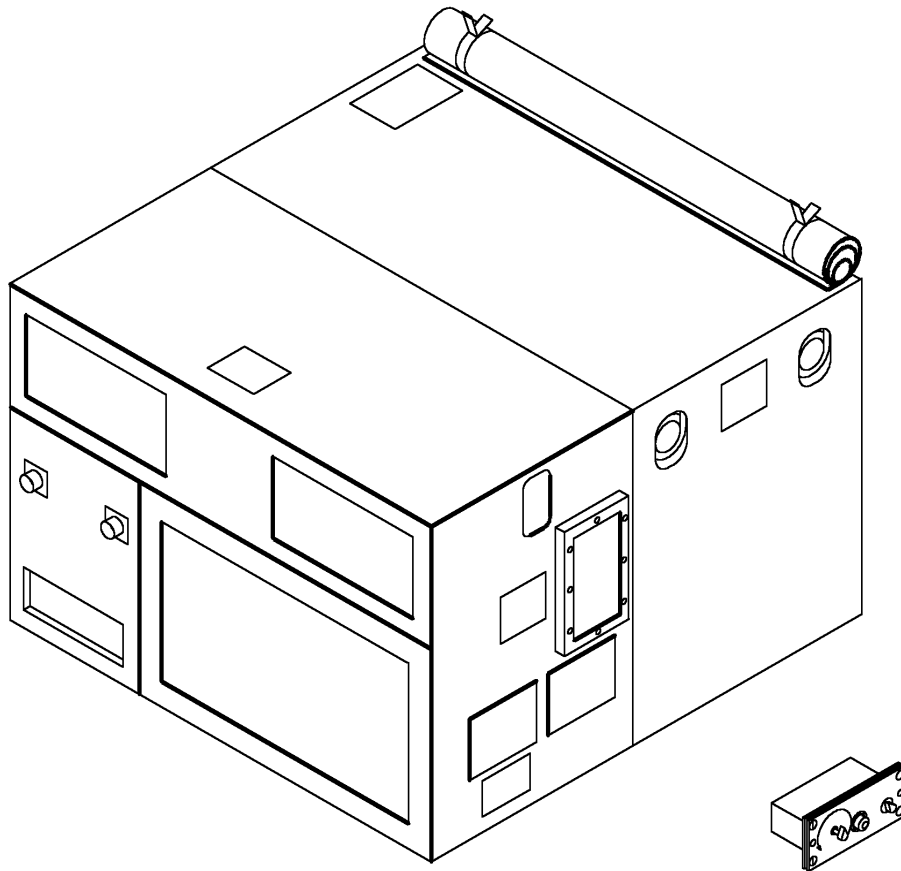


TM 9-4120-423-14&P

**TECHNICAL MANUAL
OPERATOR'S, UNIT, DIRECT SUPPORT, AND
GENERAL SUPPORT MAINTENANCE MANUAL
(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)
FOR
AIR CONDITIONER 24,000 BTU, SPLIT PACK
MODEL HSP24C30H
(NSN 4120-01-459-5022) (EIC: N/A)**



DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

**HEADQUARTERS, DEPARTMENT OF THE ARMY
1 DECEMBER 2001**

WARNING SUMMARY

WARNINGS

Do not use steam to clean coil.

If compressor burnout is suspected, use care when handling compressor to avoid touching compressor sludge. Acid in sludge can cause burns.

When handling coils, wear gloves to avoid cuts and reduce fin damage on the coil.

Dry Cleaning Solvent is flammable, and their vapors can be explosive. Repeated or prolonged skin contact or inhalation of vapors can be toxic. Use a well-ventilated area, and keep away from sparks or flame. Use goggles, gloves, and apron when appropriate.

Avoid inhaling fumes and burns from any acid formed by burnout of oil and Refrigerant R-22. 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 burnout sludge. If sludge is spilled, clean area thoroughly.

The burning of polyurethane foams is dangerous. Due to chemical composition of polyurethane foam, toxic fumes are released when it is burned or heated. If it is burned or heated indoors, such as during a welding operation nearby, you should take care to ventilate the area thoroughly. An exhaust system like that of a paint spray booth should be used. Air-supplied respirators, approved by the National Institute for Occupational Safety and Health Administration or the United States Bureau of Mines, should be used for all welding in confined spaces and in places where ventilation is inadequate. Persons, who have chronic or recurrent respiratory conditions, including allergies and asthma, should not work in these areas.

DANGEROUS CHEMICAL is used in this equipment. DEATH or serious injury may result if personnel fail to observe proper safety precautions. Great care must be exercised to prevent contact of liquid Refrigerant R-22, or Refrigerant R-22 gas discharged under pressure, with any part of the body. The extremely low temperature resulting from the rapid expansion of liquid Refrigerant R-22, or Refrigerant R-22 gas released under pressure, can cause sudden and irreversible tissue damage through freezing. As a minimum, all personnel must wear thermal protective gloves and a face shield or goggles when working in any situation where Refrigerant R-22 contact with the skin or eyes is possible. Application of excessive heat to any component in a charge system will cause extreme pressure that may result in a rupture, possibly explosive in nature. Exposure of Refrigerant R-22 to an open flame or a very hot surface will cause a chemical reaction in the gas to form carbonyl chloride (phosgene), a highly toxic and corrosive gas. In its natural state, Refrigerant R-22 is a colorless odorless vapor with no toxic characteristics. It is lighter than air and in a well-ventilated area will disperse rapidly. However, in an unventilated area it presents danger as a suffocant.

REFRIGERANT R-22 UNDER PRESSURE is used in the operation of this equipment DEATH or severe injury may result if you fail to observe safety precautions. Never use a heating torch on any part that contains Refrigerant R-22. Do not let refrigerant touch you, and do not inhale refrigerant gas.

WARNINGS (Continued)

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 operators aid the technician, he must warn them about dangerous areas. Whenever possible, the input power supply to the equipment must be shut off before beginning work on the equipment. 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. Be careful not to contact high-voltage connections of 208 volts ac input when installing or operating 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 50 volts may cause death under adverse conditions.

Disconnect input power to the air conditioner before performing any maintenance to the electrical system. Voltages used can be lethal. Shutting the unit off at the control module does not disconnect power to the various components of the air conditioner.

Allow heaters to cool before touching. Severe burns can result from touching hot heaters.

AC power tests must be conducted with the power on. Exercise extreme caution.

Do not allow anyone under equipment suspended from a lifting device. Do not allow the unit to swing while suspended from a lifting device. Failure to observe this warning may result in injury to personnel and damage to the equipment.

During lifting operations, the mechanics must be visible to the lifting device operator and in a position to physically guide the air conditioner as it is lifted into position.

During lifting procedures, take care that shock mounts are not damaged.

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

The covers, grilles, and screens installed on this unit are there for a purpose. Do not operate this unit with them off or open unless the instructions tell you to. When this is necessary, do so with care.

Compressed air used for cleaning purposes will not exceed 30 PSI (2.1 kg/square centimeter). Do not direct compressed air against the skin. Use goggles or full-face shield.

Do not use steam, open flame, heat gun, or any other high-temperature heat source to thaw an iced coil. Thaw an iced coil with a lamp bulb (75-watt maximum), hair dryer, electric fan, or by leaving the unit shut down until ice melts.

WARNINGS (Continued)

Be sure the refrigeration system is fully discharged and purged and that dry nitrogen is flowing through the system at the rate of less than 1-2 cfm (0.028-0.057 cubic meters/minute) before all brazing or debrazing operations.

Refrigerant R-22 must be recaptured in a recycling/reclaiming machine. R-22 cannot be vented into the air. Do not discharge near open flame.

Do not attempt any disassembly of the solenoid valve other than coil removal with a Refrigerant R-22 charge in the system. Refrigerant R-22 will be sprayed out dangerously if the screws that attach the tube and plunger assembly to the valve body are loosened.

Ensure that no source of dangerous or objectionable fumes is near the fresh air intake.

CAUTIONS SUMMARY

Do not operate the air conditioner in the COOL mode if the refrigerant color has reached the yellow band or if numerous bubbles appear in the sight glass. COOL mode operation may be continued with the refrigerant color in the chartreuse band or with only an occasional bubble appearing in the window, but the sight glass should be rechecked after each four hours of operation to ensure that the condition has not become worse.

Turn the air conditioner to OFF as soon as a definite drop in temperature is felt on the suction return line. If the test conditions are continued more than a few seconds, the expansion valve will fully open and an excessive flood-back of liquid Refrigerant R-22 may damage or destroy the compressor.

Connect the Refrigerant-22 drum so that only gas will be used for pressurization.

Never introduce liquid Refrigerant R-22 into the low-pressure (suction) service valve.

If there is a loud banging noise coming from the condenser section when the unit is operated in the COOL mode, immediately turn the MODE SELECTOR SWITCH to OFF. Allow at least one hour of warm up time before attempting a restart in the COOL mode.

If military operational considerations allow the time, it will help extend the life of the compressor if the air conditioner is not turned on for its check of operation in the COOL mode until after a sufficient time to eliminate any danger of liquid refrigerant accumulation in the compressor. Except in extremely cold conditions, if input power has been disconnected for a period of less than six hours, an equal warm-up period is desirable. If the disconnected period has been more than six hours, a full six-hour warm-up period is recommended.

CAUTIONS (Continued)

Under normal operating conditions, before starting the air conditioner in any mode, make sure that the fabric condenser cover on the back of the condenser section is rolled up and secured, and that all screens and guards are in place and unobstructed. **EXCEPTIONS:** Under extreme cold climatic conditions, such as blowing snow, or freezing rain, which might enter, and damage condenser section, the unit may be operated in the LOW HEAT or HIGH HEAT mode with the fabric cover rolled down and snapped in place. **DO NOT OPERATE IN THE COOL MODE WITH THE FABRIC COVER ROLLED DOWN.**

Use care in handling to avoid damage to the air conditioner. If an overhead lifting device must be used, use an appropriate sling so that the weight of the unit is borne by the base of the shipping container.

Avoid injury by using adequate equipment and personnel to remove compressor from frame. The compressor weighs 65 pounds (30 kg). Two-person lift is required.

Failure to remove drain plugs will cause water to collect in the bottom of the evaporator section assembly and possible spillage into shelter.

Nitrogen cylinders are pressurized containers. The pressure in the cylinder can exceed 2000 psi. A nitrogen pressure regulator should be used at all times when nitrogen is used for leak check or purge operations. Nitrogen is an inert gas. However, it also presents danger as a suffocant and, therefore, must also be discharged in a ventilated location.

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.

Don't evacuate a leaking system. The vacuum created can cause air, moisture, and dirt to enter system.

Use care to not damage or kink the capillary.

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.

The compressor is supplied with a complete charge of oil. Take care that oil is not lost when handling and installing compressor.

Sheet metal screws are used to mount fan inlet rings and cover plate. Take care that mounting screw holes are not stripped.

Replacement dehydrators are packaged with sealing caps on the flare fittings, to prevent moisture contamination of the desiccant filtering media. Remove these caps immediately prior to installation. Never install a dehydrator from which caps have been removed for an extended or unknown period of time.

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TECHNICAL MANUAL
NO. 9-4120-423-14&P

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 1 December 2001

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

**FOR
AIR CONDITIONER, 24,000 BTU, SPLIT PACK
MODEL HSP24C30H
(NSN 4120-01-459-5022) (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 the back of this manual directly to: Commander, U.S. Army Communications-Electronics Command and Fort Monmouth, ATTN: AMSEL-LC-LEO-D-CS-CFO, Fort Monmouth, New Jersey 07703-5006. The fax number is 732-532-1413, DSN 992-1413. You may also email your recommendations to AMSEL-LC-LEO-PUBS-CHG@mail1.monmouth.army.mil. In any case, we will send you a reply.

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6.	LEAK TESTING THE REFRIGERANT SYSTEM	WP 0073 00
7.	EVACUATING THE REFRIGERANT SYSTEM	WP 0074 00
8.	CHARGING THE REFRIGERANT SYSTEM	WP 0075 00
9.	REFRIGERANT PRESSURE CHECK	WP 0076 00
10.	TUBING & FITTINGS (EVAPORATOR ASSEMBLY)	WP 0077 00
11.	EVAPORATOR COIL, MALE COUPLING HALF AND EXPANSION VALVE	WP 0078 00
12.	SIGHT GLASS	WP 0079 00
13.	DEHYDRATOR (FILTER DRIER)	WP 0080 00
14.	RECEIVER, LIQUID REFRIGERANT	WP 0081 00
15.	EXPANSION VALVE, QUENCH	WP 0082 00
16.	DISCHARGE BYPASS VALVE	WP 0083 00
17.	VALVE MOUNTING BRACKET	WP 0084 00
18.	HIGH PRESSURE SWITCH (S4)	WP 0085 00
19.	LOW PRESSURE SWITCH (S5)	WP 0086 00
20.	PRESSURE RELIEF VALVE	WP 0087 00
21.	SERVICE VALVES, CAP AND CHAIN	WP 0088 00
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24.	FLEXIBLE HOSE ASSEMBLIES, SUCTION AND DISCHARGE	WP 0091 00
25.	COUPLING HALF, MALE (CONDENSER REFRIGERANT PIPING DISCONNECT)	WP 0092 00
26.	SOLENOID VALVES (L1 AND L2)	WP 0093 00
27.	MOUNTING BRACKET, SOLENOID VALVES	WP 0094 00
28.	CONDENSER COIL	WP 0095 00
29.	RUBBER MOUNTS, COMPRESSOR	WP 0096 00
30.	COMPRESSOR	WP 0097 00

VII. CHAPTER 7. GENERAL SUPPORT MAINTENANCE INSTRUCTIONS

No repair authorized

VIII. CHAPTER 8. SUPPORTING INFORMATION

A. References	WP 0098 00
B. MAC	WP 0099 00
C. RPSTL	WP 0100 00
1. 24,000 BTU/HR SPLIT PACK AIR CONDITIONER	WP 0101 00
2. EVAPORATOR ASSY	WP 0102 00
3. COVERS	WP 0103 00
4. FRAMES	WP 0104 00
5. HARNESS ASSYS	WP 0105 00
6. MOTOR ASSY	WP 0106 00
7. COIL, EVAPORATOR	WP 0107 00
8. COUPLING HALVES, MALE	WP 0108 00
9. VALVE, EXPANSION	WP 0109 00
10. HOUSING ASSY	WP 0110 00
11. ELECTRICAL MODULE	WP 0111 00
12. COVER	WP 0112 00
13. HARNESS ASSYS AND LEADS	WP 0113 00
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18. HARNESS ASSYS AND LEADS	WP 0118 00
19. TERMINAL BOARD	WP 0119 00
20. HOUSING, BLOWER	WP 0120 00
21. MOTOR, AC	WP 0121 00
22. HOSE ASSY, DISCHARGE	WP 0122 00
23. COUPLING HALF, FEMALE	WP 0123 00
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25. COUPLING HALF, FEMALE	WP 0125 00
26. VALVE, SOLENOID	WP 0126 00
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F. Additional Authorization List (AAL)	WP 0140 00
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H. Stowage and Decal/Data Plate	WP 0142 00
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**CHAPTER 1.
INTRODUCTORY INFORMATION WITH
THEORY OF OPERATION
FOR
AIR CONDITIONER**

GENERAL INFORMATION

0001 00

General Information

SCOPE

- a Type of Manual. Operators, Unit, Direct Support, and General Support Maintenance Manual.
- b Model Number and Equipment Name WEDJ Model HSP24C30H, Split Package, 24,000 BTU/HR Cooling, Air Conditioner.
- c Purpose of equipment. Cools, heats, and ventilates enclosed space (shelter). The unit covered by this manual is designed for cooling and heating air to a desired predetermined range and circulating the conditioned air to provide heating and cooling of equipment or personnel within the conditioned area.

MAINTENANCE FORMS AND RECORDS

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA PAM 738-750, Functional Users Manual for the Army Maintenance Management System (TAMMS)

REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

If your 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 a SF 368 (Product Quality Deficiency Report). Mail it to the address specified in DA PAM 738-750, Functional Users Manual for the Army Maintenance Management system (TAMMS), or as specified by the contracting activity. We will send you a reply.

CORROSION PREVENTION AND CONTROL (CPC)

Corrosion Prevention and Control (CPC) of Army materiel 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 MATERIEL TO PREVENT ENEMY USE

Command decisions, according to tactical situation, will determine when destruction of the air conditioning unit will be accomplished. A destruction plan will be prepared by the using organization, unless higher authority has prepared one. For general destruction procedures for this equipment, refer to TM 750-244-3, Procedures for Destruction of Equipment to Prevent Enemy Use.

PREPARATION FOR STORAGE OR SHIPMENT

GENERAL

See WP0006 for removal instructions.

Condenser cover should be untied, unrolled over back of condenser assembly and secured with snap fasteners to protect openings, valves, and meter.

Condensate drains, one each side, should be cleaned out with gage brush. They should be plugged with original pipe plugs, if available, or covered with tape to prevent entrance of foreign objects and insects.

ADMINISTRATIVE STORAGE OF EQUIPMENT

Administrative storage is short-term storage-1 to 45 days. It covers storage of equipment, which can be readied for mission performance within 24 hours. Before placing an item in administrative storage, the next scheduled preventive maintenance checks and services should be performed, all known deficiencies corrected and all current modification work orders applied. The administrative storage site should provide required protection from the elements and allow access for visual inspection when applicable.

INTERMEDIATE STORAGE

Storage of 46 to 180 days. No special handling is required other than protection from damage and the elements. Place the air conditioner in a dry, covered area.

LONG-TERM OR FLYABLE STORAGE

There is no time limit for this type of storage.

Bolt the air conditioner to a wood skid base. If the original shipping skid base was kept, use it. If not, fabricate a new one.

Wrap the air conditioner with two layers of heavy plastic sheet or barrier paper.

Tape and strap the wrapping in place.

Mark the air conditioner per standard Army Procedures.

WARRANTY INFORMATION

The Air Conditioner is warranted for 5 years. The warranty starts on the date found in block 23 of DA Form 2408-9, Equipment Control Record. All warranty claim actions will be processed through the local WARCO Office established at the intermediate General Support Level.

NOMENCLATURE CROSS REFERENCE LIST

This listing includes nomenclature cross reference used in this manual.

Air Conditioner

Environmental Control Unit

LIST OF ABBREVIATIONS

CBR	Chemical-Biological-Radiological
MAC	Maintenance Allocation Chart
MEK	Methyl-Ethyl Ketone
MTOE	Modified Table of Organization and Equipment
PMCS	Preventive Maintenance Checks & Services
RPSTL	Repair Parts and Special Tools List
TAMMS	The Army Maintenance Management System
TMDE	Test, Maintenance, and Diagnostic Equipment
U/M	Unit of Measure

**AIR CONDITIONER EQUIPMENT DESCRIPTION AND DATA EQUIPMENT
CHARACTERISTICS, CAPABILITIES AND FEATURES**

0002 00

Major Air Conditioner Components.

Remote Control Assembly - The Remote Control Assembly has the Mode Selector Switch for choosing between OFF, COOL, HI HEAT and LO HEAT, a rotary Temperature Control for controlling temperature regardless of operating mode, and a visual indicator for power ON/OFF conditions. It may be mounted remotely in the shelter, or mounted directly to the front of the air conditioner.

Evaporator Assembly - The Evaporator Assembly exhausts conditioned air, and intakes return air. It has an opening on either side for ventilating outside air; these openings have fresh air covers installed. These openings will accommodate mounting of fresh air duct assemblies. This assembly also has the connection points for the input power cable and the remote control cable. An opening in the front cover allows for optional mounting of Remote Control Assembly or a blocking plate.

Condenser Assembly - The Condenser Section has a cover permanently attached to the housing to protect the rear face of the assembly. This assembly has a time-totalizing meter for displaying the operating hours regardless of mode of operation. A sight glass is included on the assembly exterior for visually inspecting the refrigerant during the Cool Mode. Both a low side and a high side service valve are provided for use during maintenance, service and testing. Also a High Pressure Cutout (Reset) Switch is on the assembly for resetting the switch, which has opened because of excessive refrigerant pressure.

NOTE

The power cable assembly and the remote control cable assemblies are not provided as part of the air conditioner. See installation instructions contained in WP0006, for general instructions and the manual for shelter on which air conditioner is to be installed for specific instructions pertaining to these cables. No separate remote cable is required if remote control is mounted in unit.

The Model HSP24C30H Air Conditioner is designed to circulate and cool or heat air in the shelter or enclosure on which it is installed.

The Model HSP24C30H has a capability of providing 24,000 BTU/HR of cooling and two stages of heat rated at 18,000 BTU/HR (Low) and 30,000 BTU/HR (High). It is designed to maintain the air in the shelter or enclosure at the desired temperature selected on the remote control assembly.

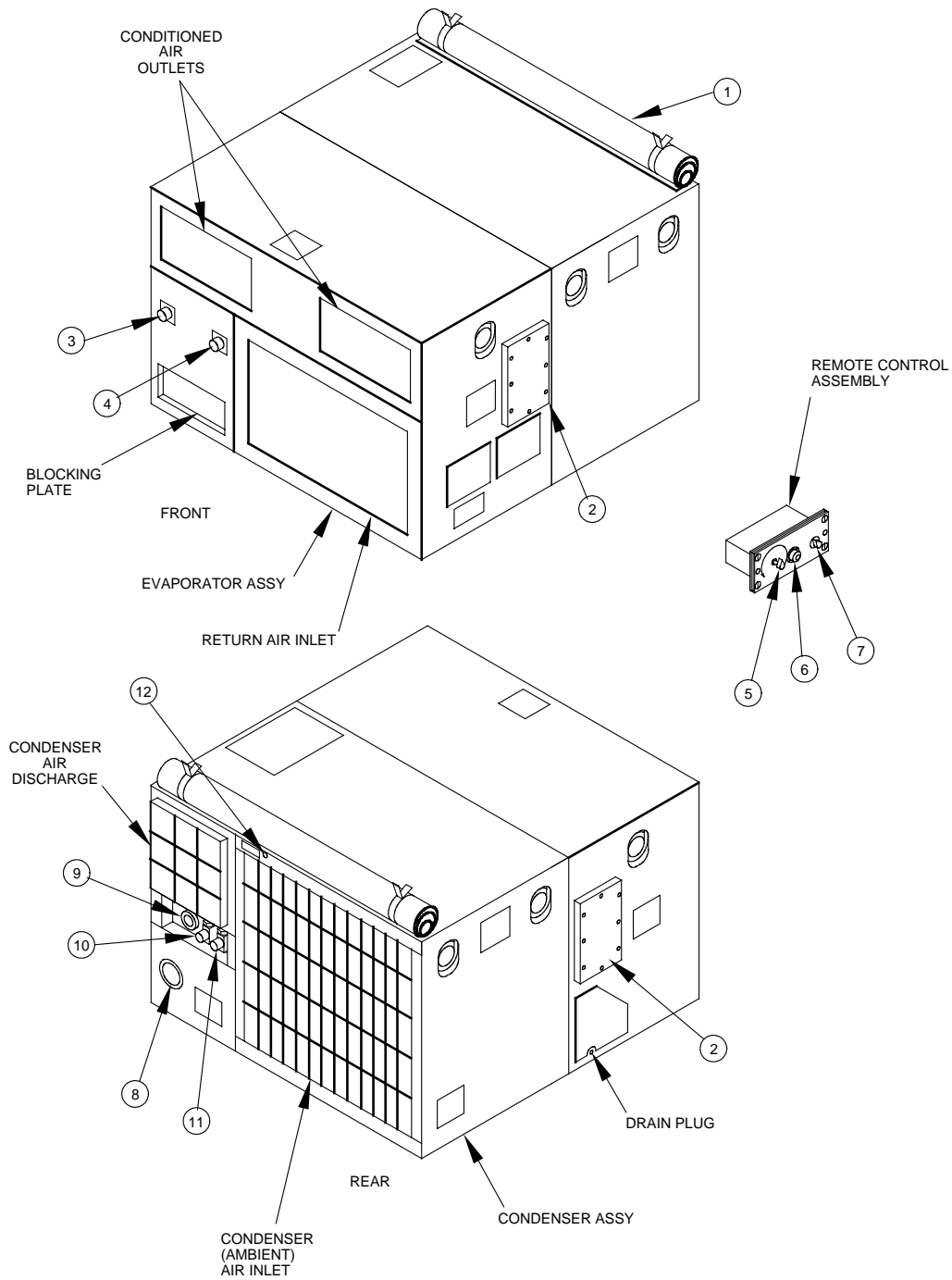
The unit is a split package air conditioner that is ideally suited for van or shelter type installations. The only external requirements are a source of 208 volt ac, 3 phase, 400 hertz input power, power cable, remote control cables (optional) and an entry to a suitable drain, lower than the base of the evaporator section cabinet in its operating location, for disposal of condensate waste water. It is designed to operate

in almost any environmental condition from arctic to tropic and is fully portable for movement from one location to another.

The installation requirements are covered in the installation instructions contained in WP0006.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

Location of Major Components



- 1 CONDENSER COVER. Shown in stowed (operational) position. When rolled down and snapped (for shipment, non-operational travel and storage), it protects the grilles, meter, valves, sight glass and high-pressure switch reset.
- 2 FRESH AIR COVER. Seals fresh air opening closed on either left or right side.
- 3 POWER CONNECTOR (J1). Connection point for input 208 volt, 3 phase, 400 Hz power cable.
- 4 REMOTE CONTROL CONNECTOR (J7). Connection point for remote control cable when used in remote location.
- 5 TEMPERATURE CONTROL (A1-R1). Allows adjustment and control of the temperature when operating in the cool or heat modes.
- 6 RUN INDICATOR LIGHT. Lights when the unit is operating. Also lights when pressed in (for test purposes) if power is connected.
- 7 MODE SELECTOR SWITCH (S1). Allows operator to select COOL, OFF, LOW HEAT or HIGH HEAT operating mode.
- 8 TIME TOTALIZING (HOUR) METER (M1). Indicates operating time (elapsed) in all modes.
- 9 SIGHT GLASS. Allows visual inspection and indicates the condition of the liquid refrigerant when the unit is operating in the COOL mode.
- 10 LOW SIDE SERVICE VALVE. Provides a connection point for maintenance, testing, and service. Unauthorized personnel should not tamper with this valve.
- 11 HIGH SIDE SERVICE VALVE. Provides a connection point for maintenance, testing, and service. Unauthorized personnel should not tamper with this valve.
- 12 HIGH PRESSURE CUTOUT (SWITCH) RESET (S4). Permits manual closing (reset) of switch following system shutdown due to excessive refrigerant system pressure.

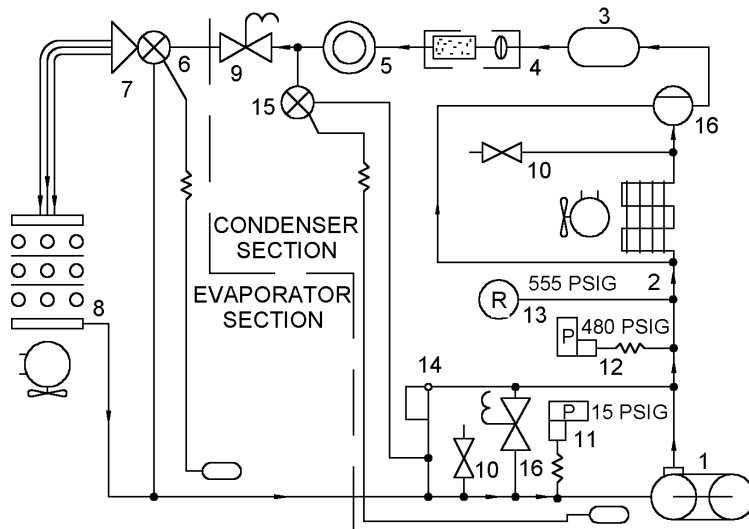
EQUIPMENT DATA

LOW (IN HEAT MODE)	-50 F (-45 C)
HIGH (IN COOL MODE)	+125 F (+51.7 C)
PERFORMANCE	
COOLING CAPACITY	24,000 BTU/HR
HEATING CAPACITY	
LOW HEAT MODE	18,000 BTU/HR
HIGH HEAT MODE	30,000 BTU/HR
POWER REQUIRED	
VOLTAGE	208
PHASE	3
HERTZ	400
AMPERES, EACH PHASE	28
WATTS, RUNNING (MAXIMUM)	10,000
DIMENSIONS	
EVAPORATOR SECTION	
WIDTH	32.25 in. (81.92 cm)
DEPTH	15.09 in. (38.33 cm)
HEIGHT	22.09 in. (56.11 cm)
CONDENSER SECTION	
WIDTH	32.25 in. (81.92 cm)
DEPTH	18.62 in. (47.29 cm)
HEIGHT	22.12 in. (56.19 cm)
REMOTE CONTROL	
WIDTH	8.25 in. (20.96 cm)
DEPTH	5.65 in. (14.35 cm)
HEIGHT	3.50 in. (8.89 cm)
WEIGHT (TOTAL)	340 pounds (166.2kg)
REFRIGERANT	
TYPE	R-22
CHARGE	8.5 pounds (3.86 kg)

SYSTEM OPERATION

COOLING CYCLE

Refrigeration Schematic



COMPONENT REFERENCE LIST	
FIND NO.	DESCRIPTION
1	COMPRESSOR
2	CONDENSER COIL
3	RECEIVER
4	DEHYDRATOR
5	LIQUID INDICATOR
6	EXPANSION VALVE
7	DISTRIBUTOR
8	EVAPORATOR COIL
9	SOLENOID VALVE
10	SERVICE VALVE
11	PRESSURE SWITCH (LOW)
12	PRESSURE SWITCH (HIGH)
13	PRESSURE RELIEF VALVE
14	DISCHARGE BYPASS VALVE
15	EXPANSION VALVE (QUENCH)
16	HEAD, PRESSURE CONTROL

- 1 When the MODE SELECTOR SWITCH and the TEMPERATURE CONTROL are set for COOLER, the following takes place:
- 2 The compressor (1) takes cold, low pressure refrigerant gas and compresses it to a high temperature, high pressure gas. This gas flows through the metal tubing to the condenser coil (2) and receiver (3).
- 3 The condenser fan draws outside ambient air over and through the condenser coil (2). 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.
- 4 The refrigerant desiccant dehydrator (filter drier) (4) removes any moisture (water vapor) or dirt that may be carried by the liquid refrigerant.
- 5 The liquid indicator (sight glass) (5) indicates the presence of moisture and quantity of refrigerant in the system.
- 6 The solenoid valve (9) is controlled by the temperature selector on the control panel. This valve will shut off the flow of refrigerant to the evaporator section when the temperature in the conditioned area reaches the set point.

- 7 The expansion valve (6) controls the amount and pressure of liquid refrigerant to the evaporator coil (8). The expansion valve (6) senses the temperature and pressure of the refrigerant as it leaves the evaporator coil. By use of a sensing bulb and "external equalizer line" the valve constantly adjusts the flow of liquid refrigerant to the evaporator coil (8).
- 8 As the liquid refrigerant leaves the expansion valve (6) it passes thru the distributor (7) and enters the evaporator coil (8). As the liquid enters the coil at a reduced pressure, the reduction in pressure and the warmer air being forced across the tubes of the coil cause the refrigerant to boil and change to a gas (vapor). The evaporator blower circulates the warm air from the conditioned space over and through the evaporator coil. Refrigerant absorbs heat when it changes from a liquid to a gas. As the air from the conditioned spaces comes in contact with evaporator coil (8), the air is cooled.
- 9 To prevent compressor overload and damage during startup, control, head pressure (16) is open at start of cooling cycle to equalize pressure on both sides of the compressor.

BYPASS CYCLE

- 1 This unit has a bypass cycle, which allows cooling operation at low cooling loads without cycling the compressor on and off. In bypass, the refrigerant is piped from the discharge (high side) to the suction (low side) of the compressor, bypassing the evaporator coil (8).
- 2 When the temperature selector on the control panel senses that cooling conditions have reached the set point, it closes the solenoid valve (9) to shut off refrigerant flow to the evaporator coil (8).
- 3 As the compressor suction pressure starts to drop, the discharge bypass valve (14) opens to allow flow of hot gas from the compressor.
- 4 The liquid quench expansion valve (15) senses the temperature of the gas at the suction side of the compressor. To prevent excessively hot gas from reaching the compressor, the liquid quench expansion valve (15) opens to allow liquid refrigerant to mix with the hot gas.
- 5 The service valves (10) are provided for charging, and general servicing of the high and low-pressure sides of the refrigerant system.
- 6 The low-pressure switch (11), the high pressure switch (12) and the pressure relief valve (13) are provided to protect the unit from damage due to pressure extremes.

HEATING

When the MODE SELECTOR SWITCH is set for HIGH HEAT, heating elements, located behind the evaporator coil, are energized. These elements are protected from overheating by a thermal cutout switch. The TEMPERATURE CONTROL thermostatically controls nine of the elements, and remaining six are on all of the time. When set for LOW HEAT, only the thermostatically controlled elements are energized.

SUPPORTING DATA WORK PACKAGE FOR REPAIR PARTS, SPECIAL TOOLS, TMDE,
AND SUPPORT EQUIPMENT 0004 00

Repair parts are listed and illustrated in RPSTL Section of this manual (WP0100). No special tools are required for maintenance of the equipment.

For authorized common tools and equipment refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

No special tools are required for unit maintenance of this equipment. All common hand tools required by unit maintenance can be found in the Tool Kit, Service, Refrigeration Unit, NSN 5180-00-597-1474.

Test, maintenance, and diagnostic equipment (TMDE) and support equipment include electrical test equipment, standard pressure and vacuum gages, vacuum pumps and charging manifolds found as standard equipment in any direct support refrigeration shop.

**CHAPTER 2
OPERATOR INSTRUCTIONS
FOR
AIR CONDITIONER**

DESCRIPTION AND USE OF OPERATOR'S CONTROLS AND INDICATORS

0005 00

GENERAL

The Air Conditioner is designed for a variety of installations and for operation under a wide range of climatic conditions. It is also designed for continuous or intermittent operation as a self-contained unit or may be connected to external filtering equipment for operation under chemical-biological-radiological (CBR) environmental conditions. Operators must be aware of any peculiarities or operational limitations for their specific installation. See the appropriate shelter manual for instructions peculiar to your specific installation.

NOTE

Refer to other procedures in further detail in WP0006

Operator's Controls and Indicators

Key	Control or Indicator	Function
1	High Pressure Cutout Reset	Press to Reset
2	Temperature Control	Turn knob to adjust level of cooling or heating, clockwise for warmer, counterclockwise for cooler.
3	Run Indicator Light	Lights in COOL, LOW HEAT, or HIGH HEAT modes. Will also light when pressed in OFF mode (bulb must be good)
4	Mode Selector Switch	Turn switch to COOL for cooling or LOW HEAT or HIGH HEAT for heating. Turn switch OFF to shut unit down.
5	Time Totalizing Meter	Indicates total elapsed operating time in hours and tenths.
6	Sight Glass (refrigerant)	A port or window through which the refrigerant condition can be seen.

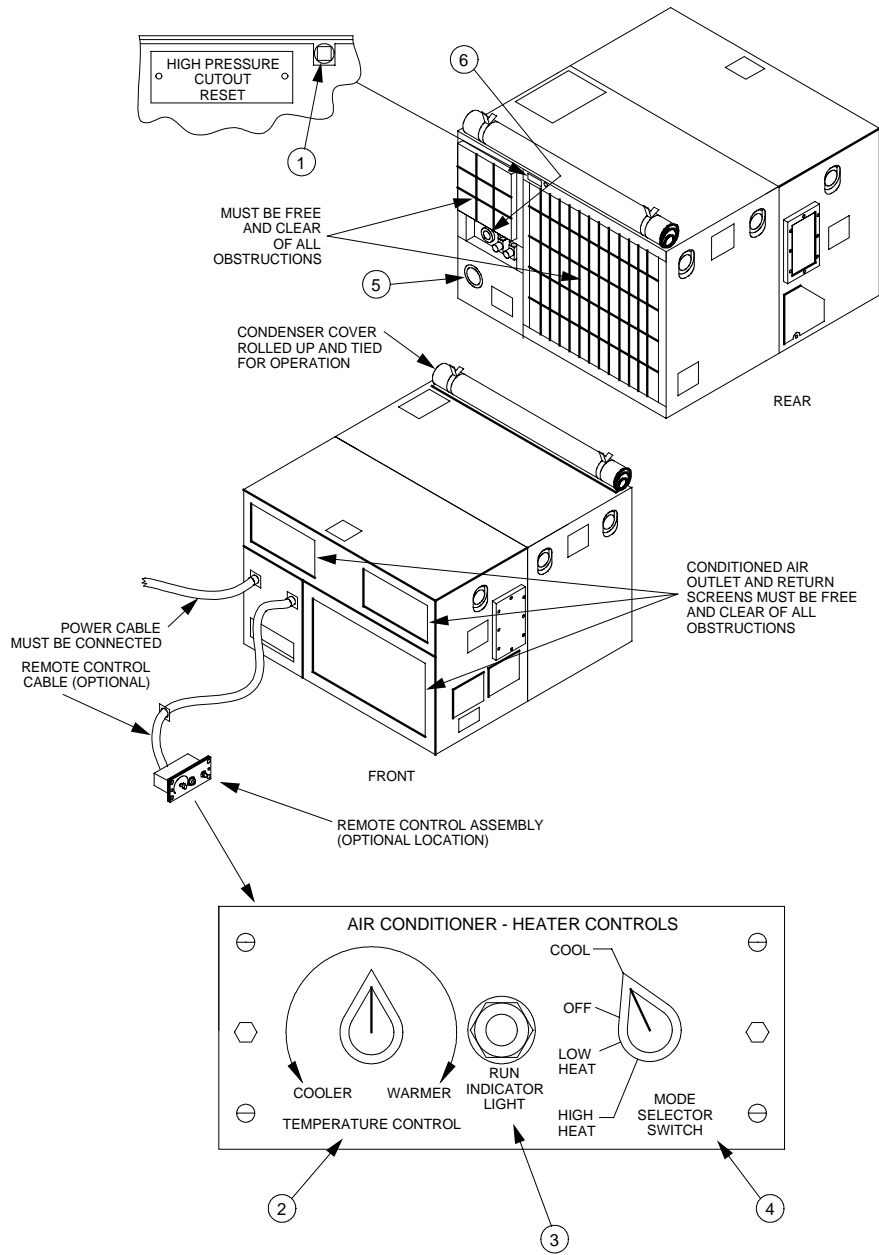
The run indicator light, the time totalizing meter, and the refrigerant sight glass are the only visual indicators incorporated in the Model HSP24C30H Air Conditioner.

The sight glass is a port or window through which the refrigerant condition can be seen. Liquid refrigerant actually flows through the sight glass chamber only during cooling cycles when the air conditioner is in operation in the COOL mode. The sight glass is equipped with a center indicator that is moisture sensitive. Dry refrigerant is indicated by green. It turns to chartreuse when the moisture content becomes undesirable, and to yellow when the level becomes unacceptable. Excessive moisture in the refrigerant may damage or possibly destroy the compressor. If the liquid refrigerant observed in the sight glass has an opaque, milky appearance, or frequent bubbles appear, the volume of refrigerant is low and the system should be charged. Either moisture or low charge indications should be reported to direct support maintenance.

CAUTION

Do not operate the air conditioner in the COOL mode if the Refrigerant R-22 color has reached the yellow band or if numerous bubbles appear in the sight glass. COOL mode operation may be continued with the Refrigerant R-22 color in the chartreuse band or with only an occasional bubble appearing in the window, but the sight glass should be rechecked after each four hours of operation to ensure that the condition has not become worse.

Operator's Controls and Indicators



INSTALLATION SITE PREPARATION

If the air conditioner is to be used on a shelter or system that is specifically designed to accept the air conditioner, see the Technical Manual(s) for that shelter or system. The following is a list of general guidelines for installation site preparation.

- 1 A relatively level surface capable of bearing the weight of the air conditioner to ensure proper condensate drainage. The surface should be level to within 10E from front to back and side to side. See the following three figures for mounting dimensions.
- 2 An unobstructed flow of air from outside the conditioned area to the ambient air inlet and discharge openings of the rear of the condenser assembly.
- 3 An unobstructed flow of air to and from inside the conditioned area to the return air inlet and the two supply air outlets located on the front of the evaporator assembly.

NOTE

A return air filter is not provided as part of the air conditioner. It must be installed in ductwork connected to the return air inlet.

- 4 An unobstructed flow of air from outside the conditioned area to the fresh air intake.

NOTE

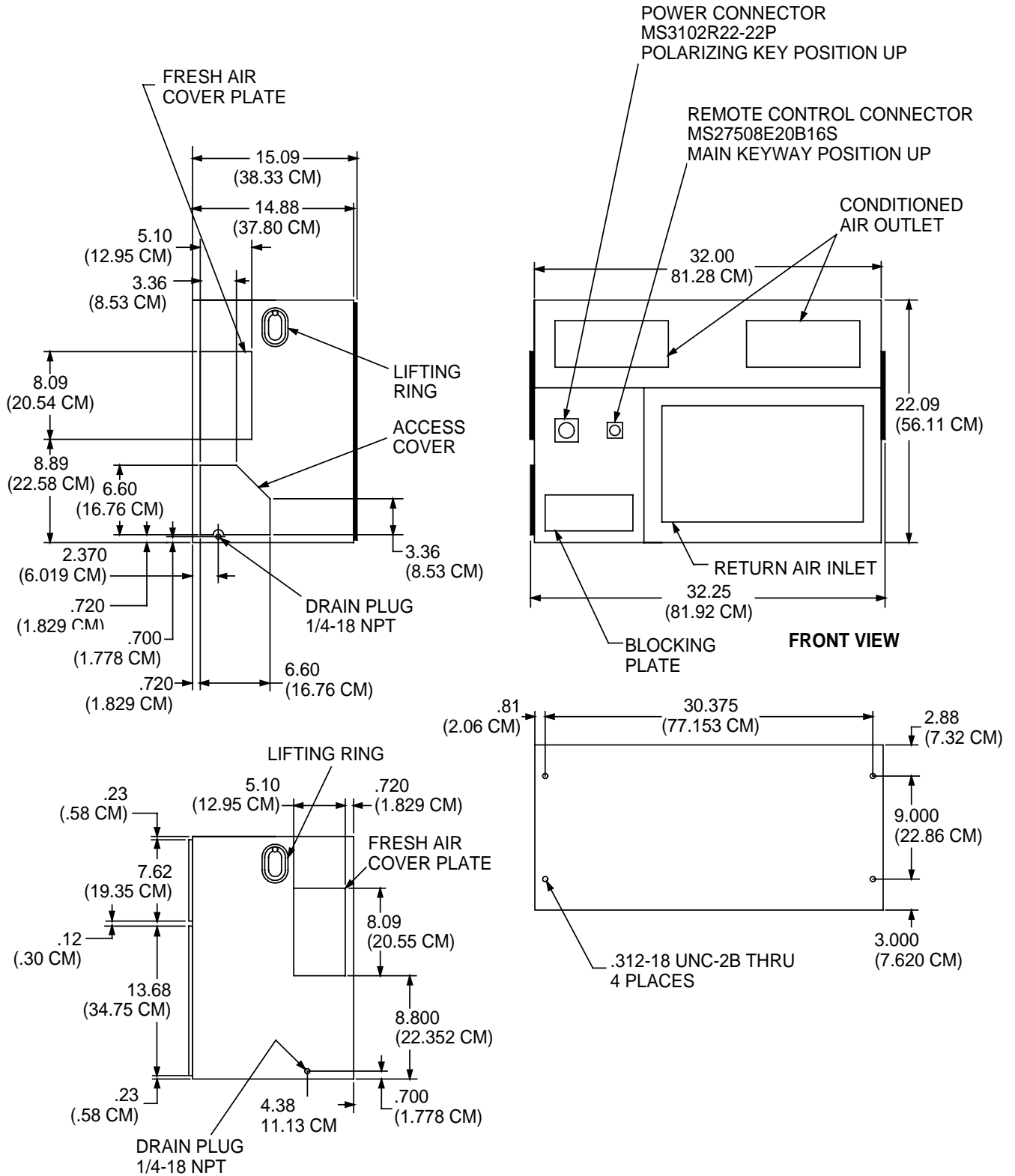
The fresh air intake (not supplied) may be mounted on the left or right side of the evaporator assembly by exchanging it with either fresh air cover plate.

- 5 Access to all removable outside covers should be considered for servicing internal parts.
- 6 A source of 208 volt, 3 phase, 400 hertz input power rated at 28 amps. The power source outlet should be located as near as possible to the installed location of the air conditioner. The power source wiring must include a disconnect switch. However, provisions should be made to ensure that power is not disconnected during normal operation and that the disconnect is not used to turn off the air conditioner for normal shutdown.

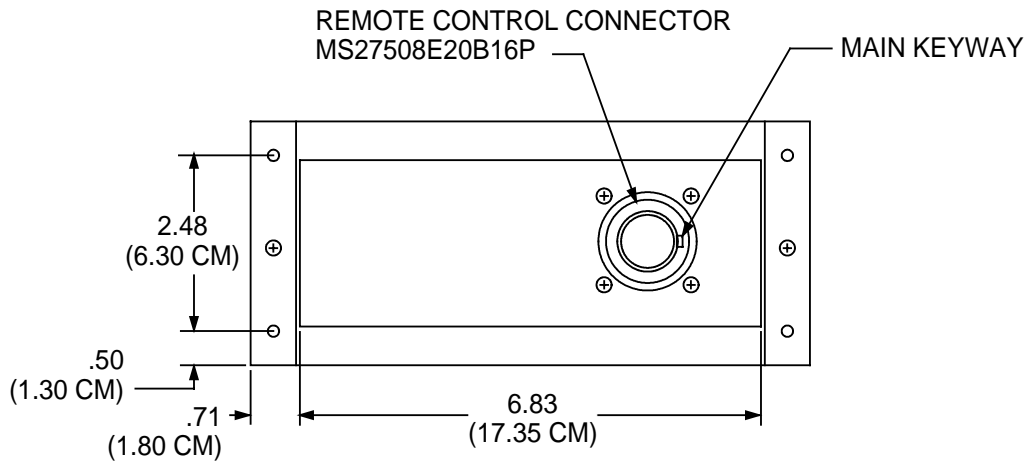
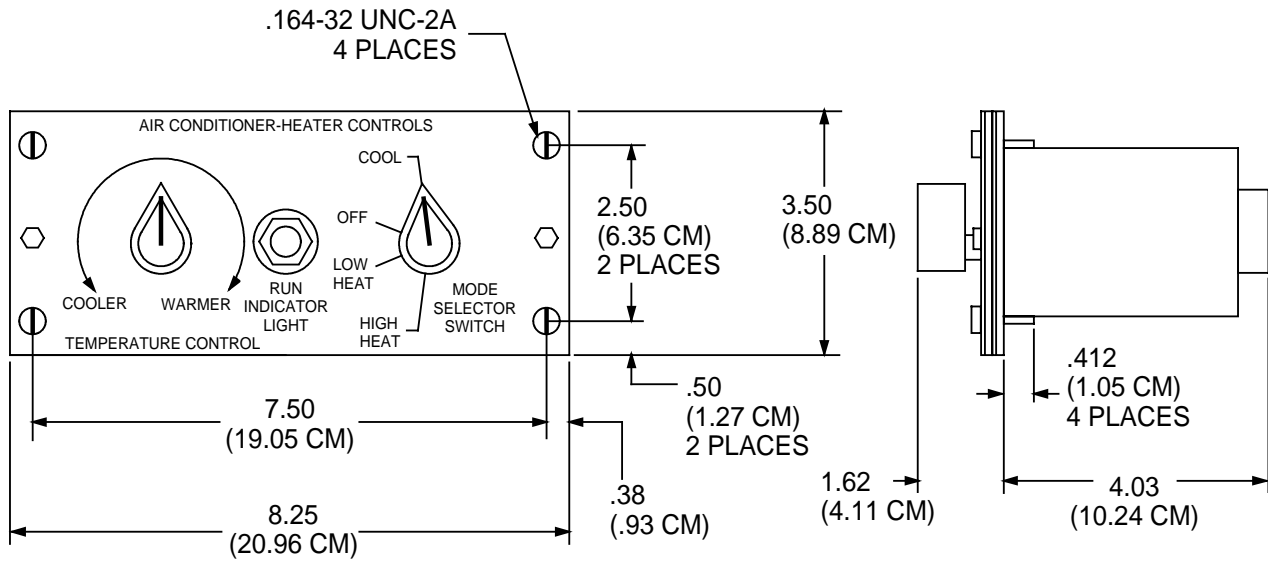
WARNING

Check that no source of dangerous or objectionable fumes is near the fresh air intake.

Installation Dimensions, Evaporator Assembly



Installation Dimensions, Remote Control Assembly



- 7 If possible, make use of terrain features to minimize the heating and cooling loads on the air conditioner.
- 8 If possible, avoid a location where the condenser and fresh air intakes will be laden with dust, dirt, soot, smoke, or other debris.

SHELTER REQUIREMENTS

The following items are not provided as part of the air conditioner. They are part of the shelter and are necessary for air conditioner installation and operation.

- 1 One of more of the following cables:

Remote Control Cable (18876) 11455976-1
 Remote Control Cable (18876) 11455976-2
 Remote Control Cable (18876) 11455977-1
 Remote Control Cable (18876) 11455977-1
 Remote Control Cable (18876) 61455977-2

NOTE

A part number 11455976-1 or -2 cable must be used if only one cable is used. No cable is required if remote control is installed in unit.

- 2 A power input cable with a plug on the air conditioner end suitable for attachment to an MS3102R22-22P connector. The Patriot installation uses (18876) 11453295 power cable.

- 3 Installation hardware and grounding strap. The Patriot installation uses the following:

8 each (18876) 11447172-1 Flat Washers
 16 each (18876) 11447981 Resilient Mounts
 16 each (18876) 11447173 Flat Washers
 8 each (18876) 11447172-2 Flat Washers
 8 each (96906) MS35307-338 Hex Head Screws
 4 each (18876) 11455133 Grounding Straps
 4 each (96906) MS51958-97 Screws
 4 each (96906) MS35335-62 Lock Washers
 4 each (96906) MS21044C5 Self Locking Nuts

- 4 Condensate drain items may be required. If condensate drain water from the port(s) located in the lower side panels of the evaporator assembly casing is objectionable, or creates a hazard, it must be piped to a safe disposal location. The air conditioner is equipped with two 1/4-18 N.P.T. drain connections. The air conditioner is shipped from the factory with both of these ports plugged. The plugs must be removed prior to operation.

UNLOADING, UNPACKING, AND INSTALLATION

CAUTION

Use care in handling to avoid damage to the air conditioner. If an overhead lifting device must be used, use an appropriate sling so that the weight of the unit is borne by the base of the shipping container.

The air conditioner is packaged in a container designed for shipment and handling with the cabinet in an upright position. The base of the container is constructed as a shipping pallet with provisions for the insertion of the forks on materials handling equipment.

- 1 Remove all blocking and tiedowns that may have been used to secure the container to the carrier.
- 2 Use a forklift truck, overhead hoist, wrecker, or other suitable material handling equipment to remove the packaged unit from the carrier.

UNPACKING

- 1 General. Normally, the air conditioner should be moved into the immediate area in which it is to be installed before it is unpacked.

NOTE

The shipping container and pallet are of such a design that they may be retained for reuse for mobility purposes if frequent relocation of the air conditioner is anticipated.

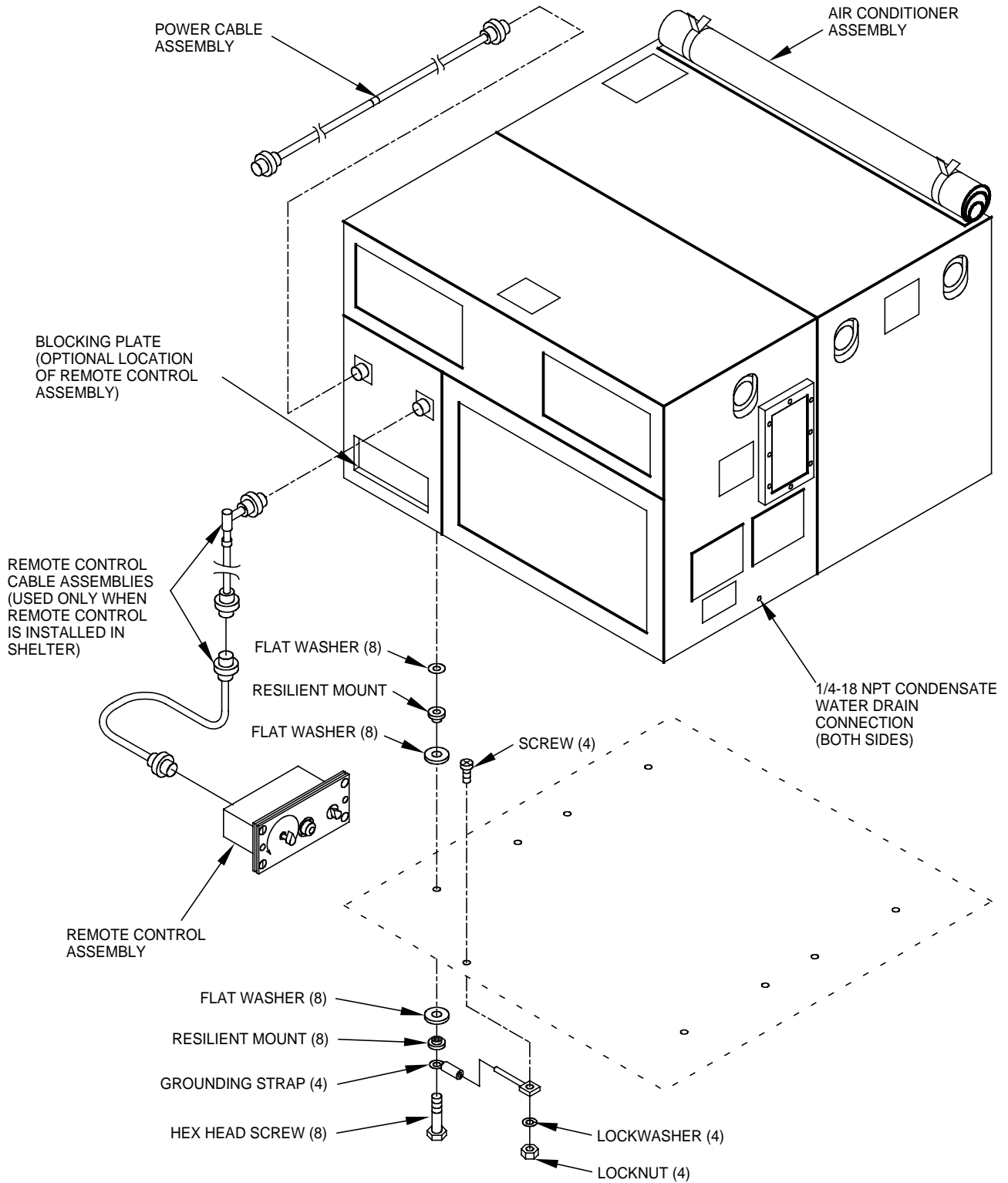
- 2 Remove Shipping Container. Remove all bands and retaining devices that secure the upper container to the base pallet. Lift the container vertically and remove it from the base pallet.
- 3 Remove Packaging. Remove the cushioning around the top of the cabinet and retain, if reuse is anticipated. Remove the preservation barrier, if applicable, by tearing around the bottom of the air conditioner cabinet. Remove the technical publications envelope and accessory sack that are taped to the cabinet, and put them in a safe place.

NOTE

It is recommended that the cabinet be left bolted to the shipping pallet until time to place it in the installation position. All receiving inspection actions can be conducted without removal from the pallet.

AIR CONDITIONER INSTALLATION

General Installation Items



- 1 Check to see that all packing material and shipping pallet have been removed from the air conditioner and remote control panel. Remove drain plugs or tape.

NOTE

The unit weight (less shipping pallet) is 340 pounds (166.2 kg). When lifting or moving the unit on the shipping pallet, a forklift, or overhead lifting device may be used. When removing the unit from the shipping pallet, or lifting the unit into position, an overhead lifting device must be used.

- 2 See "INSTALLATION SITE PREPARATION" and "SHELTER REQUIREMENTS" earlier in this work package for general information pertaining to site preparation and additional items required for installation that are not provided with the air conditioner.
- 3 Check to see that power cable and remote control cable have been inserted through the air conditioner to shelter adapter. Place them so that they will not be damaged when the air conditioner is lifted into position. Remote control cable is not necessary if remote is installed in air conditioner.
- 4 Check to see that power to air conditioner power cable has been turned off/disconnected.
- 5 Remove the fresh air duct and fresh air EMI screen.
- 6 Align mounting hardware that is used between air conditioner and mounting shelf with slotted mounting holes. Loosely tape in place toward the front of the slotted holes.
- 7 Position lifting device so that lifting hook is centered over air conditioner.

WARNING

During lifting operations, the mechanic(s) must be visible to the lifting device operator and in a position to physically guide the air conditioner as it is lifted into position.

- 8 Connect sling to the four outside corner air conditioner lifting rings and the lifting device.

WARNING

Do not allow anyone under equipment suspended from a lifting device. Do not allow the unit to swing while suspended from a lifting device. Failure to observe this warning may result in injury to personnel and damage to the equipment.

- 9 Carefully lift the air conditioner into position over the mounting shelf approximately 5 to 6 inches (12.7 to 15.2 cm) away from air conditioner adapter opening.
- 10 Connect power cable and remote control cable (if used) to connectors on front of air conditioner.

WARNING

During lifting procedures, take care that shock mounts are not damaged.

- 11 Slowly lower air conditioner into position, align, and loosely attach remaining installation hardware.
- 12 With air conditioner slightly supported by lifting device, push air conditioner firmly toward shelter to compress weather seal. At the same time, release tension on lifting device and secure the installation hardware.
- 13 Remove sling attachments from air conditioner and move lifting device out of the way.
- 14 Install the rain shield around the air conditioner to shelter joint. (See Shelter Manual.)
- 15 Install the fresh air duct and fresh air EMI screen (not supplied with air conditioner).

NOTE

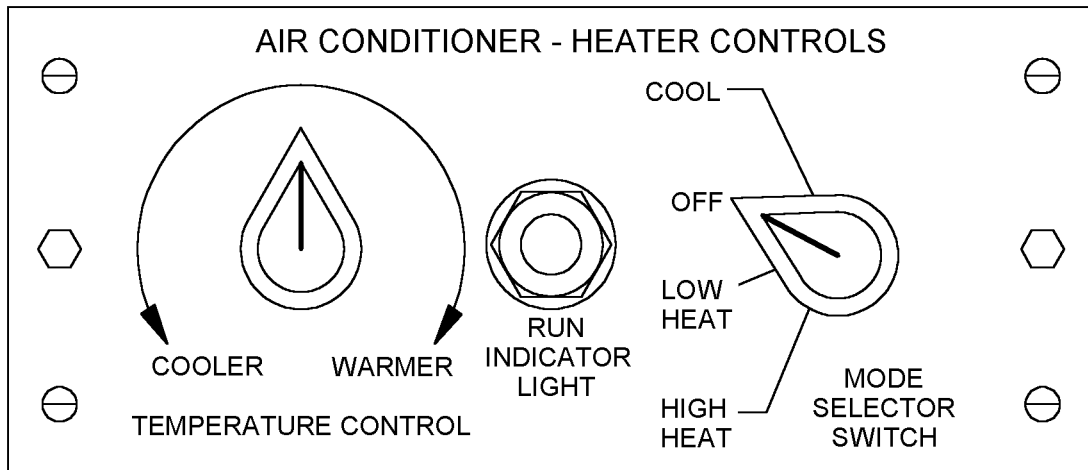
The fresh air intake duct and fresh air EMI screen may be mounted on the left or right side of the air conditioner by exchanging it with one of the two fresh air cover plates.

- 16 Connect all drain lines or hoses, if applicable.
- 17 Roll the fabric condenser cover up and tie it in place.
- 18 Check to see that power cable and remote control cable(s) (if used) are connected at shelter washboard.
- 19 Install the remote control assembly in the shelter if removed. The cable must be connected first. Then align the four captive screws and turn them evenly to obtain a good EMI gasket seal. If remote control is to be installed in air conditioner, disconnect, remove and store remote control cable assembly from face of evaporator section at J7 receptacle and at J14 receptacle on rear of control box. (Install captive protective cover on J7 receptacle).
- 20 Remove block-off assembly from face of evaporator section
- 21 Separate P14 receptacle and J15 plug. Mate J15 plug with J14 receptacle on rear of control box. Isolate and store P14 receptacle.
- 22 Complete installation of control box assembly in face of evaporator section utilizing existing fasteners.
- 23 Turn power to air conditioner on at circuit breaker.
- 24 Check air conditioner operation in all modes.

BEFORE OPERATION

- 1 Check to see that power is connected to the unit by pressing the RUN INDICATOR LIGHT. It should light when pressed in.

Run Indicator Light

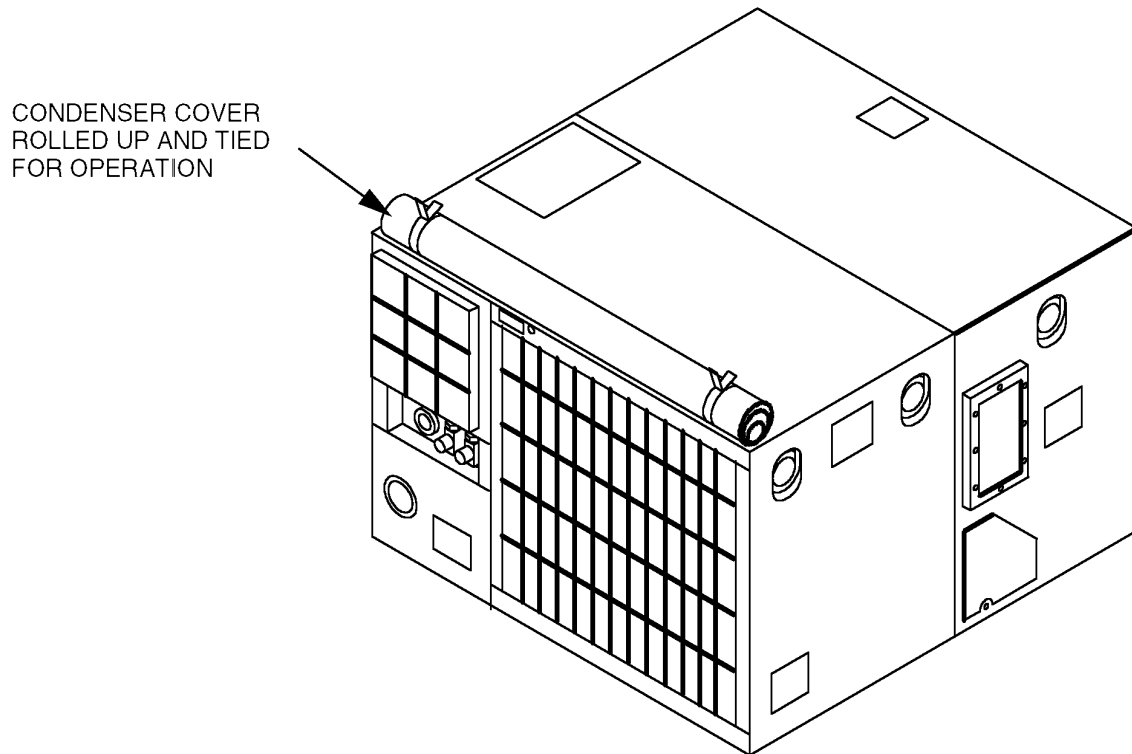


CAUTION

If there is a loud banging noise coming from the condenser section when the unit is operated in the COOL mode, immediately turn the MODE SELECTOR SWITCH to OFF. Allow at least one hour of warm up time before attempting a restart in the COOL mode.

- 2 Check that condenser cover is rolled up and securely tied.

Condenser Cover

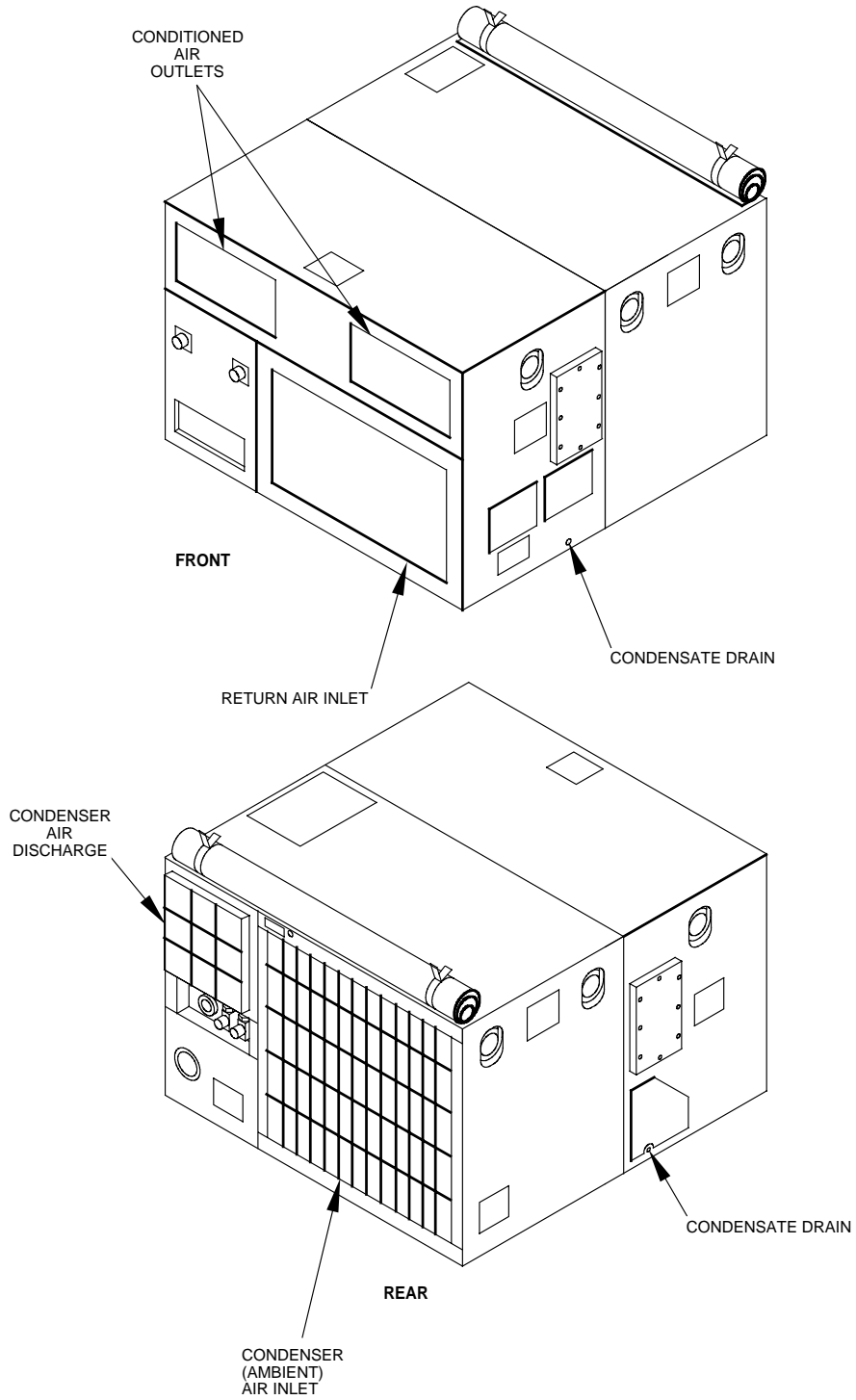


CAUTION

Under normal operating conditions, before starting the air conditioner in any mode, make sure that the fabric condenser cover on the back of the condenser section is rolled up and secured, and that all screens and guards are in place and unobstructed. **EXCEPTIONS:** Under extreme cold climatic conditions, such as blowing snow, or freezing rain, which might enter, and damage condenser section, the unit may be operated in the LOW HEAT or HIGH HEAT mode with the fabric cover rolled down and snapped in place. **DO NOT OPERATE IN THE COOL MODE WITH THE FABRIC COVER ROLLED DOWN.**

- 3 Check that all air intake and discharge openings are clear.

Intake and Discharge Openings and Drains

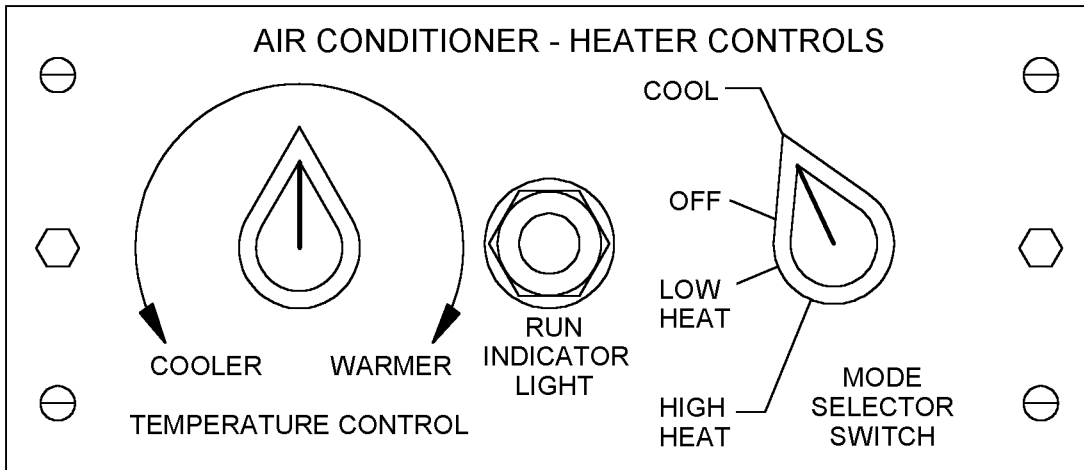


- 4 Condensate drains must not be plugged. Assure that both drains are either open or piped to a satisfactory location with a proper drain system.

OPERATION IN COOL MODE

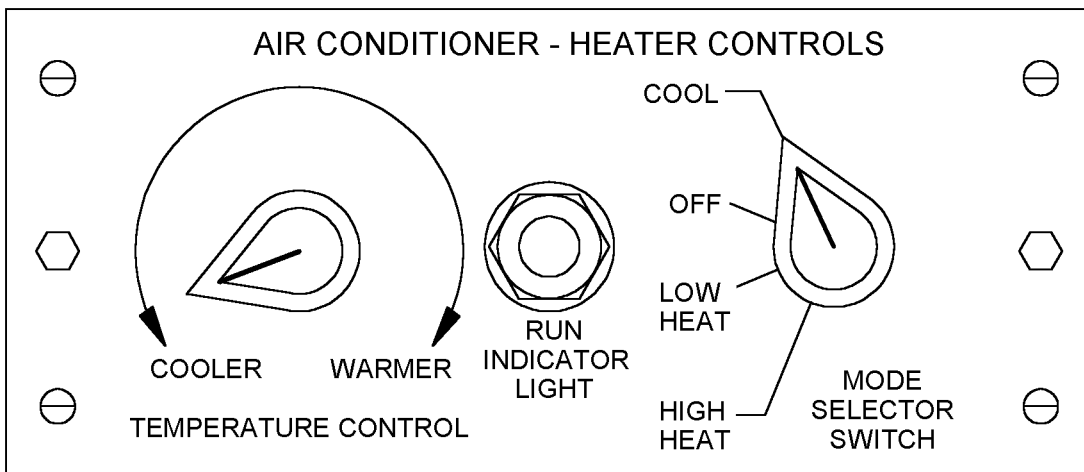
- 1 Turn MODE SELECTOR SWITCH to COOL. After 5 seconds, airflow can be felt at the conditioned air outlets inside the shelter.

Operation in Cool Mode



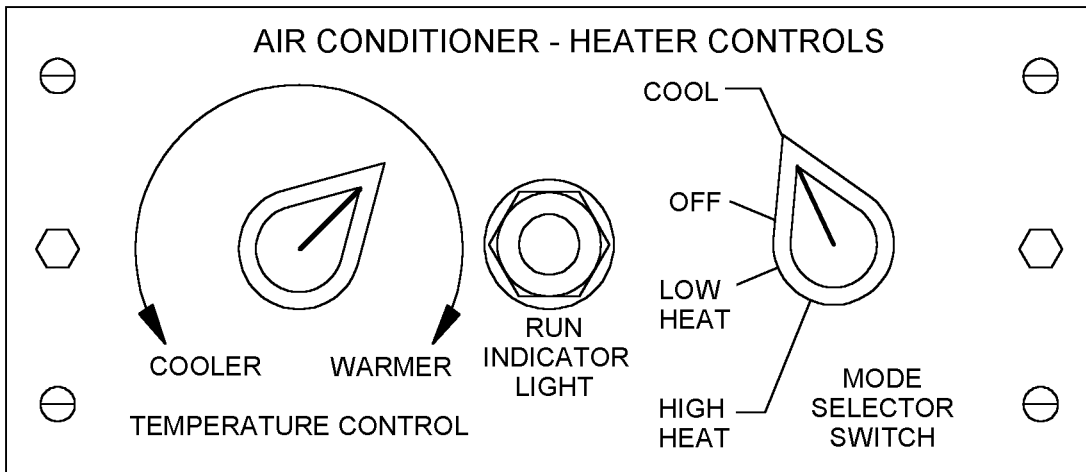
- 2 Turn TEMPERATURE CONTROL to COOLER. After 2 minutes, air from conditioned air outlets inside the shelter will feel cooler than ambient air.

Adjustment - Cooler



- 3 When the room or shelter temperature drops to the desired level, slowly turn the TEMPERATURE CONTROL knob toward WARMER. Cooling will stop when you reach the approximate room temperature.

Adjustment - Warmer



- 4 Further adjustment can be made by turning the TEMPERATURE CONTROL knob slightly toward the WARMER or COOLER setting until a constant desired room or shelter temperature is maintained.

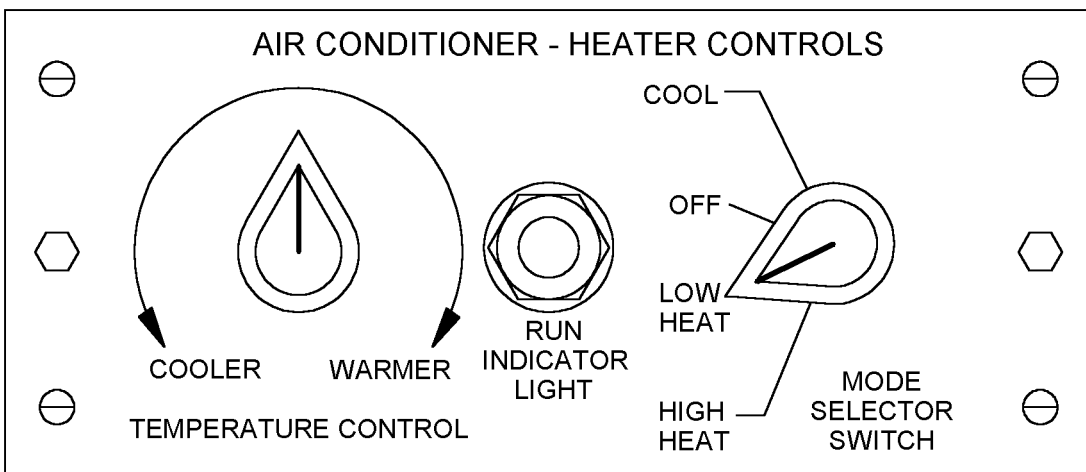
OPERATION IN THE LOW HEAT MODE

- 5 Turn MODE SELECTOR SWITCH to LOW HEAT. After 5 seconds, airflow can be felt.

NOTE

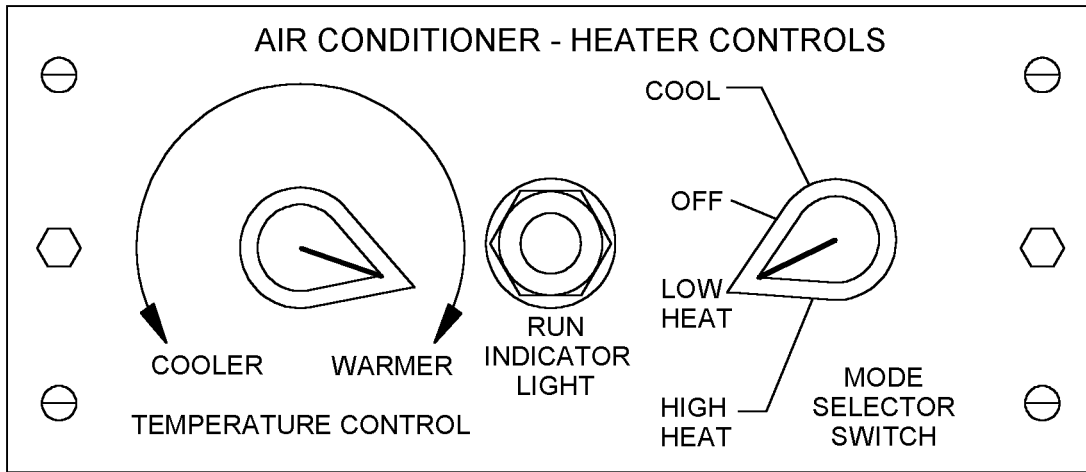
In the LOW HEAT mode, the condenser (rear) section blower does not operate.

Operation in Low Heat Mode



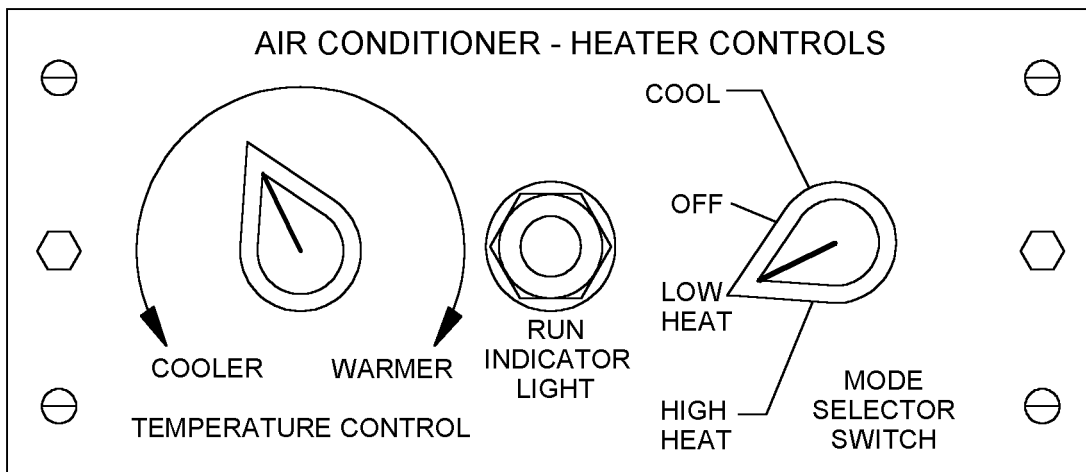
- 6 Turn TEMPERATURE CONTROL knob to WARMER. After 2 minutes, air from conditioned air outlets will feel warmer than the ambient air.

Adjustment - Warmer



- 7 When the room or shelter air temperature rises to the desired level, slowly turn the TEMPERATURE CONTROL knob toward COOLER. Heating will stop when you reach the approximate room temperature.

Adjustment - Cooler



- 8 Further adjustment can be made by turning the TEMPERATURE CONTROL knob slightly toward the WARMER or COOLER setting until a constant desired room or shelter temperature is maintained.

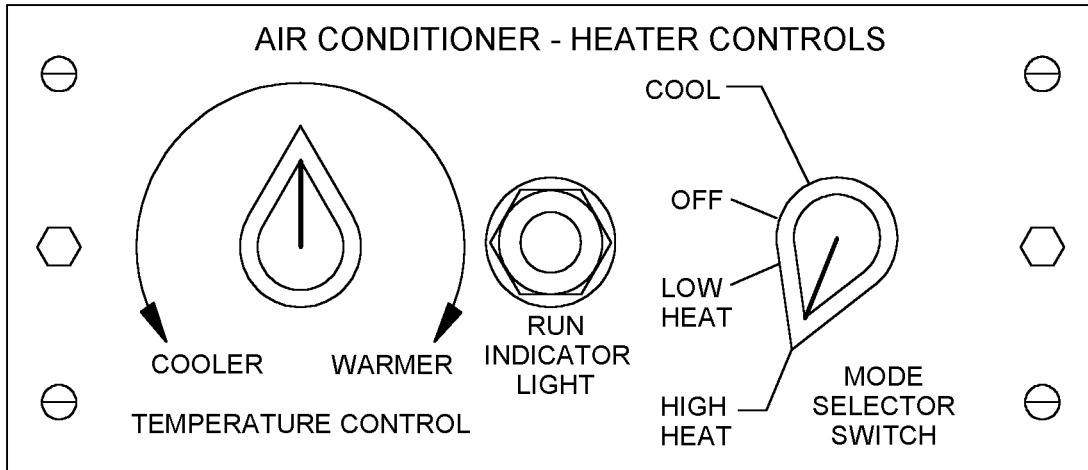
OPERATION IN THE HIGH HEAT MODE. Use HIGH HEAT mode when LOW HEAT mode fails to heat room or shelter, or for faster warm up after a period of shutdown.

