-00.
11. Evacuate the system and recharge it with refrigerant R-22. See WP 0050-00 and WP 0051-00.
12. Install top covers. See WP 0019-00.



Compressor

COMPRESSOR DIRECT SUPPORT MAINTENANCE REPLACEMENT - Continued 0065-00



Tubing and Fittings

END OF TASK

TUBING AND FITTINGS DIRECT SUPPORT MAINTENANCE REPLACEMENT 0066-00

THIS WORK PACKAGE COVERS:
Test, Removal and Installation

INITIAL SETUP:

Maintenance Level
Direct Support

Tools and Special Tools
Tool Kit, General Mechanics (Item 1, Table 2, WP 0071-00)
Tool Kit, Service, Refrigeration Unit (Item 2, Table 2, WP 0071-00)
Recovery and Recycle Unit, Refrigerant (Item 5, Table 2, WP 0071-00)

References
WP 0071-00 (MAC)

Equipment Condition
Mode selector switch in OFF position.
Main power source is disconnected.
Panels removed (WP 0019-00).

Test Equipment
Electronic refrigerant gas leak detector

Materials/Parts
Nitrogen (Item 4, Table 1, WP 0074-00)
Brazing alloy (Item 5 or 6, Table 1, WP 0074-00)
Brazing flux (Item7, Table 1, WP 0074-00)

Special Environmental Condition

NOTE

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

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

WARNING

Disconnect air conditioner power supply before doing maintenance work on the electrical system.

WARNING

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

TEST

1. Check all piping and connections with an Electronic refrigerant gas leak detector.
2. Calibrate the detector with a General Electric LS-20 leak standard (or approved equal) for a pure refrigerant leak rate of 0.1 ounce (2.8349 gms) per year.
3. Replace any piping or connection that is leaking beyond the rate of 0.1 ounce (2.8349 gms) per year.

REMOVAL

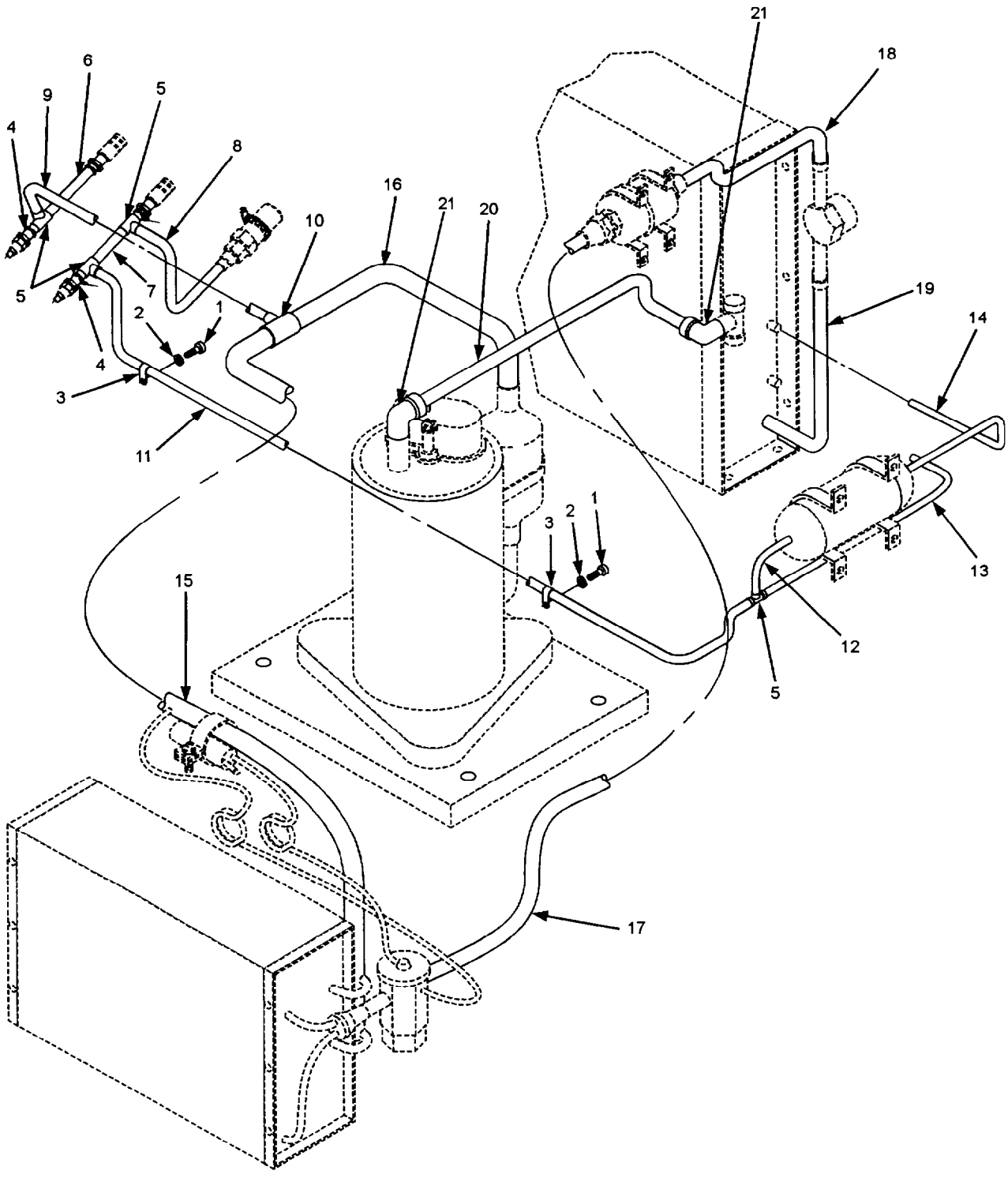
1. Debraze and remove tubing only when necessary to remove a defective part.
2. When brazing, constantly purge the refrigerant system with dry nitrogen to prevent scale formation within the refrigerant system. (See WP 0048-00).

INSTALLATION

1. Braze all copper-to-copper joints with silver solder (Item 21, Table 1, WP 0074-00).
2. Braze all copper-to-brass or copper-to-steel with silver solder.
3. Braze melting point is 1160°F(625°C).
4. Make all braze joints with an atmosphere of inert gas to prevent internal oxidation (See WP 0048-00).
5. Service refrigeration system after repairs (See WP 0046-00 through WP 0052-00).
6. Secure top panels (See WP 0019-00).

TUBING AND FITTINGS DIRECT SUPPORT
MAINTENANCE REPLACEMENT - Continued

0066-00



END OF TASK

CHAPTER 9

GENERAL SUPPORT MAINTENANCE INSTRUCTIONS

GENERAL SUPPORT MAINTENANCE **0067-00**

THIS WORK PACKAGE COVERS:

Repair Parts, Special Tools, TMDE, and Support Equipment

General Information

Repair parts are listed and illustrated in Chapter 10 of this manual. No special tools are required for general support maintenance of the air conditioner. Test, Maintenance, and Diagnostic Equipment (TMDE) and support equipment include standard electrical test equipment, standard pressure and vacuum gages, and vacuum servicing manifolds found in any general support maintenance refrigeration facility.

HOUSING GENERAL SUPPORT MAINTENANCE 0068-00

THIS WORK PACKAGE COVERS:
Inspection, Removal, Repair

INITIAL SETUP:

Maintenance Level
General Support

Tools and Special Tools
Tool Kit, General Mechanics (Item 1, Table 2, WP 0071-00)

References
WP 0071-00 (MAC)

Equipment Condition
Mode selector switch in OFF position.
Main power source is disconnected.

Materials/Parts
Adhesive (Item 18, Table 1, WP 0074-00)
Cellular rubber strips (Item 19,Table 1, WP 0074-00)
Elastomeric Thermal Insulation (Item 20,Table 1, WP 0074-00)
Cloth, lint-free (Item 9,Table 1, WP 0074-00)
Acetone (Item 22,Table 1, WP 0074-00)
Dry cleaning solvent (Item 16,Table 1, WP 0074-00)
Paint, forest green (MIL-C-46168)
Paint brush
Sandpaper, 240 grit
Primer (TT-P-1757)

Special Environmental Condition

NOTE

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

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

WARNING

Disconnect air conditioner power supply before doing maintenance work on the electrical system.

WARNING

Acetone and P-D-680 Type III dry cleaning solvent are flammable and their vapors are explosive. Prolonged or repeated inhalation of fumes or contact with the skin can be toxic. Use in a well-ventilated area, wear gloves and keep away from sparks or flame.

INSPECTION

1. Inspect for damage. Look for loose, frayed, cracked and missing insulation.
2. Visually check for excessive drying of insulation or shrinkage.

REMOVAL

1. Scrape and pull off as much of the damaged insulation as possible.
2. Soften the remaining insulation and adhesive with acetone (Item 22, Table 1, WP 0074-00) or dry cleaning solvent (Item 16, Table 1, WP 0074-00).
3. Repeat the softening and scraping process as required.
4. Clean up metal surfaces with cloth moistened in acetone or dry cleaning solvent.

INSULATION REPAIR

1. Repair loose or torn insulation with adhesive.
2. Replaced frayed, drying, cracked or missing insulation.
3. Cut a sheet of the proper insulating material to correct shape.
4. Coat the attaching side with adhesive, using a paint brush to ensure complete coverage.
5. Coat the metal with adhesive to which the insulation is to be attached.
6. Let both surfaces air-dry until the adhesive becomes tacky but will not stick to the fingers.
7. Starting at one corner or at a narrow edge, carefully bring the insulation into full contact with the metal.
8. Press into firm contact all over.
9. Allow sufficient time to dry thoroughly before installation.

HOUSING REPAIR

1. Visually inspect for nicks, gouges, dents, bare spots in paint and other defects which can be repaired.
2. Repair/replace handles and associated hardware.
3. Sand and paint any repaired area in housing, referencing TM 43-0139, Painting Instructions for Field Use.
4. Remove minor dents, and paint.
5. Remove any rust or other minor corrosive damage, and paint.

END OF TASK

CHAPTER 10

REPAIR PARTS AND SPECIAL TOOLS LIST (RPSTL)

INTRODUCTION 0069-00

SCOPE

This RPSTL lists and authorizes spares and repair parts, special tools, special test, measurement and diagnostic equipment (TMDE), and other special support equipment required for performance of unit maintenance of the S8450-9KC-1H Air Conditioner. It authorizes the requisitioning, issue, and disposition of spares, repair parts, and special tools as indicated by the source, maintenance, and recoverability (SMR) codes.

GENERAL

In addition to the Introduction work package, this RPSTL is divided into the following work packages.

1. Repair Parts List Work Packages. Work packages containing lists of spares and repair parts authorized by this RPSTL for use in the performance of maintenance. These work packages also include parts which must be removed for replacement of the authorized parts. Parts lists are composed of functional groups in ascending alphanumeric sequence, with the parts in each group listed in ascending figure and item number sequence. Sending units, brackets, filters, and bolts shall be listed with the component they mount on. Bulk materials are listed by item name in FIG. BULK at the end of the work packages. Repair parts kits are listed separately in their own functional group and work package. Repair parts for repairable special tools are also listed in a separate work package. Items listed are shown on the associated illustrations.

2. Special Tools List Work Packages. Work packages containing lists of special tools, special TMDE, and special support equipment authorized by this RPSTL (as indicated by Basis of Issue (BOI) information in the DESCRIPTION AND USABLE ON CODE (UOC) column). Tools that are components of common tool sets and/or Class VII shall not be listed.

3. Cross-Reference Indexes Work Packages. There are two cross-reference indexes work packages in this RPSTL. The National Stock Number (NSN) Index work package and the Part Number (P/N) Index work package. The National Stock Number Index work package refers you to the figure and item number. The Part Number Index work package refers you to the figure and item number.

EXPLANATION OF COLUMNS IN THE REPAIR PARTS LIST AND SPECIAL TOOLS LIST WORK PACKAGES

ITEM NO. (Column (1)). Indicates the number used to identify items called out in the illustration.

SMR CODE (Column (2)). The SMR code containing supply/requisitioning information, maintenance level authorization criteria, and disposition instruction, as shown in the following breakout:

Source Code	**Maintenance Code**		**Recoverability Code**
xx	xx		x
1st two positions: How to get an item.	3rd position: Who can install, replace, or use the item.	4th position: Who can do complete repair* on the item.	5th position: Who determines disposition action on unserviceable items.

*Complete Repair: Maintenance capacity, capability, and authority to perform all corrective maintenance tasks of the "Repair" function in a use/user environment in order to restore serviceability to a failed item.

Source Code. The source code tells you how you get an item needed for maintenance, repair, or overhaul of an end item/equipment. Explanations of source codes follow:

EXPLANATION OF COLUMNS IN THE REPAIR PARTS LIST AND SPECIAL TOOLS LIST WORK PACKAGES – Continued

Source Code	Application/Explanation
PA PB PC PD PE PF PG	Stock items; use the applicable NSN to requisition/request items with these source codes. They are authorized to the level indicated by the code entered in the 3rd position of the SMR code. **NOTE** Items coded PC are subject to deterioration.
KD KF KB	Items with these codes are not to be requested/requisitioned individually. They are part of a kit which is authorized to the maintenance level indicated in the 3rd position of the SMR code. The complete kit must be requisitioned and applied.
MO-Made at unit/ AVUM level MF-Made at DS/ AVIM level MH-Made at GS level ML-Made at SRA MD-Made at depot	Items with these codes are not to be requisitioned/requested individually. They must be made from bulk material which is identified by the P/N in the DESCRIPTION AND USABLE ON CODE (UOC) column and listed in the bulk material group work package of the RPSTL. If the item is authorized to you by the 3rd position code of the SMR code, but the source code indicates it is made at higher level, order the item from the higher level of maintenance.
AO-Assembled by unit/AVUM level AF-Assembled by DS/AVIM level AH-Assembled by GS level AL-Assembled by SRA AD/Assembled by depot	Items with these codes are not to be requested/requisitioned individually. The parts that make up the assembled item must be requisitioned or fabricated and assembled at the level of maintenance indicated by the source code. If the 3rd position of the SMR code authorizes you to replace the item, but the source code indicates the item is assembled at a higher level, order the item from the higher level of maintenance.
XA	Do not requisition an "XA" coded item. Order the next higher assembly. (Refer to NOTE Below.)
XB	If an item is not available from salvage, order it using the CAGEC and P/N.
XC	Installation drawings, diagrams, instruction sheets, field service drawings; identified by Manufacturer's P/N.
XD	Item is not stocked. Order an XD-coded item through normal supply channels using the CAGEC and P/N given if no NSN is available.

EXPLANATION OF COLUMNS IN THE REPAIR PARTS LIST AND SPECIAL TOOLS LIST WORK PACKAGES – Continued

NOTE

Cannibalization or controlled exchange, when authorized, may be used as a source of supply for items with the above source codes except for those items source coded "XA" or those aircraft support items restricted by requirements of AR 750-1.

Maintenance Code. Maintenance codes tell you the level(s) of maintenance authorized to use and repair support items. The maintenance codes are entered in the third and fourth positions of the SMR code as follows:

Third Position. The maintenance code entered in the third position tells you the lowest maintenance level authorized to remove, replace, and use an item. The maintenance code entered in the third position will indicate authorization to the following levels of maintenance:

Maintenance Code	Application/Explanation

C – Crew or operator maintenance done within unit/AVUM maintenance.

O – Unit level/AVUM maintenance can remove, replace, and use the item.

F – Direct support/AVIM maintenance can remove, replace, and use the item.

H – General support maintenance can remove, replace, and use the item.

L – Specialized repair activity can remove, replace, and use the item.

D – Depot can remove, replace, and use the item.

Fourth Position. The maintenance code entered in the fourth position tells you whether or not the item is to be repaired and identifies the lowest maintenance level with the capability to do complete repair (perform all authorized repair functions).

NOTE

Some limited repair may be done on the item at a lower level of maintenance, if authorized by the Maintenance Allocation Chart (MAC) and SMR codes.

Maintenance Code	Application/Explanation

O – Unit/AVUM is the lowest level that can do complete repair of the item.

F –Direct support/AVIM is the lowest level that can do complete repair of the item.

H – General support is the lowest level that can do complete repair of the item.

L –Specialized repair activity *(enter specialized repair activity designator)* is the lowest level that can do complete repair of the item.

EXPLANATION OF COLUMNS IN THE REPAIR PARTS LIST AND SPECIAL TOOLS LIST WORK PACKAGES – Continued

Maintenance
Code **Application/Explanation**

D – Depot is the lowest level that can do complete repair of the item.

Z – Nonrepairable. No repair is authorized.

B – No repair is authorized. No parts or special tools are authorized for maintenance of "B" coded item. However, the item may be reconditioned by adjusting, lubricating, etc,, at the user level.

Recoverability Code. Recoverability codes are assigned to items to indicate the disposition action on unserviceable items. The recoverability code is shown in the fifth position of the SMR code as follows:

Recoverability
Code **Application/Explanation**

Z – Nonrepairable item. When unserviceable, condemn and dispose of the item at the level of maintenance shown in the third position of the SMR code.

O – Repairable item. When uneconomically repairable, condemn and dispose of the item at the unit level.

F – Repairable item. When uneconomically repairable, condemn and dispose of the item at the direct support level.

H – Repairable item. When uneconomically repairable, condemn and dispose of the item at the general support level.

D – Repairable item. When beyond lower level repair capability, return to depot. Condemnation and disposal of item are not authorized below depot level.

L – Repairable item. Condemnation and disposal not authorized below Specialized Repair Activity (SRA).

A – Item requires special handling or condemnation procedures because of specific reasons (such as precious metal content, high dollar value, critical material, or hazardous material). Refer to appropriate manuals/directives for specific instructions.

NSN (Column (3)). The NSN for the item is listed in this column.

CAGEC Column (4)). The Commercial and Government Entity Code (CAGEC) is a five-digit code which is used to identify the manufacturer, distributor, or Government agency/activity that supplies the item.

PART NUMBER (Column (5)). Indicates the primary number used by the manufacturer (individual, company, firm, corporation or Government activity), which controls the design and characteristics of the item by means of its engineering drawings, specifications, standards, and inspection requirements to identify an item or range of items.

NOTE

When you use NSN to requisition an item, the item you receive may have a different P/N from the number listed.

EXPLANATION OF COLUMNS IN THE REPAIR PARTS LIST AND SPECIAL TOOLS LIST WORK PACKAGES – Continued

DESCRIPTION AND USABLE ON CODE (UOC) (Column (6)). This column includes the following Information:

1. The federal item name, and when required, a minimum description to identify the item
2. P/Ns of bulk materials are referenced in this column in the line entry to be manufactured or fabricated.
3. Hardness Critical Item (HCI). A support item that provides the equipment with special protection from electromagnetic pulse (EMP) damage during a nuclear attack.
4. The statement END OF FIGURE appears just below the last item description in column (6) for a given figure in both the repair parts list and special tools list work packages.

QTY (Column (7)), The QTY (quantity per figure) column indicates the quantity of the item used in the breakout shown on the illustration/figure, which is prepared for a functional group, subfunctional group, or an assembly. A "V" appearing in this column instead of a quantity indicates that the quantity is variable and quantity may change from application to application.

EXPLANATION OF CROSS-REFERENCE INDEXES WORK PACKAGES FORMAT AND COLUMNS

1. National Stock Number (NSN) index Work Package.

STOCK NUMBER Column. This column lists the NSN in National item identification number (NIIN) sequence. The NIIN consists of the last nine digits of the NSN.

NSN (e.g., 5385-01-574-1476) NIIN	When using this column to locate an item, ignore the first four digits of the NSN. However, the complete NSN should be used when ordering items by stock number.

FIG. Column. This column lists the number of the figure where the item is identified/located. The figures are in numerical order in the repair parts list and special tools list work packages.

ITEM Column. The item number identifies the item associated with the figure listed in the adjacent FIG. column This item is also identified by the NSN listed on the same line.

2. Part Number (P/N) Index Work Package. P/Ns in this index are listed in ascending alphanumeric sequence (vertical arrangement of letter and number combinations which places the first letter or digit of each group in order A through Z, followed by the numbers 0 through 9 and each following letter or digit in like order).

PART NUMBER Column. Indicates the P/N assigned to the item.

FIG. Column. This column lists the number of the figure where the item is identified/located in the repair parts list and special tools list work packages.

ITEM Column. The item number is the number assigned to the item as it appears in the figure referenced in the adjacent figure number column.

3. Reference Designator Index Work Package. Reference designators in this index are listed in ascending alphanumeric sequence (vertical arrangement of letter and number combination which places the first letter or digit of each group in order "A" through "Z", followed by the numbers "0" through "9" and each following letter or digit in like order).

REFERENCE DESIGNATOR Column. Indicates the reference designator assigned to the item.

EXPLANATION OF COLUMNS IN THE REPAIR PARTS LIST AND SPECIAL TOOLS LIST WORK PACKAGES – Continued

FIG. Column. This column lists the number of the figure where the item is identified/located in the repair parts list or special tools list work package.

ITEM Column. The item number is the number assigned to the item as it appears in the figure referenced in the adjacent figure number column.

SPECIAL INFORMATION

UOC. The UOC appears in the lower left corner of the Description Column heading. Usable on codes are shown as "UOC:..." in the Description Column (justified left) on the first line under the applicable item/nomenclature. Uncoded items are applicable to all models. Identification of the UOCs used in the RPSTL are:

Code	Used On
LQY	S8450-9KC-1H

Fabrication Instructions. Bulk materials required to manufacture items are listed in the bulk material functional group of this RPSTL. Part numbers for bulk material are also referenced in the Description Column of the line item entry for the item to be manufactured/fabricated.

Index Numbers. Items which have the word BULK in the figure column will have an index number shown in the item number column. This index number is a cross-reference between the NSN / P/N index work packages and the bulk material list in the repair parts list work package.

HOW TO LOCATE REPAIR PARTS

1. When NSNs or P/Ns Are Not Known.

First. Using the table of contents, determine the assembly group to which the item belongs. This is necessary since figures are prepared for assembly groups and subassembly groups, and lists are divided into the same groups.

Second. Find the figure covering the functional group or the subfunctional group to which the item belongs.

Third. Identify the item on the figure and note the number(s).

Fourth. Look in the repair parts list work packages for the figure and item numbers. The NSNs and part numbers are on the same line as the associated item numbers.

2. When NSN Is Known.

First. If you have the NSN, look in the STOCK NUMBER column of the NSN index work package. The NSN is arranged in NIIN sequence. Note the figure and item number next to the NSN.

Second. Turn to the figure and locate the item number. Verify that the item is the one you are looking for.

3. When P/N Is Known.

First. If you have the P/N and not the NSN, look in the PART NUMBER column of the P/N index work package. Identify the figure and item number.

Second. Look up the item on the figure in the applicable repair parts list work package.

EXPLANATION OF COLUMNS IN THE REPAIR PARTS LIST AND SPECIAL TOOLS LIST WORK PACKAGES – Continued

NOTE

Include 4 only if the RPSTL has a reference designator index work package.

4. When Reference Designator is known.

First. If you know the reference designator, look in the REFERENCE DESIGNATOR column of the reference designator index work package. Note the figure and item number.

Second. Turn to the figure and locate the item number. Verify that the item is the one you are looking for.

ABBREVIATIONS

Abbreviation	Explanation

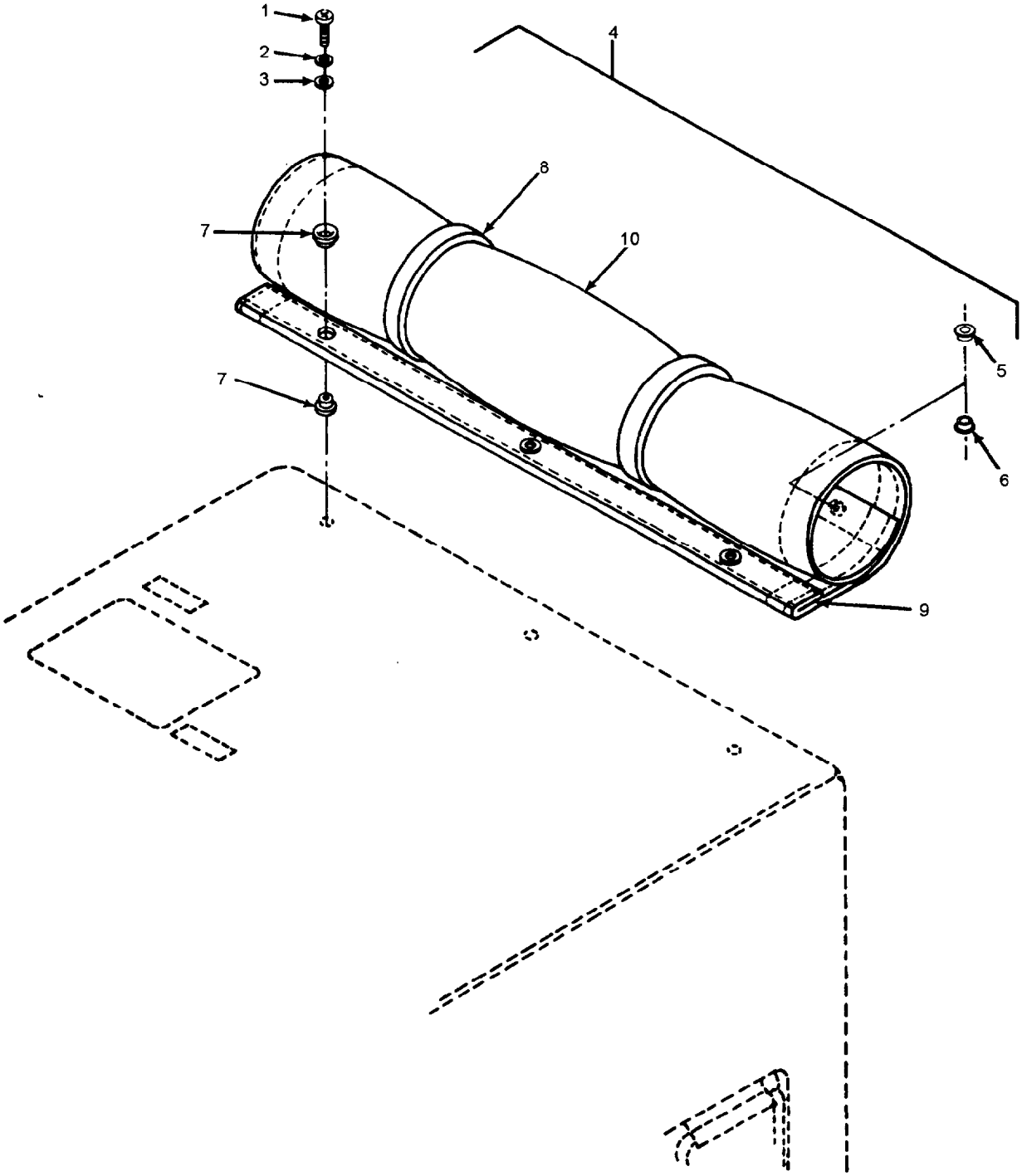


Figure 1. Cover, Canvas

SECTION II TM9-4120-422-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
					GROUP 01 LOUVERS	
					F-I COVER,CANVAS	
1	PAOZZ	5305009846195	96906	MS35206-247	.SCREW,MACHINE C A D PLTD,NO.8,0.75 IN	3
2	PAOZZ	5310000453299	96906	MS35338-42	.WASHER,LOCK CAD PLTD	3
3	PAOZZ	5310008212366	97403	13214E3469	.WASHER,FLAT	3
4	XBFZZ	5340010539892	97403	13216E5885	.COVER,ACCESS	1
5	PAFZZ	5325002764946	88044	AN227-7	..SOCKET,SN AP FASTENE R TOP	4
6	PAFZZ	5325002764953	96906	MS27980-1N	..CAP,SN AP FASTENER BOTTOM	4
7	XBFZZ		97403	13216E5885/5	..GROMMET,METALLI C SIZE 0	3
8	PAFZZ		97403	13216E5885/4	..STRAP,WEBBING	4
9	XBFZZ		97403	13216E5885/6	..SHEET	1
10	PBFZZ		97403	13216E5885/1	..COVER,ACCESS	1

END OF FIGURE

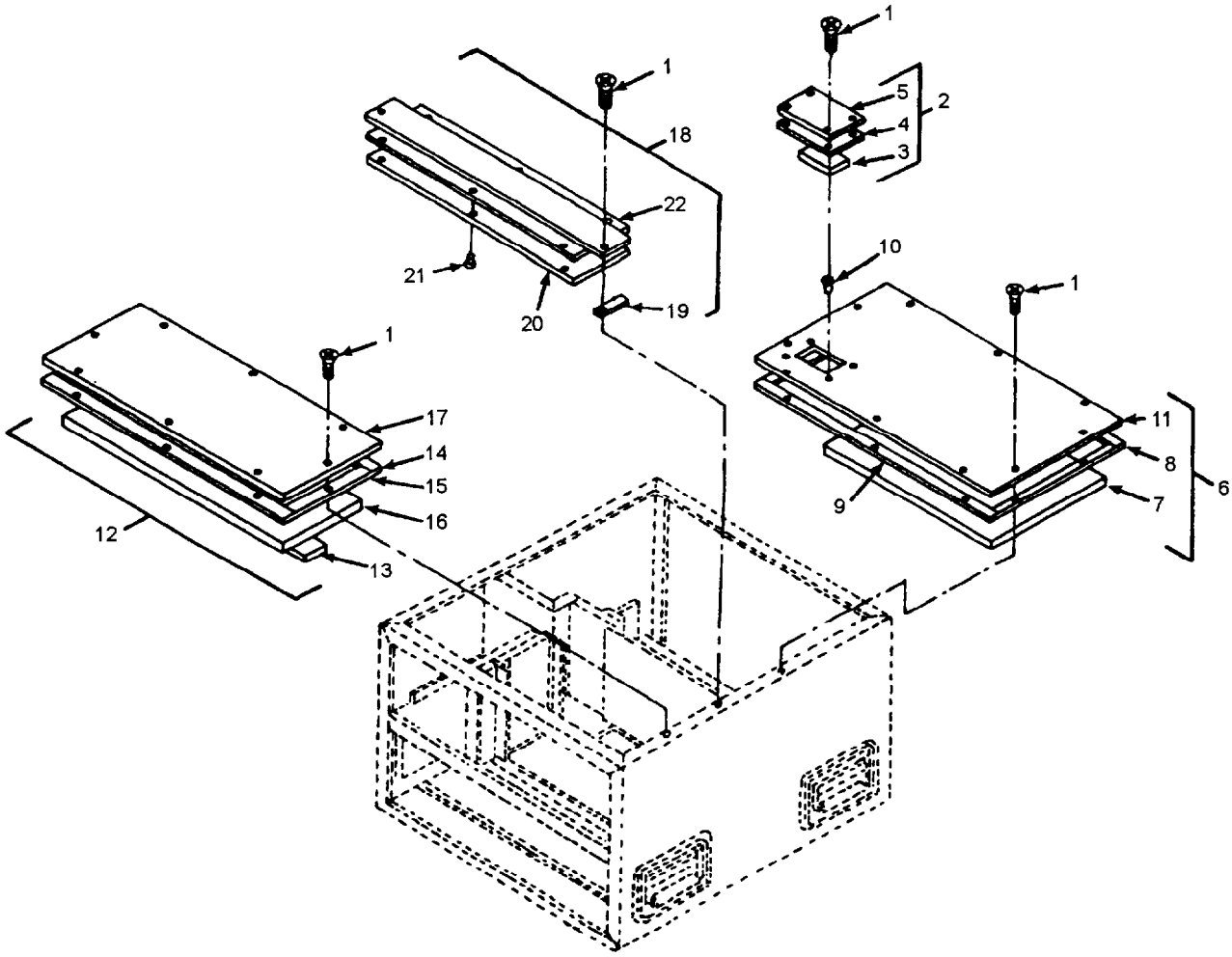


Figure 2. Panels

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
					GROUP 01 LOUVERS	
					F-2 PANELS	
1	PAOZZ	5305009586373	96906	MS24693-S51	.SCREW,MACHINE NO. 8, 0.62 LG.....	24
2	XBFFF		97403	13225E8423	.COVER,ACCESS.....	1
3	MFFZZ		97403	13225E8423/4	. .FOAM.FLEX MAKE FROM P/N AMS3570X.250 (81349),CUT TO SIZE....	1
4	MFFZZ		97403	13225E8423/2	..RUBBER.STRIP.CELLUL AR MAKE FROM P/N MILR6130TY2GRA.06(81349),CUT TO SIZE.....	1
5	XBFZZ		97403	13225E8423/1	..COVER.....	1
6	XBFFF		97403	13225E8422	.COVER,REAR.....	1
7	MFFZZ		97403	13225E8422/5	..FOAM.FLEX 11.68W X 21.75LG.MAKE FROM P/N AMS3570X.250 (81349).....	1
8	MFFZZ		97403	13225E8422/3	..RUBBER,CELLULAR .75W X 11.68LG, MAKE FROM P/N MILR6130TY2GRA.06(81349).....	2
9	MFFZZ		97403	13225E8422/4	..RUBBER,CELLULAR .75W X 23.25LG, MAKE FROM P/N MILR6130TY2GRA.06(81349).....	2
10	PAFZZ	5310010360908	96906	MS27130-S14K	..NUT,PLAIN,BLIND RIV ET,STL,NO.8.	4
11	XBFZZ		97403	13225E8422/1	..COVER.....	1
12	XBFFF		97403	13216E5881	.COVER,FRONT.....	1
13	MFFZZ		OV5R4	S2-13	..INSULATION,THERMAL 3.25W X 11.75LG,MAKE FROM P/N ASTM-C534TP2X.250(81346).....	1
14	MFFZZ		OV5R4	S2-14	..INSULATION,THERMAL 7.44W X 21.75LG,MAKE FROM P/N ASTM-C534TP2X.250(81346).....	1
15	MFFZZ		97403	13216E5881/5	..RUBBER,CELLULAR .75W X 7.44LG, MAKE FROM P/N MILR6130TY2GRA.06 (81349).....	2
16	MFFZZ		97403	13216E5881/6	..RUBBER,CELLULAR .75W X 23.25LG, MAKE FROM P/N MILR6130TY2GRA.06(81349).....	2
17	XBFZZ		97403	13216E5881/1	..COVER.....	1
18	XBFFF		97403	13216E5880	.COVER,CENTER.....	1
19	MFFZZ		97403	13216E5880/2	..RUBBER,CELLULAR .75W X 3.00LG, MAKE FROM P/N MILR6130TY2GRA.06 (81349).....	2
20	MFFZZ		OV5R4	S2-20	..FOAM,POLY,FLEX 4.70W X 21.63LG, MAKE FROM P/N ASTM-C534TP2X.250(81346).....	1
21	PAFZZ	5310010360908	96906	MS27130-S14K	..NUT,PLAIN,BLIND RIV ET,STL,NO. 8.	6
22	XBFZZ		97403	13216E5880/6	..COVER.....	1

END OF FIGURE

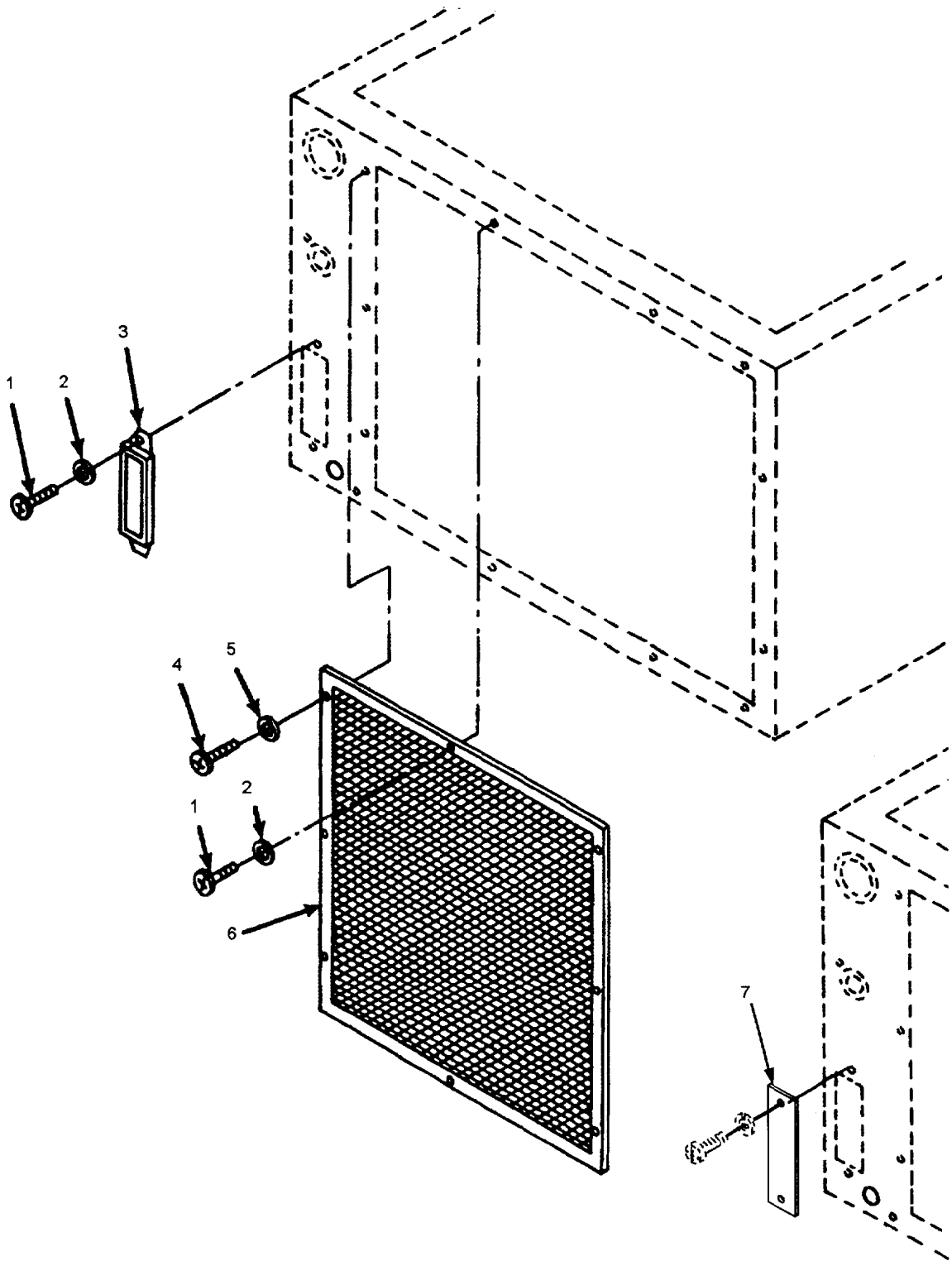


Figure 3. Screens and Guards

SECTION II TM9-4120-422-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
					GROUP 01 LOUVERS	
					F-3 SCREENS AND GUARDS	
1	PAOZZ	5305009846194	96906	MS35206-246	.SCREW,MACHINE NO. 8, 0.62 LG.....	4
2	PAOZZ	5310000453299	96906	MS35338-42	.WASHER,LOCK PLTD, NO. 8.....	4
3	XBFFZ	5340010983992	97403	13216E5884	.GRILLE,METAL.....	1
4	PAOZZ	5305009897435	96906	MS35207-264	.SCREW,MACHINE NO. 10, 0.62 LG.....	6
5	PAOZZ	5310000453296	96906	MS35338-43	.WASHER,LOCK PLTD,NO.IO.....	6
6	PBFZA	5340014289504	97403	13225E8421	.GRILLE,METAL.....	1
7	PAOZZ		OV5R4	S5884	.COVER,PLATE.....	1

END OF FIGURE

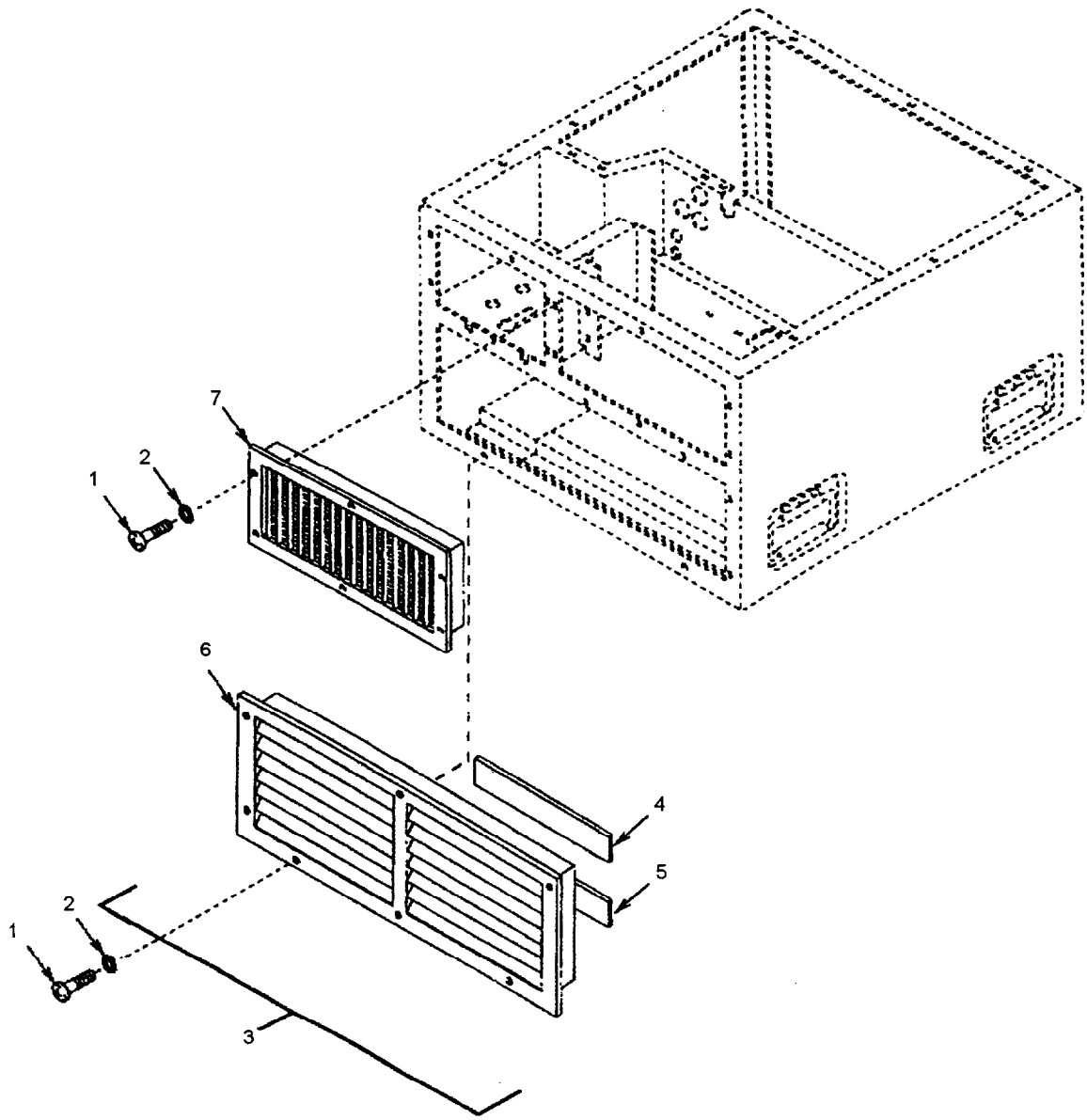


Figure 4. Louvers

SECTION II TM9-4120-422-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
					GROUP 01 LOUVERS	
					F-4 LOUVERS	
1	PAOZZ	5305009846194	96906	MS35206-246	.SCREW,MACHINE NO.8,0.62 L G	14
2	PAOZZ	5310000453299	96906	MS35338-42	.WASHER,LOCK NO.8.....	14
3	XBFZZ		OV5R4	S6080	.LOUVER,METAL.....	1
4	MFFZZ		97403	13216E6080/6	..GASKET,O.125THK X .75W X .50LG, MAKE FROM P/N ASTM-C534TP2X.125 (81346).....	2
5	MFFZZ		97403	13216E6080/5	..GASKET,0.50 THK X .75 W X.50 LG, MAKE FROM P/N ASTM-C534TP2X.50 (81346)	2
6	PBFFF		97403	13216E5879	..VENTILATOR,AIR CIRC ULATING.....	1
7	PBFZZ		97403	13216E5878	.VENTILATOR,AIR CIRC ULATING.....	1

END OF FIGURE

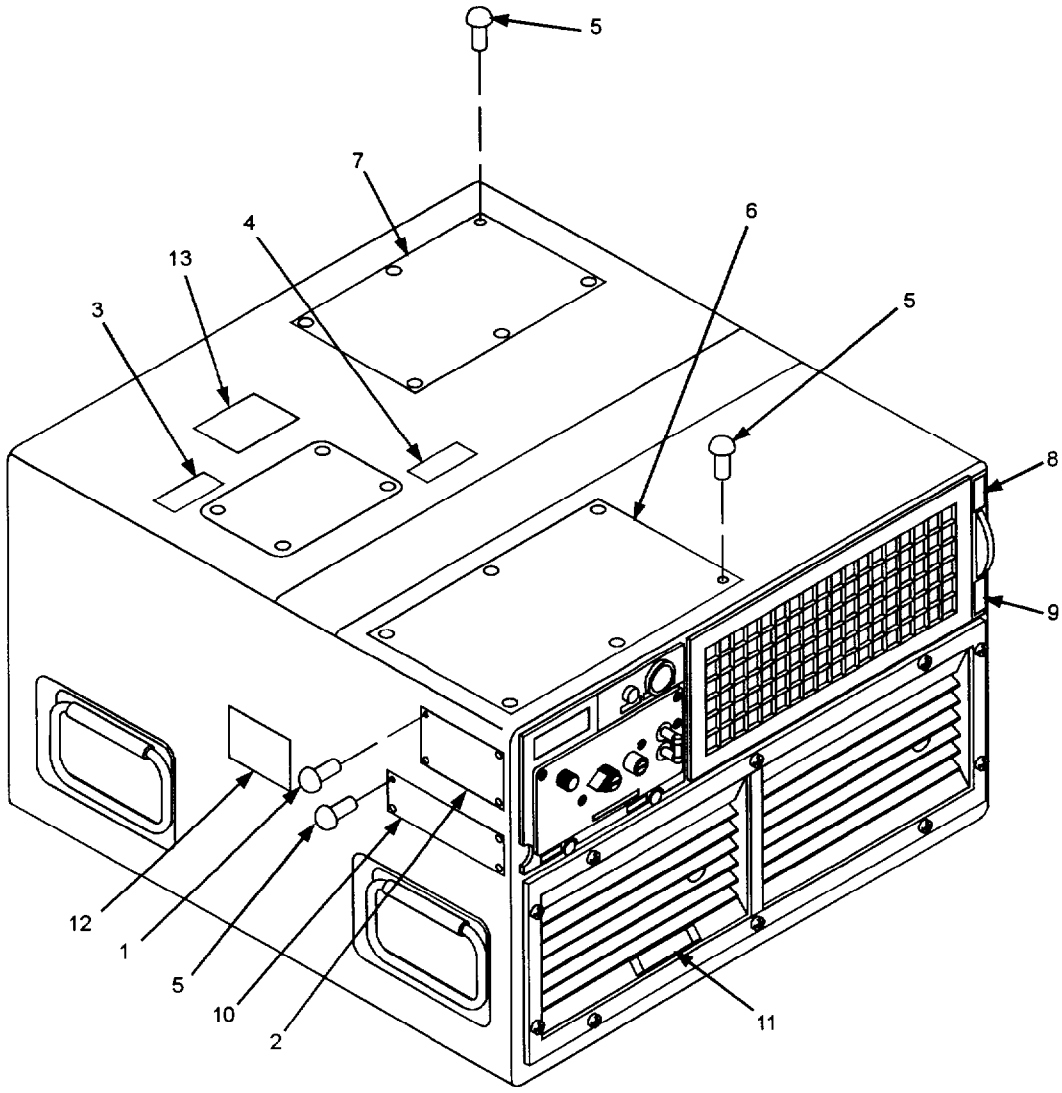


Figure 5. Information Plates

SECTION II TM9-4120-422-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
					GROUP 01 LOUVERS	
					F-5 INFORMATION PLATES	
1	PAOZZ	5320001196754	96906	MS20470AD2-3	.RIVET,SOLID 1/16 DIA ALUMINUM.....	4
2	XBFZZ		OV5R4	S8450	.PLATE,IDENTIFICATIO N.....	1
3	PBFZZ	99050134805 01	97403	13218E6957	.PLATE,INSTRUCTION HIGH PRESSURE CHARGING VALVE.....	1
4	PBFZZ	990501348 0500	97403	13218E6958	.PLATE,INSTRUCTION LOW PRESSURE CHARGING VALVE.....	1
5	PAOZZ	5320001196754	96906	MS20470AD2-3	.RIVET,SOLID 1/16 DIA ALUMINUM.....	16
6	PBFZZ		OV5R4	S8419	.PLATE,MARKING,BLANK.....	1
7	PBFZZ		OV5R4	S8428	.PLATE,INSTRUCTION FLUID DIAGRAM...	1
8	PBFZZ		OV5R4	56089	.PLATE,INSTRUCTION VENT CLOSED.....	1
9	PBFZZ		OV5R4	S6090	.PLATE,INSTRUCTION VENT OPEN.....	1
10	PBFZZ		OV5R4	57548	.PLATE,INSTRUCTION.....	1
11	PBFZZ		OV5R4	56838	.PLATE,INSTRUCTION COLD WEATHER OPERATION.....	1
12	PBFZZ		OVSR4	S5-12	.PLATE,INSTRUCTIDN TWO MAN LIFT CAUTION.....	1
13	PBFZZ		OV5R4	S5-13	.PLATE,INSTRUCTION CHEMICAL SUBSTANCE WARNING.....	1

END OF FIGURE

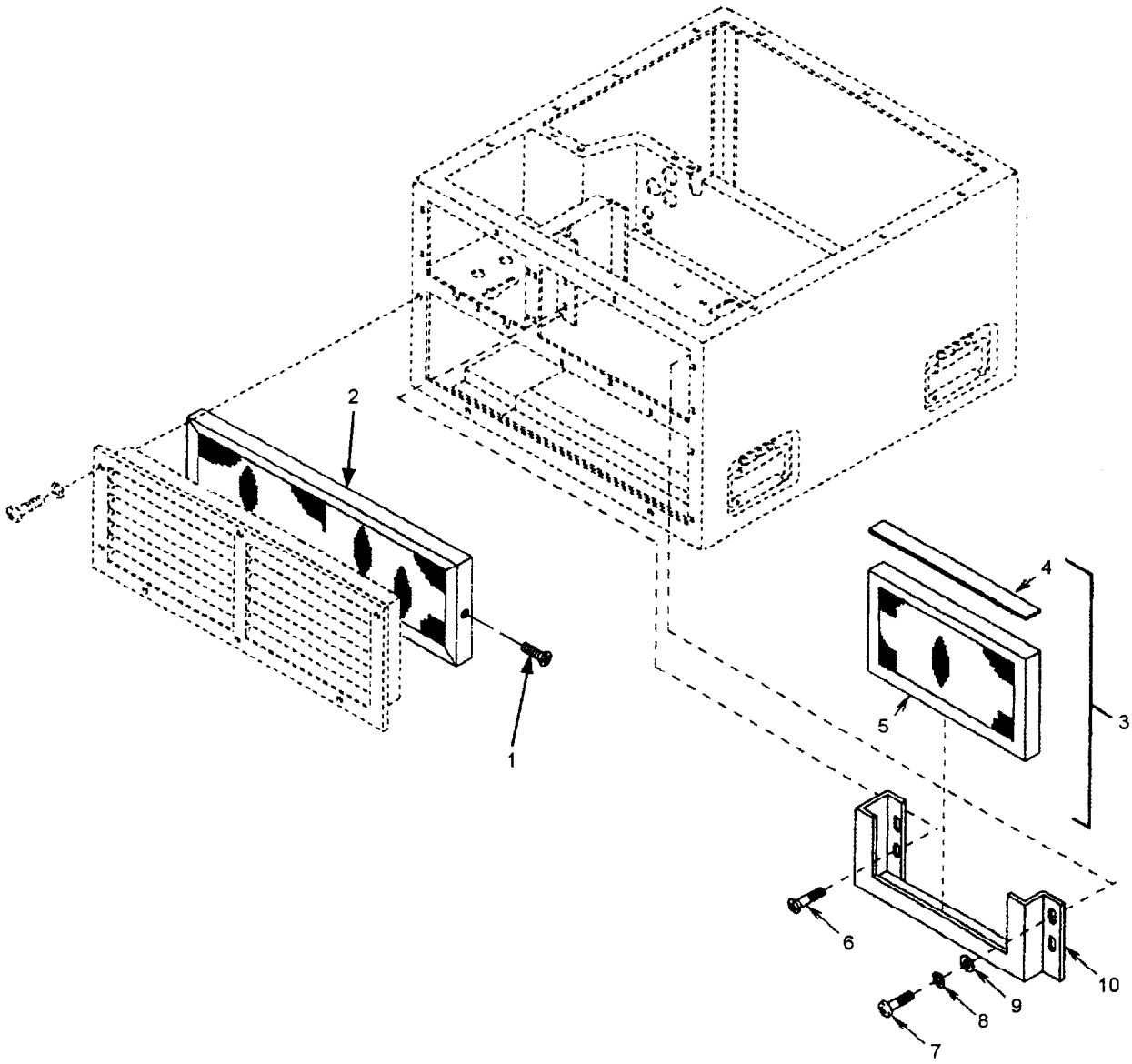


Figure 6. Air Filter and Mist Eliminator

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
					GROUP 01 LOUVERS	
					F-6 AIR FILTER AND MIST ELIMINATOR	
1	PAOZZ	5305008553597	96906	MS24627-34	.SCREW,TAPPING.....	2
2	PAOZZ		OV5R4	S6081	.FILTER ELEMENT,AIR.....	1
3	PAOZZ	4130010314620	97403	13220E1352	.FILTER ELEMENTSAIR.....	1
4	MOOZZ		97403	13220E1352/3	..RUBBER,0.12THK X .75W X 13 LG MAKE FROM P/N MILR6130TY2GRACON (81349)	1
5	XAOZZ	4130011107546	97403	13220E1145	..FILTE R ELEMENT,AIR.....	1
6	PAOZZ	5305009586373	96906	MS24693-S51	.SCREW,MACHINE NO.8,0.62 LG.....	2
7	PAOZZ	5305009846195	96906	MS35206-247	.SCREW,MACHINE NO.8,0.75 L G.....	2
8	PAOZZ	5310000453299	96906	MS35338-42	.WASHER,LOCK PLTD,NO.8.....	2
9	PAOZZ	5310007653197	96906	MS27183-41	.WASHER,FLAT CAD PLTD,0.18 ID.....	2
10	XBOZZ		97403	13220E1144	.HOLDER,MIST ELIMINATOR.....	1

END OF FIGURE

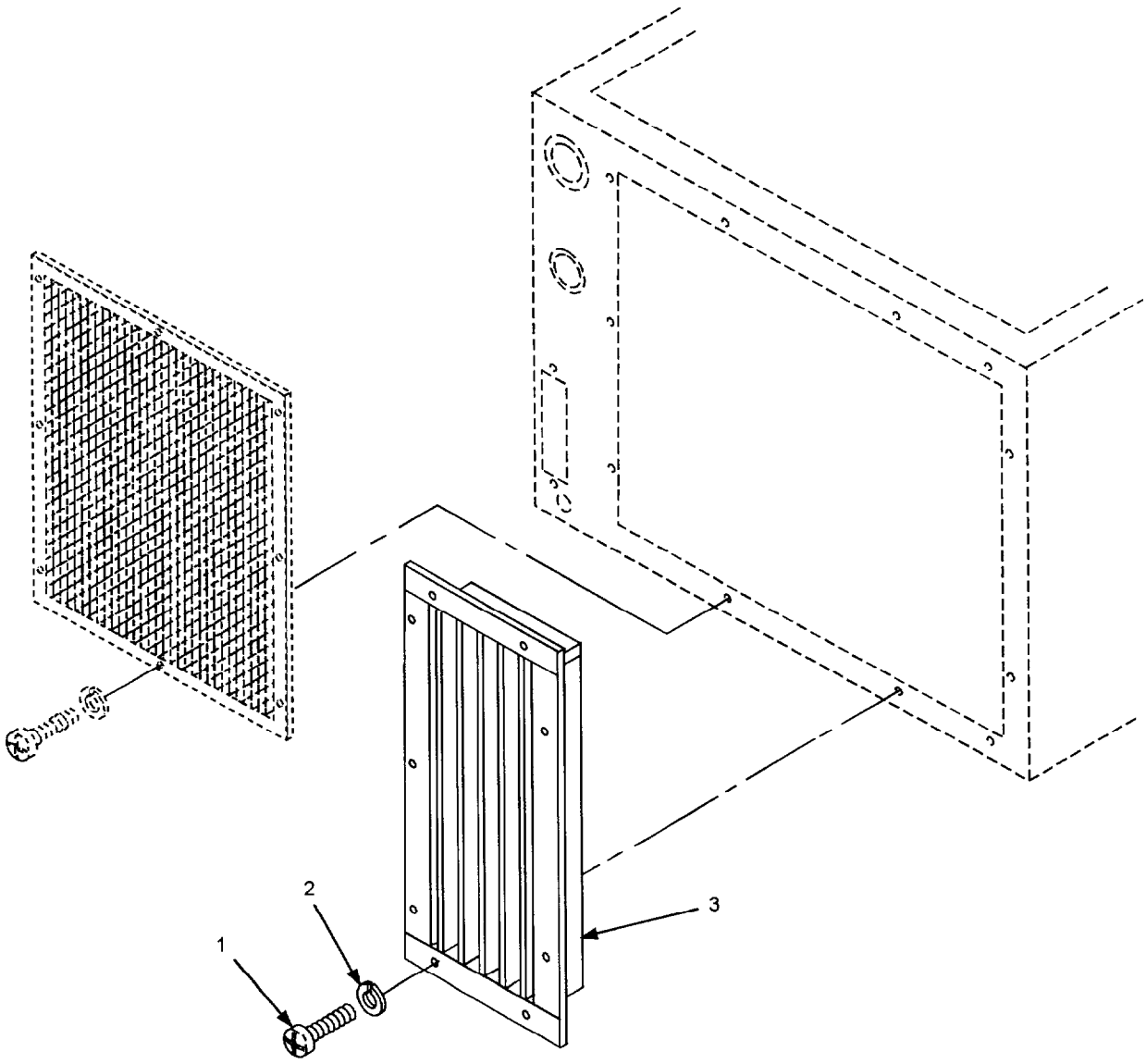


Figure 7. Condenser Air Discharge Louver

SECTION II TM9-4120-422-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
					GROUP 01 LOUVERS	
					F-7 CONDENSER AIR DISCHARGE LOUVER	
1	PAOZZ	5305009846194	96906	MS35206-246	.SCREW,MACHINE C A D PLTD,NO.8,0.62 LG.....	4
2	PAOZZ	5310000453299	96906	MS35338-42	.WASHER,LOCK C A D PLTD,NO.8.....	4
3	PAOZZ		97403	13225E8412	.VENTILATOR,AIR CIRC ULATING.....	1

END OF FIGURE

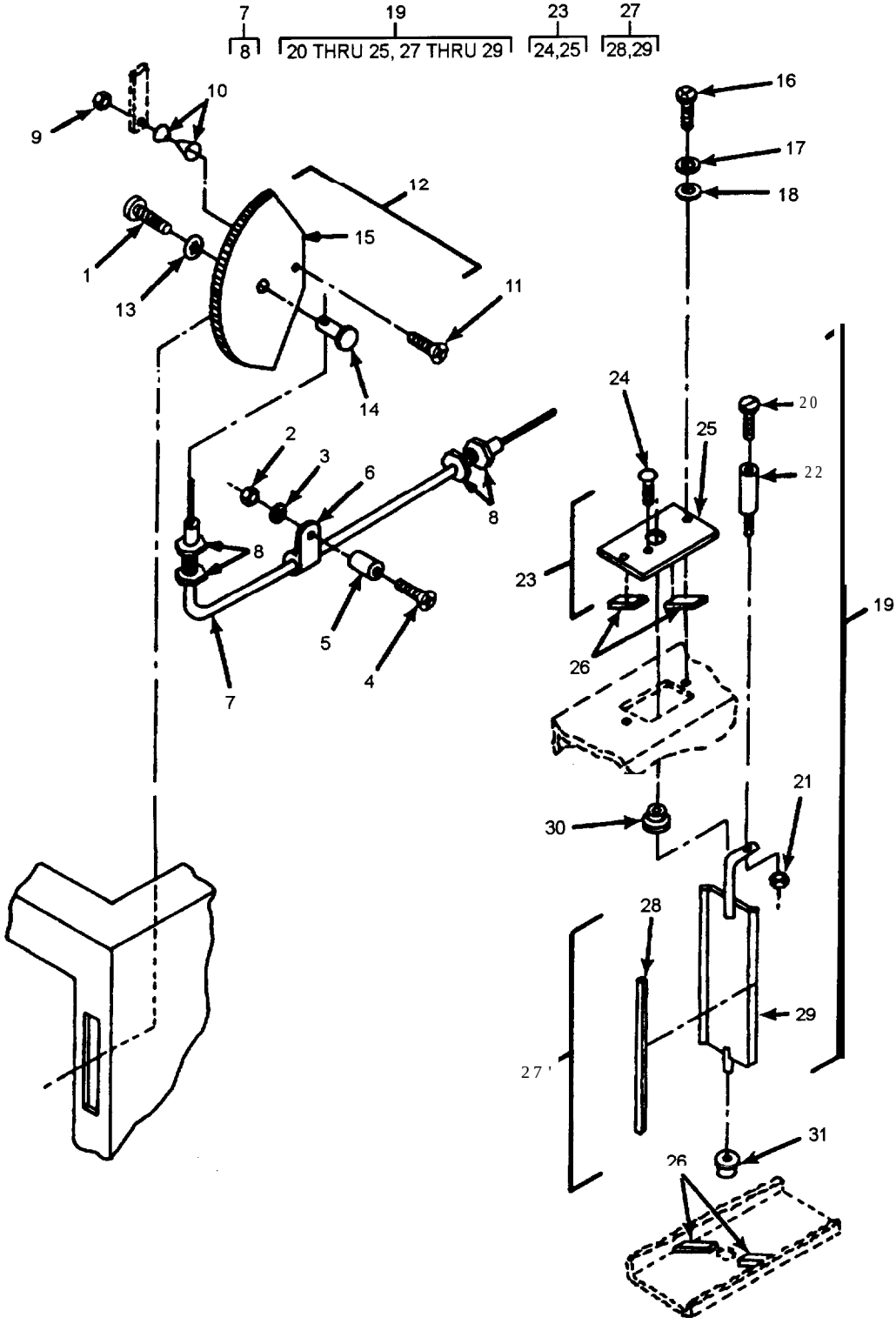


Figure 8. Fresh Air Damper and Actuator

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
					GROUP 02 FRESH AIR DAMPER AND ACTUATOR	
					F-8 FRESH AIR DAMPER AND ACTUATOR	
1	PAOZZ	5305009846191	96906	MS35206-243	.SCREW,MACHINE C A D PLTD,NO.8,O.37 LG.....	1
2	PAOZZ	5310009349757	96906	MS35649-282	.NUT,PLAIN,HEXAGON C A D PLTD,NO.8...	1
3	PAOZZ	5310000453299	96906	MS35338-42	.WASHER,LOCK CAD PLTD,NO.8.....	1
4	PAOZZ	5305009655882	96906	MS24693-S52	.SCREW,MACHINE C A D PLTD,NO.8,O.75 LG.....	1
5	PBOZZ	5365012556463	97403	13216E6159-3	.SPACER,SLEEVE.....	1
6	PAOZZ	5340007269819	96906	MS21919DG3	.CLAMP,LOOP .1& .ALUM ALLOY.....	1
7	PAOZZ	4130010986649	97403	13216E6108-4	.CONTROL ASSEMBLY,PU SH-PULL.....	1
8	PAOZZ	5310000120560	70436	NT141	..NUT,PLAIN,HEXAGON.....	4
9	PAOZZ	5310000880553	96906	MS2104415	.NUT.SELF-LOCKING.HE XAGON 5/16 STEEL.....:.....	1
10	PAOZZ	5310000680054	96906	MS75044-1	.WASHER,SPRING TENS1 ON.....	2
11	PAOZZ	5305009655879	96906	MS24693-S275	.SCREW,MACHINE CAD PLTD,NO.10,0.87 LG.....	1
12	XBOZZ	4130012032713	97403	13216E6092-2	.ACTUATOR VENTILATIO N.....	1
13	PAOZZ	5310012148503	97403	13218E7512-1	..PUSH ON NUT.....	1
14	PAOZZ	5310009178592	96906	MS27130-S14	..NUT,PLAIN,BLIND R I V ET,STEEL,NO.8	1
15	XAOU		97403	13216E6092/1	..ACTUATOR,VENTILATIO N.....	1
16	PAOU	5305009846194	96906	MS35206-246	.SCREW,MACHINE C A D PLTD,NO.8,O.62 LG....:.....:	2
17	PAOZZ	5310000453299	96906	MS35338-42	.WASHER.LOCK CAD PLTD.ND.8.....	2
18	PAOZZ	5310008212366	97403	13214E3469	.WASHER:FLAT CAD PLTD,NO.8.....	2
19	x0000		97403	13216E5886	.DAMPER ASSEMBLY, VENTILATION.....	1
20	PAOZZ	5305009846191	96906	MS35206-243	..SCREW.MACHINE CAD PLTD,NO.8,O.37 LG.....:.....:.....:	1
21	PAOZZ	5310000818087	96906	MS21044N06	..NUT,SELF-LOCKING,H E XAGON STEEL, NO.6	1
22	PAOZZ	5340011629927	97403	13216E6093-2	..POST,ELECTRICAL-ME C HANICAL.....	1
23	XBOZZ		97403	13216E5888	..COVER,VENTILATION	1
24	PAOZZ	5305002535617	80205	MS21318-23	...SCREW,DRIVE CAD PLTD,NO.4,O.37 LG.....	1
25	XBOZZ		97403	13216E5888/1	...SHEET.....	1
26	MOOZZ		97403	13225E8450/223	.RUBBER,CELLULAR O.12THK X.25W x 3.46LG, MAKE FROM P/N MILR630TY2GRAC	4
27	X0000		97403	13216E5887	..DAMPER,VENTILATION.....	1
28	MOOZZ		97403	13216E5887/4	...RUBBER.CELLULAR. .25W X3.46LG. MAKE FROM P/N MILR6130TYGRA.12 (81349).....	2
29	XBOZZ		97403	13216E5887/2	...SHEET.....	1
30	PBOZZ	3120011247745	97403	13216E6096	.BEARING,SLEEVE NYLON.....	1
31	PBOZZ	3120011247745	97403	13216E6096	.BEARING,SLEEVE NYLON:::::.....	1