- 9 Turn MODE SELECTOR SWITCH to HIGH HEAT. After 5 seconds, airflow can be felt.

NOTE

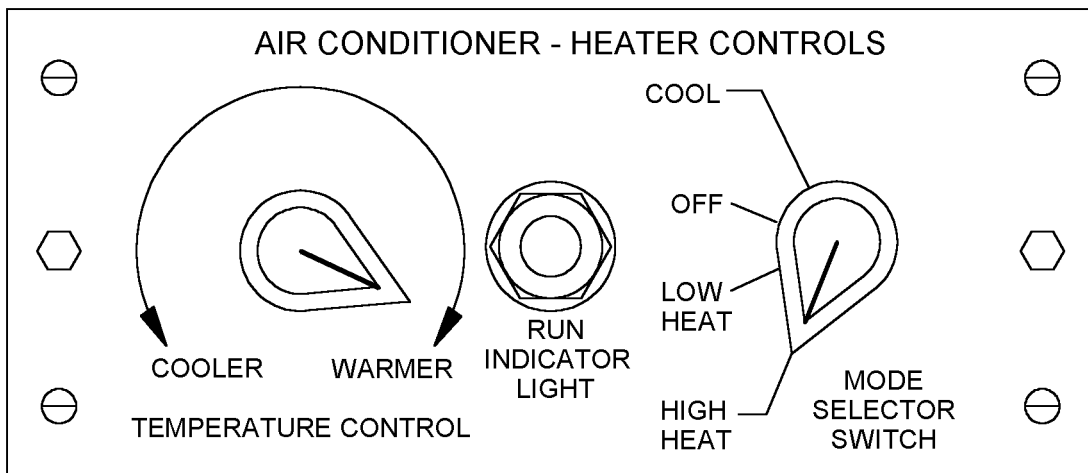
In the HIGH HEAT mode, the condenser (rear) section blower does not operate.

Operation in High Heat Mode



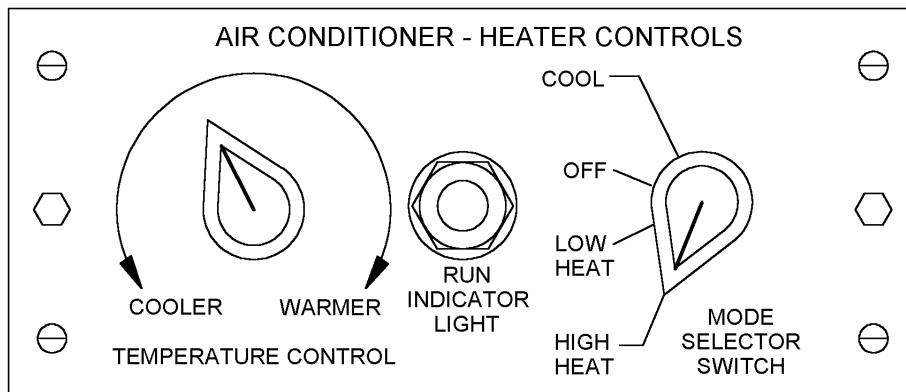
- 10 Turn TEMPERATURE CONTROL knob to WARMER. After 2 minutes, air from conditioned air outlets will feel warmer than the ambient air.

Adjustment - Warmer



- 11 When the room or shelter air temperature rises to the desired level, slowly turn the TEMPERATURE CONTROL knob toward COOLER.

Adjustment - Cooler



NOTE

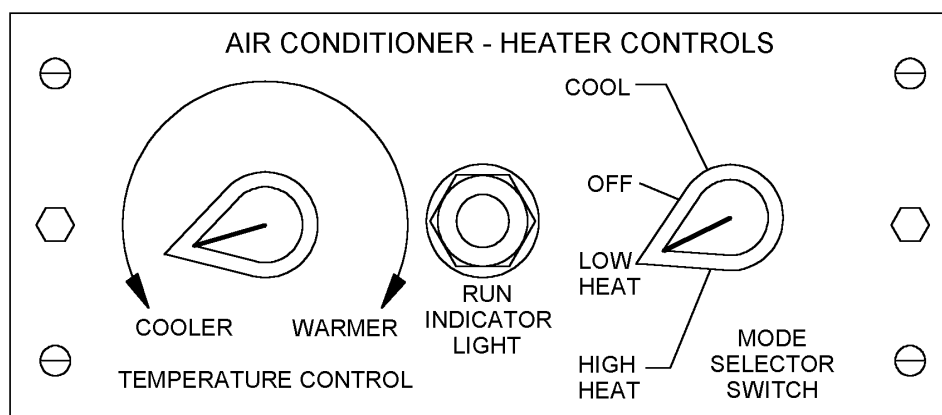
During HIGH HEAT mode operation, one bank of heating elements operates continuously. The TEMPERATURE CONTROL will control (turn on or off automatically) a second bank of heaters.

- 12 Further adjustment can be made by turning the TEMPERATURE CONTROL knob slightly toward the WARMER or COOLER setting until a constant desired room or shelter temperature is maintained. Should temperature continue to rise with the temperature control adjusted to the extreme COOLER setting, turn MODE SELECTOR SWITCH to the LOW HEAT position.

OPERATING THE UNIT FOR VENTILATION ONLY (No heating or cooling desired.)

- 13 Turn the MODE SELECTOR SWITCH to the LOW HEAT position.
- 14 Turn the TEMPERATURE CONTROL as far as it will go toward the COOLER position.

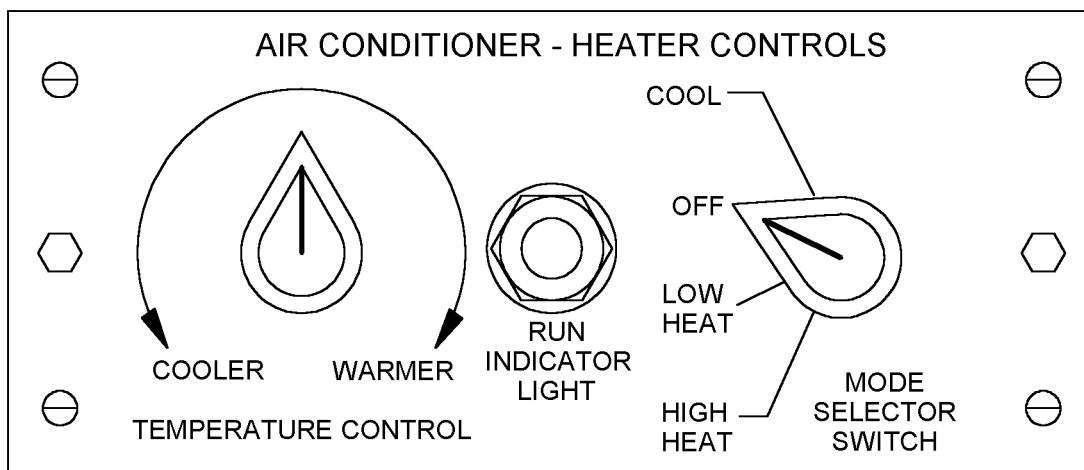
Ventilation Only



SHUTDOWN

- 15 Turn the MODE SELECTOR SWITCH to OFF.

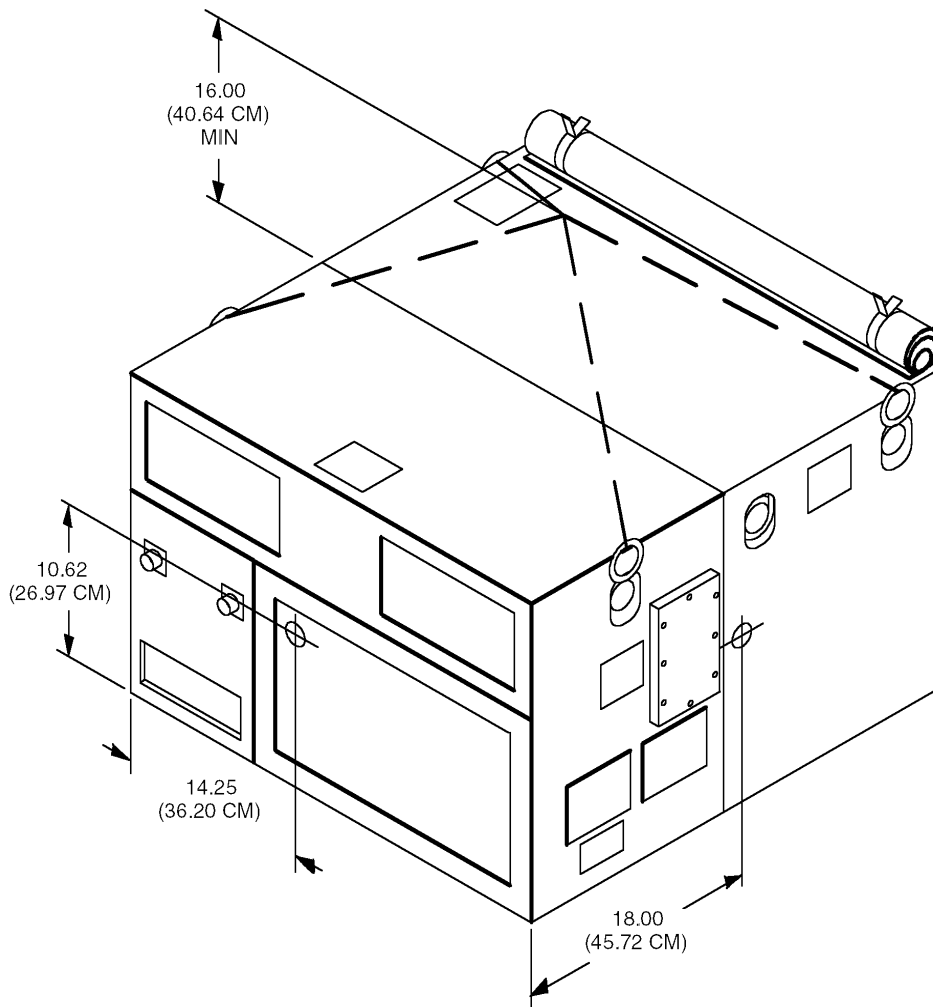
Shutdown (OFF)



PREPARATION FOR MOVEMENT

- 1 Turn power to air conditioner off at circuit breaker.
- 2 Disconnect power cable and remote control cable (if used) to air conditioner at washboard (cable penetration point on shelter).
- 3 Remove rain shield from around air conditioner to shelter joint. (See Shelter Manual.)
- 4 Remove the fresh air duct and fresh air EMI screen.
- 5 Disconnect condensate drain lines from air conditioner, if applicable.
- 6 Using socket and ratchet wrench, remove eight each hex head screws, flat washers, and resilient mounts from the underside of the air conditioner mounting shelf.

Hoisting Information



- 7 Position lifting device so that lifting hook is centered over air conditioner.

WARNING

During lifting operations, the mechanics must be visible to the lifting device operator and in a position to physically guide the air conditioner as it is lifted into position.

- 8 Connect sling to the four outside corner air conditioner lifting rings and the lifting equipment.
- 9 Take care that mounting hardware and resilient mounts, between air conditioner and mounting shelf, are not damaged or lost. Lift the air conditioner slightly, and carefully move it away from shelter adapter enough to allow space to disconnect power cable and remote control cable.
- 10 Disconnect power cable and remote control cable from the front of the air conditioner. Do not remove cables from shelter adapter duct.

WARNING

Do not allow anyone under equipment suspended from a lifting device. Do not allow the unit to swing while suspended from a lifting device. Failure to observe this warning may result in injury to personnel and damage to the equipment.

- 11 Lift the air conditioner off of the mounting shelf and place on transport carrier or on ground.
- 12 Disconnect sling from air conditioner.
- 13 Remove mounting hardware and resilient mounts from mounting shelf and retain for reuse, if they are in good condition.

NOTE

Normally it is not necessary to remove the remote control assembly.

- 14 When necessary remove the remote control assembly from the inside of the shelter by loosening the four captive screws and disconnecting the remote control cable.

OPERATION UNDER UNUSUAL CONDITIONS

0007 00

There are no special instructions for operation under unusual conditions. The operator should, however, be aware of the following general practice type suggestions.

The following will apply to all extreme weather conditions.

Keep all doors and other openings in the room or shelter tightly closed when not in use.

Limit traffic in and out of doors as much as possible.

Under extreme cold climatic conditions, such as blowing snow, or freezing rain, which might enter, and damage condenser section, the unit may be operated in the LOW HEAT or HIGH HEAT mode with the fabric cover rolled down and snapped in place

DO NOT OPERATE IN THE COOL MODE WITH THE FABRIC COVER ROLLED DOWN.

Frequency of maintenance must also be increased for most extreme weather conditions. This is the responsibility of organizational maintenance.

CHAPTER 3
UNIT TROUBLESHOOTING
PROCEDURES
FOR
AIR CONDITIONER

INTRODUCTION

0008 00

- 1 This table lists all the common malfunctions that you may find with your equipment. Perform the tests, inspections, and corrective actions in the order they appear in the table.
- 2 This table cannot list all the malfunctions that may occur, all the tests and inspections needed to find the fault, or all the corrective actions needed to correct the fault. If the equipment malfunction is not listed or actions listed do not correct the fault, notify your supervisor.
- 3 Troubleshooting by unit maintenance is limited to checking operation of the air conditioner. Any failure in performance or suspected problem, other than those described in WP0010 should be reported to direct support maintenance.
- 4 The malfunction/symptom index (WP0009) 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.
- 5 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.

MALFUNCTION

1. Air Conditioner will not start in any mode
2. Compressor fails to start (condenser blower motor does not start, evaporator blower motor starts.)
3. Evaporator blower motor fails to start
4. Insufficient heating
5. Run indicator light does not illuminate with air conditioner operating
6. Temperature control not effective
7. Unusual noise or vibration

TROUBLESHOOTING PROCEDURES FOR AIR CONDITIONER, SPLIT PACK 0010 00

UNIT TROUBLESHOOTING

THIS WORK PACKAGE COVERS: Unit Troubleshooting

Tools and Special Tools
Multimeter

Personnel Required
Unit level technician

Equipment Conditions
Air conditioner installed in shelter

WARNING

Disconnect input power before performing internal electrical troubleshooting. Voltages used can be lethal. Shutting the unit off at the control module does not disconnect power to the various components of the air conditioner.

MALFUNCTION**1. AIR CONDITIONER WILL NOT START IN ANY MODE****TEST OR INSPECTION**

Step 1. Press run indicator light.

CORRECTIVE ACTION

If light illuminates, go to step 6.

TEST OR INSPECTION

Step 2. Check to see if air conditioner power circuit breaker in shelter has been turned off or tripped

CORRECTIVE ACTION

Reset circuit breaker

1. AIR CONDITIONER WILL NOT START IN ANY MODE - Continued

TEST OR INSPECTION

Step 3. Check to see if power cable to air conditioner has been disconnected.

CORRECTIVE ACTION

Connect power cable (see WP0006).

TEST OR INSPECTION

Step 4. Check to see if remote control cable has been disconnected.

CORRECTIVE ACTION

Connect remote control cable (see WP0006).

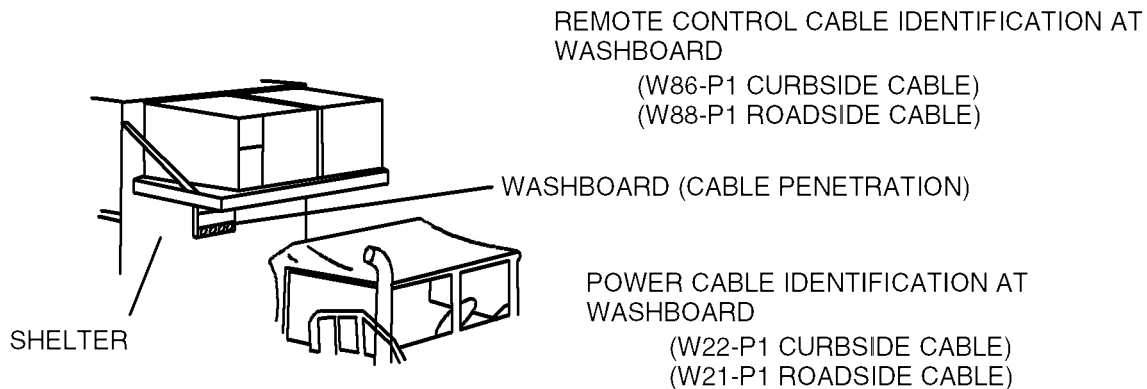
TEST OR INSPECTION

Step 5. Check that AC power is being supplied.

CORRECTIVE ACTION

(a) Disconnect power cable at washboard connector on front of shelter (see WP0006).

(b) Apply power.



(c) Trip and reset circuit breaker.

(d) Check for nominal 208 Vac between pins AB, AC, BC of washboard connector. If 197 to 229 Vac is not present in all three phases, refer problem to shelter maintenance personnel.

TEST OR INSPECTION

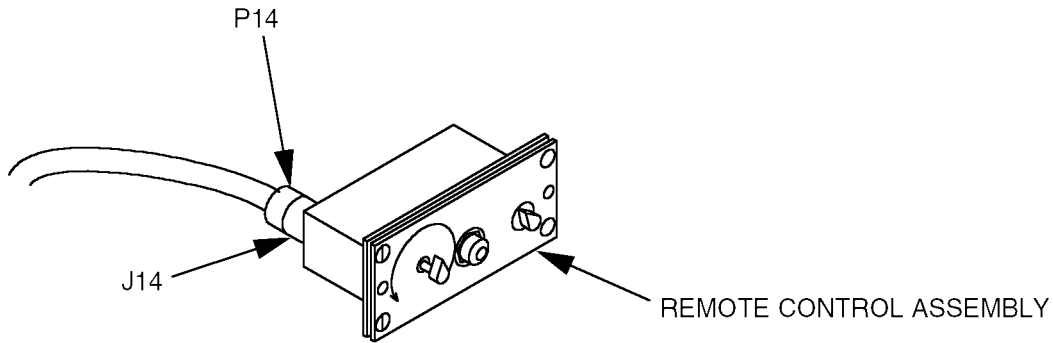
Step 6. Check thermal protector circuit of switch S6 (in evaporator blower motor B3).

CORRECTIVE ACTION

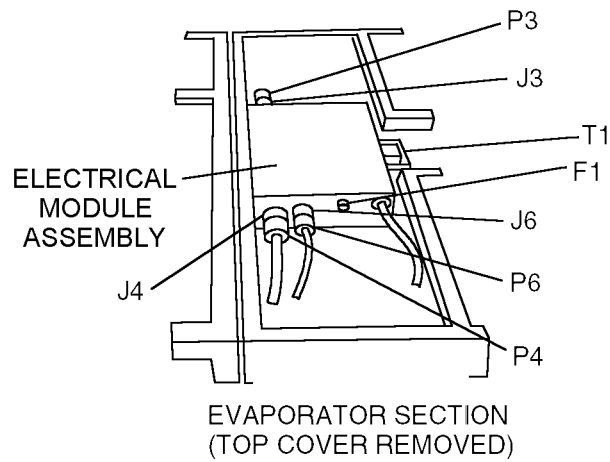
(a) Remove power.

(b) Measure resistance between connector contacts B and N of remote cable at washboard or P14 behind remote control assembly.

1. AIR CONDITIONER WILL NOT START IN ANY MODE - Continued



- (c) If resistance is less than 2 ohms, go to step 7.
- (d) If resistance is 2 ohms or more, measure resistance at motor connector P6, pins E and F.



- (e) If resistance is less than 2 ohms, use wiring diagram to locate defective remote cable or wiring.
- (f) Repair or replace defective remote cable or wiring.
- (g) If resistance is 2 ohms or more, replace evaporator blower motor (see WP0030).

TEST OR INSPECTION

Step 7. Check mode selector switch (See WP0059).

CORRECTIVE ACTION

Replace if defective.

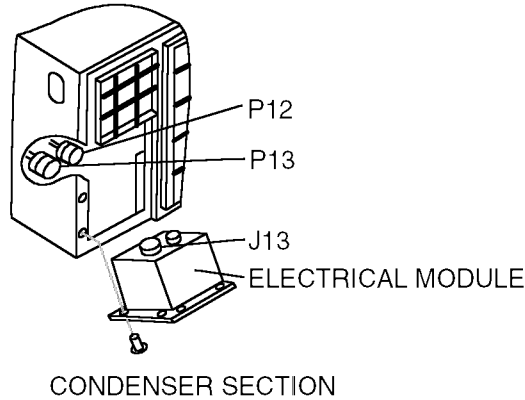
1. AIR CONDITIONER WILL NOT START IN ANY MODE - Continued

TEST OR INSPECTION

Step 8. Check power input to condenser.

CORRECTIVE ACTION

- (a) Remove power.
- (b) Remove electrical module from condenser section (see WP0051).



- (c) Apply power.
- (d) Test for 208 Vac between P12 pins:
 - D and E
 - D and F
 - E and F
- (e) If 197 to 229 Vac is present in all three phases, go to step 9.
- (f) If not, use electrical schematic or wiring diagram (WP0145), to locate defect.
- (g) Repair or replace defects as indicated.

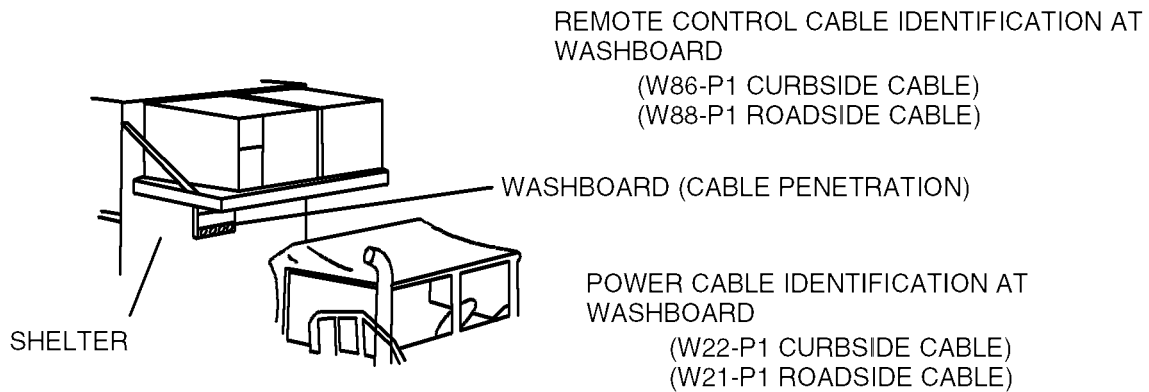
TEST OR INSPECTION

Step 9. Check DC voltage output.

CORRECTIVE ACTION

- (a) Make sure all connections have been restored.
- (b) Apply power.
- (c) Check for voltage between pins A and H of remote cable at washboard or P14.

1. AIR CONDITIONER WILL NOT START IN ANY MODE - Continued



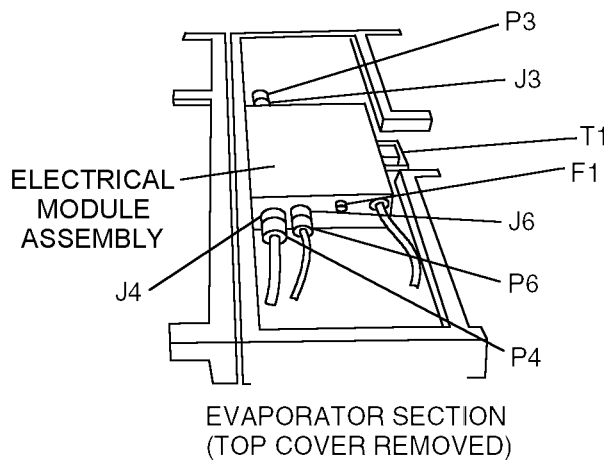
(d) If 25 to 31 Vdc is not indicated, go to steps 10 and 11.

TEST OR INSPECTION

Step 10. Check electrical fuse F1 (See WP0036).

CORRECTIVE ACTION

- (a) Remove power.
- (b) Remove top cover, evaporator (See WP0026).
- (c) Remove fuse from fuseholder (on left side of electrical module assembly).



(d) Examine fuse and test for continuity. Replace if bad.

TEST OR INSPECTION

Step 11. Check transformer T1 output.

CORRECTIVE ACTION

- (a) Apply power.

1. AIR CONDITIONER WILL NOT START IN ANY MODE - Continued

- (b) Measure ac voltage between T1-7 and T1-8.
- (c) If 27 to 33 Vac is indicated, go to step 12.
- (d) If not, check transformer input.
- (e) If 197 to 229 Vac is indicated, replace transformer (see WP0034).
- (f) If 197 to 229 Vac is not indicated, use electrical schematic or wiring diagram and locate defect (see WP0145).
- (g) Repair or replace defects as indicated.

TEST OR INSPECTION

Step 12. Check rectifier CR1 and wiring harness.

CORRECTIVE ACTION

- (a) Remove electrical module assembly (evaporator) top cover (see WP0041).
- (b) Apply power.
- (c) Turn S1 switch to COOL mode.
- (d) Measure dc voltage across rectifier CR1 (+) and (-) terminals.
- (e) Reading should be between 25 and 31 Vdc.
- (f) If 25 to 31 Vdc is not indicated, check ac input to rectifier.
- (g) If 27 to 33 Vac is indicated, replace rectifier CR1 (see WP0037).
- (h) If 27 to 33 Vdc is not indicated, turn power off and check individual wire leads. Repair or replace as indicated.

TEST OR INSPECTION

Step 13. Check remote control assembly.

CORRECTIVE ACTION

- (a) Measure resistance between connector J14 pins in accordance with table in WP0063.
- (b) If resistances are not as indicated on table, use electrical schematic or wiring diagram to locate defect. Repair or replace as indicated (see WP0145).

MALFUNCTION

2. COOLING ACTION STOPS AFTER OPERATING A SHORT TIME

TEST OR INSPECTION

Step 1. Check that fabric condenser cover is rolled up and tied.

CORRECTIVE ACTION

- (a) Roll up cover and tie securely (see WP0044).
- (b) Allow 30 minutes after compressor stops for pressure to drop to reset pressure.
- (c) Manually reset high-pressure switch (S4).

TEST OR INSPECTION

Step 2. Check outside covers on condenser section.

CORRECTIVE ACTION

- (a) Remove power.
- (b) Inspect condenser section for loose, damaged, or missing covers and screws.
 - (1) Tighten loose screws.
 - (2) Install missing covers and screws.
 - (3) Repair or change damaged covers.
 - (4) Allow 30 minutes after compressor stops for pressure to drop to reset pressure.
 - (5) Manually reset high-pressure switch (S4).
 - (6) Apply power.

TEST OR INSPECTION

Step 3. Check for blocked condenser EMI screens.

CORRECTIVE ACTION

Remove blockage/clean EMI screens.

TEST OR INSPECTION

Step 4. Check relay K2. (See WP0051).

CORRECTIVE ACTION

Replace if found bad.

MALFUNCTION

3. EVAPORATOR BLOWER MOTOR FAILS TO START. (Compressor, condenser blower motor, and heaters start).

TEST OR INSPECTION

Step 1. Check relay K3. (See WP0038)

CORRECTIVE ACTION

Replace if found bad.

TEST OR INSPECTION

Step 2. Check motor B3. (See WP0030)

CORRECTIVE ACTION

Replace if found bad.

MALFUNCTION

4. INSUFFICIENT HEATING

TEST OR INSPECTION

Step 1. Check to see that MODE SELECTOR SWITCH is properly positioned.

CORRECTIVE ACTION

Set switch to LOW HEAT or HIGH HEAT.

NOTE

During LOW HEAT operation only, one bank (nine) of the heaters is operational. The TEMPERATURE CONTROL thermostatically controls these heaters. During HIGH HEAT operation, an additional second bank (six) of heaters operates continuously.

TEST OR INSPECTION

Step 2. Check that TEMPERATURE CONTROL is set to WARMER position.

CORRECTIVE ACTION

Set TEMPERATURE CONTROL to WARMER position (see WP0006).

TEST OR INSPECTION

Step 3. Inspect fresh and return air filters for dirt or blockage (see WP0027).

CORRECTIVE ACTION

Clean filter/remove blockage.

TEST OR INSPECTION

Step 4. Check relays K4 and K5. (See WP0038).

CORRECTIVE ACTION

Replace if found bad.

TEST OR INSPECTION

Step 5. Check thermostatic switches S2 and S3. (See WP0020).

CORRECTIVE ACTION

Replace if found bad.

4. INSUFFICIENT HEATING - Continued

TEST OR INSPECTION

Step 6. Check temperature-sensing probe A1-RT. (See WP0019).

CORRECTIVE ACTION

Replace if found bad.

TEST OR INSPECTION

Step 7. Check mode selector switch S1. (See WP0059).

CORRECTIVE ACTION

Replace if found bad.

TEST OR INSPECTION

Step 8. Check heaters HR1-HR15. (See WP0021).

CORRECTIVE ACTION

Replace if found bad.

MALFUNCTION

5. RUN INDICATOR LIGHT DOES NOT ILLUMINATE WITH AIR CONDITIONER OPERATING

TEST OR INSPECTION

Press light in. Light should illuminate.

CORRECTIVE ACTION

Replace bulb (see WP0060).

MALFUNCTION

6. TEMPERATURE CONTROL NOT EFFECTIVE

TEST OR INSPECTION

Step 1. Check temperature control A1. (See WP0061).

CORRECTIVE ACTION

Replace if found bad.

TEST OR INSPECTION

Step 2. Check temperature-sensing probe A1-RT. (See WP0019).

CORRECTIVE ACTION

Replace if found bad.

TEST OR INSPECTION

Step 3. Check mode selector switch. (See WP0059).

CORRECTIVE ACTION

Replace if found bad.

6. TEMPERATURE CONTROL NOT EFFECTIVE - Continued

TEST OR INSPECTION

Step 4. Check wiring using wiring diagram (see WP0145).

CORRECTIVE ACTION

Replace or repair as indicated.

MALFUNCTION

7. UNUSUAL NOISE OR VIBRATION

TEST OR INSPECTION

Step 1. Examine air conditioner shock mounts and attaching hardware. Are shock mounts undamaged and firmly attached? Is air conditioner properly aligned with shelter adapter duct?

CORRECTIVE ACTION

- (a) Remove power.
- (b) Assure there is no contact between the air conditioner and metal portion of shelter adapter duct.
- (c) Tighten loose screws.
- (d) Install missing screws (see WP0006).
- (e) Change defective shock mounts.
- (f) Apply power.

TEST OR INSPECTION

Step 2. Examine fresh air duct, all covers, and attaching hardware. Are air ducts and covers undamaged and firmly attached to housing?

CORRECTIVE ACTION

- (a) Tighten loose screws.
- (b) Install missing screws.
- (d) Repair or change defective ducts and covers.
- (e) Apply power.

TEST OR INSPECTION

Step 3. Check evaporator section.

CORRECTIVE ACTION

- (a) Remove power.
- (b) Remove top cover, evaporator (see WP0026).

7. UNUSUAL NOISE OR VIBRATION - Continued

- (c) Examine all parts and attaching hardware.
- (d) Check blower impellers for interference or being out of round (see WP0030).
- (e) Are parts firmly attached? Do impellers spin freely without wobble?
 - (1) Tighten loose screws.
 - (2) Install missing screws, clamps, and brackets.
 - (3) Adjust position of impellers until they spin freely.
 - (4) Change damaged parts.
 - (5) Apply power.

TEST OR INSPECTION

Step 4. Check condenser section.

CORRECTIVE ACTION

- (a) Remove power.
- (b) Remove top cover, condenser (see WP0044).
- (c) Examine all parts and attaching hardware.
- (d) Check blower impeller for interference or being out of round (see WP0049).
- (e) Are parts firmly attached? Does impeller spin freely without wobble?
- (f) Check compressor mounting.
 - (1) Tighten loose screws.
 - (2) Install missing screws, clamps, and brackets.
 - (3) Adjust position of impeller until it spins freely.
 - (4) Change damaged parts.
 - (5) Apply power.

CHAPTER 4
UNIT MAINTENANCE
INSTRUCTIONS
FOR
AIR CONDITIONER

SERVICE UPON RECEIPT

0011 00

Perform service upon receipt of the air conditioner in the following manner.

- 1 Inspect the equipment for damage incurred during shipment. If the equipment has been damaged, report damage on DD Form 6, Packaging Improvement Report.
- 2 Check the equipment against the packing slip to see if the shipment is complete. Report all discrepancies in accordance with the instructions of TM 38-750 (The Army Maintenance Management System).

UNIT PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

0012 00

THIS WORK PACKAGE COVERS:

Introduction
PMCS Procedures

Personnel Required
Unit Technician

Equipment Conditions
Air Conditioner shut down

INTRODUCTION

GENERAL. Systematic, periodic, preventive maintenance checks, and services (PMCS) are essential to ensure that the air conditioner is ready for operation in any mode at all times. The purpose of a preventive maintenance program is to discover and correct defects and deficiencies before they can cause serious damage or complete failure of the equipment. Any effective preventive maintenance program must begin with the training of operators to report all unusual conditions noted during daily checks or actual operation to unit maintenance. All defects and deficiencies discovered during maintenance inspections must be recorded, together with corrective action taken, on DA Form 2404 (Equipment Inspection and Maintenance Worksheet).

INSPECTION AND SERVICE SCHEDULING

- 1 A schedule for unit preventive maintenance inspection and service should be established immediately after installation of the air conditioner. A quarterly interval, equal to three calendar months or 250 hours of operation, whichever occurs first, is recommended for usual operating conditions. When operating under unusual conditions, such as a very dusty or sandy environment, it may be necessary to reduce the interval to monthly or even less if conditions are extreme.
- 2 The following table lists the unit preventive maintenance checks and services that should be performed at quarterly (or otherwise established) intervals. The PMCS items in the table have been arranged and numbered in a logical sequence to provide for greater personnel efficiency and least amount of required maintenance downtime.

NOTE

Check all air filters weekly for airflow blockage.

UNIT PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

1 Fresh Air Cover

- a Check that there are no major dents, punctures, cracks, or missing hardware.
- b Check that gaskets are in good condition and that they seal properly. Gaskets on this item act both as an air seal and as an EMI seal.

2 Top Covers

- a Check that there are no major dents, punctures, cracks, or missing hardware.
- b Check that gaskets are in good condition and that they seal properly. Gaskets on this item act both as an air seal and as an EMI seal.

3 Evaporator Housing (Exposed portions only)

- a Check that there are no major dents, punctures, cracks, or missing hardware.
- b Check that gaskets are in good condition and that they seal properly. Gaskets on this item act both as an air seal and as an EMI seal.

4 Access Cover

- a Check that there are no major dents, punctures, cracks, or missing hardware.
- b Check that gaskets are in good condition and that they seal properly. Gaskets on this item act both as an air seal and as an EMI seal.

5 Information and Identification Plates

Check that all Warning, information and identification plates are in place and legible.

6 Left End Cover

- a Check that there are no major dents, punctures, cracks, or missing hardware.
- b Check that gaskets are in good condition and that they seal properly. Gaskets on this item act both as an air seal and as an EMI seal.

7 Right End Cover

- a Check that there are no major dents, punctures, cracks, or missing hardware.
- b Check that gaskets are in good condition and that they seal properly. Gaskets on this item act both as an air seal and as an EMI seal.

8 Condenser Guard

- a Check that there is no damage.
- b Check that it is not blocked in any way.

9 Condenser Discharge Grille

- a Check that there is no damage.
- b Check that it is not blocked in any way.

10 Snap Fasteners

Snap cover closed and check snaps.

11 Condenser Cover

- a Untie and roll condenser cover down.
- b Check for tears, worn edges, and holes.
- c Check for accumulated dirt and mildew.
- d If the necessity of washing is indicated, use fresh water with a small amount of a mild detergent. Dry thoroughly.
- e Unsnap, roll cover up and tie in place.

12 Condenser Intake EMI Screens

- a Observe for damages, such as punctures, cuts, or mashed areas.
- b Observe for air flow blockage.

13 Condenser Discharge EMI Screen

- a Observe for damages, such as punctures, cuts, or mashed areas.
- b Observe for air flow blockage.

14 Knobs, Remote Control

Check that remote control knobs are in place and not broken.

15 Remote Control Cable (Visible Portions)

- a Check that cable is in good condition.
- b Check that cable is placed so that it will not be damaged or create problems for operating personnel.
- c Check that all connections are tight.

16 Power Cable (Visible Portions)

- a Check that cable is in good condition.
- b Check that cable is placed so that it will not be damaged or create problems for operating personnel.
- c Check that all connections are tight.

17 Operational Checks

- a. Be sure the mode selector switch is in the OFF position.

CAUTION

If military operational considerations allow the time, it will help extend the life of the compressor if the air conditioner is not turned on for its check of operation in the COOL mode until after a sufficient time to eliminate any danger of liquid refrigerant accumulation in the compressor. Except in extremely cold conditions, if input power has been disconnected for a period of less than six hours, an equal warm-up period is desirable. If the disconnected period has been more than six hours, a full six-hour warm-up period is recommended.

- b. Perform functional check of the air conditioner in all operational modes in accordance with the instructions in WP0006.

18 Run Indicator Light

- a Light should be illuminated in all operating modes.
- b Light may also be checked with MODE SELECTOR SWITCH in OFF position. Push in. Light should light.
- c Replace bulb if necessary. (See WP0060).

19 Time Totalizing Meter

Meter should operate in all operating modes.

20 Sight Glass

- a Operate air conditioner at least 15 minutes in COOL MODE with TEMPERATURE CONTROL set at COOLER.
- b Center indicator on sight glass should be green. Refrigerant should be clear with no bubbles.
- c If center indicator is yellow, or refrigerant is milky, or bubbles are seen, report condition to direct support maintenance.

21 Condensate Drain

After air conditioner has been running in cool mode, check it to see that no water is dripping, except through drain. Set-up the air conditioner for the desired operational mode. Record performance of quarterly PMCS, including all corrective actions taken.

NOTE

If the air conditioner has been in operation under unusual conditions, the above PMCS items may be modified as necessary to meet the further requirements due to the unusual conditions.

UNIT MAINTENANCE INSTRUCTIONS

0013 00

The procedures in this section have been arranged in the order in which the items appear in the unit (O) maintenance level column on the Maintenance Allocation Chart (MAC). Step-by step procedures have been provided for all actions authorized to be performed by unit maintenance in the order in which they appear on the MAC. Actions authorized to be performed by direct and general support maintenance have been duly noted.

EVAPORATOR ASSEMBLY AND CONDENSER ASSEMBLY SEPARATION AND RECONNECTION

0014 00

THIS WORK PACKAGE COVERS:

Disassembly
Assembly

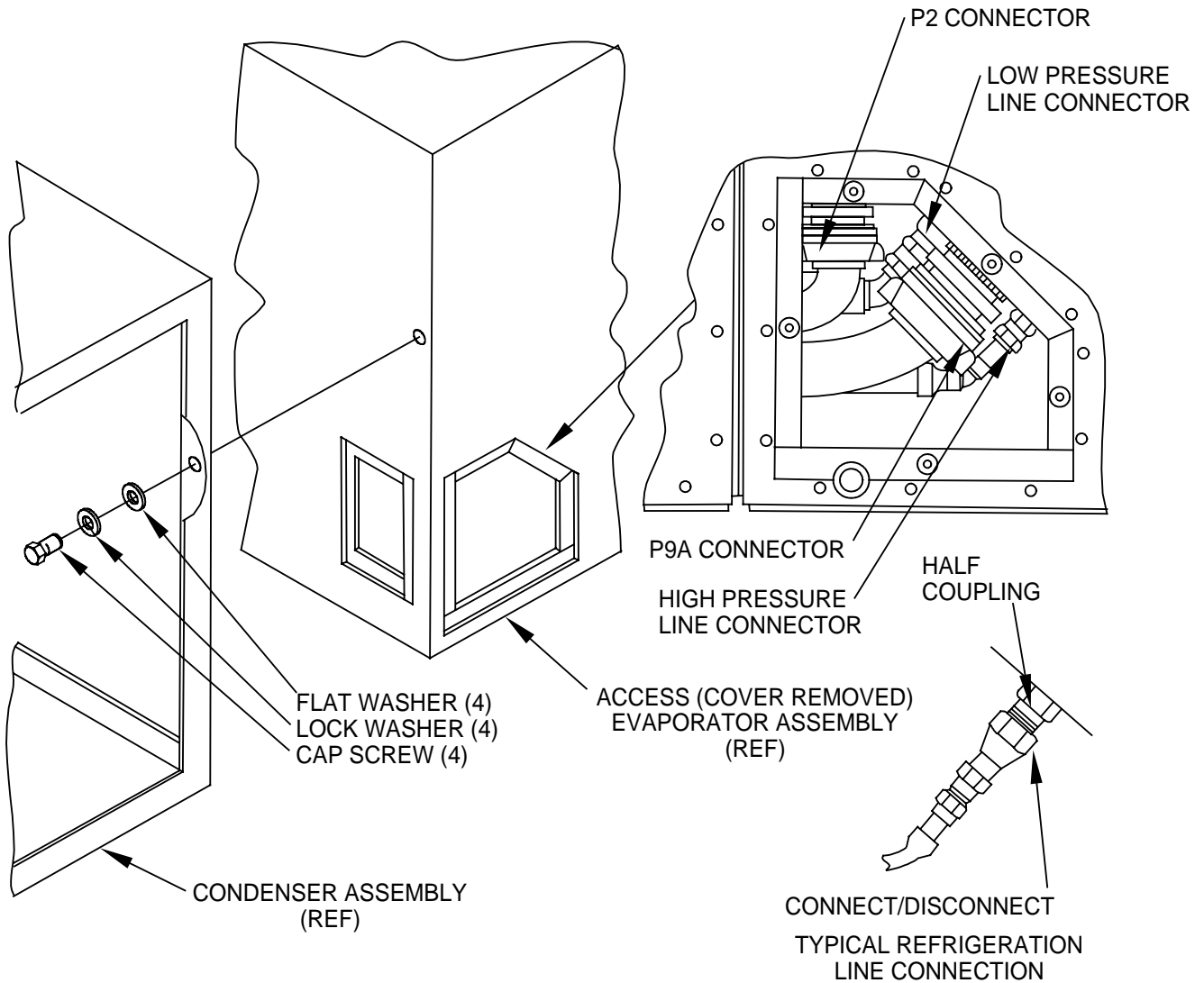
Tools and Special Tools
Wrench, Socket
Wrench, open end

Personnel Required
Unit Technician

Equipment Conditions
Air conditioner removed from shelter (See WP0006)
Access cover removed (See WP0024)
Right end condenser cover removed (See WP0045)
Left end condenser cover removed (See WP0045)

DISASSEMBLY

Evaporator/Condenser Assembly Separation and Reconnection



- 1 Using socket or combination wrench, remove four each hex head cap screws, lockwashers, and flat washers that hold the evaporator and condenser assemblies together.
- 2 Disconnect the P9A connector.
- 3 Disconnect the P2 connector.
- 4 Using open end wrenches, carefully disconnect the low and high condenser to evaporator refrigerant metal hose line connectors from the evaporator assembly half couplings.
- 5 Carefully pull the evaporator assembly away from the condenser assembly.

ASSEMBLY

- 1 On a level surface, place the back of the evaporator assembly next to the front of the condenser section. (Metal hose assemblies and slit in feed through gaskets and mounting holes should match.)
- 2 Carefully guide the refrigerant metal hose assemblies through the evaporator housing opening and slide the evaporator and condenser assemblies together.
- 3 Use open end wrenches and connect the low and high condenser to evaporator assembly half couplings.
- 4 Leak test the connections (See WP0073).
- 5 Connect J2 and J9 connectors.
- 6 Move the two sections snug against each other and align the holes.
- 7 Using socket or combination wrench, secure the evaporator and condenser assemblies together with four each hex head cap screws, lockwashers, and flat washers.
- 8 Install left end condenser cover. (See WP0045).
- 9 Install right end condenser cover. (See WP0045).
- 10 Install access cover. (See WP0024).
- 11 Install air conditioner on shelter. (See WP0006).

END OF TASK

ELECTRICAL WIRING REPAIR GENERAL

0015 00

THIS WORK PACKAGE COVERS:**Repair or Replacement****Tools and Special Tools**

Soldering Iron

Heat Gun

Wire Strippers

Terminal Crimping Tool

Materials/Parts

Flux O-F-499, Type B

Solder, Lead-Tin QQ-S-571, Type SN60WRP2

Tape, Lacing MIL-T-43435

Personnel Required

Unit Technician

Equipment Conditions

Air conditioner removed from shelter (See WP0006)

Evaporator and condenser section assemblies separated (See WP0014)

Required access covers removed

REPAIR OR REPLACEMENT

- 1 Preferred repair methods consist of replacing wires, terminals, connectors, etc., rather than splicing wires, bending ends to form terminals, and other makeshift procedures; although the latter may be appropriate for emergency field repairs. Determine the proper size and length of wire, or the terminal, or connector to be used for replacement by referring to the Wire List and to the Wiring Diagram.

- 2 Soldering Connections. Wire connections must be made mechanically sound before they are soldered; solder alone does not provide sufficient strength to prevent breakage. Joining surfaces of connections to be soldered must be clean and bright. If a separate flux is used, it should conform to Specification O-F-499, Type B, silver brazing flux, and should be brushed onto the joint before soldering. If a flux-core solder is used, it should always be rosin-core electrical solder. If an uncured solder is used, it should be a lead-tin solder conforming to specification QQ-S-571 Type SN60WRP2. Wires should always be heated to the point at which the solder will melt completely and flow into all parts of the joint. Excessive build-up of solder "gobs" on the joint should be avoided or removed.

- 3 Securing Wire Bundles. Use lacing tape per MIL-T-43435 to tie wire into bundles.

- 4 Splicing Wires. To repair broken or cut wires that are otherwise sound, the mating ends can be stripped and spliced. A commercial butt splice can be crimped onto the ends to join them, or a "Western Union" wire splice can be made. The latter is made by stripping 1/4 - 1/2 inch (0.6 - 1.3 cm) of insulation from the wire ends, holding the ends parallel and facing opposite directions, then twisting each end around the other wire at least three turns. Solder and apply insulation as described above.

- 5 Crimping Terminals. To install a terminal on the end of a wire, strip 1/4 - 1/2 inch (0.6 - 1.3 cm) of insulation from the end of the wire, insert wire end into the shank of the terminal, and crimp the shank.

Wire List

TERMINATION		TERMINATION		AWG WIRE SIZE	LENGTH	
FROM	TERMINAL TYPE	TO	TERMINAL TYPE		IN.	CM.
	WIRING HARNESS		P2			
P2-A	MS3106R24-11S	TB4-7	MS17143-2	16	41	104.1
P2-B	MS3106R24-11S	TB4-8	MS17143-2	16	41	104.1
P2-C	MS3106R24-11S	TB4-9	MS17143-2	16	41	104.1
P2-D	MS3106R24-11S	TB4-4	MS17143-3	12	39	99.1
P2-E	MS3106R24-11S	TB4-5	MS17143-3	12	39	99.1
P2-F	MS3106R24-11S	TB4-6	MS17143-3	12	39	99.1
P2-G	MS3106R24-11S	E3	MS25036-153	14	44	111.8
P2-H	MS3106R24-11S	TB4-3	MS17143-2	16	39	99.1
	WIRING HARNESS		P2A			
P2A-A	MS3106R24-11P	J4-D	13207E5347-2	16	35	88.9
P2A-B	MS3106R24-11P	TB1-1	MS25036-153	16	47	119.4
P2A-C	MS3106R24-11P	J4-P	13207E5347-2	16	34	86.4

TERMINATION		TERMINATION		AWG WIRE SIZE	LENGTH	
FROM	TERMINAL TYPE	TO	TERMINAL TYPE		IN.	CM.
P2A-D	MS3106R24-11P	TB1-4	MS25036-156	12	40	101.6
P2A-E	MS3106R24-11P	TB1-6	MS25036-156	12	42	106.7
P2A-F	MS3106R24-11P	TB1-8	MS25036-156	12	43	109.2
P2A-G	MS3106R24-11P	E1	MS25036-153	14	38	96.5
P2A-H	MS3106R24-11P	TB1-2	MS25036-153	16	47	119.4
	WIRING HARNESS		J3			
J3-A	MS3102R20-15S	K4-A2	MS25036-156	12	8	20.3
J3-B	MS3102R20-15S	K4-B2	MS25036-156	12	8	20.3
J3-C	MS3102R20-15S	K4-C2	MS25036-156	12	8	20.3
J3-D	MS3102R20-15S	K5-A2	MS25036-156	14	10	25.4
J3-E	MS3102R20-15S	K5-B2	MS25036-153	14	10	25.4
J3-F	MS3102R20-15S	K5-C2	MS25036-153	14	10	25.4
	WIRING HARNESS		P3			
P3-A	MS3106R20-15P	TB2-7	MS17143-15	12	41	104.2
P3-B	MS3106R20-15P	S2-1	MS25036-112	12	39	99.1
P3-C	MS3106R20-15P	S2-3	MS25036-112	12	39	99.1
P3-D	MS3106R20-15P	TB2-3	MS17143-14	14	40	100.3
P3-E	MS3106R20-15P	S3-1	MS25036-108	14	42	105.4
P3-F	MS3106R20-15P	S3-3	MS25036-108	14	42	105.4
S3-2	MS25036-108	TB2-1	MS17143-14	14	45	113.1
S3-4	MS25036-108	TB2-5	MS17143-14	14	46	116.8
S2-2	MS25036-112	TB2-9	MS17143-15	12	46	116.8
S2-4	MS25036-112	TB2-11	MS17143-15	12	46	116.8
	WIRING HARNESS		J4 AND J6			
J4-A	MS3102R24-28S	CR1-(+)	N/A	16	16	40.6
J4-B	MS3102R24-28S	J6-E	MS3102R14S-6S	16	5	12.1
J4-C	MS3102R24-28S	TB1-3	MS25036-153	16	8	20.3
J4-Q	MS3102R24-28S	A1-2	13207E5347-2	16	7	17.8
J4-F	MS3102R24-28S	K5-X1	MS25036-106	16	13	33
J4-G	MS3102R24-28S	K4-X1	MS25036-106	16	12	29.4
J4-H	MS3102R24-28S	K3-X2	MS25036-106	16	12	29.4

TERMINATION		TERMINATION		AWG WIRE SIZE	LENGTH	
FROM	TERMINAL TYPE	TO	TERMINAL TYPE		IN.	CM.
J4-J	MS3102R24-28S	A1-4	13207E5347-2	16	6	15.2
J4-K	MS3102R24-28S	A1-5	13207E5347-2	16	6	15.2
J4-L	MS3102R24-28S	A1-3	13207E5347-2	16	6	15.2
J4-M	MS3102R24-28S	A1K1-5	13221E9123-1	16	8	20.3
J4-N	MS3102R24-28S	J6-F	MS3102R14S-6S	16	5	12.1
J4-R	MS3102R24-28S	A1-1	13207E5347-2	16	6	15.2
J4-D	MS3102R24-28S	P2A-A	13207E5347-2	16	5	11.4
J4-P	MS3102R24-28S	P2A-C	13207E5347-2	16	6	14
J6-A	MS3102R14S-6S	K3-A2	MS25036-153	16	10	25.4
J6-B	MS3102R14S-6S	K3-B2	MS25036-153	16	10	25.4
J6-C	MS3102R14S-6S	K3-C2	MS25036-153	16	10	25.4
J6-D	MS3102R14S-6S	E1	MS25036-153	16	6	15.2
	WIRING HARNESS		P4 TO J15			
P4-A	MS3106R24-28P	J15-A	MS27473T20B16S	16	34	86.4
P4-B	MS3106R24-28P	J15-B	MS27473T20B16S	16	34	86.4
P4-C	MS3106R24-28P	J15-C	MS27473T20B16S	16	34	86.4
P4-D	MS3106R24-28P	J15-D	MS27473T20B16S	16	34	86.4
P4-F	MS3106R24-28P	J15-F	MS27473T20B16S	16	34	86.4
P4-G	MS3106R24-28P	J15-G	MS27473T20B16S	16	34	86.4
P4-H	MS3106R24-28P	J15-H	MS27473T20B16S	16	34	86.4
P4-J	MS3106R24-28P	J15-J	MS27473T20B16S	16	34	86.4
P4-K	MS3106R24-28P	J15-K	MS27473T20B16S	16	34	86.4
P4-L	MS3106R24-28P	J15-L	MS27473T20B16S	16	34	86.4
P4-M	MS3106R24-28P	J15-M	MS27473T20B16S	16	34	86.4
P4-N	MS3106R24-28P	J15-N	MS27473T20B16S	16	34	86.4
P4-P	MS3106R24-28P	J15-P	MS27473T20B16S	16	34	86.4
P4-Q	MS3106R24-28P	A1RT	13207E5347-1	18	24	60.9
P4-R	MS3106R24-28P	A1RT	13207E5347-1	18	24	60.9
	WIRING HARNESS		P14 TO J7			
P14-A	MS27508E20B16P	J7-A	MS27508E20B16S	16	15	38.1
P14-B	MS27508E20B16P	J7-B	MS27508E20B16S	16	15	38.1

TERMINATION		TERMINATION		AWG WIRE SIZE	LENGTH	
FROM	TERMINAL TYPE	TO	TERMINAL TYPE		IN.	CM.
P14-C	MS27508E20B16P	J7-C	MS27508E20B16S	16	15	38.1
P14-D	MS27508E20B16P	J7-D	MS27508E20B16S	16	15	38.1
P14-F	MS27508E20B16P	J7-F	MS27508E20B16S	16	15	38.1
P14-G	MS27508E20B16P	J7-G	MS27508E20B16S	16	15	38.1
P14-H	MS27508E20B16P	J7-H	MS27508E20B16S	16	15	38.1
P14-J	MS27508E20B16P	J7-J	MS27508E20B16S	16	15	38.1
P14-K	MS27508E20B16P	J7-K	MS27508E20B16S	16	15	38.1
P14-L	MS27508E20B16P	J7-L	MS27508E20B16S	16	15	38.1
P14-M	MS27508E20B16P	J7-M	MS27508E20B16S	16	15	38.1
P14-N	MS27508E20B16P	J7-N	MS27508E20B16S	16	15	38.1
P14-P	MS27508E20B16P	J7-P	MS27508E20B16S	16	15	38.1
	WIRING HARNESS		P8 TO P9			
P8-A	MS3106R22-22P	P9-A	MS3106R22-22S	10	20	50.8
P8-B	MS3106R22-22P	P9-B	MS3106R22-22S	10	20	50.8
P8-C	MS3106R22-22P	P9-C	MS3106R22-22S	10	20	50.8
P8-D	MS3106R22-22P	P9-D	MS3106R22-22S	14	20	50.8
	WIRING HARNESS		P9A			
P9A-A	MS3106R22-22P	TB4-4	MS17143-3	10	38	95.3
P9A-B	MS3106R22-22P	TB4-5	MS17143-3	10	38	95.3
P9A-C	MS3106R22-22P	TB4-6	MS17143-3	10	38	95.3
P9A-D	MS3106R22-22P	E3	MS25036-153	14	38	95.3
	WIRING HARNESS		P10, P11, AND P13			
P13-G	MS3106R32-13S	P10-A	MS3106R20-15S	12	47	119.4
P13-H	MS3106R32-13S	P10-B	MS3106R20-15S	12	47	119.4
P13-J	MS3106R32-13S	P10-C	MS3106R20-15S	12	47	119.4
P13-D	MS3106R32-13S	P10-D	MS3106R20-15S	16	47	119.4
P13-K	MS3106R32-13S	P10-E	MS3106R20-15S	16	47	119.4
P13-L	MS3106R32-13S	TB4-10	MS17143-2	16	26	66.1
P13-M	MS3106R32-13S	P11-E	MS3106R14S-6S	16	47	119.4
P13-N	MS3106R32-13S	P11-F	MS3106R14S-6S	16	47	119.4
P13-P	MS3106R32-13S	P11-A	MS3106R14S-6S	16	47	119.4

TERMINATION		TERMINATION		AWG WIRE SIZE	LENGTH	
FROM	TERMINAL TYPE	TO	TERMINAL TYPE		IN.	CM.
P13-R	MS3106R32-13S	P11-B	MS3106R14S-6S	16	47	119.4
P13-S	MS3106R32-13S	P11-C	MS3106R14S-6S	16	47	119.4
P13-V	MS3106R32-13S	P11-D	MS3106R14S-6S	16	47	119.4
P13-W	MS3106R32-13S	S4	MS25036-153	16	56	142.2
P13-X	MS3106R32-13S	S5	MS25036-153	16	56	142.2
L-1	13207E5347-2	TB4-8	MS17143-2	16	39	99.1
L-1	13207E5347-2	TB4-12	MS17143-2	16	39	99.1
L-2	13207E5347-2	TB4-8	MS17143-2	16	34	86.4
L-2	13207E5347-2	TB4-9	MS17143-2	16	34	86.4
	WIRING HARNESS		P12			
P12-A	MS3106R24-11P	TB4-7	MS17143-2	16	21	53.4
P12-B	MS3106R24-11P	TB4-8	MS17143-2	16	21	53.4
P12-D	MS3106R24-11P	TB4-4	MS17143-3	12	23	58.4
P12-E	MS3106R24-11P	TB4-5	MS17143-3	12	23	58.4
P12-F	MS3106R24-11P	TB4-6	MS17143-3	12	23	58.4
P12-G	MS3106R24-11P	E3	MS25036-153	16	26	66.1
P12-C	MS3106R24-11P	TB4-3	MS17143-2	16	23	58.4
	WIRING HARNESS		J12 AND J13			
J13-G	MS3102R32-13P	K1-A2	MS25036-112	12	14	35.6
J13-H	MS3102R32-13P	K1-B2	MS25036-112	12	14	35.6
J13-J	MS3102R32-13P	K1-C2	MS25036-112	12	14	35.6
J13-D	MS3102R32-13P	J13-M	MS3102R32-13P	16	3	7.6
J13-K	MS3102R32-13P	J13-X	MS3102R32-13P	16	3	7.6
J12-C	MS3102R24-11S	M1(+)	13207E5347-2	16	15	38.1
J13-L	MS3102R32-13P	K1-X1	MS25036-106	16	14	35.6
J13-N	MS3102R32-13P	K7-C1	13207E5347-2	16	9	22.8
J13-P	MS3102R32-13P	K2-A2	MS25036-153	16	13	33
J13-R	MS3102R32-13P	K2-B2	MS25036-153	16	13	33
J13-S	MS3102R32-13P	K2-C2	MS25036-153	16	13	33
J13-V	MS3102R32-13P	E2	MS25036-153	16	13	33
J13-W	MS3102R32-13P	J12-A	MS3102R24-11S	16	8	20.3

TERMINATION		TERMINATION		AWG WIRE SIZE	LENGTH	
FROM	TERMINAL TYPE	TO	TERMINAL TYPE		IN.	CM.
J12-B	MS3102R24-11S	TB3-1	MS17143-14	16	15	38.1
J12-D	MS3102R24-11S	TB3-7	MS17143-15	12	14	35.6
J12-E	MS3102R24-11S	TB3-9	MS17143-15	12	14	35.6
J12-F	MS3102R24-11S	TB3-11	MS17143-15	12	13	33
J12-G	MS3102R24-11S	E2	MS25036-153	16	15	38.1
	WIRING HARNESS		J14			
J14-A	MS27508E20B16P	S1-11	MS25036-106	16	10	25.4
J14-B	MS27508E20B16P	S1-17	MS25036-106	16	10	25.4
J14-C	MS27508E20B16P	S1-41	MS17143-15	16	10	25.4
J14-D	MS27508E20B16P	S1-42	MS25036-106	16	10	25.4
J14-F	MS27508E20B16P	S1-47	MS25036-106	16	10	25.4
J14-G	MS27508E20B16P	S1-37	MS25036-106	16	10	25.4
J14-H	MS27508E20B16P	XDS1-1	N/A	16	10	25.4
J14-J	MS27508E20B16P	A1R1- CCW	N/A	16	10	25.4
J14-K	MS27508E20B16P	A1R1- COM	N/A	16	10	25.4
J14-L	MS27508E20B16P	A1R1-CW	N/A	16	10	25.4
J14-M	MS27508E20B16P	S1-31	MS25036-106	16	10	25.4
J14-N	MS27508E20B16P	S1-41	MS17143-15	16	10	25.4
J14-P	MS27508E20B16P	S1-22	MS25036-106	16	10	25.4
	INDIVIDUAL ELECTRICAL LEADS					
XDS1-3	N/A	S1-11	MS25036-106	16	2.5	6.4
S1-17	MS25036-106	S1-18	MS25036-106	16	2	5.1
S1-18	MS25036-106	S1-12	MS25036-106	16	3	7.6
S1-37	MS25036-106	S1-38	MS25036-106	16	2	5.1
XF1-1	N/A	CR1-AC	N/A	16	9.5	24.1
XF1-2	N/A	T1-8	N/A	16	10.5	26.7
CR1-AC	N/A	T1-7	N/A	16	9	22.9
CR1-(-)	N/A	TB1-1	MS25036-153	16	9	22.9
A1K1-7	13221E9123-1	TB1-3	MS25036-153	16	8	20.3

TERMINATION		TERMINATION		AWG WIRE SIZE	LENGTH	
FROM	TERMINAL TYPE	TO	TERMINAL TYPE		IN.	CM.
A1-7	N/A	CR1-AC	N/A	16	14	35.6
A1-9	N/A	CR1-AC	N/A	16	14	35.6
K5-X2	MS25036-106	K4-X2	MS25036-106	16	3.5	8.9
K4-X2	MS25036-106	K3-X2	MS25036-106	16	3.5	8.9
TB1-3	MS25036-153	K3-X1	MS25036-106	16	3	7.6
TB3-3	MS17143-2	K7-C	13207E5347-2	16	14	35.6
TB3-6	MS17143-15	K1-A1	MS25036-112	12	8	20.3
TB3-7	MS17143-15	K7-L1	13216E6193-3	12	14	35.6
TB3-8	MS17143-15	K1-B1	MS25036-112	12	8	20.3
TB3-9	MS17143-15	K7-L2	13216E6193-3	12	14	35.6
TB3-10	MS17143-15	K1-C1	MS25036-112	12	8	20.3
TB3-10	MS17143-15	K7-L3	13216E6193-3	12	14	35.6
K2-A1	MS25036-153	TB3-6	MS17143-14	14	9	22.9
K2-B1	MS25036-153	TB3-8	MS17143-14	14	8.5	21.4
K2-C1	MS25036-153	TB3-11	MS17143-14	15	6	15.2
K6-2	13207E5347-2	K1-X1	MS25036-106	16	4	10.2
K6-1	13207E5347-2	TB3-4	MS17143-14	16	7	17.8
S1-21	MS25036-106	S1-31	MS25036-106	16	3	7.6
M1(-)	13207E5347-2	TB3-1	MS17143-14	14	7	17.8
TB3-2	MS17143-14	K2-X2	MS25036-106	16	8	20.3
TB3-2	MS17143-14	K1-X2	MS25036-106	16	7	17.8
TB3-4	MS17143-14	K2-X1	MS25036-106	16	9.5	24.1
S4	MS25036-153	S5	MS25036-153	16	10	25.4
T1-5	N/A	TB1-9	MS25036-153	16	17	43.2
T1-2	N/A	TB1-6	MS25036-153	16	19	48.3
K5-X2	MS25036-106	TB1-1	MS25036-153	16	7	17.8
K5-A1	MS25036-153	TB1-5	MS25036-153	14	10	25.4
K5-B1	MS25036-153	TB1-7	MS25036-153	14	12	30.5
K5-C1	MS25036-153	TB1-9	MS25036-153	14	14	35.6
K4-A1	MS25036-156	TB1-5	MS25036-156	12	8	20.3
K4-B1	MS25036-156	TB1-7	MS25036-156	12	9.5	24.1

TERMINATION		TERMINATION		AWG WIRE SIZE	LENGTH	
FROM	TERMINAL TYPE	TO	TERMINAL TYPE		IN.	CM.
K4-C1	MS25036-156	TB1-9	MS25036-156	12	11	27.9
K3-A1	MS25036-153	TB1-4	MS25036-153	14	6	15.2
K3-B1	MS25036-153	TB1-6	MS25036-153	14	7.5	19.1
KC-C1	MS25036-153	TB1-8	MS25036-153	14	9	22.9
T1-3	N/A	T1-4	N/A	16	4	10.2

END OF TASK

FINISH REPAINTING AND REFINISHING GENERAL

0016 00

THIS WORK PACKAGE COVERS:

Painting

Tools and Special Tools

Refer to SB 11-573, painting and preservation supplies available for field use for electronics command equipment.

Materials/Parts

Yellow primer MIL-P-52192 or TT-P-1757
Forest green enamel MIL-E-52798

Personnel Required

Unit Technician

Equipment Conditions

Air conditioner removed from shelter if necessary (See WP0006)

PAINTING

- 1 Touch up and repaint in accordance with TB 43-0118, field instructions, for painting and preserving electronics command equipment.
- 2 Care for painting equipment in accordance with TM 43-0139, painting instructions for field use.

END OF TASK

PLUG, DRAIN

0017 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
Removal
Installation

Tools and Special Tools
Allen Wrench

Materials/Parts
Drain Plug WW-P-471ACAAAB

Personnel Required
Unit Technician

The unit is shipped from the factory with drain plugs installed. These plugs must be removed prior to operation. See WP0022 for drain line connection information.

CAUTION

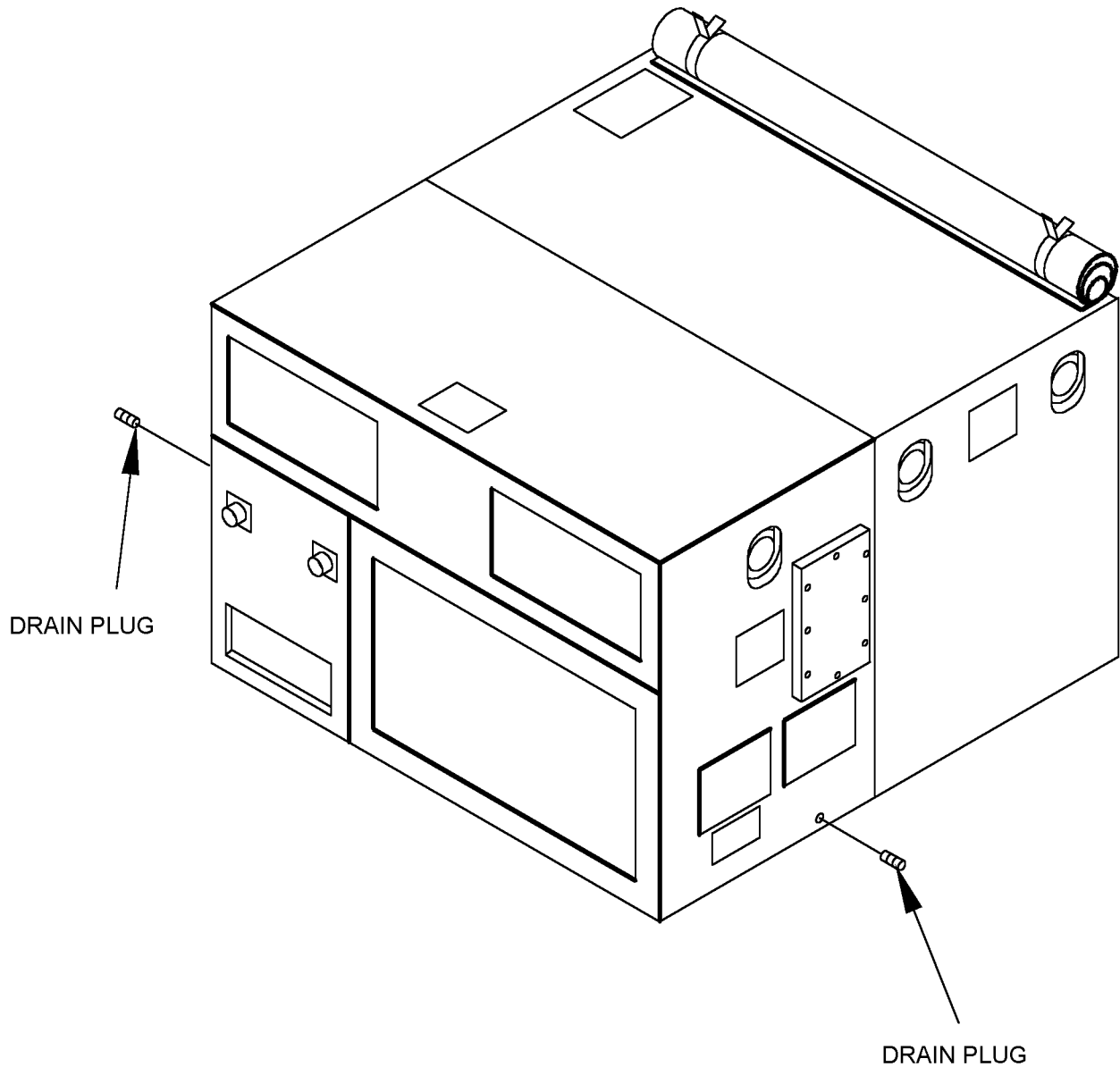
Failure to remove drain plugs will cause water to collect in the bottom of the evaporator section assembly and possible spillage into shelter.

INSPECTION OF INSTALLED ITEMS

Prior to air conditioner operation, check to see that drain plugs have been removed.

REMOVAL

Plug, Drain



Prior to operation, remove drain plugs from both sides of air conditioner using allen wrench.

INSTALLATION

For shipment or extended storage, drain plugs must be reinstalled or drain holes taped closed.

END OF TASK

PROTECTIVE ELECTRICAL CAPS & COVERS

0018 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
Removal
Installation

Tools and Special Tools
Screwdriver, Phillips

Materials/Parts

Cover, Connector MS25043-22DA
Cover, Connector MS27511B20CL

Personnel Required
Unit Technician

Equipment Conditions

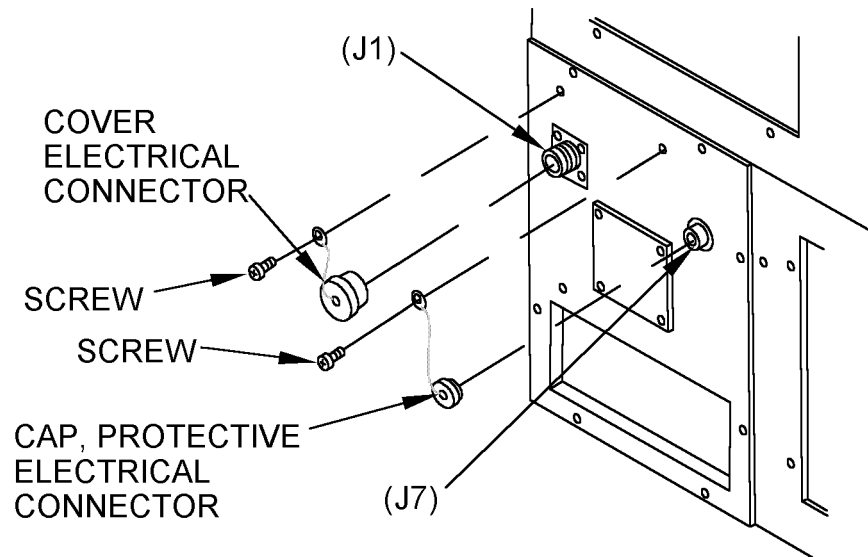
Air conditioner removed from shelter (See
WP0006)

INSPECTION OF INSTALLED ITEMS

Check that internal threads are not damaged, and that chain is in place. If cap or cover will not screw on connector, or chain is missing, the cap or cover should be replaced.

REMOVAL

Protective Electrical Caps and Covers



- 1 Using screwdriver, remove the screw from the end of the chain.
- 2 Unscrew cap or cover from the connector.

INSTALLATION

- 1 Screw the cap or cover in place on the connector.
- 2 Using screwdriver, attach the end of the chain to the front evaporator cover.
- 3 Install air conditioner on shelter (see WP0006).
- 4 END OF TASK

TEMPERATURE SENSING PROBE (A1-RT)

0019 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
Removal
Installation

Tools and Special Tools
Screwdriver
Wrench

Materials/Parts
Temperature Sensing Probe SP4781
Adhesive, Sealant MIL-A-46106, Type I

Personnel Required
Unit Technician

Equipment Conditions
Air conditioner removed from shelter (See WP0006)
Return air screen and frame removed (See WP0027)
Front evaporator cover removed (See WP0025)

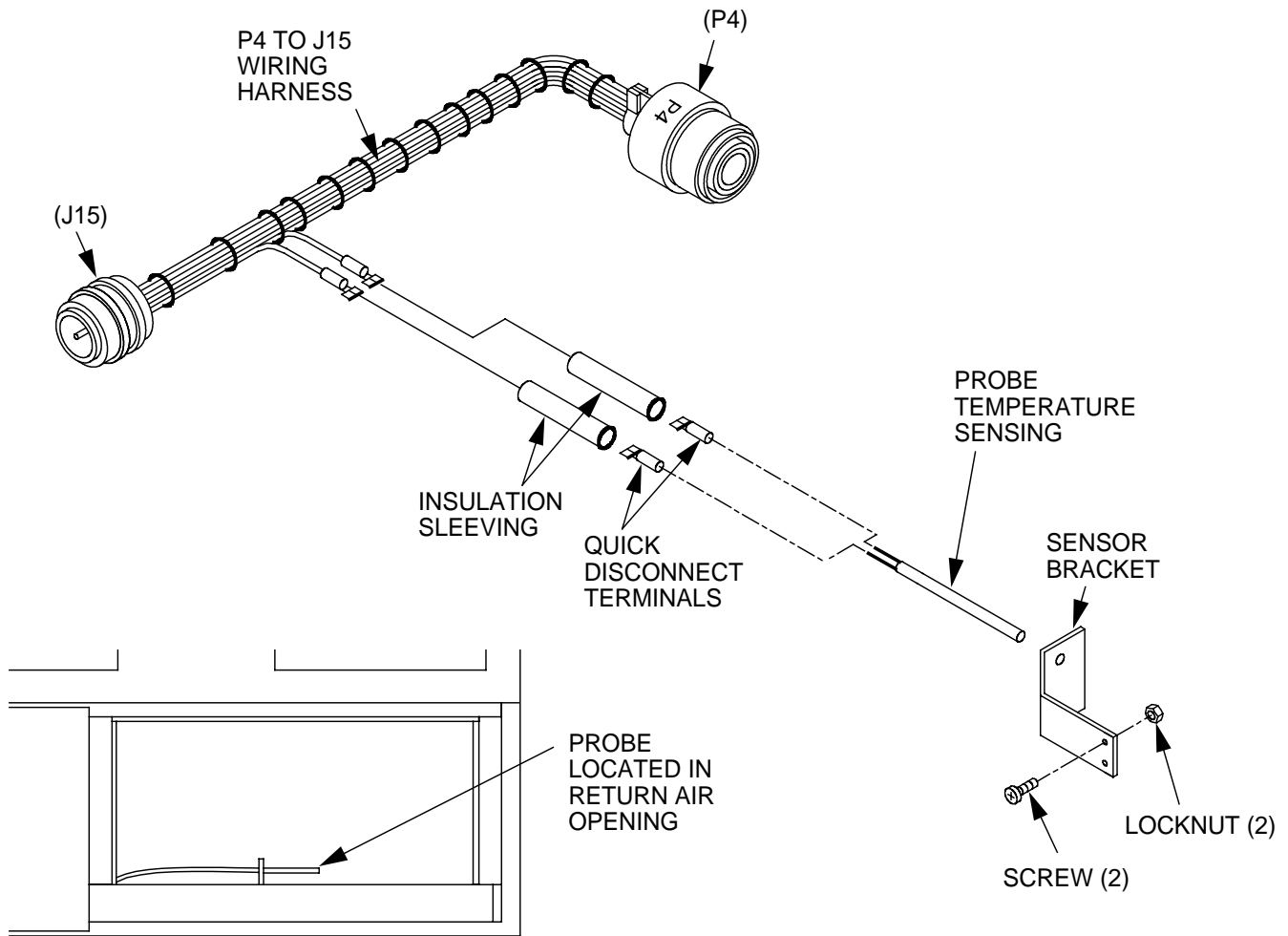
INSPECTION OF INSTALLED ITEMS

- 1 Disconnect the two quick-disconnect terminals from the P4 to J15 harness.
- 2 Check resistance between probe leads. Resistance should be zero. If it is not, replace the temperature-sensing probe.
- 3 Check that probe leads are securely attached to probe and that probe is in good condition. If it is bent, dented, or otherwise damaged, replace it.

- 4 Check that sensor bracket is securely attached and in good condition. If it is loose, tighten hardware. If it is damaged, replace it.

REMOVAL

Temperature Sensing Probe



- 1 Disconnect the two quick-disconnect terminals from the P4 to J15 harness.
- 2 Carefully pull the leads through the side panel.
- 3 Remove adhesive-sealant between probe and bracket.
- 4 Remove the temperature-sensing probe.
- 5 If the sensor bracket is to be replaced, use a screwdriver and wrench and remove the two screws and locknuts. Remove the bracket.

INSTALLATION

If the old probe is to be reinstalled, skip to step 3.

- 1 The sensing probe will be supplied with leads. Slip insulation sleeving over each lead for the entire length, approximately 20 inches (50.8 cm).
- 2 Install a quick-disconnect terminal on each of the two probe lead ends.
- 3 If the sensor bracket was removed, use a screwdriver and wrench and install the bracket with the two screws and locknuts.
- 4 Reapply adhesive sealant between probe and bracket.
- 5 Work the leads through the side panel and connect the two quick-disconnect terminals to the terminals on the P4 to J15 harness.
- 6 Slip the insulation sleeving over the quick-disconnect terminals.
- 7 Install the front evaporator cover. See WP0025.
- 8 Install the return air screen and frame. See WP0027.
- 9 Install the air conditioner on the shelter. See WP0006.

END OF TASK

THERMOSTATIC SWITCHES (S2 AND S3), TERMINAL BOARD (TB2), AND TERMINAL BOARD SUPPORT

0020 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
 Removal
 Installation
 Testing

Tools and Special Tools
 Screwdriver, phillips
 Wrench, socket
 Multimeter

Materials/Parts	
Thermostatic Switch	13226E1622
Terminal Board	37TB14
Marker Strip	13219E9489-1
Support Assy, Terminal	13219E9551

Personnel Required
 Unit Technician

Equipment Conditions
 Power disconnected
 Top evaporator cover removed (See WP0026)
 Fan and motor assembly removed (See WP0030)

INSPECTION OF INSTALLED ITEMS

WARNING

Disconnect input power to the air conditioner before performing any maintenance to the electrical system. Voltages used can be lethal. Shutting the unit off at the control module does not disconnect power to the various components of the air conditioner.

NOTE

Test switch when the temperature is below 100E F (38E C).

- 1 Tag leads, using screwdriver, remove four screws that hold leads to switch. (There are two switches.)
- 2 Test for continuity between switch terminals 1 and 2 and between terminals 3 and 4. If none, switch should be replaced.

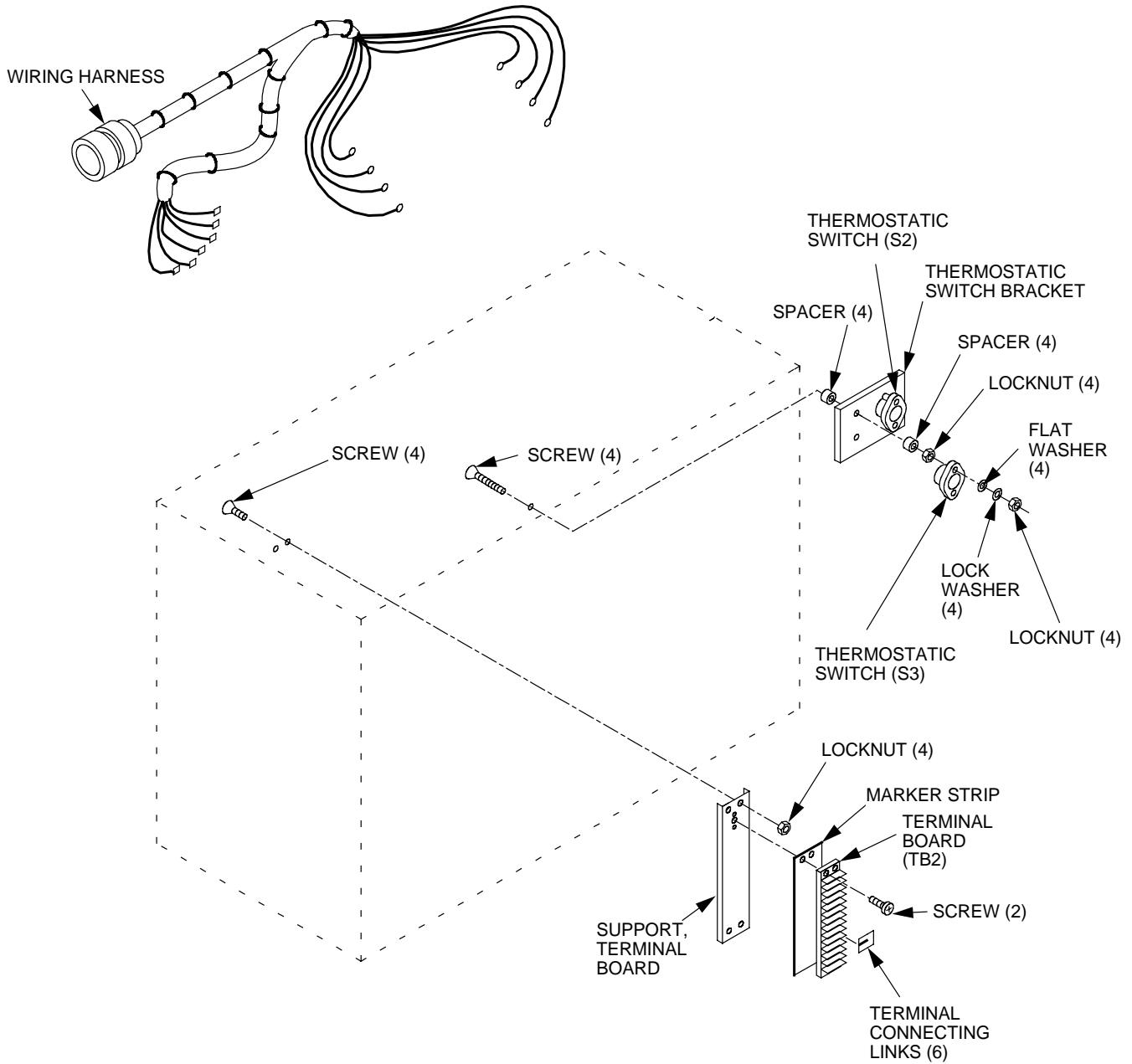
NOTE

Switch contacts should open at 185-190E F (85-88E C) and close when temperature drops to 140-160E F (60-71E C).

- 3 Check terminal board for loose or corroded terminals, cracks, and obvious damage. Replace if terminals are corroded or if terminal board is cracked or broken.
- 4 Check marker strip for general condition. Replace if it is cracked, broken, or you cannot read the numbers.
- 5 Check terminal board support for cracks and loose or damaged plate nuts or rivets. Replace the support if it is cracked or broken. Replace the rivets if they are loose. Replace the plate nut if it is damaged or missing.

REMOVAL

Thermostatic Switches (S2 and S3), Terminal Board (TB2), and Terminal Board Support



- 1 Using screwdriver, tag and remove leads from each thermostatic switch.
- 2 Using screwdriver and socket, remove the four locknuts, lockwashers, and flat washers and remove each thermostatic switch.
- 3 Remove four screws, four locknuts, and eight spacers to remove bracket.

- 4 Using screwdriver, tag and disconnect terminal board leads from heaters and wiring harness.
- 5 Disconnect six terminal connecting links.
- 6 Using screwdriver, remove two screws that hold terminal board.
- 7 Remove the terminal board and marker strip.
- 8 If the terminal board support is to be removed, see WP0014 and separate the evaporator and condenser section assemblies.
- 9 Using screwdriver and wrench remove the four screws and locknuts and remove the terminal board support.

INSTALLATION

NOTE

If the terminal board support was not removed, skip steps 1 and 2

- 1 Using screwdriver and wrench, install the terminal board support with four screws and locknuts.
- 2 See WP0014 and reconnect the evaporator and condenser section assemblies.
- 3 Using screwdriver, install the terminal board and marker strip with two screws.
- 4 Connect the six terminal connecting links.
- 5 See tags and wiring diagram, and connect the leads from the heaters and wiring harness. Remove the tags.
- 6 Secure thermostatic switch bracket to evaporator section back wall with four screws, four locknuts and eight spacers.
- 7 Place thermostatic switches on protruding screw threads and secure each switch with two flat washers, lockwashers, and locknuts.
- 8 See tags and wiring diagram and connect leads. Remove the tags.
- 9 Install top evaporator cover (See WP0026).
- 10 Install the fan and motor assembly (See WP0030).
- 11 Connect power.

TESTING

- 1 Inspect for cracks, loose connections, and obvious damage. Replace if defective.
- 2 Tape the bulb of a thermometer or junction of a thermocouple to the body of a thermostatic switch, and connect the multimeter to terminals one and two. Use a 150-watt bulb or a heat source. Gradually apply heat while observing both the thermometer and the multimeter. Continuity should drop out at 185 to 190E F (85 to 88E C). Remove heat source and let the thermostat cool while observing the thermostat and multimeter. Continuity should be re-established at 140 to 160E F (60 to 71E C).
- 3 Repeat step 2 with meter connected to terminals 3 and 4.
- 4 If the thermostatic switch does not meet the above requirements, replace it.
- 5 Check condition of thermostatic switch bracket. Replace the bracket if it is badly bent, cracked, or otherwise damaged. If the rivets or plate nuts are loose, missing, or damaged, repair or replace them.

END OF TASK

HEATING ELEMENTS (HR1 THROUGH HR15)

0021 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items

Removal

Disassembly

Assembly

Installation

Testing

Tools and Special Tools

Screwdriver

Wrench, socket

Multimeter

Materials/Parts

Heating Element 13226E1621

Bracket 13226E1620

Personnel Required

Unit Technician

Equipment Conditions

Top evaporator cover removed (See
WP0026)Fan and motor assembly removed (See
WP0030)

Power disconnected

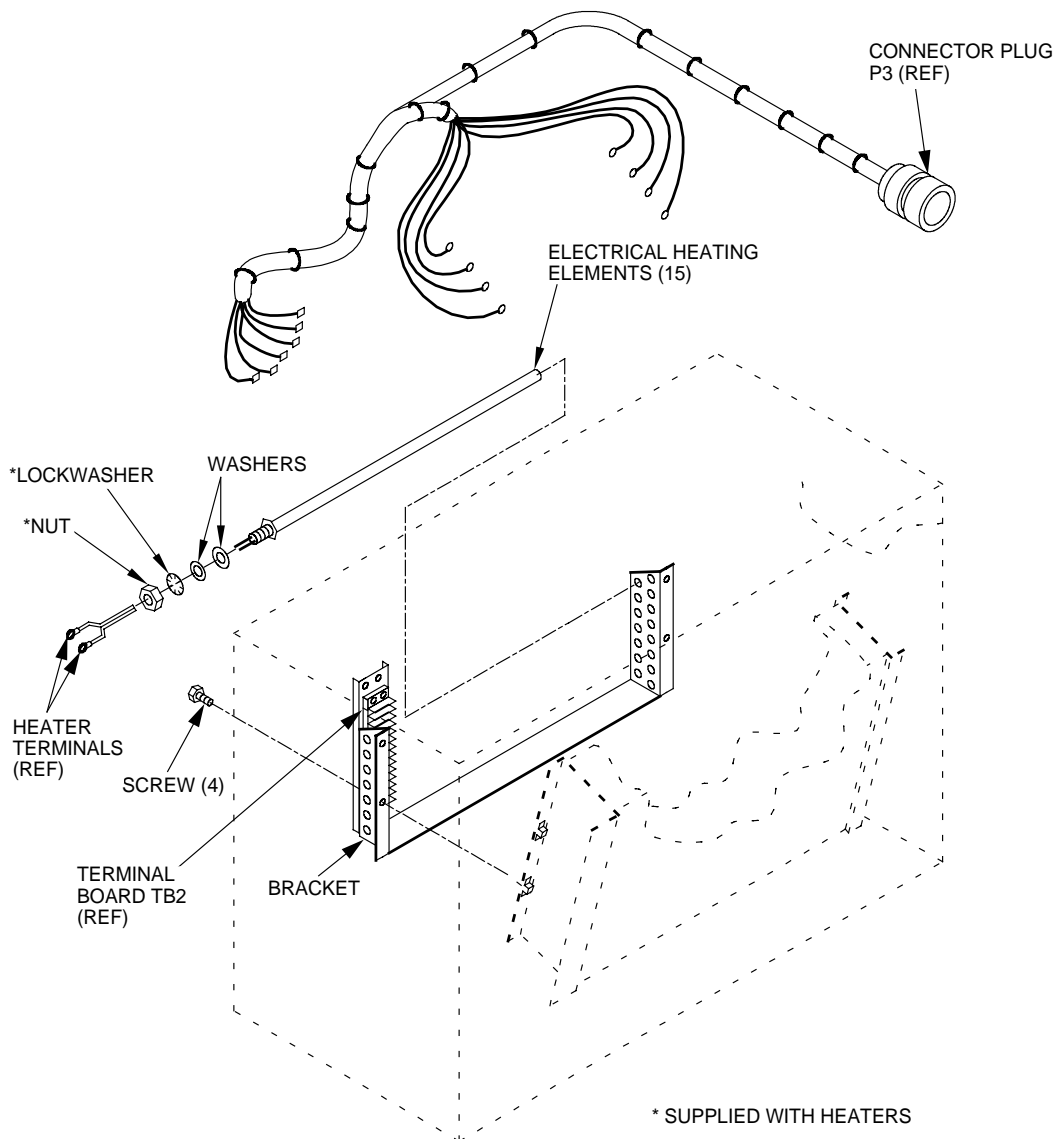
INSPECTION OF INSTALLED ITEMS**WARNING**

Allow heaters to cool before touching. Severe burns can result from touching hot heaters.

- 1 Visually inspect each heater for obvious damage, deformation, cracked or broken sheath, burnt out spots and loose, broken, or otherwise damaged leads. Replace if any damage is found.
- 2 Using a multimeter, check the resistance of each heating element. Resistance should be 67 to 75 ohms. Replace heating elements that do not indicate proper resistance.
- 3 Using a multimeter, check each heating element for shorts. Check between heater wire and heater body. No reading should be indicated. Replace heating elements that indicate shorts.
- 4 Check heater mounting bracket for cracks, breaks, and severe dents. Replace if damaged.

REMOVAL

Heater Assembly



- 1 Using screwdriver, tag and disconnect heater leads from terminal board TB2.
- 2 Using screwdriver, remove the four screws from the mounting bracket flanges.
- 3 Carefully lift the heater assembly up and out of the unit.

DISASSEMBLY

- 1 The following disassembly instructions cover removal of only one heater. Should more than one or all of the heaters have to be removed, repeat steps listed for each heater to be removed.
- 2 Using wrench, remove nut from threaded end of heater.
- 3 Carefully slip nut, lockwasher, and washers over and off of leads.
- 4 Slip heater far enough to pull leads through heater mounting hole. Take care that leads are not damaged if heater is to be reinstalled.
- 5 Slip heater to the side and pull it away from the bracket hole.
- 6 If mounting bracket is to be replaced, remove all fifteen heaters.

ASSEMBLY

- 1 Slip the smooth end of the heater through the hole far enough that leads can be placed through the matching hole on the opposite side of the bracket.

NOTE

When installing new heaters, the nut, lockwasher, washer, and insulating washer are provided with the heater. This hardware will have to be removed prior to step 1. Discard insulating washer.

- 2 Carefully slide the leads and the threaded end of the heater into the matching hole in the far end of the bracket.
- 3 Carefully slip the washers, lockwasher, and nut over the leads and onto the threaded heater end.
- 4 Using wrench, secure the heater nut.

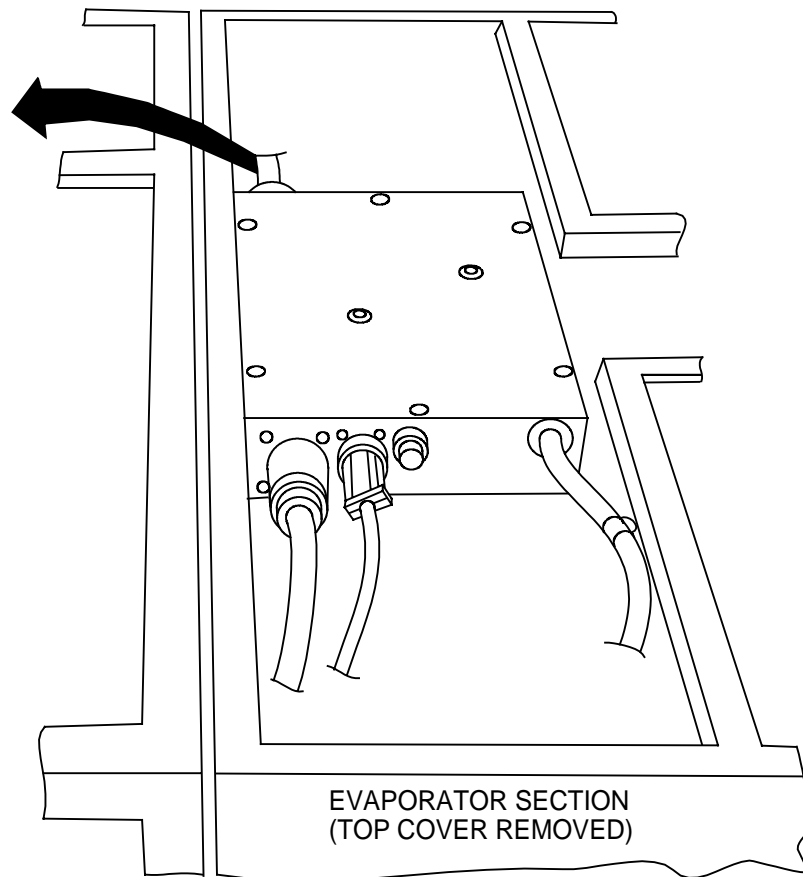
INSTALLATION

- 1 Carefully slip the heater assembly down into the unit.

- 2 Using screwdriver, secure the heater assembly to the flanges of the evaporator coil with four screws.
- 3 See tags and wiring diagram and connect heater leads at terminal block TB2. Remove the tags.
- 4 Install fan and motor assembly (See WP0030).

TESTING

Heater Test (Installed)



- 1 Remove heater wiring harness connector P3 from connector J3 on right side of electrical module assembly.
- 2 Using multimeter, measure resistance between pins in P3 connector: (Pin G is not used.)
- 3 A to C, Resistance should be 13 to 19 ohms.
- 4 A to B, Resistance should be 13 to 19 ohms.
- 5 B to C, Resistance should be 13 to 19 ohms.

- 6 D to E, Resistance should be 20 to 26 ohms.
- 7 D to F, Resistance should be 20 to 26 ohms.
- 8 E to F, Resistance should be 20 to 26 ohms.
- 9 If any of the above tests show a failure, replace heater element.
- 10 Install top evaporator cover. (See WP0026)
- 11 Connect power.

END OF TASK

PLASTIC TUBING (CONDENSATE DRAIN)

0022 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
Removal
Installation

Tools and Special Tools
Screwdriver

Materials/Parts
Tubing, Silicone ZZR-R-765CLAGR505236K17

Personnel Required
Unit Technician

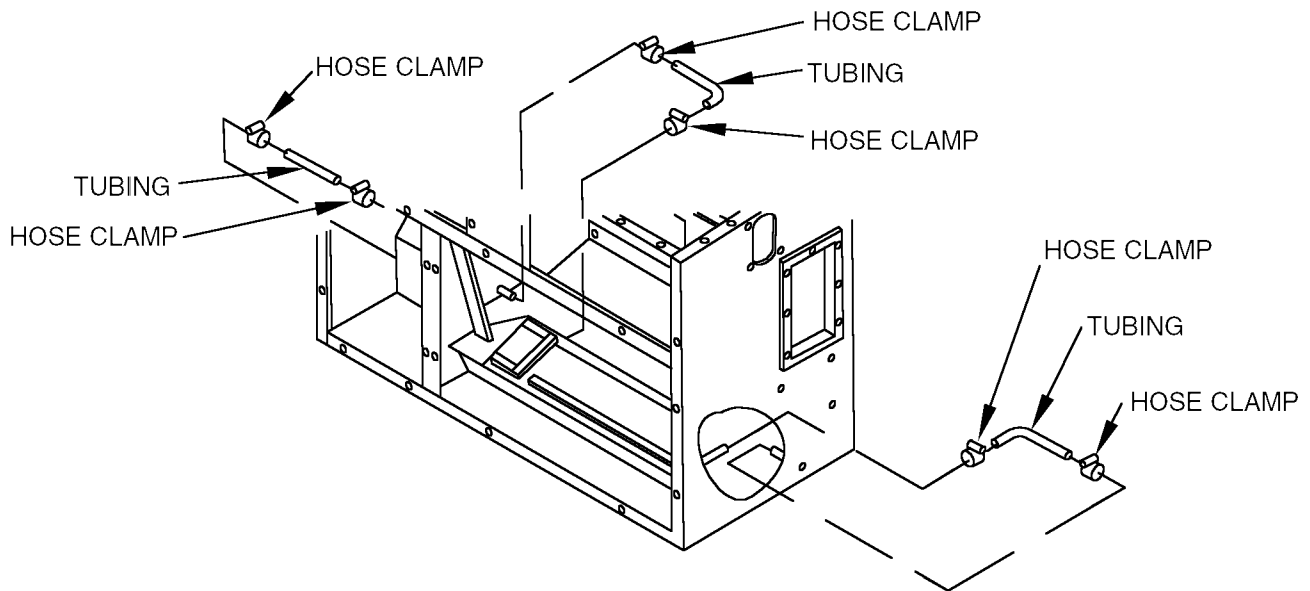
Equipment Conditions
Air conditioner removed from shelter (See
WP0006).
Necessary covers removed for access to
tube(s).

INSPECTION OF INSTALLED ITEMS

- 1 Check tubing for cuts, splits, and deteriorated condition. Replace damaged tubing.
- 2 Check that clamps are not loose or missing.
- 3 Check that tubing and connection points are not clogged.

REMOVAL

Condensate Drain Tubing



- 1 Remove clamps.
- 2 Pull tubing loose from connection points.

INSTALLATION

- 1 Slip clamps over tubing.
- 2 Slip tubing on to connection points.
- 3 Secure clamps in place.
- 4 Install parts and covers that were removed.
- 5 Install air conditioner on shelter. (See WP0006.)

END OF TASK

FILTER, RADIO FREQ. & GASKET

0023 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
Removal
Installation
Testing

Tools and Special Tools
Screwdriver
Wrench, socket

Materials/Parts
Radio Frequency Filter 13221E9137

Personnel Required
Unit Technician

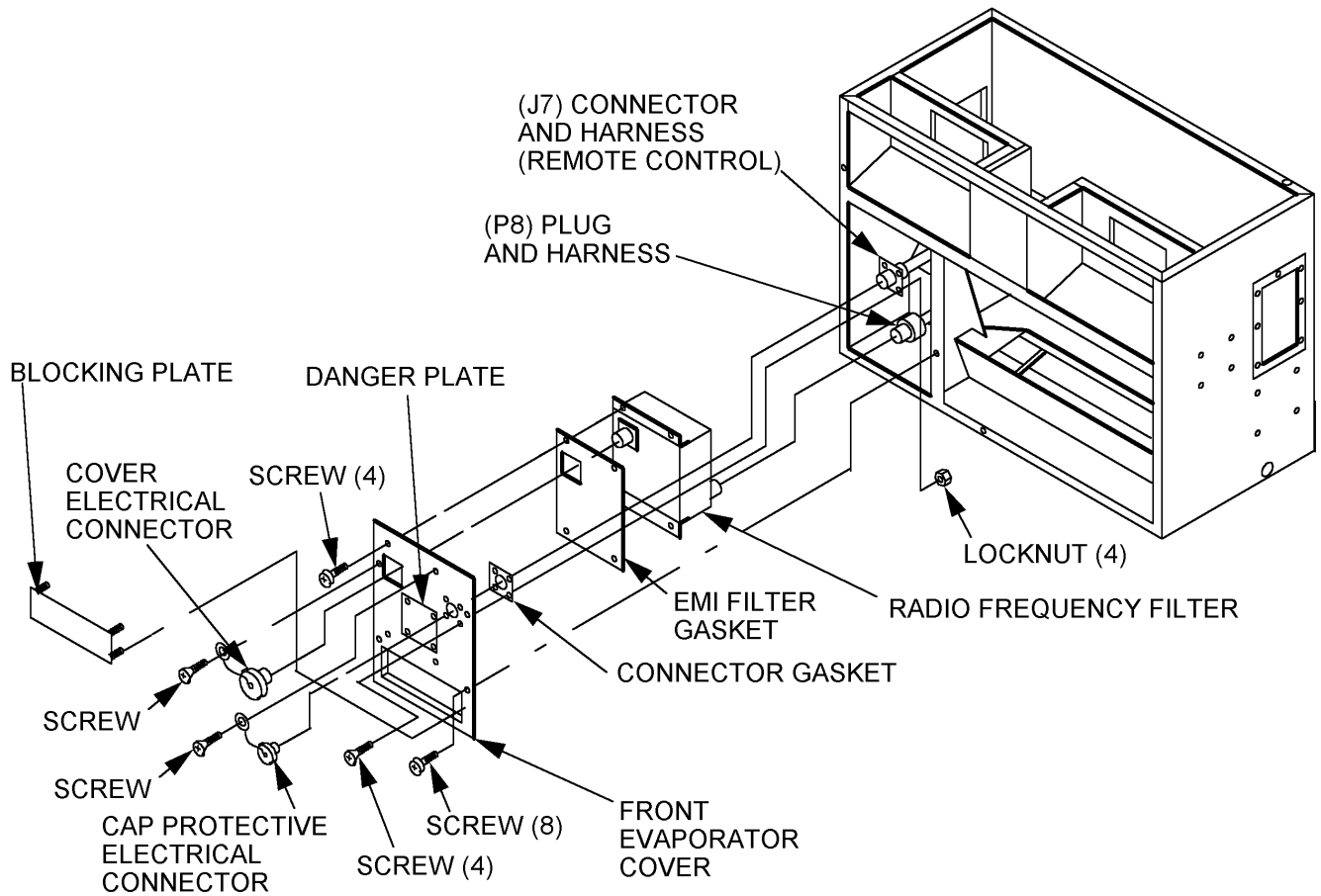
Equipment Conditions
Air conditioner removed from shelter (See
WP0006)

INSPECTION OF INSTALLED ITEMS

- 1 Check the radio frequency filter housing for physical damage such as dents, punctures, cuts, and ruptured seams. Replace if damaged.
- 2 Look for evidence of overheating. Replace if overheating is indicated.
- 3 Check that connectors are secure and contacts are tight and not damaged. Replace if connectors are loose or damaged.
- 4 Check that EMI filter gasket is in good condition. Replace if damaged.

REMOVAL

Radio Frequency Filter (FL1)



- 1 Using screwdriver, remove eight screws from the outside edges of the front evaporator cover, while supporting (holding) cover.
- 2 Carefully slip front cover out and down so that the radio frequency filter can be supported (held) while it is removed.
- 3 Using screwdriver, remove four screws from the radio frequency filter. The protective cap and cover for the electrical connectors will come off when the two top screws are removed. Take care that they are not lost.
- 4 Sit the filter down on the inside of the evaporator housing. Take care that the EMI filter gasket is not damaged or lost.
- 5 Using a screwdriver, socket and ratchet, remove the four screws and locknuts from the remote control harness connector (J7).

- 6 Remove the connector (J7) harness and connector gasket from the backside of the cover. Take care that the connector gasket is not lost.
- 7 Slide the radio frequency filter out and disconnect the P8 plug and harness from the backside of the filter.

INSTALLATION

- 1 Connect the P8 plug and harness to the J8 connector on the backside of the filter.
- 2 Using a screwdriver, socket and ratchet, attach the remote control harness connector (J7) and connector gasket to the front evaporator cover with four screws and locknuts.
- 3 Align the holes in the EMI gasket, radio frequency filter and front evaporator cover.
- 4 Using a screwdriver, install the two bottom screws in the cover and radio frequency filter.
- 5 Using a screwdriver, attach the chain ends for the protective connector cap and cover when the two top radio frequency filter mounting screws are installed.
- 6 Line up screw holes in cover and air conditioner housing.
- 7 Using screwdriver, install cover with eight screws.
- 8 Install air conditioner on shelter. See WP0006.

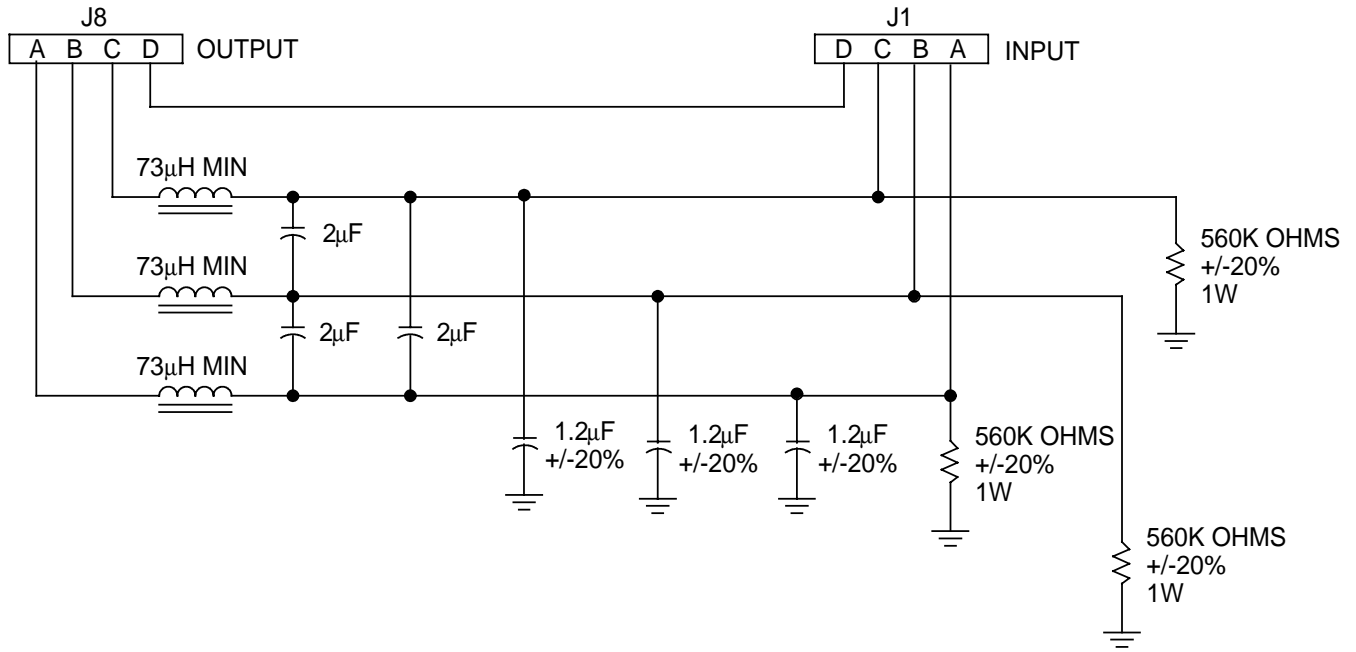
TESTING

- 1 Continuity test the filter. Replace if found bad.
- 2 Continuity-Test J1 to J8, A to A, B to B, C to C, D to D

NOTE

Continuity testing does not necessarily predict the behavior of capacitors under load. If the filter still does not operate properly after passing the continuity test, substitute a filter known to be good.

Radio Frequency Filter (FL1) Internal Diagram



END OF TASK

COVERS, ACCESS, AND FRESH AIR

0024 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
Removal
Repair or Replacement
Installation

Tools and Special Tools
Screwdriver, Phillips
Knife

Materials/Parts

Access Cover 13219E9484
Fresh Air Cover 13219E9486
Dry Cleaning Solvent P-D-680 Type III
Adhesive, Sealant MIL-A-46106 Type I

Personnel Required
Unit Technician

Equipment Conditions

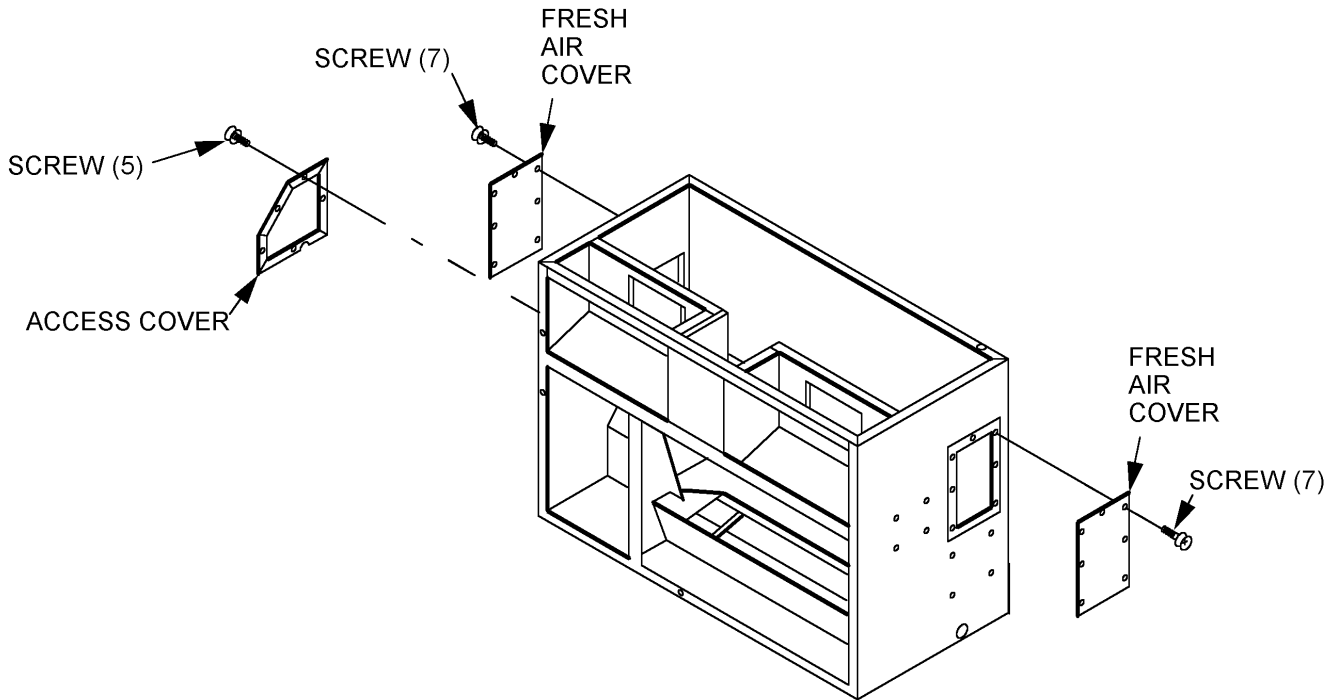
Air conditioner turned off at circuit breaker
Power cable disconnected at washboard

INSPECTION OF INSTALLED ITEMS

- 1 Check that covers are not bent or punctured. Repair or replace if damaged.
- 2 Check that EMI gaskets are not cracked, loose, or missing. Repair if damaged.

REMOVAL

Covers, Access, and Fresh Air



WARNING

Disconnect input power to the air conditioner before performing any maintenance to the electrical system. Voltages used can be lethal. Shutting the unit off at the control module does not disconnect power to the various components of the air conditioner.

- 1 Using screwdriver, remove five screws from access cover.
- 2 Carefully remove the access cover.
- 3 Using screwdriver, remove seven screws from either fresh air cover.
- 4 Lift either fresh air cover from the air conditioner.

REPAIR OR REPLACEMENT

NOTE

Prior to removal of old gasket material or insulation, cut the new replacement material to size using the old item as a sample.

- 1 Remove as much old gasket or insulation material as possible by pulling or scraping it away from the metal surface.

WARNING

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

- 2 Soften and remove old adhesive and gasket residue, using dry cleaning solvent and a stiff brush.
- 3 Minor dents and bent edges can be straightened using common sheet metal repair procedures. Panels that are badly dented, bent, or punctured should be replaced.
- 4 Should touch up or refinishing be necessary, see WP0016.
- 5 Use only approved replacement material as specified in Chapter 8.
- 6 EMI gasket material specified for this unit is supplied with adhesive backing.
- 7 Cut gasket to size. Be sure that EMI gasket corners are mitered so that good continuous edge contact is made.
- 8 Be sure that surface to which gasket is to be applied is clean and free of paint and old adhesive material.
- 9 Remove backing material from adhesive side and immediately press gasket in place. Be sure that good edge-to-edge contact is made on the EMI gaskets.
- 10 Cut insulation to size.
- 11 Be sure that the surface to which the insulation is to be applied is clean and free of paint and old adhesive material.
- 12 Coat the mating surfaces of the metal and the insulation with adhesive. Let both surfaces air dry until the adhesive is tacky but will not stick to the fingers.
- 13 Starting with an end, carefully attach the insulation to the metal. Press into firm contact all over.

INSTALLATION

- 1 Line up screw holes in access cover and air conditioner housing.
- 2 Using screwdriver, install cover with five screws.
- 3 Line up screw holes in either fresh air cover and air conditioner housing.

- 4 Using screwdriver, install cover with seven screws.
- 5 Connect power cable at washboard and turn air conditioner circuit breaker on.

END OF TASK

COVER, FRONT, EVAPORATOR AND BLOCKING PLATE

0025 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
 Removal
 Repair or Replacement
 Installation

Tools and Special Tools

Screwdriver, Phillips

Wrench, Socket

Knife

Installation Tool H7503-8

Materials/Parts

Front Evaporator Cover SP3909

Danger Plate 015W203

Blocking Plate SP4075

Dry Cleaning Solvent P-D-680 Type III

Adhesive, Sealant MIL-A-46106 Type I

Personnel Required

Unit Technician

Equipment Conditions

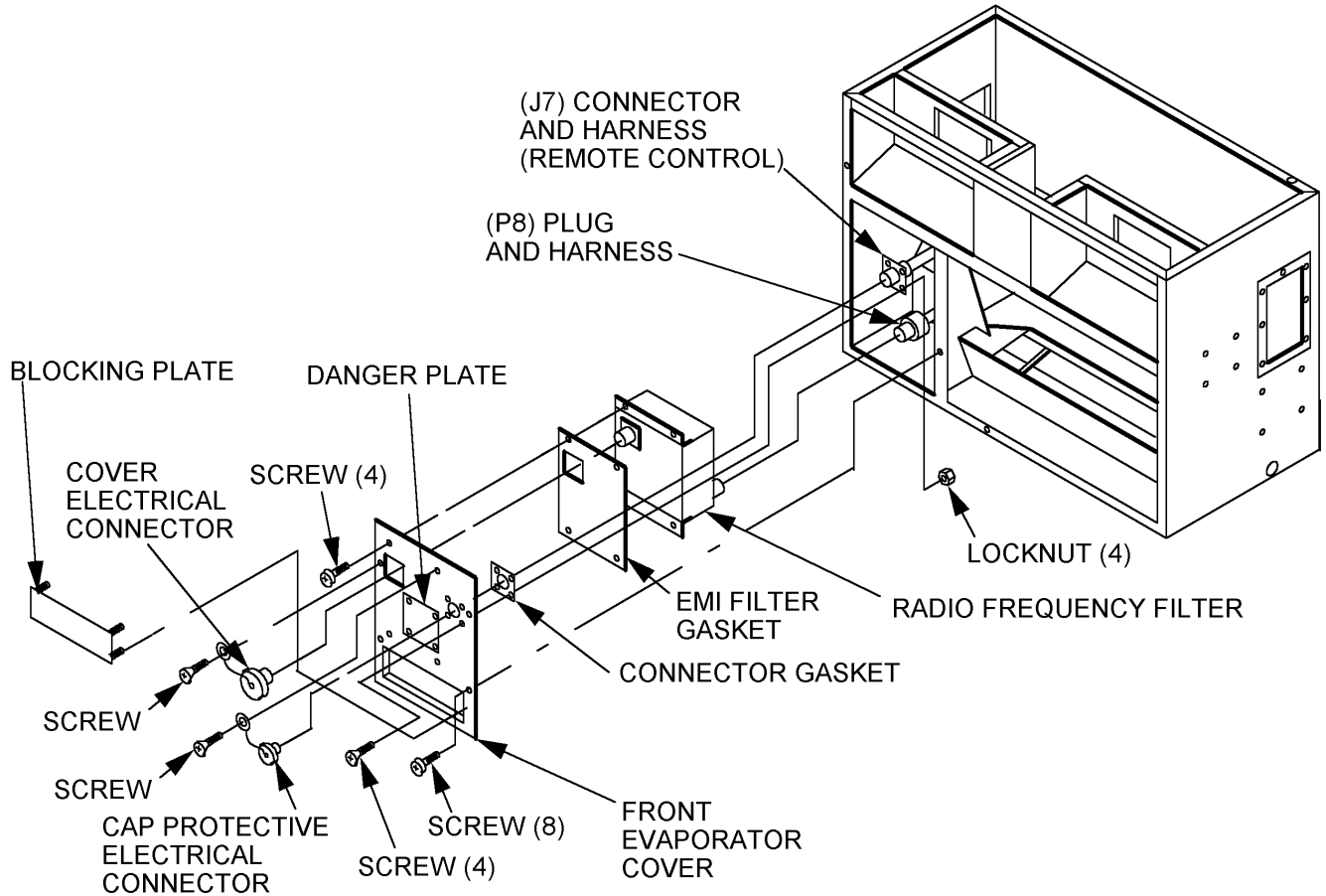
Air conditioner removed from shelter (See WP0006)

INSPECTION OF INSTALLED ITEMS

- 1 Check that cover and blocking plate are not bent or punctured. Repair or replace if damaged.
- 2 Check that danger plate is in place and legible. Replace if damaged.
- 3 Check that EMI gaskets are not cracked, loose, or missing. Replace if damaged.

REMOVAL

Cover, Front, Evaporator



- 1 Using screwdriver, remove eight screws from the outside edges while supporting (holding) cover.
- 2 Carefully slip front cover out and down so that the radio frequency filter can be supported (held) while it is removed.
- 3 Using screwdriver, remove four screws from the radio frequency filter. The protective cap and cover for the electrical connectors will come off when the top two screws are removed. Take care that they are not lost.
- 4 Set the filter down on the inside of the evaporator housing. Take care that the EMI filter gasket is not damaged or lost.
- 5 Using a screwdriver, socket, and ratchet, remove the four screws and locknuts from the remote control harness connector (J7).

- 6 Remove the connector (J7) harness and connector gasket from the backside of the cover. Take care that the connector gasket is not lost.
- 7 Blocking plate may be removed by loosening four captive screws.

REPAIR OR REPLACEMENT

- 1 If captive screws are missing or damaged, install new ones.

NOTE

Installation tool (08524) H7503-8 is required for captive screw installation. Place captive screw through hole in cover. Turn captive screw into nose threads of installation tool. Squeeze installation tool handles together firmly. Unscrew installation tool.

Gasket material and insulation are replaceable both on front cover and blocking plate, so all instructions below apply to both.

Prior to removal of old gasket material or insulation, cut the new replacement material to size using the old item as a sample.

- 2 Remove as much old gasket or insulation material as possible by pulling or scraping it away from the metal surface.

WARNING

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

- 3 Soften and remove old adhesive and gasket residue, using dry cleaning solvent and a stiff brush.
- 4 To replace danger plate, use a drill bit slightly smaller than the diameter of the rivet being removed.
- 5 Drill the rivets out and remove the old plate.
- 6 Align holes in replacement plate and cover and install new rivets.
- 7 Minor dents and bent edges can be straightened using common sheet metal repair procedures. Panels that are badly dented, bent, or punctured should be replaced.
- 8 Should touch up or refinishing be necessary, see WP0016.
- 9 Use only approved replacement material as specified in Chapter 8.

- 10 EMI gasket material and regular gasketing specified for this unit are supplied with adhesive backing.
- 11 Cut gasket to size. Be sure that EMI gasket corners are mitered so that good continuous edge contact is made.
- 12 Be sure that surface to which gasket is to be applied is clean and free of paint and old adhesive material.
- 13 Remove backing material from adhesive side and immediately press gasket in place. Be sure that good edge-to-edge contact is made on the EMI gaskets.

INSTALLATION

- 1 Install blocking plate and secure with four captive screws.
- 2 Using a screwdriver, socket and ratchet, attach the remote control harness connector (J7) and connector gasket to the front evaporator cover with four screws and locknuts.
- 3 Align the holes in the EMI gasket, radio frequency filter, and front evaporator cover.
- 4 Using a screwdriver, install the two bottom screws in the cover and radio frequency filter.
- 5 Using a screwdriver, attach the chain ends for the protective connector cap and cover when the two top radio frequency mounting screws are installed.
- 6 Line up screw holes in cover and air conditioner housing.
- 7 Using screwdriver, install cover with eight screws.
- 8 Install air conditioner on shelter. (See WP0006)

END OF TASK

COVER, TOP, EVAP.

0026 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
Removal
Repair or Replacement
Installation

Tools and Special Tools
Screwdriver, Phillips
Knife

Materials/Parts	
Top Evaporator Cover	13219E9481
Danger Plate	015W203
Dry Cleaning Solvent	P-D-680 Type III
Adhesive, Sealant	MIL-A-46106 Type I

Personnel Required
Unit Technician

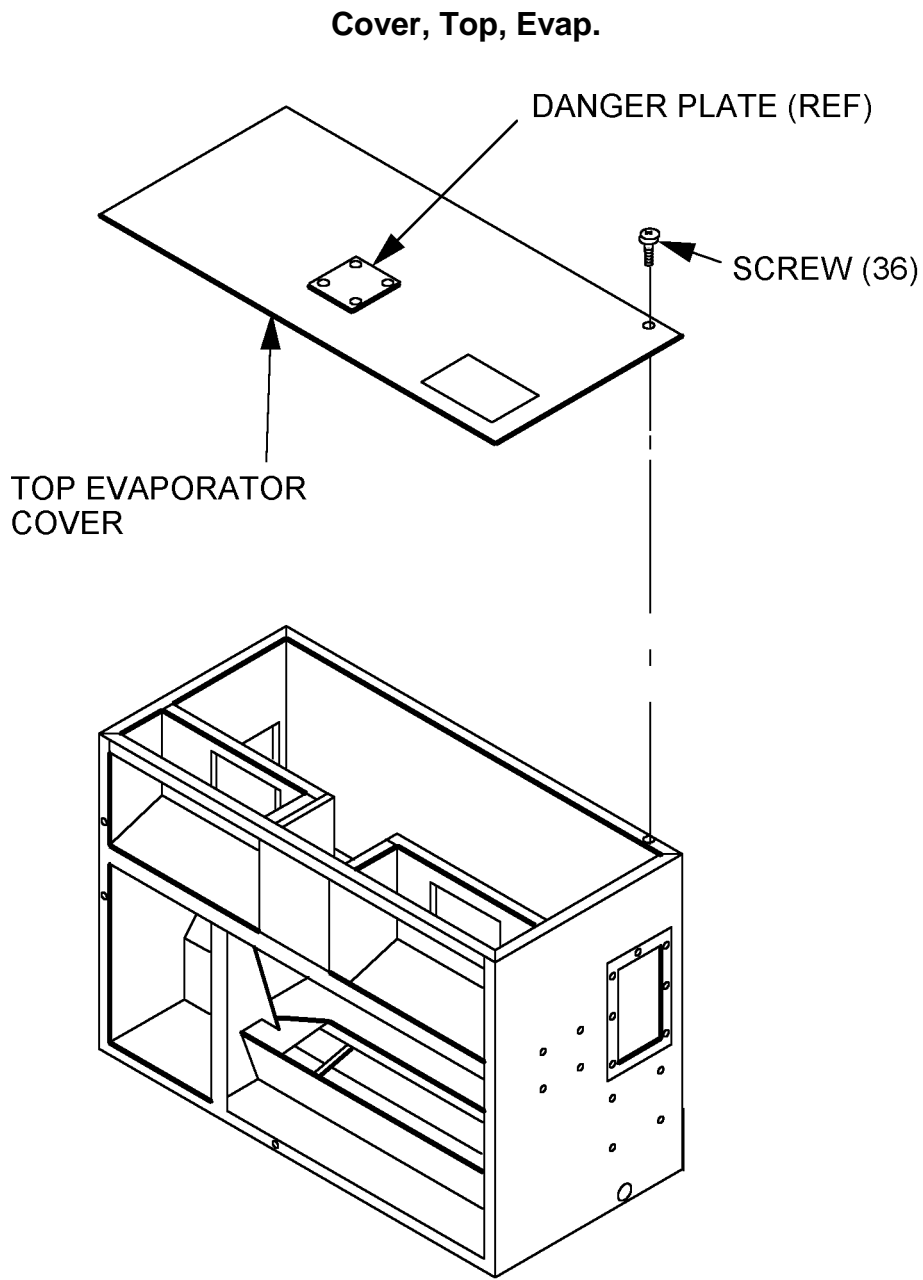
Equipment Conditions
Air conditioner turned off at circuit breaker
Power cable disconnected at washboard
Air conditioner removed from shelter (See
WP0006)
Shelter adapter rain shield removed

INSPECTION OF INSTALLED ITEMS

- 1 Check that cover is not bent or punctured. Replace if damaged.
- 2 Check that EMI and other gaskets and insulation are not cracked, loose, or missing. Replace if damaged.

- 3 Check that danger plate is readable and in place. Replace if damaged.

REMOVAL



WARNING

Disconnect input power to the air conditioner before performing any maintenance to the electrical system. Voltages used can be lethal. Shutting the unit off at the control module does not disconnect power to the various components of the air conditioner.

- 1 Using screwdriver, remove thirty-six screws.
- 2 Carefully lift the top cover from the air conditioner.

REPAIR OR REPLACEMENT

NOTE

Prior to removal of old gasket material or insulation, cut the new replacement material to size using the old item as a sample.

- 1 Remove as much old gasket or insulation material as possible by pulling or scraping it away from the metal surface.

WARNING

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

- 2 Soften and remove old adhesive and gasket residue, using dry cleaning solvent and a stiff brush.
- 3 To replace danger plate, use a drill bit slightly smaller than the diameter of the rivet being removed.
- 4 Drill the rivets out and remove the old plate.
- 5 Align holes in replacement part and cover and install new rivets.
- 6 Minor dents and bent edges can be straightened using common sheet metal repair procedures. Panels that are badly dented, bent, or punctured should be replaced.
- 7 Should touch up or refinishing be necessary, see WP0016.
- 8 Use only approved replacement material as specified in Chapter 8.
- 9 EMI gasket material specified for this unit is supplied with adhesive backing.
- 10 Cut gasket to size. Be sure that EMI gasket corners are mitered so that good continuous edge contact is made.
- 11 Be sure that surface to which gasket is to be applied is clean and free of paint and old adhesive material.
- 12 Remove backing material from adhesive side and immediately press gasket in place. Be sure that good edge-to-edge contact is made on the EMI gaskets.

- 13 Cut insulation to size.
- 14 Be sure that the surface to which the insulation is to be applied is clean and free of paint and old adhesive material.
- 15 Coat the mating surfaces of the metal and the insulation with adhesive. Let both surfaces air dry until the adhesive is tacky but will not stick to the fingers.
- 16 Starting with an end, carefully attach the insulation to the metal. Press into firm contact all over.

INSTALLATION

- 1 Line up screw holes in cover and air conditioner housing.
- 2 Using screwdriver, install cover with thirty-six screws.
- 3 Install air conditioner on shelter (See WP0006).
- 4 Connect power cable at washboard and turn air conditioner circuit breaker on.

END OF TASK

FRAME, RETURN AIR

0027 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
Removal
Cleaning
Repair or Replacement
Installation

Tools and Special Tools
Screwdriver, Phillips
Wrench, Socket
Knife

Materials/Parts
Return Air Frame 13219E9589
Dry Cleaning Solvent P-D-680 Type III
Adhesive, Sealant MIL-A-46106 Type I

Personnel Required
Unit Technician

Equipment Conditions
Air conditioner removed from shelter (See
WP0006)

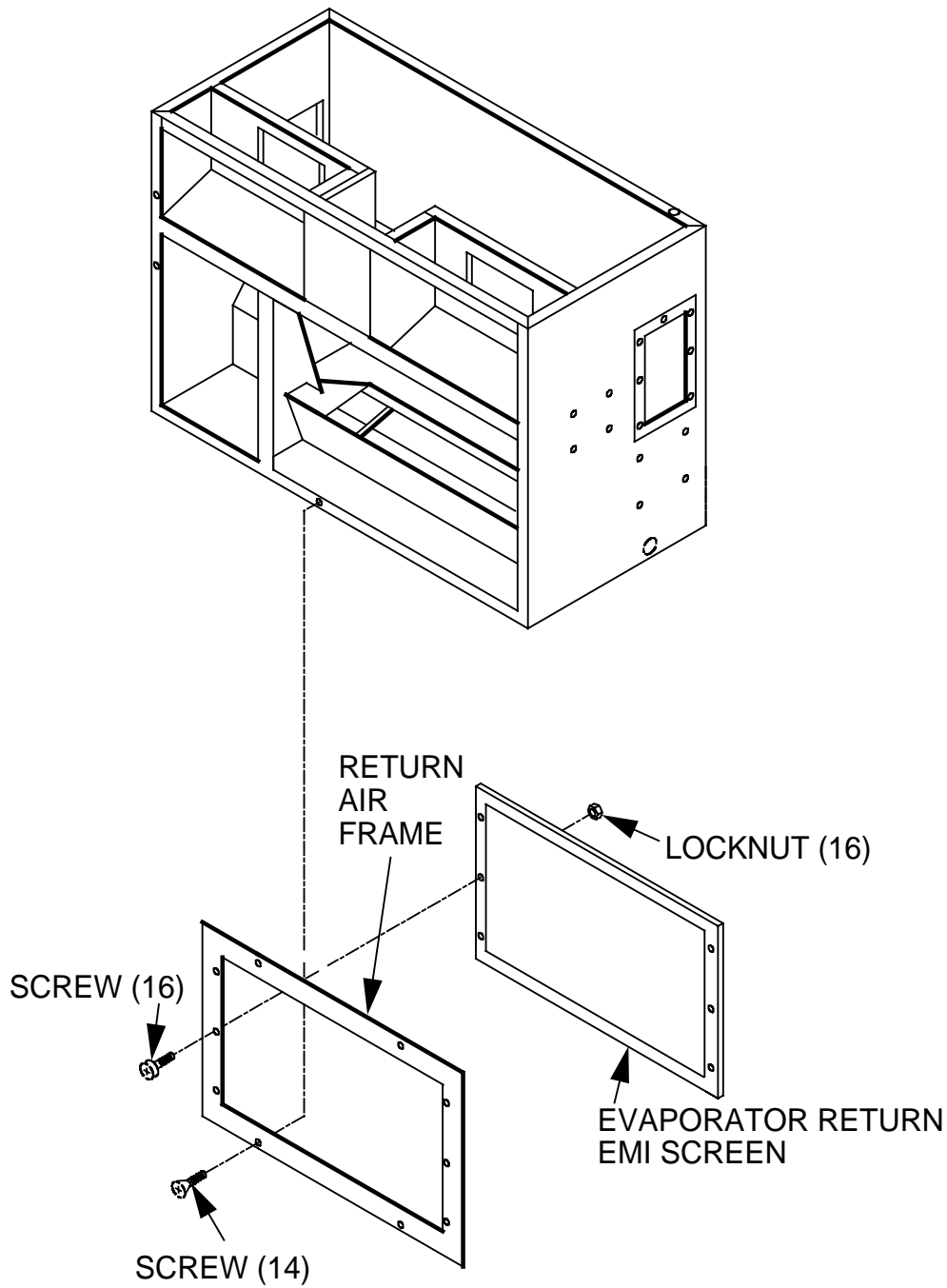
INSPECTION OF INSTALLED ITEMS

- 1 Check that return air frame is not bent, cracked, or punctured. Replace if damaged.
- 2 Check that EMI gaskets are not cracked, loose, torn, or missing.
- 3 Check that screen frame is not bent, dented, or mashed. Replace if damaged.
- 4 Check that honeycomb area is not crushed, dented, pierced, or torn. Replace if damaged.

- 5 Check that screen is not clogged with dirt or other material that would block free air flow through screen. Clean screen if dirty or clogged.

REMOVAL

Frame, Return Air



- 1 Using screwdriver, remove fourteen screws from the outside edges of the frame.

- 2 Being careful not to damage the EMI gasketing and screen, lift frame from housing.
- 3 Using screwdriver, socket and ratchet, remove the sixteen screws and locknuts and remove the EMI screen from the frame.

CLEANING

- 1 Wash screens in a mild detergent and water solution. If possible, use a large flat pan. Move screen up and down so that water is forced through the honeycomb to dislodge dirt.
- 2 Rinse thoroughly in clear water.
- 3 Shake out excess water prior to installation.

REPAIR OR REPLACEMENT

NOTE

Prior to removal of old gasket material, cut the new replacement material to size using the old item as a sample.

- 1 Remove as much old gasket material as possible by pulling or scraping it away from the metal surface.

WARNING

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

- 2 Soften and remove old adhesive and gasket residue, using dry cleaning solvent and a stiff brush.
- 3 Minor dents and bent edges can be straightened using common sheet metal repair procedures. Panels that are badly dented, bent, or punctured should be replaced.
- 4 Should touch up or refinishing be necessary, see WP0016.
- 5 Use only approved replacement material as specified in Chapter 8.
- 6 EMI gasket material specified for this unit are supplied with adhesive backing.
- 7 Cut gasket to size. Be sure that EMI gasket corners are mitered so that good continuous edge contact is made.

- 8 Be sure that surface to which gasket is to be applied is clean and free of paint and old adhesive material.
- 9 Remove backing material from adhesive side and immediately press gasket in place. Be sure that good edge-to-edge contact is made on the EMI gaskets.

INSTALLATION

- 1 Using a screwdriver, socket and ratchet, attach the EMI screen to the frame with sixteen screws and locknuts. Be sure that hardware is tightened evenly, and that there are no gaps between the EMI screen and frame.
- 2 Using screwdriver, install the assembled EMI screen and frame to the housing with fourteen screws.
- 3 Install air conditioner on shelter (See WP0006).

END OF TASK

FRAME, EVAPORATOR, DISCHARGE

0028 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
Removal
Cleaning
Repair or Replacement
Installation

Tools and Special Tools
Screwdriver, Phillips
Wrench, Socket
Knife

Materials/Parts
Evaporator Discharge Frame 13219E9564
Dry Cleaning Solvent P-D-680 Type III
Adhesive, Sealant MIL-A-46106 Type I

Personnel Required
Unit Technician

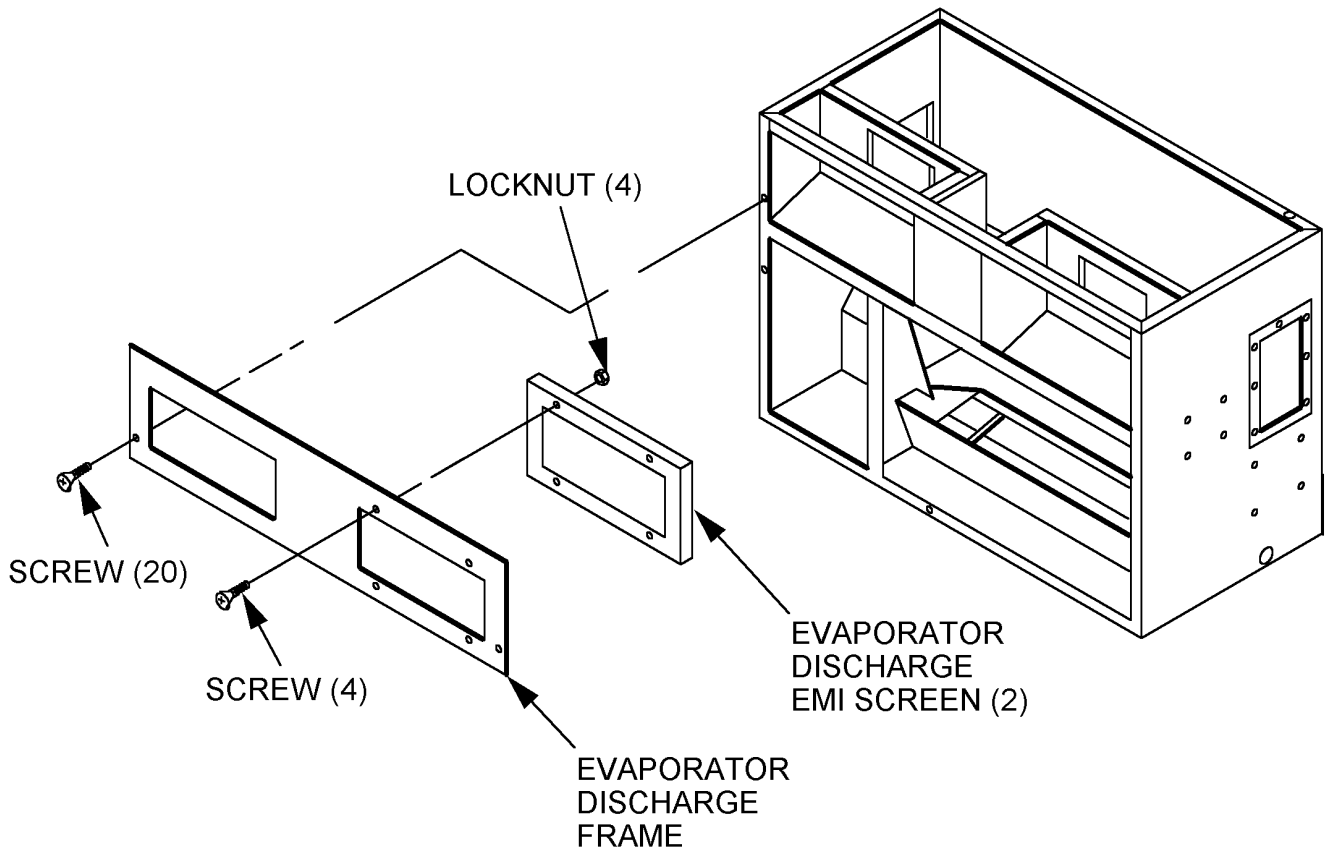
Equipment Conditions
Air conditioner removed from shelter (See
WP0006)

INSPECTION OF INSTALLED ITEMS

- 1 Check that evaporator discharge frame is not bent, cracked, or punctured. Replace if damaged.
- 2 Check that EMI gaskets are not cracked, loose, or missing.

REMOVAL

Frame, Evaporator, Disch



- 1 Using screwdriver, remove twenty screws from the outside edges of the frame.
- 2 Being careful not to damage the EMI gasketing and screens, lift frame from housing.
- 3 Using screwdriver, socket and ratchet, remove four each screws and locknuts from each of the two EMI screens. Remove the screens from the frame.

CLEANING

- 1 Wash screens in a mild detergent and water solution. If possible, use a large flat pan. Move screen up and down so that water is forced through the honeycomb to dislodge dirt.
- 2 Rinse thoroughly in clear water.
- 3 Shake out excess water prior to installation.

REPAIR OR REPLACEMENT

NOTE

Prior to removal of old gasket material or insulation, cut the new replacement material to size using the old item as a sample.

- 1 Remove as much old gasket or insulation material as possible by pulling or scraping it away from the metal surface.

WARNING

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

- 2 Soften and remove old adhesive and gasket residue, using dry cleaning solvent and a stiff brush.
- 3 Minor dents and bent edges can be straightened using common sheet metal repair procedures. Panels that are badly dented, bent, or punctured should be replaced.
- 4 Should touch up or refinishing be necessary, see WP0016.
- 5 Use only approved replacement material as specified in Chapter 8.
- 6 EMI gasket material and regular gasketing specified for this unit are supplied with adhesive backing.
- 7 Cut gasket to size. Be sure that EMI gasket corners are mitered so that good continuous edge contact is made.
- 8 Be sure that surface to which gasket is to be applied is clean and free of paint and old adhesive material.
- 9 Remove backing material from adhesive side and immediately press gasket in place. Be sure that good edge-to-edge contact is made on the EMI gaskets.

INSTALLATION

- 1 Using a screwdriver, socket and ratchet, attach each EMI screen to the frame with four screws and locknuts. Be sure that hardware is tightened evenly, and that there are no gaps between the EMI screen and frame.
- 2 Using screwdriver, install the assembled EMI screens and frame to the housing with twenty screws.

TM9-4120-423-14&P

3 Install air conditioner on shelter (See WP0006).

END OF TASK

EVAPORATOR ASSY WIRING HARNESSSES AND BULKHEAD CONNECTORS 0029 00

THIS WORK PACKAGE COVERS:

Removal
Repair or Replacement
Test and Inspection
Installation

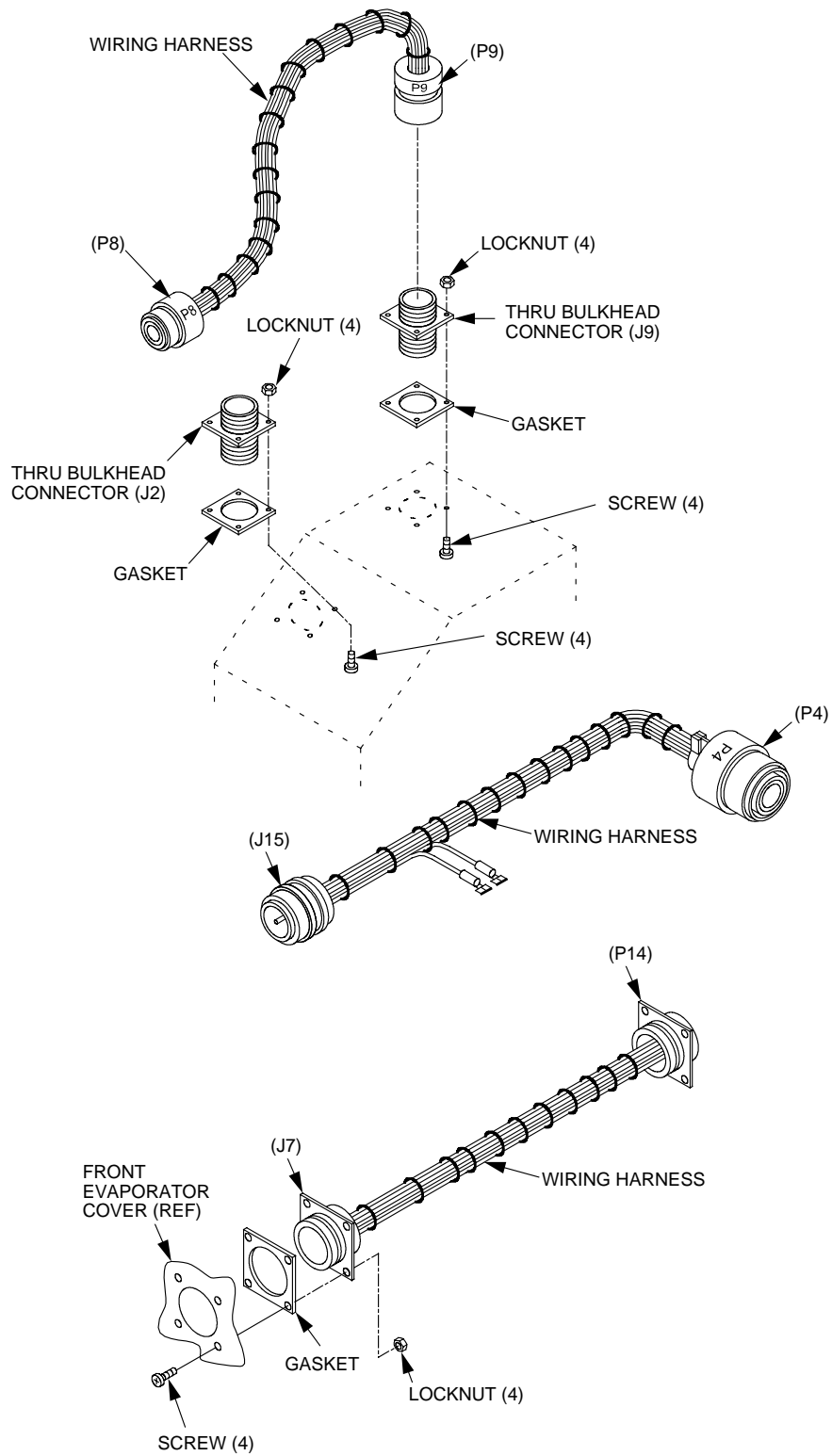
Tools and Special Tools
Screwdriver
Wrench, socket
Multimeter

Personnel Required
Unit Technician

Equipment Conditions
Air conditioner removed from shelter (See WP0006)
Radio frequency filter and front evaporator cover removed (See WP0023 and WP0025)
Top evaporator cover removed (See WP0026)
Access cover removed (See WP0024)

REMOVAL

Evaporator Assy Wiring Harnesses and Bulkhead Connectors



- 1 To remove the P4 to J15 wiring harness, disconnect the two quick-disconnect terminals to the air temperature sensing probe. Disconnect plug P4 from the J4 connector on the electrical module.
- 2 To remove the P8 to P9 wiring harness, disconnect the plug P9 from the J9 through-bulkhead connector.
- 3 To remove the J9 through-bulkhead connector, disconnect the P9A plug from inside the access box. Using a screwdriver, socket, and ratchet, remove the four screws and locknuts. Carefully remove the through-bulkhead connector and gasket.
- 4 To remove the J2 through-bulkhead connector, disconnect the P2 and P2A plugs from the top and bottom of the connector. Using a screwdriver, socket, and ratchet, remove the four screws and lock nuts. Carefully remove the through bulkhead connector and gasket.
- 5 Using a screwdriver, socket and ratchet, remove the four screws and locknuts from the remote control harness connector (J7).
- 6 Remove the connector (J7) harness and connector gasket from the backside of the front evaporator cover. Take care that the connector gasket is not lost.
- 7 Slide the radio frequency filter out and disconnect the P8 plug and harness from the backside of the filter.

REPAIR OR REPLACEMENT

- 1 See WP0015 for general wire repair instructions.
- 2 See wire list for wire lengths and terminal information when individual wires are replaced.

TEST AND INSPECTION

- 1 Check connectors for general condition, loose, broken, or missing contacts. Replace connectors if damaged.
- 2 Check individual wires for loose solder connections, cut or frayed insulation, and cut or broken wires.
- 3 See wiring diagram and continuity test individual wires. Repair or replace wires with no continuity.
- 4 Check that gaskets are in good condition. Replace them if they are torn, missing or otherwise damaged.

INSTALLATION

- 1 To install the J2 through-bulkhead connector, line up the holes in the gasket, connector, and evaporator housing. Using a screwdriver, socket and ratchet, install the four screws and locknuts. Reconnect the P2 and P2A plugs to the top and bottom of the through-bulkhead connector.
- 2 To install the J9 through-bulkhead connector, line up the holes in the gasket, connector, and evaporator housing. Using a screwdriver, socket, and ratchet, install the four screws and locknuts. Reconnect the P9A plug from inside the access box.
- 3 Connect the P9 plug and harness to the J9 through-bulkhead connector.
- 4 To install the P4 to J15 wiring harness, connect the P4 plug to J4 on the electrical module. Reconnect the two quick-disconnect terminals to the air temperature sensing probe.

NOTE

At this point, all connections should be complete except for J7 and P8. They will be reconnected when the radio frequency filter and front cover are installed.

- 5 Install radio frequency filter and front evaporator cover. See WP0023 and WP0025.
- 6 Install top evaporator cover. See WP0026.
- 7 Install access cover. See WP0024.
- 8 Install air conditioner on shelter. See WP0006.

END OF TASK

EVAPORATOR FAN (IMPELLER) AND MOTOR ASSEMBLY

0030 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
 Removal
 Repair or Replacement
 Installation
 Testing

Tools and Special Tools
 Screwdriver
 Wrench, Socket
 Open End Wrench
 Allen Wrench
 Drill
 Multimeter

Materials/Parts

Fan Inlet	503-6
Impeller, Fan	C631-500DCW
Impeller, Fan	C631-500DCCW
Blower Housing	13219E9530
Shaft, Extension	038W102
Cloth, Abrasive	5350-00-192-5047
Base, Motor	13219E9492
Motor, AC	13221E9096

Personnel Required

Unit Technician

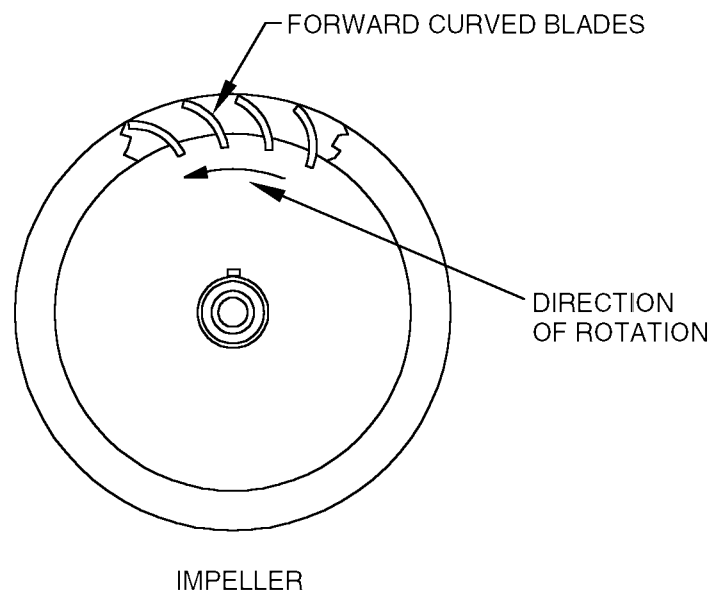
Equipment Conditions

Top evaporator cover removed (See WP0026)
 Power disconnected
 Shelter to air conditioner rain shield removed
 Electrical module removed (See WP0032)

INSPECTION OF INSTALLED ITEMS

- 1 Check that fan inlet is not damaged. Replace if it is bent, badly dented, or cracked.
- 2 Check that fan inlet hardware is in place and secure.
- 3 Check that impeller is in good condition. Replace if it is out of round, dented, broken, or if the hub is loose.
- 4 Check to see that the setscrew is not missing.
- 5 After the impellers are installed, check to see that the rotation is correct.

Fan Impeller Direction of Rotation



- 6 Check that blower housing is not damaged. Replace if it is bent, badly dented, or cracked.
- 7 Check that housing hardware is in place and secure.
- 8 Check that extension shaft is straight and not cracked or broken. Replace if damaged.
- 9 Check that shaft is free of nicks and rough edges. Using abrasive cloth or hand file, dress smaller nicks and rough edges or burrs off of shaft. Replace if sanding or filing cannot remove nick.
- 10 Check that setscrews are not lost. Replace if missing.

- 11 Check that base is not bent, dented, cracked or punctured. Replace if damaged.
- 12 Check that blind rivet nuts (rivnuts) are secure and threads not damaged. Replace the ones that are loose or damaged.
- 13 Check motor to see that it rotates freely without excessive lateral endplay.
- 14 Check motor for visible evidence of overheating.
- 15 Check connector plug P6 for loose, damaged, or missing pins.

- 1 Using socket and ratchet, remove the eight hex head cap screws, lockwashers, and flat washers securing the front face of the fan assembly to the evaporator housing.
- 2 Support the evaporator fan and motor assembly and remove the remaining two sets of hex head cap screws, lockwashers, and flat washers from the rear shelf area.
- 3 Carefully lift the evaporator fan and motor assembly up and out of the unit.
- 4 Using screwdriver, remove three each screws and flat washers from outer fan inlet ring.
- 5 Remove the outer fan inlet ring.
- 6 Using allen wrench, loosen the two setscrews in the extension shaft.
- 7 Slip the impeller and extension shaft out of the blower housing. If both impellers are to be removed, mark or tag them to avoid reversing the impellers.
- 8 Using screwdriver and open-end wrench, remove the eight screws and locknuts from the blower housing.
- 9 Remove the blower housing from the mounting plate.
- 10 Using screwdriver, remove the three each screws and flat washers from the inner fan inlet ring.
- 11 Remove the inner fan inlet ring from the blower housing.
- 12 Repeat steps 4 through 11, and remove the remaining two rings from the other blower housing.
- 13 Using allen wrench, loosen the impeller setscrew.
- 14 Slip the impeller off the extension shaft. If the impeller does not come off the shaft easily, do not hit or twist the impeller. Impellers are easily damaged. Secure the free end of the extension shaft in a vise or similar tool. Using a screwdriver through the impeller setscrew access opening, place tip between impeller hub and extension shaft shoulder and twist screwdriver.
- 15 If the extension shaft on the other fan is to be removed, go back to step 13.
- 16 Note position of rotation arrow on motor (for installation).
- 17 Using socket and ratchet, remove two hex head cap screws, lockwashers, and flat washers, and carefully remove the motor from the base.

REPAIR OR REPLACEMENT

- 1 Minor bends or dents in base can be repaired using standard sheet metal practices.

- 2 Blind rivet nuts (rivnuts) can be replaced by drilling the old one out with a drill slightly smaller than the body diameter of the old nut. Then install a new one.
- 3 Repair of the evaporator fan motor is limited to the replacement of the electrical connector. For further information on electric motor repair, refer to FM 20-31 (Electric Motor and Generator Repair).

INSTALLATION

- 1 Be sure the motor rotation is correct.
- 2 Carefully slip motor into place.
- 3 Using socket and ratchet, secure the motor to the base with two each hex head cap screws, lockwashers, and flat washers.
- 4 Align impeller setscrew with flat surface on extension shaft.
- 5 Slip impeller on extension shaft as far as possible and tighten setscrew.
- 6 Be sure that the direction of rotation arrows on motor and fans agree. Take care that impellers are not reversed.
- 7 Using a screwdriver, install inner fan inlet rings to housings with three screws and flat washers.
- 8 Using screwdriver and wrench, secure the fan housings to the base with sixteen screws and locknuts.
- 9 Slip impeller and extension shaft assembly on motor shaft.
- 10 Check to see that the impellers are located an equal distance between the two walls of the blower housing.
- 11 Using allen wrench, tighten the four extension shaft setscrews.
- 12 Spin the impeller by hand to check for interference.
- 13 Install the outer fan inlet rings and secure each with three screws and flat washers.
- 14 Carefully lower the evaporator fan and motor assembly down into the unit and align the holes.
- 15 Using socket and ratchet, secure with ten each hex head cap screws, lockwashers, and flat washers.
- 16 Place the electrical module in position and align the module mounting screws. See WP0032.

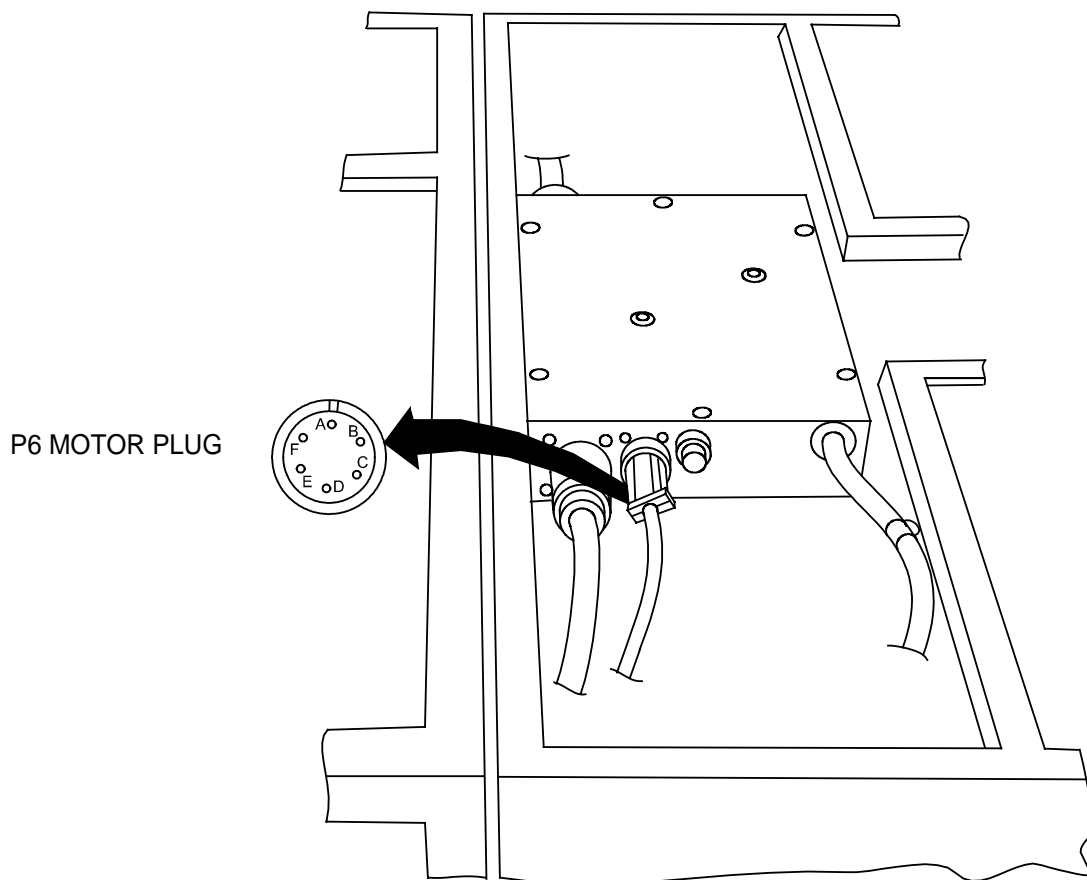
- 17 Using screwdriver, secure the module mounting screws.
- 18 Connect the P2A, P3, P4, and P6 connector plugs.
- 19 Install top evaporator cover. See WP0026.

TESTING

WARNING

Disconnect input power to the air conditioner before performing any maintenance to the electrical system. Voltages used can be lethal. Shutting the unit off at the control module does not disconnect power to the various components of the air conditioner.

Motor (B3) Test Point



- 1 Remove connector plug P6 from connector J6.
- 2 Using multimeter, check all P6 pins for shorts. Pin D is ground. Check pins A, B, C, E, and F to pin D. There should be no reading. Check pin D to motor frame. Multimeter should read zero.

- 3 Using multimeter, check resistance of 3 phase motor windings at P6: A to B, B to C, A to C. Resistances should all be above zero, but below 12 ohms.
- 4 Using multimeter, check resistance between pins E and F. Resistance should be zero, meaning thermostatic switch is closed.
- 5 If motor fails any of the above tests, replace it.
- 6 If motor passes all of the tests above, check wiring connections between J6 and K3. (See wiring diagram).