END OF FIGURE

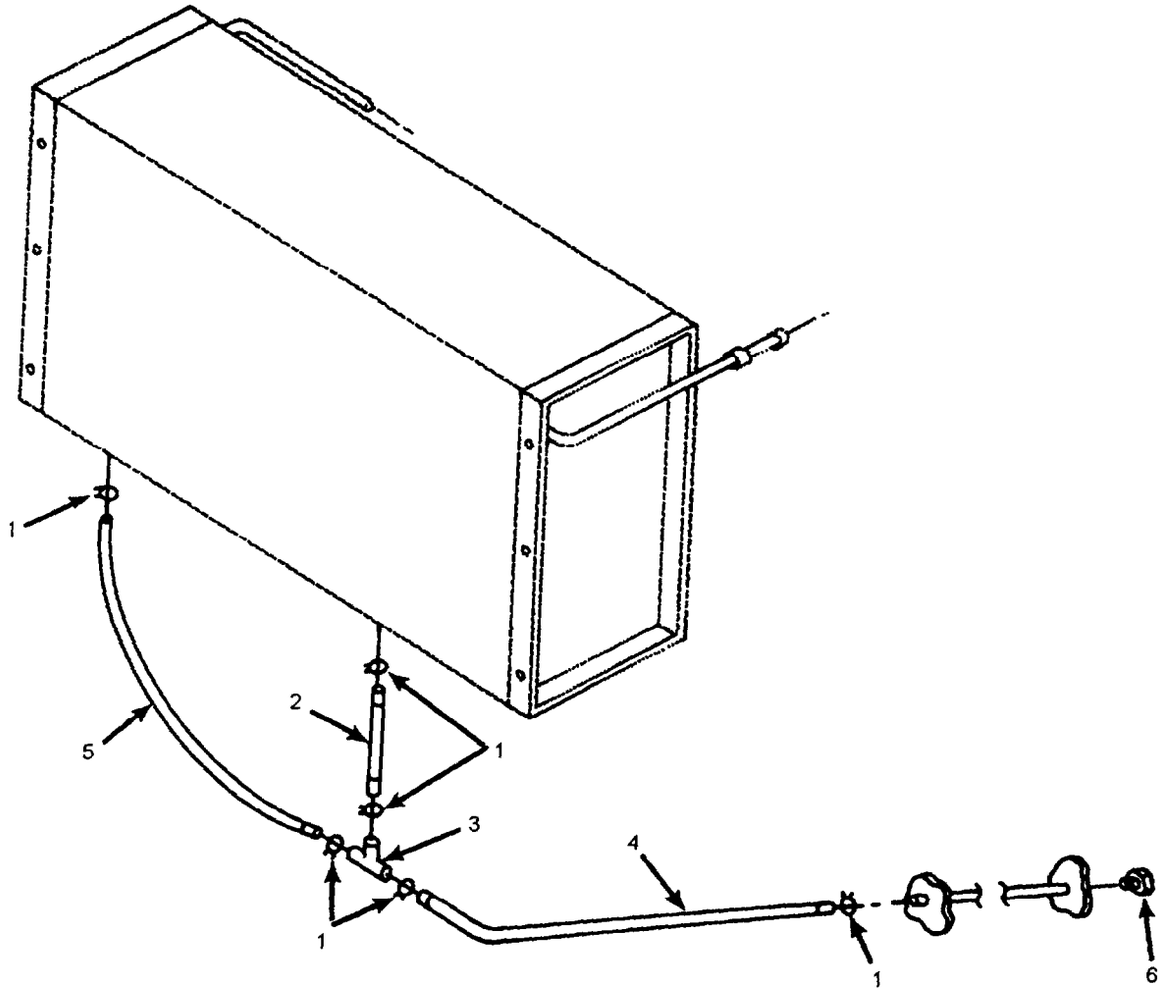


Figure 9. Condensate Drain Tubes

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
					GROUP 02 FRESH AIR DAMPER AND ACTUATOR	
					F-9 CONDENSATE DRAIN TUBES	
1	PB0ZZ	4730002890211	94135	33C69-666	.CLAMP,HOSE.....	6
2	MO022		97403	13216E6151-1	.TUBING.NONMETALLIC 0.50 OD X 2 IN LG, MAKE FROM P/N 13216E6151 (97403)	1
3	PA0ZZ	4730002572163	96906	MS35929-2	.TEE,TUBE.....	1
4	M00ZZ		97403	13216E6151-4	.TUBING,NONMETALLIC 0.50 OD, MAKE FROM P/N 13216E6151(97403),CUT TO LENGTH.....	1
5	M00ZZ		97403	13216E6151-5	.TUBING,NONMETALLIC 0.50 OD X 10.75 LG, MAKE FROM P/N 13216E6151 (97403).....	1
6	PA022		55176	24355	.PLUG,PIPE.....	1

END OF FIGURE

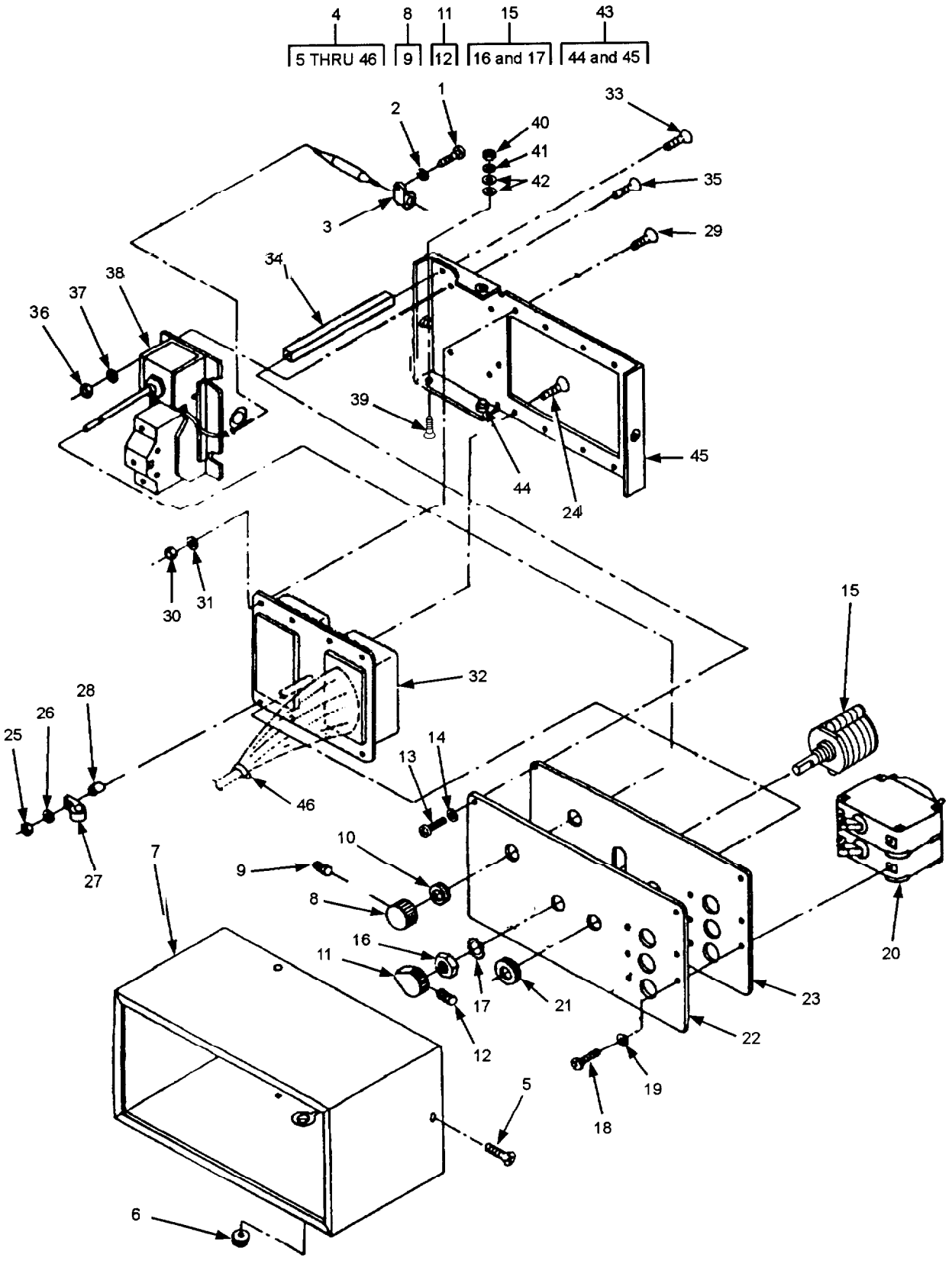


Figure 10. Control Module

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
					GROUP 03 CONTROL MODULE	
					F-IO CONTROL MODULE	
1	PAOZZ	5306009846193	96906	MS35206-245	.SCREW,MACHINE NO.8 X0.50 LG.....	2
2	PAOZZ	5310000453299	96906	MS3533842	.WASHER,LOCK CAD PLTD,NO.8.....	2
3	PAOZZ	5340005980146	96906	MS21919WDG6	.CLAMP,LOOP .37 ALUM ALLOY.....	2
4	PB000		OV5R4	S8426	.CONTROL MODULE ASSEMBLY.....	1
5	PAOZZ	5305009594743	96906	MS24693-S5	..SCREW,MACHINE CAD PLTD,NO.4 X0.43 LG.....	4
6	PAOZZ	5325002866047	96906	MS35489-1	..GROMMET,NONMETALLIC.....	1
7	XBOZZ		97403	13216E6202	..COVER,CONTROL MODULE.....	1
8	PAOZZ	5355000519146	96906	MS25167P1B	..KNOB.....	1
9	PAOZZ	5305005510156	80205	MS51021-31	...SETSCREW.....	1
10	PAOZZ	5325001850012	96906	MS35489-35	..GROMMET,NONMETALLIC.....	1
11	PAOZZ	5355005560145	96906	MS91528-1K2B	..KNOB.....	1
12	PAOZZ	5305008007261	205	MS51021-9	...SETSCREW.....	1
13	PAOZZ	5305008653895	96906	MS21090-0621	..SCREW,CAP,SOCKET HEAD CAD PLTD, NO.6 X 0.31 LG.....	3
14	PAOZZ	5310009838483	96906	MS27183-5	..WASHER.FLAT CAD PLTD,0.15 ID.....	3
15	PAOZZ		OV5R4	C4D0304N-9833	..SWITCH,ROTARY.....	1
16	PAOZZ	5310009752075	96906	MS35691-21	...NUT,PLAIN,HEXAGDN CAD PLTD,3/8-0000.....	1
17	PAOZZ	5310005957237	96906	MS35333-42	...WASHER,LOCK CAD PLTD,3/8.....	1
18	PAOZZ	5305008653895	96906	MS21090-0621	..SCREW,CAP,SOCKET HEAD CAD PLTD, NO.6 X 0.31 LG.....	4
19	PAOZZ	5310009838483	96906	MS27183-5	..WASHER.FLAT CAD PLTD,0.15 ID.....	4
20	PAOZZ	5925004822396	97403	13216E6206-1	..CIRCUIT BREAKER.....	1
21	PAOZZ	5325001850012	96906	MS35489-35	..GROMMET,NONMETALLIC.....	1
22	XBOZZ		OV5R4	S6197	..PLATE,DESIGNATION.....	1
23	XBOZZ		97403	13216E6196-1	..PLATE,MTG.....	1
24	PAOZZ	5305009577820	96906	MS24693-S31	..SCREW,MACHINE CAD PLTD,NO.6 X0.87 LG.....	1
25	PAOZZ	5310000818087	96906	MS21044N06	..NUT,SELF-LOCKING,HEXAGON STEEL, NO.6.....	1
26	PAOZZ	5310009838483	96906	MS27183-5	..WASHER.FLAT CAD PLTD,015 ID.....	1
27	PAOZZ	5340008452072	96906	MS21919WDF2	..CLAMP,LOOP .12 ALUM ALLOY.....	1
28	PAOZZ	5340012581273	97403	13216E6159-11	..POST,ELECTRICAL-MECHANICAL.....	1
29	PAOZZ	5305008373343	96906	MS24693-S28	..SCREW.MACHINE CAD PLTD,NO.6 X0.50 LG.....	7
30	PAOZZ	5310000818087	96906	MS21044N06	..NUT,SELF-LOCKING,HEXAGON STEEL, NO.6.....	7
31	PAOZZ	5310009838483	96906	MS27183-5	..WASHER.FLAT CAD PLTD,0.15 ID.....	7
32	PAOZA	5935001374256	97403	13216E6209-2	..CONNECTOR,RECEPTACLE,ELECTRICAL.	1
33	PAOZZ	5305004604589	80206	MS21093-0619	..SCREW,CAP,SOCKET HEAD CAD PLTD, NO.6 X0.31 LG.....	3
34	XBOZZ	4920003231960	97403	13216E6199-1	..POST,SPACER.....	3
35	PAOZZ	5305008373343	96906	MS24693-S28	..SCREW,MACHINE CAD PLTD,NO.6 X0.50 LG.....	4
36	PAOZZ	5310000818087	96906	MS21044N06	..NUT,SELF-LOCKING,HEXAGON STEEL, NO.6.....	4
37	PAOZZ	5310009838483	96906	MS27183-5	..WASHER,FLAT .15ID CAD PL.....	4

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(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
38	PAOZZ	5930004825774	97403	13216E6203-1	..SWITCH,THERMOSTATIC CAD PLTD, NO.8 X0.75 LG.....	1
39	PAOZZ	5305000633503	96906	MS24693-S50	..SCREW,MACHINE CAD PLTD,NO.8 X0.50 LG.....	1
40	PAOZZ	5310009349757	96906	MS35649-282	..NUT,PLAIN,HEXAGON CAD PLTD,NO.8..	1
41	PAOZZ	5310005590070	96906	MS35333-38	..WASHER,LOCK CAD PLTD,1.5 ID.....	1
42	PAOZZ	5310008098544	96906	MS27183-7	..WASHER,FLAT CAD PLTD,O.18 ID.....	2
43	XBOZZ		97403	13216E6198	..FRAME,MOUNTING.....	1
44	XBOZZ		96906	MS27130-S81K	...NUT,PLAIN,BLIND RIVET.....	4
45	XBOZZ		97403	13216E6198/1	...SHEET.....	1
46	PAOZZ	5975000742072	96906	MS3367-1-9	..STRAP,TIEDOWN,ELECT RICAL.....	v

END OF FIGURE

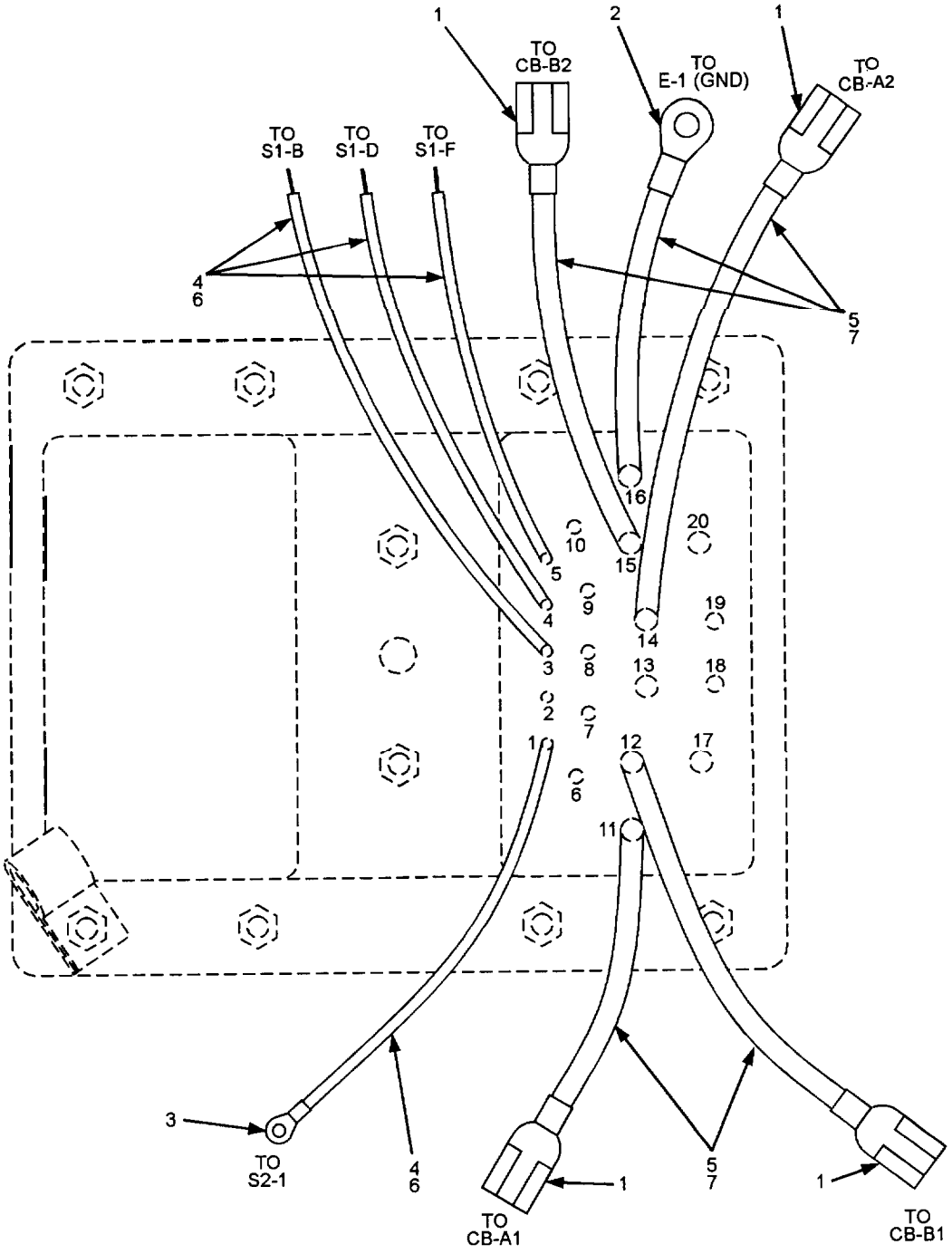

Figure 11. Control Module Wiring (Sheet 1 of 2)

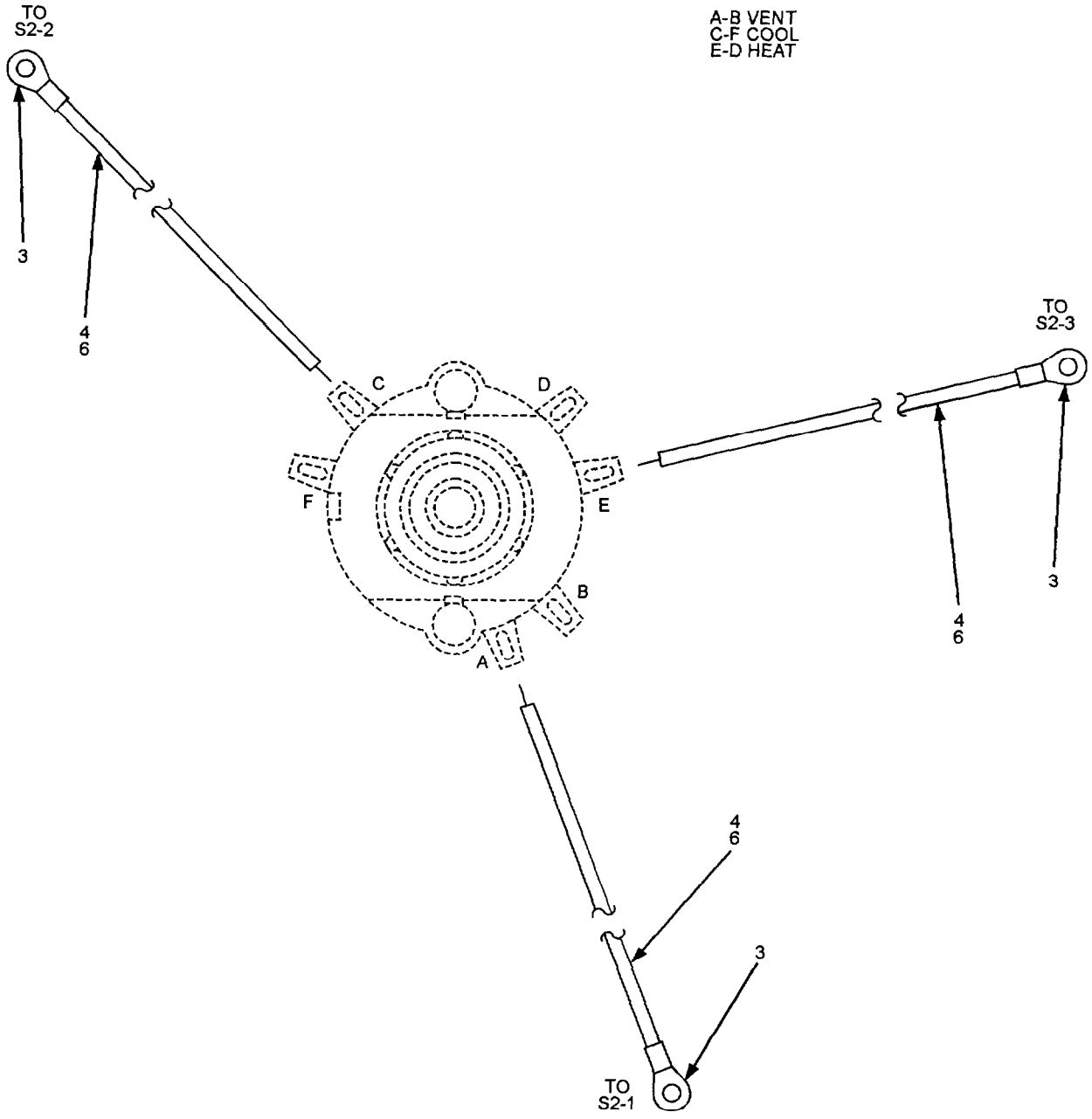

Figure 11. Control Module Wiring (Sheet 2 of 2)

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
					GROUP 0304 CONTROL MODULE WIRING HARNESS	
					F-11 CONTROL MODULE WIRING	
1	PAOZZ	5940004322660	97403	13216E6191-3	..TERMINAL,QUICK DISC ONNECT WIRE NO.12-10,YELLOW INSULATOR.....	4
2	PAOZZ	5940001434774	96906	MS25036-153	..TERMINAL,LUG WIRE NO.16-14,BLUE INSULATOR.....	1
3	PAOZZ	5940005571629	96906	MS25036-149	..TERMINAL,LUG WIRE NO.22-18,RED INSULATOR.....	4
4	MOOZZ		OV5R4	SII-4	.WIRE,ELECTRICAL 6 INCHES LONG, MAKE FROM P/N M5086/2-18-9 (81349)..	7
5	MOOZZ		97403	13225E8435/12	..WIRE,ELECTRICAL,12 6AWG,6 INCHES LONG,MAKE FROM P/N M5086/2-12-9 (81349).....	5
6	MOOZZ		97403	13225E8435/2	..INSULATION SLEEVING 0.187ID X 0.75LG, WHITE, MAKE FROM P/N M23053/ 5-105-9.....	7
7	MOOZZ		97403	13225E8435/7	..INSULATION SLEEVING 0.250ID X 0.75LG, WHITE, MAKE FROM P/N M23053/ 5-106-9.....	5

END OF FIGURE

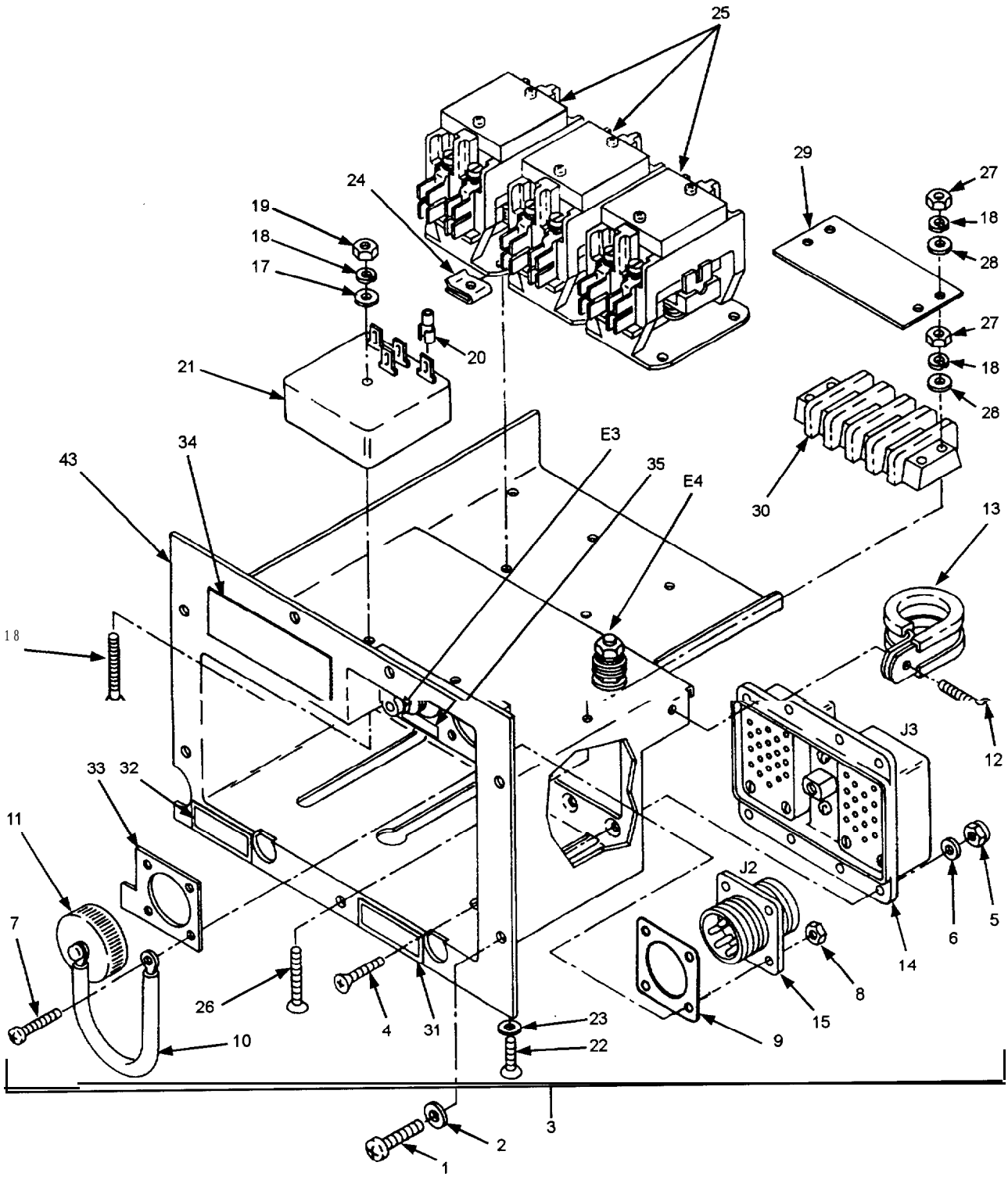

Figure 12. Junction Box (Sheet 1 of 2)

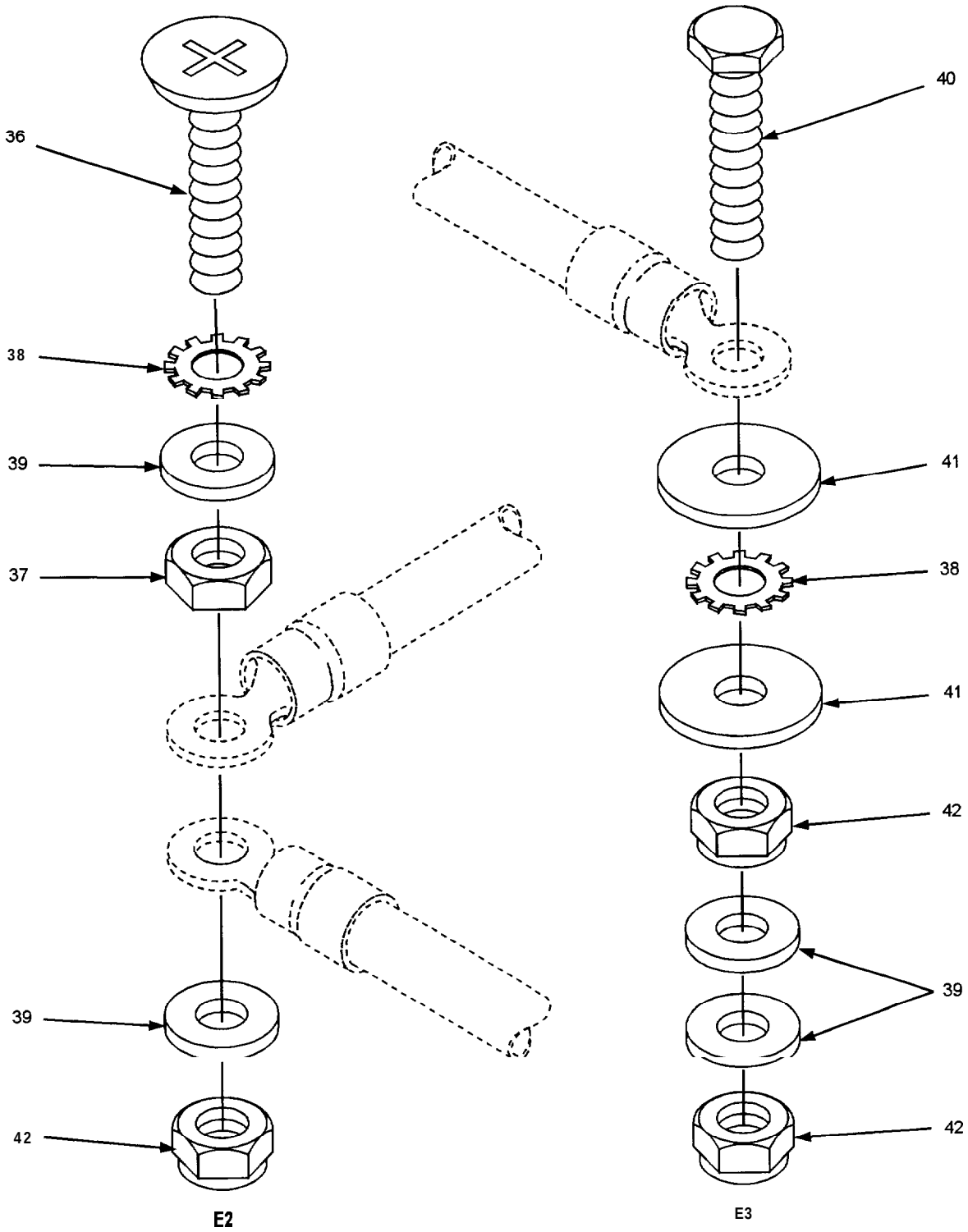

Figure 12. Junction Box (Sheet 2 of 2)