END OF TASK

EVAPORATOR HOUSING

0031 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
Removal
Installation

Tools and Special Tools
Stiff Brush

Materials/Parts
Dry Cleaning Solvent P-D-680 Type III
Adhesive, Sealant MIL-A-46106 Type I

Personnel Required
Unit Technician

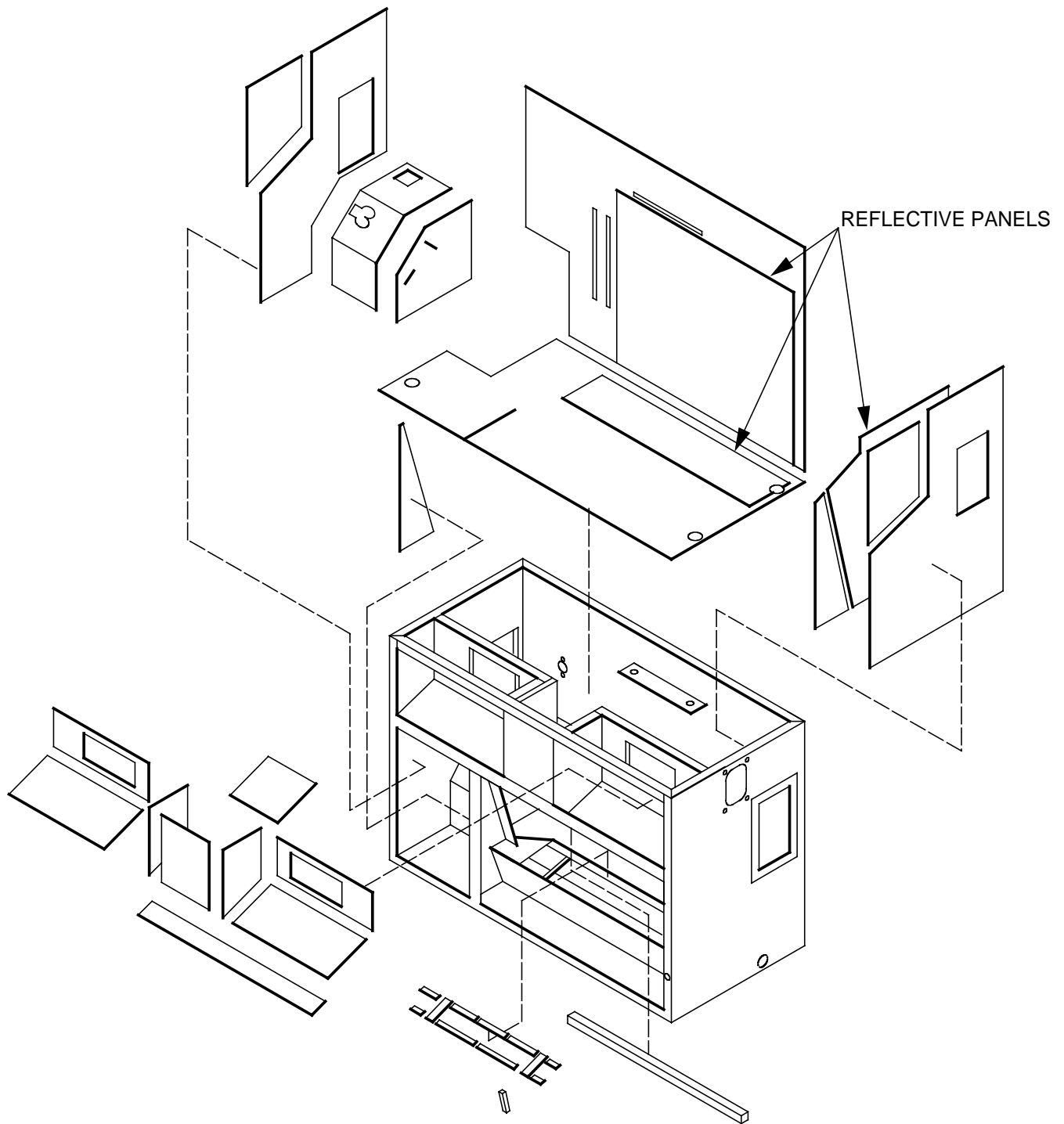
Equipment Conditions
Air conditioner removed from shelter (See
WP0006).
Necessary covers removed for access to
repair area.

INSPECTION OF INSTALLED ITEMS

- 1 Check that reflective panels and insulation are securely attached. Repair if loose.
- 2 Check that reflective panels and insulation are not damaged or missing. Replace if missing, burnt away, or damaged.

REMOVAL

Insulation, Evaporator Housing



NOTE

Prior to removal of old insulation, cut the new replacement material to size using the old item as a sample.

- 1 Remove as much old insulation material as possible by pulling or scraping it away from the metal surface.

WARNING

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

- 2 Soften and remove old adhesive and gasket residue, using dry cleaning solvent and a stiff brush.

INSTALLATION

- 1 Cut to size.
- 2 Be sure that the surface to which the insulation is to be applied is clean and free of paint and old adhesive material.
- 3 Coat the mating surfaces of the metal and the insulation with adhesive. Let both surfaces air dry until the adhesive is tacky, but will not stick to the fingers.
- 4 Starting with an end, carefully attach the insulation to the metal. Press into firm contact all over.
- 5 Install all parts and covers that were removed.
- 6 Install air conditioner on shelter. (See WP0006.)

END OF TASK

ELECTRICAL MODULE ASSEMBLY, EVAPORATOR SECTION

0032 00

THIS WORK PACKAGE COVERS:

Removal
Installation

Tools and Special Tools
Screwdriver

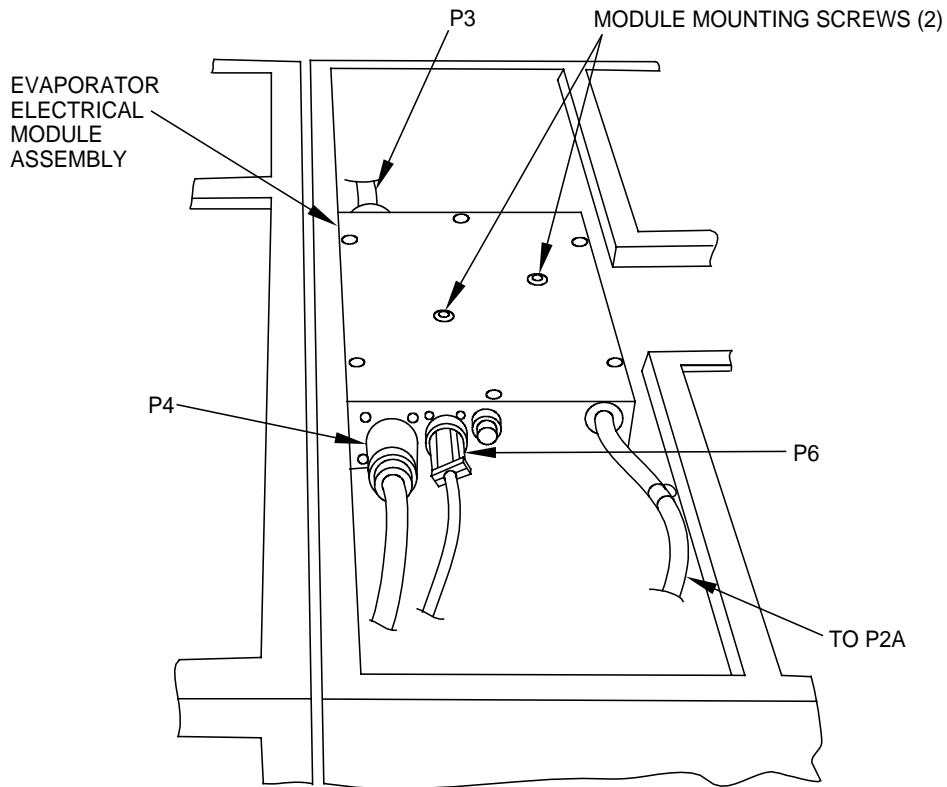
Materials/Parts
Electrical Module Assy SP3912

Personnel Required
Unit Technician

Equipment Conditions
Air conditioner removed from shelter. (See
WP0006).
Top evaporator cover removed. (See
WP0026).

REMOVAL

Evaporator Electrical Module Assembly Connections



- 1 Disconnect P2A, P3, P4, and P6 connector plugs.
- 2 Using screwdriver, loosen the two evaporator section electrical module mounting screws.
- 3 Lift the electrical module up and out of the air conditioner.

INSTALLATION

- 1 Place the electrical module in position and align the module mounting screws.
- 2 Using screwdriver, secure the module mounting screws.
- 3 Connect the P2A, P3, P4, and P6 connector plugs.
- 4 Install top evaporator cover. (See WP0026.)
- 5 Install air conditioner on shelter. (See WP0006.)

END OF TASK

MODULE MOUNTING SCREWS, EVAPORATOR ELECTRICAL MODULE

0033 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
Removal
Installation

Tools and Special Tools
Screwdriver

Materials/Parts
Module mounting screw 13221E9144
Ring, retaining MS90707-2037

Personnel Required
Unit Technician

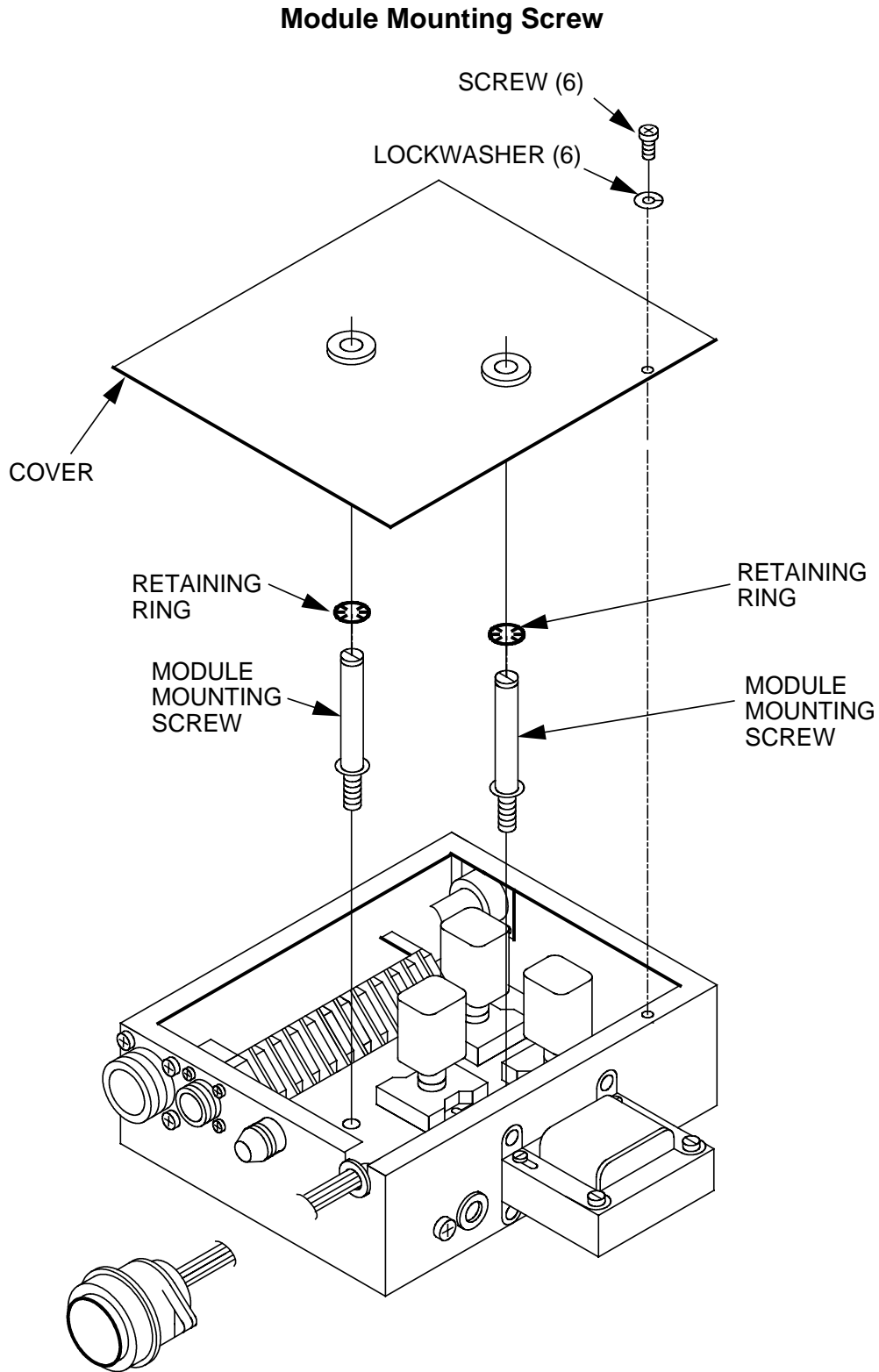
Equipment Conditions
Evaporator section electrical module
assembly removed. (See WP0032).
Evaporator electrical module cover
removed. (See WP0041).

INSPECTION OF INSTALLED ITEMS

- 1 Check that retaining ring is in place and in good condition. With the cover in place, the ring washer should be positioned on the screw shaft so that the screw does not bounce up and out of the bottom hole. Replace if missing, loose, or broken

- 2 Check screw threads and top slot for general condition. Replace module-mounting screw if damaged.

REMOVAL



- 1 With the cover off, the module mounting screws may be lifted out.

- 2 To remove or adjust the retaining ring, spring it slightly and slip to desired location or remove it.

INSTALLATION

- 1 Place the retaining ring on the module mounting screw.
- 2 Adjust it so that, with the cover in place, the screw portion will not come up and out of the bottom hole in the box.
- 3 Place the assembled module mounting screws and washers in the box.
- 4 Place cover on box and line up holes.
- 5 Using screwdriver, attach the cover with six screws and lockwashers. Do not over tighten, it will cause distortion. See WP0041.
- 6 Install evaporator section electrical module assembly. See WP0032.

END OF TASK

VARISTOR (RV4) AND TRANSFORMER (T1)

0034 00

THIS WORK PACKAGE COVERS:

Removal
Installation
Testing

Tools and Special Tools
Screwdriver
Multimeter
Knife
Soldering gun

Materials/Parts

Transformer 13221E9117
Varistor 13221E9119-1
Tubing, Heat-Shrink M23053/5-206-C
Solder QQ-S-571 Type SN60WRP2

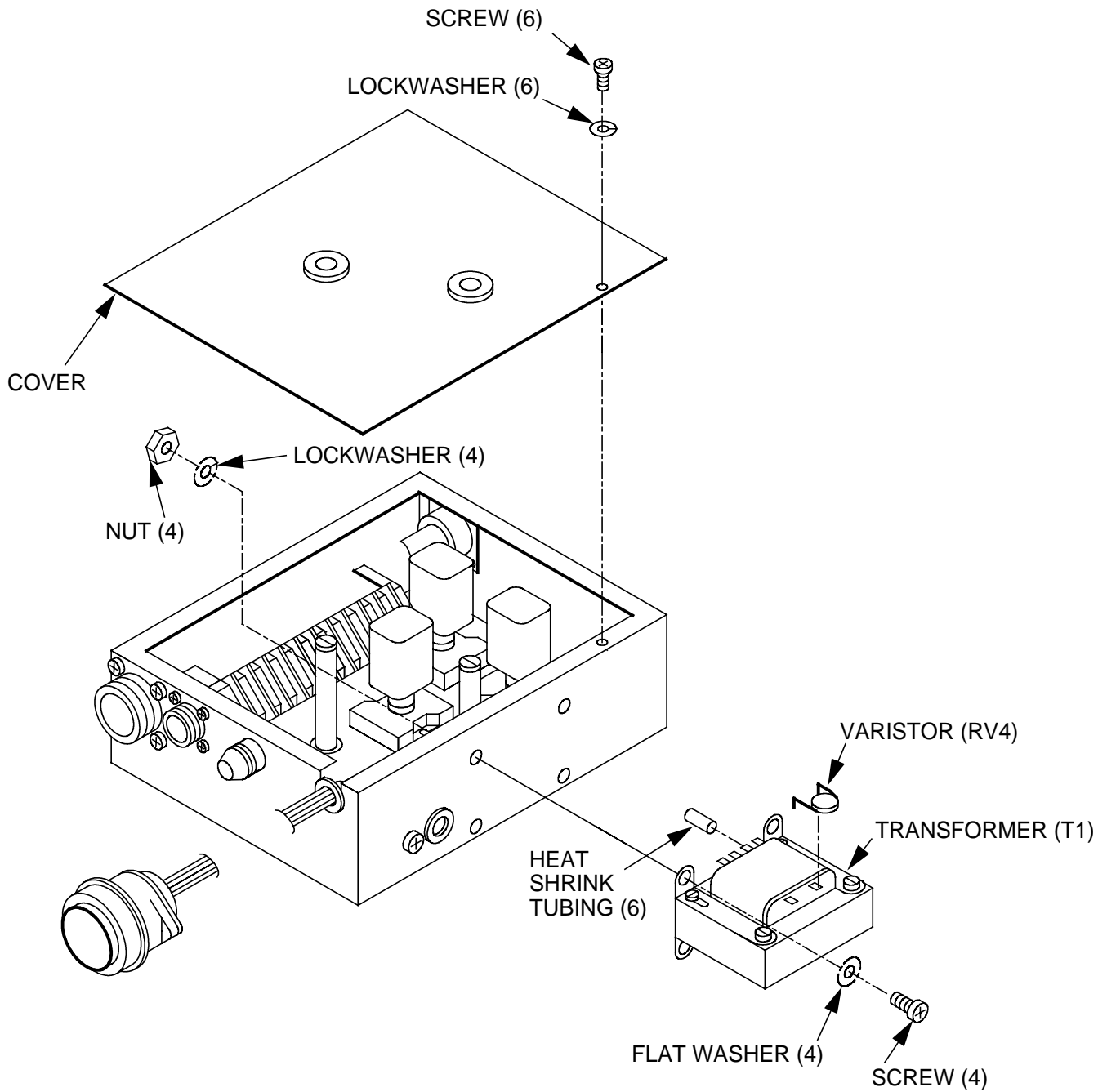
Personnel Required
Unit Technician

Equipment Conditions

Evaporator section electrical module
removed. (See WP0032)
Evaporator electrical module cover
removed. (See WP0041).

REMOVAL

Varistor (RV4) and Transformer (T1)



- 1 Using knife, cut insulation tubing from around transformer terminals.
- 2 Tag leads.
- 3 Using soldering gun, unsolder leads and varistor (RV4) from terminals.

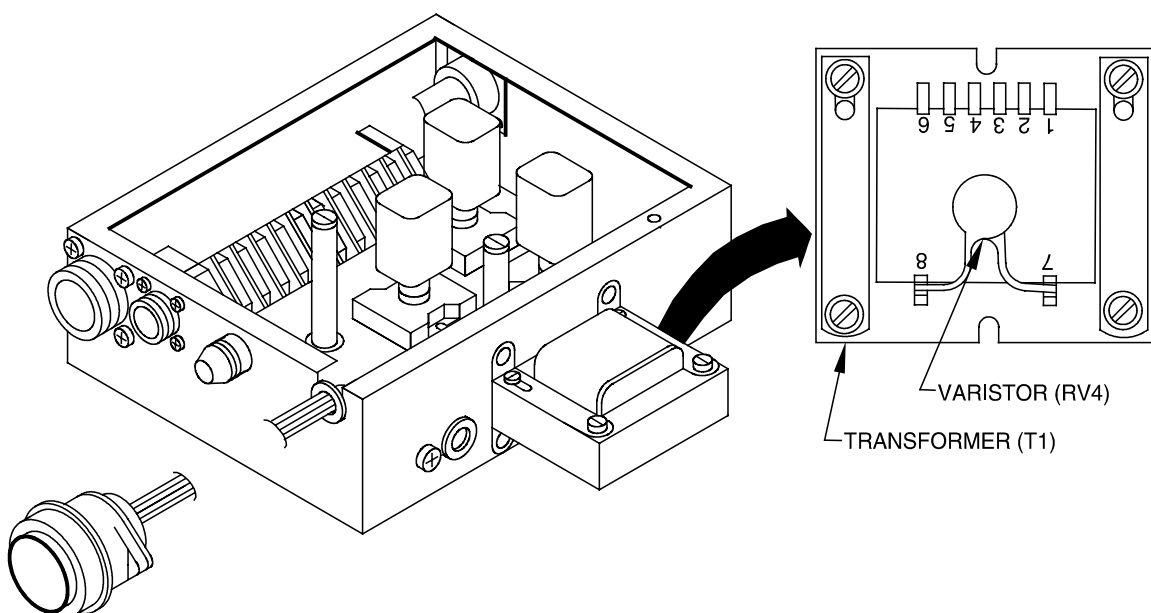
- 4 Using screwdriver and wrench, remove four each screws, flat washers, lockwashers, and nuts that hold transformer to housing.
- 5 Lift transformer (T1) off.

INSTALLATION

- 1 Position transformer (T1) on module housing. Using screwdriver and wrench, install four each screws, flat washers, lockwashers, and nuts.
- 2 Using knife, cut six pieces of heat shrinkable tubing, each one-half inch (1.27 cm) long and slide onto wires and varistor.
- 3 Using soldering gun, solder leads to transformer terminals according to wire markings, tags, and wiring diagram. Solder varistor (RV4) to terminals 7 and 8. Remove tags.
- 4 Slip piece of tubing over each transformer terminal and, using heat gun, shrink tubing in place.
- 5 Place cover on box and line up holes.
- 6 Using screwdriver, attach the cover with six screws and lockwashers. Do not over tighten, it will cause distortion. See WP0041.
- 7 Install evaporator section electrical module assembly. See WP0032.

TESTING

Transformer (T1) Terminal Locations



- 1 Evaporator section electrical module assembly must be connected to an operable air conditioner and remote control assembly.
- 2 208V, 3 phase, 400 Hz power, and power cable must be available.
- 3 Top evaporator cover must be removed. (See WP0026.)

WARNING

AC power tests must be conducted with the power on. Exercise extreme caution.

- 4 Connect power to air conditioner.
- 5 Using multimeter, check voltage across terminals 2 and 5. Voltage should be 197 to 229 Vac. If voltage is low or there is no voltage, check for loose or broken connections and absence of power.
- 6 Using multimeter, check voltage across terminals 7 and 8. Voltage should be 27 to 33 Vac. If voltage is low or there is no voltage, transformer should be changed.
- 7 Remove power to air conditioner.
- 8 Check varistor for evidence of overheating. Replace if discolored or damaged.

END OF TASK

TEMPERATURE CONTROL COMPONENT BOARD (A1)

0035 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
Removal
Installation
Testing

Tools and Special Tools
Screwdriver
Multimeter
Pliers
Socket wrench

Materials/Parts
Temperature Control Board 7021011112

Personnel Required
Unit Technician

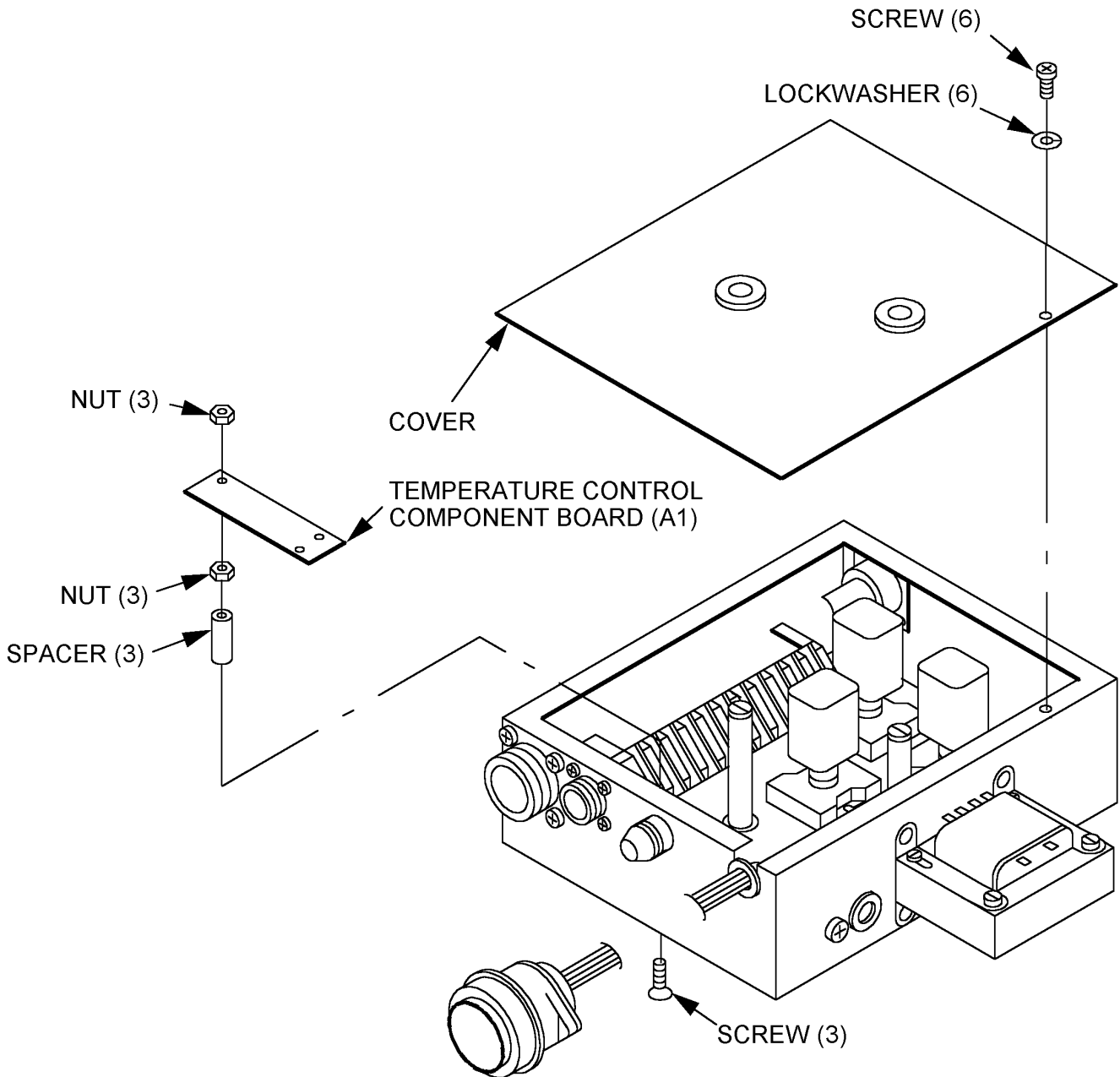
Equipment Conditions
Evaporator section electrical module removed. (See WP0032)
Electrical module connected to an operable air conditioner and remote control assembly
Available 208V, 3 phase, 400 Hz power and power cable
Top evaporator cover removed. (See WP0026).
Top module cover removed. (See WP0041).

INSPECTION OF INSTALLED ITEMS

- 1 Check for loose or broken components. Replace if loose or broken components are found.
- 2 Check for loose terminal connections. Repair or replace all loose connections.

REMOVAL

Temperature Control Component Board (A1)



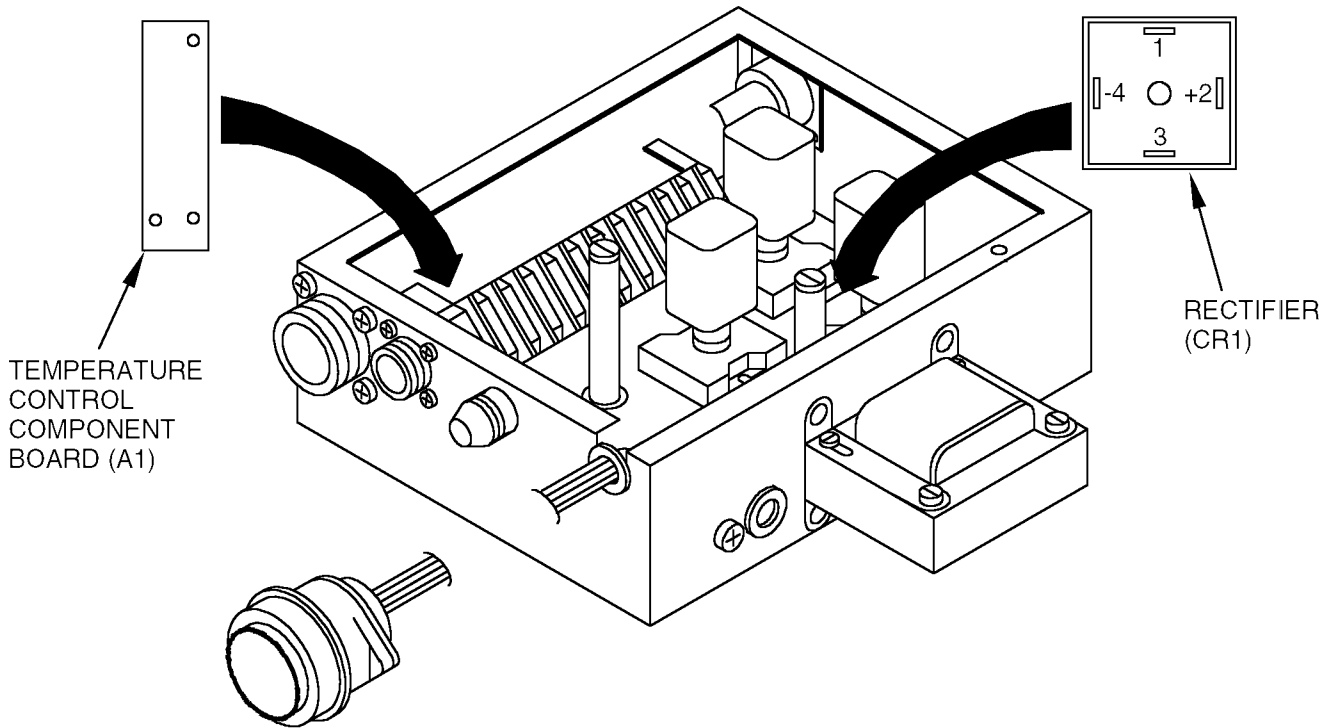
- 1 Tag leads.
- 2 Using pliers, remove quick-disconnect terminals and clear leads away from terminals.
- 3 Using screwdriver to retain the screws, remove the top three nuts with a socket and ratchet.
- 4 Lift the temperature control component board up and out of the box.
- 5 Check the remaining three nuts, spacers, and screws to be sure they are tight and in good condition. Remove and replace them if they are damaged.

INSTALLATION

- 1 Place the temperature control component board on the three nuts, spacers, and screws that were left in the box.
- 2 Use a screwdriver to retain the screws from the bottom of the box.
- 3 Using socket and ratchet, secure the temperature control component board with three nuts and lockwashers.
- 4 Install quick-disconnect terminals on terminals according to tags, wire markings, and wiring diagram.
- 5 Remove tags.
- 6 Place cover on box and line up holes.
- 7 Using screwdriver, attach the cover with six screws and lockwashers. Do not over tighten, it will cause distortion. See WP0041.
- 8 Install evaporator section electrical module assembly. See WP0032.
- 9 Install evaporator top cover. See WP0026.

TESTING

Temperature Control Component Board (A1) Test



- 1 Evaporator section electrical module assembly must be connected to an operable air conditioner and remote control assembly.
- 2 208V, 3 phase, 400 Hz power, and power cable must be available.
- 3 Top evaporator cover must be removed. (See WP0026.)
- 4 Top module cover must be removed. (See WP0041.)

WARNING

AC power tests must be conducted with the power on. Exercise extreme caution.

- 5 Connect power to air conditioner.
- 6 Turn selector switch to COOL.
- 7 Turn temperature control to maximum COOLER.
- 8 Using multimeter, check temperature control output voltage between terminals CR1-4 neg (-) and A1K1-2. Voltage should be 25 to 31 Vdc.

- 9 Turn selector switch to LOW HEAT.
- 10 Turn temperature control to maximum WARMER.
- 11 Using multimeter, check temperature control output voltage between terminals CR1-4 neg (-) and A1K1-5. Voltage should be 25 to 31 Vdc.
- 12 Turn selector switch to OFF.
- 13 Remove power to air conditioner.

END OF TASK

FUSE (F1) AND FUSEHOLDER (XF1)

0036 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
Removal
Installation

Tools and Special Tools
Screwdriver
Wrench
Multimeter
Soldering gun
Knife

Materials/Parts
Fuse F02A250V6A
Fuseholder FHN20G

Personnel Required
Unit Technician

Equipment Conditions
Top evaporator cover removed (See
WP0026)
Evaporator module cover removed (See
WP0041)

INSPECTION OF INSTALLED ITEMS

- 1 Push in, turn, and remove the fuse holder cap.
- 2 Remove fuse.
- 3 Look at fuse to see if the center element is broken or melted. Replace fuse if found bad.
- 4 Using multimeter, test fuse for continuity. Replace fuse if no continuity.

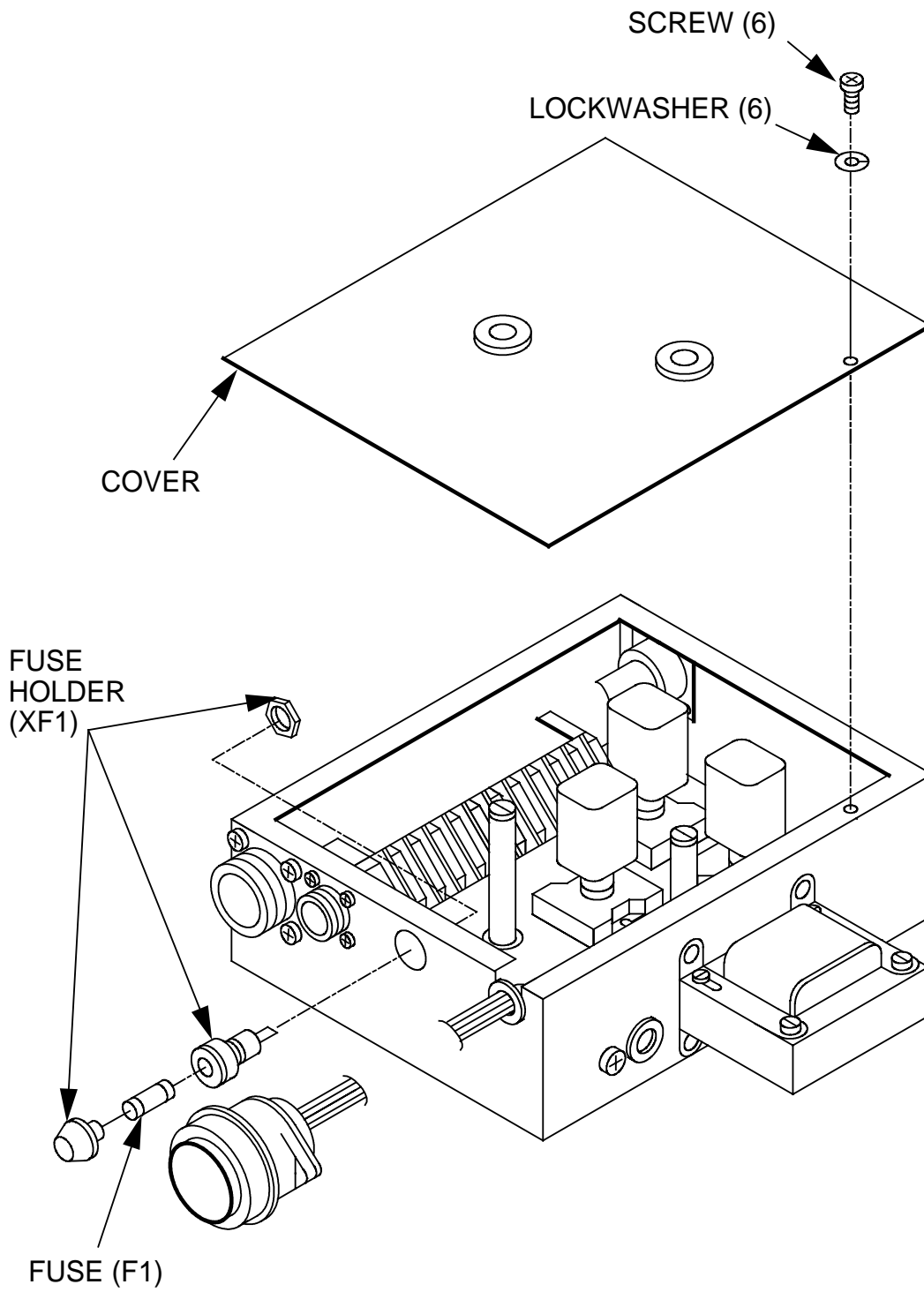
NOTE

A blown fuse indicates problems with other electrical parts.

- 5 Check that fuseholder is not cracked, broken or otherwise damaged. Replace if bad.
- 6 Check that terminals and wire lead connections are tight. Repair loose connections. Replace fuseholder if terminals are broken.
- 7 Be sure the fuse is in place and known good.
- 8 Using multimeter, test fuseholder continuity between terminals. Replace fuseholder if no continuity.

REMOVAL

Fuse (F1) and Fuseholder (XF1)



- 1 Push fuseholder cap in, turn and remove.

- 2 Remove fuse. If fuse only is to be replaced, go to step (6) of installation.
- 3 If top cover has not been removed, use screwdriver to remove six screws and lockwashers. Remove top cover.
- 4 Tag and unsolder leads to fuseholder.
- 5 Use wrench to loosen nut on rear of fuseholder.
- 6 Remove nut and fuseholder.

INSTALLATION

- 1 Insert fuseholder body through box and use wrench to secure nut.
- 2 Using knife, cut two pieces of heat shrinkable tubing, each one-half inch (1.27 cm) long and slide onto leads.
- 3 See tags, wire marking or wiring diagram. Solder leads to fuseholder.
- 4 Remove tags.
- 5 Slip tubing into place over terminal and using heat gun, shrink tubing in place.
- 6 Push fuseholder cap in, turn and remove cap.
- 7 Insert fuse into fuseholder.
- 8 Place fuseholder cap in body and push in and turn to lock in place.
- 9 Place cover on box and line up holes.
- 10 Using screwdriver, attach the cover with six screws and lockwashers. Do not over tighten, it will cause distortion. See WP0041.
- 11 Install top evaporator cover. See WP0026.

END OF TASK

RECTIFIER (CR1) AND CAPACITOR (C1)

0037 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
Removal
Installation
Testing

Tools and Special Tools
Screwdriver
Multimeter
Soldering gun

Materials/Parts

Rectifier 13227E8321
Capacitor M39014/05-2261
Solder QQ-S-571, Type SN60WRP2

Personnel Required
Unit Technician

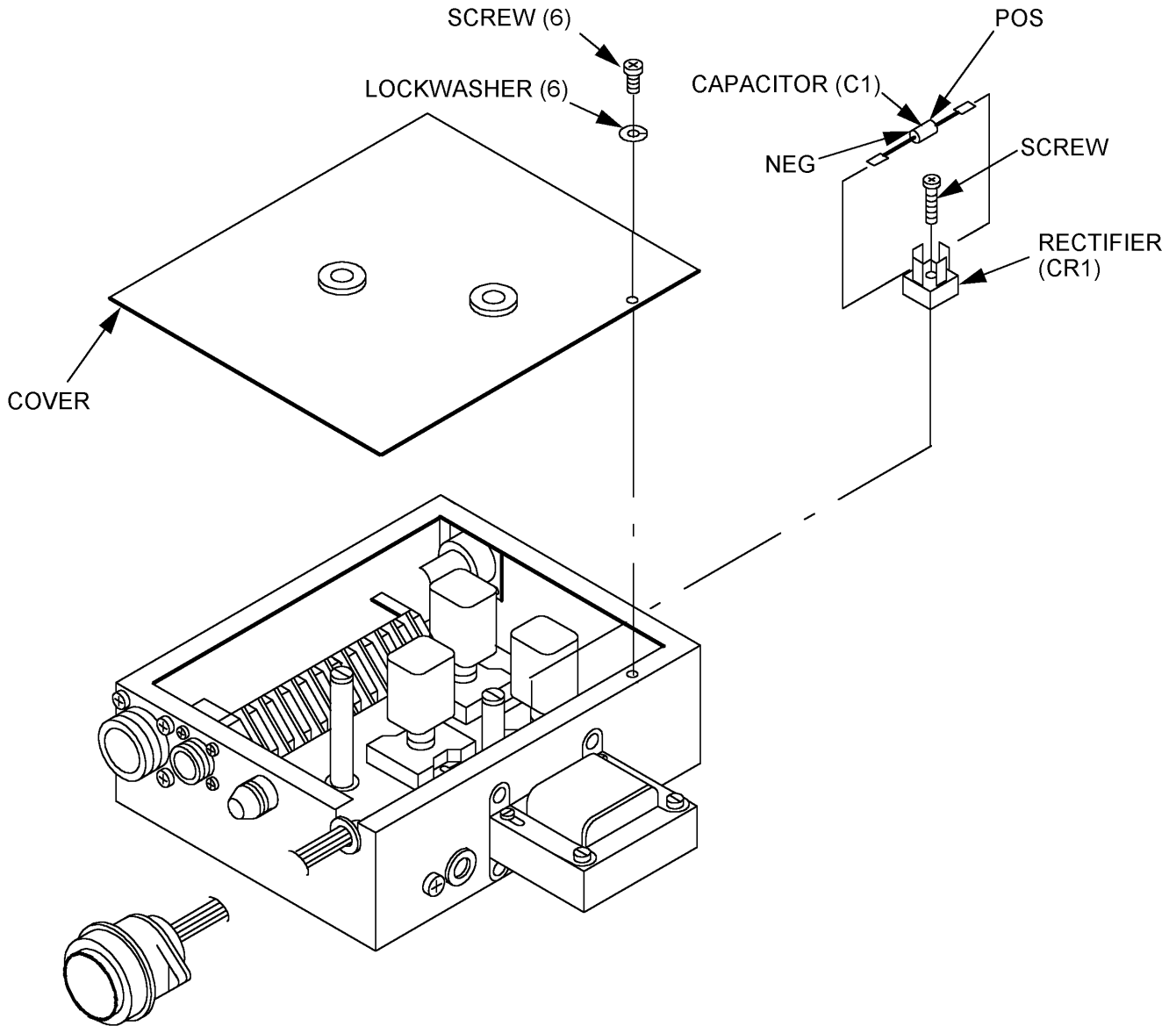
Equipment Conditions
Top evaporator cover removed (See
WP0026)
Evaporator electrical module removed (See
WP0032)
Module cover removed (See WP0041)

INSPECTION OF INSTALLED ITEMS

- 1 Check for loose or broken components. Replace if loose or broken components are found.
- 2 Check for loose terminal connections. Repair loose connections.

REMOVAL

Rectifier (CR1) and Capacitor (C1)



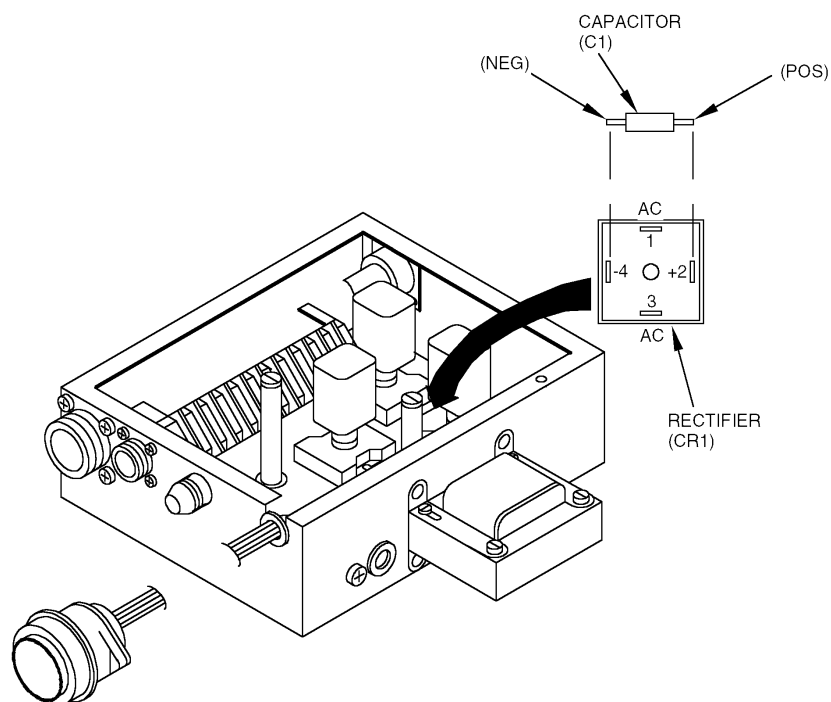
- 1 Using screwdriver, remove screw that holds rectifier.
- 2 Move rectifier out slightly.
- 3 Tag leads.
- 4 Unsolder leads and remove capacitor.
- 5 Lift rectifier out.

INSTALLATION

- 1 Match wire leads and capacitor to rectifier, using tags, wire markings, and wiring diagram.
- 2 Solder leads and capacitor to rectifier.
- 3 Remove tags.
- 4 Place rectifier in box and align hole.
- 5 Using screwdriver, secure rectifier with screw.
- 6 Place cover on box and line up holes.
- 7 Using screwdriver, attach the cover with six screws and lockwashers. Do not over tighten, it will cause distortion. See WP0041.
- 8 Install evaporator section electrical module assembly. See WP0032.
- 9 Install top evaporator cover. See WP0026.

TESTING

Rectifier (CR1) and Capacitor (C1) Test



- 1 Evaporator section electrical module assembly must be connected to an operable air conditioner.
- 2 208V, 3 phase, 400 Hz power, and power cable must be available.
- 3 Top evaporator cover must be removed. (See WP0026.)
- 4 Top module cover must be removed. (See WP0041.)

WARNING

AC power tests must be conducted with the power on. Exercise extreme caution.

- 5 Connect power to air conditioner.
- 6 Turn mode selector switch to LOW HEAT.
- 7 Turn temperature control to maximum COOLER.
- 8 Using multimeter, check voltage across AC terminals of CR1. Voltage should be 27 to 33 Vac.
- 9 Using multimeter, check voltage across + and - terminals of CR1. Voltage should be 25 to 31 Vdc. If voltage is low or there is no voltage, rectifier should be changed.
- 10 Remove power to air conditioner.
- 11 Check capacitor for evidence of overheating. Replace if discolored or damaged.

END OF TASK

RELAYS (K3, K4, AND K5)

0038 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
Removal
Installation
Testing

Tools and Special Tools
Flat tip screwdriver
Cross tip screwdriver
Multimeter

Materials/Parts

Relay	KR14DGE-24
Relay Socket	27E123

Personnel Required
Unit Technician

Equipment Conditions

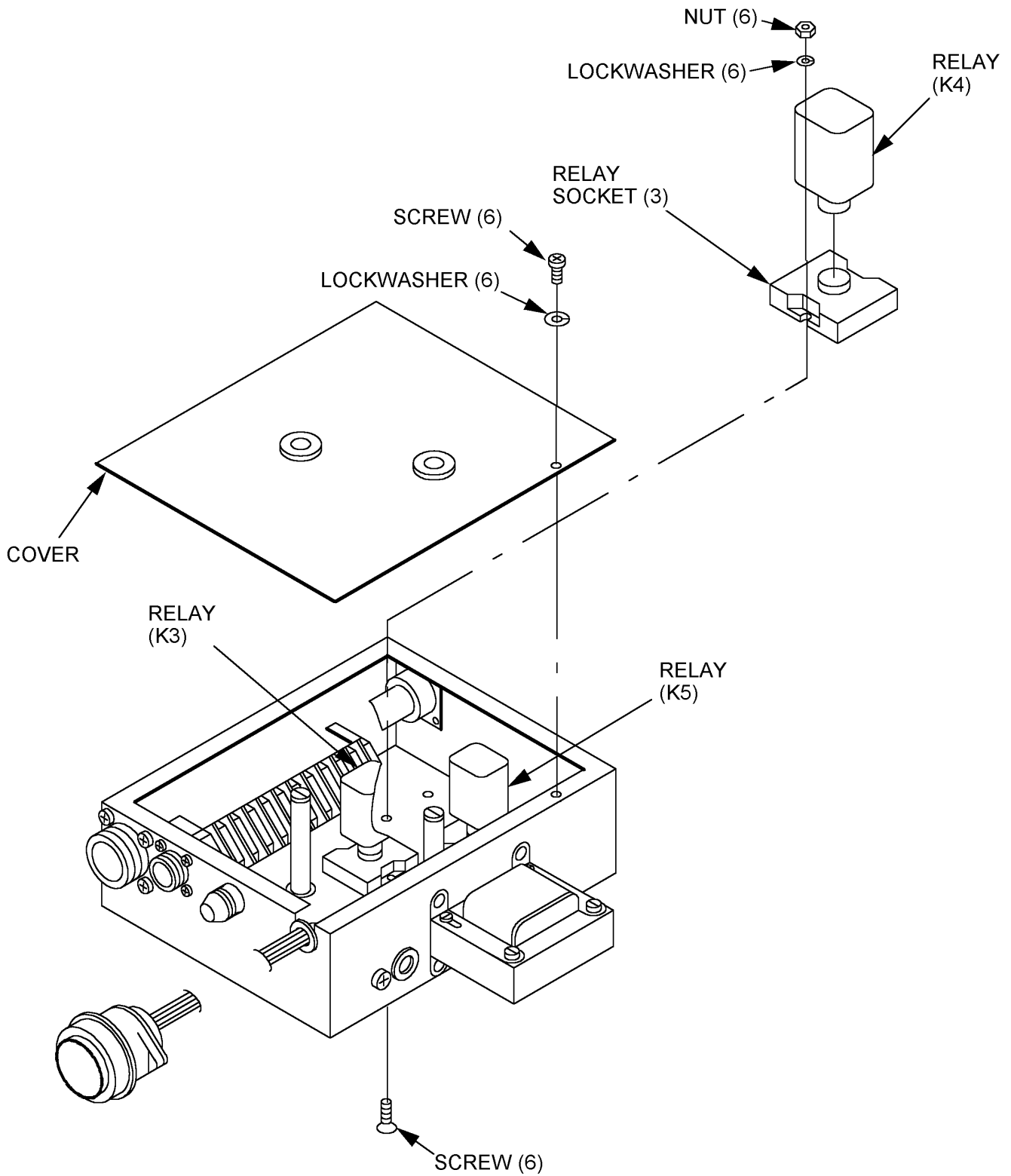
Top evaporator cover removed (See WP0026.)
Evaporator section electrical module assembly removed. (See WP0032.)
Module top cover removed. (See WP0041.)

INSPECTION OF INSTALLED ITEMS

- 1 Check for loose terminal connections. Repair loose connections.
- 2 Check relays for cracks, evidence of overheating and other visible damage. Replace if damaged.

REMOVAL

Relay (K3, K4, and K5)



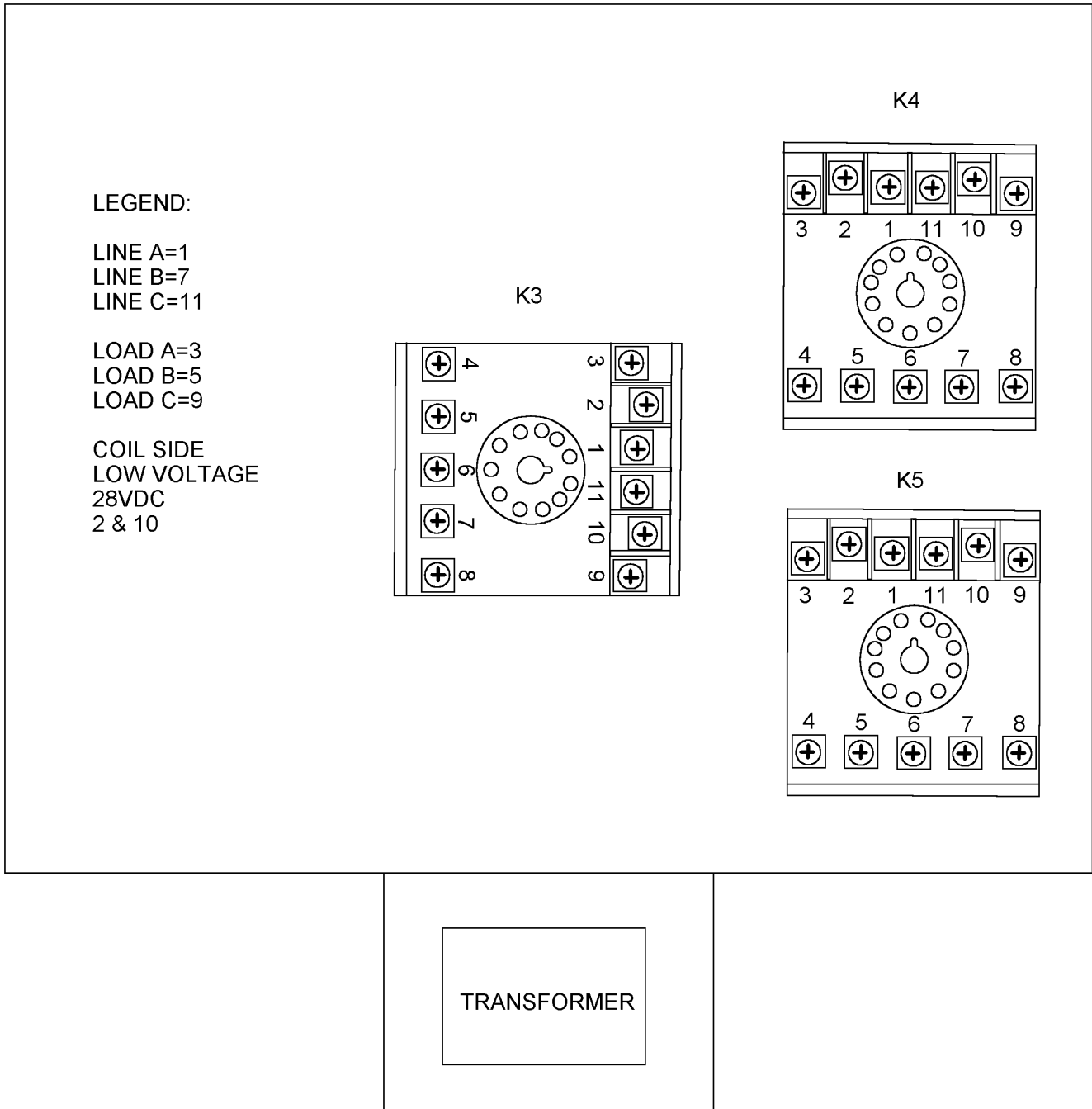
- 1 Tag leads.
- 2 Using cross tip screwdriver, remove screws holding leads to relay socket terminals.
- 3 Remove relay from socket.
- 4 While holding each screw from the underside, remove two lockwashers and nuts to remove relay socket. Remove screws.
- 5 Repeat above process to remove two remaining relays and relay sockets.

INSTALLATION

- 1 Place relay socket in box and align holes.
- 2 Using cross tip screwdriver, secure each relay socket to box with two screws, lockwashers and nuts.
- 3 Plug relay into socket.
- 4 Match leads to relay socket terminals using tags, wire marking and wiring diagram.
- 5 Using cross-tip screwdriver, secure leads to relay socket terminals.
- 6 Remove tags.
- 7 Place cover on box and line up holes.
- 8 Using screwdriver, attach the cover with six screws and lockwashers. Do not over tighten, it will cause distortion. See WP0041.
- 9 Install evaporator section electrical module assembly. See WP0032.
- 10 Install top evaporator cover. See WP0026.

TESTING

Relay (K3, K4, and K5) Test Points



- 1 Evaporator section electrical module assembly must be connected to an operable air conditioner and remote control assembly.
- 2 208V, 3 phase, 400 Hz power, and power cable must be available.

3 Top evaporator cover must be removed. (See WP0026.)

4 Top module cover must be removed. (See WP0041.)

WARNING

AC power tests must be conducted with the power on. Exercise extreme caution.

5 Connect power to air conditioner.

6 To test relay K3, turn mode selector switch to LOW HEAT and temperature control switch to maximum COOLER.

7 Using multimeter, check voltage (power out) between K3 terminals 3 and 5, 5 and 9, and 3 and 9. Voltage should be 197 to 229 Vac.

8 Using multimeter, check voltage (power in) between K3 terminals 1 and 7, 7 and 11, and 1 and 11. Voltage should be 197 to 229 Vac.

9 Using multimeter, check control voltage between K3 terminals 2 and 10. Voltage should be 25 to 31 Vdc.

10 Turn selector switch to OFF.

11 To test relay K4, turn mode selector switch to LOW HEAT and temperature control switch to maximum WARMER.

12 Using multimeter, check voltage (power out) between K4 terminals 3 and 5, 5 and 9, and 3 and 9. Voltage should be 197 to 229 Vac.

13 Using multimeter, check voltage (power in) between K4 terminals 1 and 7, 7 and 11, and 1 and 11. Voltage should be 197 to 229 Vac.

14 Using multimeter, check control voltage between K4 terminals 6 and 10. Voltage should be 25 to 31 Vdc.

15 Turn selector switch to OFF.

16 To test relay K5, turn mode selector switch to HIGH HEAT and temperature control switch to maximum WARMER.

17 Using multimeter, check voltage (power out) between K5 terminals 3 and 5, 5 and 9, and 3 and 9. Voltage should be 197 to 229 Vac.

- 18 Using multimeter, check voltage (power in) between K5 terminals 1 and 7, 7 and 11, and 1 and 11. Voltage should be 197 to 229 Vac.
- 19 Using multimeter, check control voltage between K5 terminals 2 and 10. Voltage should be 25 to 31 Vdc.
- 20 Turn selector switch to OFF.
- 21 Remove power to air conditioner.

END OF TASK

TERMINAL BOARD (TB1) AND JUMPERS

0039 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
Removal
Installation

Tools and Special Tools
Screwdriver, flat tip
Screwdriver, cross tip

Materials/Parts
Terminal board 39TB-9

Personnel Required
Unit Technician

Equipment Conditions
Evaporator top cover removed (See WP0026.)
Evaporator section electrical module assembly removed. (See WP0032.)
Electrical module top cover removed. (See WP0041.)

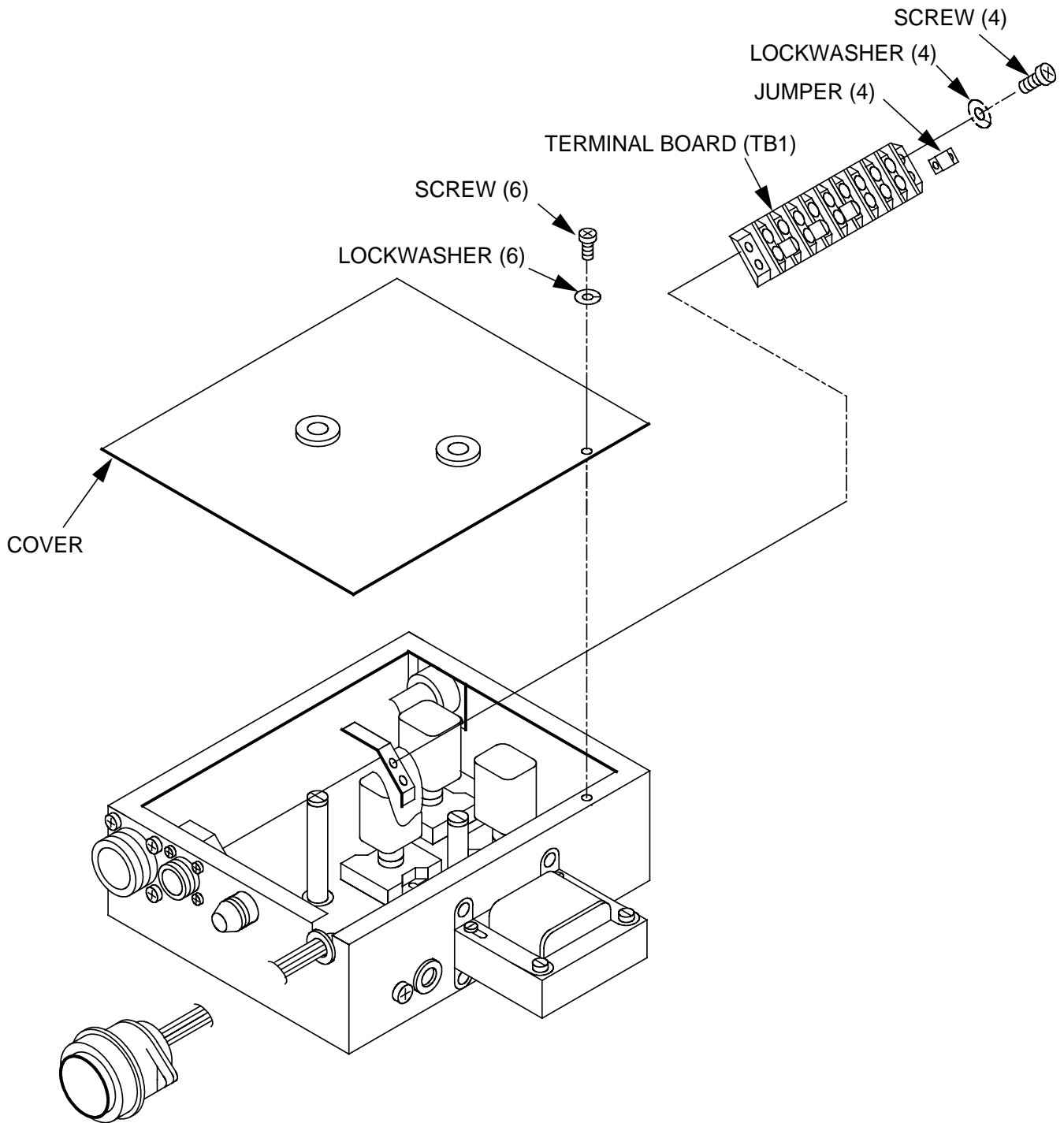
INSPECTION OF INSTALLED ITEMS

- 1 Check terminal board for loose or corroded terminals, cracks, and obvious damage. Replace if terminals are corroded, or if terminal board is cracked or broken.

- 2 Check that jumpers are in place and in good condition. Terminals 2 and 3, 4 and 5, 6 and 7, and 8 and 9 should be jumped.

REMOVAL

Terminal Board (TB1) and Jumpers



- 1 Tag wires.
- 2 Use flat tip screwdriver to remove terminal screws and remove leads and jumpers.

3 Using cross tip screwdriver, remove four screws and lockwashers that hold terminal board.

4 Remove terminal board.

INSTALLATION

1 Align terminal board and box mounting holes.

2 Using cross tip screwdriver, secure terminal board with four screws and lockwashers.

3 Using flat tip screwdriver, install jumpers between terminals 2 and 3, 4 and 5, 6 and 7, and 8 and 9.

4 Match leads to terminals using tags, wire markings, and wiring diagram.

5 Using flat tip screwdriver, fasten leads and jumpers to terminals.

6 Remove tags.

7 Place cover on box and line up holes.

8 Using screwdriver, attach the cover with six screws and lockwashers. Do not over tighten, it will cause distortion. See WP0041.

9 Install evaporator section electrical module assembly. See WP0032.

10 Install top evaporator cover. See WP0026.

END OF TASK

CHASSIS, EVAPORATOR ELECTRICAL MODULE

0040 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
Repair or Replacement

Tools and Special Tools
Drill

Personnel Required
Unit Technician

Equipment Conditions
Evaporator top cover removed (See WP0026)
Evaporator section electrical module assembly removed. (See WP0032.)
Electrical module top cover removed. (See WP0041.)

INSPECTION OF INSTALLED ITEMS

- 1 Check that chassis is not cracked, broken, or badly dented. Replace if damaged.
- 2 Check that blind nuts are in place and secure. Replace if loose or missing.

REPAIR OR REPLACEMENT

- 1 Repairs are limited to replacement of blind nuts.
- 2 Remove components from area to be repaired.
- 3 Blind nuts may be removed by drilling them out using a drill bit slightly smaller than the body diameter of the blind nut. A new one must then be installed.
- 4 Should it become necessary to replace the chassis, see WP0033 through WP0039 for removal and installation of internal components.

- 5 Install top cover. See WP0041.
- 6 Install evaporator section electrical module. See WP0032.
- 7 Install evaporator top cover. See WP0026.

END OF TASK

TOP COVER AND GROMMETS, EVAPORATOR ELECTRICAL MODULE

0041 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
Removal
Repair or Replacement
Installation

Tools and Special Tools
Screwdriver

Materials/Parts
Dry Cleaning Solvent P-D-680 Type III

Personnel Required
Unit Technician

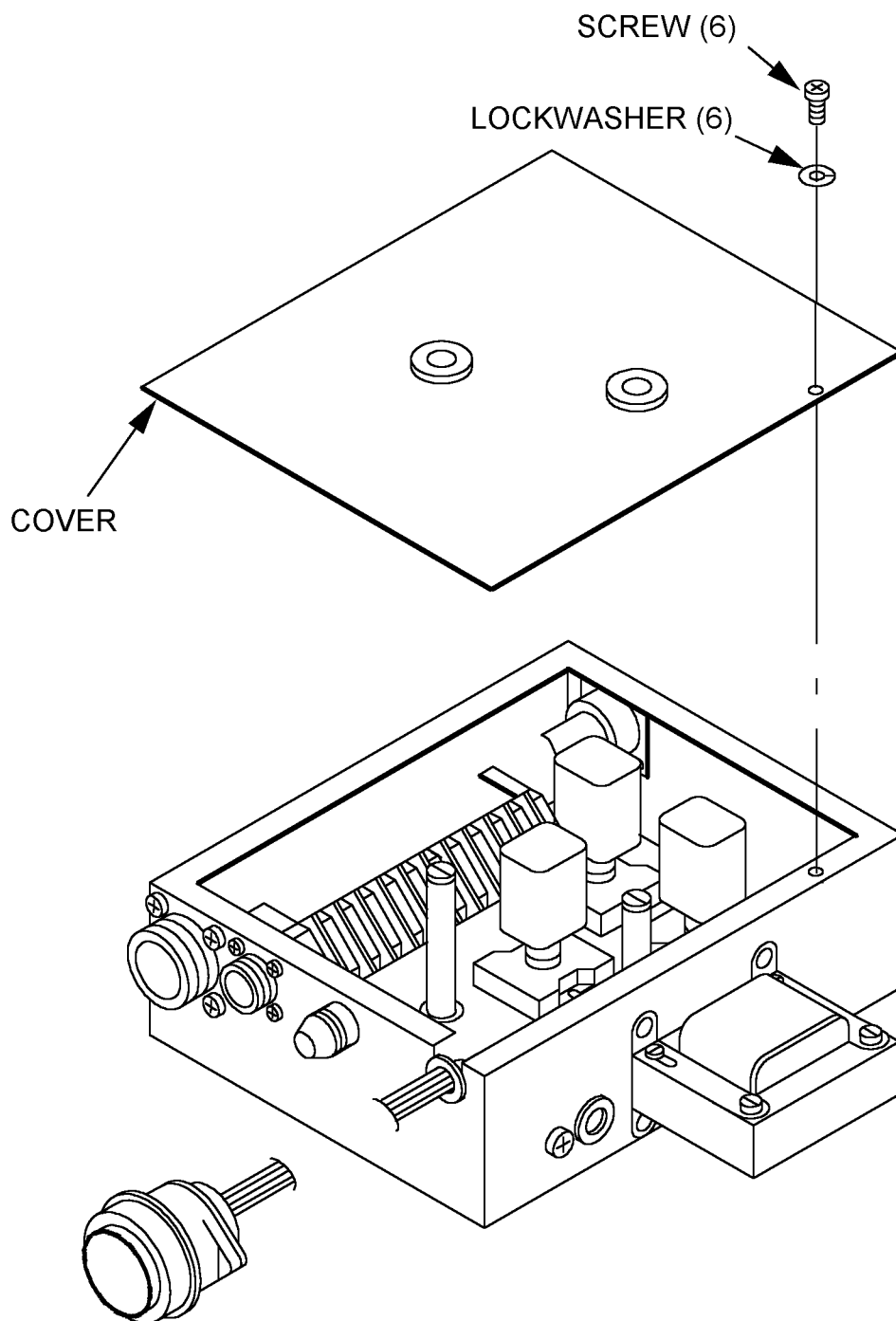
Equipment Conditions
Evaporator top cover removed (See
WP0026).
Evaporator section electrical module
assembly removed. (See WP0032).

INSPECTION OF INSTALLED ITEMS

- 1 Check that cover is not bent or punctured. Replace if damaged.
- 2 Check that EMI gaskets are not cracked, loose, or missing. Repair or replace as needed.

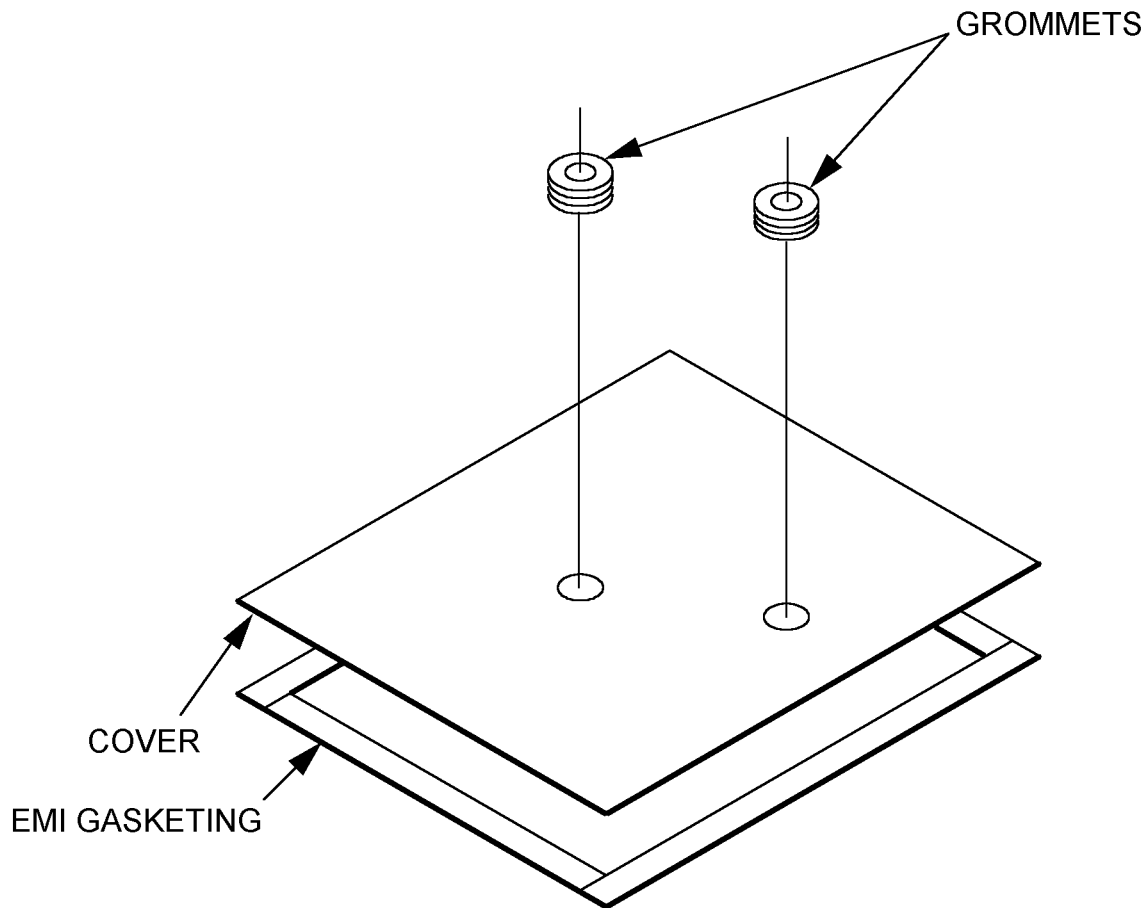
REMOVAL

Top Cover and Grommets, Evaporator Electrical Module



- 1 Using screwdriver, remove six screws and lockwashers.
- 2 Lift top cover off.

REPAIR OR REPLACEMENT

Cover, Evaporator Electrical Module

- 1 Remove and replace grommets if they are damaged.

NOTE

Prior to removal of the old gasket material, cut the new replacement material to size using the old material as a sample.

- 2 Remove as much of the old gasket material as possible by pulling it away from the metal surface.

WARNING

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

- 3 Soften and remove old adhesive and gasket residue, using dry cleaning solvent and a stiff brush.
- 4 Use only approved replacement material as specified in Chapter 8.
- 5 EMI gasket material specified for this unit is supplied with adhesive backing.
- 6 Cut gasket to size. Be sure that EMI gasket corners are installed so that good continuous edge contact is made.
- 7 Be sure that surface to which gasket is to be applied is clean and free of paint and old adhesive material.
- 8 Remove backing material from adhesive side and immediately press gasket in place. Be sure that good edge-to-edge contact is made on the EMI gaskets.

INSTALLATION

- 1 Place cover on box and line up holes.
- 2 Using screwdriver, attach the cover with six screws and lockwashers. Do not over tighten, it will cause distortion.
- 3 Install evaporator section electrical module assembly. See WP0032.
- 4 Install evaporator top cover. See WP0026.

END OF TASK

**WIRING HARNESSSES, RECEPTACLE GASKETS, LEADS AND DISCONNECT SPLICES -
EVAPORATOR ELECTRICAL MODULE**

0042 00

THIS WORK PACKAGE COVERS:

Removal
Repair or Replacement
Test and Inspection
Installation

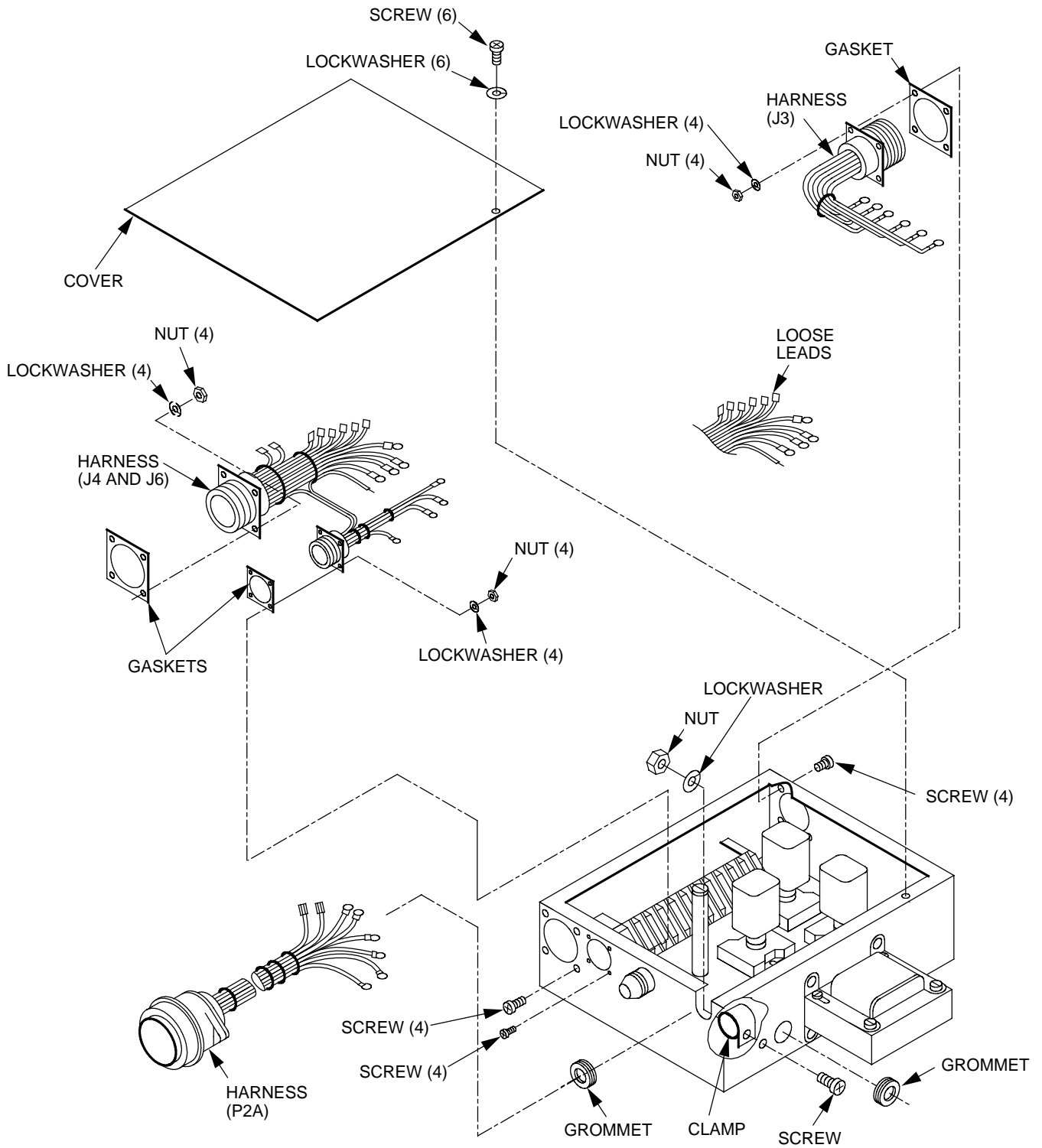
Tools and Special Tools
Screwdriver
Wrench
Multimeter

Personnel Required
Unit Technician

Equipment Conditions
Evaporator top cover removed (See
WP0026).
Evaporator section electrical module
assembly removed. (See WP0032).
Evaporator electrical module cover
removed. (See WP0041).

REMOVAL

Harnesses and Leads



1 Tag and disconnect leads.

- 2 Using screwdriver and wrench, remove screws, lockwashers and nuts and remove the affected connectors, harnesses, and gaskets.

REPAIR OR REPLACEMENT

- 1 See WP0015 for general wire repair instructions.
- 2 See Wire List for wire lengths and terminal information when individual wires are replaced.

TEST AND INSPECTION

- 1 Check connectors for general condition, loose, broken, or missing contacts. Replace connectors if damaged.
- 2 Check individual wires for loose solder and terminal lug connections, cut or frayed insulation, and cut or broken wires.
- 3 See wiring diagram and continuity test individual wires. Repair wires with no continuity.
- 4 Check that gaskets are in good condition. Replace them if they are torn, missing, or otherwise damaged.
- 5 Check that disconnect splice connections are tight and in good condition. Replace if damaged or loose.
- 6 Check that protective plastic tubing over disconnect splice connections are in place and in good condition. Replace if missing, damaged, or loose.

INSTALLATION

- 1 Using screwdriver and wrench, install the connector(s) in box with screws, lockwashers, and nuts. Be sure that gaskets are placed between connectors and box.
- 2 See tags and wiring diagram and reconnect leads. Remove tags.
- 3 Place cover on box and line up holes.
- 4 Using screwdriver, attach the cover with six screws and lockwashers. Do not over tighten, it will cause distortion. See WP0041.
- 5 Install evaporator section electrical module assembly. See WP0032.
- 6 Install evaporator top cover. See WP0026.

END OF TASK

COVER, FEED THROUGH

0043 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
Removal
Repair or Replacement
Installation

Tools and Special Tools
Screwdriver, Phillips
Wrench, Socket
Knife

Materials/Parts
Feed Through Cover 13222E8982
Dry Cleaning Solvent P-D-680 Type III
Adhesive, Sealant MIL-A-46106 Type I

Personnel Required
Unit Technician

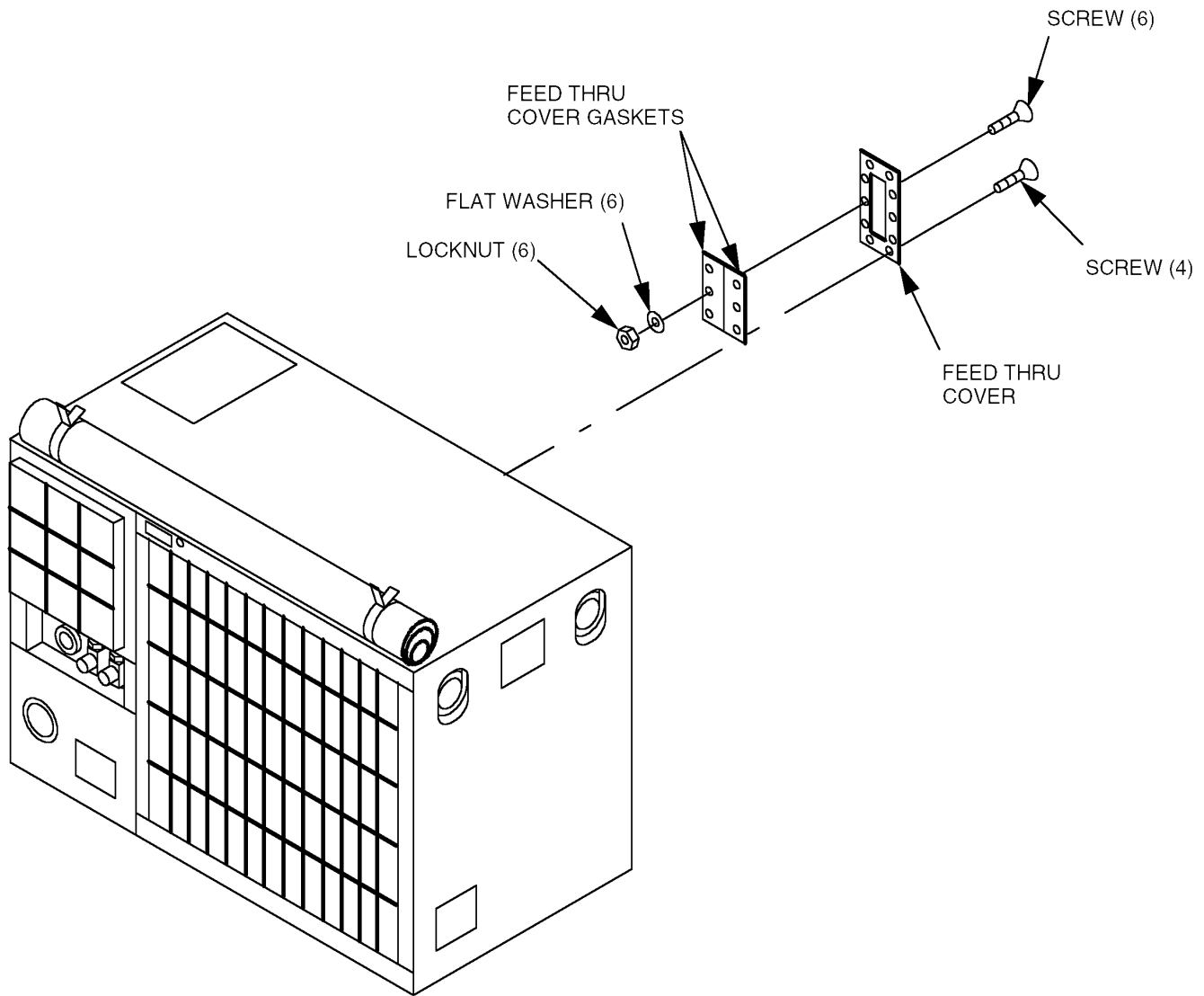
Equipment Conditions
Air conditioner removed from shelter (See WP0006)
Evaporator and condenser section assemblies separated (See WP0014).