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
					GROUP 04 JUNCTION BOX	
					F-12 JUNCTION BOX	
1	PAOZZ	5305009846194	96906	MS35206-246	SCREW,MACHINE	7
2	PAOZZ	5310000453299	96906	MS35338-42	WASHER,LOCK	7
3	XBODO		OV5R4	sa425	JUNCTION BOX ASSEMB LY	1
4	PAOZZ	5305008087832	96906	MS24693-S29	SCREW.MACHINE	8
5	PAOZZ	5310000818087	96906	MS21044N06	NUT,SELF-LOCKING,HE XAGON	13
6	PAOZZ	5310009838483	96906	MS27183-5	WASHER.FLAT	13
7	PAOZZ	5306009836730	96906	MS35206-218	SCREW,MACHINE	4
8	PAOZZ	5310008116419	96906	MS21042-04	NUT,SELF-LOCKING,HE XAGON	4
9	PAOZZ	5330005080753	58536	A52481-6	GASKET	1
10	MOOZZ		97403	13225E8410/3	INSULATION SLEEVING MAKE FROM P/N M23053/5-106-9(81349), 4.5 INCHES LONG	1
11	PAOZZ	5935011758419	96906	MS25043-18DA	COVER,ELECTRICAL CO NNECTOR - INCLUDES ATTACHING CHAIN	1
12	PAOZZ	5305009577086	96906	MS24693-S273	SCREW,MACHINE	1
13	PAOZZ	5340002869424	96906	MS21919WDG14	CLAMP,LOOP	1
14	PAOZA	5935004822390	97403	13216E6177	CONNECTOR,RECEPTACL E,ELECTRICAL J3	1
15	PAOZZ	5935011464091	96906	MS3450W18-11P	CONNECTOR,RECEPTACL E.ELECTRICAL J2	1
16	PAOZZ		96906	MS24693-256	SCREW.MACHINE	8
17	PAOZZ	5310008098544	96906	MS27183-7	WASHER,FLAT	1
18	PAOZZ	5310000453299	96906	MS35338-42	WASHER,LOCK	5
19	PAOZZ	5310008113494	96906	MS21044108	NUT,SELF-LOCKING,HE XAGON	2
20	PAOZZ	5940010823321	06383	DV14-250FI	TERMINAL,QUICK DISC ONNECT.	3
21	PAOZZ		OV5R4	sao24	RELAY,THERMAL	1
22	PAOZZ	5305009846193	96906	MS35206-245	SCREW,MACHINE	a
23	PAOZZ	5310008098544	96906	MS27183-7	WASHER,FLAT	8
24	PAOZZ	5310009176365	96906	MS90724-29	NUT,SHEE T SPRING	8
25	PAOZZ		OV5R4	S3100-20Q5WC	RELAY,ELECTROMAGNET	3
26	PAOZZ	5305009596640	96906	MS24693-S56	SCREW,MACHINE	2
27	PAOZZ	5310008113494	96906	MS21044N08	NUT,SELF-LOCKING,H E XAGON	2
28	PAOZZ	5310008098544	96906	MS27183-7	WASHER,FLAT	2
29	XBOZZ		OV5R4	56221	MARKER STRIP, TERMINAL	1
30	PAOZZ		OV5R4	S6232	TERMINAL BOARD	1
31	XBOZZ		OV5R4	S8450-2	PLATE,INSTRUCTION RESET HIGH	1
32	XBDZZ		OV5R4	S8450-1	PLATE,INSTRUCTION RESET LOW	1
33	XBOZZ		OV5R4	S8450-4	PLATE,INSTRUCTION POWER INPUT	1
34	XBOZZ		OV5R4	S6959	PLATE,INSTRUCTION CAUTION	1
35	XBOZZ		OV5R4	S8450-3	PLATE,INSTRUCTION GROUND	1
36	PAOZZ		96906	MS24693-299	SCREW,MACHINE	1
37	PAOZZ	5310009349757	96906	MS35649-282	NUT,PLAIN,HEXAGON	1
38	PAOZZ	5310002090786	96906	MS35335-33	WASHER,LOCK	2
39	PAOZZ	5310008094058	96906	MS27183-10	WASHER,FLAT	4
40	PAOZZ	5305000680516	80204	B1821BH025F113N	SCREW,CAP,HEXAGON H EAD	1
41	PAOZZ	5310000814219	96906	MS27183-12	WASHER,FLAT	2
42	PAOZZ	5310000817325	96906	MS21045-4	NUT,SELF-LOCKING,HE XAGON	3
43	XBOZZ'		97403	13228E3409	JUNCTION BOX	1

END OF FIGURE

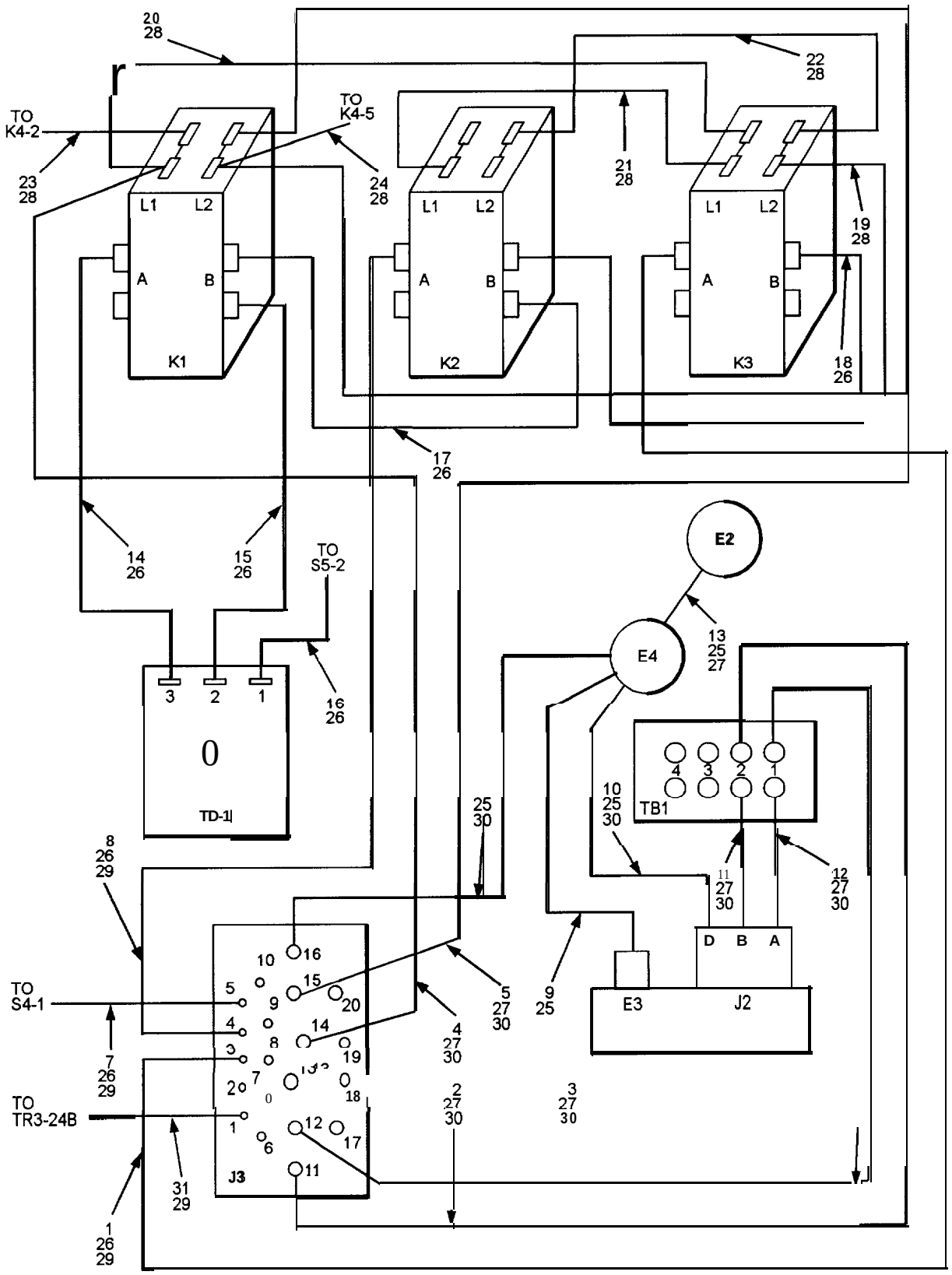

Figure 13. Junction Box Wiring

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
					GROUP 0401 JUNCTION 60X WIRING HARNESS	
					F-13 JUNCTION BOX WIRING	
1	MOOZZ		OV5R4	S13-1	..WIRE,ELECTRICAL 12 INCHES LONG, MAKE FROM P/N M5086/2-18-9 (81349)..	1
2	MOOZZ		OV5R4	S13-2	..WIRE,ELECTRICAL 20 INCHES LONG, MAKE FROM P/N M5086/2-12-9 (81349)..	1
3	MOOZZ		OV5R4	S13-3	..WIRE.ELECTRICAL 20 INCHES LONG. MAKE FROM P/N M5086/2-12-9 (81349)..	1
4	MOOZZ		OV5R4	S13-4	..WIRE.ELECTRICAL 20 INCHES LONG. MAKE FROM P/N M5086/2-12-9 (81349)..	1
5	MOOZZ		OV5R4	S13-5	..WIRE,ELECTRICAL 20 INCHES LONG, MAKE FROM P/N M5086/2-12-9 (81349)..	1
6	MOOZZ		OV5R4	S13-6	..WIRE,ELECTRICAL 16 INCHES LONG, MAKE FROM P/N M5086/2-12-9 (81349)..	1
7	MOOZZ		OV5R4	S13-7	..WIRE,ELECTRICAL 24 INCHES LONG, MAKE FROM P/N M5086/2-18-9 (81349)..	1
8	MOOZZ		OV5R4	513-a	..WIRE,ELECTRICAL 24 INCHES LONG, MAKE FROM P/N M5086/2-18-9 (81349)..	1
9	MOOZZ		OV5R4	S13-9	..WIRE,ELECTRICAL 8 INCHES LONG, MAKE FROM P/N M5086/2-12-9 (81349)..	1
10	MOOZZ		OV5R4	S13-10	..WIRE,ELECTRICAL 8 INCHES LONG, MAKE FROM P/N M5086/2-12-9 (81349)..	1
11	MOOZZ		OV5R4	S13-11	..WIRE,ELECTRICAL 8 INCHES LONG, MAKE FROM P/N M5086/2-12-9 (81349)..	1
12	MOOZZ		OV5R4	S13-12	..WIRE,ELECTRICAL a INCHES LONG, MAKE FROM P/N M5086/2-12-9 (81349)..	1
13	MOOZZ		OV5R4	S13-13	..WIRE,ELECTRICAL 24 INCHES LONG, MAKE FROM P/N M5086/2-12-9 (81349)..	1
14	MOOZZ		OV5R4	S13-14	..WIRE,ELECTRICAL 8 INCHES LONG, MAKE FROM P/N M5086/2-18-9 (81349)..	1
15	MOOZZ		OV5R4	S13-15	..WIRE,ELECTRICAL 8 INCHES LONG, MAKE FROM P/N M5086/2-18-9 (81349)..	1
16	MOOZZ		OV5R4	S13-16	..WIRE.ELECTRICAL 36 INCHES LONG. MAKE FROM P/N M5086/2-18-9 (81349)..	1
17	MOOZZ		OV5R4	S13-17	..WIRE.ELECTRICAL a INCHES LONG. MAKE FROM P/N M5086/2-18-9 (81349)..	1
18	MOOZZ		OV5R4	S13-18	..WIRE,ELECTRICAL 8 INCHES LONG, MAKE FROM P/N M5086/2-18-9 (81349)..	1
19	MOOZZ		OV5R4	S13-19	..WIRE,ELECTRICAL 8 INCHES LONG, MAKE FROM P/N M5086/2-12-9 (81349)..	1
20	MOOZZ		OV5R4	S13-20	..WIRE,ELECTRICAL 8 INCHES LONG, MAKE FROM P/N M5086/2-12-9 (81349)..	1
21	MOOZZ		OV5R4	S13-21	..WIRE,ELECTRICAL 8 INCHES LONG, MAKE FROM P/N M5086/2-12-9 (81349)..	1
22	MOOZZ		OV5R4	S13-22	..WIRE,ELECTRICAL 8 INCHES LONG, MAKE FROM P/N M5086/2-12-9 (81349)..	1
23	MOOZZ		OV5R4	S13-23	..WIRE,ELECTRICAL 36 INCHES LONG, MAKE FROM P/N M5086/2-12-9 (81349)..	1
24	MOOZZ		OV5R4	S13-24	..WIRE,ELECTRICAL 36 INCHES LONG,	1

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
					MAKE FROM P/N M5086/2-12-9 (81349)..	
25	PAOZZ	5940001434777	96906	MS25036-157	..TERMINAL,LUG.....	5
26	PAOZZ	5940010823321	06383	DV14-250FI	..TERMINAL,QUIC K DISC ONNECT.....	13
27	PAOZZ	5940001434794	96906	MS25036-112	..TERMINAL.LUG	7
28	PAOZZ		06383	DNFR14-250B	..TERMINAL]LUG.....	12
29	MOOZZ		OV5R4	S13-29	..INSULATION SLEEVING MAKE FROM P/N M23053/5-109-9 (81349),.75 INCH LONG.....:.....	4
30	MOOZZ		OV5R4	S13-30	..INSULATION SLEEVING MAKE FROM P/N M23053/5-106-9 (81349),.75 INCH LONG.....	8
31	MOOZZ		OV5R4	S13-31	..WIRE,ELECTRICAL 36 INCHES LONG, MAKE FROM P/N M5086/2-18-9 (81349)..	1

END OF FIGURE

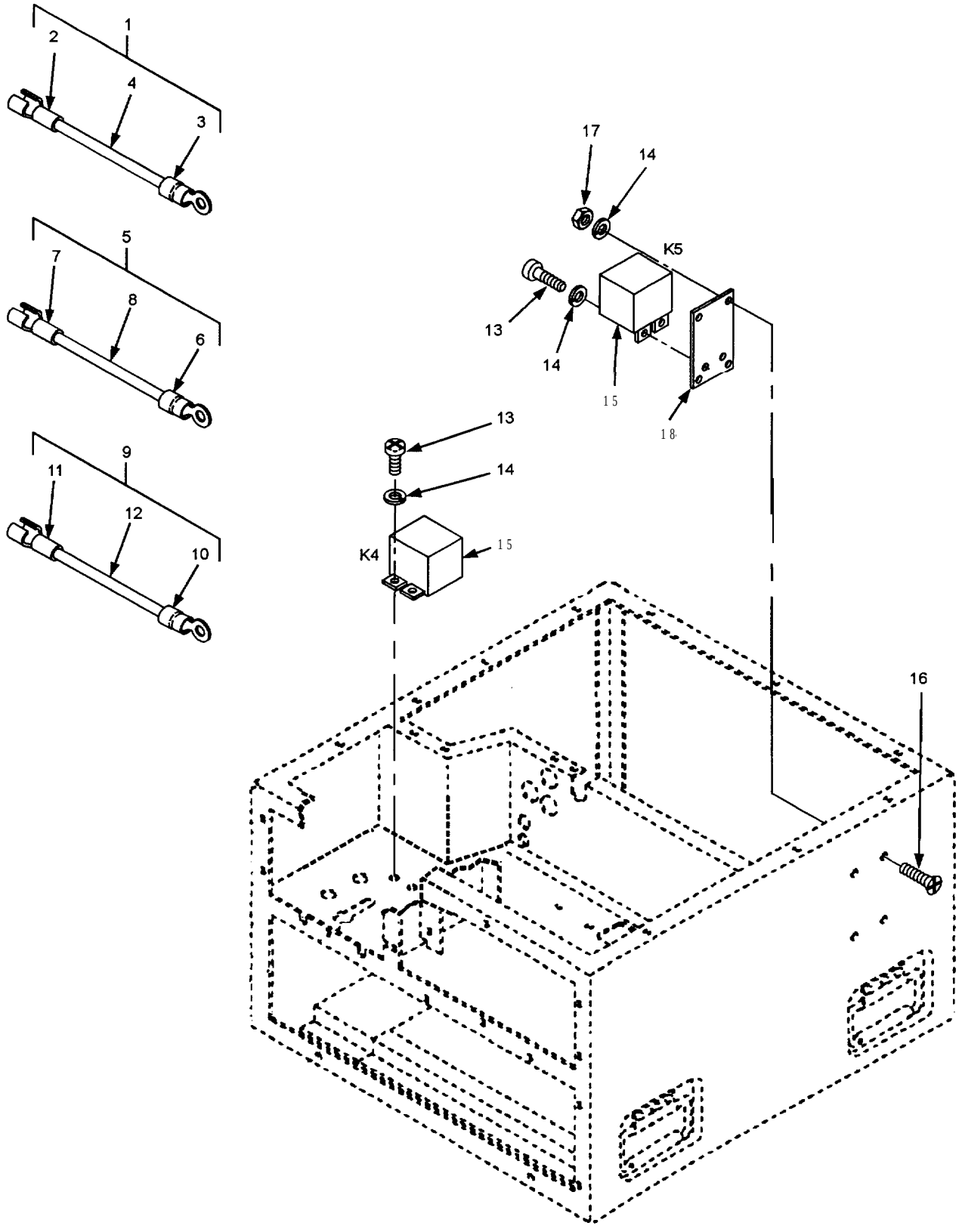

Figure 14. Compressor Start Relay (K5) and Over Voltage Protection Relay (K4)

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
					GROUP 0402 RELAYS (K1 THRU K5)	
					F-14 COMPRESSOR START RELAY (K5) AND OVER VOLTAGE PROTECTION RELAY (K4)	
1	MOOZZ		97403	13225E8427-8	.LEAD,ELECTRICAL.....	1
2	PAOZZ	5940004819089	56501	B14-250A	..TERMINAL,QUICK DISC ONNECT WIRE NO.18-20.....	2
3	PAOZZ	5940001434774	96906	MS25036-153	..TERMINAL,LUG WIRE NO.16-14,BLUE INSULATOR.....	1
4	MOOZZ		97403	13225E8427/2	..WIRE,ELECTRICAL,16 AWG 20 INCHES LONG,MAKE FROM P/N MILW5086/2-16-9 (81349).....	1
5	MOOZZ		97403	13225E8427-10	.LEAD,ELECTRICAL.....	1
6	PAOZZ	5940001434775	96906	MS25036-156	..TERMINAL,LUG WIRE NO.12-10, YELLOW INSULATOR.....	1
7	PAOZZ	5940004322660	97403	13216E6191-3	..TERMINAL,QUICK DISC ONNECT WIRE NO.12-10,YELLOW INSULATOR.....	1
a	Moozz		97403	13225E8427/9	..WIRE,ELECTRICAL,12 AWG 20 INCHES LONG, MAKE FROM P/N MILW5086/2-12-9 (81349).....	1
9	AOOZZ		97403	13225E847-9	.LEAD,ELECTRICAL.....	1
10	PAOZZ	5940001434774	96906	MS25036-153	..TERMINAL,LUG WIRE NO.16-14,BLUE INSULATOR.....	1
11	PAOZZ	5940004819089	56501	B14-250A	..TERMINAL,QUICK DISC ONNECT WIRE NO.18-20.....	1
12	MOOZZ		97403	13225E8427/2	..WIRE,ELECTRICAL,16 AWG 20 INCHES LONG, MAKE FROM P/N MILW5086/2-16-9 (81349).....	1
13	PAOZZ	5305009846194	96906	MS35206-246	.SCREW,MACHINE C A D PLTD,NO.8,0.50 IN.....	1
14	PAOZZ	5310000453299	96906	MS35338-42	.WASHER,LOCK CAD PLTD,NO.8.....	1
15	PAOZZ		ONY81	38-T067F4583	.RELAY,ELECTROMAGNET.....	2
16	PAOZZ		96906	MS24693-256	.SCREW,MACHINE H D NO. 8.....	4
17	PAOZZ	5310009349757	96906	MS35649-282	.NUT,PLAIN,HEXAGON NO. a.....	2
18	PAOZZ		OV5R4	S6240PL	.PLATE,MOUNTING RELAY.....	1

END OF FIGURE

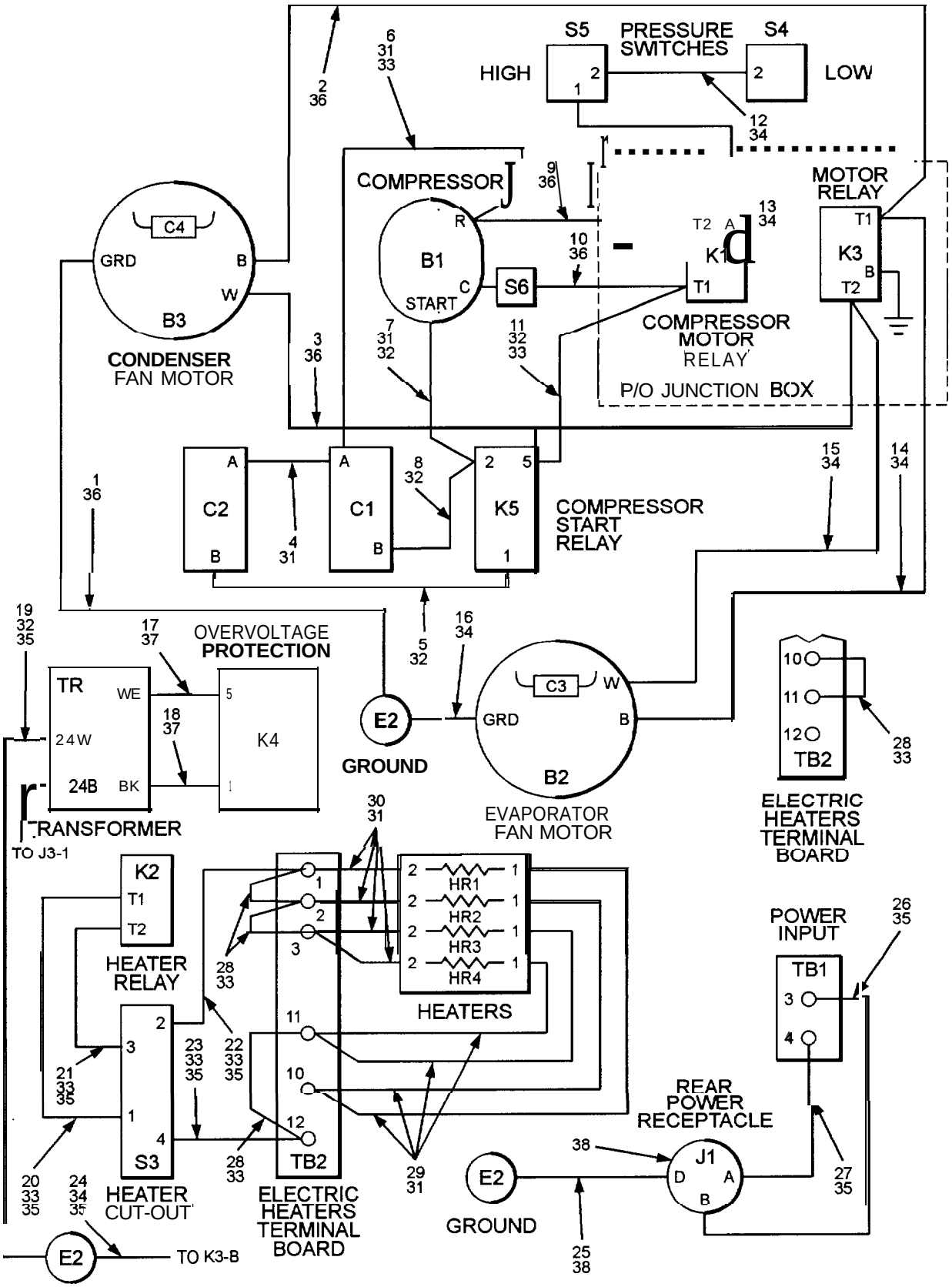

Figure 15. Unit Wiring

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
					GROUP 0403 UNIT WIRING	
					F-15 UNIT WIRING	
1	MOOZZ		OV5R4	S15-1	.WIRE,ELECTRICAL 36 INCHES LONG, MAKE FROM P/N M5086/2-12-9 (81349)..	1
2	MOOZZ		OV5R4	S15-2	.WIRE,ELECTRICAL 36 INCHES LONG, MAKE FROM P/N M5086/2-12-9 (81349)..	1
3	MOOZZ		OV5R4	S15-3	.WIRE,ELECTRICAL 36 INCHES LONG., MAKE FROM P/N M5086/2-12-9 (81349)..	1
4	MOOZZ		OV5R4	S15-4	.WIRE.ELECTRICAL 50 INCHES LONG., MAKE FROM P/N M5086/2-12-9 (81349)..	1
5	MOOZZ		OV5R4	S15-5	.WIRE,ELECTRICAL 50 INCHES LONG, MAKE FROM P/N M5086/2-12-9 (81349)..	1
6	MOOZZ		OV5R4	S15-6	.WIRE,ELECTRICAL 50 INCHES LONG, MAKE FROM P/N M5086/2-12-9 (81349)..	1
7	MOOZZ		OV5R4	S15-7	.WIRE,ELECTRICAL 50 INCHES LONG, MAKE FROM P/N M5086/2-12-9 (81349)..	1
a	MOOZZ		OV5R4	S15-8	.WIRE.ELECTRICAL 50 INCHES LONG, MAKE FROM P/N M5086/2-12-9 (81349)..	1
9	MOOZZ		OV5R4	S15-9	.WIRE.ELECTRICAL 12 INCHES LONG., MAKE FROM P/N M5086/2-12-9 (81349)..	1
10	MOOZZ		OV5R4	S15-10	.WIRE,ELECTRICAL 48 INCHES LONG, MAKE FROM P/N M5086/2-12-9 (81349)..	1
11	M O W		OV5R4	S15-11	.WIRE,ELECTRICAL 50 INCHES LONG. MAKE FROM P/N M5086/2-12-9 (81349)..	1
12	MOOZZ		OV5R4	S15-12	.WIRE.ELECTRICAL 6 INCHES LONG., MAKE FROM P/N M5086/2-18-9 (81349)..	1
13	MOOZZ		OV5R4	S15-13	.WIRE,ELECTRICAL 24 INCHES LONG, MAKE FROM P/N M5086/2-18-9 (81349)..	1
14	MOOZZ		OV5R4	S15-14	.WIRE,ELECTRICAL 36 INCHES LONG, MAKE FROM P/N M5086/2-12-9 (81349)..	1
15	MOOZZ		OV5R4	S15-15	.WIRE,ELECTRICAL 36 INCHES LONG. MAKE FROM P/N M5086/2-12-9 (81349)..	1
16	MOOZZ		OV5R4	S15-16	.WIRE.ELECTRICAL 36 INCHES LONG. MAKE FROM P/N M5086/2-12-9 (81349)..	1
17	MOOZZ		OV5R4	S15-17	.WIRE,ELECTRICAL a INCHES LONG, MAKE FROM P/N M5086/2-12-9 (81349)..	1
l a	MOOZZ		OV5R4	S15-18	.WIRE,ELECTRICAL a INCHES LONG, MAKE FROM P/N M5086/2-12-9 (81349)..	1
19	MOOZZ		OV5R4	S15-19	.WIRE,ELECTRICAL 12 INCHES LONG, MAKE FROM P/N M5086/2-18-9 (81349)..	1
20	MOOZZ		OV5R4	S15-20	.WIRE,ELECTRICAL 24 INCHES LONG, MAKE FROM P/N M5086/2-12-9 (81349)..	1
21	MOOZZ		OV5R4	S15-21	.WIRE,ELECTRICAL 24 INCHES LONG, MAKE FROM P/N M5086/2-12-9 (81349)..	1
22	MOOZZ		OV5R4	S15-22	.WIRE,ELECTRICAL 24 INCHES LONG, MAKE FROM P/N M5086/2-12-9 (81349)..	1
23	MOOZZ		OV5R4	S15-23	.WIRE,ELECTRICAL 24 INCHES LONG, MAKE FROM P/N M5086/2-12-9 (81349)..	1
24	MOOZZ		OV5R4	S15-24	.WIRE,ELECTRICAL 20 INCHES LONG, MAKE FROM P/N M5086/2-18-9 (81349)..	1

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
25	MOOZZ		0V5R4	S15-25	.WIRE,ELECTRICAL 8 INCHES LONG, RAKE FROM P/N M5086/2-12-9 (813491..	1
26	MOOZZ		0V5R4	S15-26	.WIRE.ELECTRICAL 8 INCHES LONG, RAKE FROM P/N M5086/2-12-9 (81349)..	1
27	MOOZZ		0V5R4	S15-27	.WIRE.ELECTRICAL 8 INCHES LONG, RAKE FROM P/N M5086/2-12-9 (81349)..	1
28	MOOZZ		0V5R4	S15-28	.WIRE,ELECTRICAL 4 INCHES LONG, RAKE FROM P/N M5086/2-12-9 (81349)..	4
29	MOOZZ		0V5R4	S15-29	.WIRE,ELECTRICAL 8 INCHES LONG, MAKE FROM P/N M5086/2-12-9 (81349)..	4
30	MOOZZ		0V5R4	S15-30	.WIRE,ELECTRICAL 12 INCHES LONG, RAKE FROM P/N M5086/2-18-9 (813491..	4
31	PAOZZ	5940010823321	06383	DV14-250FI	.TERMINAL,QUICK DISC ONNECT.....	10
32	PAOZZ		06383	DNFR14-250B	.TERMINAL,LUG.....	9
33	PAOZZ		06383	DNF10-250FI	.TERMINAL,LUG..... 1	4
34	PAOZZ		06383	DNFR14-250B	.TERMINAL,LUG.....	4
35	PAOZZ	5940001434794	06383	PN10-10R	.TERMINAL,LUG.....	8
36	PAOZZ		06383	DNF10-250FI	.TERMINAL,LUG.....	5
37	PAOZZ		06383	DNFR14-250B	.TERMINAL,LUG.....	4
38	PAOZA	5935011272089	96906	MS3456W18-11P	.CONNECTOR,PLUG,ELEC TRICAL.....	1

END OF FIGURE

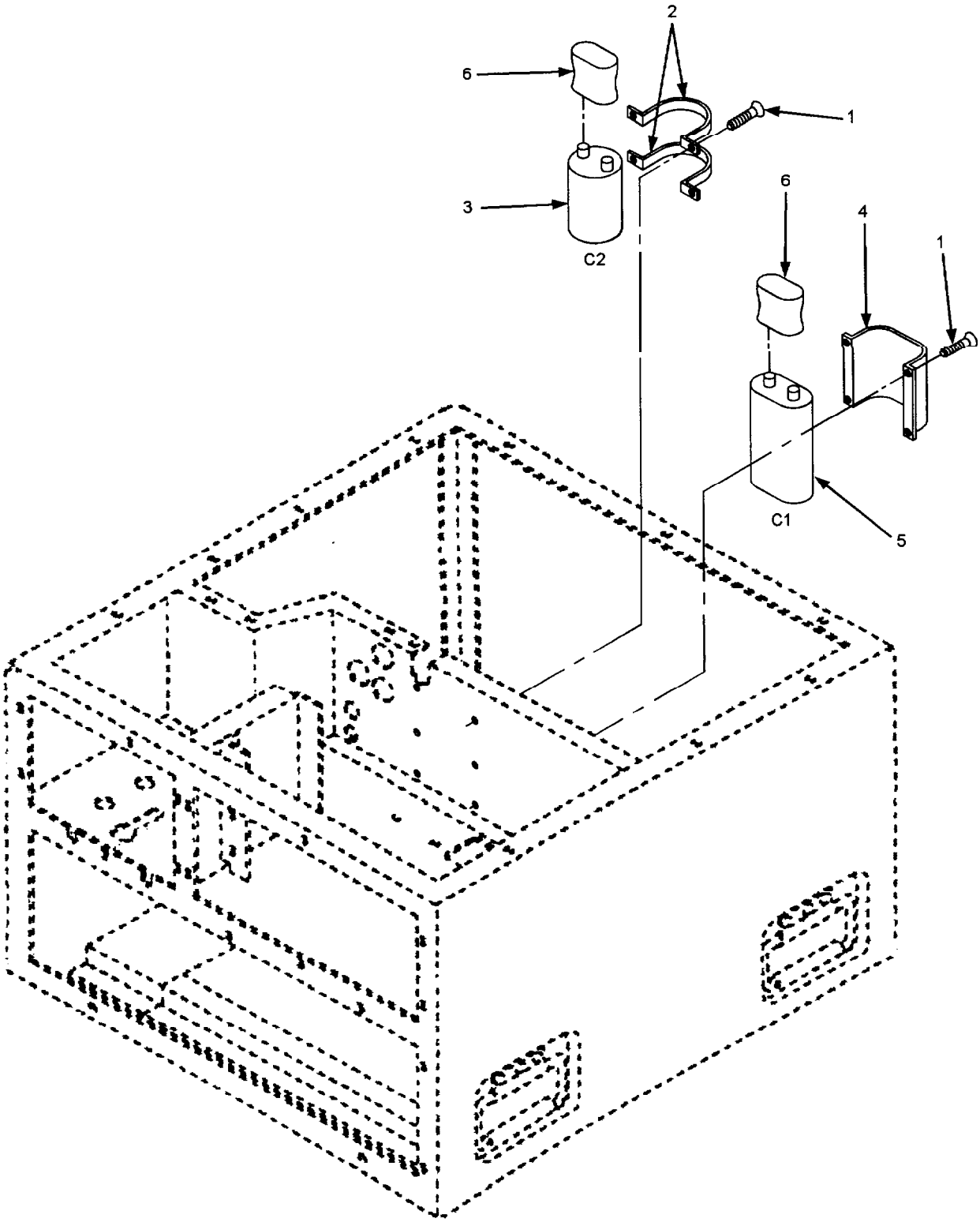

Figure 16. Capacitors

SECTION II TM9-4120-422-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
					GROUP 05 CAPACITORS	
					F-16 CAPACITORS	
1	PAOZZ	5305009586373	96906	MS24693-S51	.SCREW,MACHINE CAD PLTD,NO.8,O.62 IN.....	8
2	XBOZZ		97403	13225E8431	.STRAP.....	2
3	PAOZZ		OV5R4	85PS330-D14	.CAPACITOR,FIXED,ELE CTRDLYTIC START.....:.....:	1
4	XBOZZ		97403	13227E0144	.STRAP,RUN CAPACITOR.....	1
5	PAOZZ		OV5R4	P85E72	.CAPACITOR,MOTOR,RUN.....	1
6	XBOZZ		25795	3X685	.CAPACITOR BOOT.....	2