INSPECTION OF INSTALLED ITEMS

- 1 Check that the feed through cover is not bent, cracked, or punctured. Replace if damaged.
- 2 Check that the two feed through cover gaskets are not worn, punctured, or torn. Replace if damaged.
- 3 Check that the EMI and other gaskets are not cracked, loose, or missing. Replace if damaged.

REMOVAL

Cover, Feed Through



- 1 Using screwdriver, remove four screws from top and bottom flanges.
- 2 Carefully remove the feed thru cover from the air conditioner.
- 3 Using screwdriver, socket and ratchet, remove the six screws, flat washers, and lock nuts.
- 4 Carefully remove the two feed through cover gaskets from the feed through cover.

REPAIR OR REPLACEMENT

NOTE

Prior to removal of old gasket material or insulation, cut the new replacement material to size using the old item as a sample.

- 1 Remove as much old gasket material as possible by pulling or scraping it away from the metal surface.

WARNING

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

- 2 Soften and remove old adhesive and gasket residue, using dry cleaning solvent and a stiff brush.
- 3 Minor dents and bent edges can be straightened using common sheet metal repair procedures. Panels that are badly dented, bent, or punctured should be replaced.
- 4 Should touch up or refinishing be necessary, see WP0016.
- 5 Use only approved replacement material as specified in Chapter 8.
- 6 EMI gasket material specified for this unit are supplied with adhesive backing.
- 7 Cut gasket to size. Be sure that EMI gasket corners are mitered so that good continuous edge contact is made.
- 8 Be sure that surface to which gasket is to be applied is clean and free of paint and old adhesive material.
- 9 Remove backing material from adhesive side and immediately press gasket in place. Be sure that good edge-to-edge contact is made on the EMI gaskets.

INSTALLATION

- 1 Using a screwdriver, socket, and ratchet, attach the two feed through cover gaskets. Use six screws, flat washers, and locknuts.
- 2 Line up the holes in the feed through cover and the air conditioner housing.
- 3 Using screwdriver, install cover with four screws.
- 4 Reconnect evaporator and condenser section assemblies. (See WP0014).

TM9-4120-423-14&P

5 Install air conditioner on shelter. (See WP0006).

END OF TASK

COVERS, FRONT, TOP, AND FABRIC

0044 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
 Removal
 Cleaning
 Repair or Replacement
 Installation

Tools and Special Tools
 Screwdriver, Phillips
 Knife

Materials/Parts	
Front Condenser Cover	13219E9522
Dry Cleaning Solvent	P-D-680 Type III
Adhesive, Sealant	MIL-A-46106 Type I
Top Condenser Cover	SP4818
Fabric Cover	SP4821

Personnel Required
 Unit Technician

Equipment Conditions
 Air conditioner removed from shelter (See WP0006)
 Evaporator and condenser section assemblies separated (See WP0014)
 Feed through cover removed (See WP0043).

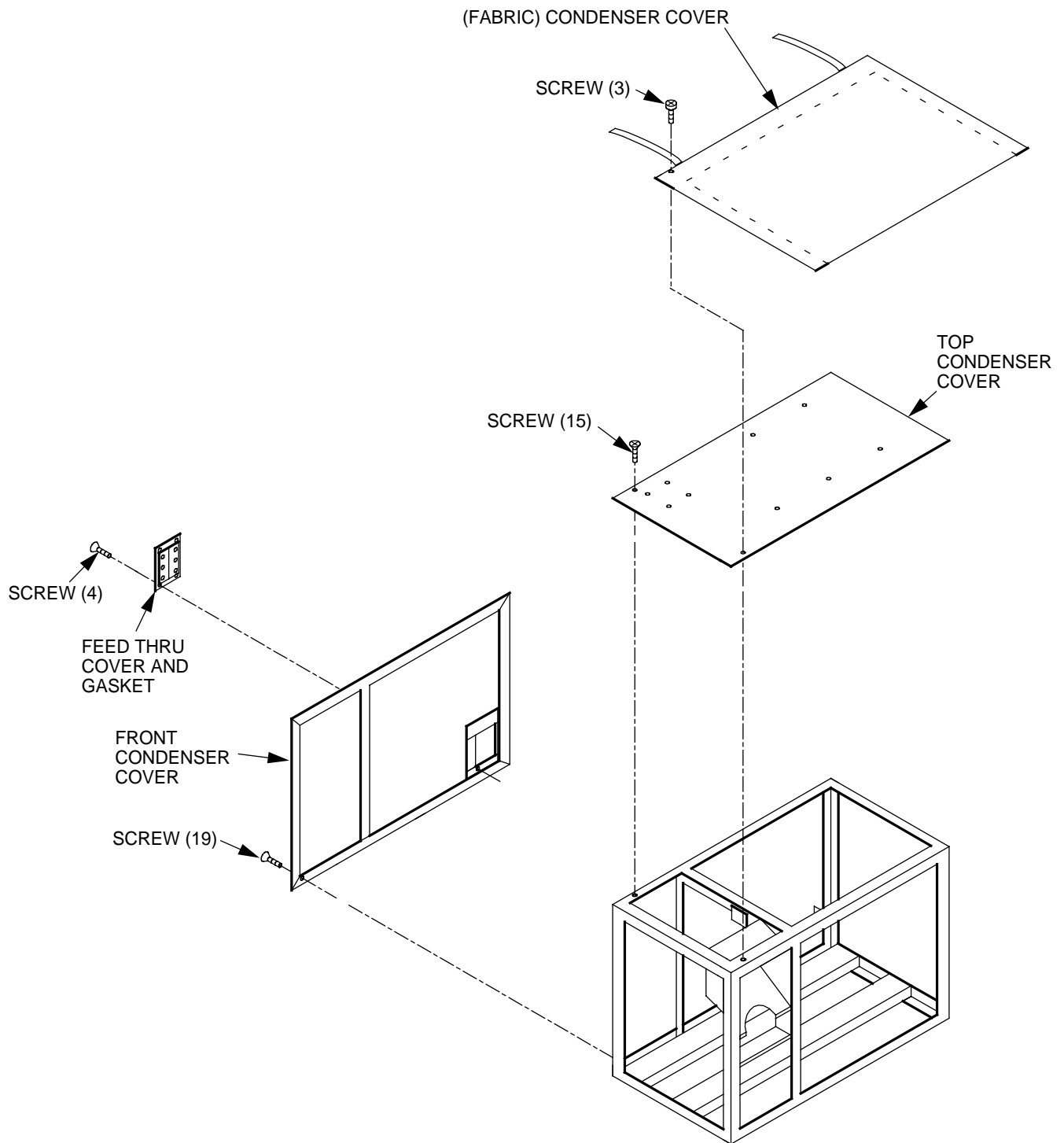
INSPECTION OF INSTALLED ITEMS

- 1 Check that the front and top condenser covers are not bent, cracked, or punctured. Replace if damaged.
- 2 Check that the EMI and other gaskets are not cracked, loose, or missing. Repair if damaged.

- 3 Check that the four floating nut plates for attaching the feed through cover are securely riveted and in good condition. Replace if damaged.
- 4 Check that information plate on top cover is readable and in place. Replace if damaged.
- 5 Check fabric cover for tears, missing ties, worn edges, or holes. Replace if damaged.
- 6 Check for accumulated dirt and mildew. Clean if necessary.
- 7 Check condition of snaps. Replace fabric cover if damaged.

REMOVAL

Covers, Front, Top, and Fabric



- 1 Using screwdriver, remove nineteen screws from the front condenser cover.

- 2 Carefully remove the front condenser cover.
- 3 Using screwdriver, remove fifteen screws from top condenser cover.
- 4 Carefully remove the top condenser cover.
- 5 Untie and roll fabric cover down.
- 6 Using screwdriver, remove the three screws.
- 7 Carefully remove fabric cover.

CLEANING

- 1 Wash fabric cover with a solution of mild detergent and clear water.
- 2 Rinse thoroughly with clear water.
- 3 Dry prior to installation.

REPAIR OR REPLACEMENT

NOTE

Prior to removal of old gasket material or insulation, cut the new replacement material to size using the old item as a sample.

- 1 Remove as much old gasket or insulation material as possible by pulling or scraping it away from the metal surface.

WARNING

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

- 2 Soften and remove old adhesive and gasket residue, using dry cleaning solvent and a stiff brush.
- 3 To remove floating nut plates, use a drill bit slightly smaller than the diameter of the rivet being removed.
- 4 Drill the rivets out and remove the old plate nut.
- 5 Align holes in replacement plate nut and cover and install new rivets.

- 6 To replace information plate, use a drill bit slightly smaller than the diameter of the rivet being removed.
- 7 Drill the rivets out and remove the old plate.
- 8 Align holes in replacement plate and cover and install new rivets.
- 9 Minor dents and bent edges can be straightened using common sheet metal repair procedures. Panels that are badly dented, bent, or punctured should be replaced.
- 10 Should touch up or refinishing be necessary, see WP0016.
- 11 Use only approved replacement material as specified in Chapter 8.
- 12 EMI gasket material specified for this unit is supplied with adhesive backing.
- 13 Cut gasket to size. Be sure that EMI gasket corners are mitered so that good continuous edge contact is made.
- 14 Be sure that surface to which gasket is to be applied is clean and free of paint and old adhesive material
- 15 Remove backing material from adhesive side and immediately press gasket in place. Be sure that good edge-to-edge contact is made on the EMI gaskets.
- 16 Minor rips, cuts, tears, or punctures in fabric cover may be repaired by applying a patch to the inside surface.
- 17 Metallic grommets and snap fasteners may be replaced if surrounding material is not damaged.
- 18 For damage of greater extent or if cover material is damaged so that metallic grommets and snap fasteners cannot be replaced, replace the entire fabric cover.

INSTALLATION

- 1 Line up screw holes in fabric cover and the air conditioner housing.
- 2 Using screwdriver, install cover with three screws.
- 3 Roll cover up and tie both ties if unit is to be operational.
- 4 If unit is to be placed in storage, leave cover rolled down and snap in place.
- 5 Line up screw holes in top condenser cover and air conditioner housing.
- 6 Using screwdriver, install cover with fifteen screws.

- 7 Line up the holes in the front condenser cover and the air conditioner housing.
- 8 Using screwdriver, install the cover with nineteen screws.
- 9 Install feed through cover. See WP0043.
- 10 Reconnect evaporator and condenser section assemblies. (See WP0014).
- 11 Install air conditioner on shelter. (See WP0006).

END OF TASK

COVERS, RIGHT AND LEFT END

0045 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
Removal
Repair or Replacement
Installation

Tools and Special Tools
Screwdriver, Phillips
Knife

Materials/Parts

Right End Condenser Cover	13221E9106
Left End Condenser Cover	13219E9516
Dry Cleaning Solvent	P-D-680 Type III
Adhesive, Sealant	MIL-A-46106 Type I

Personnel Required
Unit Technician

Equipment Conditions

Air conditioner turned off at circuit breaker
Power cable disconnected at washboard

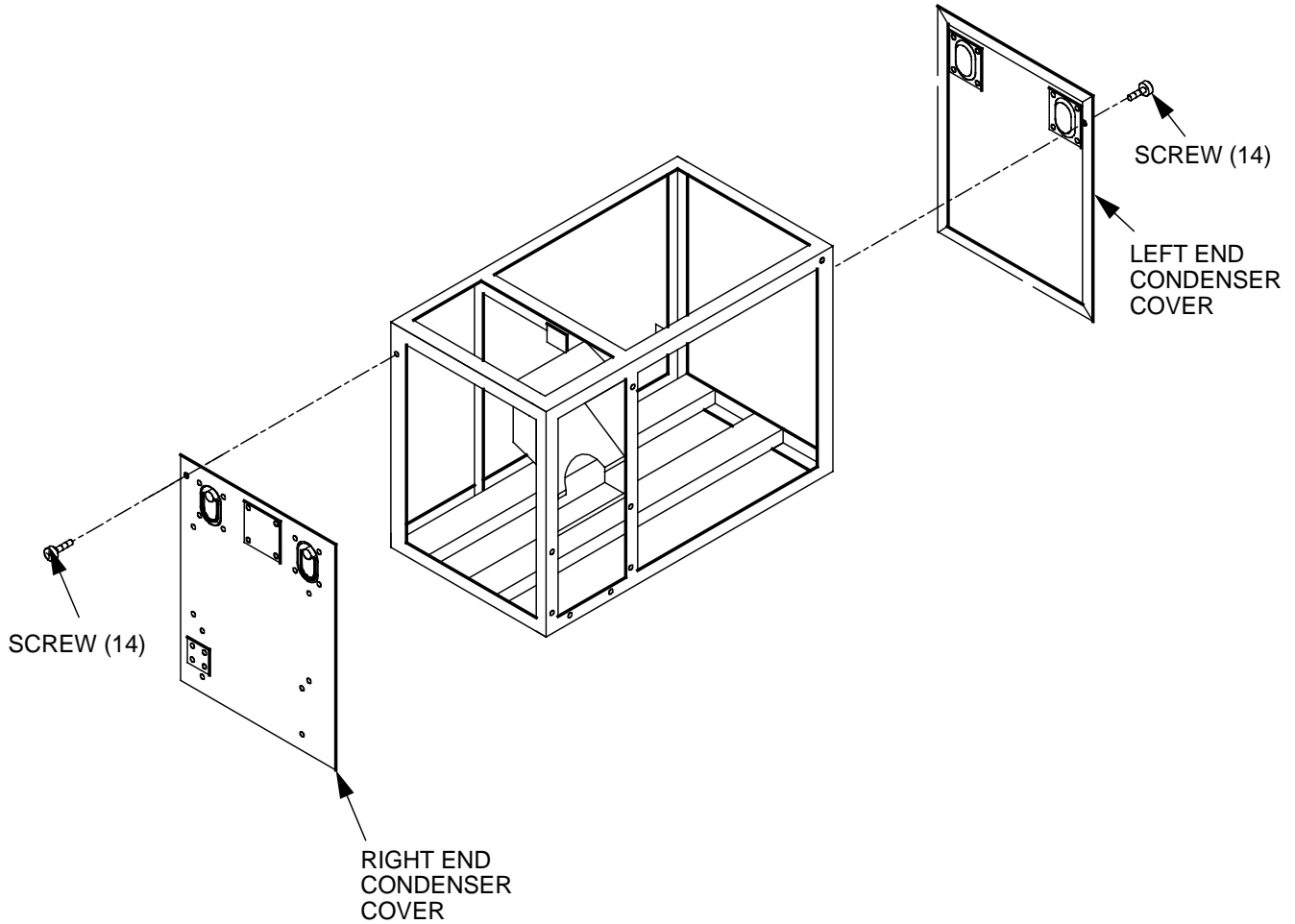
INSPECTION OF INSTALLED ITEMS

- 1 Check that covers are not bent, cracked, or punctured. Replace if damaged.
- 2 Check that EMI and other gaskets are not cracked, loose, or missing. Replace if damaged.
- 3 Check that identification, danger, and diagram plates are readable and in place. Replace if damaged.

- 4 Check that the two lifting rings are securely attached and in good condition. Replace if damaged.

REMOVAL

Covers, Right and Left End



WARNING

Disconnect input power to the air conditioner before performing any maintenance to the electrical system. Voltages used can be lethal. Shutting the unit off at the control module does not disconnect power to the various components of the air conditioner.

- 1 Using screwdriver, remove fourteen screws.
- 2 Carefully remove the right end condenser cover.
- 3 Using screwdriver, remove fourteen screws.

- 4 Carefully remove the left end condenser cover.

REPAIR OR REPLACEMENT

NOTE

Prior to removal of old gasket material, cut the new replacement material to size using the old item as a sample.

- 1 Remove as much old gasket material as possible by pulling or scraping it away from the metal surface.

WARNING

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

- 2 Soften and remove old adhesive and gasket residue, using dry cleaning solvent and a stiff brush
- 3 To replace identification, danger, and diagram plates and lifting rings, use a drill bit slightly smaller than the diameter of the rivet being removed.
- 4 Drill the rivets out and remove the old part.
- 5 Align holes in replacement part and cover and install new rivets.
- 6 Minor dents and bent edges can be straightened using common sheet metal repair procedures. Panels that are badly dented, bent, or punctured should be replaced.
- 7 Should touch up or refinishing be necessary, see WP0016.
- 8 Use only approved replacement material as specified in Chapter 8.
- 9 EMI gasket material and regular gasketing specified for this unit are supplied with adhesive backing.
- 10 Cut gasket to size. Be sure that EMI gasket corners are mitered so that good continuous edge contact is made.
- 11 Be sure that surface to which gasket is to be applied is clean and free of paint and old adhesive material.
- 12 Remove backing material from adhesive side and immediately press gasket in place. Be sure that good edge-to-edge contact is made on the EMI gaskets.

INSTALLATION

- 1 Line up screw holes in covers and air conditioner housing.
- 2 Using screwdriver, install covers with fourteen screws each.
- 3 Connect power cable at washboard and turn air conditioner circuit breaker on.

END OF TASK

GUARD AND GRILLE, CONDENSER

0046 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
 Removal
 Cleaning
 Repair or Replacement
 Installation

Tools and Special Tools
 Screwdriver, Phillips
 Wrench, Socket

Materials/Parts

Condenser Guard	13219E9514
Condenser Discharge Grille	13219E9517
Inlet EMI Screen	13219E9573
Discharge EMI Screen	13219E9572
Snap Fastener	MS27980-13B

Personnel Required
 Unit Technician

Equipment Conditions

Air conditioner turned off at circuit breaker
 Power cable disconnected at washboard

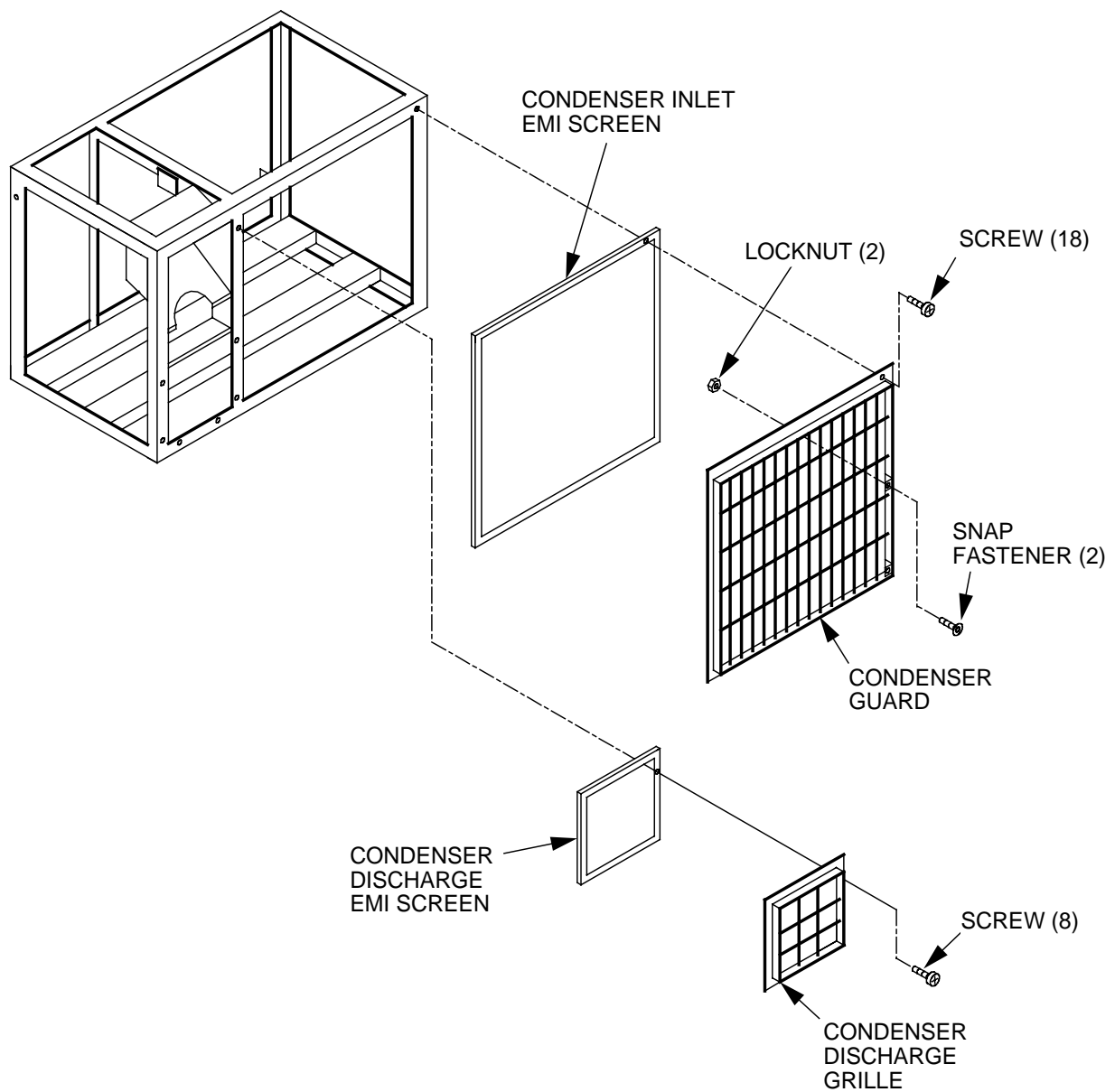
INSPECTION OF INSTALLED ITEMS

- 1 Check that condenser guard and grille are not broken, dented, or otherwise damaged. Replace if damaged.
- 2 Check that snap fasteners are in good condition. Replace if damaged.
- 3 Check that reference plates are readable and in place. Replace if damaged.

- 4 Check that screen frame is not bent, dented, or mashed. Replace if damaged.
- 5 Check that honeycomb area is not crushed, dented, pierced, or torn. Replace if damaged.
- 6 Check that gaskets are not loose, torn, or missing. Replace screen if gaskets are damaged.
- 7 Check that screen is not clogged with dirt or other material that would block free airflow through screen. Clean screen if dirty or clogged.

REMOVAL

Guard and Grille, Condenser



WARNING

Disconnect input power to the air conditioner before performing any maintenance to the electrical system. Voltages used can be lethal. Shutting the unit off at the control module does not disconnect power to the various components of the air conditioner.

- 1 Using screwdriver, remove eighteen screws from condenser guard.
- 2 Being careful not to damage the EMI gasket and screen, lift the guard and EMI screen from the housing.
- 3 Using screwdriver, socket, and ratchet, remove the two snap fasteners and locknuts.
- 4 Using screwdriver, remove eight screws from condenser discharge grille.
- 5 Being careful not to damage the EMI gasket and screen, lift the grille and EMI screen from the housing.

CLEANING

- 1 Wash screens in a mild detergent and water solution. If possible, use a large flat pan. Move screens up and down so that water is forced through the honeycomb to dislodge dirt.
- 2 Rinse thoroughly in clear water.
- 3 Shake out excess water prior to installation.

REPAIR OR REPLACEMENT

- 1 To replace reference plates, use a drill bit slightly smaller than the diameter of the rivet being removed.
- 2 Drill the rivets out and remove the old plate.
- 3 Align holes in replacement plate and cover and install new rivets.
- 4 Minor dents and bent edges can be straightened using common sheet metal repair procedures. Panels that are badly dented, bent, or punctured should be replaced.
- 5 Should touch up or refinishing be necessary, see WP0016.

INSTALLATION

- 1 Line up screw holes in grille and EMI screen.
- 2 Using screwdriver, install grille and EMI screen with eight screws. Be sure that they are tightened evenly, and that there are no gaps between the grille and the EMI screen or the EMI screen and the housing.
- 3 Using screwdriver, socket, and ratchet, install the two snap fasteners and secure with lock nuts.
- 4 Line up screw holes in guard and EMI screen.
- 5 Using screwdriver, install guard and EMI screen with eighteen screws. Be sure that they are tightened evenly, and that there are no gaps between the guard and the EMI screen or the EMI screen and the housing.
- 6 Connect power cable at washboard and turn air conditioner circuit breaker on.

END OF TASK

HARNESSES AND LEADS, CONDENSER ASSEMBLY

0047 00

THIS WORK PACKAGE COVERS:

Removal
Repair or Replacement
Test and Inspection
Installation

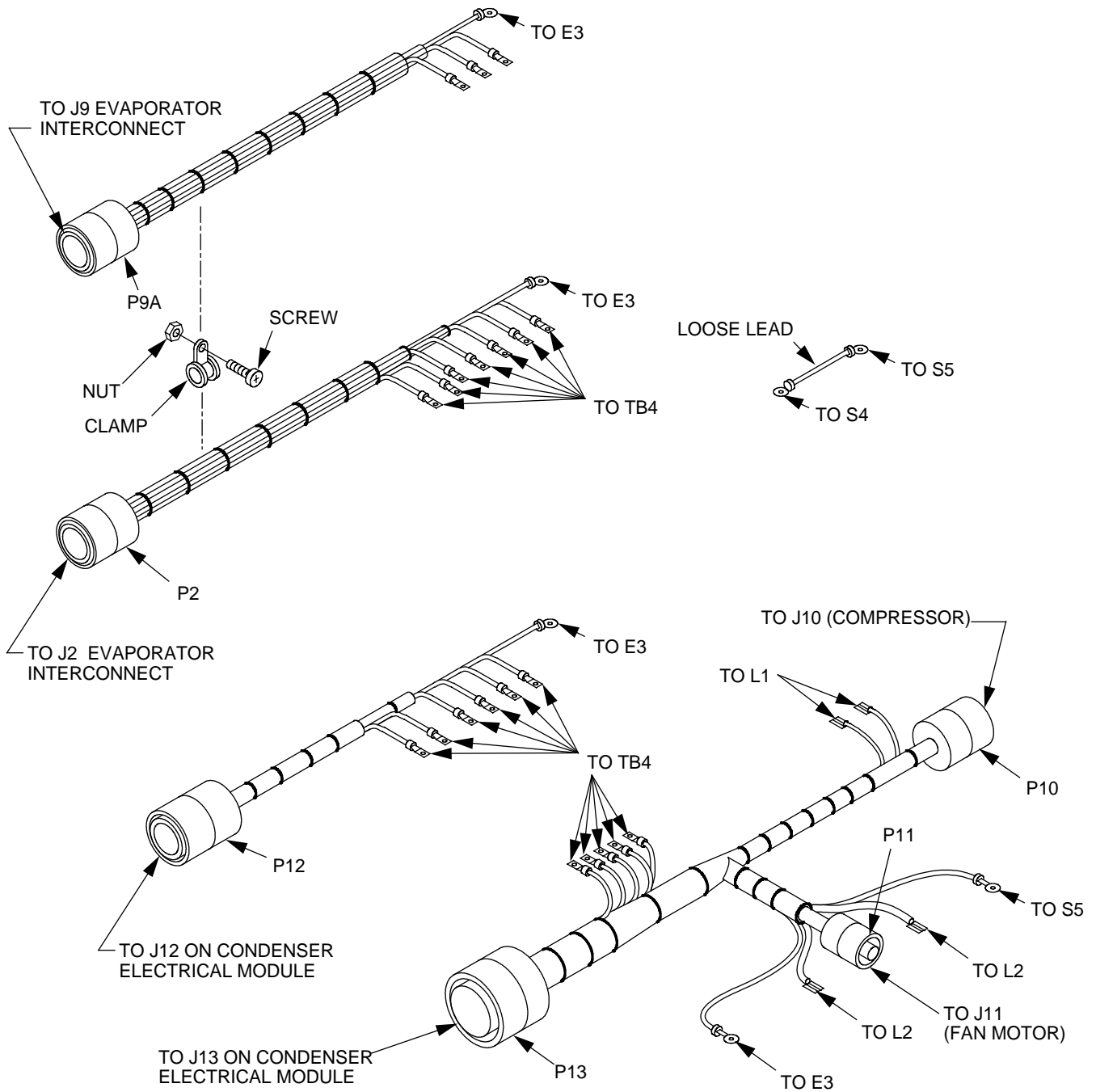
Tools and Special Tools
Screwdriver
Wrench

Personnel Required
Unit Technician

Equipment Conditions
Air conditioner removed from shelter. (See WP0006.)
Evaporator access cover removed. (See WP0024.)
Top condenser cover removed. (See WP0044.)
Right and Left end condenser covers removed. (See WP0045.)

REMOVAL

Harnesses and Leads, Condenser Assembly



- 1 To remove P9A wiring harness, disconnect P9A connector plug at evaporator access box.
- 2 Using screwdriver and wrench, remove screw, nut, and clamp. (Also holds P2 harness.)
- 3 Tag and remove leads to terminal board TB4 and ground E3.

- 4 To remove P2 wiring harness, disconnect P2 connector plug at evaporator access box.
- 5 Using screwdriver and wrench, remove screw, nut, and clamp. (Also holds P9A harness.)
- 6 Tag and remove leads to terminal board TB4 and ground E3.
- 7 To remove P12 wiring harness, disconnect P12 connector plug from back of condenser electrical module.
- 8 Tag and remove leads to terminal board TB4 and ground E3.
- 9 To remove P10, P11, and P13 harness, disconnect P10 connector plug from compressor.
- 10 Disconnect P11 connector plug from fan motor.
- 11 Disconnect P13 connector plug from back of condenser electrical module.
- 12 Tag and remove leads to terminal board TB4, switches S4 and S5, and solenoid valves L1 and L2.
- 13 To remove lead S4 to S5, tag lead and remove.

REPAIR OR REPLACEMENT

- 1 See WP0015 for general wire repair instructions.
- 2 See Wire List, for wire lengths and terminals information when individual wires are replaced.

INSTALLATION

- 1 To install P9A wiring harness, connect P9A to J9 at evaporator access box.
- 2 See tags, wire marking, and wiring diagram.
- 3 Install leads on terminal board TB4 and ground E3. Remove tags.
- 4 Using screwdriver and wrench, install clamp, screw and nut. (Also holds P2 harness.)
- 5 To install P2 wiring harness, connect P2 to J2 at evaporator access box.
- 6 See tags, wire marking, and wiring diagram.
- 7 Install leads on terminal board TB4 and ground E3. Remove tags.
- 8 Using screwdriver and wrench, install clamp, screw and nut. (Also holds P9A Harness.)

- 9 To install P12 wiring harness, connect P12 to J12 on back of condenser electrical module.
- 10 See tags, wire marking, and wiring diagram.
- 11 Install leads on terminal board TB4 and ground E3. Remove tags.
- 12 To install P10, P11, and P13 harness, connect P10 to J10 on compressor.
- 13 Connect P11 to J11 on fan motor.
- 14 Connect P13 to J13 on back of condenser electrical module.
- 15 See tags, wire marking, and wiring diagram.
- 16 Install leads on terminal board TB4, switches S4 and S5, and solenoid valves L1 and L2. Remove tags.
- 17 To install lead S4 to S5, see tags, wire marking, and wiring diagram.
- 18 Install lead from S4 to S5. Remove tags.
- 19 Install left end condenser cover. (See WP0045).
- 20 Install right end condenser cover. (See WP0045).
- 21 Install top condenser cover. (See WP0044).
- 22 Install access cover. (See WP0024).
- 23 Install air conditioner on shelter. (See WP0006).

END OF TASK

VARISTORS (RV1, RV2, AND RV3) AND TERMINAL BOARD (TB4)

0048 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
Removal
Repair or Replacement
Installation

Materials/Parts

Varistor	13221E9119-2
Terminal, Lug	MS17143-1
Insulation, Sleeving	M23053/2-201-C
Board, Terminal	18TB12

Tools and Special Tools

Screwdriver
Heat Gun

Personnel Required

Unit Technician

Equipment Conditions

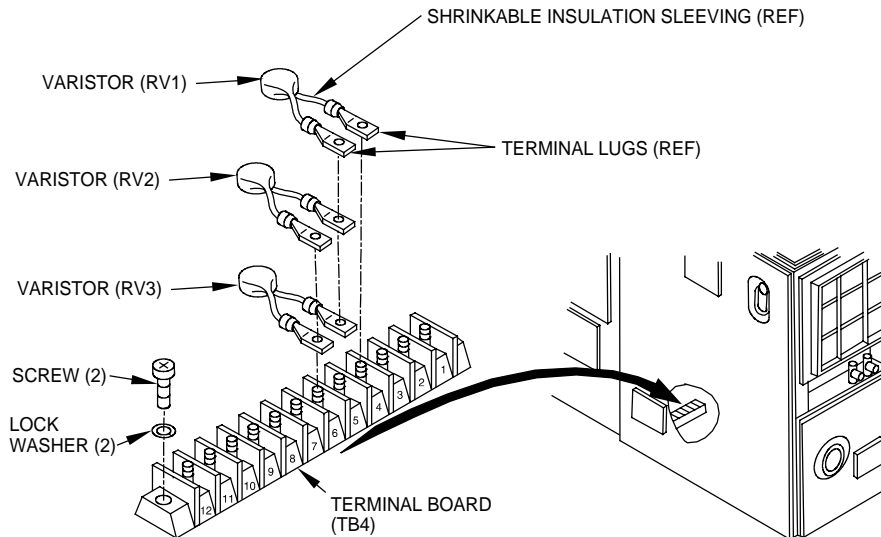
Power disconnected
Right end condenser cover removed. (See WP0045).

INSPECTION OF INSTALLED ITEMS

- 1 Check varistors for cracks, broken leads, and evidence of overheating. Replace if damaged.
- 2 Check terminal board for loose or corroded terminals, cracks, and obvious damage. Replace if terminals are corroded, or if terminal board is cracked or broken.

REMOVAL

Varistors (RV1, RV2, and RV3) and Terminal Board (TB4)



- 1 Tag and remove leads and varistors.
- 2 Using screwdriver, remove two screws and lockwashers and remove terminal board.

REPAIR OR REPLACEMENT

- 1 Cut heat shrinkable tubing to approximately one-half inch (1.27 cm) long.
- 2 Slip heat shrinkable tubing over leads.
- 3 Install terminal lugs.
- 4 Using heat gun, shrink tubing in place.

INSTALLATION

- 1 Using screwdriver, secure terminal board with two screws and lockwashers.
- 2 See tags, wire marking, and wiring diagram. Install leads and varistors.
- 3 Remove tags.
- 4 Install right end condenser cover. (See WP0045)
- 5 Connect power.

END OF TASK

BLOWER HOUSING, FAN INLET AND MOTOR

0049 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items

Removal

Cleaning

Repair or Replacement

Installation

Testing

Tools and Special Tools

Screwdriver

Wrench, socket

Allen wrench

Multimeter

Materials/Parts

Housing, Blower 13219E9523

Inlet, Fan 13219E9536

Impeller, Fan 13219E9535

Motor, AC W1853-3

Personnel Required

Unit Technician

Equipment Conditions

Power Disconnected

Front and top condenser covers removed.

(See WP0044).

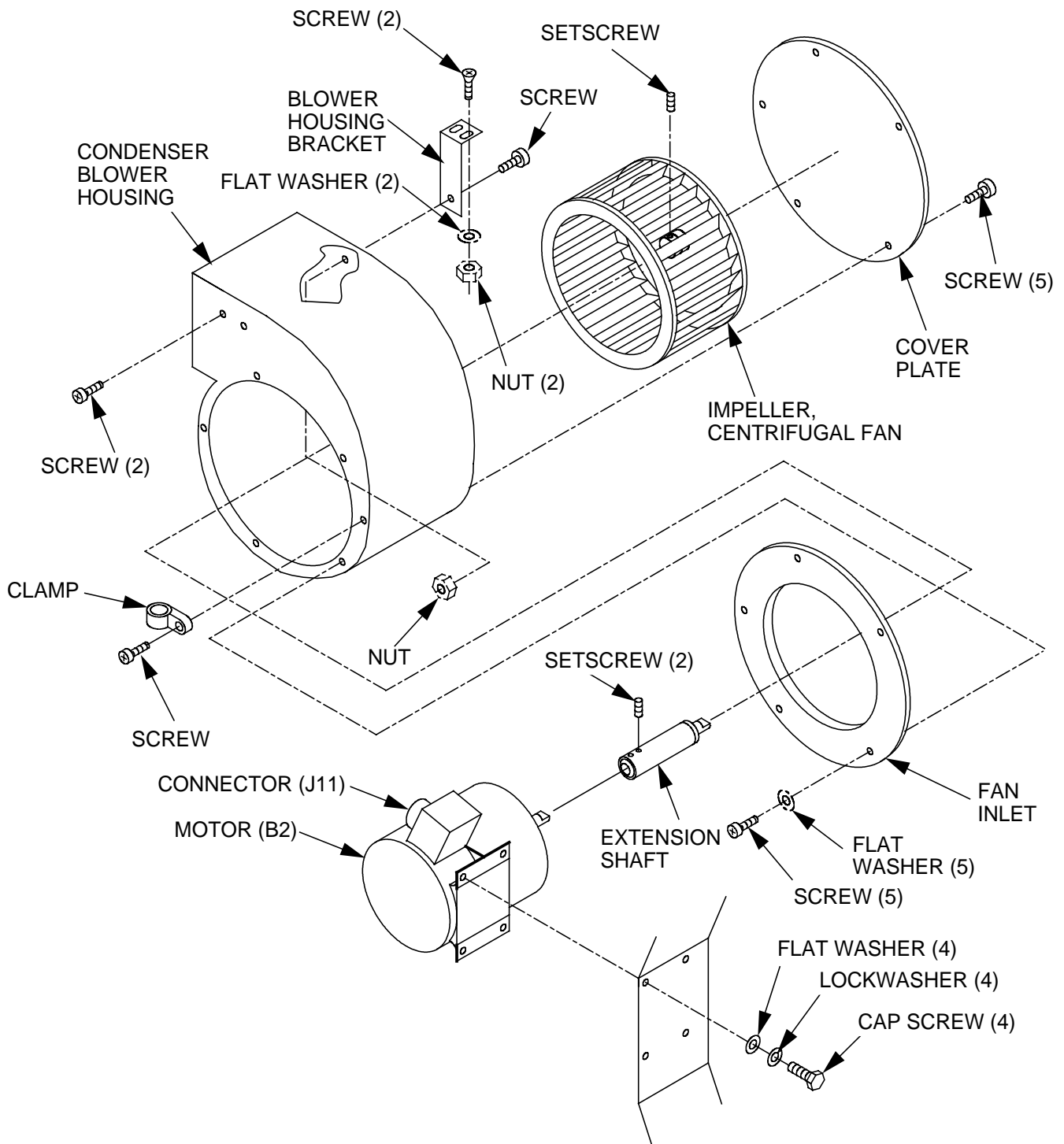
Right end condenser cover removed. (See
WP0045).**INSPECTION OF INSTALLED ITEMS**

- 1 Check that blower housing and fan inlet are not damaged. Replace them if they are bent, badly dented, or cracked.

- 2 Check that plate nuts in blower housing are in place and secure. Replace them if they are loose or damaged.
- 3 Check that impeller is in good condition. Replace it if it is out of round, dented, broken, or if the hub is loose.
- 4 Check to see that the setscrew is not missing.
- 5 Check motor to see that it rotates freely without excessive lateral endplay.
- 6 Check motor for evidence of overheating.
- 7 Check connector J11 for loose, damaged, or missing pins.

REMOVAL

Blower Housing, Fan Inlet, and Motor



- 1 Using screwdriver, remove two screws, flat washers and locknuts that secure blower housing bracket to condenser housing.

- 2 Using screwdriver, remove screw and locknut to remove blower housing bracket from blower housing.
- 3 Using screwdriver, remove three screws and clamp from motor side of blower housing.
- 4 Pull impeller from condenser housing.
- 5 Using screwdriver, remove five screws and flat washers and remove fan inlet.
- 6 Using screwdriver, remove five screws and remove fan cover plate.
- 7 Using allen wrench, loosen two setscrews holding the extension shaft to the motor shaft.
- 8 Carefully pull the assembled extension shaft and impeller off of motor shaft and out of housing.
- 9 Using allen wrench, loosen impeller hub setscrew and pull extension shaft from impeller.
- 10 Disconnect connector plug (P11) from motor connector (J11).
- 11 While supporting motor, use socket and ratchet to remove four cap screws, lockwashers, and flat washers.
- 12 Carefully slip motor up and out of air conditioner.

CLEANING

Using clean dry cloth and soft brush, remove dirt from impeller, blower housing, cover plate, extension shaft, and outside of motor.

REPAIR OR REPLACEMENT

- 1 Housing repairs are limited to replacement of rivets and plate nuts.
- 2 Plate nuts may be removed by drilling out the old rivets using a drill bit slightly smaller than the diameter of the rivet.
- 3 Install new plate nut(s) and rivets.
- 4 Repair of the condenser fan motor is limited to replacement of the electrical connector. For further information on electric motor repair, refer to FM 20-31 (Electric Motor and Generator Repair).
- 5 To replace the connector, using screwdriver, remove the four screws from the terminal box cover.

- 6 Remove the cover.
- 7 Using screwdriver, remove the four screws from the connector (J11).
- 8 Tag and unsolder leads.
- 9 Remove the old connector.
- 10 See wiring diagram and tags and solder leads to the new connector. Remove the tags.
- 11 Using screwdriver, install the connector with four screws.
- 12 Using screwdriver, install the terminal box cover with four screws.

INSTALLATION

- 1 Slip the motor into place and position impeller and extension shaft loosely on motor shaft.
- 2 Line up motor and bracket screw holes.
- 3 Using socket and ratchet, fasten motor to bracket with four screws, lockwashers, and flat washers.
- 4 Align extension shaft setscrews with flat surface on motor shaft.
- 5 Position impeller for 1/8-inch clearance (measure with tape) from inside edge of fan inlet.
- 6 Slip impeller on extension shaft as far as possible and tighten setscrew.
- 7 Using allen wrench, tighten two setscrews to secure shaft extension and impeller on motor shaft.
- 8 Spin impeller and check that it clears inlet all around.
- 9 If impeller does not spin freely, increase clearance, step (4) slightly.
- 10 Connect P11 connector plug to J11 motor connector.
- 11 Using allen wrench, tighten two setscrews in extension shaft.

CAUTION

Sheet metal screws are used to mount fan cover plate. Take care that mounting screw holes are not stripped.

- 12 Using screwdriver, secure cover plate with five screws.

- 13 Using screwdriver, install the fan outlet on blower housing with five screws and flat washers.

CAUTION

Sheet metal screws are used to mount fan inlet ring. Take care that mounting screw holes are not stripped.

- 14 Place blower in condenser housing and align holes.
- 15 Using screwdriver, secure motor side of blower housing with three screws and clamp.
- 16 Using screwdriver and wrench, secure blower housing bracket to condenser housing angle with two screws, flat washers, and locknuts.
- 17 Install right end condenser cover. See WP0045.
- 18 Install front and top condenser covers. See WP0044.

TESTING

- 1 To test motor, disconnect P11 from J11.
- 2 Using multimeter check continuity between all J11 pins and motor housing. Continuity should exist only on pin D.
- 3 Using multimeter, measure 3 phase windings at J11: A to B, B to C, A to C. All resistances should be above zero, but less than 2 ohms.
- 4 Using multimeter, check J11. Pin D is ground. Check pins A, B, C, E, and F to pin D. There should be no reading. Check pin D to motor frame, multimeter should read 0.
- 5 Using multimeter, measure resistance between pins E and F. Resistance should be zero meaning the switch (S7) is closed.
- 6 Motor with shorted, open or grounded windings or open thermostatic switch should be replaced.

END OF TASK

CONDENSER HOUSING ASSEMBLY

0050 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
Repair or Replacement

Tools and Special Tools
Scraper
Stiff Brush

Materials/Parts
Dry Cleaning Solvent P-D-680 Type III
Adhesive, Sealant MIL-A-46106 Type I

Personnel Required
Unit Technician

Equipment Conditions
Power disconnected.
Top condenser cover removed. (See WP0044).
Air conditioner removed from shelter if necessary. (See WP0006).
Left end condenser cover removed. (See WP0045).

INSPECTION OF INSTALLED ITEMS

- 1 Check for broken welds, badly bent or dented parts, and cracked or broken parts.
- 2 Check that plate nuts and blind nuts are in place and secure.
- 3 No air passage is permitted at top or bottom of condenser coil. Check to see that insulation strips are in place to prevent air by pass of coil.

- 4 Reglue if loose.
- 5 Replace if missing.

REPAIR OR REPLACEMENT

NOTE

Prior to removal of old insulation, cut the new replacement material to size using the old item as a sample.

- 1 Remove as much old insulation material as possible, by scraping it away from the metal surface.

WARNING

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

- 2 Soften and remove old adhesive and residue, using dry cleaning solvent and a stiff brush.

NOTE

Insulation at top of coil should be attached in proper position to top metal cover of condenser coil. Insulation at bottom should be attached to condenser housing angle face below coil.

- 3 Be sure that the surface to which the insulation is to be applied is clean and free of paint and old adhesive material.
- 4 Coat the mating surfaces of the metal and the insulation with adhesive. Let both surfaces air dry until the adhesive is tacky, but will not stick to the fingers.
- 5 Starting with an end, carefully attach the insulation to the metal. Press into firm contact all over.
- 6 Minor dents and bent edges can be straightened using common sheet metal repair procedures.
- 7 Should touch up or refinishing be necessary, see WP0016.
- 8 Install left end condenser cover. (See WP0045).
- 9 Install top condenser cover. (See WP0044).
- 10 Install the air conditioner on shelter. (See WP0006).
- 11 Connect power.

END OF TASK

ELECTRICAL MODULE ASSEMBLY, CONDENSER SECTION

0051 00

THIS WORK PACKAGE COVERS:

Removal
Repair or replacement
Test and Inspection
Installation

Tools and Special Tools
Screwdriver
Wrench
Multimeter

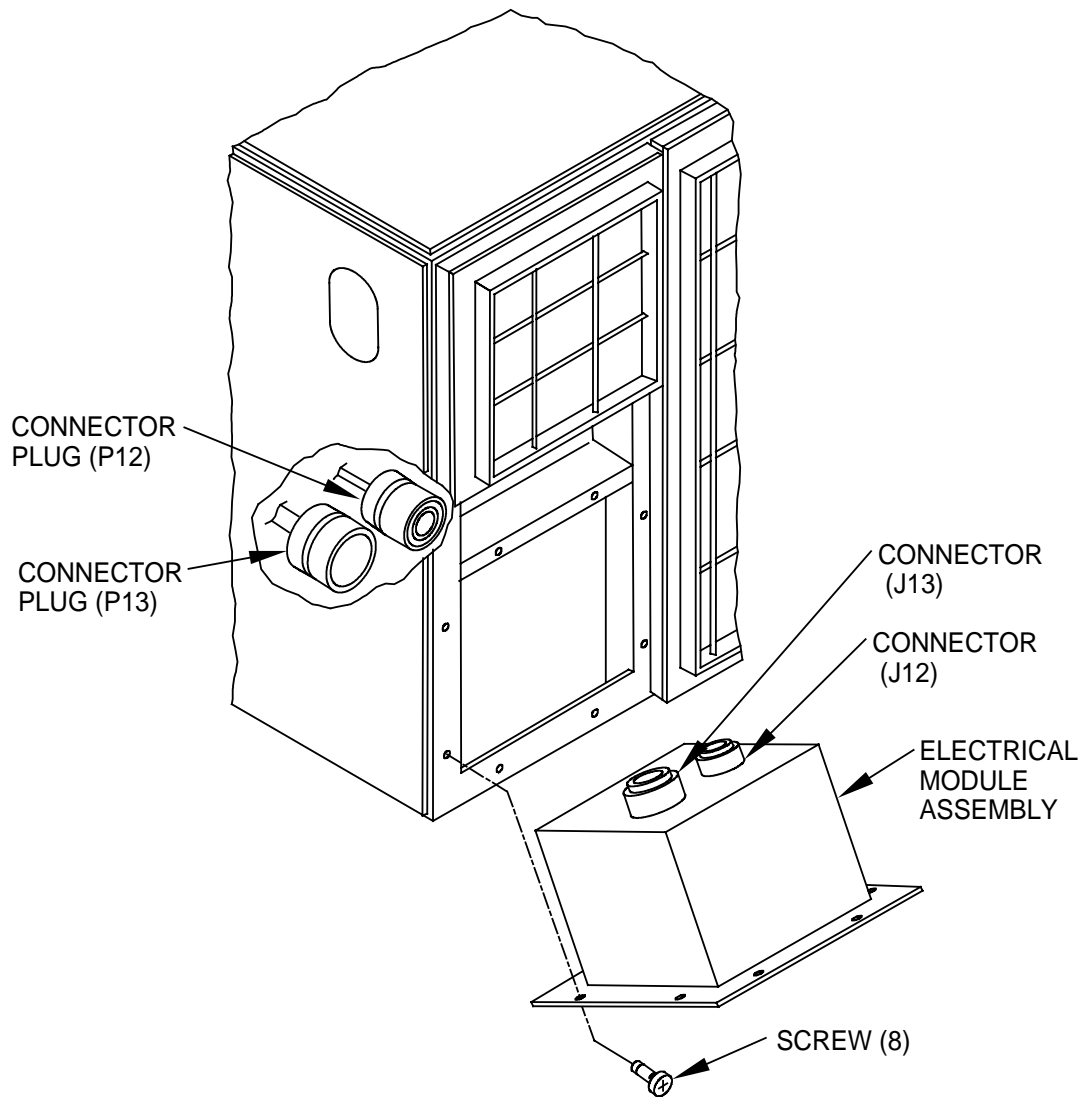
Materials/Parts	
Electrical module assy	SP3918
Relay, compressor motor	MS24192-D1
Relay, condenser motor	MS24192-D1
Phase sequence monitor	PRA-100-AFN-400
Relay, time delay	13221E9122

Personnel Required
Unit Technician

Equipment Conditions
Power disconnected.

REMOVAL

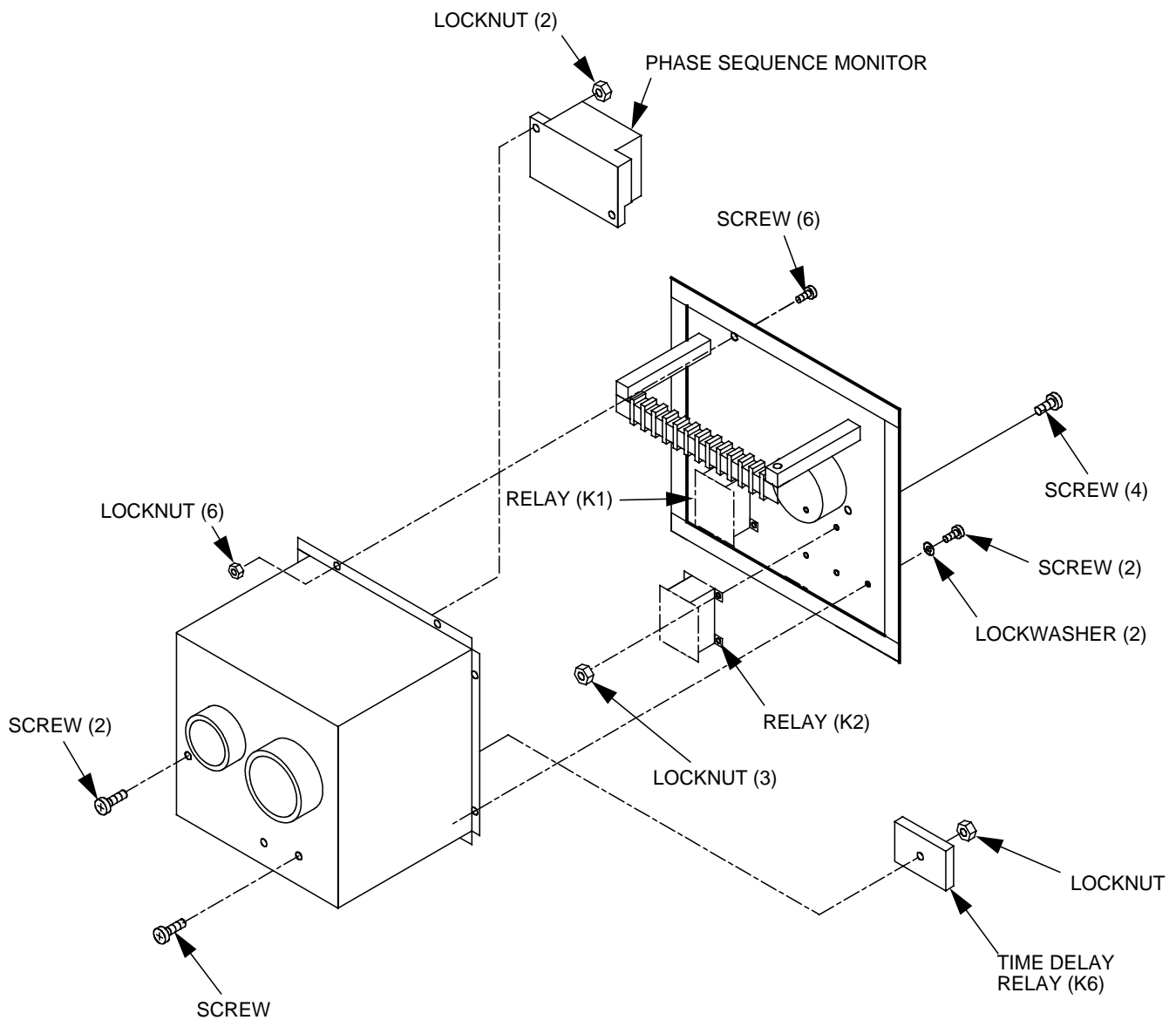
Condenser Section Electrical Module Assembly.



- 1 Using screwdriver, remove eight screws.
- 2 Pull module out of housing until connectors on back side can be reached.
- 3 Disconnect P12 and P13 connector plugs, and pull module free.

REPAIR OR REPLACEMENT

Replacement of Relays and Phase Sequence Monitor



- 1 Tag and remove leads from relay (K1 or K2).
- 2 Using screwdriver and wrench, remove four screws and locknuts holding either relay to chassis.
- 3 Remove either relay.
- 4 Tag and remove leads from phase sequence monitor.
- 5 Using screwdriver and wrench, remove two screws and locknuts holding phase sequence monitor to cover.

- 6 Remove phase sequence monitor.
- 7 Tag and remove leads from time delay relay (K6).
- 8 Using screwdriver and wrench, remove screw and nut holding relay to cover.
- 9 Remove relay.
- 10 Position time delay relay (K6) inside cover.
- 11 Using screwdriver, secure relay to cover with screw and locknut.
- 12 See tags, wire markings and wiring diagram and connect leads.
- 13 Remove tags.
- 14 Position phase sequence monitor on cover.
- 15 Using screwdriver and wrench, secure phase sequence monitor to cover with two screws and locknuts.
- 16 See tags, wire markings and wiring diagram and connect leads.
- 17 Remove tags.
- 18 Position either relay (K1 or K2) on chassis.
- 19 Using screwdriver and wrench, secure relay on chassis with four screws and locknuts.
- 20 See tags, wire markings and wiring diagram and connect leads.
- 21 Remove tags.

TEST AND INSPECTION

- 1 The K1 relay controls the compressor motor.
- 2 Check to see that P12 and P13 connector plugs are connected at back of electrical module cover.
- 3 Connect power to air conditioner.
- 4 Turn mode selector switch to COOL and temperature control to maximum COOLER. Using multimeter, check relay output voltage (after 60 seconds) between: A2 and B2, B2 and C2, A2 and C2.

- 5 Voltage should be 185 to 229 Vac in all three places.
- 6 Check power input voltage between relay terminals: A1 and B1, B1 and C1, A1 and C1 Voltage should be 185 to 229 Vac in all three phases.
- 7 Using multimeter, check relay control voltage between X1 and X2.
- 8 Voltage should be 12 to 31 Vdc.
- 9 Turn selector switch to OFF.
- 10 The K2 relay controls the condenser fan motor.
- 11 Check to see that P12 and P13 connector plugs are connected at back of electrical module cover.
- 12 Connect power to air conditioner.
- 13 Turn mode selector switch to COOL and temperature control to maximum COOLER. Using multimeter, check relay output voltage between: A2 and B2, B2 and C2, A2 and C2.
- 14 Voltage should be 185 to 229 Vac in all three places.
- 15 Check power input voltage between relay terminals: A1 and B1, B1 and C1, A1 and C1 Voltage should be 185 to 229 Vac in all three phases.
- 16 Using multimeter, check relay control voltage between X1 and X2.
- 17 Voltage should be 12 to 31 Vdc.
- 18 Turn selector switch to OFF.
- 19 The phase sequence monitor (K7) controls the proper phasing, in ABC sequence, to the compressor from the generator set.
- 20 Check to see that P12 and P13 connector plugs are connected at back of electrical module cover.
- 21 Connect power to air conditioner.
- 22 Turn mode selector switch to COOL and temperature control to maximum COOLER. Using multimeter, check terminals L1, L2, and L3.
- 23 Voltage should be 197 to 229 Vac in all three places.
- 24 Check power input voltage between C1 and K1-X2, C and K1-X2. Voltage should be 12 to 31 Vdc.

- 25 Turn mode selector switch to OFF.
- 26 The time delay relay (K6) controls the starting time of the compressor.
- 27 Turn mode selector switch to COOL and temperature control to maximum COOLER.
- 28 Multimeter should show 25 to 31 Vdc for 15 to 60 seconds and then zero Vdc across terminals 1 and 2 of time delay relay.
- 29 Turn mode selector switch to OFF.
- 30 Disconnect power.
- 31 Check for loose terminal connections. Repair or replace all loose connections.
- 32 Check for cracks, evidence of overheating and other visible damage. Replace if damaged.
- 33 Connect power to air conditioner.

INSTALLATION

- 1 Position cover on chassis.
- 2 Using screwdriver and wrench, secure cover to chassis with eight screws, six locknuts and two lockwashers.
- 3 Connect P12 and P13 connector plugs to J12 and J13 connectors on back of module.
- 4 Carefully slip module into place and align holes.
- 5 Using screwdriver, secure module with eight screws.
- 6 Connect power.

END OF TASK

CONDENSER MODULE COVER

0052 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
Removal
Installation

Tools and Special Tools
Screwdriver
Wrench

Materials/Parts
Module cover SP3920

Personnel Required
Unit Technician

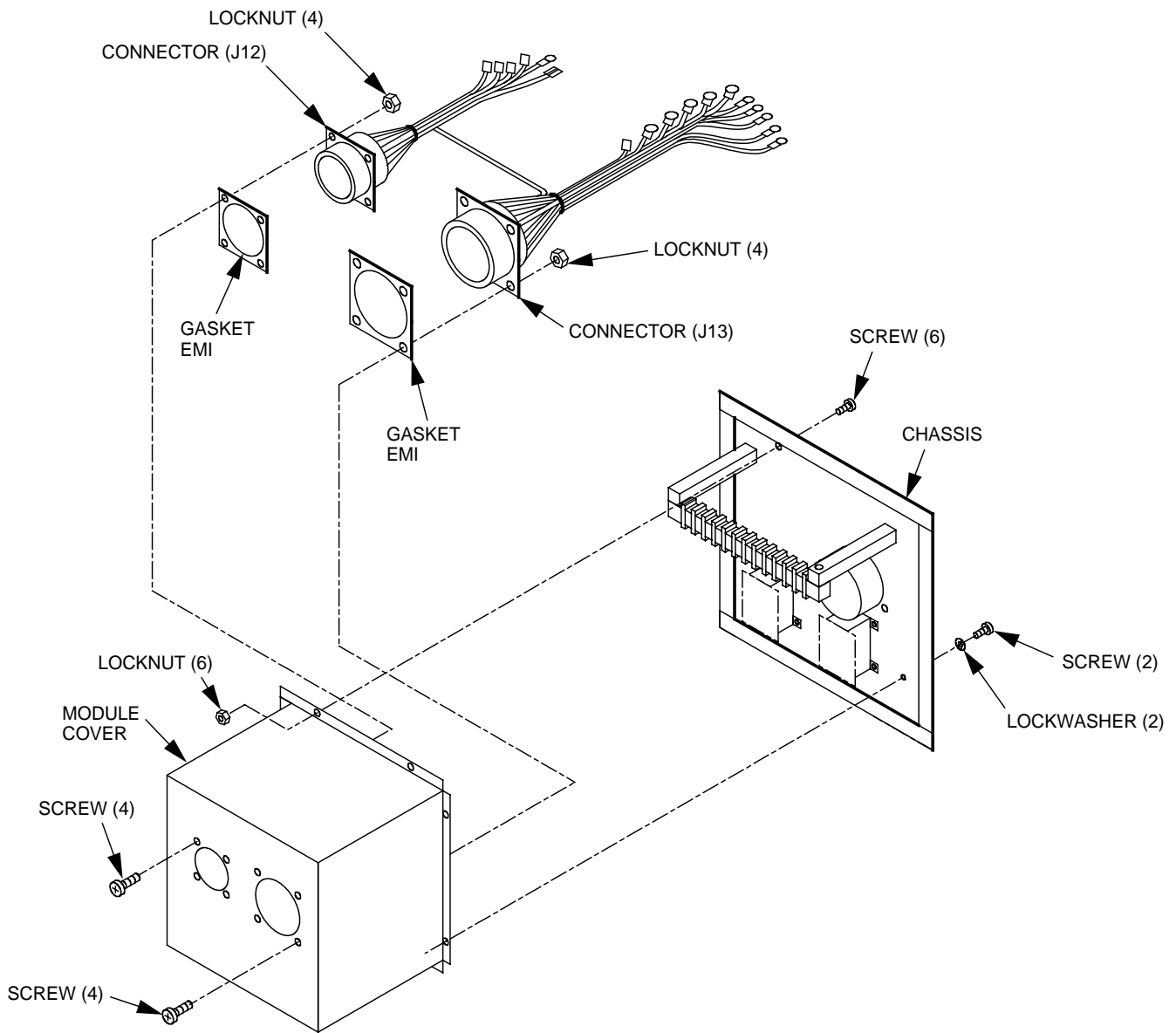
Equipment Conditions
Power Disconnected
Condenser section electrical module
removed (See WP0051)

INSPECTION OF INSTALLED ITEMS

- 1 Check for broken welds, cracks, dents, and general condition. Replace if damaged.
- 2 Check that screw threads are not stripped.

REMOVAL

Cover, Module



- 1 Using screwdriver and wrench, remove eight screws, six nuts and two lockwashers that hold cover to chassis.
- 2 Pull cover away from chassis as far as wiring harness will allow.
- 3 Using screwdriver and wrench, remove four screws and locknuts from each of the two connectors.

- 4 Separate the cover from the connectors and EMI gaskets. Take care that EMI gaskets are not lost.

INSTALLATION

- 1 Slip EMI gasket on connector ends.
- 2 Insert connector ends through holes in cover and align holes.
- 3 Using screwdriver and wrench, secure connectors and EMI gaskets with eight screws and locknuts.
- 4 Position cover on chassis.
- 5 Using screwdriver and wrench, secure cover to chassis with eight screws, six locknuts and two lockwashers.
- 6 Install condenser section electrical module. (See WP0051).
- 7 Connect power.

END OF TASK

TIME TOTALIZING METER (HOURMETER) M1

0053 00

THIS WORK PACKAGE COVERS:

Removal
Installation
Testing

Tools and Special Tools
Screwdriver
Wrench

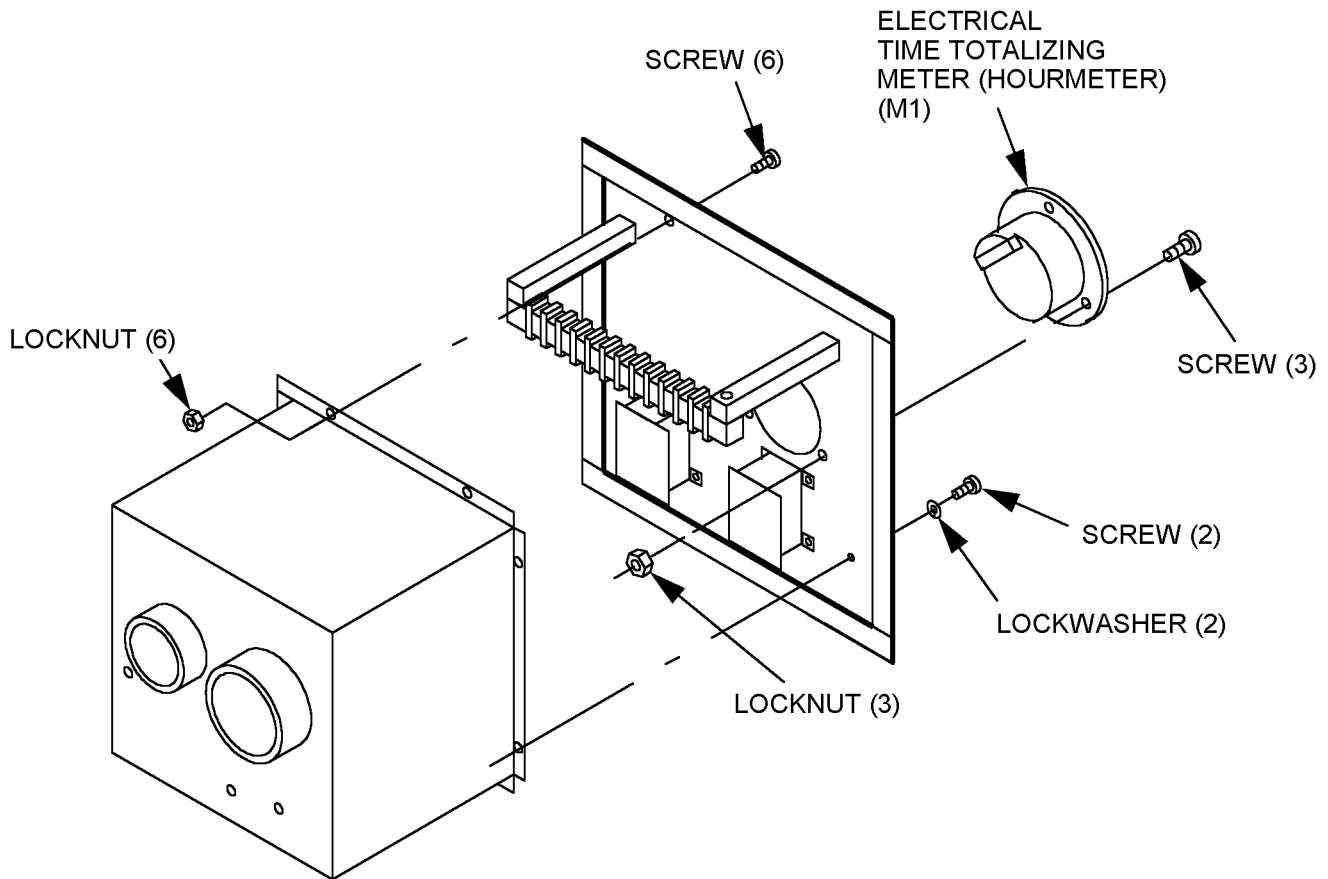
Materials/Parts
Meter M3971/1-5

Personnel Required
Unit Technician

Equipment Conditions
Power disconnected
Condenser section electrical module
removed (see WP0051).

REMOVAL

Time Totalizing Meter (Hour meter) M1



- 1 Using screwdriver and wrench, remove eight screws, six nuts, and two lockwashers that hold cover to chassis:
- 2 Pull cover away from chassis as far as wiring harness will allow.
- 3 Tag and disconnect leads.
- 4 Using screwdriver and wrench, remove three screws and locknuts.
- 5 Remove time totalizing meter.

INSTALLATION

- 1 Position time totalizing meter on chassis.
- 2 Using screwdriver and wrench, secure time totalizing meter to chassis with three screws and locknuts.

- 3 See tags, wire markings and wiring diagram and connect leads.
- 4 Remove tags.
- 5 Position cover on chassis.
- 6 Using screwdriver and wrench, secure cover to chassis with eight screws, six locknuts and two lockwashers.
- 7 Install condenser section electrical module. (See WP0051.)
- 8 Connect power.

TESTING

The time totalizing meter should operate and indicate elapsed operating time when the MODE SELECTOR SWITCH is in any of the operating modes. If it does not, replace it.

END OF TASK

TERMINAL BOARD (TB3) AND CONNECTING LINKS

0054 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
Removal
Installation

Tools and Special Tools
Screwdriver, flat tip
Screwdriver, cross tip
Wrench

Materials/Parts
Terminal board 11TB14

Personnel Required
Unit Technician

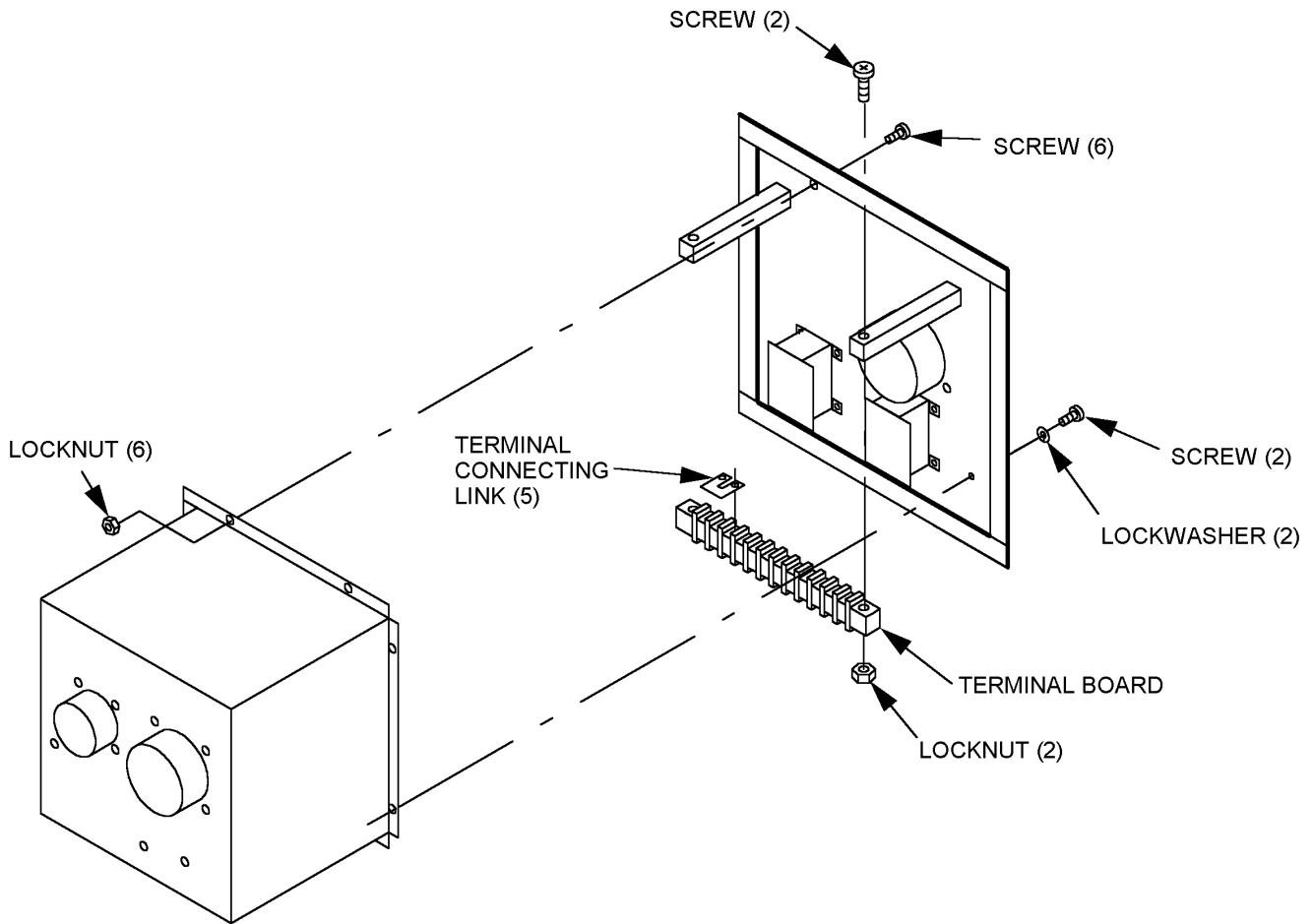
Equipment Conditions
Evaporator section electrical module
assembly removed. (See WP0051.)

INSPECTION OF INSTALLED ITEMS

- 1 Using screwdriver and wrench, remove eight screws, six nuts, and two lockwashers that hold cover to chassis.
- 2 Pull cover away from chassis as far as wiring harness will allow.
- 3 Check terminal board for loose or corroded terminals, cracks, and obvious damage. Replace if terminals are corroded, or if terminal board is cracked or broken.
- 4 Check that jumpers are in place and in good condition. Terminals 1 and 2, 3 and 4, 6 and 7, 8 and 9, and 10 and 11 should be jumped with terminal links.

REMOVAL

Terminal Board (TB3) and Connecting Links



- 1 Tag wires.
- 2 Use flat tip screwdriver to remove terminal screws and remove leads and jumpers.
- 3 Using cross tip screwdriver, remove two screws and locknuts that hold terminal board.
- 4 Remove terminal board.

INSTALLATION

- 1 Align terminal board and chassis mounting holes.
- 2 Using cross tip screwdriver and wrench, secure terminal board with two screws and locknuts.
- 3 Place terminal links between terminals 1 and 2, 3 and 4, 6 and 7, 8 and 9 and 10 and 11.

- 4 Match leads to terminals using tags, wire markings, and wiring diagram.
- 5 Using flat tip screwdriver, fasten leads and terminal links to terminals.
- 6 Remove tags.
- 7 Position cover on chassis.
- 8 Using screwdriver and wrench, secure cover with eight screws, six locknuts, and two lockwashers.
- 9 Install condenser section electrical module. (See WP0051.)
- 10 Connect power.

END OF TASK

EMI GASKETS, WIRING HARNESSSES, AND LEADS

0055 00

THIS WORK PACKAGE COVERS:

Removal
Repair or Replacement
Test and Inspection
Installation

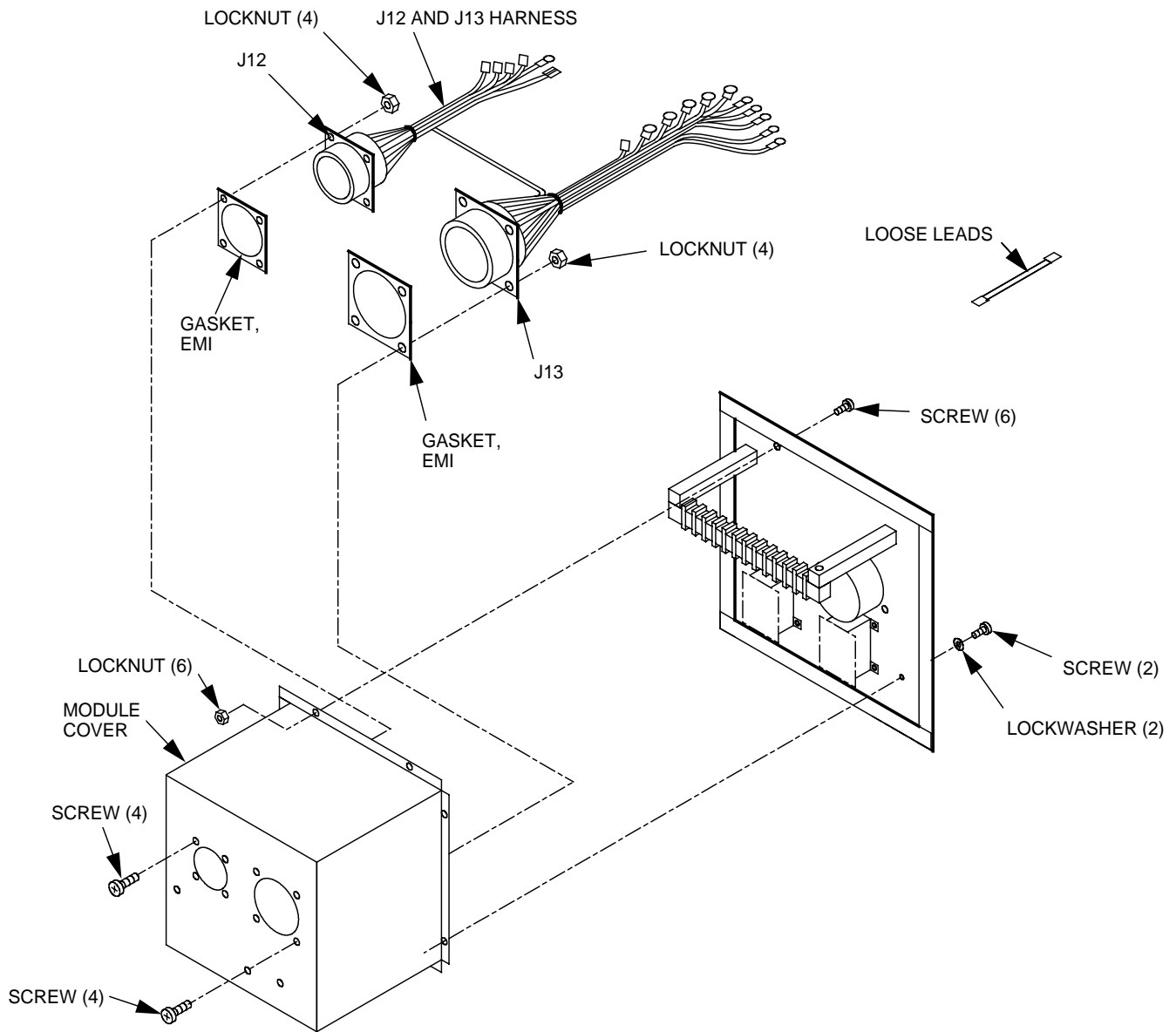
Tools and Special Tools
Screwdriver
Wrench
Multimeter

Personnel Required
Unit Technician

Equipment Conditions
Condenser section electrical module
assembly removed. (See WP0051).
Power disconnected.

REMOVAL

EMI Gaskets and Harnesses



- 1 Tag and disconnect leads.
- 2 Using screwdriver and wrench, remove screws, locknuts, and remove the affected connectors, harnesses, and leads.

REPAIR OR REPLACEMENT

- 1 See WP0015 for general wire repair instructions.

- 2 See Wire List for wire lengths and terminal information when individual wires are replaced.

TEST AND INSPECTION

- 1 Using screwdriver and wrench, remove eight screws, six nuts, and two lockwashers that hold cover to chassis.
- 2 Pull cover away from chassis as far as wiring harness will allow.
- 3 Check connectors for general condition, loose, broken, or missing contacts. Replace connectors if damaged.
- 4 Check individual wires for loose solder and terminal lug connections, cut or frayed insulation, and cut or broken wires.
- 5 See wiring diagram and continuity test individual wires. Repair wires with no continuity.
- 6 Check that gaskets are in good condition. Replace them if they are torn, missing, or otherwise damaged.

INSTALLATION

- 1 Using screwdriver and wrench, install the connector(s) in cover with screws and locknuts. Be sure that EMI gaskets are placed between connectors and cover.
- 2 See tags and wiring diagram and reconnect leads. Remove tags.
- 3 Position cover on chassis.
- 4 Using screwdriver and wrench, secure cover with eight screws, six locknuts, and two lockwashers.
- 5 Install condenser section electrical module. (See WP0051.)
- 6 Connect power.

END OF TASK

CHASSIS AND SNAP FASTENER

0056 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
Repair or Replacement

Tools and Special Tools
Drill
Knife

Materials/Parts
Chassis SP3919
Dry Cleaning Solvent P-D-680 Type III
Adhesive, Sealant MIL-A-46106 Type I

Personnel Required
Unit Technician

Equipment Conditions
Condenser section electrical module
assembly removed. (See WP0051.)
Power disconnected.

INSPECTION OF INSTALLED ITEMS

- 1 Using screwdriver and wrench, remove eight screws, six nuts, and two lockwashers that hold cover to chassis.
- 2 Pull cover away from chassis as far as wiring harness will allow.
- 3 Check for broken welds, cracks, dents, and general condition. Replace if damaged.
- 4 Check that danger plate is in place and legible. Replace if missing, damaged, or illegible.
- 5 Check that EMI gaskets are not cracked, loose, or missing. Repair if loose, replace if cracked or missing.

- 6 Check general condition of blind nuts and snap fasteners. Repair if loose, replace if damaged or missing.

REPAIR OR REPLACEMENT

- 1 To replace danger plate, use a drill bit slightly smaller than the diameter of the rivets.
- 2 Drill the rivets out and remove the danger plate.
- 3 Install danger plate with four rivets.

NOTE

Prior to removal of old gasket material, cut the new replacement material to size using the old item as a sample.

- 4 Remove as much old gasket or insulation material as possible by pulling or scraping it away from the metal surface.

WARNING

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

- 5 Soften and remove old adhesive and gasket residue, using dry cleaning solvent and a stiff brush.
- 6 Use only approved replacement material as specified in Chapter 8.
- 7 EMI gasket material and regular gasketing specified for this unit are supplied with adhesive backing.
- 8 Cut gasket to size. Be sure that EMI gasket corners are mitered so that good continuous edge contact is made.
- 9 Be sure that surface to which gasket is to be applied is clean and free of paint and old adhesive material.
- 10 Remove backing material from adhesive side and immediately press gasket in place. Be sure that good edge-to-edge contact is made on the EMI gaskets.
- 11 To replace blind nut(s), use a drill bit slightly smaller than blind nut body diameter.
- 12 Drill out old blind nut(s).

- 13 Install new blind nut(s).
- 14 To replace snap fastener, remove old snap fastener and locknut using a screwdriver and wrench.
- 15 Install new snap fastener and secure with locknut.
- 16 Install condenser section electrical module. See WP0051.
- 17 Connect power.

END OF TASK.

REMOTE CONTROL ASSEMBLY

0057 00

THIS WORK PACKAGE COVERS:

Removal
Installation

Tools and Special Tools
Screwdriver

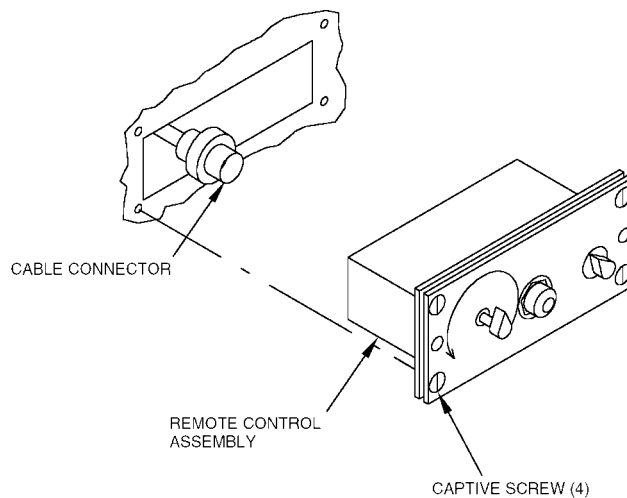
Materials/Parts
Remote control assy SP3921

Personnel Required
Unit Technician

Equipment Conditions
Power disconnected.

REMOVAL

Remote Control Assembly.



- 1 Using screwdriver, unscrew four captive screws in corners of remote control assembly.
- 2 Pull remote control assembly out from rack (or air conditioner front panel, wherever installed) to gain access to cable connector on rear.
- 3 Disconnect cable connector from remote control assembly.
- 4 Remove remote control assembly.

INSTALLATION

- 1 Position remote control in front of opening in equipment rack in shelter or in opening in air conditioner front panel.
- 2 Connect cable connector to connector on rear of remote control assembly.
- 3 Slip remote control assembly into place on rack.
- 4 Using screwdriver, secure remote control to rack with four captive screws.
- 5 Connect power.

END OF TASK

BOX, REMOTE CONTROL

0058 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
Removal
Repair or Replacement
Installation

Tools and Special Tools
Screwdriver
Wrench, socket
Knife

Materials/Parts

Remote Box SP3922
Dry Cleaning Solvent P-D-680 Type III
Adhesive, Sealant MIL-A-46106 Type I

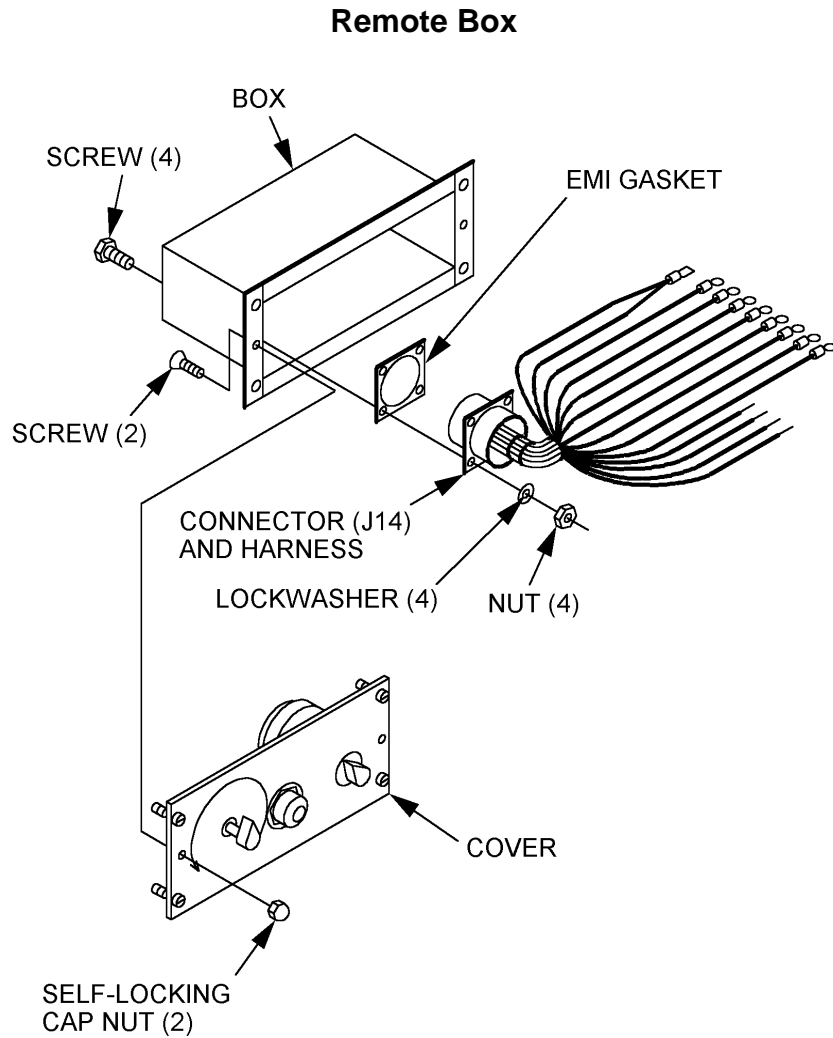
Personnel Required
Unit Technician

Equipment Conditions
Remote control assembly removed from
shelter (See WP0057).

INSPECTION OF INSTALLED ITEMS

- 1 Check that cover is not bent, dented, cracked, or punctured. Replace if damaged.
- 2 Check that EMI gaskets on both sides of box mounting flange are in place and in good condition. Replace them if they are loose, cracked or missing.

REMOVAL



- 1 Using screwdriver and wrench, remove two screws and self-locking cap nuts that retain box to cover.
- 2 Pull box away from cover as far as wiring harness will allow.
- 3 Using screwdriver and wrench, remove four screws, lockwashers, and nuts from connector (J14).
- 4 Separate the box from the connector (J14). Take care EMI gasket at connector is not lost.

REPAIR OR REPLACEMENT

NOTE

Prior to removal of old gasket material or insulation, cut the new replacement material to size using the old item as a sample.

- 1 Remove as much old gasket or insulation material as possible by pulling or scraping it away from the metal surface.

WARNING

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

- 2 Soften and remove old adhesive and gasket residue, using dry cleaning solvent and a stiff brush.
- 3 Use only approved replacement material as specified in Chapter 8.
- 4 EMI gasket material and regular gasketing specified for this unit are supplied with adhesive backing.
- 5 Cut gasket to size. Be sure that EMI gasket corners are mitered so that good continuous edge contact is made.
- 6 Be sure that surface to which gasket is to be applied is clean and free of paint and old adhesive material.
- 7 Remove backing material from adhesive side and immediately press gasket in place. Be sure that good edge-to-edge contact is made on the EMI gaskets.

INSTALLATION

- 1 Place EMI gasket on connector (J14) end.
- 2 Slip connector (J14) into box and align holes.
- 3 Using screwdriver and wrench, secure connector (J14) to inside of box with four screws, lockwashers, and nuts.
- 4 Slip box and cover together and align holes.
- 5 Using screwdriver and wrench, secure box to cover with two screws and self-locking cap nuts.
- 6 Install remote control assembly in shelter. (See WP0057).

END OF TASK

ROTARY, MODE SELECTOR, SWITCH (S1) AND KNOB

0059 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
Removal
Installation
Testing

Tools and Special Tools
Allen Wrench
Wrench
Multimeter

Materials/Parts
Mode selector switch MS25002-4

Personnel Required
Unit Technician

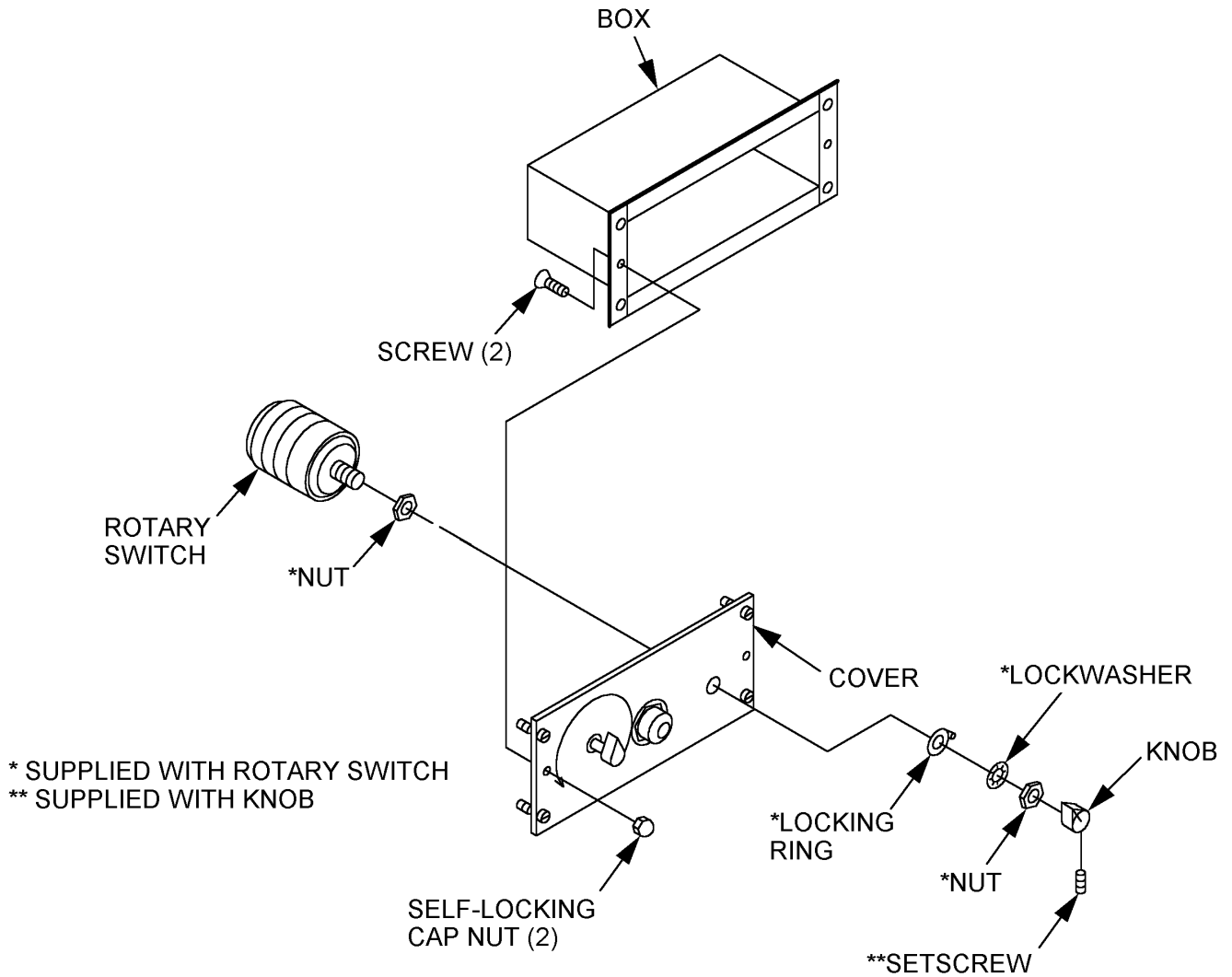
Equipment Conditions
Power disconnected
Remote control assembly removed from
shelter (See WP0057)

INSPECTION OF INSTALLED ITEMS

- 1 Check that knob is in place, not damaged, and secure. Replace knob if missing, cracked, or broken. Tighten setscrew if knob is loose.
- 2 Using screwdriver and wrench, remove two screws and self-locking cap nuts that retain box to cover.
- 3 Pull box away from cover as far as wiring harness will allow.
- 4 Check that lead terminal connections are tight.

REMOVAL

Rotary Switch and Knob



- 1 Using allen wrench, loosen setscrew in knob.
- 2 Remove knob.
- 3 Tag and disconnect leads.
- 4 Using wrench, remove nut, lockwasher, and locking ring from rotary switch.
- 5 Remove rotary switch.

INSTALLATION

- 1 Position rotary switch with locking ring, lockwasher, and nut. Positioning tab on locking ring must fit into hole in cover.
- 2 See tags, wire markings, and wiring diagram, and reconnect leads.
- 3 Remove tags.
- 4 Align knob setscrew with flat portion of rotary switch shaft.
- 5 Slip knob onto shaft.
- 6 Using allen wrench, tighten knob setscrew.
- 7 Slip box and cover together and align holes.
- 8 Using screwdriver and wrench, secure box to cover with two screws and self-locking cap nuts.
- 9 Install remote control assembly in shelter. See WP0057.

TESTING

The mode selector switch can be tested at the J14 connector located on the back of the remote control assembly. Using a multimeter, check for resistance values indicated on the following chart.

Resistance Values

Mode	J14 Connector		Resistance Reading (Ohms) Temperature Control Set To	
	Resistance less than 2 ohms	Pins	Maximum WARMER	Maximum COOLER
COOL	A to B	C to H	see note	see note
	C to N			
	N to D	N to H	see note	see note
	M to P	J to L	1000	1000
		J to K	1000	0
		K to L	0	1000
OFF	C to N	C to H	see note	see note
		N to H	see note	see note
		J to L	1000	1000
		J to K	1000	0

Mode	J14 Connector		Resistance Reading (Ohms) Temperature Control Set To	
	Resistance less than 2 ohms	Pins	Maximum WARMER	Maximum COOLER
		K to L	1000	1000
LOW HEAT	A to B	C to H	see note	see note
	C to N	N to H	see note	see note
	M to G	J to L	1000	1000
		J to K	1000	0
		K to L	0	1000
HIGH HEAT	A to B	C to H	see note	see note
	C to N	N to H	see note	see note
	C to F	J to L	1000	1000
	M to G	J to K	1000	0
		K to L	0	1000
<p>NOTE: Resistance values on multimeter will vary with internal resistance of meter scale used in addition to the forward and backward resistance of diode (D1). Backward to forward resistance ratio of diode (D1) should be approximately 100 to 1. For example: Resistance from H to C may read 8 ohms and when leads are reversed, read approximately 800 ohms.</p>				

END OF TASK

RUN INDICATOR LIGHT (XDS1) AND BULB REPLACEMENT

0060 00

THIS WORK PACKAGE COVERS:

Removal
Repair or Replacement
Test and Inspection
Installation

Tools and Special Tools
Screwdriver
Wrench
Multimeter

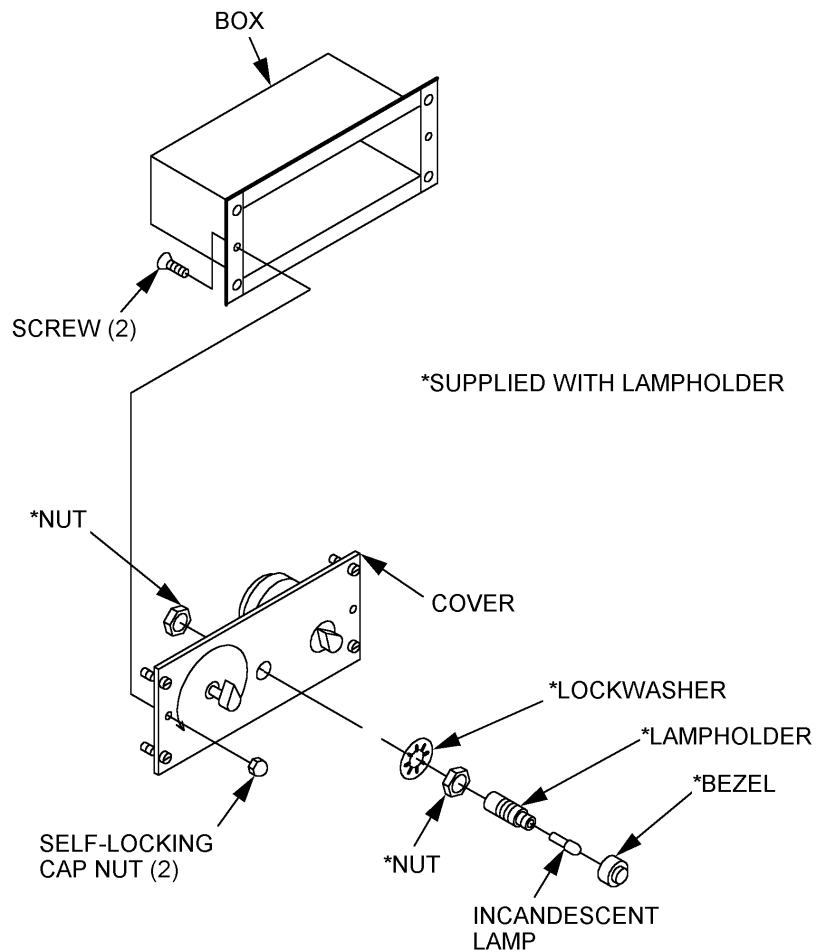
Materials/Parts
Light, Indicator 13221E9154

Personnel Required
Unit Technician

Equipment Conditions
Remote control assembly removed from
shelter. (See WP0057).
Power disconnected.

REMOVAL

Run Indicator Light



- 1 Using wrench, remove nut and lockwasher from front of light assembly.
- 2 Tag and unsolder leads.
- 3 Pull remaining light assembly parts from cover

REPAIR OR REPLACEMENT

- 1 To replace bulb, unscrew and remove lens cap.
- 2 Push in and turn bulb counterclockwise to remove it.
- 3 Place replacement bulb in light fixture.

- 4 Push in and turn bulb clockwise to engage mounting pins.
- 5 Screw lens cap in place.

TEST AND INSPECTION

- 1 Lamp should light in all operating modes.
- 2 Lamp may be tested with MODE SELECTOR SWITCH in OFF position. Push in. Lamp should light.
- 3 Replace bulb if it does not light.
- 4 Check that lens cap is not cracked or broken, mounting hardware is in place and secure, and terminals are not bent or broken.
- 5 Using multimeter, check wire leads and light assembly for continuity, shorts, and opens.
- 6 Switch terminal S1-41 connects to XDS1-2 through diode D1. Diode D1 ratio of backward resistance to forward resistance should be not less than 100 to 1.
- 7 Light assembly terminal 1 connects to terminal 2 internally through lamp.
- 8 Terminal 3 connects to terminal 2 and lamp only when lamp cover is pushed.

INSTALLATION

- 1 Using wrench, secure light assembly to cover with nuts and lockwasher.
- 2 See tags, wire markings and wiring diagram and solder leads.
- 3 Install lamp and lens cover.
- 4 Slip box and cover together and align holes.
- 5 Using screwdriver and wrench, secure box to cover with two screws and self-locking cap nuts.
- 6 Install remote control assembly in shelter. (See WP0057).
- 7 Connect power.

END OF TASK

TEMPERATURE CONTROL (A1-R1)

0061 00

THIS WORK PACKAGE COVERS:

Removal
Test and Inspection
Installation

Tools and Special Tools
Screwdriver
Wrench
Allen wrench
Multimeter

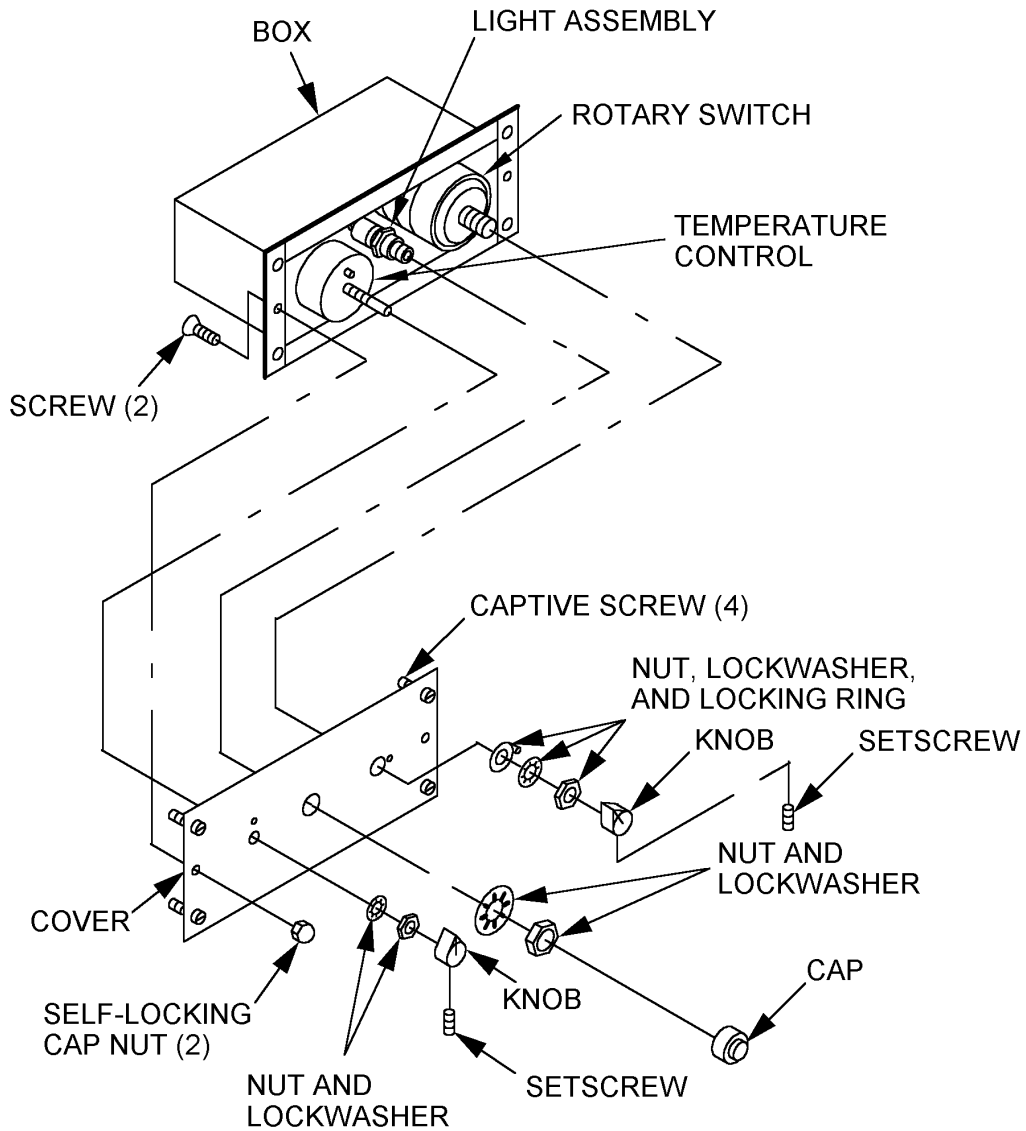
Materials/Parts
Temperature Control 90-0002

Personnel Required
Unit Technician

Equipment Conditions
Power disconnected
Remote control assembly removed from
shelter (See WP0057)

REMOVAL

Temperature Control



- 1 Using allen wrench, loosen setscrews in knob.
- 2 Remove knob.
- 3 Tag and unsolder leads.
- 4 Using wrench, remove nut and lockwasher from temperature control.
- 5 Remove temperature control.

TEST AND INSPECTION

- 1 Check that knob is in place, not damaged and secure. Replace knob if missing, cracked or broken. Tighten setscrew if knob is loose.
- 2 Using screwdriver and wrench, remove two screws and self-locking cap nuts that retain box to cover.
- 3 Pull box away from cover as far as wiring harness will allow.
- 4 Check that leads are connected, terminals are not bent or broken, and for evidence of overheating. Replace temperature control if damaged.
- 5 Using multimeter, check wire leads and temperature control for continuity shorts and opens.
- 6 Temperature control (A1R1) CW terminal to CCW terminal internal resistance across pins L and J is approximately 1,000 ohms.
- 7 Temperature control (A1R1) COM terminal to CW terminal internal resistance across pins K and L varies from 0 to 1,000 ohms at turn of shaft.

INSTALLATION

- 1 Place temperature control shaft and positioning tab through holes in cover.
- 2 Using wrench, secure temperature control with lockwashers and nut.
- 3 See tags, wire markings, and wiring diagram, and solder leads.
- 4 Remove tags.
- 5 Turn temperature control shaft clockwise as far as it will go.
- 6 Slip knob on shaft with pointer to the extreme WARMER position.
- 7 Using allen wrench, tighten knob setscrew.
- 8 Slip box and cover together and align holes.
- 9 Using screwdriver and wrench, secure box to cover with two screws and self-locking cap nuts.
- 10 Install remote control assembly in shelter. (See WP0057)
- 11 Connect power.

END OF TASK

COVER, REMOTE CONTROL

0062 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
Removal
Repair or Replacement
Installation

Tools and Special Tools
Screwdriver
Wrench
Allen wrench
Installation Tool H7503-8

Materials/Parts
Cover SP4212

Personnel Required
Unit Technician

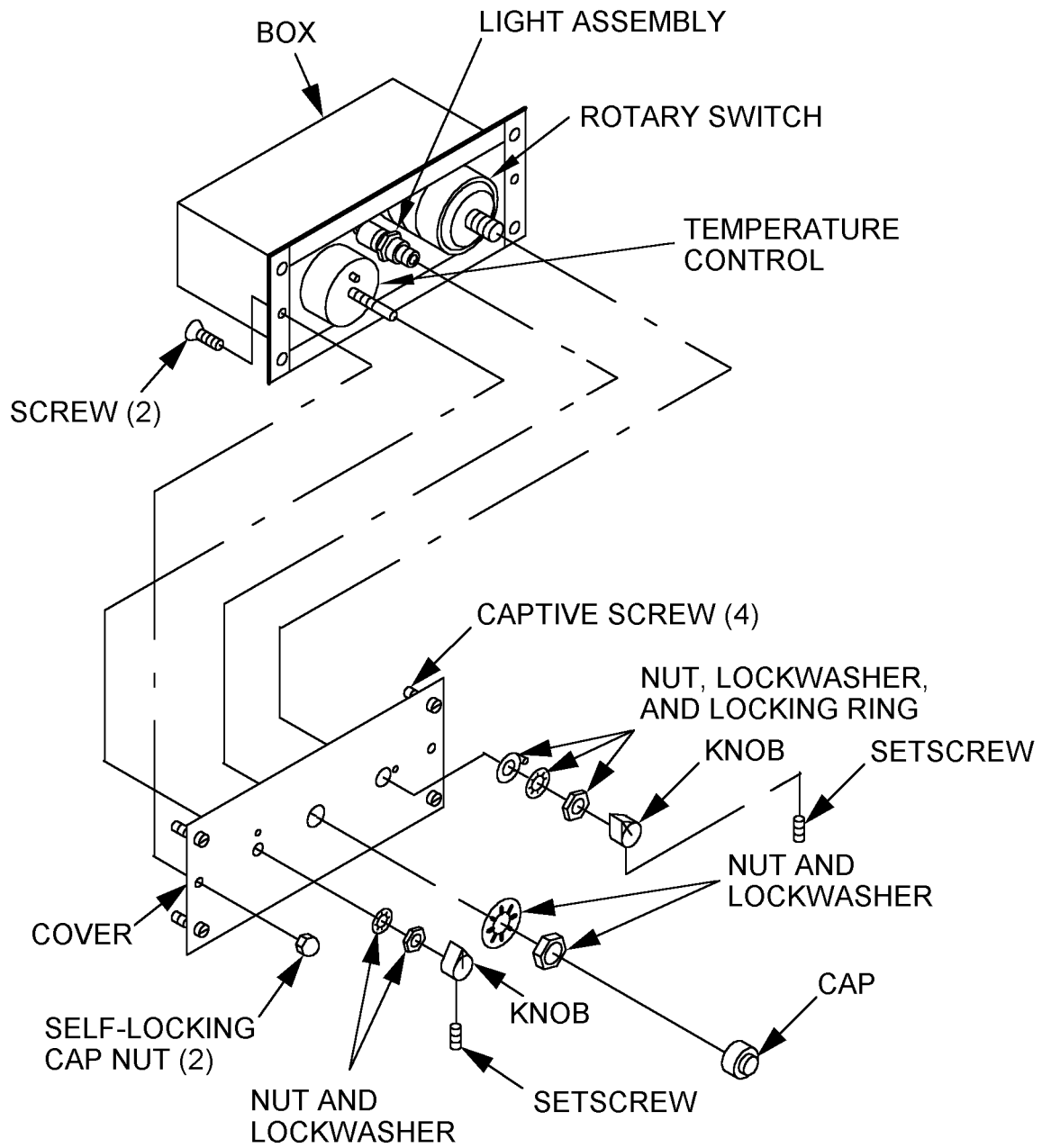
Equipment Conditions
Remote control assembly removed from
shelter. (See WP0057).
Power disconnected

INSPECTION OF INSTALLED ITEMS

- 1 Check that cover is not cracked, bent, pierced, and that all marking is legible. Replace if damaged or outside faceplate marking is illegible.
- 2 Check that captive screws are in place and not damaged. Replace them if they are missing or damaged.

REMOVAL

Cover, Remote Control



- 1 Remove mode selector switch. (See WP0059).
- 2 Remove run indicator light. (See WP0060).
- 3 Remove temperature control. (See WP0061).

- 4 Remove the cover.

REPAIR OR REPLACEMENT

- 1 If captive screws are missing or damaged, install new ones.

NOTE

Installation tool (08524) H7503-8 is required for captive screw installation. Place captive screw through hole in cover. Turn captive screw into nose threads of installation tool. Squeeze installation tool handles together firmly. Unscrew installation tool.

INSTALLATION

- 1 Position rotary switch through hole in cover.
- 2 Using wrench, secure rotary switch with locking ring, lockwasher, and nut. Positioning tab on locking ring must fit into hole in cover.
- 3 Align rotary switch knob setscrew with flat portion of rotary switch shaft.
- 4 Slip knob onto rotary switch shaft.
- 5 Using allen wrench, tighten rotary switch knob setscrew.
- 6 Secure indicator to cover.
- 7 Place temperature control shaft and positioning tab through holes in cover
- 8 Using wrench, secure temperature control with lockwasher and nut.
- 9 Turn temperature control shaft clockwise as far as it will go.
- 10 Slip knob on temperature control shaft with pointer to the extreme WARMER position.
- 11 Using allen wrench, tighten temperature control knob setscrew.
- 12 Slip box and cover together and align holes.
- 13 Using screwdriver and wrench, secure box to cover with two screws and self-locking cap nuts.
- 14 Install remote control assembly in shelter. (See WP0057).
- 15 Connect power.

END OF TASK

WIRING HARNESS, EMI GASKET, AND ELECTRICAL LEADS-REMOTE CONTROL BOX
0063 00

THIS WORK PACKAGE COVERS:

Removal
Repair or Replacement
Test and Inspection
Installation

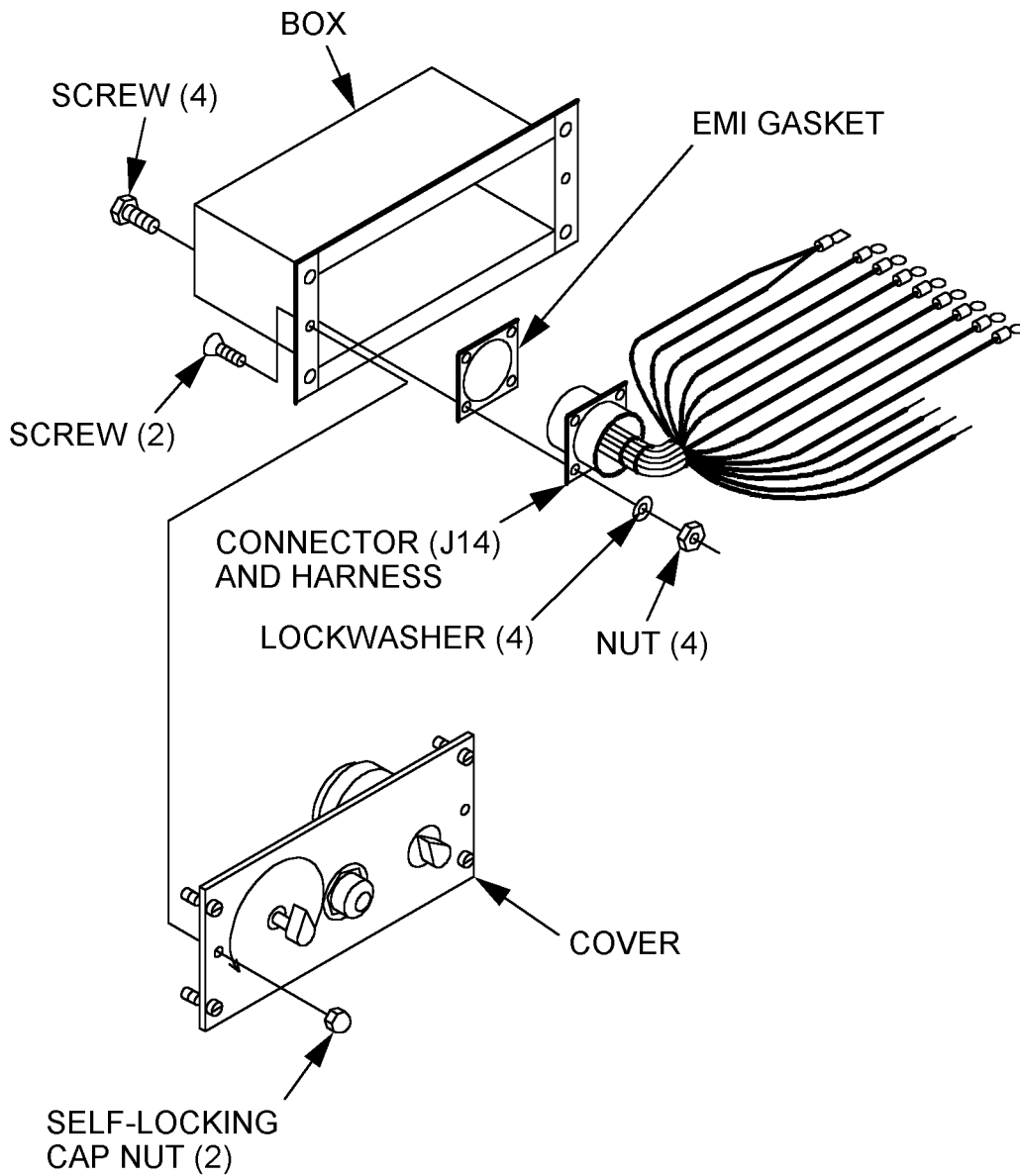
Tools and Special Tools
Screwdriver
Wrench

Personnel Required
Unit Technician

Equipment Conditions
Remote control assembly removed from
shelter. (See WP0057).
Power disconnected.

REMOVAL

Wiring Harness and Leads



- 1 Using screwdriver and wrench, remove four screws, lockwashers, and nuts, from connector (J14).
- 2 Separate the box from the connector (J14), taking care that EMI gasket at connector is not lost.
- 3 Tag and disconnect or unsolder leads.

REPAIR OR REPLACEMENT

- 1 See WP0015 for general wire repair instructions.
- 2 See Wire List for wire lengths and terminal information when individual wires are replaced.

TEST AND INSPECTION

- 1 Using screwdriver and wrench, remove two screws and self-locking cap nuts that retain box to cover.
- 2 Pull box away from cover as far as wiring harness will allow.
- 3 Check connector for general condition, loose, broken, or missing pins. Replace connector if damaged.
- 4 Check individual wires for loose solder and terminal lug connectors, cut or frayed insulation, and cut or broken wires.
- 5 See wiring diagram and continuity test individual wires. Repair wires with no continuity.
- 6 Check that gasket is in good condition. Replace if torn, missing, or otherwise damaged.

INSTALLATION

- 1 See tags and wiring diagram and reconnect leads.
- 2 Remove tags.
- 3 Place EMI gasket on connector (J14) end.
- 4 Slip connector (J14) into box and align holes.
- 5 Using screwdriver and wrench, secure connector (J14) in proper position to inside of box with four screws, lockwashers, and nuts.
- 6 Slip box and cover together and align holes.
- 7 Using screwdriver and wrench, secure box to cover with two screws and self-locking cap nuts.
- 8 Install remote control assembly in shelter. See WP0057.
- 9 Connect power.

END OF TASK

DIODE (D1) WITH TERMINAL

0064 00

THIS WORK PACKAGE COVERS:

Removal
Repair or Replacement
Test and Inspection
Installation

Tools and Special Tools
Screwdriver
Wrench
Multimeter

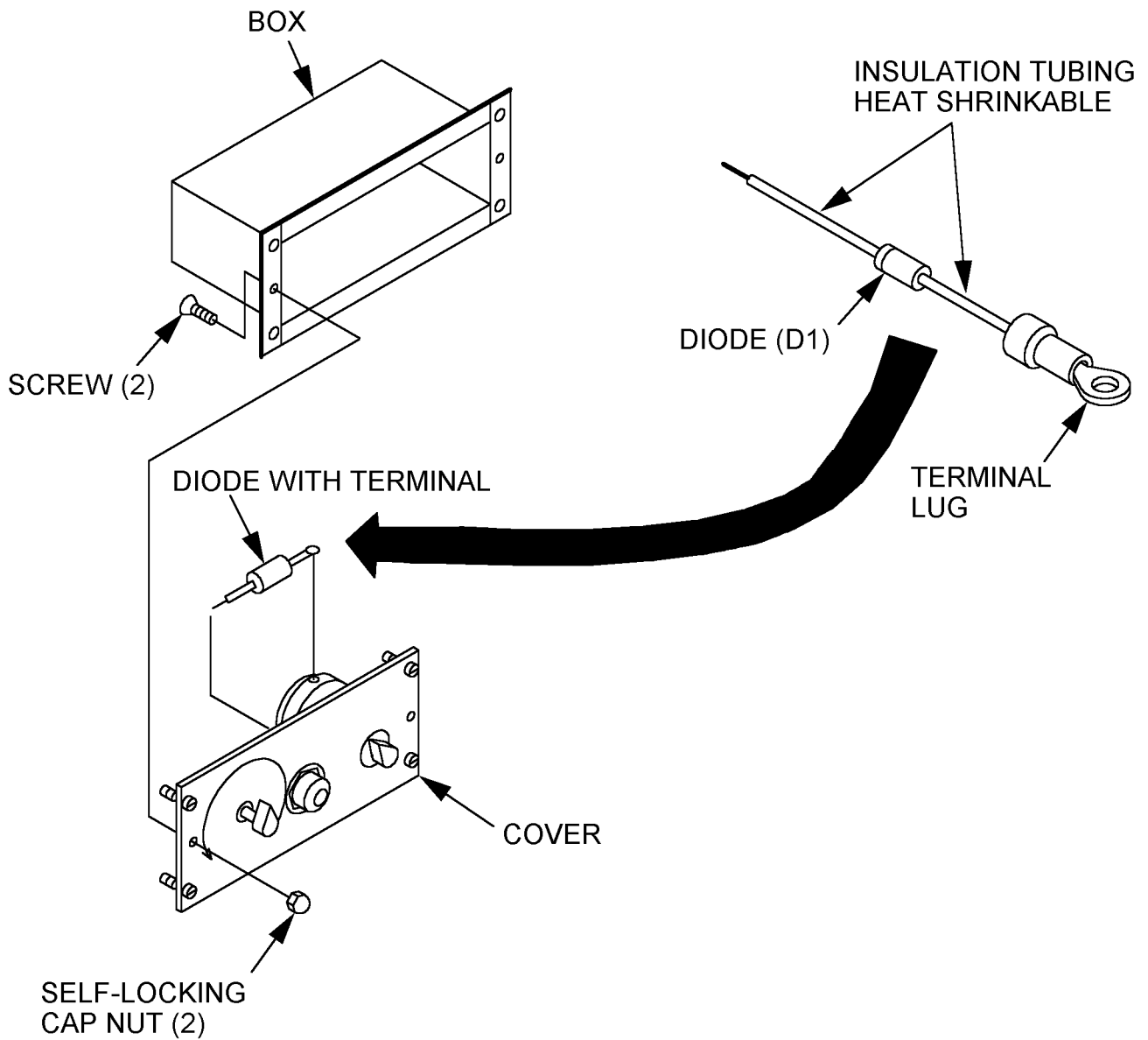
Materials/Parts
Solder QQ-S-571, Type SN60WRP2

Personnel Required
Unit Technician

Equipment Conditions
Power disconnected
Remote control assembly removed from
shelter. (See WP0057)

REMOVAL

Diode with Terminal



- 1 Disconnect terminal lug at rotary switch.
- 2 Unsolder lead at light.
- 3 Remove diode and terminal.

REPAIR OR REPLACEMENT

Repair is limited to replacement of terminal lug and heat shrinkable insulation tubing. See WP0015 for general wire repair instructions.

TEST AND INSPECTION

- 1 Using screwdriver and wrench, remove two screws and self-locking cap nuts that retain box to cover.
- 2 Pull box away from cover as far as wiring harness will allow.
- 3 Check for loose solder connection or terminal lug.
- 4 Check that diode is connected between switch terminal S1-41 and light terminal XDS1-2.
- 5 Using multimeter, check diode. Diode (D1) ratio of backward resistance to forward resistance should not be less than 100 to 1.

INSTALLATION

- 1 Solder lead to terminal XDS1-2 on light.
- 2 Connect terminal lug to terminal S1-41 on rotary switch.
- 3 Slip box and cover together and align holes.
- 4 Using screwdriver and wrench, secure box to cover with two screws and self locking cap nuts.
- 5 Install remote control assembly in shelter. See WP0057.
- 6 Connect power.

END OF TASK

CHAPTER 5

**DIRECT SUPPORT
TROUBLESHOOTING
PROCEDURES
FOR
AIR CONDITIONER**

INTRODUCTION

0065 00

- 1 This table lists all the common malfunctions that you may find with your equipment. Perform the tests, inspections, and corrective actions in the order they appear in the table.
- 2 This table cannot list all the malfunctions that may occur, all the tests and inspections needed to find the fault, or all the corrective actions needed to correct the fault. If the equipment malfunction is not listed or actions listed do not correct the fault, refer to WP0010 for unit level troubleshooting.
- 3 Troubleshooting by direct support maintenance pertains to procedures that can only be performed at the direct support level.
- 4 The malfunction/symptom index (WP0066) 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.
- 5 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.

MALFUNCTION/SYMPTOM INDEX

0066 00

MALFUNCTION

1. Compressor fails to start (condenser blower motor does not start, evaporator blower motor starts.)
2. Compressor fails to start (evaporator and condenser blower motors start.)
3. Insufficient cooling.

DIRECT SUPPORT TROUBLESHOOTING

THIS WORK PACKAGE COVERS: Direct Support Troubleshooting

Tools and Special Tools
Charging Manifold

Personnel Required
Direct support technician

Equipment Conditions
Air conditioner installed in shelter

WARNING

Disconnect input power to the air conditioner before performing any maintenance to the electrical system. Voltages used can be lethal. Shutting the unit off does not disconnect power to the various components of the air conditioner.

MALFUNCTION

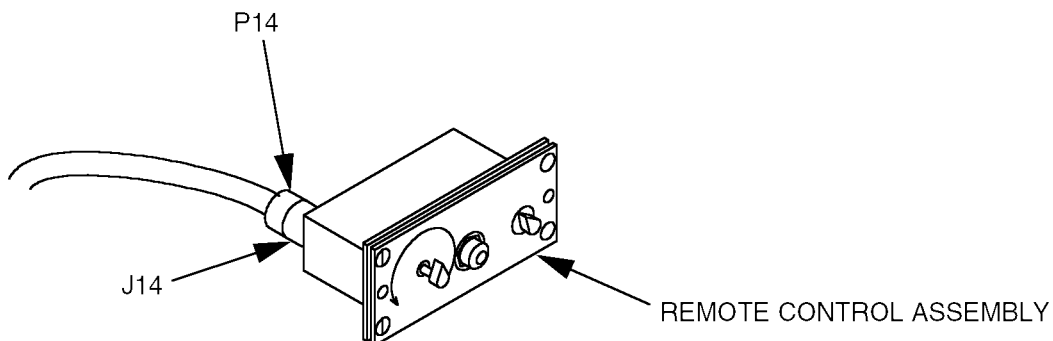
1. COMPRESSOR FAILS TO START (Condenser blower motor does not start, evaporator blower motor starts.)

TEST OR INSPECTION

- Step 1. Check condenser safety circuit.

CORRECTIVE ACTION

- (a) Disconnect power and disconnect P14 connector from J14.



1. COMPRESSOR FAILS TO START – Continued

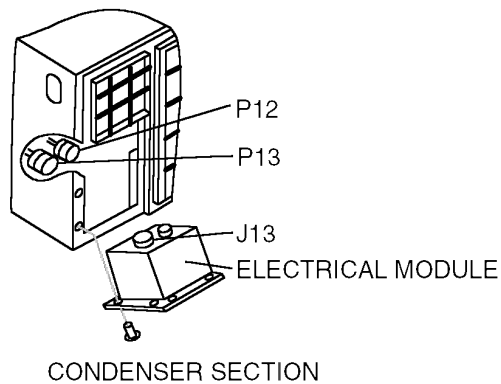
- (b) Place jumper wire between P14 pins C and D.
- (c) Check for continuity between P14 contacts D and H. Resistance should be between 8 and 12 ohms.
- (d) If resistance is between 8 and 12 ohms, go to step 2.
- (e) If not, apply power. (Mode selector set to COOL).
- (f) Press high-pressure cutout reset on back of air conditioner.
- (g) If condenser blower motor fails to start immediately and compressor fails to start within 60 seconds, remove power from air conditioner.
- (h) Remove condenser top cover and check continuity through S4. Resistance should be less than 2 ohms.
- (i) If resistance is less than 2 ohms, go to step 3.
- (j) Check system pressure at HIGH SIDE service valve. (See WP 0076).
- (k) Allow time for pressure to drop below 305 psig and manually reset. If S4 cannot be reset-replace switch S4. (See WP0085).

TEST OR INSPECTION

Step 2. Check power to condenser electrical module.

CORRECTIVE ACTION

- (a) Remove electrical module, condenser.
- (b) Disconnect P12 connector.



- (c) Apply power.

1. COMPRESSOR FAILS TO START – Continued

- (d) Check voltage across P12 pins D and E, D and F, and E and F (should be 197 to 229 Vac). Remove power. Using wiring diagram, continuity check circuit and repair or replace as indicated.

TEST OR INSPECTION

Step 3. Check low pressure switch S5.

CORRECTIVE ACTION

- (a) Check continuity through S5. Resistance should be less than 2 ohms.
- (b) If it is less than 2 ohms, proceed to step 4.
- (c) If not, check system pressure at LOW SIDE service valve (See WP0076).
- (d) Switch S5 should automatically reset when pressure rises to 40 psig. Allow time for pressure to rise and switch to reset. If S5 will not reset, replace it. (See WP0086).

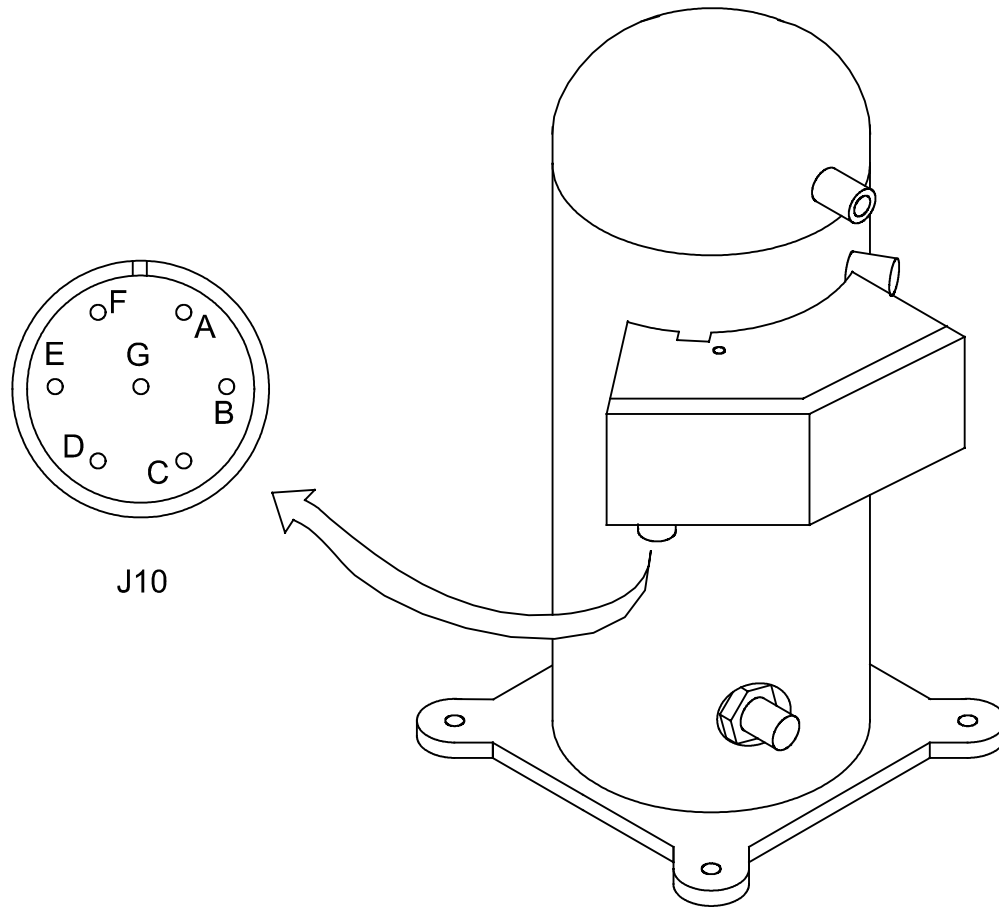
TEST OR INSPECTION

Step 4. Check compressor motor thermal protector switch S8.

CORRECTIVE ACTION

- (a) Remove power.
- (b) Disconnect P10 connector.

1. COMPRESSOR FAILS TO START – Continued



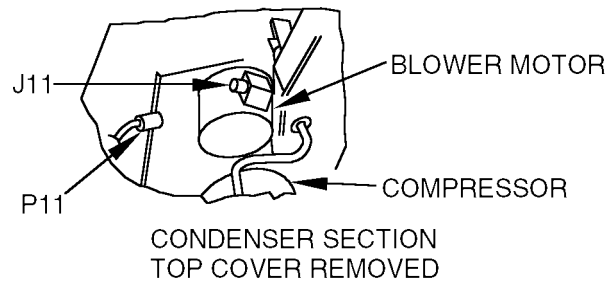
- (c) Test for continuity between J10 pins D and E. Resistance should be less than 2 ohms.
- (d) If it is less than 2 ohms, go to step 5.
- (e) If not, allow one hour for compressor to cool and switch S8 to reset. If S8 resets, determine reason for compressor overheating. If S8 does not reset, replace compressor. (See WP0097).

TEST OR INSPECTION

Step 5. Check condenser motor thermal protector switch S7.

CORRECTIVE ACTION

- (a) Remove power.
- (b) Disconnect P11 connector.



- (c) Test for continuity between J11 pins E and F. Resistance should be less than 2 ohms.
- (d) Allow 45 minutes for motor to cool and switch S7 to reset. If S7 resets, determine reason for motor overheating. If S7 does not reset, test motor in accordance with WP0049.

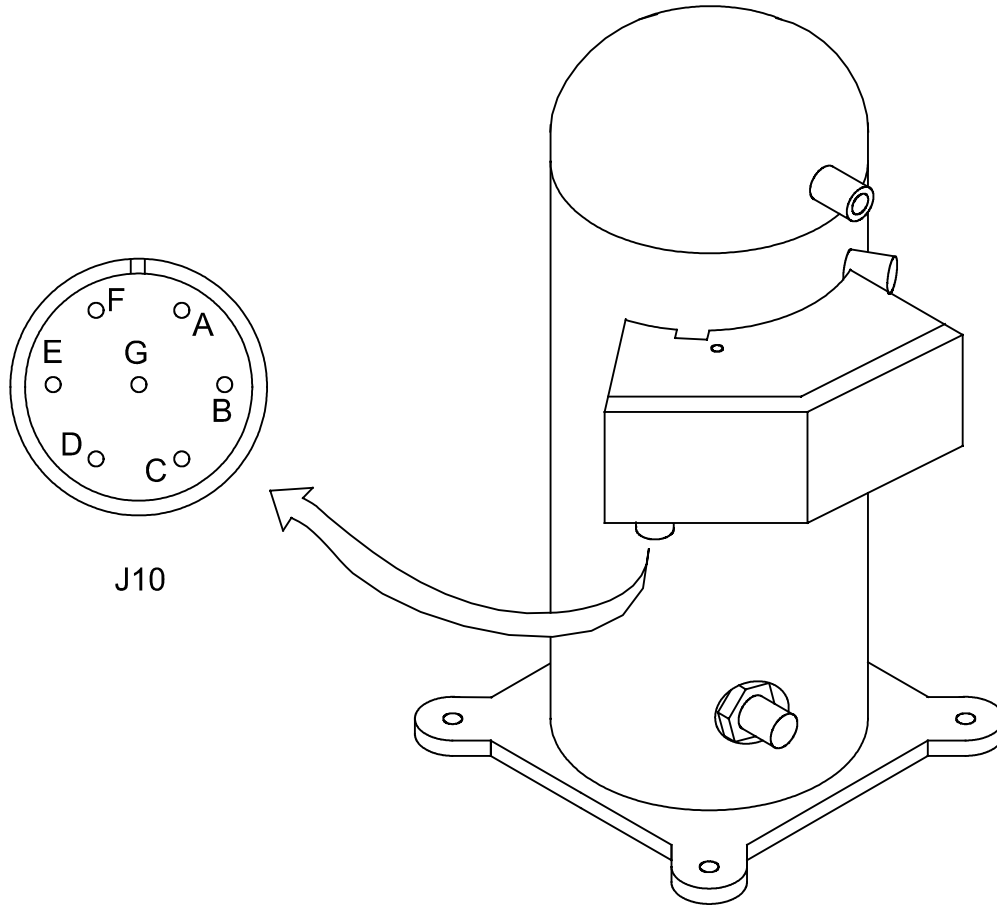
MALFUNCTION

**2. COMPRESSOR FAILS TO START (Evaporator and condenser blower motors start.)
TEST OR INSPECTION**

Step 1. Check for power at compressor P10 connector.

CORRECTIVE ACTION

(a) Disconnect P10 connector.



- (b) Insert jumper between P10 pins D and E.
- (c) Apply power.
- (d) Measure voltage across pins A and B, B and C, and A and C of P10 (allow for 60 second delay after turning selector switch to COOL mode and temperature control to maximum COOLER). Voltage should be 197 to 229 Vac.
- (e) If voltage is 197 to 229 Vac, go to step 4; if not, go to step 2.

2. COMPRESSOR FAILS TO START - Continued

TEST OR INSPECTION

Step 2. Check time delay relay K6. (See WP0051).

CORRECTIVE ACTION

- (a) Ensure connectors P10 & P11 are connected and jumpers are removed.
- (b) Replace if found bad.

TEST OR INSPECTION

Step 3. Check relay K1. (See WP0051).

CORRECTIVE ACTION

- (a) Ensure connectors P10 & P11 are connected and jumpers are removed.
- (b) Replace if found bad.

TEST OR INSPECTION

Step 4. Check compressor motor B1 windings.

CORRECTIVE ACTION

- (a) Remove power.
- (b) Measure resistance between connector J10 pins:
 - A and B
 - A and C
 - B and C
- (c) Resistance should be greater than zero, but less than 1 ohm. If not, replace compressor. (See WP0097)

MALFUNCTION

3. INSUFFICIENT COOLING

TEST OR INSPECTION

Step 1. Check to see that MODE SELECTOR SWITCH is properly positioned.

CORRECTIVE ACTION

Set switch to COOL.

TEST OR INSPECTION

Step 2. Check to see that TEMPERATURE CONTROL is set to COOLER position.

CORRECTIVE ACTION

Set TEMPERATURE CONTROL to COOLER position.

3. INSUFFICIENT COOLING - Continued

TEST OR INSPECTION

Step 3. Inspect fresh air and return air filters, for dirt or blockage.

CORRECTIVE ACTION

Clean filter/remove blockage.

TEST OR INSPECTION

Step 4. Check that condenser air is not blocked.

CORRECTIVE ACTION

Fabric condenser cover must be rolled up and tied. Remove any obstruction from condenser inlet or discharge.

TEST OR INSPECTION

Step 5. Check that high-pressure cutout, reset is not tripped.

CORRECTIVE ACTION

Press in to reset.

TEST OR INSPECTION

Step 6. Check fresh air inlet for heat source.

CORRECTIVE ACTION

Move all heat sources, over 50E F (10E C) above outside ambient, at least 10 feet from fresh air inlet.

TEST OR INSPECTION

Step 7. After 15 minutes of operation in COOL mode with TEMPERATURE CONTROL set to COOLER position, check sight glass. Refrigerant should be clear and center indicator should be green.

CORRECTIVE ACTION

If refrigerant is milky or many bubbles are seen, leak test, repair and recharge as indicated. (See WP0073, WP0069, WP0075). If center indicator is yellow, evacuate and recharge. (See WP0074, WP0075).

TEST OR INSPECTION

Step 8. Check refrigerant system.

CORRECTIVE ACTION

- (a) Measure ambient outside temperature.
- (b) Apply power.
- (c) Operate air conditioner in COOL mode with maximum COOLER temperature setting for at least 15 minutes.
- (d) Measure condenser discharge air temperature which should be 35E plus or minus 5E F above ambient.

3. INSUFFICIENT COOLING - Continued

- (e) Measure temperatures of air going into (return) and out of (discharge) evaporator section. Discharge should be 20E plus or minus 5E F lower than return air temperature.

TEST OR INSPECTION

Step 9. Check liquid line solenoid valve L2 coil. (See WP0093).

CORRECTIVE ACTION

Replace coil only, if found bad.

TEST OR INSPECTION

Step 10. Check pressure equalizing solenoid valve L1 coil. (See WP0093).

CORRECTIVE ACTION

Replace coil only, if found bad.

TEST OR INSPECTION

Step 11. Check temperature control A1. (See WP0061).

CORRECTIVE ACTION

Replace if found bad.

TEST OR INSPECTION

Step 12. Check temperature-sensing probe A1-RT. (See WP0019).

CORRECTIVE ACTION

Replace if found bad.

TEST OR INSPECTION

Step 13. Check mode selector switch S1. (See WP0059).

CORRECTIVE ACTION

Replace if found bad.

TEST OR INSPECTION

Step 14. Check solenoid L2 valve body action. (See WP0093).

CORRECTIVE ACTION

Replace solenoid valve if found bad.

TEST OR INSPECTION

Step 15. Check solenoid L1 valve body action. (See WP0093).

CORRECTIVE ACTION

Replace solenoid valve if found bad.

TEST OR INSPECTION

Step 16. Check evaporator expansion valve. (See WP0078).

CORRECTIVE ACTION

Replace if found bad.

3. INSUFFICIENT COOLING - Continued

TEST OR INSPECTION

Step 17. Check for totally discharged refrigerant system. (See WP0070).

CORRECTIVE ACTION

Repair as indicated.

TEST OR INSPECTION

Step 18. Check time delay relay (K6). (See WP0051).

CORRECTIVE ACTION

Repair as indicated.

CHAPTER 6

**DIRECT SUPPORT
MAINTENANCE
INSTRUCTIONS
FOR
AIR CONDITIONER**

DIRECT SUPPORT MAINTENANCE INSTRUCTIONS

0068 00

For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit. Test, maintenance, and diagnostic equipment (TMDE) and support equipment include electrical test equipment, standard pressure and vacuum gages, vacuum pumps, and charging manifolds found as standard equipment in any direct support refrigeration shop. Repair parts are listed and illustrated in the Repair Parts and Special Tools (RPSTL) list covering unit, direct support, and general support maintenance for this equipment. Tool Kit, Service, Refrigeration Unit, NSN 5180-00-597-1474 contains hand tools and equipment used for air conditioner maintenance. The following common items not contained in the refrigeration unit tool kit are also required for air conditioner maintenance.

Tools and Special Tools

Soldering Iron	3439-00-930-1638
Vacuum Pump	4310-00-098-5272
Installation Tool (Captive Screws)	5120-01-015-1422
Nitrogen Regulator	4935-00-040-9916
Recovery and Recycle Unit	5250-01-338-2707
Heat Gun	4940-01-042-4855
Multimeter	6625-01-265-6000

REFRIGERATION SYSTEM REPAIRS GENERAL

0069 00

The refrigeration system must be totally discharged before any maintenance action is performed on any system component. Leak testing and dehydrator replacement are required after any system component has been removed and replaced. The system must be evacuated before it is charged. The system must be properly charged to function properly.

WARNING

DANGEROUS CHEMICAL is used in this equipment

DEATH or serious injury may result if personnel fail to observe proper safety precautions. Great care must be exercised to prevent contact of liquid Refrigerant R-22, or Refrigerant R-22 gas discharged under pressure, with any part of the body. The extremely low temperature resulting from the rapid expansion of liquid Refrigerant R-22, or Refrigerant R-22 gas released under pressure, can cause sudden and irreversible tissue damage through freezing. As a minimum, all personnel must wear thermal protective gloves and a face shield or goggles when working in any situation where Refrigerant R-22 contact with the skin or eyes is possible. Application of excessive heat to any component in a charge system will cause extreme pressure that may result in a rupture, possibly explosive in nature. Exposure of Refrigerant R-22 to an open flame or a very hot surface will cause a chemical reaction in the gas to form carbonyl chloride (phosgene), a highly toxic and corrosive gas. In its natural state, Refrigerant R-22 is a colorless odorless vapor with no toxic characteristics. It is lighter than air and in a well-ventilated area will disperse rapidly. However, in an unventilated area it presents danger as a suffocant.

REFRIGERANT R-22 UNDER PRESSURE is used in the operation of this equipment. DEATH or severe injury may result if you fail to observe safety precautions. Never use a heating torch on any part that contains Refrigerant R-22. Do not let liquid Refrigerant R-22 touch you, and do not inhale Refrigerant R-22 gas.

Refrigerant R-22 must be recaptured in a recycling/reclaiming machine. R-22 cannot be vented into the air. Do not discharge near open flame.

DISCHARGING THE REFRIGERANT R-22 SYSTEM

0070 00

THIS WORK PACKAGE COVERS:

Servicing

Tools and Special Tools
Charging Manifold
Refrigeration Wrench

Personnel Required
Direct Support Technician

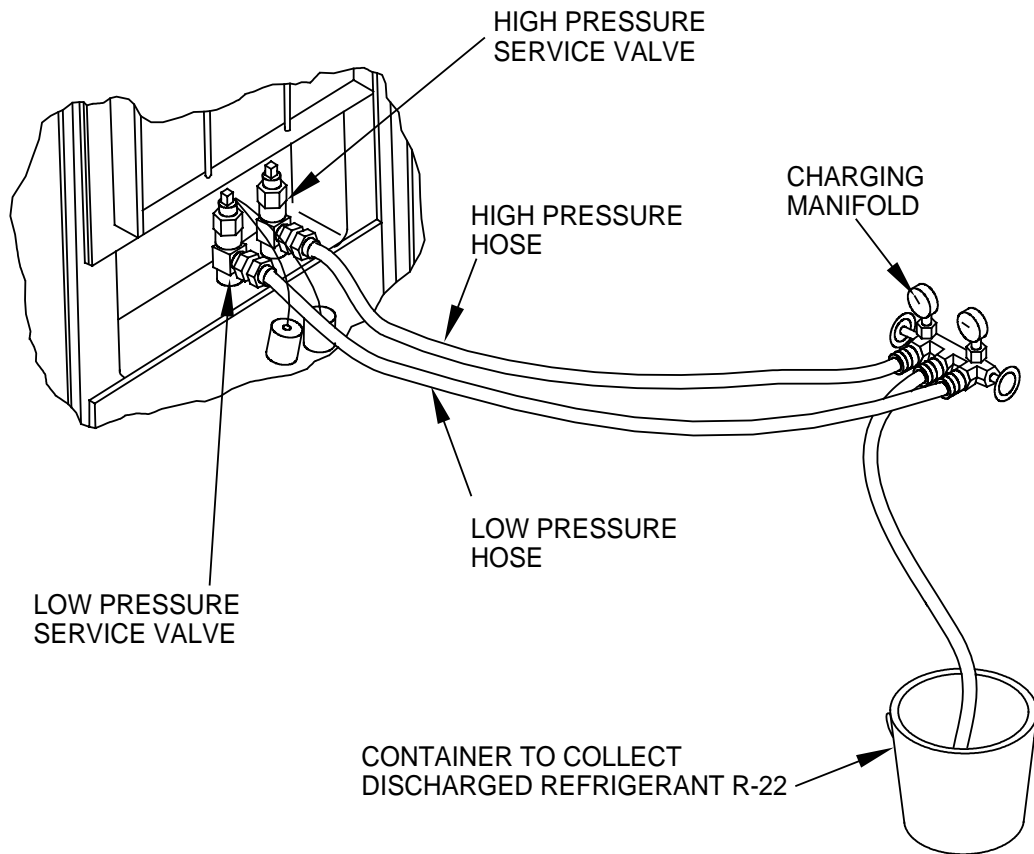
Equipment Conditions
Air conditioner removed from shelter, if
necessary

SERVICING**WARNING**

DANGEROUS CHEMICAL is used in this equipment

DEATH or serious injury may result if personnel fail to observe proper safety precautions. Great care must be exercised to prevent contact of liquid Refrigerant R-22, or Refrigerant R-22 gas discharged under pressure, with any part of the body. The extremely low temperature resulting from the rapid expansion of liquid Refrigerant R-22, or Refrigerant R-22 gas released under pressure, can cause sudden and irreversible tissue damage through freezing. As a minimum, all personnel must wear thermal protective gloves and a face shield or goggles when working in any situation where Refrigerant R-22 contact with the skin or eyes is possible. Application of excessive heat to any component in a charge system will cause extreme pressure that may result in a rupture, possibly explosive in nature. Exposure of Refrigerant R-22 to an open flame or a very hot surface will cause a chemical reaction in the gas to form carbonyl chloride (phosgene), a highly toxic and corrosive gas. In its natural state, Refrigerant R-22 is a colorless odorless vapor with no toxic characteristics. It is lighter than air and in a well-ventilated area will disperse rapidly. However, in an unventilated area it presents danger as a suffocant.

Discharging Refrigerant R-22



- 1 Remove caps from the two service valve hose connections.
- 2 Connect the charging manifold hoses to the manifold and air conditioner service valves.
- 3 Attach a hose assembly to the center connection of the manifold.
- 4 Place the open end of the center connection hose in a container that is located in a well-ventilated area.
- 5 Open both manifold valves.

WARNING

Refrigerant R-22 must be recaptured in a recycling/reclaiming machine. R-22 cannot be vented into the air. Do not discharge near 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 R-22 to escape fast enough to form ice or frost on either the lines or the valve.

- 6 Using a refrigeration wrench, slowly open the low-pressure service valve to allow Refrigerant R-22 gas to flow slowly out of the hose.
- 7 Using a refrigeration wrench, slowly open the high-pressure service valve to allow Refrigerant R-22 gas to flow slowly out of the hose.
- 8 Check the discharge hose for the presence of oil. Adjust valves if necessary to prevent oil discharge.
- 9 When gas stops flowing, close both service valves.
- 10 Go to WP0071.

END OF TASK

PURGING THE REFRIGERANT R-22 SYSTEM

0071 00

THIS WORK PACKAGE COVERS:

Servicing

Tools and Special Tools
Charging Manifold

Materials/Parts
Nitrogen 6830-00-292-0732

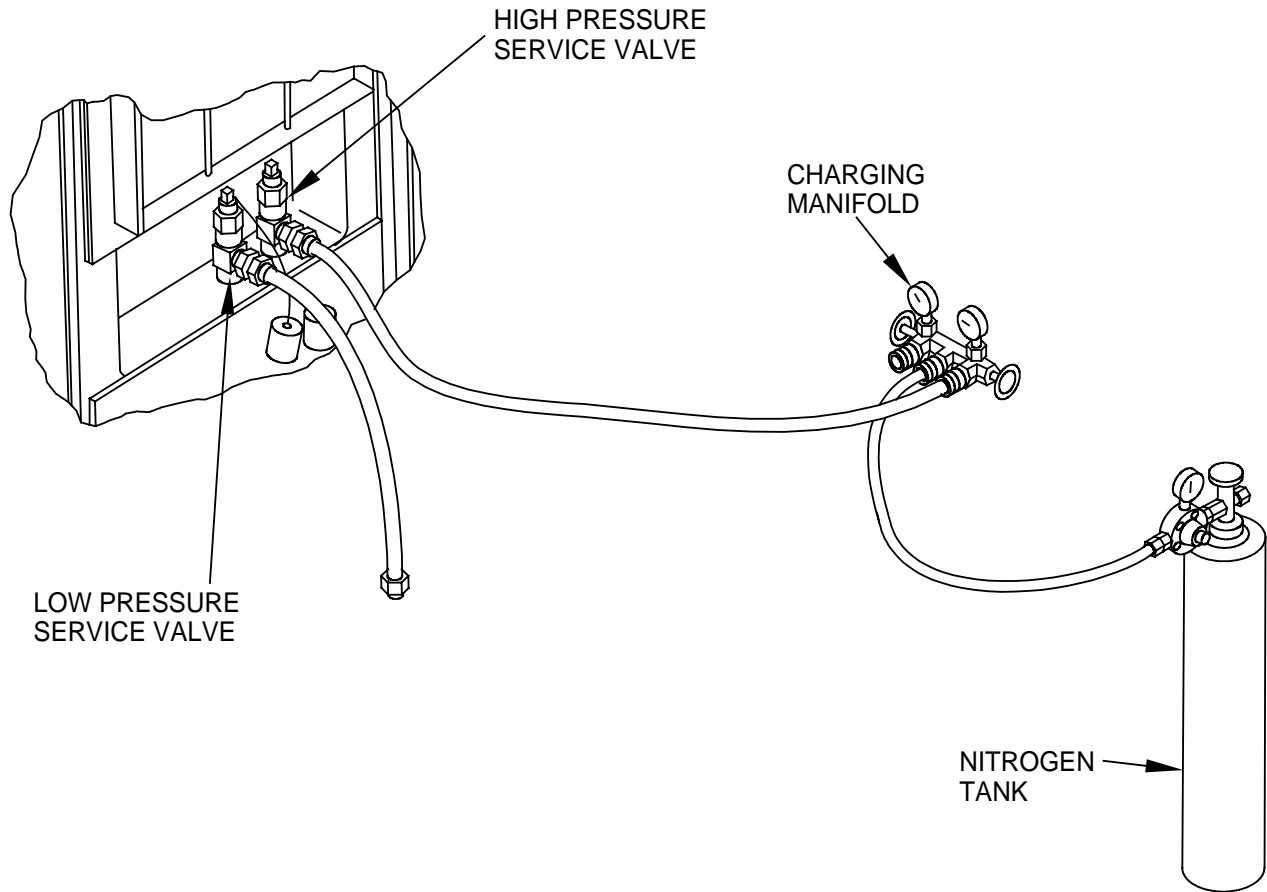
Personnel Required
Direct Support Technician

Equipment Conditions
Air conditioner removed from shelter, if
necessary
Refrigerant R-22 system discharged

SERVICING**CAUTION**

Nitrogen cylinders are pressurized containers. The pressure in the cylinder can exceed 2000 psi. A nitrogen pressure regulator should be used at all times when nitrogen is used for leak check or purge operations. Nitrogen is an inert gas. However, it also presents danger as a suffocant and, therefore, must also be discharged in a ventilated location.

Nitrogen Purging Connection



- 1 The refrigeration system must be purged with dry nitrogen before any brazing is performed on any component. A flow of dry nitrogen at the rate of less than 1 - 2 cfm (0.028 - 0.057 cubic meters/minute) should be continued during all brazing operations to minimize internal oxidation and scaling.
- 2 See specific component removal repair instructions.
- 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 should be connected.
- 5 The hose from the low-pressure service valve should be disconnected from the charging manifold.
- 6 Open both service valves on the unit.
- 7 Close the unused valve on the charging manifold and open the one with the nitrogen tank hook up.

- 8 Open the nitrogen cylinder valve and adjust the regulator so that less than 1 - 2 cfm (0.028 - 0.057 cubic meters/minute) of nitrogen flows through the system.
- 9 Check discharge from hose attached to the low pressure charging 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 cubic meters/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.
- 11 After installation brazing operations are completed, allow nitrogen to flow for a minimum of 5 minutes.
- 12 Close nitrogen cylinder valve, nitrogen regulator, charging manifold valve, and both high and low pressure service valves on the unit.
- 13 Disconnect the hose from the nitrogen tank.
- 14 Make sure all repairs are completed. Go to WP0072.

END OF TASK

BRAZING/DEBRAZING PROCEDURES

0072 00

THIS WORK PACKAGE COVERS:

Disassembly
 Cleaning
 Assembly

Tools and Special Tools
 Brazing Torch

Materials/Parts

Nitrogen	6830-00-292-0732
Brazing Alloy, Silver	QQ-B-564, grade 0, I, or II
Brazing Alloy, Silver	QQ-B-564, grade III
Brazing Flux	O-F-499, Type B
Abrasive Cloth	5350-00-192-5047
Rags	7920-00-205-1711

Personnel Required
 Direct Support Technician

Equipment Conditions

Air conditioner removed from shelter, if necessary
 Refrigerant R-22 system discharged (See WP0070).
 Refrigerant R-22 system purged (See WP0071).

DISASSEMBLY

General. All tubing in the refrigeration system is seamless copper with a bright internal finish that permits thorough cleaning and prevents entrapment of moisture or other impurities. Rigid grade copper is used for straight sections and soft grade for sections that must be bent. 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. 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 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

Be sure the refrigeration system is fully discharged and purged and that dry nitrogen is flowing through the system at the rate of less than 1-2 cfm (0.028-0.057 m³/minute) before all brazing or debrazing operations.

- 1 Determine which joints are to be debrazed. Due to the limited workspace 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, and then wrap all but the joint with a wet rag to act as a heat sink.

WARNING

The burning of polyurethane foams is dangerous. Due to chemical composition of polyurethane foam, toxic fumes are released when it is burned or heated. If it is burned or heated indoors, such as during a welding operation nearby, you should take care to ventilate the area thoroughly. An exhaust system like that of a paint spray booth should be used. Air-supplied respirators, approved by the National Institute for Occupational Safety and Health Administration or the United States Bureau of Mines, should be used for all welding in confined spaces and in places where ventilation is inadequate. Persons who have chronic or recurrent respiratory conditions, including allergies and asthma, should not work in these areas.

- 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 cubic meters/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

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 damp cloth. Be sure no filler alloy or other debris are left inside any tubing, fitting, or component.

ASSEMBLY

- 1 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.
- 2 Brazing. Braze joints within the air conditioner as follows:
- 3 Position the component to be installed.
- 4 To prepare a joint on a valve for brazing, disassemble the valve to the extent possible. Wrap all but the joint with a wet rag to act as a heat sink.
- 5 Protect insulation, wiring harnesses, and surrounding components with appropriate shields.
- 6 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 cubic meters/minute).
- 7 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.
- 8 Go to WP0073.

END OF TASK

LEAK TESTING THE REFRIGERANT R-22 SYSTEM

0073 00

THIS WORK PACKAGE COVERS:

Testing

Tools and Special Tools
Refrigerant R-22 Gas Leak Detector
Charging Manifold

Materials/Parts

Nitrogen 6830-00-292-0732
Refrigerant R-22 BB-F-1421, type 22

Personnel Required

Direct Support Technician

Equipment Conditions

Air conditioner removed from shelter, if
necessary

Refrigerant R-22 system discharged (See
WP0070)

Refrigerant R-22 system purged (See
WP0071)

Any brazing/debrazing procedure completed
(See WP0072)

TESTING

The entire repair 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 R-22 charge through an undetermined cause.

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

- 1 Refrigerant R-22 gas leak detector. If an electronic Refrigerant R-22 gas leak detector is available, it should be used in accordance with the procedures contained in this manual, "Leak Testing the Refrigerant R-22 Gas".

NOTE

The electronic Refrigerant R-22 gas leak detector is highly sensitive to the presence of a minute quantity of gas in the air, and due to this factor is quite effective in the detection of small leaks. However, due to the rapid dispersion of Refrigerant R-22 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 observing for the formation 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 procedures. To perform leak testing by use of the electronic detector, it is necessary that the system be pressurized with dry nitrogen alone.

To pressurize a system that has some Refrigerant R-22 charge, for either leak testing method:

- 3 Remove the caps from the high and low-pressure service valves.
- 4 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.

- 5 Connect a nitrogen pressure regulator and nitrogen bottle to the center hose connection of the charging manifold.
- 6 Open the unit service valves and the charging manifold valves.
- 7 Open the nitrogen tank valve and pressurize the system to 360 psi (24.7 kg/cm²).
- 8 Perform leak tests.

- 9 If a leak is found, discharge and purge the system and repair leak. See specific instructions for components to be removed.
- 10 If a leak was not found and Refrigerant-22 was used to pressurize the system, see charging instructions.

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

- 11 Remove the caps from the high and low-pressure service valves.
- 12 Connect the hoses from a charging manifold to the service valves.
- 13 Connect a drum of Refrigerant R-22 to the center hose connection of the charging manifold.

CAUTION

Connect the Refrigerant-22 drum so that only gas will be used for pressurization.

- 14 Open the unit service valves and the charging manifold valves.
- 15 Open the Refrigerant R-22 drum 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/cm²).
- 16 Close the charging manifold valves and the Refrigerant R-22 drum valve.
- 17 Remove the Refrigerant-22 drum from the center hose connection.
- 18 Connect a nitrogen regulator and cylinder of dry nitrogen to the center hose connection.
- 19 Open the charging manifold valves and the nitrogen cylinder and regulator valve, allow system pressure to build up until gages read 350 psi (24.7 kg/cm²).
- 20 Perform leak tests, then discharge and purge the system, in accordance with WP0073, WP0070 and WP0071, before performing maintenance, or before evacuating and charging the system, as appropriate.

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.

- 21 Go to WP0074.