END OF FIGURE

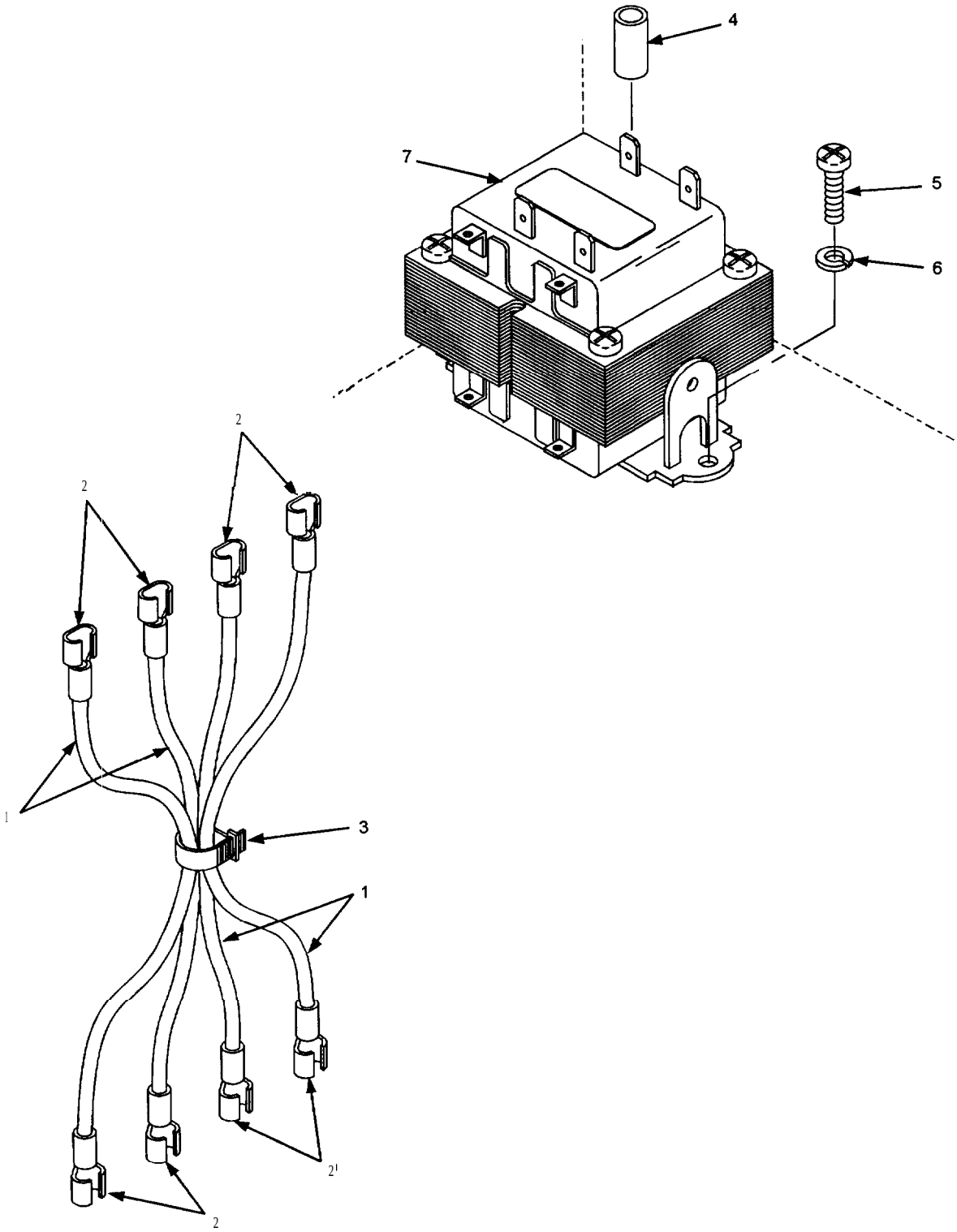

Figure 17. Transformer and Wiring

SECTION II TM9-4120-422-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
					GROUP 06 TRANSFORMER	
					F-17 TRANSFORMER AND WIRING	
1	MOOZZ		OV5R4	S17-1	.WIRE,ELECTRICAL 18 AWG, 20 IN LG, V RAKE FROM P/N M5086/2-18-9(81349)..	
2	PAOZZ	5940009489686	97403	13216E6191-1	.TERMINAL,QUICK DISC ONNECT WIRE NO.22-18,RED INSULATOR.....	8
3	PAOZZ	5975000742072	96906	MS3367-1-9	.STRAP,TIEDOWN,ELECT RICAL..... V	
4	MOOZZ		97403	13225E8450/65	.INSULATION SLEEVING 0.125 IN ID, 0.75 IN LG, WHITE, RAKE FROM P/N M23053/5.....	8
5	PAOZZ	5305009846194	96906	MS35206-246	.SCREW,MACHINE CAD PLTD,NO.8,0.62 IN.....	2
6	PAOZZ	5310000453299	96906	MS35338-42	.WASHER,LOCK PLTD, NO. 8.....	2
7	PAOZZ		ONY81	4000-01E07AN583	.TRANSFORMER,POWER.....	1

END OF FIGURE

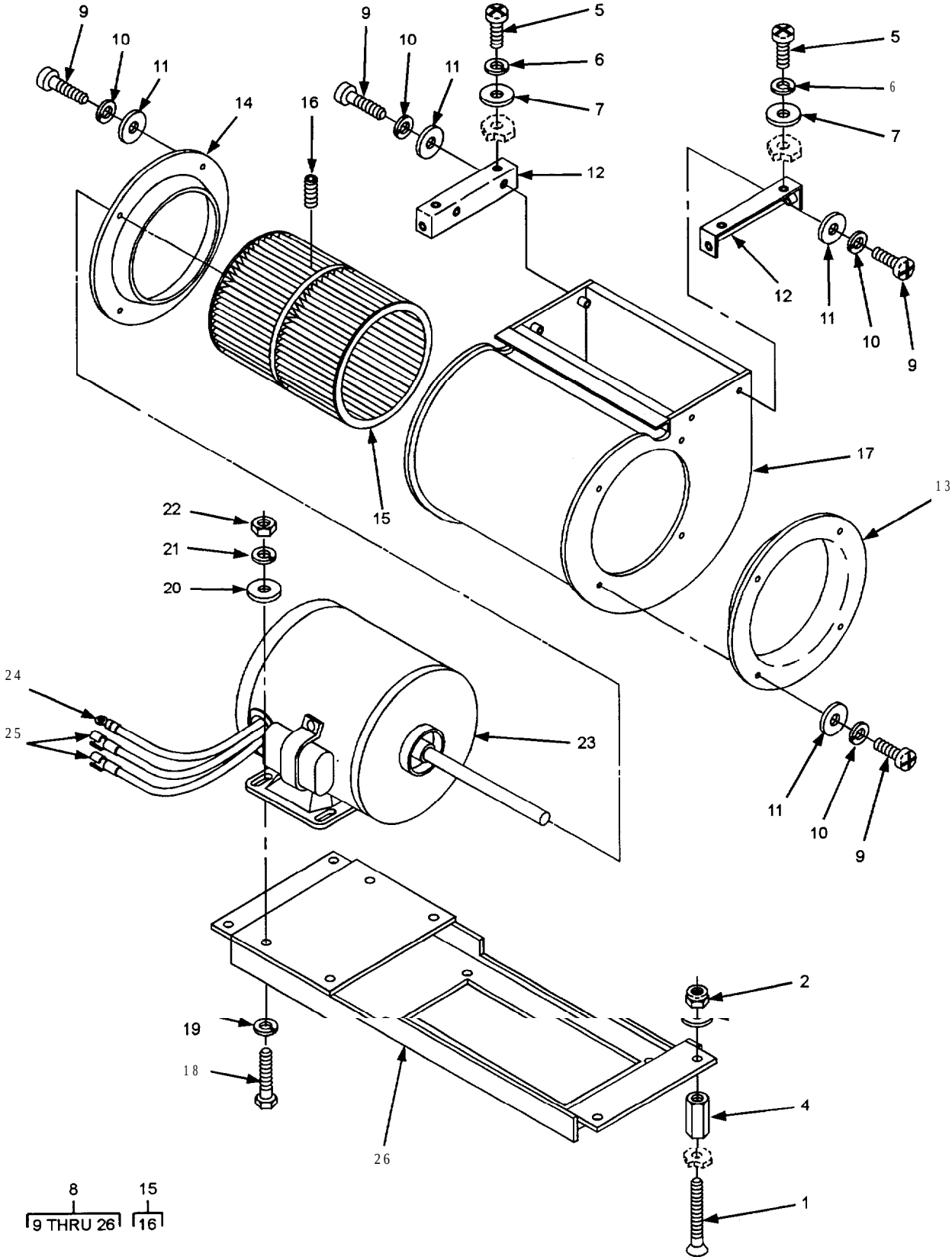

Figure 18. Fan and Housing

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
					GROUP 07 EVAPORATOR MOTOR	
					F-18 FAN AND HOUSING	
1	PAOZZ		96906	MS24693-299	.SCREW,MACHINE	4
2	PAOZZ	5310008892543	96906	MS21045-04	.NUT,SELF-LOCKING,HEXAGON STEEL,1/4-20	4
3	PAOZZ	5310000814219	96906	MS27183-12	.WASHER,FLAT CAD PLTD,1/4	4
4	PAOZZ		OV5R4	S6115-6	.MOUNT	1
5	PAOZZ	5305009846194	96906	MS35206-246	.SCREW,MACHINE CAD PLTD,NO.8,0.62 IN	4
6	PAOZZ	5310000453299	96906	MS35338-42	.WASHER,LOCK CAD PLTD, NO.8	4
7	PADZZ	5310000145850	96906	MS27183-42	.WASHER,FLAT ND. 8	4
8	PB000		OV5R4	57514	.COOLER,AIR,EVAPORATOR	1
9	PAOZZ	5305009846194	96906	MS35206-246	..SCREW,MACHINE CAD PLTD,NO.8,0.62 IN	14
10	PAOZZ	5310000453299	96906	MS35338-42	..WASHER,LOCK PLTD, NO. 8	14
11	PAOZZ	5310000145850	96906	MS27183-42	..WASHER,FLAT PLTD, NO. 8	14
12	XBOZZ		OV5R4	S6116-2	..BRACKET	2
13	XB00Z		OV5R4	S5914	..INLET,FAN, CENTRIFUGAL	1
14	XB00Z		OV5R4	S5915	..HOUSING.INLET FAN	1
15	PADZZ		87405	12324-02A	..IMPELLER,FAN,CENTRIFUGAL	1
16	PAOZZ	5305007245812	80205	MS51964-65	...SETSCREW	1
17	XBOZZ		OV5R4	S5911	..HOUSING,FAN, CENTRIFUGAL	1
16	PADZZ	5305002678953	80204	B1821BH025F063N	..SCREW,CAP,HEXAGON HEAD CAD PLTD, 1/4 IN X0.62 IN	4
19	PAOZZ	5310005825965	96906	MS35338-44	..WASHER,LOCK CAD PLTD,1/4 ID	4
20	PAOZZ	5310000814219	96906	MS27183-12	..WASHER,FLAT CAD PLTD,1/4	4
21	PAOZZ	5310005825965	96906	MS35338-44	..WASHER,LOCK CAD PLTD,1/4	4
22	PAOZZ	5310009971888	96906	MS35649-2252	..NUT,PLAIN,HEXAGON CAD PLTD,1/4	4
23	PADZZ		OV5R4	48A3408A	..MOTOR,ALTERNATING CURRENT W/ CAPACITOR	1
24	PAOZZ	5940001434794	06383	PN10-10R	..TERMINAL,LUG	1
25	PAOZZ		06383	DNFR14-250B	..TERMINAL,LUG	2
26	XBOZZ		97403	13216E5908	..BASE,EVAP FAN MOTOR	1

END OF FIGURE

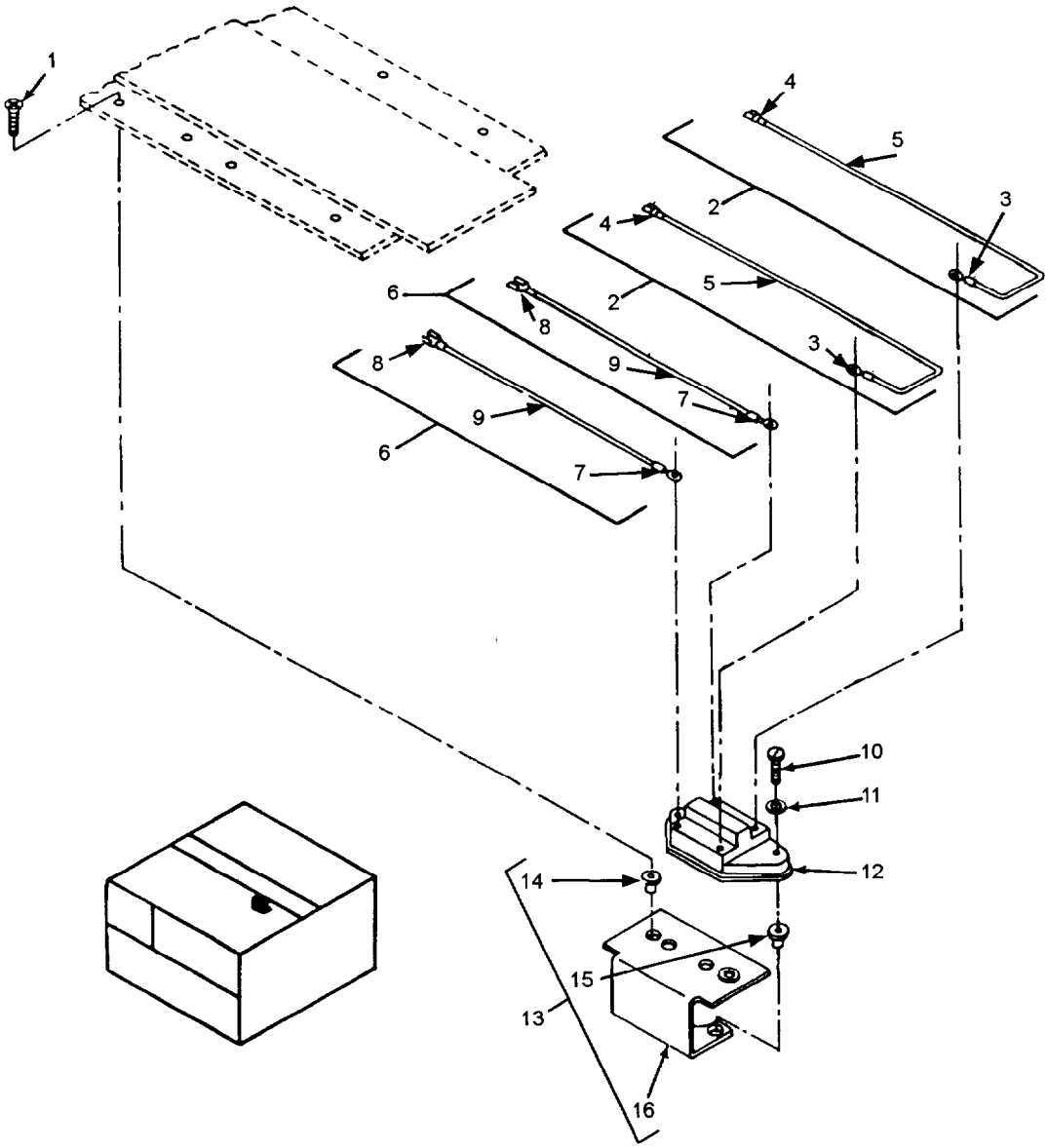

Figure 19. Heater Thermostat

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
					GROUP 08 HEATER THERMOSTAT	
					F-19 HEATER THERMOSTAT	
1	PAOZZ	5305000633503	96906	MS24693-S50	.SCREW,MACHINE CAD PLTD,NO.8,0.50 IN.....	2
2	MOOZZ		97403	13225E8427-4	.LEAD,ELECTRICAL.....	2
3	PAOZZ	5940001434774	96906	MS25036153	..TERMINAL,LUG WIRE NO.16-14,BLUE INSULATOR.:.....	1
4	PAOZZ	5940009260085	97403	13216E6191-2	..TERMINAL.QUICK DISC ONNECT WIRE NO.16-14,BLUE INSULATOR.....	1
5	MOOZZ		97403	13225E8427/2	..WIRE,ELECTRICAL la INCHES LONG, MAKE FROM P/N M5086/2-16-9(81349)..	1
6	MOOZZ		97403	1322E58427	.LEAD,ELECTRICAL.....	1
7	PAOZZ	5940001434774	96906	MS25036-153	..TERMINAL.LUG WIRE NO.16-14.BLUE INSULATOR.:.....:.....	1
a	PAOZZ	5940009260085	97403	13216E6191-2	..TERMINAL,QUICK DISC ONNECT WIRE NO.16-14,BLUE INSULATOR.....	1
9	MOOZZ		97403	13225E8427/2	..WIRE,ELECTRICAL la INCHES LONG, MAKE FROM P/N M5086/2-16-9(81349)..	1
10	PAOZZ	5305009844992	96906	MS35206-232	.SCREW,MACHINE CAD PLTD,NO.6,0.75 IN.....	2
11	PAOZZ	5310000454007	96906	MS35338-41	.WASHER,LOCK CAD PLTD.NO.6.....	2
12	PAOZZ	5930003576090	97403	13216E6224	.SWITCH,THERMOSTATIC.....	1
13	XBOZZ		97403	13216E5924	.BRACKET,THERMOSTAT ASSEMBLY.....	1
14	XBOZZ	5310000890013	96906	MS27130-13K	..NUT,PLAIN,BLIND RIV ET,STEEL,NO.8	2
15	XBOZZ	5310010422791	96906	MS27130-S7K	..NUT,PLAIN,BLIND RIV ET,STEEL,NO.6	2
16	XBOZZ		97403	13216E5924/1	..BRACKET.....	1

END OF FIGURE

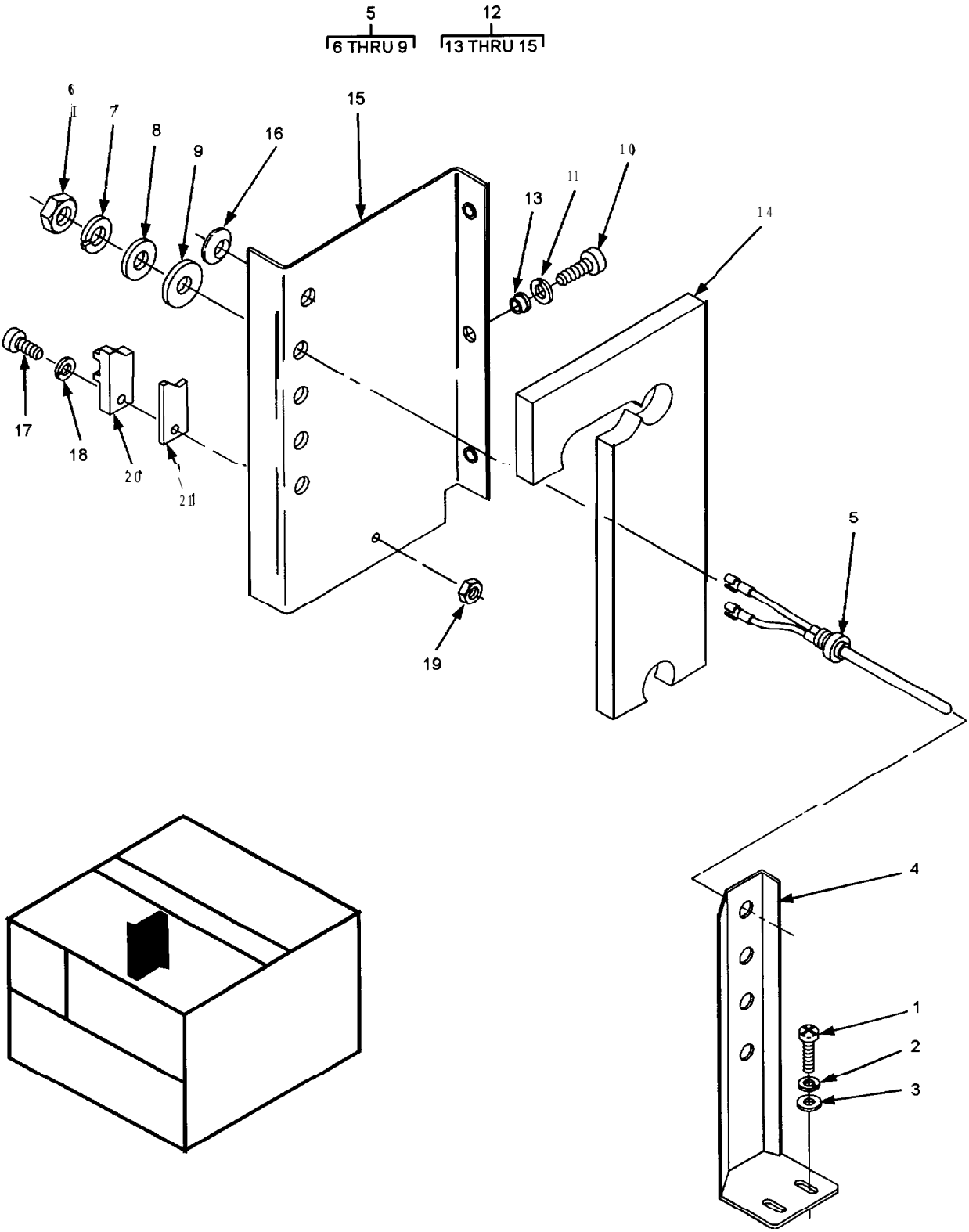

Figure 20. Heater Elements

SECTION II TMS-4120-422-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
					GROUP OS HEATER ELEMENTS	
					F-20 HEATER ELEMENTS	
1	PAOZZ	5305009846194	96906	MS35206-246	.SCREW,MACHINE CAD PLTD,NO.8,0.62 IN.....	2
2	PAOZZ	5310000453299	96906	MS35338-42	.WASHER,LOCK C A D PLTD,NO.8.....	2
3	PAOZZ	5310008098544	96906	MS27183-7	.WASHER,FLAT CAD PLTD,O.18 ID.....	2
4	XBOZZ		97403	13226E5920	.SUPPORT,HEATER.....	1
5	PBOZZ	4540004447114	97403	13216E6124-1	.HEATING ELEMENT,ELE CTRICAL.....	4
6	PAOZZ		81348	FF-N-836-7/16X28 UNEF-2A	..NUT,PLAIN,HEXAGON.....	1
7	XBOZZ		39428	91113A3032	..WASHER,LOCK - 7/16-28.....	1
a	XBOZZ		39428	98017A205	..WASHER,FLAT, 7/16-28.....	1
9	XBOZZ		97403	13216E6124/IW	..WASHER,INSULATING	1
1 0	PAOZZ	5305009846194	96906	MS35206-246	.SCREW,MACHINE C A D PLTD,NO.8,0.62 IN.....	3
11	PAOZZ	5310000453299	96906	MS35338-42	.WASHER,LOCK C A D PLTD,NO.8.....	3
12	XBOOO		97403	13216E5895	.MTG,BRACKET,HEATER ASSEMBLY.....	1
13	PAOZZ		80205	NAS1330S03K106	..NUT,BLIND,RIVET.....	3
14	MOOZZ		97403	13216E5895/3	..PLASTIC FOAM..50 O.50THK X 3.50W X7.68LG,MAKE FROM P/N MIL-P-15280TY2F.....	1
15	XBOZZ		97403	13216E5895/1	..BRACKET.....	1
16	PAOZZ	5325001745317	96906	MS35489-4	.GROMMET,NONMETALLIC.....	1
17	PAOZZ	5305009846194	96906	MS35206-246	.SCREW,MACHINE C A D PLTD,NO.8,0.62 IN.....	6
18	PAOZZ	5310000453299	96906	MS35338-42	.WASHER,LOCK C A D PLTD,NO.8.....	6
19	PAOZZ	5310009349757	96906	MS35649-282	.NUT,PLAIN,HEXAGON C A D PLTD,NO.8...	2
20	PBOZZ	5940012017221	97403	13216E6220-1	.TERMINAL BOARD.....	1
21	XBOZZ		97403	13216E6221-1	.MARKER STRIP.....	1

END OF FIGURE

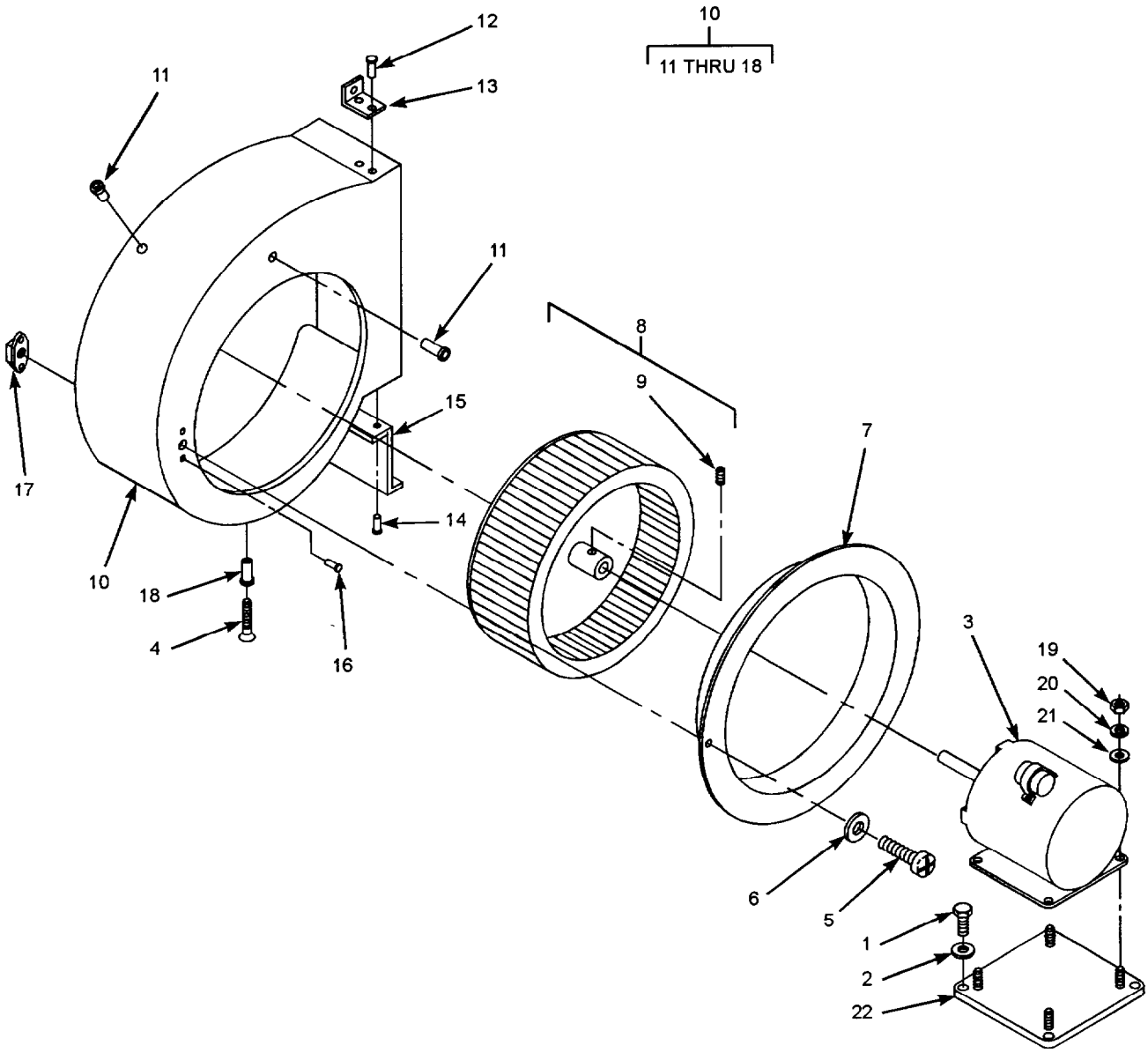

Figure 2 1. Fan and Housing

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
					GROUP 10 CONDENSER	
					F-21 FAN AND HOUSING	
1	PAOZZ	5305000680516	80204	B1821BH025F113N	.SCREW,CAP,HEXAGON H EAD CAD PLTD, 0.25 IN X1.12 IN.....	4
2	PAOZZ	5310008094058	96906	MS27183-10	.WASHER,FLAT C A D PLTD,.028 I D.....	4
3	PAOZZ		OV5R4	484110-1836	.MOTOR,ALTERNATING C CURRENT.....	1
4	PAOZZ	5305000633503	96906	MS24693-S50	.SCREW,MACHINE C A D PLTD,NO.8,0.50 I N.....	2
5	PAOZZ	5305009846193	96906	MS35206-245	.SCREW,MACHINE C A D PLTD,NO.8,0.50 I N.....	3
6	PAOZZ	5310008212366	97403	13214E3469	.WASHER,FLAT CAD PLTD,NO.8.....	3
7	PAOZZ		OV5R4	S8414	.INLET,FAN,AXIAL.....	1
8	PAOZZ	4140012091980	97403	13225E8415	.IMPELLER,FAN,CENTRI FUGAL.....	1
9	PAOZZ	5305001775546	80205	MS51964-118	..SETSCREW.....	1
10	PA000		97403	13225E8416	.SCROLL,CONDENSER	1
11	PAOZZ	5310010401252	80205	NAS1330H08K106L	..NUT,PLAIN,BLIN D RIV ET.....	7
12	PAOZZ	5320008828388	81349	M24243/6-A403H	..RIVET,BLIN D 0.125 IN DIA X0.362 IN.....	2
13	XBOZZ		97403	13225E8416/4	..BRACKET,CONDENSE R SCROLL.....	1
14	PAOZZ		97403	13214E3791-3	..RIVET,BLIND.....	5
15	XBOZZ		97403	13225E8416/6	..BRACKET,CONDENSE R SCROLL.....	1
16	PAOZZ	5320008744477	97403	13214E3791-2	..RIVET,BLIN D 0.125 IN DIA X0.341 IN.....	6
17	PAOZZ	5310001380104	97403	13216E4538-2	..NUT,SELF-LOCKING,P L ATE.....	3
18	PAOZZ	5310010479470	80205	NAS1330H08K161L	..NUT,SELF-LOCKING,PL ATE.....	2
19	PAOZZ	5310009971888	96906	MS35649-2252	.NUT.PLAIN.HEXAGON CAD PLTD,1/4....	4
20	PAOZZ	5310005825965	96906	MS35338-44	.WASHER,LOCK C A D PLTD,0.25 I D.....	4
21	PAOZZ	5310011620413	97403	13221E9322-1	.WASHER,FLAT STEEL,0.3125 I D.....	4
22	XBOZZ		OV5R4	SB432	.PLATE,MOTOR MOUNTIN G.....	1

END OF FIGURE

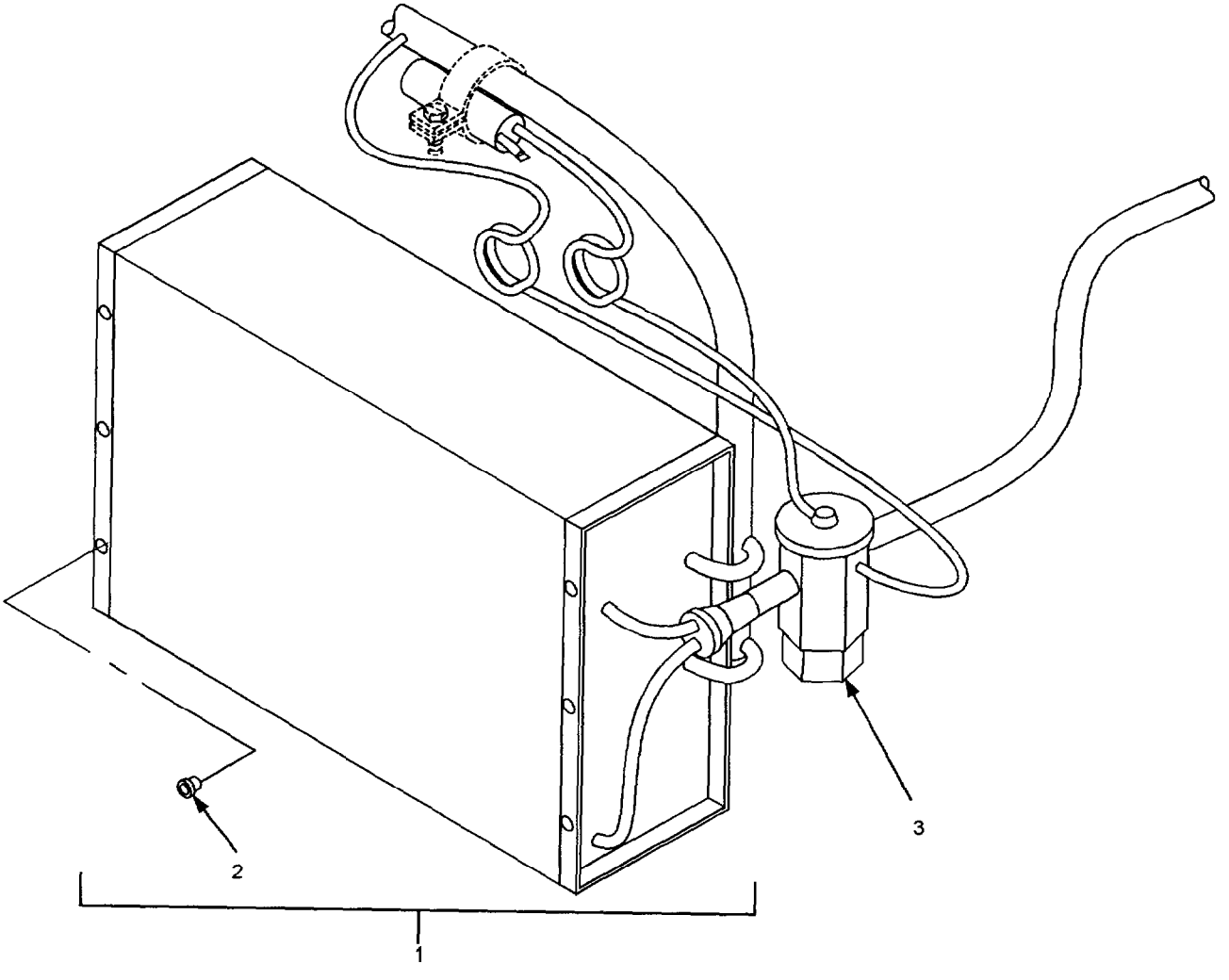

Figure 22. Evaporator Coil, Expansion Valve

SECTION II TM9-4120-422-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
					GROUP 11 EVAPORATOR COIL	
					F-22 EVAPORATOR COIL,EXPANSION VALVE	
1	PBFZZ		14852	2EY1205N-7	.CDOLING COIL,AIR,DU CT - INCLUDES ALL ITEMS ON THE LIST OF MATERIAL FDR THE COIL.....	1
2	PAFZZ	5310000890013	96906	MS27130-13K	.NUT,PLAIN,BLIND R I V ET,STEEL,NO.8.	6
3	PAFZZ		70255	BAEB-GT-5998-1	.VALVE.EXPANSION.....	1