END OF TASK

EVACUATING THE REFRIGERANT R-22 SYSTEM

0074 00

THIS WORK PACKAGE COVERS:

Servicing

Tools and Special Tools
Charging Manifold
Vacuum Pump

Personnel Required
Direct Support Technician

Equipment Conditions
Air conditioner removed from shelter, if
necessary
Refrigerant R-22 system discharged (See
WP0070)
Refrigerant R-22 system purged (See
WP0071)
Refrigerant R-22 system checked for leaks
(See WP0073)
New filter-drier installed (See WP0080)

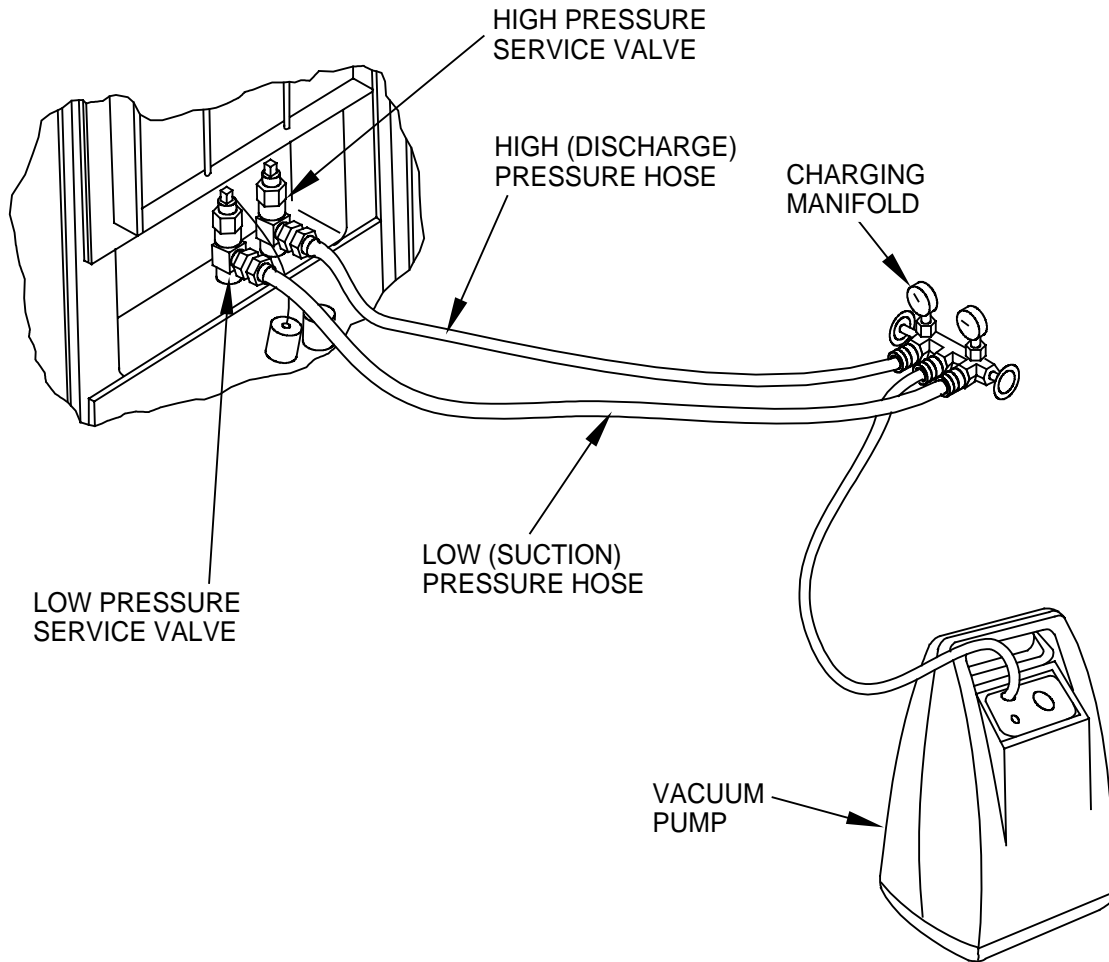
SERVICING

The refrigeration system must be evacuated to remove all moisture before it is charged with Refrigerant-22.

CAUTION

Don't evacuate a leaking system. The vacuum created can cause air, moisture, and dirt to enter system.

Evacuation of Refrigeration System



- 1 Check that both service valves and charging manifold valves are closed.
- 2 Attach hose assemblies to service valves and charging manifold valves.
- 3 Attach center hose assembly to vacuum pump.
- 4 Start vacuum pump.
- 5 Open charging manifold valves.
- 6 Open both unit service valves.
- 7 Run the vacuum pump until at least 29 inches of mercury, measured on the gage is reached.

NOTE

Inability to reach 29 inches of mercury may indicate either a leak or a problem with the pump.

- 8 Continue running the pump for one more hour, while observing the gage. If the gage needle moves back and forth, you have a leak, which must be located and corrected first.
- 9 Close charging manifold valves.
- 10 Close both unit service valves.
- 11 Stop vacuum pump.
- 12 Disconnect pump from center hose connection.
- 13 Go to WP0075, charging the refrigeration system.

END OF TASK

CHARGING THE REFRIGERANT R-22 SYSTEM

0075 00

THIS WORK PACKAGE COVERS:

Servicing

Tools and Special Tools

Scale

Charging Manifold

Materials/Parts

Dehydrator MS35845-1

Refrigerant-22 BB-F-1421, type 22

Personnel Required

Direct Support Technician

Equipment Conditions

Air conditioner removed from shelter, if necessary

Refrigerant R-22 system discharged (See WP0070)

Refrigerant R-22 system purged (See WP0071)

Any brazing/debrazing procedure completed (See WP0072)

Refrigerant R-22 system evacuated (See WP0074)

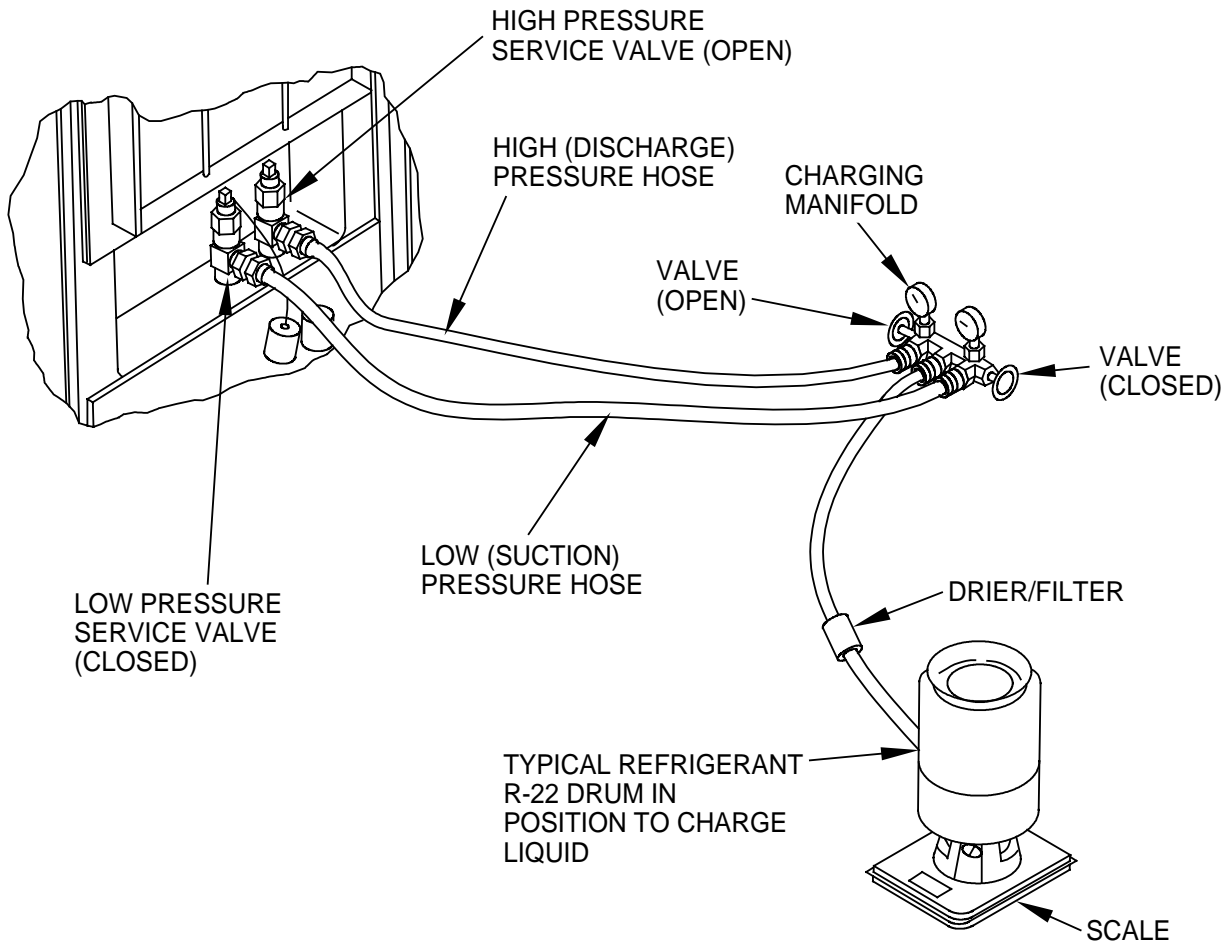
SERVICING

After the system has been satisfactorily evacuated, it must be fully charged with Refrigerant-22.

CAUTION

Never introduce liquid Refrigerant R-22 into the low pressure (suction) service valve.

Refrigerant R-22 Charging



NOTE

The system must be evacuated before charging. Use only Refrigerant-22 to charge the unit.

- 1 Check that the hose from the low-pressure service valve is connected to the compound gage side of the charging manifold. The hose from the high-pressure service valve should be connected to the pressure gage side of the charging manifold.
- 2 Connect the center hose from the charging manifold to a well-charged drum of Refrigerant-22.
- 3 Loosen the hose connections to the two air conditioner service valves slightly.
- 4 Open the two charging manifold valves.
- 5 Open the Refrigerant-22 drum valve slightly to allow a small amount of Refrigerant R-22 to purge air from the hoses. Tighten the hose connections at the air conditioner service valves.

- 6 Close the low pressure (suction) charging manifold valve. Never introduce liquid Refrigerant R-22 into the low-pressure (suction) service valve.
- 7 Position the Refrigerant-22 drum so that liquid will be used for charging. (Some drums must be inverted and some are equipped with a selector valve.)
- 8 Using accurate scales measure and record the weight of the Refrigerant-22 drum.
- 9 Open the Refrigerant-22 drum valve.
- 10 Open the high-pressure service valve on the air conditioner. Allow liquid Refrigerant R-22 to enter the system until the drum weight has decreased by 8.5 pounds (3.86 Kg) or until system pressure has equalized.
- 11 Close the Refrigerant R-22 drum valve and the high-pressure (discharge) manifold valve.
- 12 Connect air conditioner to a remote control module assembly.
- 13 Connect power.
- 14 Turn air conditioner on and operate in the COOL mode with the TEMPERATURE CONTROL set at the maximum COOLER position.
- 15 If the 6-pound (2.93 kg) full charge was obtained, skip steps 16 through 19. If the system pressure equalized prior to obtaining a full charge of 8.5 pounds (3.86 kg) proceed with step 16.
- 16 Switch the Refrigerant R-22 drum to the gas only position.
- 17 Be sure that the Refrigerant R-22 drum has been switched to the gas position and open the Refrigerant R-22 drum valve, the low (suction) pressure charging manifold valve and the low (suction) pressure service valve on the air conditioner.
- 18 Monitor the weight of the Refrigerant R-22 drum as the air conditioner compressor pulls additional Refrigerant R-22 gas into the system until the full 8.5-pound (3.86 kg.) charge is obtained. When the system is fully charged, immediately close the Refrigerant R-22 drum valve and the air conditioner low-pressure service valve.
- 19 Run the air conditioner in COOL mode (with TEMPERATURE CONTROL in full COOLER position) for 15 minutes.

CAUTION

Do not skip the next step.

- 20 After 15 minutes, observe the sight glass on back of condenser section.
- Green center means the Refrigerant R-22 moisture content is acceptable.
 - Yellow center means there is too much moisture in the system. It must be discharged, evacuated and charged again.
 - Milky white or bubbly liquid means the system has a low charge.
 - Clear bubble-free liquid around the center means the system is fully charged.
- 21 If charge is low, add gas Refrigerant R-22.
- Be sure that drum is switched to gas position. Open the drum valve and the air conditioner low-pressure service valve.
 - Continue to charge until sight glass is clear and bubble-free.
 - Close the Refrigerant R-22 drum valve and the air conditioner low-pressure service valve.
- 22 Check air conditioner for proper cooling. There should be at least a 20-degree +/- 5-degree temperature difference between evaporator discharge air and the inlet air.
- 23 Turn the MODE SELECTOR SWITCH to OFF.
- 24 Close the high and low-pressure air conditioner service valves, and remove the charging manifold hoses from the air conditioner service valves.
- 25 Go to WP0076.

END OF TASK

REFRIGERANT R-22 PRESSURE CHECK

0076 00

THIS WORK PACKAGE COVERS:

Operational Check

Tools and Special Tools
Pressure Gauges
Servicing Manifold

Personnel Required
Direct Support Technician

Equipment Conditions
Air conditioner removed from shelter, if necessary
Refrigerant R-22 system discharged (See WP0070)
Refrigerant R-22 system purged (See WP0071)
Any brazing/de brazing procedure completed (See WP0072)
Refrigerant R-22 system recharged (See WP0075)

OPERATIONAL CHECK

Except in cases where it is obvious that the Refrigerant R-22 charge has been lost, the first step in troubleshooting problems in the refrigeration system should be to check discharge and suction pressures under operating conditions. Check pressures as follows:

- 1 Turn the MODE SELECTOR SWITCH to OFF.
- 2 Connect individual pressure gages, or a refrigeration servicing manifold and hoses to the high (discharge) and low (suction) service valves.
- 3 Open the low (suction) and high (discharge) service valves.

- 4 Both gages should read the same. Check the reading with the appropriate column in table below. If the system is even partially charged, the pressure should be approximately equal to that shown in the table for the appropriate ambient temperature. If the pressure is considerably less than shown in the table, the system does not contain enough Refrigerant R-22 to continue the pressure check; go to leak testing (WP0073).
- 5 Turn the MODE SELECTOR SWITCH to the COOL mode with the TEMPERATURE CONTROL in the full COOLER setting for a few minutes.
- 6 With the unit operating, allow gages to stabilize. Take readings of the two gages.
 - If discharge and suction pressures are at, or near, the same value, a pressure equalizer solenoid valve L1 malfunction, or an internal compressor failure is indicated.
 - If discharge pressure is low and suction pressure is normal, (see table) a low Refrigerant R-22 charge is indicated.
- 7 If discharge pressure is normal and suction pressure is either high or low, failure or maladjustment of the pressure regulator valve is indicated.
- 8 If discharge pressure is high and suction pressure is normal, a malfunction of quench valve is indicated.
- 9 When pressure tests are completed, proceed with the maintenance action indicated.

Table 1. Pressure-Temperature Relationship of Saturated Refrigerant-22

Temperature		Pressure	
Deg F	Deg C	Psig	Kg/cm ²
10	-12.3	32.93	2.315
12	-11.1	34.68	2.439
14	-10.0	36.89	2.593
16	-8.9	38.96	2.739
18	-7.8	41.09	2.889
20	-6.6	43.28	3.043
22	-5.5	45.23	3.180
24	-4.3	47.85	3.364
26	-3.4	50.24	3.532
28	-2.2	52.70	3.705
30	-1.1	55.23	3.883
32		57.83	4.066

Temperature		Pressure	
Deg F	Deg C	Psig	Kg/em2
34	1.1	60.51	4.254
36	2.2	63.27	4.448
38	3.3	66.11	4.648
40	4.4	69.02	4.853
42	5.5	71.99	5.062
44	6.6	75.04	5.276
46	7.7	78.18	5.497
48	8.8	81.40	5.723
50	10.0	84.70	5.955
52	11.1	88.10	6.257
54	12.2	91.5	6.433
56	13.3	95.1	6.686
58	14.5	98.8	6.947
60	15.6	102.5	7.206
62	16.7	106.3	7.474
64	17.8	110.2	7.748
66	18.9	114.2	8.029
68	20.0	118.3	8.318
70	21.1	122.5	8.612
72	22.2	126.8	8.915
74	23.3	131.2	9.225
76	24.4	135.7	9.541
78	25.6	140.3	9.864
80	26.7	145.0	10.195
82	27.8	149.8	10.522
84	28.9	154.7	10.877
86	30.0	159.8	11.236
88	31.1	164.9	11.594
90	32.2	170.1	11.960
92	33.3	175.4	12.332
94	34.5	180.9	12.719
96	35.6	186.5	13.113

Temperature		Pressure	
Deg F	Deg C	Psig	Kg/em2
98	36.7	192.1	13.506
100	37.8	197.9	13.914
102	38.9	203.8	14.329
104	40.0	209.9	14.758
106	41.1	216.0	15.187
108	42.2	222.3	15.630
110	43.3	228.7	16.080
112	44.4	235.2	16.537
114	45.6	241.9	17.008
116	46.7	248.7	17.486
118	47.8	255.6	17.971

Table 2. Normal Operating Pressures

Temperatures	Pressure Range (psig)			
Outdoor Ambient	50F (10C)	75F (24C)	100F (38C)	120F (49C)
90F (32C) Return Air to Unit (Dry Bulb)	55-65 Suction 125-160 Discharge	59-70 Suction 175-210 Discharge	60-75 Suction 255-295 Discharge	75-90 Suction 370-410 Discharge
80F (27C) Return Air to Unit (Dry Bulb)	58-65 Suction 120-155 Discharge	58-70 Suction 170-205 Discharge	60-75 Suction 250-290 Discharge	65-75 Suction 370-410 Discharge

END OF TASK

TUBING AND FITTINGS (EVAPORATOR ASSEMBLY)

0077 00

THIS WORK PACKAGE COVERS:

Repair or Replacement

Tools and Special Tools
Brazing Torch

Materials/Parts

Nitrogen 6830-00-292-0732

Dehydrator MS35845-1

Personnel Required

Direct Support Technician

Equipment Conditions

Air conditioner removed from shelter (See
WP0006)Evaporator coil and piping removed (See
WP0078)**REPAIR OR REPLACEMENT**

- 1 The evaporator assembly contains a number of pieces of copper tubing in a variety of material grades, sizes, lengths, and shapes and a number of elbows, tees, and adapters. Observe the following when replacing any piece of tubing in the system.

WARNING

Be sure the refrigeration system is fully discharged and purged, and that dry nitrogen is flowing through the system at a rate of less than 1-2 cfm (0.028 - 0.057 cubic meters/minute) before all brazing or debrazing operations.

- 2 Replace tubing and fittings only with equal material, grade, size, length, and shape as the item removed.

- 3 Leak test the entire refrigeration system in accordance with WP0073 after any replacement action that required brazing.
- 4 Replace the dehydrator and leak test the dehydrator flare fittings as the final step in any maintenance action that required the Refrigerant R-22 pressure system to be opened.
- 5 Evacuate and charge the refrigeration system in accordance with WP0074 and WP0075 after all other maintenance actions are completed.
- 6 Install evaporator coil and piping. (See WP0078.)
- 7 Install air conditioner on shelter. (See WP0006.)

END OF TASK

EVAPORATOR COIL, MALE COUPLING HALF AND EXPANSION VALVE

0078 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items

Removal

Cleaning

Repair or Replacement

Installation, Adjustment

Testing

Tools and Special Tools

Plastic fin comb

Soft bristled brush

Vacuum cleaner with brush attachment or
low pressure compressed air source

Safety glasses or goggles

Screwdriver

Wrench

Brazing Torch

Gloves

Remote Control Module

Power Cable

Thermometer

Materials/Parts

Evaporator Coil 13219E9506

Refrigerant Oil VV-L-825

Expansion Valve 13219E9496

Dehydrator MS35845-1

Personnel Required

Direct Support Technician

Equipment Conditions

Air conditioner removed from shelter (See WP0006)

Return air screen and frame removed (See WP0027)

Access cover removed (See WP0024)

Front evaporator cover removed (See WP0025)

Radio frequency filter removed (See WP0023)

Heater assembly removed (See WP0021)

Fan and motor assembly removed (See WP0030)

Refrigerant R-22 system discharged (See WP0070)

INSPECTION OF INSTALLED ITEMS

- 1 Check coil for accumulated dirt. Clean if an accumulation of dirt is evident.
- 2 Check fins for dents, bent edges, or any condition that would 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/cm²). Do not direct compressed air against the skin. Use goggles or full-face shield.

WARNING

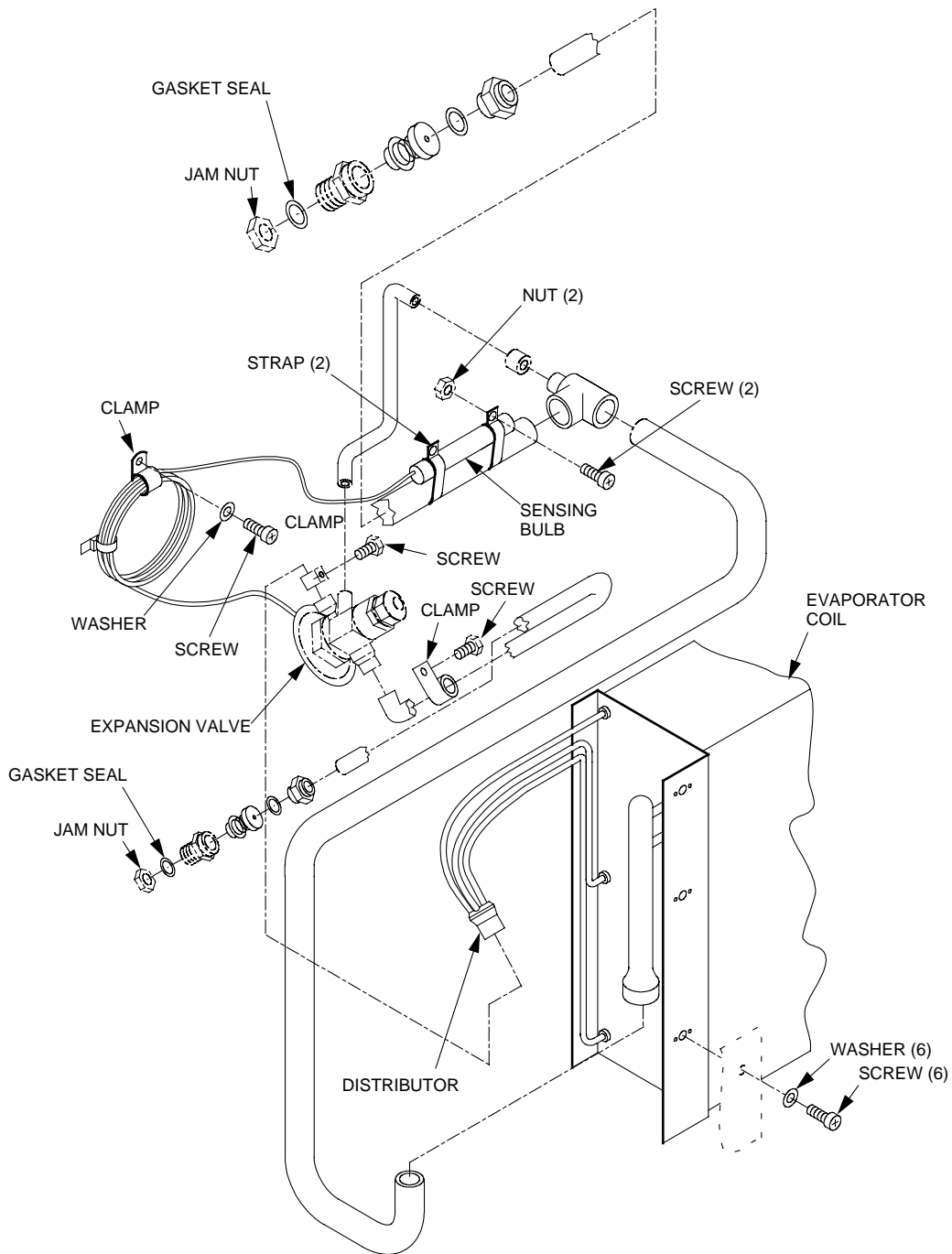
Do not use steam to clean coil.

- 3 The coupling half fittings (hose disconnect fittings) used for joining the interconnecting Refrigerant R-22 metal hoses, contain a poppet valve assembly to prevent Refrigerant R-22 loss and to keep air from entering the line when hoses are disconnected. The following instructions apply to both the suction (low pressure) and discharge (high pressure) couplings.
- 4 Check couplings for cracks, breaks, loose connections, and evidence of leakage. Replace if damaged.
- 5 Leak test in accordance with WP0073.

- 6 Inspect expansion valve for evidence of leaks, kinked or otherwise damaged capillary line, and loose or missing valve stem cap.
- 7 Check thermal bulb to see that it is securely clamped to the suction line.

REMOVAL

Evaporator Coil, Male Coupling Half and Expansion Valve



- 1 Using screwdriver, remove the three screws that hold the three clamps that support the expansion valve and expansion valve capillary line.
- 2 Using wrench, carefully disconnect the low and high condenser to evaporator Refrigerant R-22 metal hose line connectors from the coupling halves. (See WP0091).
- 3 Using wrench, remove the two each jam nuts and gasket seals from the inside of the access area.

WARNING

When handling coils, wear gloves to avoid cuts and reduce fin damage on the coil.

- 4 Using screwdriver, remove six screws and washers while supporting the evaporator coil.
- 5 Using gloves to protect your hands and coil fins, carefully lift the coil and tubing up and out of the unit.
- 6 Unwrap insulation tape (black cork tape) from joints that are to be debrazed and from the sensing bulb.
- 7 Loosen the two screws and nuts in the bulb straps that attach the sensing bulb to the suction line, and pull the bulb out of the straps. Take care to note the position (center top of suction line) of the bulb.

CAUTION

Use care to not damage or kink the capillary.

- 8 Note exact position of expansion valve on Refrigerant R-22 line.
- 9 Wrap wet rags around expansion valve body and distributor tubes.
- 10 Using torch, debraze and separate the distributor, elbow and equalizer line tubing from the expansion valve. See WP0072.
- 11 Remove expansion valve.

CLEANING

- 1 Clean coil with a soft bristled brush, vacuum cleaner and brush attachment, or use compressed air at 30 psi or less from the inside of the coil 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 Rinse thoroughly in clear water.

- 3 Shake out excess water prior to installation.

REPAIR OR REPLACEMENT

- 1 Repairs are limited to replacement of distributor, rivets, plate nuts, and the straightening of mashed fins.
- 2 Plate nuts may be removed by drilling out the old rivets using a drill bit slightly smaller than the diameter of the rivet.
- 3 Install new plate nut(s) and rivets.
- 4 If fins are mashed or dented so that the airflow across the coil would be blocked, straighten them using a plastic fin comb.
- 5 Using wrench, carefully disconnect the low and high condenser to evaporator Refrigerant R-22 metal hose line connectors from the coupling halves. See WP0091.

INSTALLATION

- 1 Tubing should be nitrogen purged during all brazing/debrazing operations.
- 2 Clean and prepare distributor, tubing and elbow prior to installing new expansion valve. (See WP0072).
- 3 Slip expansion valve in place in original position and check that fittings and tubing fit properly into expansion valve solder cups.
- 4 Wrap wet rags around expansion valve body and distributor tubes.
- 5 Using torch, braze the three expansion valve joints in accordance with WP0072.
- 6 Slip the sensing bulb into its mounting bulb straps. Be sure the bulb is on top of the suction line in original position and tighten the two nuts and screws. Be sure the sensing bulb is making good metal-to-metal contact with the suction line.
- 7 Replace the insulation tape that was removed from the sensing bulb and expansion valve connections. Use insulation tape, applied in spiral with overlapping edges.

WARNING

When handling coils, wear gloves to avoid cuts and reduce fin damage on the coil.

- 8 Carefully place the evaporator coil, tubing, and fittings into the housing.
- 9 Place distributor in expansion valve.
- 10 Using torch, braze distributor to expansion valve joint.
- 11 Wrap wet rags around evaporator coil header.
- 12 Using torch, braze elbow in place on header in original position. See WP0072.
- 13 Reaching in access area, and using care, push half couplings through holes in access.
- 14 Line up coil assembly and housing screw holes.
- 15 Using screwdriver, fasten coil to housing with six screws and washers.
- 16 Using screwdriver, fasten three cushioned loop clamps to housing with three screws.
- 17 Using wrench, install jam nuts on half couplings in access.
- 18 Using wrench, carefully reconnect the low and high condenser to evaporator Refrigerant R-22 metal hose line connectors to the coupling halves.
- 19 Replace the dehydrator. (See WP0080).
- 20 Leak test the coil, the dehydrator, the newly brazed joints, and the joints in the area of the newly brazed joints per WP0073.
- 21 Evacuate and charge the refrigeration system in accordance with WP0074 and WP0075.
- 22 Install the heater assembly. (See WP0021.)
- 23 Install the fan and motor assembly. (See WP0030.)
- 24 Install the front evaporator cover and radio frequency filter. (See WP0025 and WP0023.)
- 25 Install the access cover. (See WP0024.)
- 26 Install the return air screen and frame. (See WP0027.)
- 27 Install air conditioner on shelter. (See WP0006.)

ADJUSTMENT

- 1 The expansion valve, as supplied with the unit, is preset at the factory. This valve should not be adjusted unnecessarily. When adjustment is necessary, see the following instructions.
- 2 Remove insulation from a spot on the suction line near the sensing bulb of the thermal expansion valve to be adjusted.
- 3 Install an accurate thermometer or the probe of a thermocouple on a bare spot, using a small amount of the thermal mastic, if available, to improve conductivity. Tape the thermometer bulb or thermocouple junction in position, and cover with insulating material.
- 4 Connect LOW SIDE hose of charging manifold to unit LOW SIDE service valve.
- 5 Check that manifold valves are closed.
- 6 Loosen the hose connections at the charging manifold slightly.
- 7 Slightly open the unit LOW SIDE service valve to allow a small amount of Refrigerant R-22 to purge the hose. Tighten the hose connection at the manifold.
- 8 Fully open the LOW SIDE service valve.
- 9 Hold the front cover with radio frequency filter, harnesses, and cables in place in mounted position on the unit to minimize air leaks.
- 10 Operate the air conditioner in the cooling mode for about 30 minutes, briefly removing front panel and observing the thermometer or thermocouple dial to see that the temperature has stabilized. When the temperature remains unchanged for at least two minutes, record the temperature and pressure.
- 11 Compare the recorded temperature and pressure with those in table. The temperature measured should register approximately 12E F (6.7E C) higher than the temperature listed on the table.
- 12 If adjustment is necessary, remove the cap from the expansion valve and turn the adjusting stem counterclockwise to decrease the superheat and clockwise to increase the superheat. When adjusting the valve, make no more than one turn of the stem at a time and observe the change in the superheat closely to prevent overshooting the desired setting. Allow unit to stabilize before taking reading.
- 13 When the proper setting is obtained, turn off air conditioner and replace the cap on the valve adjusting stem.
- 14 Remove the thermometer or thermocouple probe from the suction line, and replace the insulating material. Close the LOW SIDE service valve, remove the charging manifold and hose, and install the cap on the service valve gage port.

TEST AND INSPECTION

- 1 Unwrap the insulation from the evaporator coil suction line so that thermal sensing bulb is exposed.
- 2 Loosen the screws and nuts in the bulb straps that attach the sensing bulb to the suction line, and pull the bulb out of the straps. Take care to note the position (center top of suction line) of the bulb.

CAUTION

Use care to not damage or kink the capillary.

- 3 Connect a remote control module and a power cable to the air conditioner.

WARNING

AC power tests must be conducted with the power on. Exercise extreme caution.

- 4 Turn on power to air conditioner.
- 5 Place the sensing bulb in a container of ice water or crushed ice so that it is reduced to a temperature near 32°F (0°C).
- 6 Set the temperature thermostat control knob fully counterclockwise to COOLER position, place one hand on the exposed suction line, and start the air conditioner in COOL mode. If a drop in temperature is felt on the suction return line, the expansion valve is not closing fully and should be adjusted or replaced.

CAUTION

Turn the air conditioner to OFF as soon as a definite drop in temperature is felt on the suction return line. If the test conditions are continued more than a few seconds, the expansion valve will fully open and an excessive flood-back of liquid Refrigerant R-22 may damage or destroy the compressor.

- 7 With one hand still on the suction return line, remove the sensing bulb from the container and warm it in the other palm. If a temperature drop is not felt in the suction return line by the time the sensing bulb no longer feels cold to the hand, the expansion valve is not opening and should be adjusted or replaced. As soon as a temperature drop is felt, turn the air conditioner to OFF.

END OF TASK

SIGHT GLASS

0079 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
Removal
Installation

Tools and Special Tools
Screwdriver
Wrench
Brazing Torch

Materials/Parts
Nitrogen 6830-00-292-0732
Sight Glass 13211E8218
Dehydrator MS35845-1

Personnel Required
Direct Support Technician

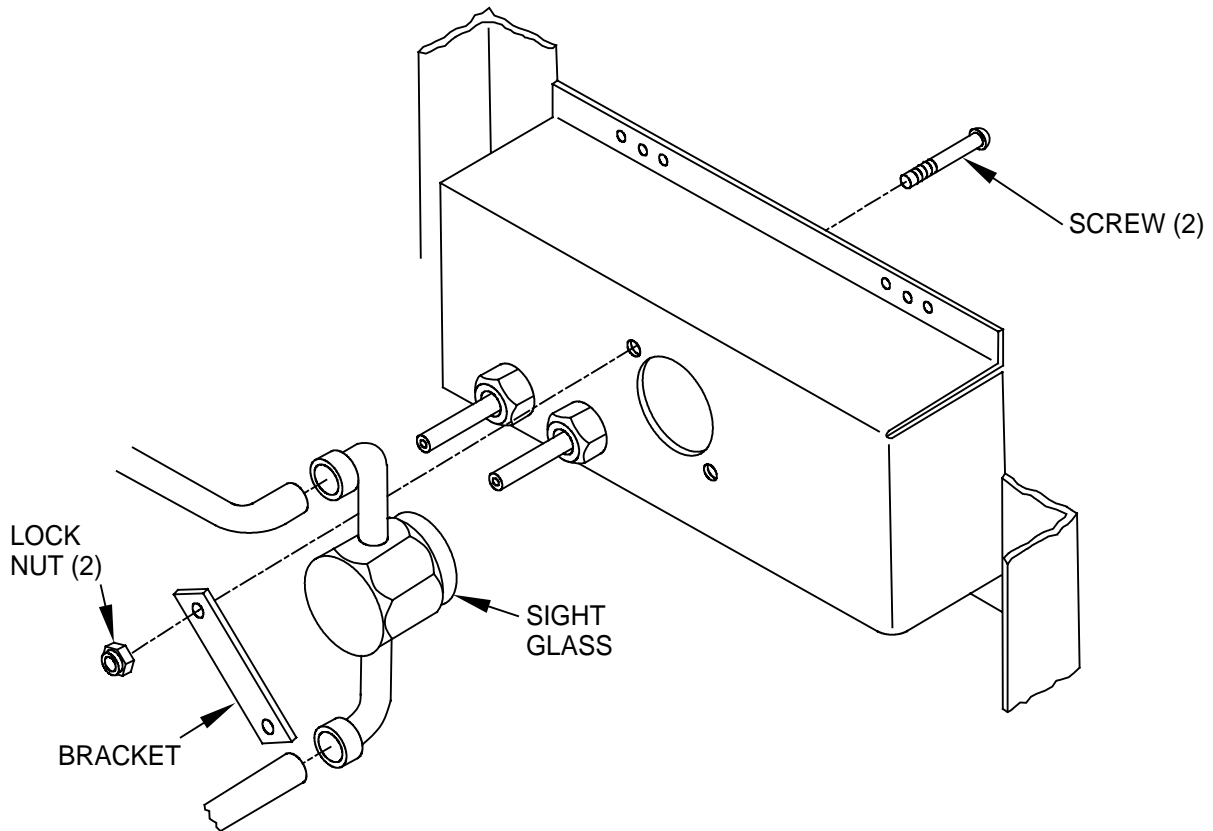
Equipment Conditions
Power disconnected.
Right end condenser cover removed. (See WP0045).
Condenser electrical module removed. (See WP0051).

INSPECTION OF INSTALLED ITEMS

- 1 Check that glass window is clean and not cracked or broken. Clean if dirty. Replace sight glass if cracked or broken.
- 2 Check for evidence of leakage. Leak test if leak is suspected. Repair or replace as indicated.

REMOVAL

Sight Glass.



- 1 Discharge the Refrigerant R-22 system per WP0070.
- 2 While purging the system with nitrogen, debraze the tubing. (See WP0071 and WP0072).
- 3 Using a screwdriver and wrench, remove two screws and lock nuts and sight glass bracket.
- 4 Remove the sight glass.

INSTALLATION

- 1 Position sight glass in unit.
- 2 Using screwdriver and wrench, secure sight glass with bracket and two screws and locknuts. Be sure that sight glass is centered on opening in housing.
- 3 While purging the system with nitrogen, braze the tubing joints. See WP0071 and WP0072.
- 4 Replace the dehydrator. (See WP0080).

- 5 Leak test all newly connected joints and those in the repair area. (See WP0073).
- 6 Evacuate and recharge the Refrigerant R-22 system. (See WP0074 and WP0075).
- 7 Install condenser section electrical module. (See WP0051).
- 8 Install right end condenser cover. (See WP0045).
- 9 Connect power.

END OF TASK

DEHYDRATOR (FILTER DRIER)

0080 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
Removal
Installation

Tools and Special Tools
Screwdriver
Wrench
Brazing Torch

Materials/Parts
Dehydrator MS35845-1

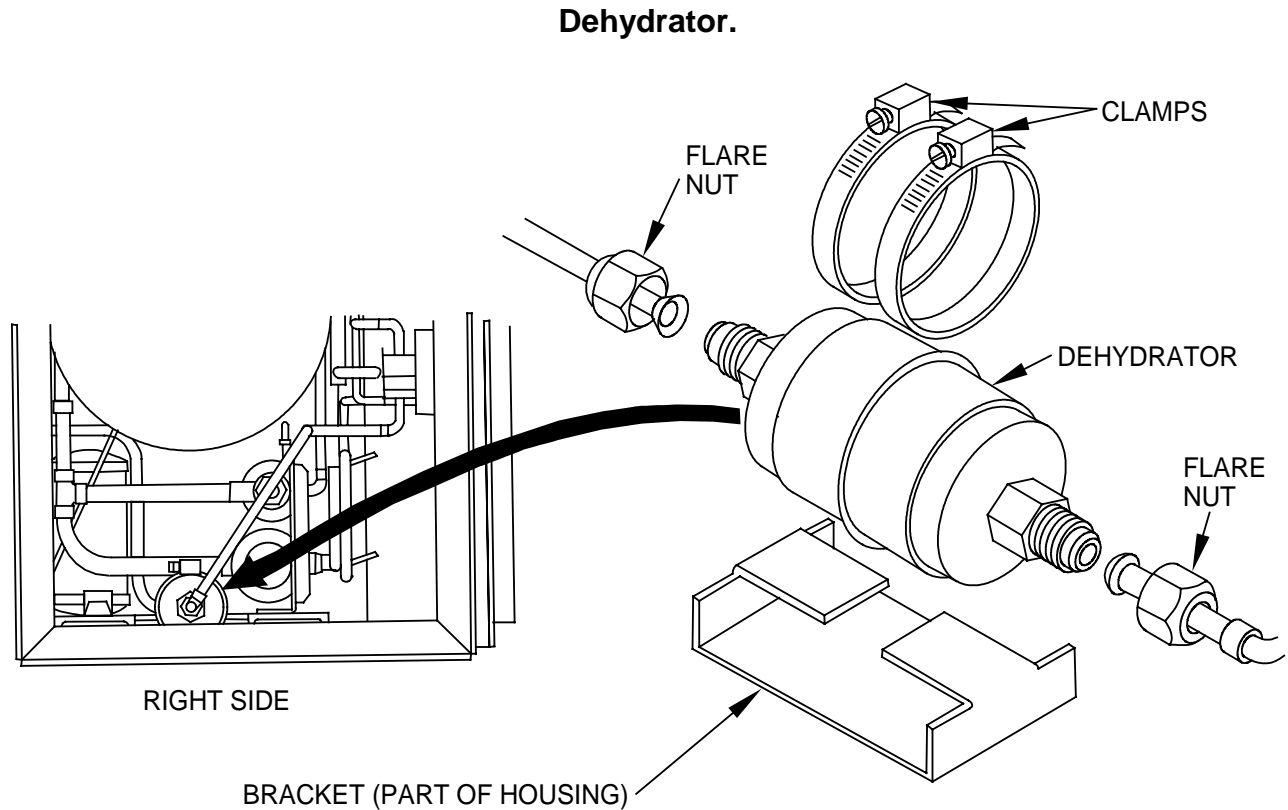
Personnel Required
Direct Support Technician

Equipment Conditions
Power disconnected.
Right end condenser cover removed. (See
WP0045).

INSPECTION OF INSTALLED ITEMS

- 1 Check for general condition and signs of leakage. If leakage is suspected, leak test per WP0073.
- 2 Check that clamps are in place and secure. Tighten clamps if they are loose. Replace if missing.

REMOVAL



- 1 Discharge the Refrigerant R-22 system per WP0070.
- 2 Using wrench, loosen and disconnect flare nuts.
- 3 Using screwdriver, remove two clamps.
- 4 Remove dehydrator. Note direction of flow arrow for installation.

INSTALLATION

CAUTION

Replacement dehydrators are packaged with sealing caps on the flare fittings, to prevent moisture contamination of the desiccant filtering media. Remove these caps immediately prior to installation. Never install a dehydrator from which caps have been removed for an extended or unknown period of time.

- 1 Place dehydrator in unit and slip two clamps around dehydrator and tabs that are part of bracket welded to bottom of housing. Be sure flow arrow is pointing away from compressor.
- 2 Using screwdriver, tighten clamps.

- 3 Using wrench, tighten both flare nuts.
- 4 Leak test all newly connected joints and those in the repair area. (See WP0073).
- 5 Evacuate and recharge the Refrigerant R-22 system. (See WP0074 and WP0075).
- 6 Install right end condenser cover. (See WP0045).
- 7 Connect power.

END OF TASK

RECEIVER, LIQUID REFRIGERANT R-22

0081 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
Removal
Installation

Tools and Special Tools
Brazing Torch
Screwdriver

Materials/Parts

Nitrogen 6830-00-292-0732
Dehydrator MS35845-1
Receiver 8964

Personnel Required
Direct Support Technician

Equipment Conditions

Air conditioner removed from shelter (See WP0006).

Evaporator and condenser section assemblies separated. (See WP0014).

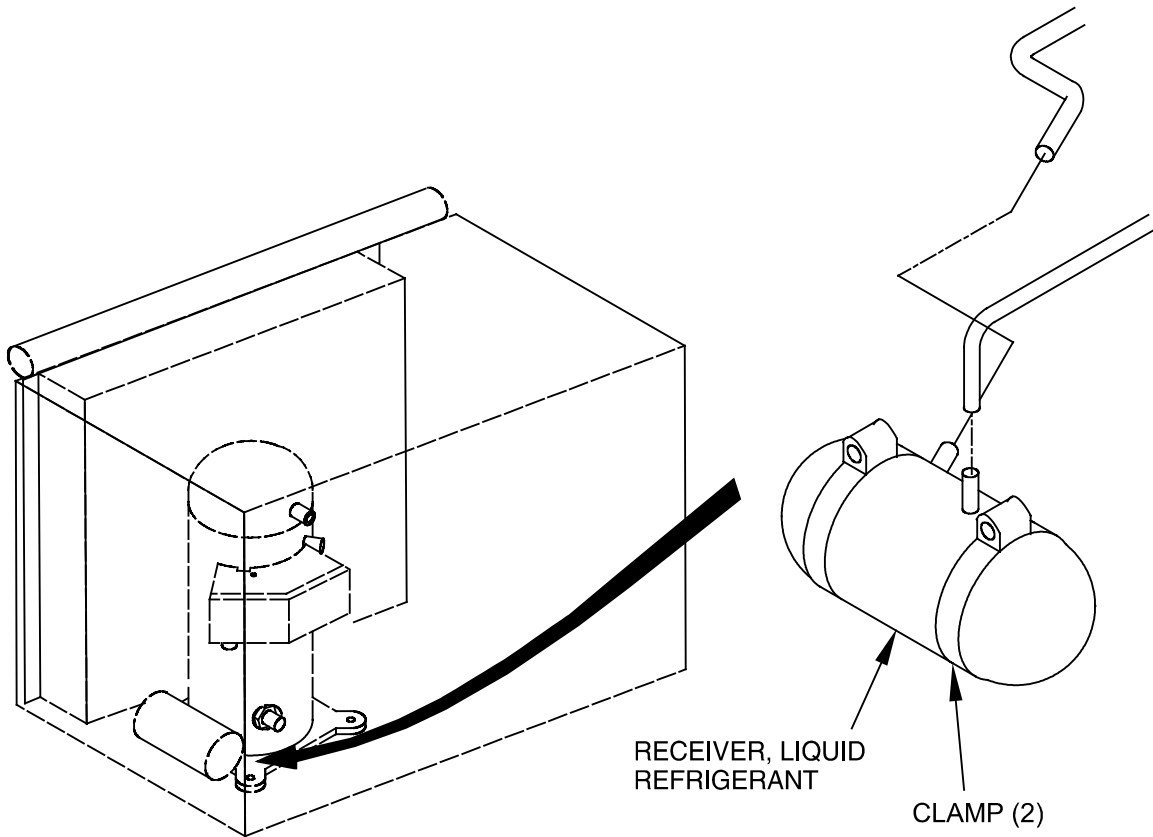
Front condenser cover removed. (See WP0044).

INSPECTION OF INSTALLED ITEMS

- 1 Check for general condition and signs of leakage. If leakage is suspected, leak test per WP0073.
- 2 Check that mounting clamps are secure.

REMOVAL

Receiver, Liquid Refrigerant R-22.



- 1 Discharge the Refrigerant R-22 system per WP0070.
- 2 While purging the system with nitrogen, debraze the tubing.
- 3 Using screwdriver, loosen screws on two clamps securing receiver to housing.
- 4 Remove receiver from condenser housing.

INSTALLATION

- 1 Position receiver in condenser housing.
- 2 Align tubing connections.
- 3 Using screwdriver, tighten clamps to secure receiver to bottom condenser housing channel.
- 4 While purging the system with nitrogen, braze the tubing joints. (See WP0071 and WP0072).
- 5 Replace the dehydrator. (See WP0080).

- 6 Leak test all newly connected joints and those in the repair area. (See WP0073).
- 7 Install front condenser cover. (See WP0044).
- 8 Connect evaporator and condenser section assemblies. (See WP0014).
- 9 Evacuate and charge the Refrigerant R-22 system. (See WP0074 and WP0075).
- 10 Install air conditioner on shelter. (See WP0006).

END OF TASK

EXPANSION VALVE, QUENCH

0082 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
Removal
Installation

Tools and Special Tools
Screwdriver
Wrench
Brazing Torch

Materials/Parts
Nitrogen 6830-00-292-0732
Dehydrator MS35845-1
Quench Valve 13221E9099

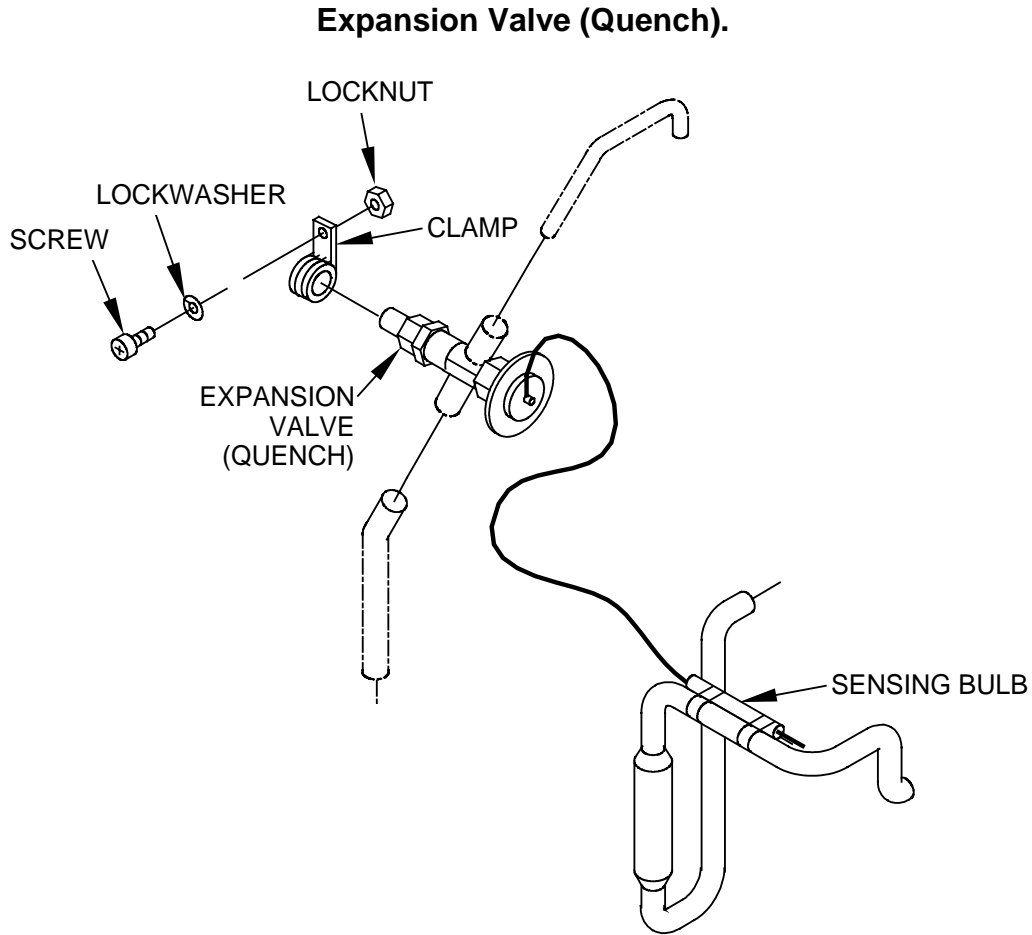
Personnel Required
Direct Support Technician

Equipment Conditions
Power disconnected.
Air conditioner removed from shelter. (See WP0006).
Right and left end condenser covers removed. (See WP0045).

INSPECTION OF INSTALLED ITEMS

- 1 Inspect for evidence of leaks, kinked or otherwise damaged capillary line, and loose or missing valve stem cap.
- 2 Check sensing bulb to see that it is secured to the compressor inlet suction line.
- 3 If a leak is suspected or indicated, test per WP0073.

REMOVAL



- 1 Remove insulation from compressor inlet tube to detach sensing bulb.
- 2 Using screwdriver and wrench, remove the screw, lockwasher, locknut, and clamp that secures expansion valve to the housing.
- 3 Discharge the Refrigerant R-22 system per WP0070.
- 4 Wrap wet rags around expansion valve body, if it is to be reinstalled.
- 5 While purging the system with nitrogen, debraze the tubing. (See WP0071 and WP0072).
- 6 Remove expansion valve from unit.

INSTALLATION

- 1 Position expansion valve in unit.

- 2 Wrap wet rags around expansion valve body.
- 3 While purging the system with nitrogen, braze the tubing joints.
- 4 Replace the dehydrator. (See WP0080).
- 5 Secure sensing bulb to compressor inlet suction line with insulation. Apply in spiral with overlapping edges. Be sure sensing bulb is making good metal-to-metal contact with compressor inlet suction line.
- 6 Coil excess capillary tubing above expansion valve.
- 7 Secure expansion valve to housing with screw, lockwasher, locknut, and clamp.
- 8 Leak test all newly connected joints and those in the repair area. (See WP0073).
- 9 Evacuate and charge the Refrigerant R-22 system. (See WP0074 and WP0075).
- 10 Install left and right end condenser covers. (See WP0045).
- 11 Install air conditioner on shelter. (See WP0006).
- 12 Connect power.

END OF TASK

DISCHARGE BYPASS VALVE

0083 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
Removal
Installation
Adjustment

Tools and Special Tools
Screwdriver
Allen Wrench
Brazing Torch

Materials/Parts
Nitrogen 6830-00-292-0732
Dehydrator MS35845-1
Discharge Bypass Valve 13221E9105

Personnel Required
Direct Support Technician

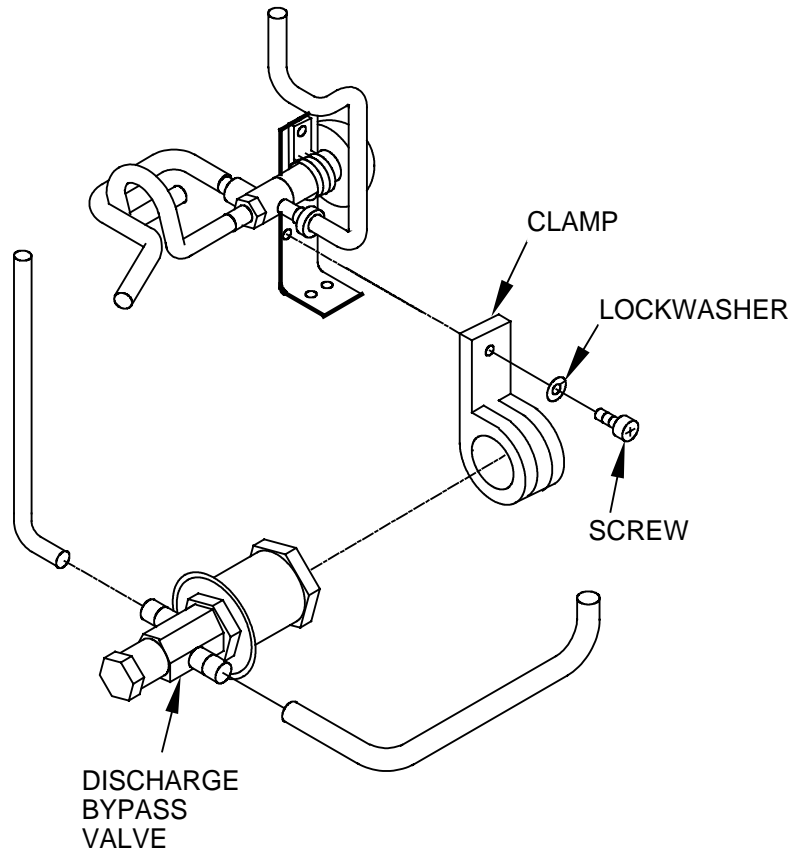
Equipment Conditions
Power disconnected.
Air conditioner removed from shelter. (See WP0006).
Right end condenser cover removed. (See WP0045).
Condenser section electrical module assembly removed. (See WP0051).

INSPECTION OF INSTALLED ITEMS

- 1 Inspect for evidence of leaks and external damage. If a leak is indicated, leak test per WP0073. Replace valve if damaged.
- 2 Check that valve cap is in place.

REMOVAL

Discharge Bypass Valve.



- 1 Using a screwdriver, remove screw, lockwasher, and clamp that holds valve to bracket.
- 2 Discharge the Refrigerant R-22 system per WP0070.
- 3 Wrap wet rags around valve body, if it is to be reinstalled.
- 4 While purging the system with nitrogen, debraze the tubing. (See WP0071 and WP0072).
- 5 Remove discharge bypass valve from unit.

INSTALLATION

- 1 Position discharge bypass valve in unit.
- 2 Wrap wet rags around valve body.
- 3 While purging the system with nitrogen, braze the tubing joints. (See WP0071 and WP0072).

- 4 Using screwdriver, secure valve to bracket with a screw, lockwasher, and clamp.
- 5 Replace the dehydrator. (See WP0080).
- 6 Leak test all newly connected joints and those in the repair area. (See WP0073).
- 7 Evacuate and charge the Refrigerant R-22 system. (See WP0074 and WP0075).
- 8 Install right end condenser cover. (See WP0045).
- 9 Install condenser section electrical module assembly. (See WP0051.)
- 10 Install air conditioner on shelter. (See WP0006).
- 11 Connect power.

ADJUSTMENT

- 1 Valves are factory set to start opening when suction pressure decreases to 58 psig. Do not adjust unless you are sure adjustment is necessary.
- 2 Using screwdriver, remove eight screws from condenser section electrical module assembly.
- 3 Pull module out and to side. Do not disconnect P12 and P13 connectors.
- 4 Operate air conditioner in COOL mode with temperature control in maximum WARMER position and pressure gauge connected to LOW SIDE service valve (compressor suction).
- 5 Bypass valve should open when LOW SIDE pressure drops to between 52 and 60 psig.
- 6 To adjust, use hand to remove cap covering adjusting screw in bypass valve.
- 7 Use 5/16 inch Allen wrench to turn adjusting screw to raise or lower bypass valve opening pressure. Adjust slowly.
- 8 Replace cap.
- 9 Turn off air conditioner and disconnect power.

END OF TASK

VALVE MOUNTING BRACKET

0084 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
Removal
Installation

Tools and Special Tools
Screwdriver
Offset screwdriver

Materials/Parts
Valve Mounting Bracket 13221E9090

Personnel Required
Direct Support Technician

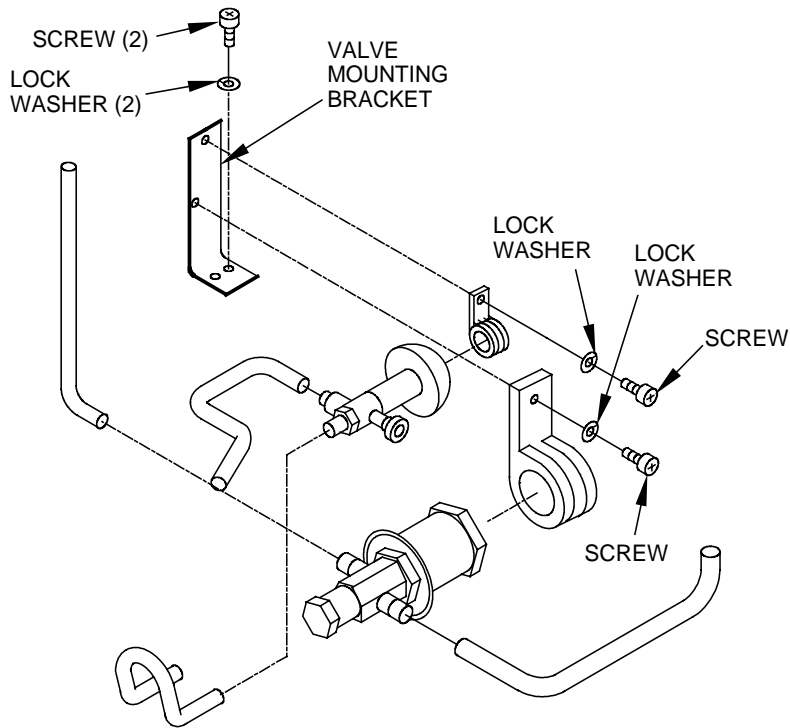
Equipment Conditions
Air conditioner removed from shelter. (See WP0006).
Right end condenser cover removed. (See WP0045).
Condenser section electrical module assembly removed. (See WP0051).

INSPECTION OF INSTALLED ITEMS

- 1 Check that bracket is not cracked, bent, or broken. Replace if damaged.
- 2 Check that mounting hardware and blind nuts are secure and in good condition.

REMOVAL

Valve Mounting Bracket.



- 1 Using screwdriver, remove two screws and lockwashers from the valve and head pressure control clamps.
- 2 Using offset screwdriver, remove two screws and lockwashers from the base of bracket.
- 3 Remove bracket from unit.

INSTALLATION

- 1 Position bracket in unit and align base mounting holes.
- 2 Using offset screwdriver, secure bracket to housing with two screws and lockwashers.
- 3 Using screwdriver, secure clamps to bracket with two screws and lockwashers.
- 4 Install right end condenser cover. (See WP0045).
- 5 Install condenser section electrical module assembly. (See WP0051).
- 6 Install air conditioner on shelter. (See WP0006).

END OF TASK

HIGH PRESSURE SWITCH (S4)

0085 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
Removal
Installation
Testing

Tools and Special Tools
Screwdriver
Offset screwdriver

Materials/Parts

Nitrogen 6830-00-292-0732
Dehydrator MS35845-1
High Pressure Switch 13211E8404

Personnel Required
Direct Support Technician

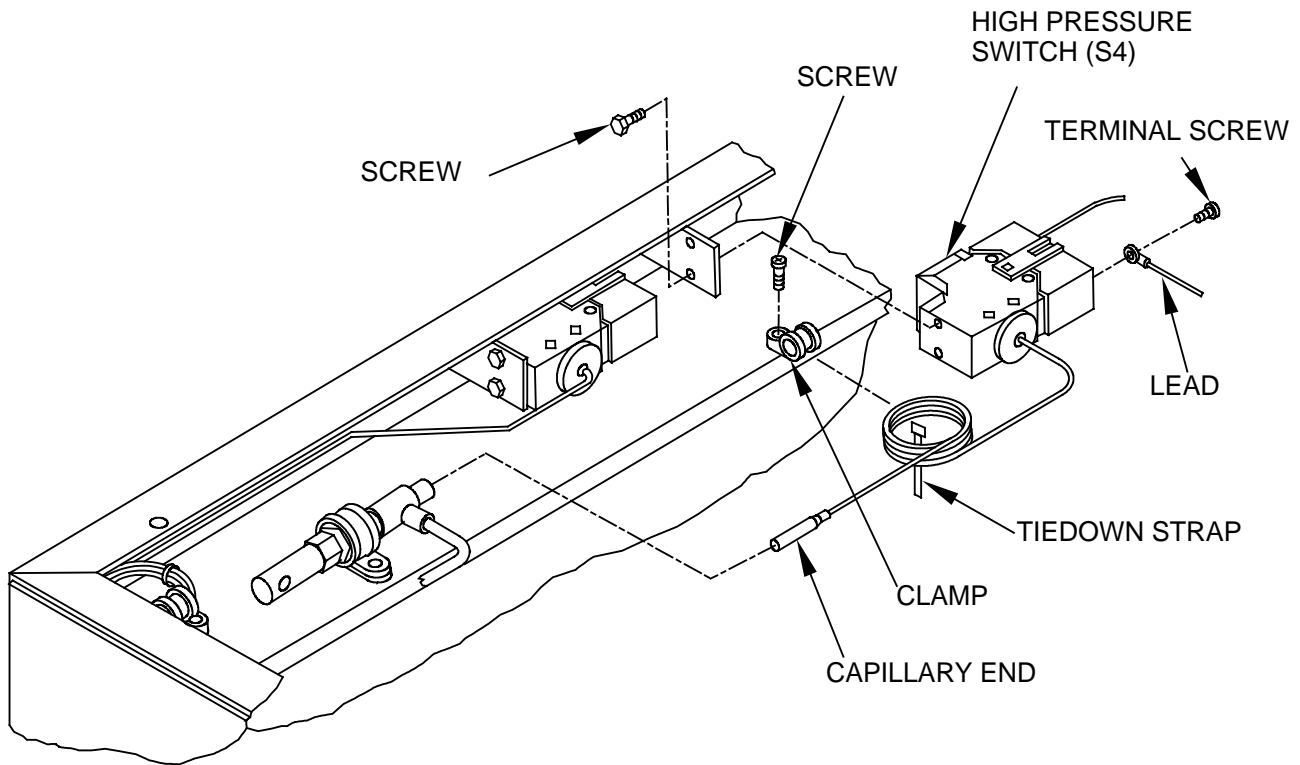
Equipment Conditions
Power disconnected.
Top condenser cover removed. (See WP0044).

INSPECTION OF INSTALLED ITEMS

- 1 Check that mounting screws and terminal attachment screws are in place and secure. Tighten if loose. Replace if missing.
- 2 Check that capillary line is not kinked, mashed, or broken. Replace switch if capillary line is damaged.

REMOVAL

High Pressure Switch (S4).



- 1 Discharge the Refrigerant R-22 system per WP0070.
- 2 While purging the system with nitrogen, debraise the capillary end from the tube tee. (See WP0071 and WP0072).
- 3 Using a screwdriver, remove the screw and clamp from the coil of capillary tubing.
- 4 Tag and disconnect the two leads.
- 5 Using an offset screwdriver or wrench, remove two screws holding the pressure switch.
- 6 Remove the pressure switch.

INSTALLATION

- 1 Position pressure switch on bracket and align holes.
- 2 Using an offset screwdriver or wrench, secure the pressure switch to bracket with two screws.
- 3 See tags, wire marking, and wiring diagram and connect leads.

- 4 Remove tags.
- 5 Carefully form and position capillary tubing. Coil excess capillary tubing in three loops located at clamp attachment point.
- 6 While purging the system with nitrogen, braze the capillary end into the tube tee. See WP0071 and WP0072.
- 7 Using screwdriver, secure the capillary loops with a screw and clamp and three equally spaced tiedown straps.
- 8 Replace the dehydrator. (See WP0080).
- 9 Leak test all newly connected joints and those in the repair area. (See WP0073).
- 10 Evacuate and charge the Refrigerant R-22 system. (See WP0074 and WP0075).
- 11 Install top condenser cover. (See WP0044).
- 12 Connect power.

TESTING

Press and release reset button on switch. Use a continuity tester or multimeter to check for continuity between terminals 1 and 2 on switch. If there is continuity, the switch is properly closed. If no continuity is found, press and release reset button again. If there is still no continuity, switch must be replaced.

END OF TASK

LOW PRESSURE SWITCH (S5)

0086 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
Removal
Installation
Testing

Tools and Special Tools
Screwdriver
Wrench

Materials/Parts

Nitrogen 6830-00-292-0732
Dehydrator MS35845-1
Low Pressure Switch 13219E9546-2

Personnel Required

Direct Support Technician

Equipment Conditions

Power disconnected.

Air conditioner removed from shelter (if necessary). (See WP0006).

Top condenser cover removed. (See WP0044).

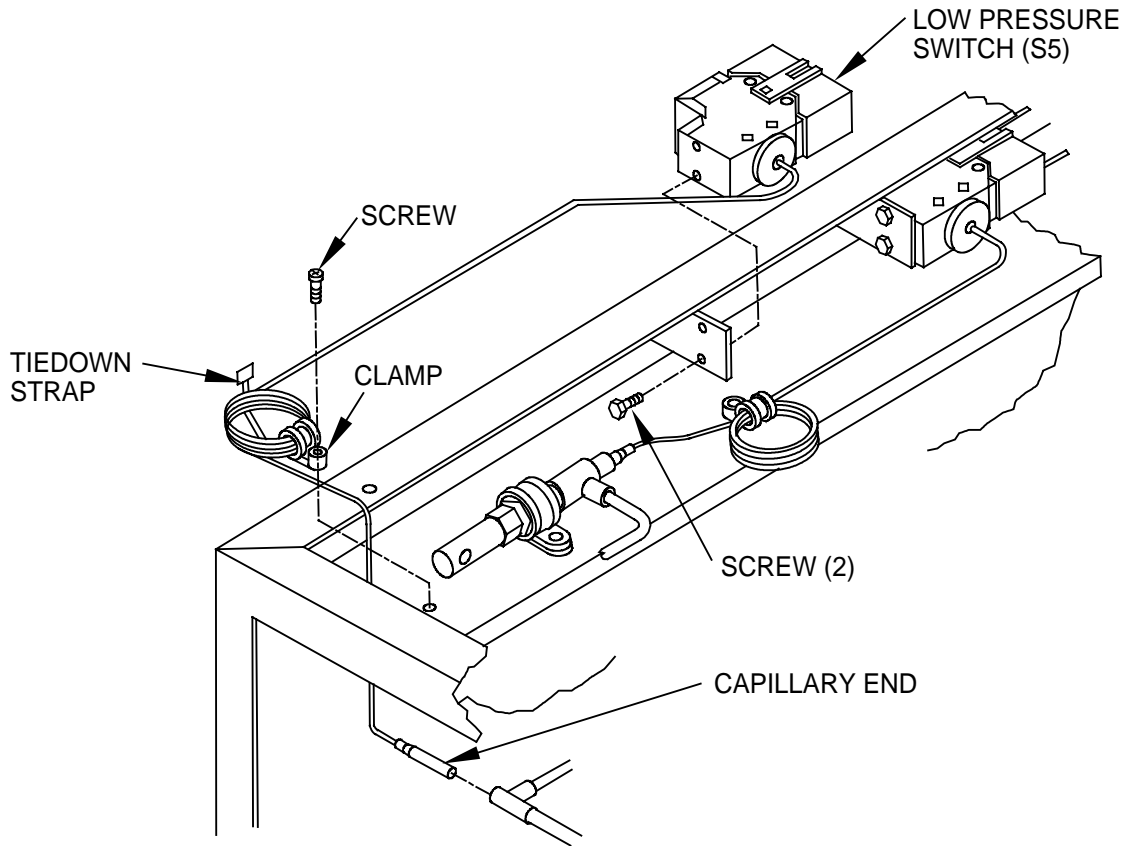
Left end condenser cover removed. (See WP0045).

INSPECTION OF INSTALLED ITEMS

- 1 Check that mounting screws and terminal attachment screws are in place and secure. Tighten if loose. Replace if missing.
- 2 Check that capillary line is not kinked, mashed, or broken. Replace switch if capillary line is damaged.

REMOVAL

Low Pressure Switch (S5).



- 1 Discharge the Refrigerant R-22 system per WP0070.
- 2 While purging the system with nitrogen, debraise the capillary end from the tube tee. (See WP0071 and WP0072).
- 3 Using a screwdriver, remove the screw and clamp from the coil of capillary tubing.
- 4 Tag and disconnect the two leads.
- 5 Using a screwdriver or wrench, remove two screws holding the pressure switch.
- 6 Remove the pressure switch.

INSTALLATION

- 1 Position pressure switch on bracket and align holes.
- 2 Using screwdriver or wrench, secure the pressure switch to bracket with two screws.

- 3 See tags, wire marking, and wiring diagram and connect leads.
- 4 Remove tags.
- 5 Carefully form and position capillary tubing. Coil excess capillary tubing in three loops located at clamp attachment point.
- 6 While purging the system with nitrogen, braze the capillary end into the tube tee.
- 7 Using screwdriver, secure the capillary loops with a screw and clamp and three equally spaced tiedown straps.
- 8 Replace the dehydrator. (See WP0080).
- 9 Leak test all newly connected joints and those in the repair area. (See WP0073).
- 10 Evacuate and charge the Refrigerant R-22 system. (See WP0074 and WP0075).
- 11 Install top condenser cover. (See WP0044).
- 12 Install left end condenser cover. (See WP0045).
- 13 Install air conditioner on shelter. (See WP0006).
- 14 Connect power.

TESTING

Use a continuity tester or multimeter to check for continuity between terminals 1 and 2 on switch. If there is continuity, the switch is properly closed. If no continuity is found, switch must be replaced.

END OF TASK

PRESSURE RELIEF VALVE

0087 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
Removal
Installation

Tools and Special Tools
Screwdriver
Wrench

Materials/Parts
Antiseize Tape MIL-T-27730, size 1
Dehydrator MS35845-1
Pressure Relief Valve 13211E8369

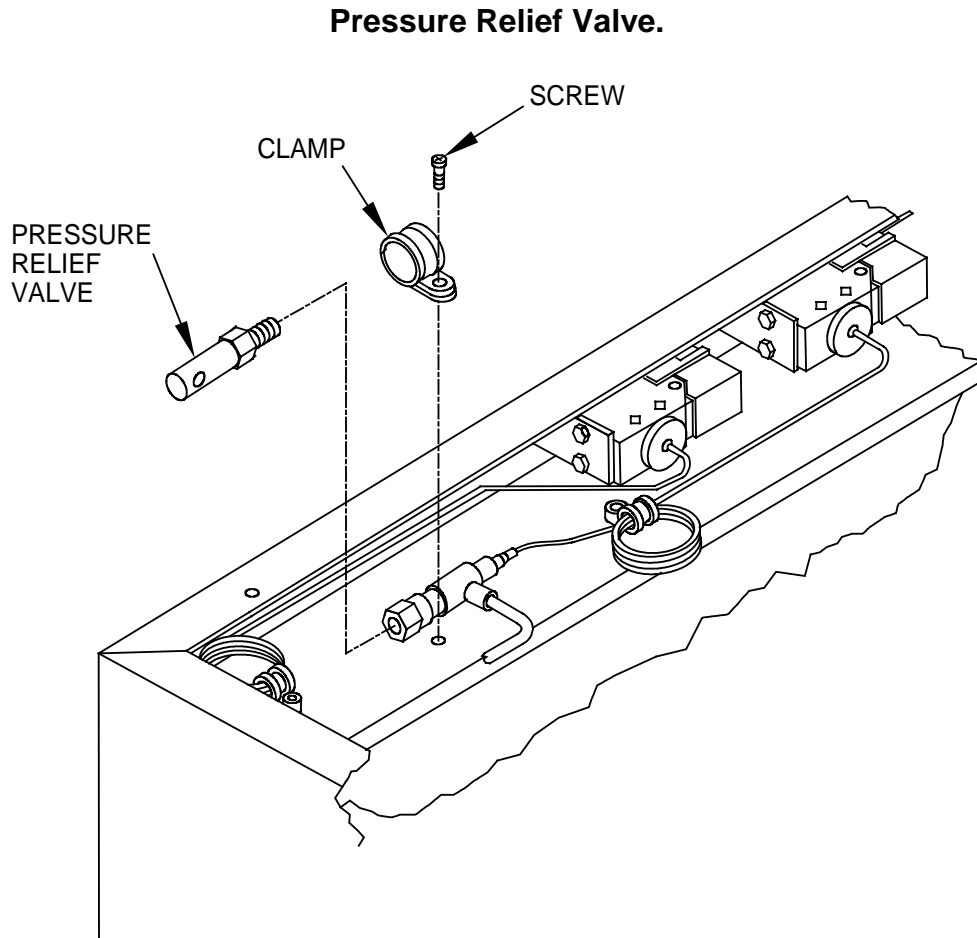
Personnel Required
Direct Support Technician

Equipment Conditions
Power disconnected.
Top condenser cover removed. (See
WP0044).

INSPECTION OF INSTALLED ITEMS

- 1 Check for evidence of leakage. Leak test per WP0073, if leak is suspected.
- 2 Check that mounting is secure.

REMOVAL



- 1 Discharge the Refrigerant R-22 system per WP0070.
- 2 Using screwdriver, remove screw and clamp from top of coil housing.
- 3 Use two wrenches. Hold fitting so that it is not twisted, and unscrew pressure relief valve.

INSTALLATION

- 1 Apply antiseize tape to threads of valve.
- 2 Use two wrenches. While holding adapter fitting, screw pressure relief valve in place.
- 3 Using screwdriver, secure relief valve adapter with screw and clamp.
- 4 Replace the dehydrator. (See WP0080).
- 5 Leak test all newly connected joints and those in the repair area. (See WP0073).

- 6 Evacuate and charge the Refrigerant R-22 system. (See WP0074 and WP0075).
- 7 Install top condenser cover. (See WP0044).
- 8 Connect power.

END OF TASK

SERVICE VALVES, CAP AND CHAIN

0088 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
Removal
Installation

Tools and Special Tools
Screwdriver
Wrench
Pliers
Hammer
Punch

Materials/Parts

Valve, Service	13221E9098
Cap and Chain	13219E9540
Dehydrator	MS35845-1

Personnel Required
Direct Support Technician

Equipment Conditions
Power disconnected.
Right end condenser cover removed. (See WP0045).
Condenser section electrical module assembly removed. (See WP0051).

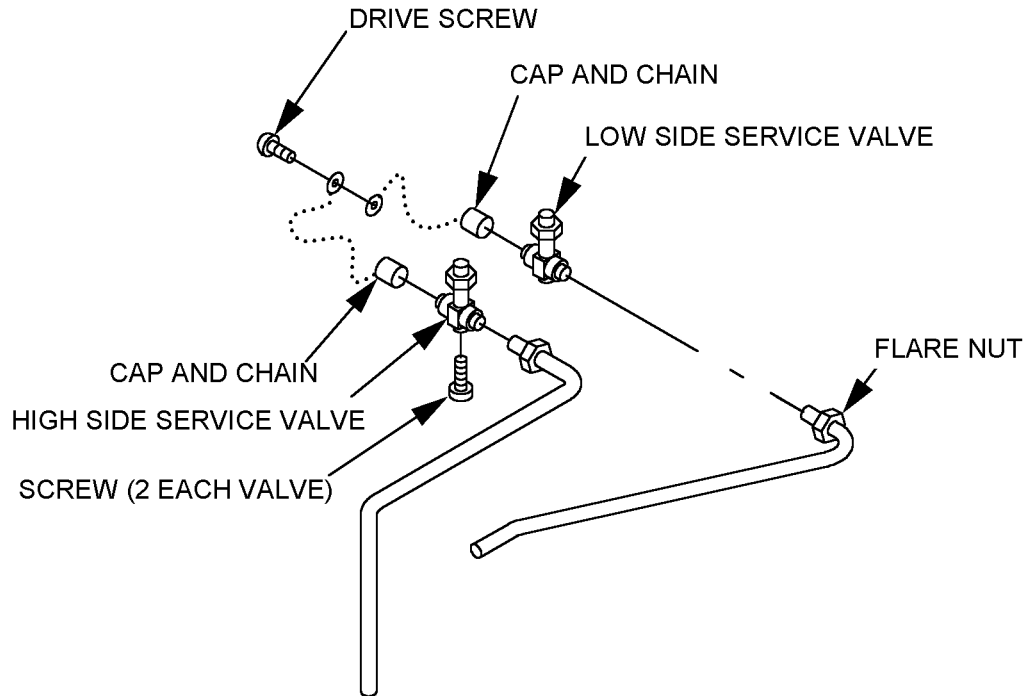
INSPECTION OF INSTALLED ITEMS

- 1 Examine LOW SIDE and HIGH SIDE service valves and caps for clean threads.
- 2 If dirty, male flare connections and threads should be cleaned. Protective caps should be screwed on.

- 3 Missing caps or caps with broken or missing chains should be replaced.

REMOVAL

LOW SIDE and HIGH SIDE Service Valves.



- 1 Using pliers remove drive screw. This screw retains both chains.
- 2 Unscrew and remove cap(s) from service valve.
- 3 To remove HIGH SIDE or LOW SIDE service valves, discharge the Refrigerant R-22 system. (See WP0070).
- 4 Using wrench, disconnect the flare nut from the back of the valve.
- 5 Using screwdriver, remove two screws that hold valve to condenser housing.
- 6 Remove valve.

INSTALLATION

- 1 Place service valve on condenser housing and align screw holes.
- 2 Apply locking compound to screw threads.

- 3 Using screwdriver, install service valve with two screws.
- 4 Using wrench connect and tighten flare nut to back of valve.
- 5 Replace the dehydrator. (See WP0080).
- 6 Leak test the newly connected joints and all connections in those areas. (See WP0073).
- 7 Evacuate and charge the system. (See WP0074 and WP0075).
- 8 Screw cap(s) in place on service valve(s).
- 9 Using hammer and punch, secure both chains to air conditioner housing with drive screw.
- 10 Install right end condenser cover. (See WP0045).
- 11 Install condenser section electrical module assembly. (See WP0051).
- 12 Connect power.

END OF TASK

CONTROL, HEAD PRESSURE

0089 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
Removal
Installation

Tools and Special Tools
Screwdriver
Wrench
Brazing Torch

Materials/Parts	
Nitrogen	6830-00-292-0732
Dehydrator	MS35845-1
Control, Head Pressure	HPST3B

Personnel Required
Direct Support Technician

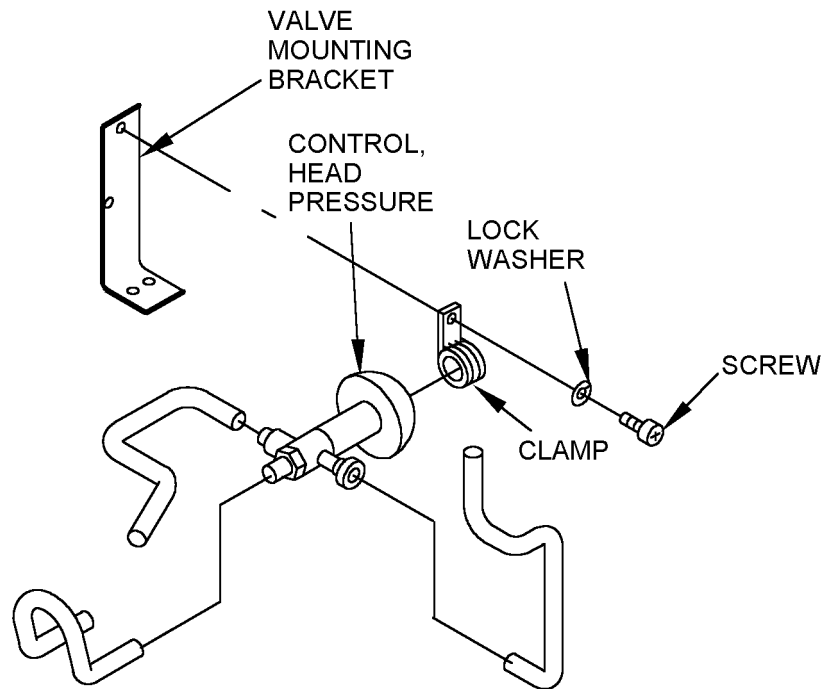
Equipment Conditions
Power disconnected.
Air conditioner removed from shelter. (See WP0006).
Right and left end condenser covers removed. (See WP0045).