END OF FIGURE

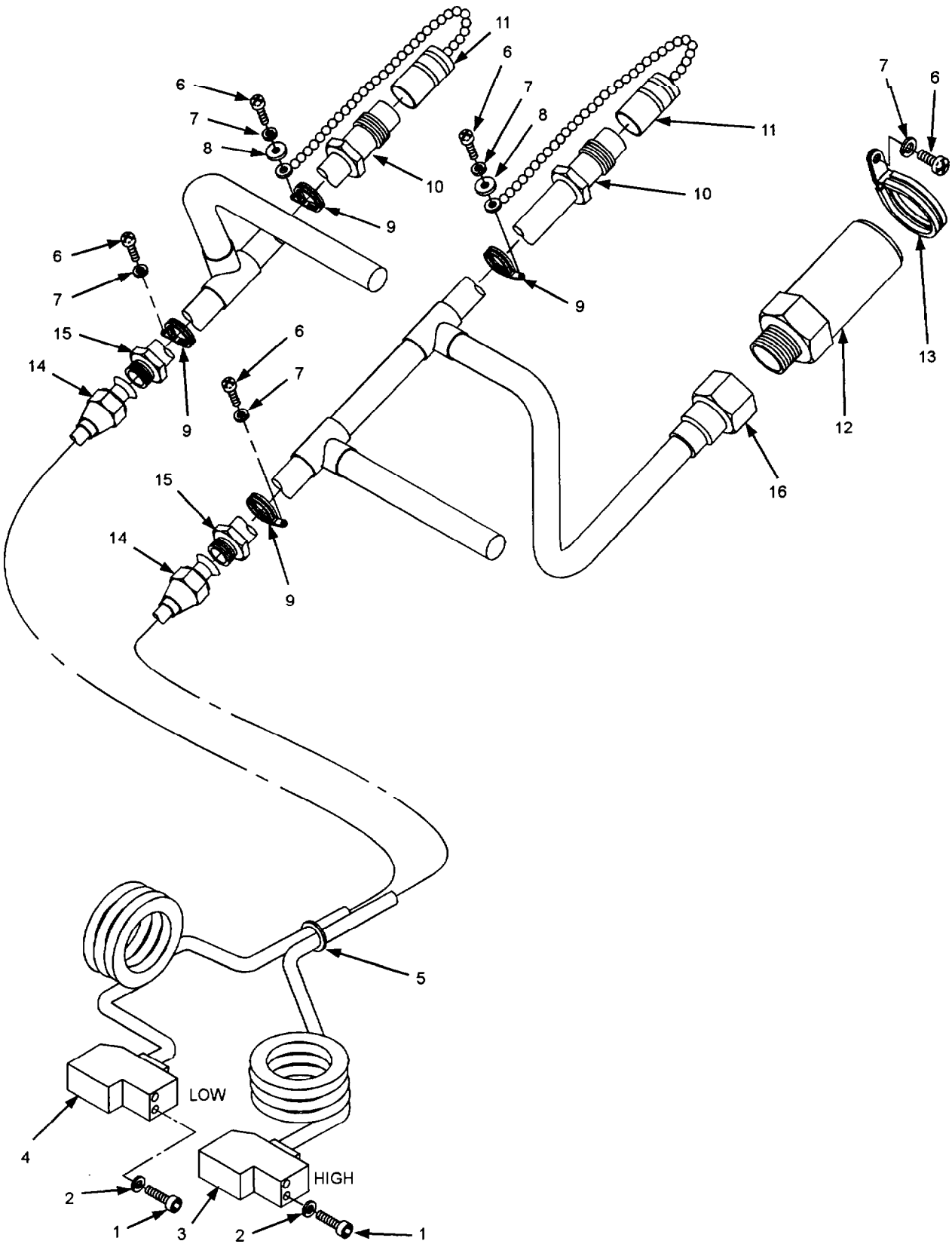

Figure 23. Pressure Switches, Service Valves, and Relief Valve

(1) ITEM NO	(2) SW? COOE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
					GROUP 12 PRESSURE SWITCHES	
					F-23 PRESSURE SWITCHES,SERVICE VALVES,AND RELIEF VALVE	
1	PAFZZ	5305009789348	96906	MS16997-20	.SCREW,MACHINE C A D PLTD,NO.6,0.50 IN	4
2	PAFZZ	5310000454007	96906	MS35338-41	.WASHER,LOCK C A D PLTD,NO.6	4
3	PAFZZ	5930001908729	97403	13216E6215-3	.SWITCH,PRESSURE HIGH;	1
4	PAFZZ	5930001908730	97403	13216E6215-1	.SWITCH,PRESSURE LOW	1
5	PAOZZ	5325010054098	97403	13216E6109	.GROMMET,NONMETALLIC	1
6	PAOZZ	5305009846194	96906	MS35206-246	.SCREW,MACHINE C A D PLTD,NO.8,0.62 IN	5
7	PAOZZ	5310000453299	96906	MS35338-42	.WASHER,LOCK C A D PLTD,NO.8	5
8	PAFZZ	5310008212366	97403	13214E3469	.WASHER,FLAT CAD PLTD,NO.8	3
9	PAFZZ	5340005980146	96906	MS21919WDG6	.CLAMP,LOOP	4
10	PAFZZ	4820010126437	17529	AV46	.VALVE,PNEUMATIC TAN	2
11	PAOZZ		17529	2C4	.COVER,ELECTRICAL CO NNECTOR	2
12	PBFZZ		28193	6221	.VALVE,SAFETY RELIEF	1
13	PAOZZ	5340002869427	96906	MS21919WDG12	.CLAMP,LOOP	1
14	PBFZZ	4730001892737	96906	MS35872-2	.NUT,TUBE COUPLING	2
15	PBFZZ	4730010374919	96906	MS35919-22	.COUPLING,TUBE	2
16	XBFZZ	4730007222381	97403	13216E6170	.ADAPTER,STRAIGHT,PI PE TO TUBE	1

END OF FIGURE

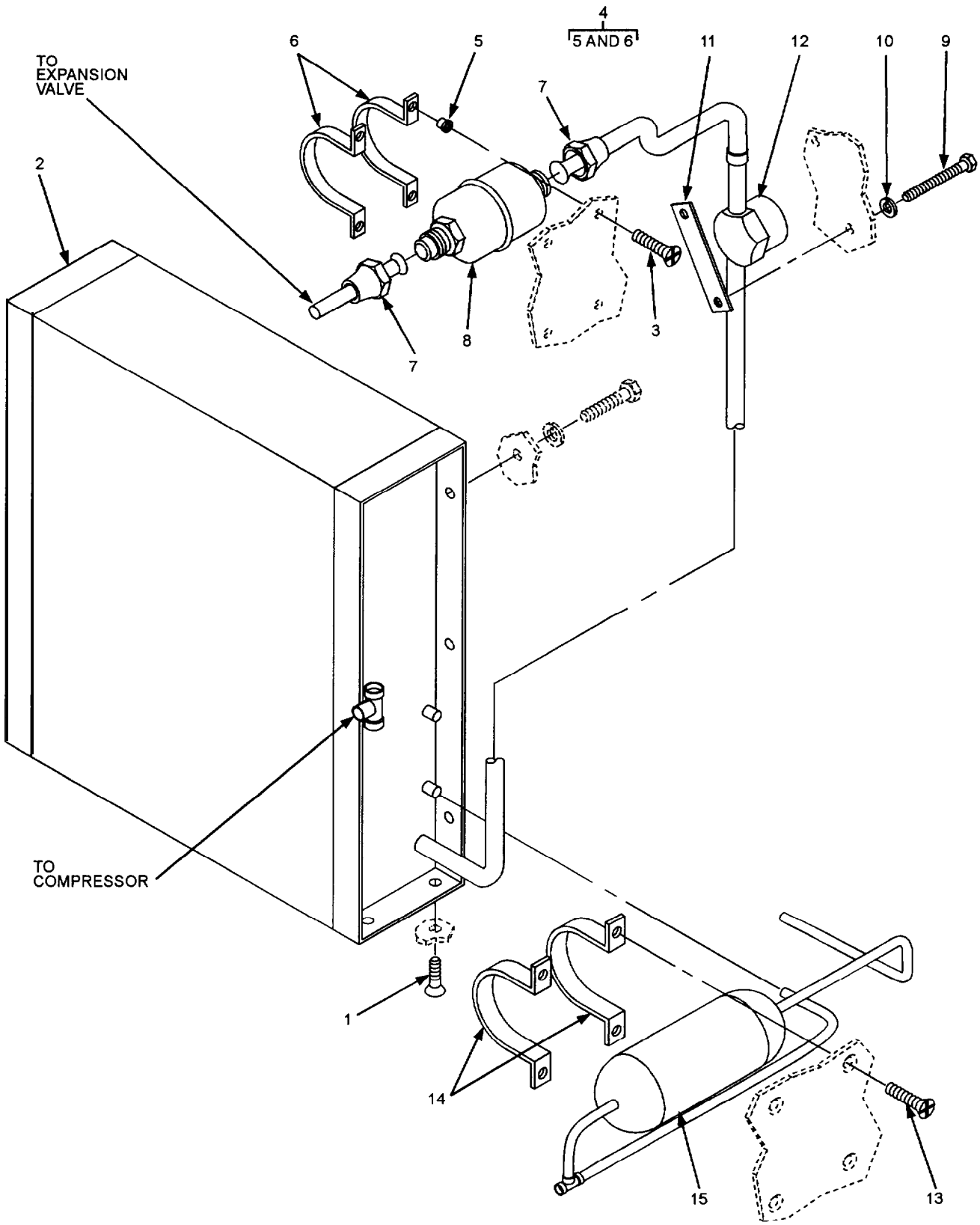

Figure 24. Condenser, Filter-Drier, and Liquid Indicator

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
					GROUP 15 CONDENSER COIL	
					F-24 CONDENSER,FILTER-DRIER,AND LIQUID INDICATOR	
1	PAFZZ	5305000633503	96906	MS24693-S50	.SCREW,MACHINE CAD PLTD,NO.8,0.50 IN	4
2	PAFZZ		14852	2CY1605E	.COOLING COIL,AIR,DU CT	1
3	PAFZZ	5305000633503	96906	MS24693-S50	.SCREW.MACHINE CAD PLTD.NO.8.0.50 IN	4
4	PAFZZ	5340010472064	97403	13216E6157-3	.STRAP,RETAINING	2
5	PAFZZ	5310000890013	96906	MS27130-13K	..NUT,PLAIN,BLIND RIV ET STEEL NO.8	2
6	XBFZZ		97403	13216E6157-1	..CLAMP	1
7	PBFZZ	4730001892737	96906	MS35872-2	.NUT,TUBE COUPLING	2
8	PAFZZ	4130008249197	97403	13216E5918-1	.FILTER-DRIER,REFRIG ERANT	1
9	PAFZZ	5305009846202	96906	MS35206-254	.SCREW,MACHINE CAD PLTD,NO.8,2.25 IN	2
10	PAFZZ	5310000453299	96906	MS35338-42	.WASHER,LOCK CAD PLTD,NO.8	2
11	PAFZZ		97403	13216E6156	.PLATE,MOUNTING	1
12	PAFZZ	6680009296667	97403	13216E6155-1	.INDICATOR,SIGHT,LIQ UID	1
13	PAFZZ	5305000633503	96906	MS24693-S50	.SCREW,MACHINE CAD PLTD,NO.8,0.50 IN	4
14	XBFZZ	5340010529597	97403	13216E6157-4	.STRAP,RETAINING	2
15	PAFZZ	4130010845519	97403	13216E6163-1	.RECEIVER,LIQUID REF RIGERANT	1

END OF FIGURE

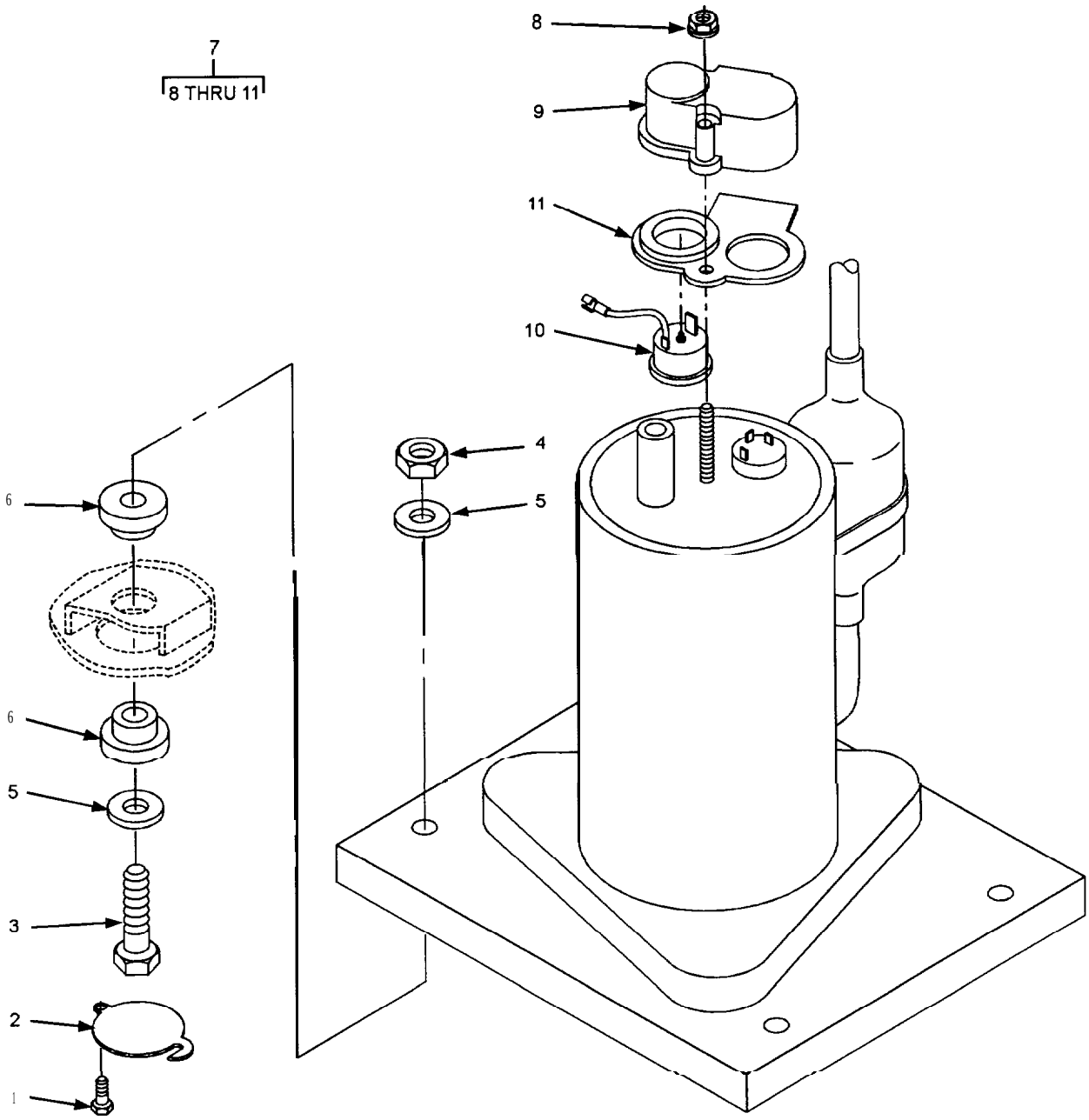

Figure 25. Compressor

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(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
					GROUP 18 COMPRESSOR	
					F-25 COMPRESSOR	
1	PAFZZ	5305009846191	96906	MS35206-243	.SCREW,MACHINE #8 X .37IN CAD PLTD.	8
2	XBFZZ		97403	13220E8034	.COVER,ACCESS.....	4
3	PAFZZ	5305002259091	96906	MS90726-36	.SCREW,CAP,HEXAGON H EAD CAD PLTD, 0.3125 ID,1.25 IN.....	4
4	PAFZZ	5310000880553	96906	MS21044N5	.NUT,SELF-LOCKING,HE XAGON STEEL, 0.3125 ID.....	4
5	PAFZZ	5310001670767	80205	AN970-5	.WASHER,FLAT CAD PLTD,0.3125 ID....	8
6	PAFZZ	5365012031053	97403	13225E8453	.SHIM.....	8
7	PAFZZ		0V5R4	S4182	.COMPRESSOR UNIT,REF RIGERANT.....	1
8	PAFZZ	5310009349757	96906	MS35649-282	..NUT,PLAIN,HEXAGON.....	1
9	XBFZZ		0V5R4	S4182-01	..COVER.....	1
10	PAFZZ		0V5R4	120K1137	..SWITCH,THERMOSTATIC.....	1
11	XBFZZ		0V5R4	S4182-02	..INSULATOR.....	1

END OF FIGURE

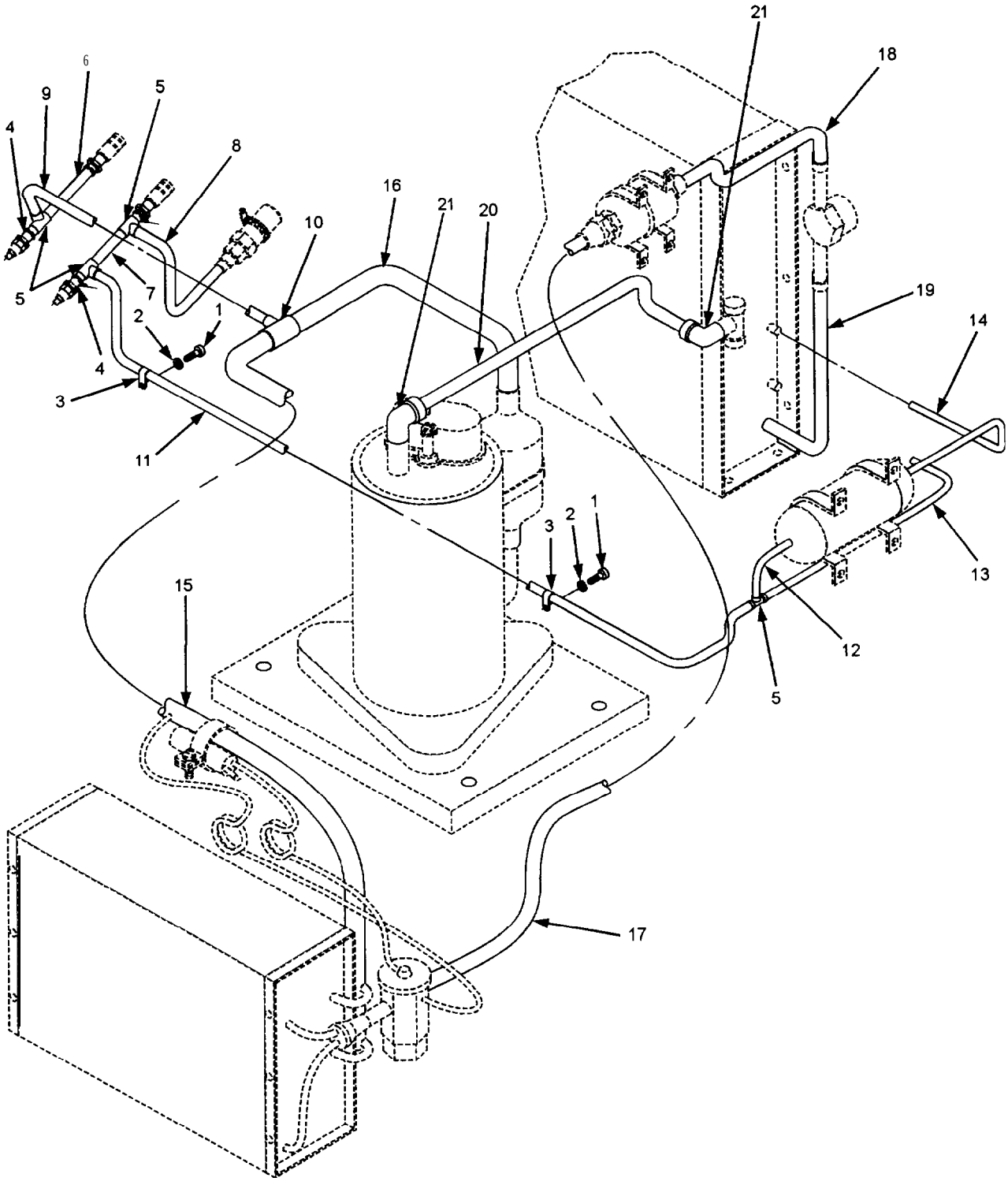

Figure 26. Tubing and Fittings

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
					GROUP 19 TUBING AND FITTINGS	
					F-26 TUBING AND FITTINGS	
1	PAFZZ	5305009846193	96906	MS35206-245	.SCREW,MACHINE CAD PLTD,NO.8,0.50 IN.....	1
2	PAFZZ	5310000453296	96906	MS35338-43	.WASHER,LOCK CAD PLTD,NO.10.....	1
3	PAFZZ	5340011399588	96906	MS21919WCH16	.CLAMP,LOOP 1 IN ALUM ALLOY.....	1
4	MFFZZ		OV5R4	S8450/153	.TUBE,COPPER,SMLS MAKE FROM P/N ASTM-B280X.2500D (81346),CUT TO LENGTH.....	1
5	PAFZZ	4730002572163	96906	MS35929-2	.TEE,TUBE.....	a
6	MFFZZ		OV5R4	S8450/134	.TUBE,COPPER,SMLS MAKE FROM P/N ASTM-B280X.2500D (81346),CUT TO LENGTH.....	1
7	MFFZZ		OV5R4	S8450/170	.TUBE,COPPER,SMLS MAKE FROM P/N ASTM-B280X.2500D (81346),CUT TO LENGTH.....	1
8	MFFZZ		OV5R4	S8450/136	.TUBE,COPPER,SMLS MAKE FROM P/N ASTM-BPBOX.25000 (81346),CUT TO LENGTH.....	1
9	MFFZZ		OV5R4	S8450/130	.TUBE,COPPER,SMLS MAKE FROM P/N ASTM-B280X.25000 (81346),CUT TO LENGTH.....	1
10	PAFZZ	4730008155672	41947	W-40363	.TEE,TUBE 1/2 X 1/4,90 DEG,COPPER..	1
11	MFFZZ		OV5R4	S8450/135	.TUBE,COPPER,SMLS MAKE FROM P/N ASTM-B280X.2500D (81346),CUT TO LENGTH.....	1
12	MFFZZ		OV5R4	S8450/131	.TUBE,COPPER,SMLS MAKE FROM P/N ASTM-B280X.2500D (81346),CUT TO LENGTH.....	1
13	MFFZZ		OV5R4	S8450/151	.TUBE,COPPER,SMLS MAKE FROM P/N ASTM-B280X.2500D (81346),CUT TO LENGTH.....	1
14	MFFZZ		OV5R4	S8450/152	.TUBE,COPPER,SMLS MAKE FROM P/N ASTM-B280X.2500D (81346).CUT TO LENGTH.....	1
15	MFFZZ		97403	13225E8450/95	.TUBE,COPPER,SMLS MAKE FROM P/N ASTM-280X.5000D (81346),CUT TO LENGTH.....	1
16	MFFZZ		97403	13225E8450/101	.TUBE,COPPER,SMLS MAKE FROM P/N ASTM-280X.50000 (81346),CUT TO LENGTH.....	1
17	MFFZZ		97403	13225E8450/158	.TUBE,COPPER,SMLS MAKE FROM P/N ASTM-280X.2500D (81346),CUT TO LENGTH.....	1
18	MFFZZ		97403	13225E8450/87	.TUBE,COPPER,SMLS MAKE FROM P/N ASTM-280X.3750D (81346),CUT TO LENGTH.....	1
19	MFFZZ		97403	13225E8450/162	.TUBE,COPPER,SMLS MAKE FROM P/N ASTM-280X.3750D (81346),CUT TO LENGTH.....	1

SECTION II

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
20	MFFZZ		97403	13225E8450/148	.TUBE,COPPER,SMLS MAKE FROM P/N ASTM-280X.3750D (81346),CUT TO LENGTH.....	1
21	PAFZZ		97403	13216E6190-2	.ELBOW,TUBE 3/8IN, SO DEG.....	2

END OF FIGURE

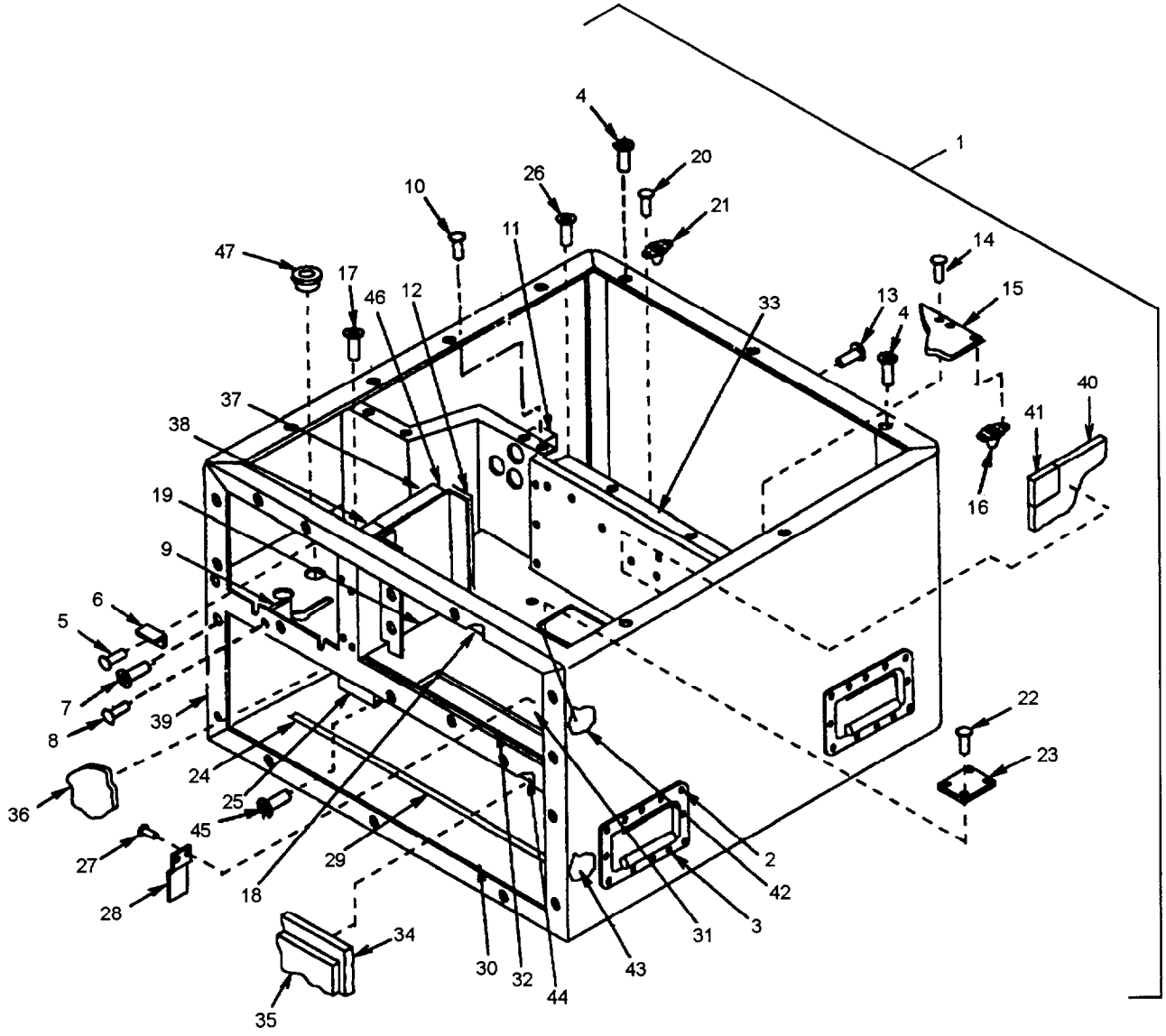

Figure 27. Housing Assembly

(1) ITEM NO	(2) SMR COOE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
					GROUP 20 HOUSING	
					F-27 HOUSING ASSEMBLY	
1	XBHHH		OV5R4	58451	.HOUSING,AIR CONDITIONER.....	1
2	PBOZZ	5320004902238	81349	M24243/6-A503H	..RIVET,BLIN D .15625 IN DIA X .377IN.....	48
3	XBHZZ	4130012091968	97403	13216E6098	..HANDLE.....	4
4	PAHZZ	5310010360908	96906	MS27130-S14K	..NUT,PLAIN.BLIN D RIV ET,STEEL,NO.8	52
5	PBOZZ	5320004902238	81349	M24243/6-A503H	..RIVET.BLIN D .15625IN DIA X .377IN	2
6	XBHZZ		97403	13225E8451/6	..BRACKET.....	1
7	PAHZZ	5310010999528	96906	MS27130-A13K	..NUT,PLAIN,BLIN D RIV ET,ALLOY,NO.8	1
8	PAHZZ	5320003233984	81349	M24243/7-A401H	..RIVET,BLIND.....	2
9	XBHZZ		97403	13225E8451/59	..BRACKET.....	1
10	PAHZZ	5320003233984	81349	M24243/7-A401H	..RIVET,BLIND.....	2
11	XBHZZ		97403	13225E8451/15	..BRACKET.....	1
12	XBHZZ	5330012084740	97403	13216E6122-1	..SEAL,NONMETALLI C SP ECIAL SHAPED SECTION.....	1
13	PAHZZ	5310006162589	96906	MS27130-S93K	..NUT,PLAIN,BLIN D RIV ET.....	27
14	PAHZZ	5320004202169	81349	M24243/7-A404H	..RIVET,BLIN D .125IN DIA X .466IN . .	8
15	XBHZZ		97403	13225E8451/21	..BRACKET.....	1
16	XBHZZ		97403	13216E4539-4	..NUT,SELF-LOCKING, PLATE.....	4
17	XBHZZ		80205	NAS1330S04K106	..NUT,PLAIN,BLIN D RIVET.....	2
18	MHHZZ		97403	13225E8451/28	..RUBBER,CELLUL AR 0.38W X 13.25LG, MAKE FROM P/N MIL-R-6130TYZGRA.38 (81349).....	1
19	MHHZZ		97403	13225E8451/25	..RUBBER,CELLULAR 0.38W X 10.25LG, MAKE FROM P/N MIL-R-613DTY2GRA.38 (81349).....	2
20	PAOZZ	5320008744480	97403	13214E3791-5	.RIVET,BLIND .125IN DIA X .528IN..	8
21	PAHZZ	5310007285521	96906	MS21078-6	..NUT,SELF-LOCKING,PL ATE.....	4
22	PAOZZ	5320003189090	97403	13214E3791-8	..RIVET,BLIND .15625IN DIA X.558IN.	4
23	XBHZZ		97403	13225E8451/32	..BRACKET.....	1
24	XBHZZ		97403	13225E8451/33	..BRACKET.....	1
25	XBHZZ		97403	13225E8451/34	..BRACKET.....	1
26	XBHZZ		80205	NAS1330S04K106	..NUT,PLAIN,BLIND RIVET.....	2
27	PAOZZ	5320004902238	81349	M24243/6-A503H	..RIVET,BLIND .15625IN DIA X .377IN	2
28	XBHZZ		97403	13225E8451/38	..BRACKET.....	1
29	MHHZZ		OV5R4	S27-29	..INSULATION,THERMAL 6.88W X 11.75LG,MAKE FROM P/N ASTM-C534TP2X.250(81346).....	1
30	MHHZZ		OV5R4	S27-30	..INSULATION,THERMAL 10.50W X 22.62LG,MAKE FROM P/N ASTM-C534TP2X.500(81346).....	1
31	MHHZZ		97403	13225E8451/48	INSULATION SHEET 4.88W X 14LG, MAKE FROM P/N MIL-1-14511X.25 (81349).....	1
32	MHHZZ		97403	13225E8451/64	..INSULATION SHEET 1.62W X 14.88LG, MAKE FROM P/N MIL-I-14511.25 (81349).....	1
33	MHHZZ		OV5R4	S27-33	..INSULATION,THERMAL 7.50W X 15.50LG,MAKE FROM P/N ASTM-	1

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTV
					C534TP2X.500(81346).....	
34	MHHZZ		0V5R4	S27-34	..INSULATION,THERMAL 8 W X 15.62LG, MAKE FROM P/N ASTM-C534TP2X.500 (81346).....	1
35	MHHZZ		0V5R4	S27-35	..INSULATION,THERMAL 3.75W X 7.81LG, MAKE FROM P/N ASTM-C534TP2X.250(81346).....	1
36	MHHZZ		0V5R4	S27-36	..INSULATION,THERMAL 8 W X 9.75LG, MAKE FROM P/N ASTM-C534TP2X.500 (81346).....	1
37	MHHZZ		97403	13225E8451/47	..PLASTIC FOAM MAKE FROM P/N MIL-P-15280TY2FORMSX.500 (81349),CUT TO SIZE.....	1
38	MHHZZ		97403	13225E8451/46	..FOAM,PLASTIC MAKE FROM P/N MIL-P-15280TY2FROMSX.500 (81349),CUT TO SIZE.....	1
39	MHHZZ		0V5R4	S27-39	..INSULATION,THERMAL 8 W X 9.38LG, MAKE FROM P/N ASTM-C534TP2X.500 (81346).....	1
40	MHHZZ		97403	13225E8451/51	..FOAM PLASTIC MAKE FROM P/N MIL-P-15280TY2FORMSX.500 (81349),CUT TO SIZE.....	1
41	MHHZZ		0V5R4	S27-41	..INSULATION,THERMAL 1W X 1LG, MAKE FROM P/N ASTM-C534TP2X.500 (81346).....	1
42	MHHZZ		97403	13225E8451/52	..FOAM,PLASTIC MAKE FROM P/N MIL-P-15280TY2FORMSX.500 (81349),CUT TO SIZE.....	1
43	MHHZZ		0V5R4	S27-43	..INSULATION,THERMAL 8 W X 10.88LG, MAKE FROM ASTM-C534TP2X.500 (81346).	1
44	MHHZZ		0V5R4	S27-44	..INSULATION,THERMAL 8.25W X 22.50LG,MAKE FROM P/N ASTM-C534TP2X.500(81346).....	1
45	PAHZZ	5310004816295	80205	NAS1329S08KB120	..NUT,PLAIN,BLIND RIV ET.....	1
46	MHHZZ		97403	13225E8451/42	..INSULATION SHEET 0.75W X 7.50LG, MAKE FROM MIL-I-14511X.25 (81349)...	1
47	PAHZZ	5325002766100	96906	MS35489-14	..GROMMET,NONMETALLIC.....	1

END OF FIGURE

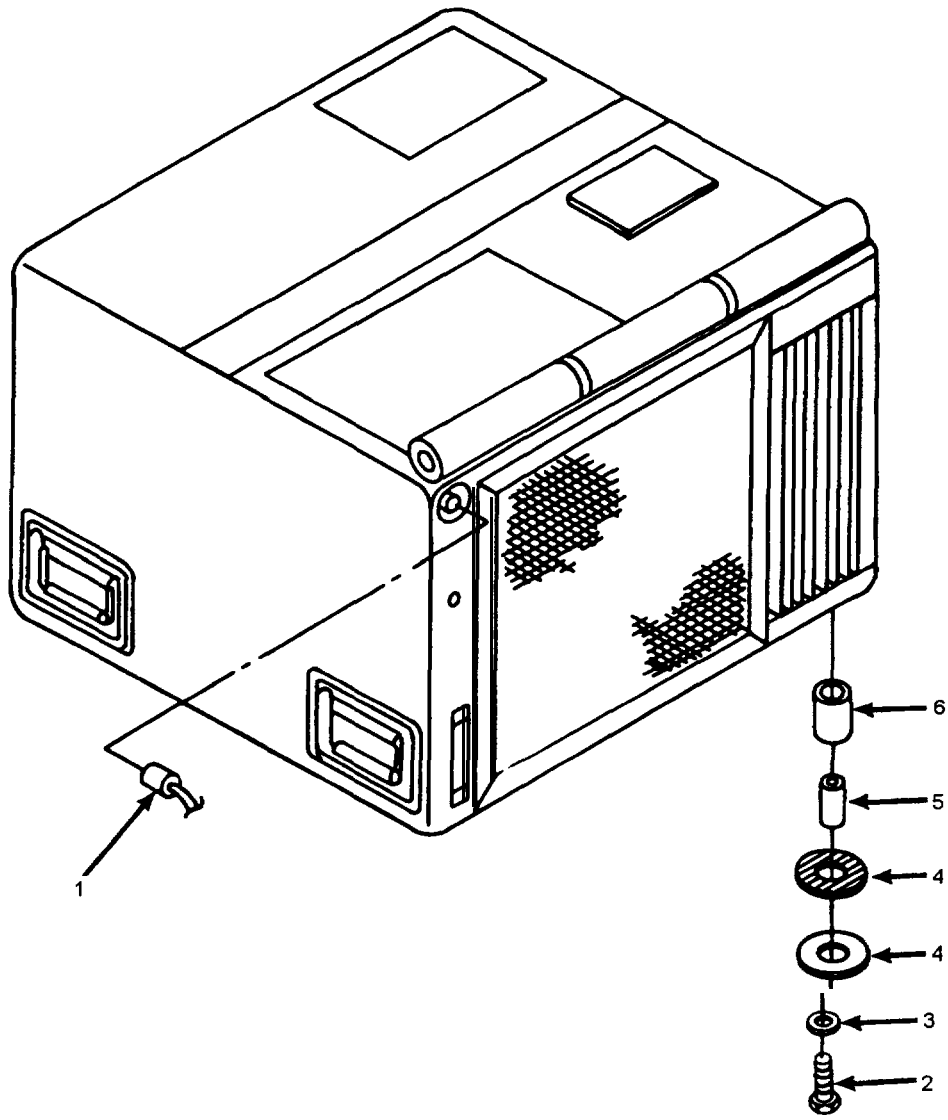

Figure 28. Connector and Installation Hardware

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
					GROUP 20 HOUSING	
					F-28 CONNECTOR AND INSTALLATION HARDWARE	
1	PAOZZ	5935010355139	96906	MS3456W18-11S	.CONNECTOR,PLUG,ELEC TRICAL.....	1
2	PAOZZ	5305002693240	80204	B1821BH038F150N	.SCREW,CAP,HEXAGON H EAD CAD PLTD, 0.375 XI.50 IN LG.....	4
3	PAOZZ	5310010961264	78286	70106-08105-102	.WASHER,FLAT .25IN CAD PL.....	4
4	XBOZZ	5342010425759	97403	13216E6137	.MOUNT,RESILIENT.....	8
5	XBOZZ	5365009527557	80205	NAS43HT6-50	.SPACER,SLEEVE.....	4
6	XBOZZ	4720010382334	97403	13216E6153	.TUBING,NONMETALLIC.....	4

END OF FIGURE

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
					GROUP 99 BULK-MATERIAL LIST	
					BULK-MATERIAL LIST	
1	PBOZZ		81349	MIL-C-20696TY2CL3 OLIVE DRAB	.CLOTH,COATED	1
2	PAOZZ	5325010709180	81349	MIL-G-16491TYICL3SIZEO	.GROMMET,METALLIC	1
3	PAOZZ		81346	ASTM-C534TP2X.250	.INSULATION,THERMAL	1
4	PAOZZ		81346	ASTM-C534TP2X.500	.INSULATION,THERMAL	1
5	PAOZZ		81349	MIL-I-14511X.25	.INSULATION SLEEVING	1
6	PAOZZ	5970000823942	81349	M23053/5-105-9	.INSULATION SLEEVING	1
7	PAOZZ	5970000882975	81349	M23053/5-104-9	.INSULATION SLEEVING	1
8	PAOZZ	5970008142878	81349	M23053/5-106-9	.INSULATION SLEEVING	1
9	PAOZZ		81349	MIL-P-15280TY2FORMS.500	.PLASTIC FORM	V
10	PAOZZ		81349	MIL-R-6130TY2GRA.12	.RUBBER STRIP	1
11	PAOZZ		81349	MIL-R-6130TY2GRA.06	.RUBBER,STRIP CELLULAR	1
12	PAOZZ		81349	MIL-R-6130TY2GRA.38	.RUBBER,STRIP CELLULAR	1
13	PAFZZ		81346	ASTM-B280X.25000	.TUBE,METALLIC	1
14	PAFZZ	4710002033171	62265	1BC9350	.TUBE,METALLIC	1
15	PAFZZ	4710042426944	95535	55229	.TUBE,METALLIC	1
16	PAOZZ	9330012148452	97403	13216E6151	.TUBING.NONMETALLIC	V
17	PAOZZ		81349	MIL-W-27265CLRTY1DD	.WEBBING,TEXTILE	1
18	PAOZZ	6145008518505	81349	M5086/2-20-9	.WIRE,ELECTRICAL	1
19	PAOZZ	6145005786605	81349	M5086/2-16-9	.WIRE,ELECTRICAL	1
20	PAOZZ	6145005787514	81349	M5086/2-12-9	.WIRE,ELECTRICAL	1
21	PAOZZ		81348	RR-W-BBOTYCL-18X18AA5056.0110D1A	.WIRE,FABRIC	1

END OF FIGURE

CROSS-REFERENCE INDEXES

NATIONAL STOCK NUMBER INDEX

STOCK NUMBER	FIG.	ITEM
5310-00-012-0560	8	8
5310-00-014-5850	18	7
	18	11
5310-00-045-3296	3	5
	26	2
5310-00-045-3299	1	2
	3	2
	4	2
	6	8
	7	2
	8	3
	8	17
	10	2
	12	2
	12	la
	14	14
	17	6
	18	6
	18	10
	20	2
	20	11
	20	18
	23	7
	24	10
5310-00-045-4007	19	11
	23	2
5355-00-051-9146	10	8
5310-00-061-7325	12	42
5305-00-063-3503	10	39
	19	1
	21	4
	24	1
	24	3
	24	13
5310-00-068-0054	a	10
5305-00-088-0516	12	40
	21	1
5975-00-074-2072	10	46
	17	3
5310-00-081-4219	12	41
	18	3
	18	20
5310-00-081-8087	8	21
	10	25
	10	30
	10	36
	12	5
5970-00-082-3942	BULK	6
5310-00-088-0553	8	9
	25	4
5970-00-088-2975	BULK	7
5310-00-089-0013	22	2
	24	5
5320-00-119-6754	5	1
	5	5
5935-00-137-4256	10	32
5310-00-138-0104	21	17
5940-00-143-4774	11	2
	14	3
	14	10
	19	3
	19	7
5940-00-143-4775	14	6
5940-00-143-4777	13	25
5940-00-143-4794	13	27
	15	35
	18	24
5310-00-167-0767	25	5
5325-00-174-5317	20	16
5305-00-177-5546	21	9
5325-00-185-0012	10	10
	10	21
4730-00-189-2737	23	14
	24	7
5930-00-190-8729	23	3
5930-00-190-8730	23	4
4710-00-203-3171	BULK	14
5310-00-209-0786	12	38
5305-00-225-9091	25	3
5305-00-253-5617	8	24
4730-00-257-2163	9	3
	26	5
5305-00-267-8953	18	18
5305-00-269-3240	28	2
5325-00-276-4946	1	5
5325-00-276-4953	1	6
5325-00-276-6100	27	47
5325-00-286-6047	10	6
5340-00-286-9424	12	13
5340-00-286-9427	23	13
4730-00-289-0211	9	1
5320-00-318-9090	27	22
5320-00-323-3984	27	8
	27	10
5930-00-357-6090	19	12
5320-00-420-2169	27	14
4710-00-424-2694	BULK	15
5940-00-432-2660	11	1
	14	7
4540-00-444-7114	20	5

CROSS-REFERENCE INDEXES

NATIONAL STOCK NUMBER INDEX

STOCK NUMBER	FIG.	ITEM
5305-00-460-4589	10	33
5310-00-481-6295	27	45
5940-00-481-9089	14	2
	14	11
5935-00-482-2390	12	14
5925-00-482-2396	10	20
5930-00-482-5774	10	38
5320-00-490-2238	27	2
	27	5
	27	27
5330-00-508-0753	12	9
5305-00-551-0156	10	9
5355-00-556-0145	10	11
5940-00-557-1629	11	3
5310-00-559-0070	10	41
6145-00-578-6605	BULK	19
6145-00-578-7514	BULK	20
5310-00-582-5965	18	19
	18	21
	21	20
5310-00-595-7237	10	17
5340-00-598-0146	10	3
	23	9
5310-00-616-2589	27	13
5305-00-724-5812	la	16
5340-00-726-9919	8	6
5310-00-728-5521	27	21
5310-00-765-3197	6	9
5305-00-800-7261	10	12
5305-00-808-7832	12	4
5310-00-809-4058	12	39
	21	2
5310-00-809-8544	10	42
	12	17
	12	23
	12	28
	20	3
5310-00-811-3494	12	19
	12	27
5310-00-811-6419	12	a
5970-00-814-2878	BULK	8
4730-00-815-5672	26	10
5310-00-821-2366	1	3
	a	la
	21	6
	23	a
4130-00-824-9197	24	8
5305-00-837-3343	10	29
	10	35
5340-00-845-2072	10	27
6145-00-851-8505	BULK	la
5305-00-855-3597	6	1
5305-00-865-3895	10	13
	10	la
5320-00-874-4477	21	16
5320-00-874-4480	27	20
5320-00-882-8388	21	12
5310-00-889-2543	la	2
5310-00-917-6365	12	24
5310-00-917-8592	a	14
594000-926-0085	19	4
	19	a
6680-00-929-6667	24	12
5310-00-934-9757	a	2
	10	40
	12	37
	14	17
	20	19
	25	a
5940-00-948-9686	17	2
5305-00-957-7086	12	12
5305-00-957-7820	10	24
5305-00-958-6373	2	1
	6	6
	16	1
5305-00-959-4743	10	5
5305-00-959-6640	12	26
5305-00-965-5879	a	11
5305-00-965-5882	a	4
5310-00-975-2075	10	16
5305-00-978-9348	23	1
5305-00-983-6730	12	7
5310-00-983-8483	10	14
	10	19
	10	26
	10	31
	10	37
	12	6
	19	10
5305-00-984-6191	a	1
	a	20
	25	1
5305-00-984-6193	10	1
	12	22
	21	5
	26	1
5305-00-984-6194	3	
	4	1
	7	1
	a	16

CROSS-REFERENCE INDEXES

NATIONAL STOCK NUMBER INDEX

STOCK NUMBER	FIG.	ITEM
5305-00-984-6194	12	1
	14	13
	17	5
	18	5
	18	9
	20	1
	20	10
	20	17
	23	6
5305-00-984-6195	1	1
	6	7
5305-00-984-6202	24	9
5305-00-989-7435	3	4
5310-00-997-1888	18	22
	21	19
5325-01-005-4098	23	5
4820-01-012-6437	23	10
4130-01-031-4620	6	3
5935-01-035-5139	28	1
5310-01-036-0908	2	10
	2	21
	27	4
4730-01-037-4919	23	15
5310-01-040-1252	21	11
5340-01-047-2064	24	4
5310-01-047-9470	21	18
5325-01-070-9180	BULK	2
5940-01-082-3321	12	20
	13	26
	15	31
4130-01-084-5519	24	15
5310-01-096-1264	28	3
4130-01-098-6649	8	7
5310-01-099-9528	27	7
3120-01-124-7745	8	30
	8	31
5935-01-127-2089	15	38
5340-01-139-9588	26	3
5935-01-146-4091	12	15
5310-01-162-0413	21	21
5340-01-162-9927	8	22
5935-01-175-8419	12	11
5940-01-201-7221	20	20
5365-01-203-1053	25	6
4140-01-209-1980	21	8
9330-01-214-8452	BULK	16
5310-01-214-8503	8	13
5365-01-255-6463	8	5
5340-01-258-1273	10	28
9905-01-348-0500	5	4
9905-01-348-0501	5	3
5340-01-428-9504	3	6

CROSS-REFERENCE INDEXES

PART NUMBER INDEX

CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
88044	AN227-7	5325-00-276-4946	1	5
80205	AN970-5	5310-00-167-0767	25	5
al346	ASTM-B280X.25000		BULK	13
81346	ASTM-C534TP2X.250		BULK	3
81346	ASTM-C534TP2X.500		BULK	4
17529	AV46	4820-01-012-6437	23	10
58538	A52481 -6	5330~00-508-0753	12	9
70255	BAEB-GT-5998-I		22	3
56501	BI4-250A	5940-00-481-9089	14	2
			14	11
80204	B1821BH025F063N	5305-00-267-8953	18	la
80204	B1821BH025F113N	5305-00-068-0516	12	40
			21	
80204	B1821BH038F150N	5305-00-269-3240	28	2
OV5R4	C4D0304N-9833		10	15
06383	DNFR14-250B		13	28
			15	32
			15	34
			15	37
			la	25
06383	DNFIO-250FI		15	33
			15	36
06383	DV14-250FI	5940-01-082-3321	12	20
			13	26
			15	31
81348	FF-N-836-7/16X28 UNEF-2A		20	6
al349	MIL-C-20696TY2CL3 OLIVE DRAB		BULK	
al349	MIL-G-1649ITYICL3SIZEO	5325-01-070-9180	BULK	2
al349	MIL-1-14511X.25		BULK	5
al349	MIL-P-15280TY2FORMS.500		BULK	9
al349	MIL-R-6130TY2GRA.06		BULK	11
al349	MIL-R-6130TYZGRA.12		BULK	10
al349	MIL-R-6130TY2GRA.38		BULK	12
al349	MIL-W-27265CLRTY100		BULK	17
96906	MS16997-20	5305-00-978-9348	23	1
96906	MS20470AD2-3	5320-00-119-6754	5	1
			5	5
96906	MS21042-04	5310-00-811-6419	12	a
96906	MS21044N06	5310-00-081-8087	a	21
			10	25
			10	30

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CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
96906	S21044NO6	5310-00-081-8087	10	36
			12	5
96906	MS21044N08	5310-00-811-3494	12	19
			12	27
96906	MS2104415	5310-00-088-0553	8	9
			25	4
96906	MS21045-04	5310-00-889-2543	18	2
96906	MS21045-4	5310-00-061-7325	12	42
96906	MS21078-6	5310-00-728-5521	27	21
96906	MS21090-0621	5305-00-865-3895	10	13
			10	18
80205	MS21093-0619	5305-00-460-4589	10	33
80206	MS21318-23	5305-00-253-5617	8	24
96906	MS21919DG3	5340-00-726-9819	8	6
96906	MS21919WCHI6	5340-01-139-9588	26	3
96905	MS21919WDF2	5340-00-845-2072	10	27
96906	MS21919WDGI2	5340-00-286-9427	23	13
96906	MS21919WDGI4	5340-W-286-9424	12	13
96906	MS21919WDG6	5340-W-598-0146	10	3
			23	9
96906	MS24627-34	5305-00-855-3597	6	1
96906	MS24693-S273	5305-W-957-7086	12	12
96906	MS24693-S275	5305-W-965-5879	8	11
96906	MS24693-S28	5305-00-837-3343	10	29
			10	35
96906	MS24693-S29	5305-00-808-7832	12	4
96906	MS24693-S31	5305-00-957-7820	10	24
96906	MS24693-S5	5305-00-959-4743	10	5
96906	MS24693-S50	5305-00-063-3503	10	39
			19	1
			21	4
			24	1
			24	3
			24	13
96906	MS24693-S51	5305-00-958-6373	2	
			6	6
			16	1
96906	MS24693-S52	5305-00-965-5882	8	4
96906	MS24693-S56	5305-00-959-6640	12	26
96906	MS24693-256		12	16
			14	16
96906	MS24693-299		12	36
			18	
96906	MS25036-112	5940-00-143-4794	13	27
96906	MS25036-149	5940-00-557-1629	11	3
96906	MS25036-153	5940-00-143-4774	11	2
			14	3
			14	IO
			19	3
			19	7
96906	MS25036-156	5940-W-143-4775	14	6

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CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
96906	MS25036-157	5940-00-143-4777	13	25
96906	MS25043-18DA	5935-01-175-8419	12	11
96906	MS25167P1B	5355-0O-051-9146	10	8
96906	MS27130-A13K	5310-01-099-9528	27	7
96906	MS27130-S14	5310-00-917-8592	8	14
96906	MS27130-S14K	5310-01-036-0908	2	10
			2	21
			27	4
96906	MS27130-S7K		19	15
96906	MS27130-S81K		10	44
96906	MS27130-S93K	5310-00-616-2589	27	13
96906	MS27130-13K		19	14
		5310-00-089-0013	22	2
			24	5
96906	MS27183-10	5310~00-809-4058	12	39
			21	2
96906	MS27183-12	5310-00-081-4219	12	41
			18	3
			18	20
96906	MS27183-41	5310-00-765-3197	6	9
96906	MS27183-42	5310-00-014-5850	18	7
			18	11
96906	MS27183-5	5310-00-983-8483	10	14
			10	19
			10	26
			10	31
			10	37
			12	6
96906	MS27183-7	5310-00-809-8544	10	42
			12	17
			12	23
			12	28
			20	3
96906	MS27980-1N	5325-00-276-4953	1	6
96906	MS3367-1-9	5975-00-074-2072	10	46
			17	3
96906	MS3450W18-11P	5935-01-146-4091	12	15
96906	MS3456W18-11P	5935-01-127-2089	15	38
96906	MS3456W18-11S	5935-01-035-5139	28	
96906	MS35206-218	5305-00-983-6730	12	7
96906	MS35206-232	5305-00-984-4992	19	10
96906	MS35206-243	5305-00-984-6191	8	1
			8	20
			25	
96906	MS35206-245	5305-00-984-6193	10	1
			12	22
			21	5
			26	1
96906	MS35206-246	5305-00-984-6194	3	
			4	1
			7	1

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CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
96906	MS35206-246	5305-W-984-6194	8	16
			12	1
			14	13
			17	5
			18	5
			18	9
			20	1
			20	10
			20	17
			23	6
96906	MS35206-247	5305-00-984-6195	1	1
			6	7
96906	MS35206-254	5305-00-984-6202	24	9
96906	MS35207-264	5305-00-989-7435	3	4
96906	MS35333-38	5310-00-559-0070	10	41
96906	MS35333-42	5310-00-595-7237	10	17
96906	MS35335-33	5310-00-209-0786	12	38
96906	MS35338-41	5310-00-045-4007	19	11
			23	2
96906	Ms35338-42	5310-00-045-3299	1	2
			3	2
			4	2
			6	a
			7	2
			a	3
			a	17
			10	2
			12	2
			12	18
			14	14
			17	6
			18	6
			18	10
			20	2
			20	11
			20	Ia
			23	7
			24	10
96906	Ms35338-43	5310-00-045-3296	3	5
			26	2
96906	MS35338-44	5310-00-582-5965	18	19
			18	21
			21	20
96906	MS35489-1	5325-00-286-6047	10	6
96906	MS35489- 14	5325-00-276-6100	27	47
96906	Ms35489-35	5325-00-185-0012	10	10
			10	21
96906	MS35489-4	5325-00-174-5317	20	16
96906	MS35649-2252	5310-00-997-1888	18	22
			21	19
96906	Ms35649-282	5310-00-934-9757	a	2

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CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
96906	MS35649-282	5310-00-934-9757	10	40
			12	37
			14	17
			20	19
			25	a
96906	MS35691-21	5310-00-975-2075	10	16
96906	MS35872-2	4730-00-189-2737	23	14
			24	7
96906	MS35919-22	4730-01-037-4919	23	15
96906	MS35929-2	4730-00-257-2163	9	3
			26	5
80205	MS51021-31	5305-00-551-0156	10	9
80205	MS51021-9	5305-00-800-7261	10	12
80206	MS51964-118	5305-00-177-5546	21	9
80205	MS51964-65	5305-00-724-5812	18	16
96906	MS75044- 1	5310-00-068-0054	a	10
96906	MS90724-29	5310-00-917-6365	1 2	24
96906	MS90726-36	5305-00-225-9091	25	3
96906	MS91528-1K2B	5355-00-556-0145	10	11
81349	M23053/5- 104-9	5970~00-088-2975	BULK	7
81349	M23D53/5-105-9	5970-00-082-3942	BULK	6
81349	M23053/5-106-9	5970-00-814-2878	BULK	a
81349	M24243/6-A403H	5320-00-882-8388	21	12
al349	M24243/6-A503H	5320-00-490-2238	27	2
			27	5
			27	27
81349	M24243/7-A401H	5320-00-323-3984	27	8
			27	10
81349	M24243/7-A404H	5320-00-420-2169	27	14
al349	M5086/2-12-9	6145-00-578-7514	BULK	20
81349	M5086/2-16-9	6145-00-578-6605	BULK	19
81349	M5086/2-20-9	6145-00-851-8505	BULK	18
80205	NAS1329S08KB120	5310-00-481-6295	27	45
80205	NAS1330H08K106L	5310-01-040-1252	21	11
80205	NAS1330H08K161L	5310-01-047-9470	21	la
80205	NAS1330S03K106		20	13
80205	NAS1330S04K106		27	17
			27	26
80205	NAS43HT6-50		28	5
70436	NT141	5310-00-012-0560	8	a
06383	PN10-10R	5940-00-143-4794	15	35
			18	24
0V5R4	P85E72		16	5
81348	RR-W-SBOTYCL-18X 18AA5056.0110D1A		BULK	21
0V5R4	S11-4		11	4
0V5R4	513-1		13	1
0V5R4	S13-IO		13	10
0V5R4	S13-11		13	11
0V5R4	Sl3-12		13	12
0V5R4	S13-13		13	13

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CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
OV5R4	S13-14		13	14
OV5R4	S13-15		13	15
OV5R4	SI3-16		13	16
OV5R4	s13-17		13	17
OV5R4	S13-18		13	la
OV5R4	S13-19		13	19
OV5R4	SI3-2		13	2
OV5R4	SI3-20		13	20
OV5R4	SI3-21		13	21
OV5R4	S13-22		13	22
OV5R4	SI3-23		13	23
OV5R4	SI3-24		13	24
OV5R4	SI3-29		13	29
OV5R4	S13-3		13	3
OV5R4	s13-30		13	30
OV5R4	s13-31		13	31
OV5R4	s13-4		13	4
OV5R4	s13-5		13	5
OV5R4	SI3-6		13	6
OV5R4	S13-7		13	7
OV5R4	SI3-8		13	8
OV5R4	S13-9		13	9
OV5R4	S15-1		15	1
OV5R4	51510		15	10
OV5R4	SI5-11		15	11
OV5R4	SI5-12		15	12
OV5R4	S15-13		15	13
OV5R4	S15-14		15	14
OV5R4	s15- 15		15	15
OV5R4	SI5-16		15	16
OV5R4	s15-17		15	17
OV5R4	SI5-18		15	18
OV5R4	s15-19		15	19
OV5R4	s15-2		15	2
OV5R4	SI5-20		15	20
OV5R4	515-21		15	21
OV5R4	SI5-22		15	22
OV5R4	SI5-23		15	23
OV5R4	515-24			
OV5R4	SI5-25		15	25
OV5R4	S15-26		15	26
OV5R4	SI5-27		15	27
OV5R4	SI5-28		15	28
OV5R4	SI5-29		15	29
OV5R4	s15-3		15	3
OV5R4	SI5-30		15	30
OV5R4	s15-4		15	4
OV5R4	SI5-5		15	5
OV5R4	SI5-6		15	6
OV5R4	s15-7		15	7
OV5R4	SI5-8		15	a

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CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
OV5R4	s15-9		15	9
OV5R4	S17-I		17	1
OV5R4	S2-13		2	13
OV5R4	S2-14		2	14
OV5R4	s2-20		2	20
OV5R4	s27-29		27	29
OV5R4	S27-30		27	30
OV5R4	S27-33		27	33
OV5R4	S27-34		27	34
OV5R4	S27-35		27	35
OV5R4	S27-36		27	36
OV5R4	S27-39		27	39
OV5R4	S27-41		27	41
OV5R4	S27-43		27	43
OV5R4	S27-44		27	44
OV5R4	S3100-2OQ5WC		12	25
OV5R4	S4182		25	7
OV5R4	S4182-01		25	9
OV5R4	S4182-02		25	11
OV5R4	S5-12		5	12
OV5R4	s5-13		5	13
OV5R4	S5884		3	7
OV5R4	s5911		la	17
OV5R4	s5914		la	13
OV5R4	s5915		la	14
OV5R4	S6080		4	3
OV5R4	S6081		6	2
OV5R4	S6089		5	a
OV5R4	S6090		5	9
OV5R4	S6115-6		la	4
OV5R4	S6116-2		la	12
OV5R4	S6197		10	22
OV5R4	S622I		12	29
OV5R4	56232		12	30
OV5R4	S624OPL		14	la
OV5R4	56838		5	11
OV5R4	S6959		12	34
OV5R4	s7514		la	a
OV5R4	s7548		5	10
OV5R4	sao24		12	21
OV5R4	s8414		21	7
OV5R4	s8419		5	6
OV5R4	sa425		12	3
OV5R4	S8426		10	4
OV5R4	s8428		5	7
OV5R4	58432		21	22
OV5R4	s8450		5	2
OV5R4	s8450- 1		12	32
OV5R4	S8450-2		12	31
OV5R4	s8450-3		12	35
OV5R4	s8450-4		12	33

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CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
OV5R4	s8450/130		26	9
OV5R4	s8450/131		26	12
OV5R4	S84501134		26	6
OV5R4	S84501135		26	11
OV5R4	s8450/ 136		26	a
OV5R4	s8450/151		26	13
OV5R4	s8450/ 152		26	14
OV5R4	s8450/ 153		26	4
OV5R4	s8450/ 170		26	7
OV5R4	s8451		27	1
41947	W-40363	4730-00-815-5672	26	10
62265	IBC9350	4710-00-203-3171	BULK	14
OV5R4	12OK1137		25	10
87405	12324-02A		la	15
97403	13214E3469	5310-00-821-2366		3
			a	la
			21	6
			23	a
97403	13214E3791-2	5320-00-874-4477	21	16
97403	13214E3791-3		21	14
97403	13214E3791-5	5320-00-874-4480	27	20
97403	13214E3791-8	5320-00-318-9090	27	22
97403	13216E4538-2	5310-00-138-0104	21	17
97403	13216E4539-4		27	16
97403	13216E5878		4	7
97403	13216E5879		4	6
97403	13216E5880		2	la
97403	13216E5880/2		2	19
97403	13216E5880/6		2	22
97403	13216E5881		2	12
97403	13216E5881/1		2	17
97403	13216E5881/5		2	15
97403	13216E5881/6		2	16
97403	13216E5884		3	3
97403	13216E5885		1	4
97403	13216E5885/1		1	10
97403	13216E5885/4		1	a
97403	13216E5885/5		1	7
97403	13216E5885/6		1	9
97403	13216E5886		a	19
97403	13216E5887		a	27
97403	13216E5887/2		a	29
97403	13216E5887/4		a	28
97403	13216E5888		a	23
97403	13216E5888/1		a	25
97403	13216E5895		20	12
97403	13216E5895/1		20	15
97403	13216E5895/3		20	14
97403	13216E5908		la	26
97403	13216E5918-1	4130-00-824-9197	24	a
97403	13216E5924		19	13

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CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
97403	13216E5924/1		19	16
97403	13216E6080/5		4	5
97403	13216E6080/6		4	4
97403	13216E6092-2		8	12
97403	13216E6092/1		a	15
97403	13216E6093-2	5340-01-162-9927	8	22
97403	13216E6096	3120-01-124-7745	8	30
			a	31
97403	13216E6098		27	3
97403	13216E6108-4	4130-01-098-6649	a	7
97403	13216E6109	5325-01-005-4098	23	5
97403	13216E6122-1		27	12
97403	13216E6124-1	4540-00-444-7114	20	5
97403	13216E6124/IW		20	9
97403	13216E6137		28	4
97403	13216E6151	9330-01-214-8452	BULK	16
97403	13216E6151-1		9	2
97403	13216E6151-4		9	4
97403	13216E6151-5		9	5
97403	13216E6153		28	6
97403	13216E6155-1	6680-00-929-6667	24	12
97403	13216E6156		24	11
97403	13216E6157-1		24	6
97403	13216E6157-3	5340-01-047-2064	24	4
97403	13216E6157-4		24	14
97403	13216E6159-11	5340-01-258-1273	10	28
97403	13216E6159-3	5365-01-255-6463	a	5
97403	13216E6163-1	4130-01-084-5519	24	15
97403	13216E6170		23	16
97403	13216E6177	5935-00-482-2390	12	14
97403	13216E6190-2		26	21
97403	13216E6191-1	5940-00-948-9686	17	2
97403	13216E6191-2	5940-00-926-0085	19	4
			19	a
97403	13216E6191-3	5940-00-432-2660	11	1
			14	7
97403	13216E6196-1		10	23
97403	13216E6198		10	43
97403	13216E6198/1		10	45
97403	13216E6199-1		10	34
97403	13216E6202		10	7
97403	13216E6203-1	5930-00-482-5774	10	38
97403	13216E6206-1	5925-00-482-2396	10	20
97403	13216E6209-2	5935-00-137-4256	10	32
97403	13216E6215-1	5930-00-190-8730	23	4
97403	13216E6215-3	5930-00-190-8729	23	3
97403	13216E6220-1	5940-01-201-7221	20	20
97403	13216E6221-1		20	21
97403	13216E6224	5930-00-357-6090	19	12
97403	13218E6957	9905-01-348-0501	5	3
97403	13218E6958	9905-0l-348-0500	5	4

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CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
97403	13218E7512-1	5310-01-214-8503	8	13
97403	1322E58427		19	6
97403	13220E1144		6	10
97403	13220E1145		6	5
97403	13220E1352	4130-01-031-4620	6	3
97403	13220E1352/3		6	4
97403	13220E8034		25	2
97403	13221E9322-1	5310-01-162-0413	21	21
97403	13225E8410/3		12	10
97403	13225E8412		7	3
97403	13225E8415	4140-01-209-1980	21	8
97403	13225E8416		21	10
97403	13225E8416/4		21	13
97403	13225E8416/6		21	15
97403	13225E8421	5340-01-428-9504	3	6
97403	13225E8422		2	6
97403	13225E8422/1		2	11
97403	13225E8422/3		2	8
97403	13225E8422/4		2	9
97403	13225E8422/5		2	7
97403	13225E8423		2	2
97403	13225E8423/1		2	5
97403	13225E8423/2		2	4
97403	13225E8423/4		2	3
97403	13225E8427-10		14	5
97403	13225E8427-4		19	2
97403	13225E8427-8		14	
97403	13225E8427/2		14	4
			14	12
			19	5
			19	9
97403	13225E8427/9		14	8
97403	13225E8431		16	2
97403	13225E8435/12		11	5
97403	13225E8435/2		11	6
97403	13225E8435/7		11	7
97403	13225E8450/101		26	16
97403	13225E8450/148		26	20
97403	13225E8450/158		26	17
97403	13225E8450/162		26	19
97403	13225E8450/223		8	26
97403	13225E8450/65		17	4
97403	13225E8450/87		26	18
97403	13225E8450/95		26	15
97403	13225E8451/15		27	11
97403	13225E8451/21		27	1s
97403	13225E8451/25		27	19
97403	13225E8451/28		27	18
97403	13225E8451/32		27	23
97403	13225E8451/33		27	24
97403	13225E8451/34		27	25

CROSS-REFERENCE INDEXES

PART NUMBER INDEX

CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
97403	13225E8451/38		27	28
97403	13225E8451/42		27	46
97403	13225E8451/46		27	38
97403	13225E8451/47		27	37
97403	13225E8451/48		27	31
97403	13225E8451/51		27	
97403	13225E8451/52		27	42
97403	13225E8451/59		27	9
97403	13225E8451/6		27	6
97403	13225E8451/64		27	32
97403	13225E8453	5366-01-203-1053	25	6
97403	13225E847-9		14	9
97403	13226E5920		20	4
97403	13227E0I44		16	4
97403	13228E3409		12	43
14852	2CYI605E		24	2
17529	2C4		23	11
14852	2EYI205N-7		22	
55176	24355		9	6
25795	3X685		16	6
94135	33C69-666	4730-00-289-0211	9	1
ONY81	38-TO67F4583		14	15
ONY81	4OOO-O1E07AN583		17	7
OV5R4	48A3408A		18	23
OV5R4	484110-1836		21	3
28193	5221		23	12
95535	55229	4710-00-424-2694	BULK	15
78286	70106-08105-102	5310-01-096-1264	28	3
OV5R4	85PS330-DI4		16	3
39428	91113A3032		20	7
39428	98017A205		20	8

CHAPTER 11

SUPPORTING INFORMATION

REFERENCES 0070-00

SCOPE

This appendix lists all forms, field manuals, technical manuals, and miscellaneous publications referenced in this manual.

FORMS

Recommended Changes to DA Publications	DA Form 2028-2
Equipment Inspection and Maintenance Work Sheet	DA Form 2404
Quality Deficiency Report	DA Form 368

FIELD MANUALS

Electric Motor and Generator Repair	FM 20-31
First Aid for Soldiers	FM21-11

TECHNICAL MANUALS

Hand Portable Fire Extinguishers Approved for Army Users	TB 5-4200-200-10
The Army Maintenance Management System (TAMMS)	DA PAM 738-750
Painting Instructions for Field Use	TM 43-0139
Organizational, Direct Support, and General Support Maintenance Repair Parts and Special Tools List	TM 9-4120-422-14&P
Administrative Storage of Equipment	TM 740-90-1
Procedure for Destruction of Equipment to Prevent Enemy Use	TM 750-244-3
Leak Detector, Refrigerant Gas	TM 9-4940-435-14

END OF TASK

MAINTENANCE ALLOCATION CHART FOR 9000 BTU AIR CONDITIONER 0071-00

INTRODUCTION

The Army Maintenance System MAC

This introduction provides a general explanation of all maintenance and repair functions authorized at various maintenance levels under the standard Army Maintenance System concept.

The MAC (immediately following the introduction) designates overall authority and responsibility for the performance of maintenance functions on the identified end item or component. The application of the maintenance functions to the end item or component shall be consistent with the capacities and capabilities of the designated maintenance levels, which are shown on the MAC in column (4) as:

Unit – includes two subcolumns, C (operator/crew) and O (unit) maintenance.

Direct Support – includes an F subcolumn.

General Support – includes an H subcolumn.

Depot – includes a D subcolumn.

The tools and test equipment requirements (immediately following the MAC) list the tools and test equipment (both special tools and common tool sets) required for each maintenance function as referenced from the MAC.

The remarks (immediately following the tools and test equipment requirements) contain supplemental instructions and explanatory notes for a particular maintenance function.

MAINTENANCE ALLOCATION CHART FOR 9000 BTU AIR CONDITIONER – Continued 0071-00

Table 1. MAC for Air Conditioner

(1) GROUP NO.	(2) COMPONENT/ ASSEMBLY	(3) MAINT-ENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT	(6) REMARKS
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
00	AIR	Inspect	0.1						A
	CONDITIONER,	Service	0.3	1.0				1	B
	HORIZONTAL,	Test	0.5	0.5	0.5			1,2	
	COMPACT, 9000	Replace		2.0				1	
	BTU/HR	Repair		2.0				1,6,7	F
		Repair			6.0			1 thru 5	D
		Repair				2.0		8	E
01	Louvers	Inspect	0.1						
		Adjust	0.1						
		Service		0.1				1	
		Replace		1.0				1	
02	Fresh Air	Inspect		0.5					
	Damper	Service		0.5				1	
	And Actuator	Adjust	0.1	0.5				1	
		Replace		2.0				1	
03	Control Module	Inspect	0.1						
		Adjust	0.1						
		Repair		2.0				1	C
		Replace		0.5				1	
0301	Temperature	Inspect		0.1					
	Control	Adjust	0.1						
	(Thermostat)	Test		1.0				1	
		Replace		1.0				1	
0302	Mode Selector	Inspect		0.1					
	Switch	Adjust	0.1						
		Test		0.5				1	
		Replace		1.0				1	
0303	Circuit Breaker	Inspect		0.1					
		Test		0.5				1	
		Replace		1.0				1	

Table 1. MAC for Air Conditioner-Continued

(1) GROUP NO.	(2) COMPONENT/ ASSEMBLY	(3) MAINT-ENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT	(6) REMARKS
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
0304	Control Module Wiring Harness	Inspect		0.5					
		Test		1.0					
		Repair		1.0				1,6,9	
04	Junction Box	Inspect		1.0					
		Repair		2.0				1	C
		Replace		2.0				1	
0401	Junction Box Wiring Harness	Inspect		0.5					
		Test		1.0				1	
		Repair		1.0				1,6,9	
		Replace		12.0				1	
0402	Relays (K1 thru K5)	Inspect		0.2					
		Test		1.0				1	
		Replace		1.5				1	
05	Capacitor	Inspect		0.1					
		Test		0.2				1	
		Replace		0.5				1	
06	Transformer	Inspect		0.1					
		Test		0.5				1	
		Replace		1.0				1	
07	Evaporator Motor	Inspect		0.5					
		Test		0.5				1	
		Replace		3.0				1	
08	Heater Thermostat	Inspect		0.1					
		Test		1.0				1	
		Replace		0.5				1	
09	Heater Elements	Inspect		0.4				1	
		Test		0.5				1	
		Replace		2.0					

Table 1. MAC for Air Conditioner-Continued

(1) GROUP NO.	(2) COMPONENT/ ASSEMBLY	(3) MAINT-ENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT	(6) REMARKS
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
10	Condenser	Inspect		0.5					
	Motor	Test		0.5				1	
		Replace		3.0				1	
11	Evaporator Coil	Inspect		0.5					
		Service		1.0				1	
		Replace			8.0			1 thru 5	
		Test			0.5			1,2	
12	Pressure	Inspect			0.1				
	Switches	Test			0.5			1,2	
		Replace			8.0			1 thru 5	
13	Service Valves	Inspect			0.5				
		Replace			8.0			1 thru 5	
		Test			0.5			1,2	
14	Pressure Relief	Inspect			0.5				
	Valve	Replace			8.0			1 thru 5	
		Test			0.5			1,2	
15	Condenser Coil	Inspect		0.5					
		Service		1.0				1	
		Replace			8.0			1 thru 5	
		Test			0.5			1,2	
16	Dehydrator	Inspect		0.1					
	(Filter-Drier)	Replace			8.0			1 thru 5	
		Test			0.5			1,2	
17	Liquid Indicator	Inspect	0.5						
		Replace			8.0			1 thru 5	
		Test			0.5			1,2	
18	Compressor	Test			0.5			1,2	
		Replace			12.0			1 thru 5	
19	Tubing and	Test			0.5			1,2	
	Fittings	Replace			8.0			1 thru 5	
20	Housing	Inspect		0.5				1	
		Service		0.5				1,6,7,8	
		Repair				1.0			

Table 2. Tools and Test Equipment

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE LEVEL	NOMENCLATURE	NATIONAL STOCK NUMBER	TOOL NUMBER
	NOTE Standard tools and test equipment in the following kits are adequate to accomplish the maintenance functions listed in Table 1.			
1	O-F-H	Tool Kit, General Mechanics	5180-00-699-5273	SC5180-90-CL-N05
2	O-F-H	Tool Kit, Service, Refrigeration Unit	5180-00-596-1474	SC 5180-90-CL-N18
3	F	Pump, Vacuum	4310-00-289-5967	
4	F	Nitrogen Regulator	6680-00-503-1327	
5	F	Recovery and Recycle Unit, Refrigerant	4130-01-338-2707	
6	O	Heat Gun	4940-01-042-4855	
7	O	Rivet Gun	5120-00-508-1588	
8	H	Welding Shop, Trailer Mounted	3431-01-090-1231	SC-3431-95-CL-A04
9	O-F-H	Solder Gun Kit	3439-00-930-1638	

Table 3. Remarks

Reference Code	Remarks
A	External at C and O maintenance levels. Internal at O maintenance level and above.
B	Preventive Maintenance Checks and Services (PMCS)
C	Limited to component part replacement at O level maintenance and above.
D	Limited to component part replacement at F level maintenance and above.
E	Limited to housing repair and insulation replacement.
F	The following component part replacements not listed in the MAC, and limited at O Level maintenance and above are as follows: canvas cover, panels, screens and guards, information plates, air filter, mist eliminator, and condensate drain tubes. These are individual parts which do not require adjustments, repair or testing, hence are not listed in the MAC but have individual work packages for replacement or service. Other than those items listed above there are no supplemental instructions or explanatory remarks required for the maintenance functions listed in Table 1. Active time listed for maintenance task functions are with the air conditioner shutdown.

END OF TASK

COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS 0072-00

INTRODUCTION

Scope

This work package lists COEI and BII for the air conditioner to help you inventory items for safe and efficient operation of the equipment.

General

The COEI and BII information is divided into the following lists:

Components of End Item (COEI). This list is for information purposes only and is not authority to requisition replacements. These items are part of the air conditioner. As part of the end item, these items must be with the end item whenever it is issued or transferred between property accounts. Items of COEI are removed and separately packaged for transportation or shipment only when necessary. Illustrations are furnished to help you find and identify the items.

Basic Issue Items (BII). These essential items are required to place the air conditioner in operation, operate it, and to do emergency repairs. Although shipped separately packaged, BII must be with the air conditioner during operation and when it is transferred between property accounts. Listing these items is your authority to request/requisition them for replacement based on authorization of the end item by the TOE/MTOE. Illustrations are furnished to help you find and identify the items.

Explanation of Columns in the COEI List and BII List

Column (1), Illus Number, gives you the number of the item illustrated.

Column (2), National stock Number, identifies the stock number of the item to be used for requisitioning purposes.

Column (3), Description, CAGEC, and Part Number, identifies the Federal item name (in all capital letters) followed by a minimum description when needed. The stowage location of COEI and BII is also included in this column. The last line below the description is the CAGEC (commercial and Government entity code) (in parenthesis) and the part number.

Column (4), Usable on Code, gives you a code if the item you need is not the same for different models of equipment. These codes are identified below:

Code	Used on
LQY	S8450-9KC-1H

Column (5), U/M (unit of measure), indicates how the item is issued for the National Stock Number shown in column (2).

Column (6), Qty Rqr, indicates the quantity required.

COMPONENTS OF END ITEM (COEI) LIST

Table 1. Components of End Item List

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQR
		None			

BASIC ISSUE ITEMS (BII) LIST

Table 2. Basic Issue Items List

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQR
		Department of the Army Technical Manual: Operator's, Unit, Direct Support and General Support Maintenance Manual, Including Repair Parts and Special Tools List, TM 9-4120-422-14&P			

END OF TASK

ADDITIONAL AUTHORIZATION LIST (AAL) 0073-00

INTRODUCTION

Scope
This work package lists additional items you are authorized for the support of the air conditioner.

General
This list identifies items that do not have to accompany the air conditioner and that do not have to be turned in with it. These items are all authorized to you by CTA, MTOE, TDA, or JTA.

Explanation of Columns in the AAL
Column (1), National Stock Number, identifies the stock number of the item to be used for requisitioning purposes.
Column (2), Description, CAGEC, and Part Number, identifies the Federal item name (in all capital letters) followed by a minimum description when needed. The last line below the description is the CAGEC (Commercial and Government Entity Code) (in parenthesis) and the part number.

Column (3), Usable On Code, when applicable, gives you a code if the item you need is not the same for different models of equipment.

Column (4), U/M (unit of measure), indicates how the item is issued for the National Stock Number shown in column (1).
Column (5), Qty Recm, indicates the quantity recommended.

ADDITIONAL AUTHORIZED LIST ITEMS

Table 1. Additional Authorization List

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION, CAGEC, AND PART NUMBER	(3) USABLE ON CODE	(4) U/M	(5) QTY RECM
	Cotton Duct Case			

END OF TASK

EXPENDABLE AND DURABLE ITEMS LIST 0074-00

INTRODUCTION

Scope

This work package lists expendable and durable items that you will need to operate and maintain the air conditioner. This list is for information only and is not authority to requisition the listed items. These items are authorized to you by CTA 50-970, Expendable/Durable Items (Except Medical, Class V Repair Parts, and Heraldic Items), or CTA8-100, Army Medical Department Expendable/Durable Items.

Explanation of Columns in the Expendable/Durable Items List

Column (1) – Item Number. This number is assigned to the entry in the list and is referenced in the narrative instructions to identify the item (e.g., "Use lubricating oil (Item 25, WP 5230 00)").

Column (2) – Level. This column includes the lowest level of maintenance that requires the listed item (C=Operator/Crew).

Column (3) – National Stock Number. This is the NSN assigned to the item which you can use to requisition it.

Column (4) – Item Name, Description, Commercial and Government Entity Code (CAGE), and Part Number (P/N). This column provides the other information you need to identify the item.

Column (5) – Unit of Measure (U/M). This code shows the physical measurement or count of an item, such as gallon, dozen, gross, etc.

Table 1. Expendable and Durable Items List

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGE, PART NUMBER	(5) U/M
1	O		Silicone Adhesive Sealant, RTV, General, Mil-A-46106,Type I	
2	O		Solder, Lead-Tin, QQ-S-571, Type SN60WRP2	
3	F	3040-00-664-0439	Adhesive, General Purpose, 1 pint container	ea
4	F	6830-00-292-0732	Nitrogen	cy
5	F		Brazing Alloy, Silver, QQ-B-654, Grade O, I, or II	
6	F		Brazing Alloy, Silver, QQ-B-654, Grade III	
7	F	3439-00-640-3713	Flux, Brazing, O-F-499, Type B	
8	F	5350-00-192-5047	Abrasive Cloth	pg
9	F	7920-00-205-1711	Rags	
10	F	6850-00-837-9927	Monochlorodifluoromethane, Technical: w/cylinder 22 lbs. (Refrigerant-22), BB-F-1421, Type 22 (81348)	cy
11	F		Tape PPP-T-60, Type IV, Class I	roll
12	F	6830-00-872-5120	Trichloromonofluoromethane, Technical: w/cylinder 50 lbs. (Refrigerant-11), BB-F-1421, Type II (81348)	
13	F	8030-00-889-3534	Tape, Antiseize, Polytetrafluorethylene, MIL-T-22730, Size I	roll
14	F		Lubricating Oil, VV-L-825, Type IV	qt
15	F	3439-01-045-7940	Flux, Soldering, Liquid Rosin Base, MIL-F-14256	qt
16	O,F	6850-01-331-3349	Dry Cleaning Solvent, P-D-680 Type III (81348)	5 gal.
17	O		Coater, Air Filter, MIL-L-2104 (81348)	
18	H		Adhesive, MMM-A-121	qt
19	H		Cellular Rubber Strips, MIL-R-6130,Type I, Grade A	ft
20	H		Flexible Elestomeric Thermal Insulation (ASTM C 534, Type 2, Sheet)	shts

Table 1. Expendable and Durable Items List - Continued

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGE, PART NUMBER	(5) U/M
21	F		Solder, Silver, QQ-S-561, Type 3, 4 or 6A	
22	H		Acetone	pt
23			Insulation, Sheet, Cellular, MIL-I-14511	
24			Plastic Foam, Unicellular, Sheet Form, MIL-P-15280	
25			Adhesive, MMM-A-132, Type I, Class I	
26			Industrial Sealant 800	
27			Acid Swab Brush	

END OF TASK

INTRODUCTION

Scope

This work package describes the wiring provisions contained in the air conditioner, including all systems or equipment which can be installed or removed later (e.g., mission-related systems/equipment). Wiring diagrams and essential wiring information are provided for all electrical and electronic systems and circuits. All critical wire and cable data has been included.

WIRE AND COMPONENT IDENTIFICATION

All wires have been identified by point-to-point wire termination on the wiring diagram. A tabular list of circuit designators and their components are included. (Refer to table 1. Components Reference List.)

ABREVIATIONS

All abbreviations are in accordance with MIL-STD-12, except when the abbreviation stands for a marking actually found in the air conditioner.

WIRING DIAGRAMS

A wiring diagram and schematic diagram have been included for all electrical and electronic systems and circuits. (Refer to Figure 1, Wiring Diagram and Figure 2 Schematic Diagram.)

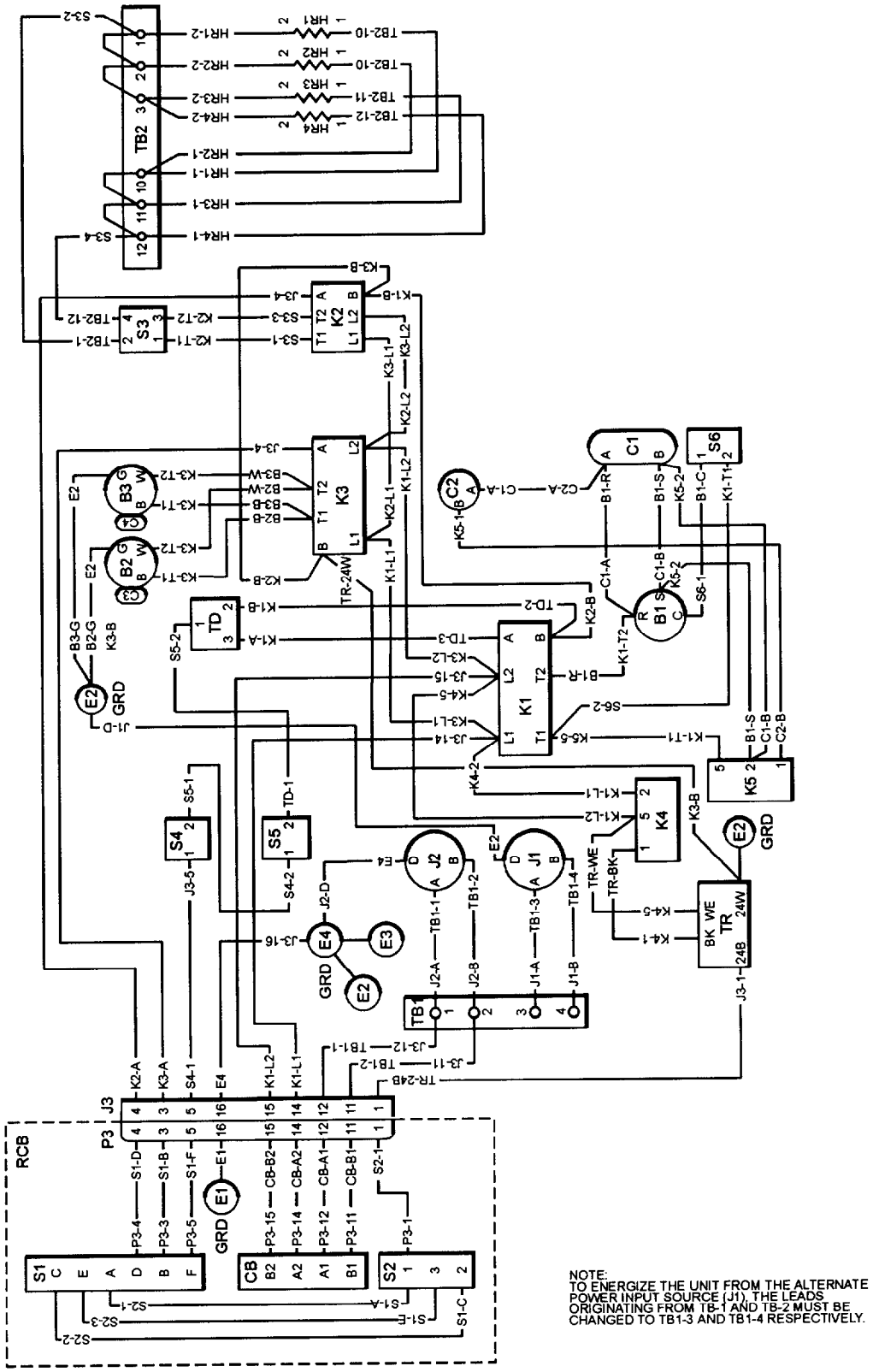


Figure 1. Wiring Diagram

Table 1. Components Reference List

Electrical Reference Designation	Description
B1	Compressor, rotary
B2	Motor, evaporator fan
B3	Motor, condenser fan
C1	Capacitor, compressor run
C2	Capacitor, compressor start
C3	Capacitor, evaporator fan run
C4	Capacitor, condenser fan run
CB	Circuit breaker, main power
E1	Terminal stud (control module gnd)
E2 & 3	Terminal stud (junction box gnd)
E4	Terminal stud (system gnd)
HR1 through HR4	Heater elements
J1	Connector, receptacle, alternate power input, rear
J2	Connector, receptacle, power input, junction box
J3	Connector, receptacle, control module
K1	Relay, compressor motor
K2	Relay, heaters
K3	Relay, evaporator and condenser motors
K4	Relay, overvoltage protection
K5	Relay, compressor start
RCB	Control module
P1	Connector, plug, alternate power input
P2	Connector, plug, power input, front
P3	Connector, plug, control module
S1	Switch, rotary selector
S2	Switch, temperature control
S3	Switch, heater cut-out
S4	Switch, low pressure cutout
S5	Switch, high pressure cutout
S6	Switch, compressor overload (part of B1)
TR	Transformer, 24 Vac control power
TB1	Terminal board, power input
TB2	Terminal board, electric heaters
TD	Time delay device, compressor control

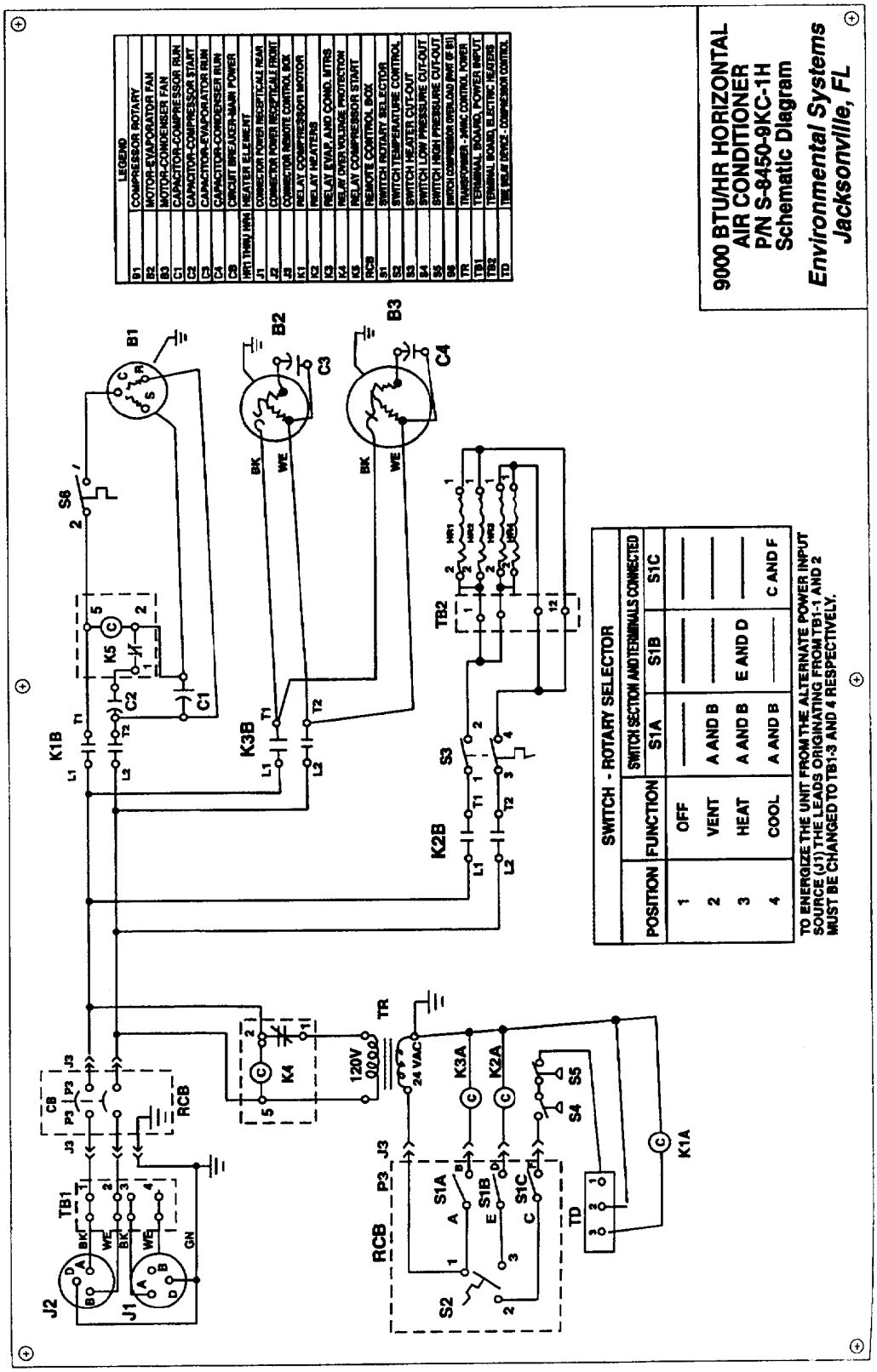
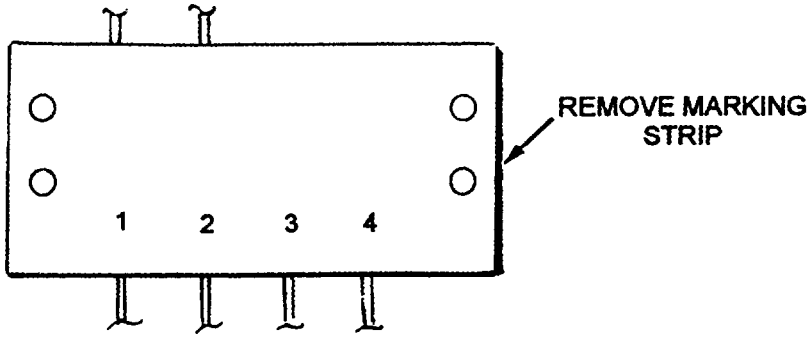
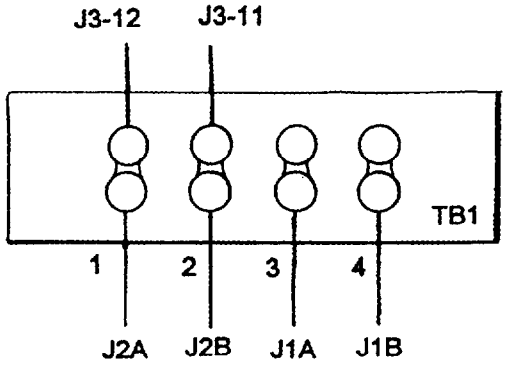
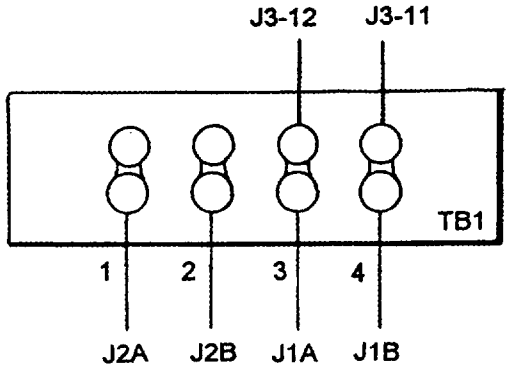


Figure 2. Schematic Diagram





WIRING USING INPUT POWER CONNECTOR (J2)



WIRING USING ALTERNATE INPUT POWER CONNECTOR (J1)

Figure 3. Power Input Connections

END OF TASK

CHAPTER 12

REAR MATTER

ALPHABETICAL INDEX

ALPHABETICAL INDEX - Continued

By Order of the Secretary of the Army:

ERIC K. SHINSEKI
General, United States Army
Chief of Staff

Official:

JOEL B. HUDSON
Administrative Assistant to the
Secretary of the Army
0001201

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To be distributed in accordance with the initial distribution number (IDN) 361131 requirements for TM 9-4120-422-14&P.

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS

SOMETHING WRONG WITH THIS PUBLICATION

THEN... JOT DOWN THE INFO ABOUT IT ON THIS FORM. CAREFULLY TEAR IT OUT. FOLD IT AND DROP IT IN THE MAIL.

FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)
Commander
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Stateside, N.J. 07703-5007

DATE SENT
10 July 1975

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE
TM 11-5840-340-14&P	23 Jan 74	Radar Set AN/PRC-76

BE EXACT PIN-POINT WHERE IT IS				IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:
PAGE NO	PARA GRAPH	FIGURE NO	TABLE NO	
2-25	2-28			Recommend that the installation antenna alignment procedure be changed throughout to specify a 20 IFF antenna lag rather than 10. REASON: Experience has shown that with only a 10 lag, the antenna servo system is too sensitive to wind gusting in excess of 25 knots, and has a tendency to rapidly accelerate and decelerate as it hunts, causing strain to the drive train. Hunting is minimized by adjusting the lag to 20 without degradation of operation.
3-10	3-3		3-1	Item 5, Functional column. Change "2 dB" to "3 dB". REASON: The adjustment procedure for the TRANS POWER FAULT indicator calls for a 3 dB (500 watts) adjustment to light the TRANS POWER FAULT indicator.
5-6	5-8			Add new step f.1 to read, "Replace cover plate removed in step e above." REASON: To replace the cover plate.
		FO-3		Zone C 3. On J1-2, change "+24 VDC" to "+5 VDC". REASON: This is the output line of the 5 VDC power supply. +24 VDC is the input voltage.

SAMPLE

PRINTED NAME, GRADE OR TITLE AND TELEPHONE NUMBER	SIGN HERE
SSG I. M. DeSpiritof 999-1776	I. M. DeSpiritof

DA FORM 1 JUL 79 2028-2

PREVIOUS EDITIONS ARE OBSOLETE

P.S. - IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR RECOMMENDATION MAKE A CARBON COPY OF THIS AND GIVE IT TO YOUR HEADQUARTERS.

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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

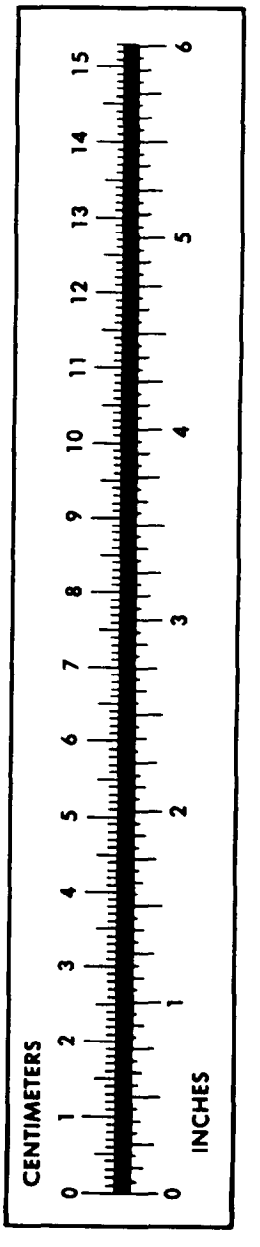
TEMPERATURE

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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