INSPECTION OF INSTALLED ITEMS

- 1 Inspect for evidence of leaks.
- 2 If a leak is suspected or indicated, test per WP0073.

REMOVAL

Control, Head Pressure.



- 1 Using screwdriver and wrench, remove the screw, lockwasher, and clamp that secures control to the valve mounting bracket.
- 2 Discharge the Refrigerant R-22 system per WP0070.
- 3 Wrap wet rags around control body, if it is to be reinstalled.
- 4 While purging the system with nitrogen, debraze the tubing. (See WP0071 and WP0072).
- 5 Remove control from unit.

INSTALLATION

- 1 Position control in unit.
- 2 Wrap wet rags around control body.
- 3 While purging the system with nitrogen, braze the tubing joints.
- 4 Replace the dehydrator. (See WP0080).
- 5 Secure control to valve mounting bracket with screw, lockwasher, and clamp.

- 6 Leak test all newly connected joints and those in the repair area. (See WP0073).
- 7 Evacuate and charge the Refrigerant R-22 system. (See WP0074 and WP0075).
- 8 Install left and right end condenser covers. (See WP0045).
- 9 Install air conditioner on shelter. (See WP0006).
- 10 Connect power.

END OF TASK

TUBING AND FITTINGS (CONDENSER ASSEMBLY)

0090 00

THIS WORK PACKAGE COVERS:

Repair or Replacement

Tools and Special Tools
Brazing Torch

Materials/Parts

Nitrogen 6830-00-292-0732

Dehydrator MS35845-1

Personnel Required

Direct Support Technician

Equipment Conditions

Air conditioner removed from shelter (See
WP0006)Covers and parts removed as necessary to
access repair area.**REPAIR OR REPLACEMENT**

- 1 The condenser assembly contains a number of pieces of copper tubing in a variety of material grades, sizes, lengths, and shapes and a number of elbows, tees, and adapters. Observe the following when replacing any piece of tubing in the system.

WARNING

Be sure the refrigeration system is fully discharged and purged, and that dry nitrogen is flowing through the system at a rate of less than 1-2 cfm (0.028 - 0.057 cubic meters/minute) before brazing or debrazing operations.

- 2 Replace tubing and fittings only with equal material, grade, size, length, and shape as the item removed.

- 3 Leak test the entire refrigeration system in accordance with WP0073 after any replacement action that required brazing.
- 4 Replace the dehydrator and leak test the dehydrator flare fittings as the final step in any maintenance action that required the Refrigerant R-22 pressure system to be opened.
- 5 Evacuate and charge the refrigeration system in accordance with WP0074 and WP0075 after all other maintenance actions are completed.
- 6 Install air conditioner on shelter. (See WP0006.)

END OF TASK

FLEXIBLE HOSE ASSEMBLY SUCTION AND DISCHARGE

0091 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items

Removal

Disassembly

Installation

Adjustment

Testing

Tools and Special Tools

Knife

Wrench

Brazing Torch

Materials/Parts

Hose Assy, Discharge SP3915

Hose Assy, Suction SP3916

Dehydrator MS35845-1

Personnel Required

Direct Support Technician

Equipment Conditions

Power disconnected.

Top condenser cover removed. (See
WP0044).Left end condenser cover removed. (See
WP0045).

Access cover removed. (See WP0024).

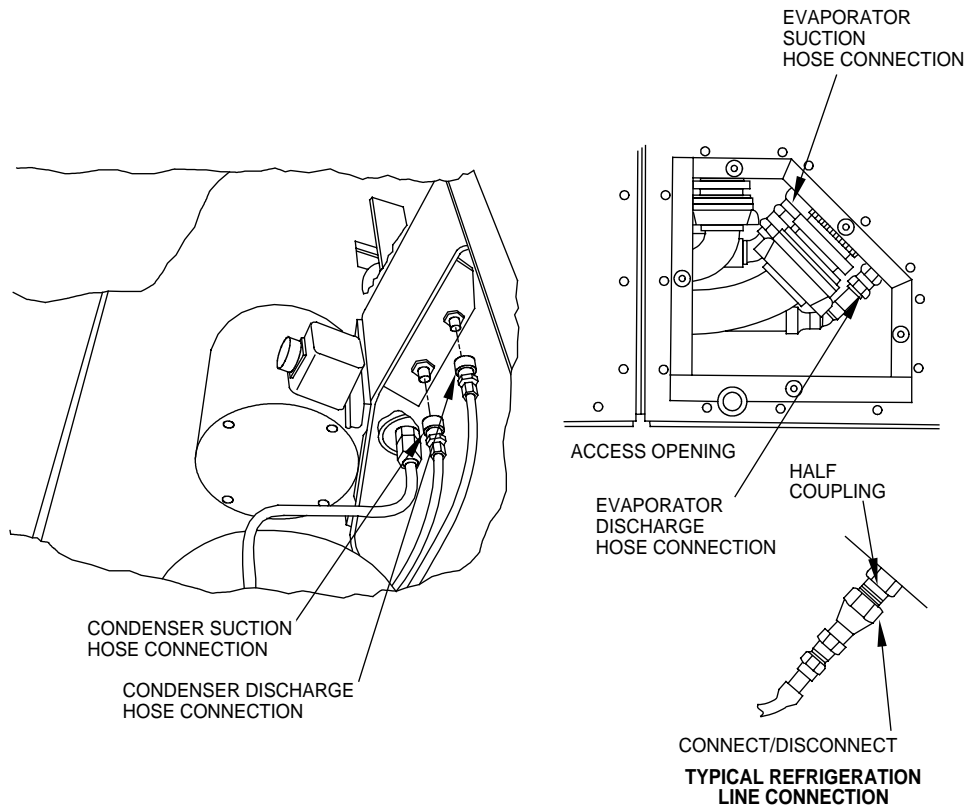
INSPECTION OF INSTALLED ITEMS

1 Check for evidence of leaks.

- 2 Check that metal hose, tubing and fittings are not kinked, dented, or cracked. Repair or replace if damaged.
- 3 Leak test in accordance with WP0073, if leak is indicated or suspected.

REMOVAL

Flexible Hose Connection Points.



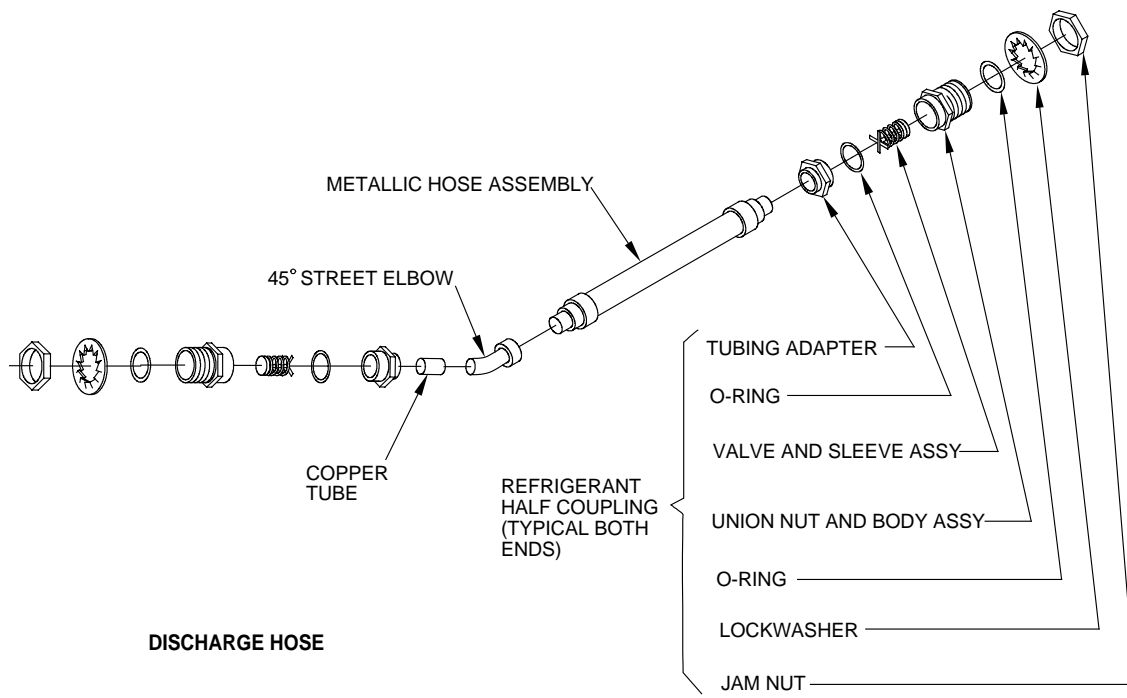
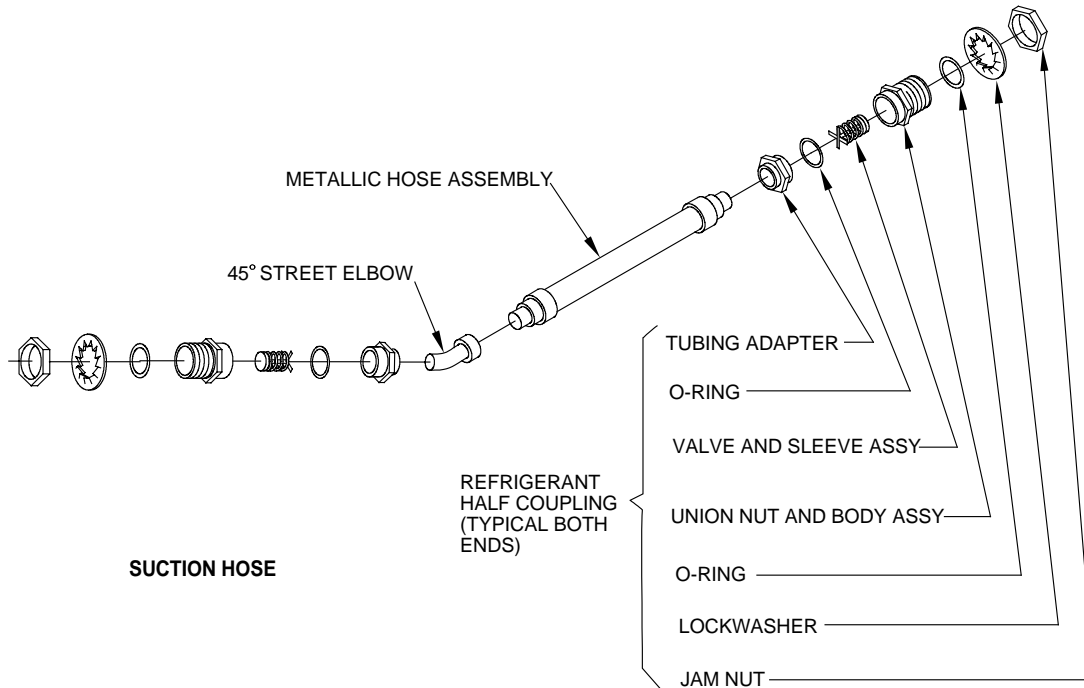
NOTE

If a complete flexible hose assembly is to be replaced, it is not necessary to discharge the Refrigerant R-22 system unless reason for replacement is a leak in hose.

- 1 Using wrench, loosen and disconnect hose end at evaporator assembly through access opening.
- 2 Using knife, cut and remove the two joined tie down straps that secure hoses to compressor junction box.
- 3 Using wrench, loosen and disconnect hose end at condenser assembly located on motor mounting bracket.
- 4 Carefully remove hose from air conditioner.

DISASSEMBLY

Suction and Discharge Hoses.



- 1 Discharge the Refrigerant R-22 system. (See WP0070).
- 2 Remove the hose from the air conditioner. See REMOVAL.
- 3 Use two wrenches. Using one wrench to hold the tubing adapter, carefully remove the union nut and body assembly.
- 4 Remove the two O-rings, valve, and sleeve assembly.
- 5 If the opposite end coupling is damaged, or if any debrazing is to be done, repeat steps (3) and (4) and remove half coupling from opposite end.
- 6 If metallic hose, copper tube (discharge hose only), 45-degree street elbow, or tubing adapters are damaged, see WP0072 and debraze parts to be replaced.
- 7 If metallic hose, copper tube (discharge hose only), 45-degree street elbow, or tubing adapters are being replaced, clean all joints and braze parts per WP0072.
- 8 Oil O-rings liberally with refrigerant oil. This will prevent them from scuffing and tearing when assembled.
- 9 Place smaller O-ring on valve and sleeve assembly and larger O-ring on tubing adapter.
- 10 Slip the valve and sleeve assembly with O-ring into the body.
- 11 Using a wrench to hold the tubing adapter, tighten the union nut and body assembly and torque to: Suction Hose - 35-45 foot pounds (48-61 newton-meters), Discharge Hose - 15-20 foot pounds (20-27 newton-meters).
- 12 Install the hose in the air conditioner.
- 13 Replace the dehydrator. (See WP0080).
- 14 Leak test the hose, dehydrator and joints in the repair area. (See WP0073).
- 15 Evacuate and charge the Refrigerant R-22 system in accordance with WP0074 and WP0075.
- 16 Install access cover. (See WP0024).
- 17 Install left end condenser cover. (See WP0045).
- 18 Install top condenser cover. (See WP0044).
- 19 Connect power.

INSTALLATION

NOTE

If a complete factory assembled hose assembly is installed, it is not necessary to evacuate and charge the Refrigerant R-22 system, if the half couplings closed properly and the charge was not lost.

- 1 Position the new hose assembly in the air conditioner.
- 2 Using wrench, connect the condenser end hose fitting to half coupling at condenser fan motor mounting bracket.
- 3 Using wrench, connect the evaporator end hose fitting to half coupling at access opening in evaporator assembly.
- 4 Secure hoses to compressor junction box with two joined tie down straps.

END OF TASK

COUPLING HALF, MALE (CONDENSER REFRIGERANT R-22 PIPING DISCONNECT)

0092 00

THIS WORK PACKAGE COVERS:

Repair or Replacement
Test and Inspection
Installation

Tools and Special Tools
Wrench
Brazing Torch

Materials/Parts

Coupling Half, Male 5401-S17-10-12
Coupling Half, Male 5401-S17-6-8
Dehydrator MS35845-1

Personnel Required
Direct Support Technician

Equipment Conditions

Air conditioner removed from shelter. (See WP0006).

Evaporator and condenser section assemblies separated. (See WP0014).

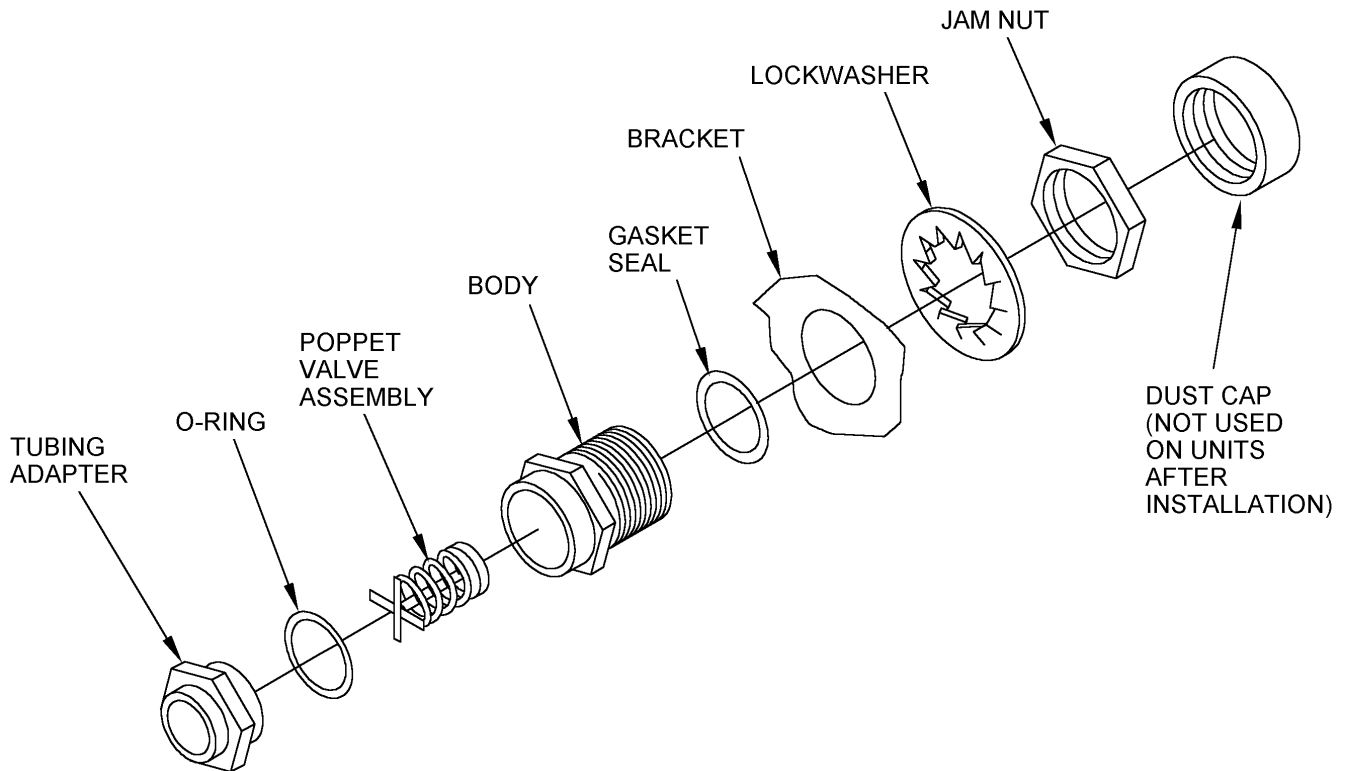
Front condenser cover removed. (See WP0044).

REPAIR OR REPLACEMENT

NOTE

The coupling half fittings (hose disconnect fittings) used for joining the interconnecting Refrigerant R-22 metal hoses, contain a poppet valve assembly to prevent Refrigerant R-22 loss and to keep air from entering the line when hoses are disconnected. The following instructions apply to both the suction (low pressure) and discharge (high pressure) couplings.

Male Coupling Half



- 1 All repairs other than tightening of screw joints will require disassembly and replacement of some parts. When the half couplings are disassembled for any reason, the O-rings and gaskets should be replaced.
- 2 Discharge the Refrigerant R-22 system. (See WP0070).
- 3 Using wrench, carefully disconnect the suction and discharge condenser to evaporator Refrigerant R-22 metal hose line connectors from the coupling halves.
- 4 Using wrench, remove the jam nut.

- 5 Carefully spring the tubing back enough to gain access to the hexes on the body and tubing adapter.
- 6 Use two wrenches. Using one wrench to hold the tubing adapter, carefully remove the valve body. Carefully spring tubing back enough to remove the half coupling body, the poppet valve assembly, the O-ring, and the gasket seal.
- 7 Inspect the tubing adapter for cracks and damaged threads. If defective, note position of tubing adapter and hex. Debraze the tubing adapter in accordance with instructions in WP0072.

TEST AND INSPECTION

- 1 Leak test in accordance with WP0073.
- 2 Check couplings for cracks, breaks, loose connections, and evidence of leakage. Repair or replace defective parts.

INSTALLATION

- 1 If the tubing adapter was removed, braze a new one in place in original position in accordance with instructions in WP0072.
- 2 Oil O-ring liberally with refrigerant oil. This will prevent it from scuffing and tearing when coupling body is threaded into adapter.
- 3 Place O-ring on tubing adapter.
- 4 Insert poppet valve assembly into body.
- 5 Carefully engage the threads of the body and tubing adapter.
- 6 Use two wrenches. Use one wrench to hold the tubing adapter and the other to tighten the half coupling body to: suction line (larger) 35-45 foot-pounds (48-61 newton-meters), discharge line (smaller) 15-20 foot-pounds (20-27 newton-meters).
- 7 Slip the gasket seal over the threaded body end and place body threaded end through the bracket.
- 8 Using a wrench, tighten jam nut.
- 9 Using wrench, carefully reconnect the suction and discharge condenser to evaporator Refrigerant R-22 metal hose line connectors to the coupling halves.
- 10 Replace the dehydrator. (See WP0080).
- 11 Leak test the coupling halves, the dehydrator, and joints in the repair area in accordance with WP0073.

- 12 Evacuate and charge the Refrigerant R-22 system in accordance with WP0074and WP0075.
- 13 Install front condenser cover. (See WP0044).
- 14 Connect evaporator and condenser section assemblies. (See WP0014).
- 15 Install air conditioner on shelter. (See WP0006).

END OF TASK

SOLENOID VALVES (L1 AND L2)

0093 00

THIS WORK PACKAGE COVERS:

Removal
Repair or Replacement
Test and Inspection
Installation

Tools and Special Tools
Screwdriver
Wrench
Multimeter
24VDC External power supply
Brazing torch

Materials/Parts

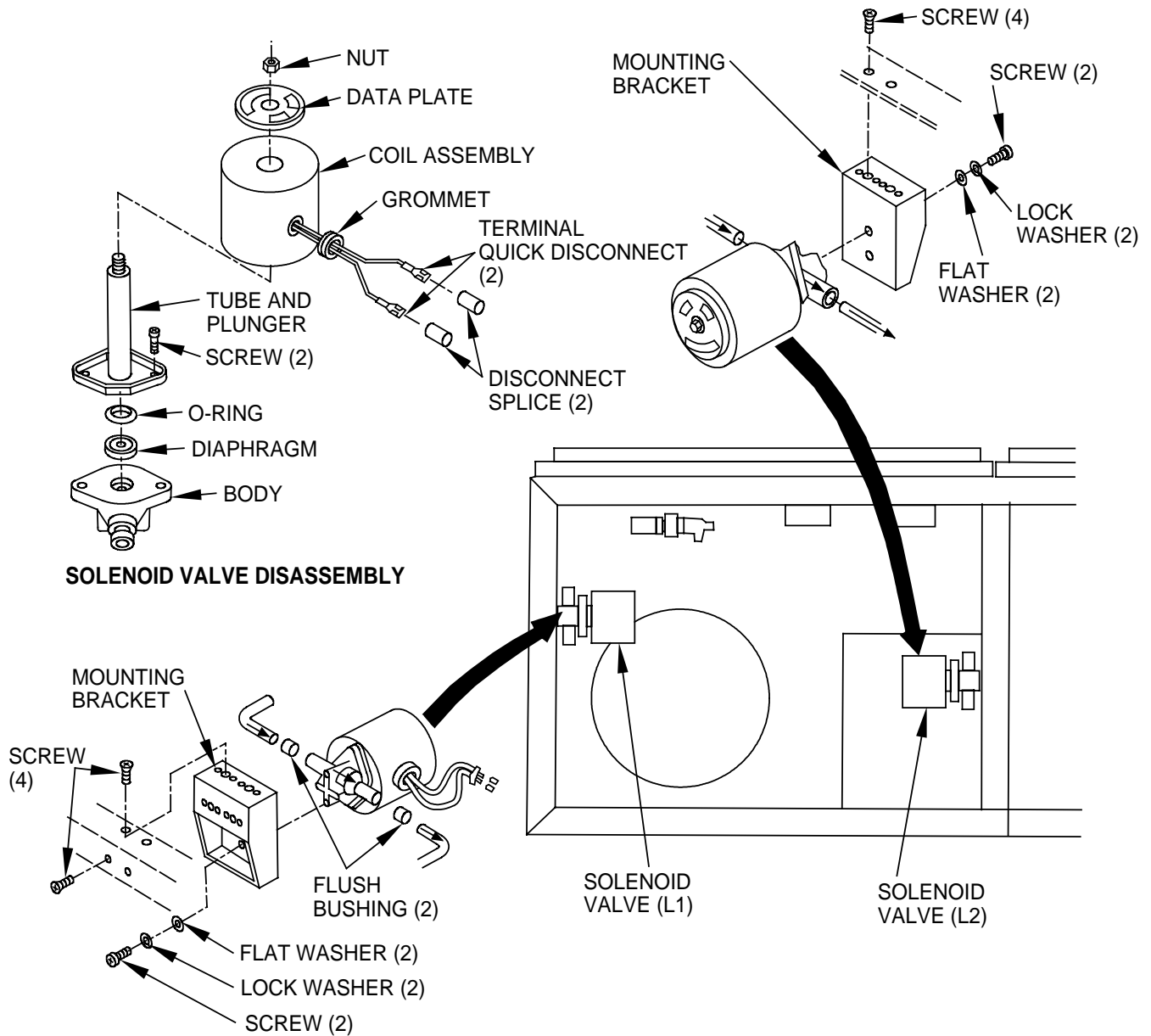
Nitrogen	6830-00-292-0732
Coil & Housing	13216E6158
Dehydrator	MS35845-1

Personnel Required
Direct Support Technician

Equipment Conditions
Power disconnected.
Top condenser cover removed. (See WP0044).
Left end condenser cover removed. (See WP0045).

REMOVAL

Solenoid Valves (L1 and L2).



- 1 Discharge and purge the refrigeration system per WP0070 and WP0071.
- 2 Disconnect the two leads at the disconnect splices.
- 3 Using wrench, remove the top nut that attaches the coil to the valve body.
- 4 Lift the coil assembly and data plate from the body tube and plunger assembly.

- 5 If the grommet is to be reused, remove it from the coil assembly.
- 6 Be sure that the Refrigerant R-22 has been discharged.
- 7 Remove the two screws that attach the tube and plunger assembly to the valve body, remove the tube and plunger assembly, and then all other removable internal components from the valve body.
- 8 While purging system with nitrogen, debraze the tubing from the body. See WP0071 and WP0072.

NOTE

Note the arrow direction of flow on valve body.

- 9 Using screwdriver, remove two screws, lockwashers, and flat washers and remove the valve body.

REPAIR OR REPLACEMENT

NOTE

The coil can be replaced without opening the refrigeration pressure system.

WARNING

Do not attempt any disassembly of the solenoid valve other than coil removal with a Refrigerant R-22 charge in the system. Refrigerant R-22 will be sprayed out dangerously if the screws that attach the tube and plunger assembly to the valve body are loosened.

- 1 Disconnect the two leads at the disconnect splices.
- 2 Using wrench, remove the top nut that attaches the coil to the valve body.
- 3 Lift the coil assembly and data plate from the body tube and plunger assembly.
- 4 If the grommet is to be reused, remove it from the coil assembly.
- 5 To install replacement coil, remove and discard grommet supplied with coil.
- 6 Install replacement grommet.
- 7 Cut solenoid valve coil leads to 6.00 plus or minus 0.25 inches (15.24 plus or minus 0.63 cm) long.
- 8 Install quick disconnect terminal lugs on end of both leads.

- 9 Slip the coil assembly and data plate on to the body tube and plunger assembly.
- 10 Using wrench, secure the coil with a nut.
- 11 Connect leads to disconnect splices.

TEST AND INSPECTION

WARNING

Disconnect input power from the air conditioner before performing maintenance on any part of the electrical system. The voltages used can be lethal. Shutting the unit off at the control module does not disconnect power to the various components of the air conditioner.

NOTE

The following basic instructions apply to both the equalizing solenoid L1 and the liquid line solenoid L2.

- 1 Disconnect the solenoid valve leads at the quick disconnect terminals.
- 2 Use multimeter set on the lowest ohms scale to check for resistance between leads. If resistance is not between 40 and 70 ohms, the coil is bad and must be replaced.
- 3 Use multimeter to check for continuity between each lead and the coil casing. If continuity is found between either lead and the case, the coil is grounded and should be replaced.
- 4 If resistance checks are satisfactory, apply 24 volts dc from an external power supply across the leads and listen for a sharp click when the valve changes position. If a click is not heard, internal valve problems are indicated and the entire valve should be replaced.

INSTALLATION

- 1 Disassemble all removable components from the new valve.

NOTE

Step (2) applies only to the L1 solenoid valve.

- 2 Install the flush bushings in the valve body.
- 3 Position the valve body in the unit. See arrow on valve body for proper installation.
- 4 Purge system with nitrogen and braze joints. See WP0071 and WP0072.

- 5 Apply locking compound to solenoid valve mounting screw threads.
- 6 Using screwdriver, secure valve body to mounting bracket with two screws, lockwashers, and flat washers.
- 7 Reassemble the internal components in the valve body and install the tube and plunger assembly, and two attaching screws.
- 8 Remove and discard grommet supplied with coil.
- 9 Install replacement grommet in coil.
- 10 Cut solenoid valve coil leads to 6.00 plus or minus 0.25 inches (15.24 plus or minus 0.63 cm) long.
- 11 Install quick disconnect terminal lugs on ends of both leads.
- 12 Slip the coil assembly and data plate onto the body tube and plunger assembly.
- 13 Using wrench, secure the coil with a nut.
- 14 Connect leads to disconnect splices.
- 15 Replace the dehydrator. (See WP0080).
- 16 Leak test all newly connected joints and all tube connections in the area. (See WP0073).
- 17 Evacuate and charge the Refrigerant R-22 system in accordance with WP0074 and WP0075.
- 18 Install left end condenser cover. (See WP0045).
- 19 Install top condenser cover. (See WP0044).
- 20 Connect power.

END OF TASK

MOUNTING BRACKETS, SOLENOID VALVES

0094 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
Removal
Repair or Replacement
Installation

Tools and Special Tools
Screwdriver

Materials/Parts
Mounting Bracket 13221E9088

Personnel Required
Direct Support Technician

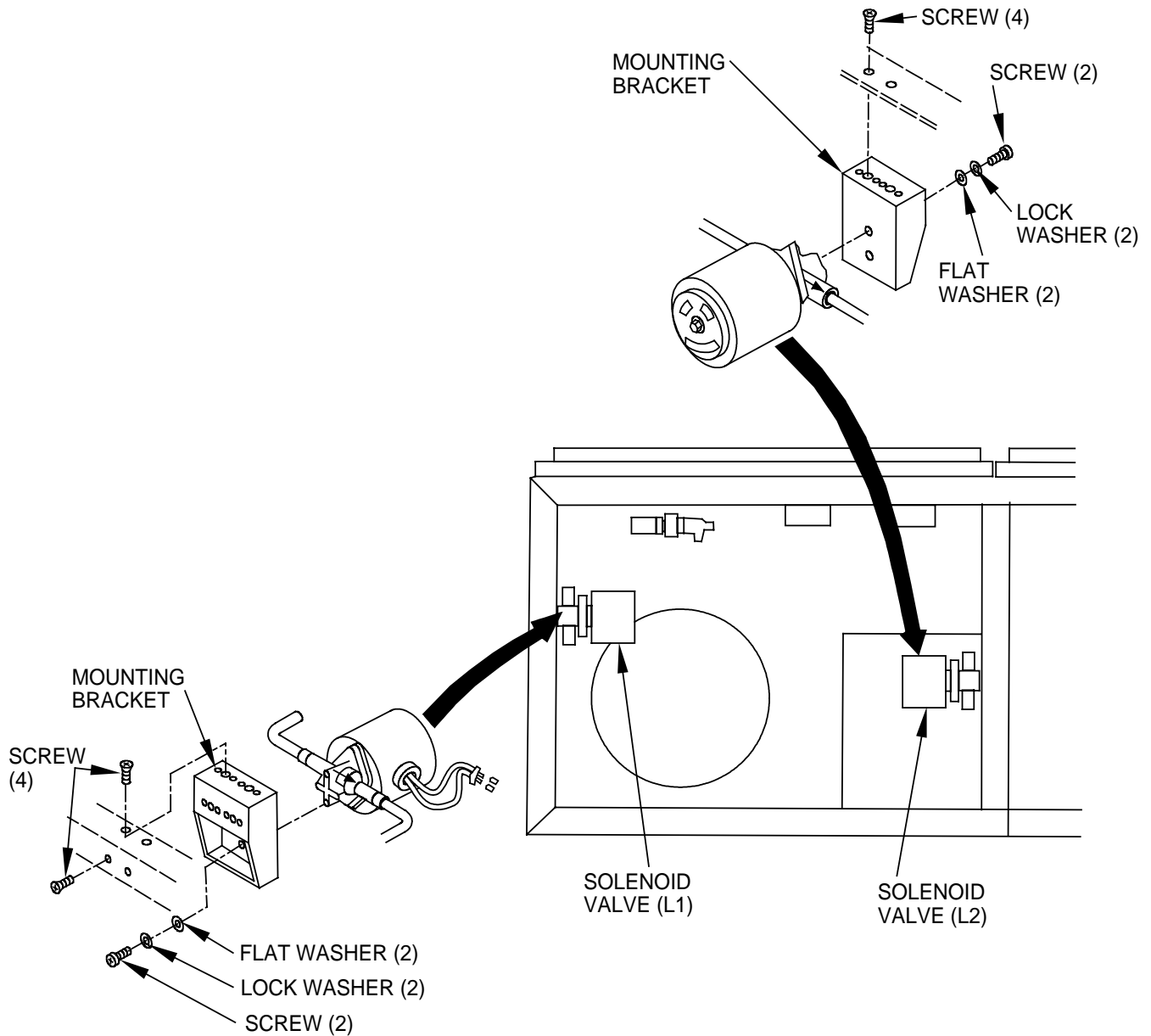
Equipment Conditions
Power disconnected.
Top condenser cover removed. (See
WP0044).
Left end condenser cover removed. (See
WP0045).

INSPECTION OF INSTALLED ITEMS

- 1 Check that brackets are not cracked, bent, broken, or badly dented. Replace if damaged.
- 2 Check that plate nuts are in place and secure. Replace them if they are loose or damaged.

REMOVAL

Mounting Brackets, Solenoid Valves.



- 1 Using screwdriver, remove two screws, lockwashers, and flat washers that attach solenoid valve.
- 2 Using screwdriver, remove four screws that attach bracket to housing.
- 3 Slip bracket out of air conditioner.

REPAIR OR REPLACEMENT

- 1 Repairs are limited to replacement of rivets and plate nuts.
- 2 Plate nuts may be removed by drilling out the old rivet using a drill bit slightly smaller than the diameter of the rivet.
- 3 Install new plate nut(s) and rivets.

INSTALLATION

- 1 Position bracket in unit and align holes.
- 2 Using screwdriver, secure bracket to housing with four screws.
- 3 Apply locking compound to solenoid valve mounting screw threads.
- 4 Using screwdriver, secure the solenoid valve to the bracket with two screws, lockwashers, and flat washers.
- 5 Install left condenser cover. (See WP0045).
- 6 Install condenser top cover. (See WP0044).
- 7 Connect power.

END OF TASK

CONDENSER COIL

0095 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
Removal
Cleaning
Repair or Replacement
Installation

Tools and Special Tools
Screwdriver
Brazing Torch

Materials/Parts

Nitrogen	6830-00-292-0732
Condenser Coil	13219E9507
Dehydrator	MS35845-1

Personnel Required
Direct Support Technician

Equipment Conditions

Top condenser cover removed. (See WP0044).

Condenser guard and condenser inlet EMI screen removed. (See WP0046).

INSPECTION OF INSTALLED ITEMS

- 1 Check for accumulated dirt. Clean if an accumulation of dirt is evident.
- 2 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

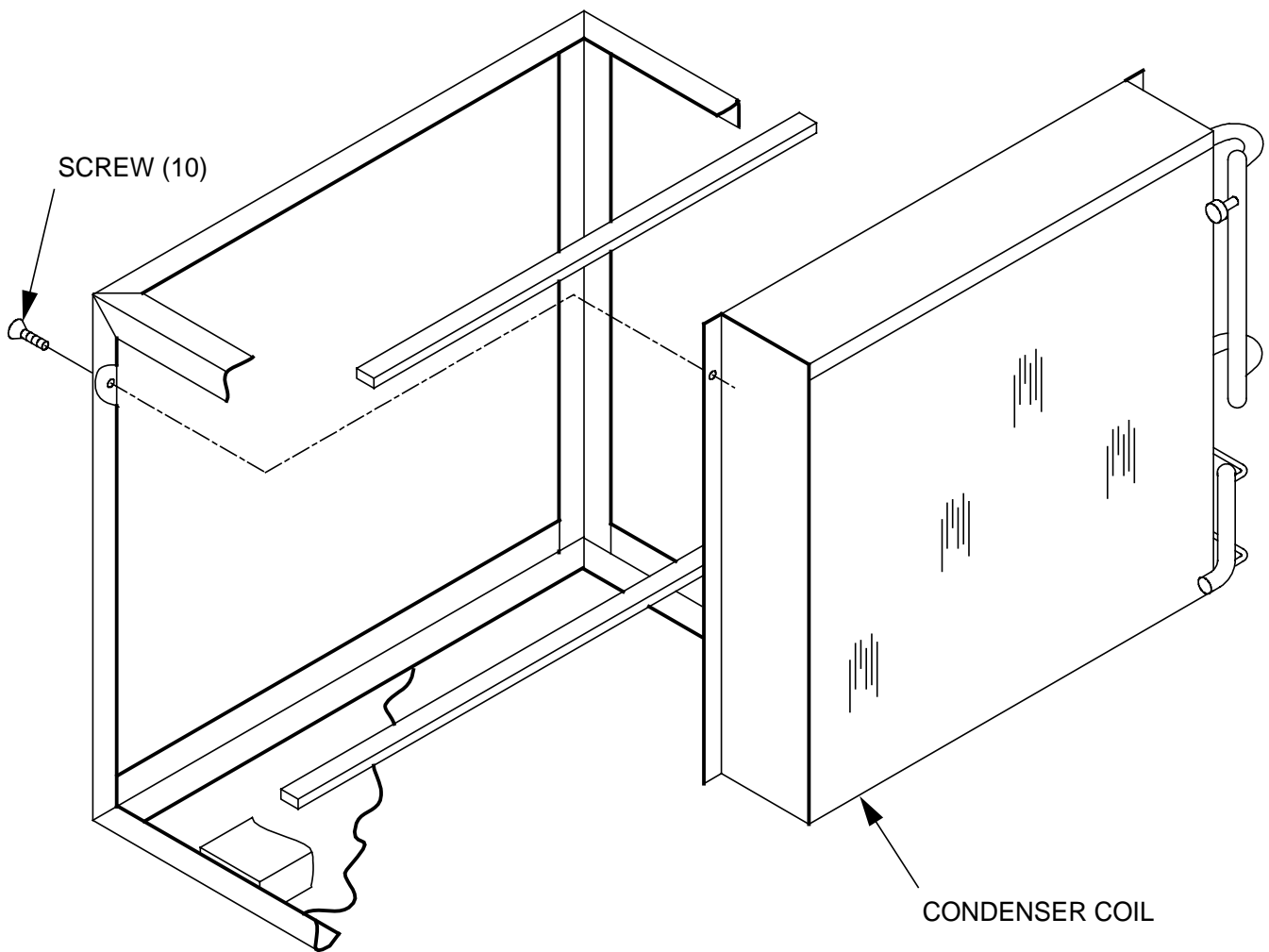
Compressed air used for cleaning purposes will not exceed 30 psi (2.1 kg/square centimeter). Do not direct compressed air against the skin. Use goggles or full-face shield.

CAUTION

Do not use steam to clean coil.

REMOVAL

Condenser Coil.



- 1 Remove air conditioner from shelter. (See WP0006).
- 2 Remove right and left end condenser covers. (See WP0045).

- 3 Discharge the Refrigerant R-22 system per WP0070.

NOTE

Wrap wet rags near joints being brazed. Use tape to cover open joints.

- 4 Remove high-pressure switch. (See WP0085).
- 5 Remove low-pressure switch. (See WP0086).
- 6 Remove compressor. (See WP0097).
- 7 Remove solenoid valve L1, bracket, and related piping. (See WP0093 and WP0094).
- 8 Remove relief valve and related piping. (See WP0087).
- 9 While purging the system with nitrogen, debraze the remaining tubing from the coil and area of the coil. (See WP0071 and WP0072).
- 10 Using screwdriver, remove the ten screws that attach the coil to the housing.

WARNING

When handling coils, wear gloves to avoid cuts and reduce fin damage on the coil.

- 11 Carefully tilt coil and remove from left end.

CLEANING

Clean coil with a soft bristled brush, vacuum cleaner and brush attachment, or use compressed air at 30 psi or less from the inside of the coil 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.

REPAIR OR REPLACEMENT

- 1 Repairs are limited to replacement of nut plates, rivets, and the straightening of mashed fins.
- 2 Plate nuts may be removed by drilling out the old rivets using a drill bit slightly smaller than the diameter of the rivet.
- 3 Install new plate nut(s) and rivets.
- 4 If fins are mashed or dented so that the airflow across the coil would be blocked, straighten them using a plastic fin comb.

INSTALLATION

WARNING

When handling coils, wear gloves to avoid cuts and reduce fin damage on the coil.

- 1 Carefully tilt coil and place into position in housing, through left end.
- 2 Using screwdriver, secure coil to housing with ten screws.
- 3 No air passage is permitted at top or bottom of condenser coil. Seal these areas with insulation. Bond the insulation in place with adhesive.
- 4 While purging the system with nitrogen, braze the tubing joints. (See WP0071 and WP0072).
- 5 Install the following components:
 - 6 Solenoid valve (L1), bracket, and related piping per WP0093 and WP0094.
 - 7 Compressor per WP0097.
 - 8 Low pressure switch per WP0086.
 - 9 High pressure switch per WP0085.
 - 10 Relief valve and related piping per WP0087.
 - 11 Replace the dehydrator. (See WP0080).
 - 12 Check to be sure all tubing has been reconnected.
 - 13 Leak test all newly connected joints and those in the repair area. (See WP0073).
 - 14 Evacuate and charge the Refrigerant R-22 system. (See WP0074 and WP0075).
 - 15 Install condenser guard and condenser inlet EMI screen. (See WP0046).
 - 16 Install left and right end condenser covers. (See WP0045).
 - 17 Install top condenser cover. (See WP0044).
 - 18 Install air conditioner on shelter. (See WP0006).

END OF TASK

RUBBER MOUNTS, COMPRESSOR

0096 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items
Repair or Replacement

Tools and Special Tools
Socket wrench

Materials/Parts

Rubber Mount	008W200B-2
Mounting Sleeve	008W200B-1

Personnel Required

Direct Support Technician

Equipment Conditions

Air conditioner removed from shelter (See WP0006)

Top condenser cover removed. (See WP0044).

Left end condenser cover removed. (See WP0045).

INSPECTION OF INSTALLED ITEMS

- 1 Check to be sure that all compressor mounting hardware is in place. Replace missing parts.
- 2 Check that rubber mounts are not mashed, split, deformed, or missing. Replace if damaged or missing.

REPAIR OR REPLACEMENT

- 1 Using socket, extension, and ratchet, remove four cap screws, lockwashers, flat washers, and mounting sleeves from top of compressor mounting feet.

- 2 Replace rubber mounts that are under the compressor feet, one at a time.
- 3 Tilt compressor high enough to slide rubber mount out from under foot.

NOTE

The smaller diameter necked portion of the rubber mount goes toward compressor foot.

- 4 With the smaller diameter (necked portion) of the rubber mount up, slide the mount back under the compressor foot. The necked portion should fit into hole in compressor foot.
- 5 Repeat steps (3) and (4) above on remaining three rubber mounts if they are to be replaced.
- 6 Place four top mounting sleeves necked portion down into holes in compressor feet.
- 7 Using socket, extension, and ratchet, secure the compressor with four cap screws, lockwashers, and flat washers.
- 8 To obtain proper loading, tighten cap screw until contact is made with all parts. Then turn cap screw head 2-1/2 to 3-1/2 more turns.
- 9 Install left end condenser cover. (See WP0045).
- 10 Install top condenser cover. (See WP0044).
- 11 Install air conditioner on shelter (See WP0006).

END OF TASK

COMPRESSOR

0097 00

THIS WORK PACKAGE COVERS:

Repair or Replacement
Test and Inspection
Installation

Tools and Special Tools
Allen wrench
Wrench, socket
Multimeter

Materials/Parts
Compressor Assy EMC-30-434
Trichloromonofluoromethane (R-11) 6830-00-872-5120
Wire Assembly 008W200A

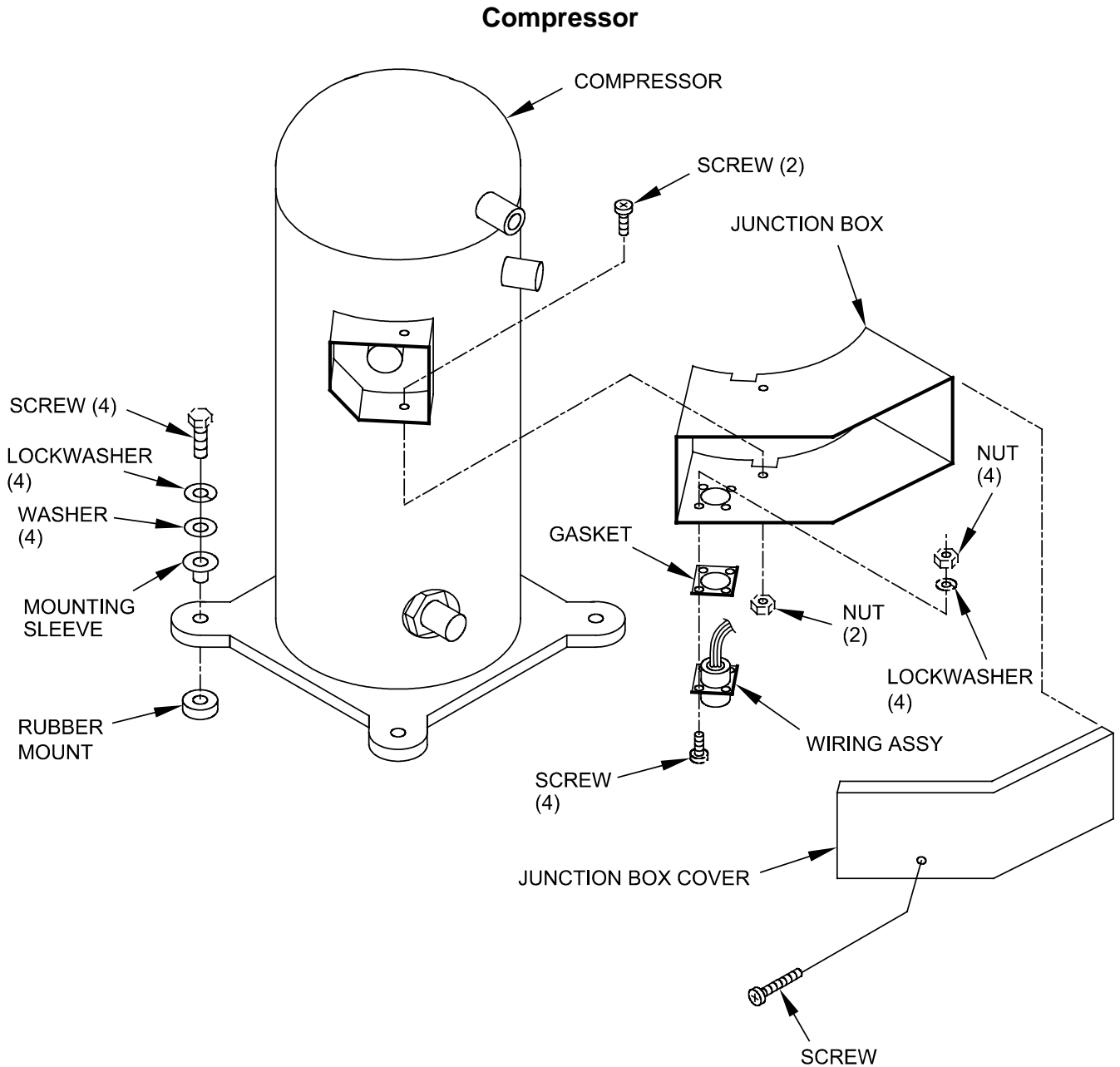
Personnel Required
Direct Support Technician

Equipment Conditions
Air conditioner removed from shelter. (See WP0006).
Top condenser cover removed. (See WP0044).
Left end condenser cover removed. (See WP0045).

NOTE

The compressor and motor assembly are hermetically sealed in a metal canister and cannot be repaired. The junction box and wire assembly are attached to the canister externally and may be replaced without opening the refrigeration pressure system.

REPAIR OR REPLACEMENT



- 1 To replace wire assembly (Refrigerant R-22 system discharge is not required), remove the screw and junction box cover.
- 2 Using screwdriver and socket wrench, remove four screws, lockwashers and nuts securing connector portion of wiring assembly to junction box.
- 3 Tag and unsolder wires from compressor connector and grounding points.
- 4 Remove wire assembly from underside.

- 5 Replace gasket if damaged.
- 6 Slip new wiring assembly up through hole in junction box and secure with four screws and nuts.
- 7 Solder wires to compressor and attach grounding points.
- 8 Secure the junction box cover to the compressor junction box with screw.
- 9 To replace compressor, check to see that the power has been disconnected at the power source and covers have been removed during access and testing, proceed as follows.
- 10 Discharge the Refrigerant R-22 system per WP0070.
- 11 While purging the system with nitrogen, debraze the tubing. (See WP0071 and WP0072).
- 12 Using socket, extension, and ratchet, remove four cap screws, lockwashers, and mounting sleeves from top of compressor mounting feet.
- 13 Spring tubing up and out of the way.

WARNING

If compressor burnout is suspected, use care when handling compressor to avoid touching compressor sludge. Acid in sludge can cause burns. Avoid inhaling fumes and burns from any acid formed by burnout of oil and Refrigerant R-22. 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 burnout sludge. If sludge is spilled, clean area thoroughly.

CAUTION

Compressor weighs 65 pounds (30 kg). Two-person lift is required.

- 14 Carefully slide compressor from housing through left end.
- 15 Check the compressor to see if a motor burnout is indicated.
- 16 After removal of a bad compressor from the refrigeration system, remove all external tubing and tip the compressor toward the discharge port to drain sample of oil into a clear glass container.
- 17 If the oil is clean and clear, and does not have a burnt acid smell, the compressor did not fail because of motor burnout. If a burnout is not indicated, proceed to compressor installation.
- 18 If the oil is black, contains sludge and has a burnt acid odor, the compressor failed because of motor burnout.

- 19 You must clean the entire refrigeration system after a burnout has occurred, since contaminants will have been carried to many corners and restrictions in the piping and fittings. These contaminants will soon mix with new Refrigerant R-22 gas and compressor oil to cause repeated burnouts.
- 20 Remove the filter-drier, and blow down each leg of the refrigeration system. To do this, connect a cylinder of dry-nitrogen to each filter-drier connection, in turn, and open the cylinder shutoff valve for at least 30 seconds at 50 psig (3.5 kg/square centimeter) pressure.
- 21 Connect the two filter-drier fittings with a jumper, locally manufactured from refrigerant tubing and fittings.
- 22 Clean system by back flushing with liquid R-11 from pressurized cylinder or circulating pump and reservoir with pressure of at least 100 psig.
- 23 If pump is used, connect the discharge line of the Refrigerant R-22 system to the discharge side of pump.
- 24 Connect a line containing a filter to the suction line in the unit.

NOTE

An unused filter-drier or other suitable medium may be used as the filter.

- 25 The other end of the temporary suction line should be connected to a small drum or suitable reservoir.
- 26 A line should be run from the bottom of the reservoir to the inlet of the pump.

WARNING

If compressor burnout is suspected, use care when handling compressor to avoid touching compressor sludge. Acid in sludge can cause burns. Avoid inhaling fumes and burns from any acid formed by burnout of oil and Refrigerant R-22. 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 burnout sludge. If sludge is spilled, clean area thoroughly.

- 27 Fill reservoir with fluorocarbon Refrigerant R-11, and start the pump. Continue filling the reservoir with Refrigerant, R-11, until it begins to pour out of the return line. Continue flushing for at least 15 minutes.
- 28 Reverse the pump connections, replace the filter with a new filtering medium, and back flush the system for an additional 15 minutes.

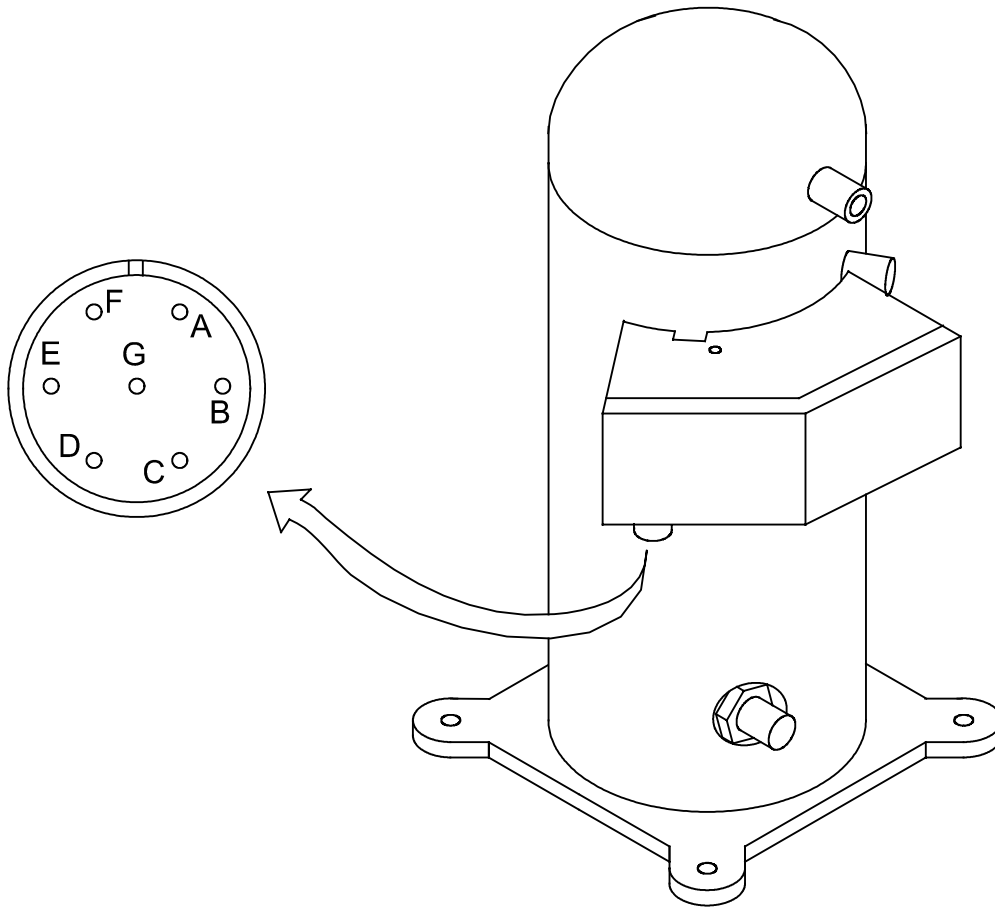
- 29 Remove the pump, reservoir, filter, and filter-drier jumper. Place an empty container below the compressor connections and connect a cylinder of dry nitrogen to each filter-drier connection in turn. Blow down each leg of the system at 50 psig (3.5 kg/square centimeter) for at least 30 seconds.
- 30 Disconnect the dry nitrogen cylinder. Cap or plug open connections if compressor and filter-drier are not to be installed immediately.

TEST AND INSPECTION

WARNING

Disconnect input power to the air conditioner before performing any maintenance to the electrical system. Voltages used can be lethal. Shutting the unit off at the control module does not disconnect power to the various components of the air conditioner.

Compressor Electrical Test



- 1 Be sure power has been disconnected from air conditioner.

- 2 Electrically test the heater element, heater thermostat, wiring harness and motor as follows.
- 3 Disconnect wiring harness at connectors P10 and J10 (located on the compressor junction box).

WARNING

Allow compressor to cool before touching. Severe burns can result from touching hot compressor.

- 4 Carefully feel lower part of compressor.
- 5 If air conditioner has been connected to power supply for at least four hours, compressor should feel warm (100-120E F). If not warm, test crankcase heater for continuity.
- 6 If air conditioner has not been connected to power supply for at least four hours, compressor should be at ambient temperature.
- 7 Using multimeter, test crankcase heater, and thermostat circuit at J10 connector.
- 8 Using multimeter, test resistance from pin F to pin G. Resistance should be 950 to 1430 ohms. Lower reading indicates short, and infinite reading indicates an open.
- 9 Using multimeter, test crankcase heater, and thermostat at junction box.
- 10 Remove compressor junction box cover.
- 11 Open connection between thermostat lead and heater lead.
- 12 Check heater continuity between open connection and J10-F. If open, heater should be replaced.
- 13 Check thermostat continuity between open connection and J10-G. If open, thermostat should be replaced.
- 14 Using multimeter, test compressor motor windings.
- 15 Check continuity between pins A, B, and C and the compressor body. No continuity should exist. If continuity exists, the compressor is bad.
- 16 Test 3 phase windings at J10: A to B, B to C, A to C.
- 17 All resistances should be above zero and less than 2 ohms.
- 18 Test resistance between pin D and pin E. Resistance should be zero indicating thermostatic switch is closed.

- 19 Compressor containing shorted, open, or grounded winding or open thermostatic switch, should be replaced.
- 20 If compressor windings are bad, check for compressor burnout prior to installing a new compressor. (See instructions in compressor removal).

INSTALLATION

CAUTION

The compressor is supplied with a complete charge of oil. Take care that oil is not lost when handling and installing compressor.

NOTE

If any refrigeration piping was disconnected with the compressor being replaced, transfer the piping to the replacement compressor before installing it in the air conditioner.

- 1 Slide compressor into condenser housing.
- 2 With the smaller diameter (necked portion) of the rubber mount up, place four rubber mounts under the compressor feet. The necked portion should fit into holes in compressor feet.
- 3 Place four top mounting sleeves, necked portion down into holes in compressor feet.
- 4 Using socket, extension, and ratchet, secure the compressor with four cap screws, lockwashers, and flat washers.
- 5 To obtain proper loading, tighten cap screw until contact is made with all parts. Then turn cap screw head 2-1/2 to 3-1/2 more turns.
- 6 Wrap wet rags around compressor at connection points and while brazing, direct flame away from compressor.
- 7 While purging the system with nitrogen, braze the tubing joints. (See WP0071 and WP0072).
- 8 Replace the dehydrator. (See WP0080).
- 9 Connect electrical connector plug (P10) to connector (J10) under compressor junction box.
- 10 Leak test all newly connected joints and those in the repair area. (See WP0073).
- 11 Evacuate and charge the Refrigerant R-22 system. (See WP0074 and WP0075).
- 12 Install left end condenser cover. (See WP0045).

TM9-4120-423-14&P

- 13 Install top condenser cover. (See WP0044).
- 14 Install air conditioner on shelter. (See WP0006).

END OF TASK

CHAPTER 7
GENERAL SUPPORT
MAINTENANCE
INSTRUCTIONS
FOR
AIR CONDITIONER
(No repair authorized)

CHAPTER 8
SUPPORTING
INFORMATION
FOR
AIR CONDITIONER

REFERENCES

0098 00

SCOPE

The following index should be consulted often. Check this index for the latest changes or revisions to references given in this appendix. Check this index for new publications relating to material covered in this technical manual.

FORMS

Equipment Inspection and Maintenance Work Sheet	DA Form 2404
Recommended Changes to Publications and Blank Forms	DA Form 2028
Product Quality Deficiency Report	SF 368

FIELD MANUALS

Electric Power Generation in the Field	FM20-31
Theater Operations Electrical Systems	FM5-424

MANUALS

Administrative Storage of Equipment	PAM 25-30
Hand Portable Fire Extinguishers Approved for Army Users	TB5-4200-200-10
Painting Instructions for Army Materiel	TM43-0139
Procedures for Destruction of Equipment to Prevent Enemy Use	TM750-244-3
High Frequency Communications	FM11-65
The Army Maintenance Management System	DA PAM 738-750
Field Instructions for Painting and Preserving Communications-Electronics Equipment	TB43-0118

MISCELLANEOUS PUBLICATIONS

Fuels, Lubricants, Oils, and Waxes	C91001L
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MAINTENANCE ALLOCATION CHART (MAC)

0099 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 Functions

Maintenance functions are limited to and defined as follows:

1. **Inspect.** To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination (e.g., by sight, sound, or feel). This includes scheduled inspection and gagings and evaluation of cannon tubes.
2. **Test.** To verify serviceability by measuring the mechanical, pneumatic, hydraulic, or electrical characteristics of an item and comparing those characteristics with prescribed standards on a scheduled basis, i.e., load testing of lift devices and hydrostatic testing of pressure hoses.

3. Service. Operations required periodically to keep an item in proper operating condition, e.g., to clean (includes decontaminate, when required), to preserve, to drain, to paint, or to replenish fuel, lubricants, chemical fluids, or gases. This includes scheduled exercising and purging of recoil mechanisms.
4. Adjust. To maintain or regulate, within prescribed limits, by bringing into proper position, or by setting the operating characteristics to specified parameters.
5. Align. To adjust specified variable elements of an item to bring about optimum or desired performance.
6. Calibrate. To determine and cause corrections to be made or to be adjusted on instruments of test, measuring, and diagnostic equipment used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.
7. Remove/Install. To remove and install the same item when required to perform service or other maintenance functions. Install may be the act of emplacing, seating, or fixing into position a spare, repair part, or module (component or assembly) in a manner to allow the proper functioning of an equipment or system.
8. Replace. To remove an unserviceable item and install a serviceable counterpart in its place. The MAC authorizes "Replace" and assigned maintenance level is shown as the third position code of the Source, Maintenance and Recoverability (SMR) code.
9. Repair. The application of maintenance services, including fault location/troubleshooting, removal/installation, disassembly/assembly procedures, and maintenance actions to identify troubles and restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.

NOTE

The following definitions are applicable to the "repair" maintenance function:

- Services - Inspect, test, service, adjust, align, calibrate, and/or replace.
- Fault location/troubleshooting -The process of investigating and detecting the cause of equipment malfunctioning; the act of isolating a fault within a system or Unit Under Test (ET).
- Disassembly/assembly - The step-by-step breakdown (taking apart) of a spare/functional group coded item to the level of its least component, that is assigned an SMR code for the level of maintenance under consideration (i.e., identified as maintenance significant).
- Actions - welding, grinding, riveting, straightening, facing, machining, and/or resurfacing.

10. Overhaul. That maintenance effort (service/action) prescribed to restore an item to a completely serviceable/operational condition as required by maintenance standards in appropriate technical publications. Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.
11. Rebuild. Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of materiel maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (e.g., hours/miles considered in classifying Army equipment/components).

Explanation of Columns in the MAC

- Column (1) Group Number. Column (1) lists FGC numbers, the purpose of which is to identify maintenance significant components, assemblies, subassemblies, and modules with the Next Higher Assembly (NHA).
- Column (2) Component/Assembly. Column (2) contains the item names of components, assemblies, subassemblies, and modules for which maintenance is authorized.
- Column (3) Maintenance Function. Column (3) lists the functions to be performed on the item listed in column (2). (For a detailed explanation of these functions, refer to "Maintenance Functions" outlined above.)
- Column (4) Maintenance Level. Column (4) specifies each level of maintenance authorized to perform each function listed in column (3), by indicating work time required (expressed as man-hours in whole hours or decimals) in the appropriate subcolumn. This work time figure represents the active time required to perform that maintenance function at the indicated level of maintenance. If the number or complexity of the tasks within the listed maintenance function varies at different maintenance levels, appropriate work time figures are to be shown for each level. The work time figure represents the average time required to restore an item (assembly, subassembly, component, module, end item, or system) to a serviceable condition under typical field operating conditions. This time includes preparation time (including any necessary disassembly/assembly time), troubleshooting/fault location time, and quality assurance time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the MAC. The symbol designations for the various maintenance levels are as follows:

C - Operator or crew maintenance

O - Unit maintenance

F - Direct support maintenance

L - Specialized repair activity (SRA)

H - General support maintenance

D - Depot maintenance

NOTE

The "L" maintenance level is not included in column (4) of the MAC. Functions to this level of maintenance are identified by a work time figure in the "H" column of column (4), and an associated reference code is used in the REMARKS column (6). This code is keyed to the remarks and the SRA complete repair application is explained there.

Column (5) Tools and Equipment Reference Code. Column (5) specifies, by code, those common tool sets (not individual tools), common Test, Measurement, and Diagnostic Equipment (TMDE), and special tools, special TMDE and special support equipment required to perform the designated function. Codes are keyed to the entries in the tools and test equipment table

Column (6) Remarks Code. When applicable, this column contains a letter code, in alphabetical order, which is keyed to the remarks table entries.

Explanation of Columns in the Tools and Test Equipment Requirements

Column (1) Tool or Test Equipment Reference Code. The tool or test equipment reference code correlates with a code used in column (5) of the MAC.

Column (2) Maintenance Level. The lowest level of maintenance authorized to use the tool or test equipment.

Column (3) Nomenclature. Name or identification of the tool or test equipment.

Column (4) National Stock Number (NSN). The NSN of the tool or test equipment.

Column (5) Tool Number. The manufacturer's part number, model number, or type number.

Explanation of Columns in the Remarks

Column (1) Remarks Code. The code recorded in column (6) of the MAC.

Column (2) Remarks. This column lists information pertinent to the maintenance function being performed as indicated in the MAC.

MAINTENANCE ALLOCATION CHART FOR AIR CONDITIONER

Table 1. MAC for Air Conditioner.

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT REF CODE	(6) REMARKS CODE
			UNIT		DIRECT SUPPORT	GENERAL SUPPORT	DEPOT		
			C	O	F	H	D		
00	24,000 BTU/HR SPLIT PACK AIR CONDITIONER	Inspect	0.2	0.2					
		Test	0.5	1.0	1.5				
		Service	0.5	1.0					
		Replace		1.0					
		Repair		2.0	6.0				
01	EVAPORATOR ASSY	Inspect		0.5					
		Test			1.5				
		Service			0.3				
		Adjust			1.0				
		Remove/Install			2.0			1	
		Repair		2.0				1	
				6.0			1,3,6,7		
0101	COVERS	Remove/Install		1.2				1	
		Inspect		0.4					
		Repair		3.5					
0102	FRAMES	Remove/Install		0.6				1	
		Inspect		0.2					
		Repair		2.0				1	
0103	HARNES ASSYS	Remove/Install		1.0				1,2	
		Inspect		0.2					
		Test		1.0				9	
		Repair		2.0				1,2	
0104	MOTOR ASSY	Remove/Install		2.0				1	
		Inspect		0.2					
		Test		0.3				9	
		Repair		1.0				1	
0105	COIL, EVAPORATOR	Remove/Install			2.0			1,3,6,7	
		Inspect			0.1				
		Test			0.3			1	
		Service			0.3				
0106	COUPLING HALVES, MALE	Remove/Install			2.0			1,3,6,7	
		Inspect			0.1				
		Test			0.3			1	
		Repair			1.0			1,3,6,7	
0107	VALVE, EXPANSION	Remove/Install			2.0			1,3,6,7	
		Inspect			0.1				
		Test			1.0			1	
		Adjust			1.0				
0108	HOUSING ASSY	Remove/Install		17.0				1	
		Inspect		0.2					
		Repair		1.0				1	

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT REF CODE	(6) REMARKS CODE
			UNIT		DIRECT SUPPORT	GENERAL SUPPORT	DEPOT		
			C	O	F	H	D		
0109	ELECTRICAL MODULE	Remove/Install Repair		1.5 3.6				1 1	F
010901	COVER	Remove/Install Inspect Repair		0.2 0.1 1.0				1 1	C
010902	HARNES ASSYS AND LEADS	Remove/Install Inspect Test Repair		1.5 0.2 2.0 1.5				1,2 9 1,2	
02	CONDENSER ASSY	Inspect Test Service Remove/Install Repair			2.0 1.5 1.9 2.0 8.0			1 1 1	G
0201	COVERS	Remove/Install Inspect Repair Service		1.2 0.6 4.1 0.3				1 1	C H
0202	GUARD, CONDENSER	Remove/Install Inspect Repair		0.3 0.1 0.5				1 1	C
0203	GRILLE, DISCHARGE	Remove/Install Inspect Repair		0.2 0.1 0.5				1 1	C
0204	HARNES ASSYS AND LEADS	Remove/Install Inspect Test Repair		1.1 0.2 0.6 1.5				1,2 9 1,2	
0205	VARISTOR/ TERM	Remove/Install Inspect Test Repair		0.2 0.1 0.1 0.3				1 9 8	
0206	HOUSING, BLOWER	Remove/Install Inspect Repair		0.2 0.1 0.5				1 1	
0207	MOTOR, AC	Remove/Install Inspect Test Repair Service		2.0 0.2 0.3 1.0 0.1				1 9 1	D
0208	HOSE ASSY, DISCHARGE	Remove/Install Inspect Test Repair Service			3.0 0.2 0.2 2.0 0.1			1,3,6,7 1 1,3,6,7	

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT REF CODE	(6) REMARKS CODE
			UNIT		DIRECT SUPPORT	GENERAL SUPPORT	DEPOT		
			C	O	F	H	D		
020801	COUPLING HALF, FEMALE	Remove/Install Inspect Test Repair			3.0 0.2 0.2 2.0			1,3,6,7 1 1,3,6,7	
0209	HOSE ASSY, SVC	Remove/Install Inspect Test Repair Service			3.0 0.2 0.2 2.0 0.1			1,3,6,7 1 1,3,6,7	
020901	COUPLING HALF, FEMALE	Remove/Install Inspect Test Repair			3.0 0.2 0.2 2.0			1,3,6,7 1 1,3,6,7	
0210	COUPLING HALVES, MALE	Remove/Install Inspect Test Repair			3.0 0.2 0.2 2.0			1,3,6,7 1 1,3,6,7	
0211	VALVE, SOLENOID	Remove/Install Inspect Test			2.0 0.1 0.3			1,3,6,7 1,9	
0212	COIL, CONDENSER	Remove/Install Inspect Test Service			3.0 0.1 0.2 0.3			1,3,6,7 1	
0213	COMPRESSOR ASSY	Remove/Install Inspect Test Repair Service			4.0 0.1 0.7 1.0 1.0			1,3,6,7 1,9 1,3,6,7	I
0214	HOUSING, COND	Remove/Install Inspect Repair		17.0 0.2 1.0				1 1	J
0215	ELECTRICAL MODULE	Remove/Install Repair		1.5 1.5				1 1	K
021501	HARNES ASSY AND LEADS	Remove/Install Inspect Test Repair		1.3 1.5 1.1 0.7				1 9 1	
021502	CHASSIS	Remove/Install Inspect Repair		2.0 0.2 0.8				1 1	L
03	REMOTE CONTROL ASSY	Remove/Install Repair		0.2 2.5				5	

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT REF CODE	(6) REMARKS CODE
			UNIT		DIRECT SUPPORT	GENERAL SUPPORT	DEPOT		
			C	O	F	H	D		
0301	REMOTE BOX	Remove/Install		0.5				1	M
		Inspect		0.5				1	
		Repair		1.0				1	
0302	HARNESS ASSY AND LEADS	Remove/Install		2.0				1,2	
		Inspect		0.4				9	
		Test		0.8				1,2	
		Repair		1.2				2	
0303	DIODE/TERMINAL	Remove/Install		0.3				9	
		Inspect		0.1				2,8	
		Test		0.3					
		Repair		0.3					

TOOLS AND TEST EQUIPMENT REQUIREMENTS FOR AIR CONDITIONER

Table 2. Tools and Test Equipment for Air Conditioner.

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE LEVEL	NOMENCLATURE	NATIONAL STOCK NUMBER	TOOL NUMBER
		No special tools and test equipment required. Standard tools and test equipment in the following kits are adequate to accomplish the maintenance functions listed in Section II		
1	O-F	Tool kit, service, refrigeration Unit (SC 5180-90-CL-N18)	5180-00-597-1474	(19099) SC5180-90-CL-N18
2	O	Soldering Gun Kit	3439-00-930-1638	(11103) 450K4
3	F	Pump, Vacuum	4310-00-098-5272	(64484) 1400B
4	O-F	Overhead lifting device w/ slings, 500 lb. capacity		
5	O	Installation Tool (Remote control box captive screws)	5120-01-015-1422	(08524) H7503-8
6	F	Regulator, Nitrogen	4935-00-040-9916	(00742) 231 P12805
7	F	Recovery and Recycle Unit	5250-01-338-2707	
8	O	Heat Gun	4940-01-042-4855	
9	O-F	Multimeter	6625-01-265-6000	

REMARKS FOR AIR CONDITIONER

Table 3. Remarks for Air Conditioner.

REMARKS CODE	REMARKS
A	Repair is limited to removal of drain plugs, electrical caps and covers, temperature sensing probe, thermostatic switches, terminal board & support, heating elements, condensate drain, radio frequency filter and EMI screens.
B	Repair includes replacement of tubing and fittings.
C	Repair is limited to replacement of gaskets and/or insulation only.
D	Repair includes replacement of electrical connector, fan inlet rings, impeller, blower housing, extension shaft, and base.
E	Replace insulation, lifting handles, blind nuts, and plate nuts.
F	Repair includes replacement of module mounting screws, varistor, transformer, component board, fuse, fuseholder, rectifier, capacitor, relays, terminal board and jumpers. Chassis repair is limited to blind nut replacement.
G	Repair includes replacement of sight glass, dehydrator, receiver, quench valve, discharge bypass valve, valve mounting bracket, pressure switches, pressure relief valve, service valves, cap & chain, control, head pressure, tubing and fittings.
H	Service is limited to cleaning condenser cover and EMI screens.
I	Replace external components only, including resilient mounts.
J	Replace blind nut and plate nuts only.
K	Repair includes replacement of module cover, time totalizing meter, relays, and terminal board.
L	Repair limited to replacement of snap fastener, gaskets, rivets, blind nuts, and danger plate.
M	Repair includes replacement of mode selector switch, run indicator light, temperature control, and cover. Other than those items listed above, there are no supplemental instructions or explanatory remarks required for the maintenance functions listed in Table 1. All functions are sufficiently defined in the Introduction. Active time listed for maintenance task functions are with the air conditioner in off-equipment position.

REPAIR PARTS AND SPECIAL TOOLS LIST FOR AIR CONDITIONER

0100 00

INTRODUCTION**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, direct support, and general support maintenance of the 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.

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 are 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 reparable special tools are also listed in a separate work package. Items listed are shown on the associated illustrations.

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 are not listed.

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 table:

SMR Code 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:

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.

Source Code	Application/Explanation
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.

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 is the lowest level that can do complete repair of the item.
D	Depot is the lowest level that can do complete repair of the item.

Maintenance Code	Application/Explanation
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	Reparable item. When uneconomically repairable, condemn and dispose of the item at the unit level.
F	Reparable item. When uneconomically repairable, condemn and dispose of the item at the direct support level.
H	Reparable item. When uneconomically repairable, condemn and dispose of the item at the general support level
D	Reparable item. When beyond lower level repair capability, return to depot. Condemnation and disposal of item are not authorized below depot level

Recoverability Code	Application/Explanation
L	Reparable 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 an NSN to requisition an item, the item you receive may have a different P/N for the number listed.

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.

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.

SPECIAL INFORMATION

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. Detailed fabrication instructions for items source coded to be manufactured or fabricated are found in Index of Manufactured Items.

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.

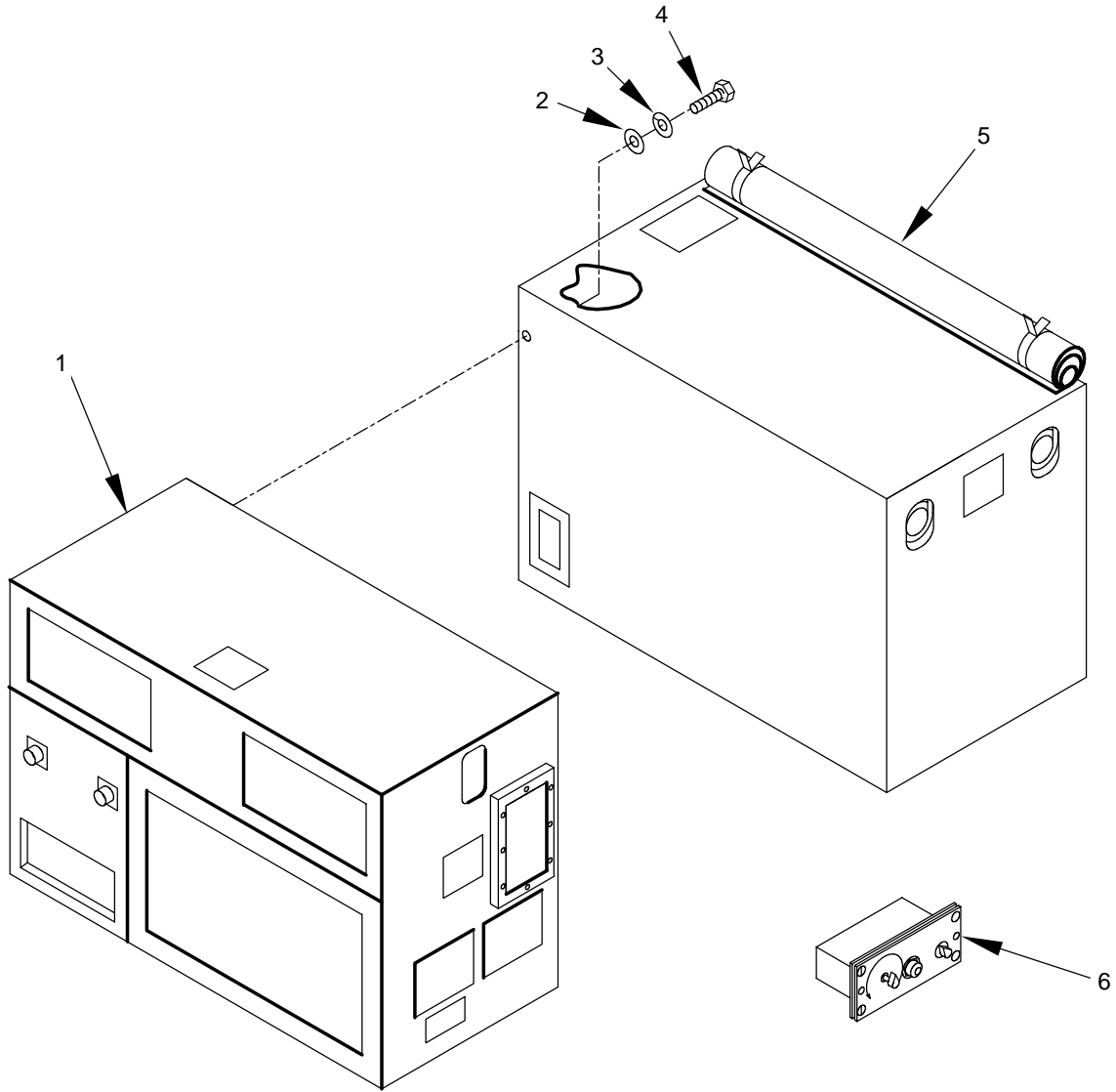


Figure F-1. 24,000 BTU/HR Split Pack Air Conditioner

SECTION II

TM9-4120-423-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
					GROUP 00 24,000 BTU/HR SPLIT PACK AIR CONDITIONER	
					FIGURE F-1	
1	PFFFZ	4130014637371	50935	EHSP24C30H	EVAPORATOR COIL,REFRIGERATION.....	1
2	PAFZZ	5310000814219	96906	MS27183-12	WASHER,FLAT.....	4
3	PAFZZ	5310004079566	96906	MS35338-45	WASHER,LOCK.....	4
4	PAFZZ	5306002258499	96906	MS90725-34	BOLT,MACHINE.....	4
5	PFFFZ	4130014639475	50935	BHSP24C	CONDENSER COIL,REFRIGERATION.....	1
6	PBFFF		50935	SP3921	REMOTE CONTROL ASSEMBLY.....	1

END OF FIGURE

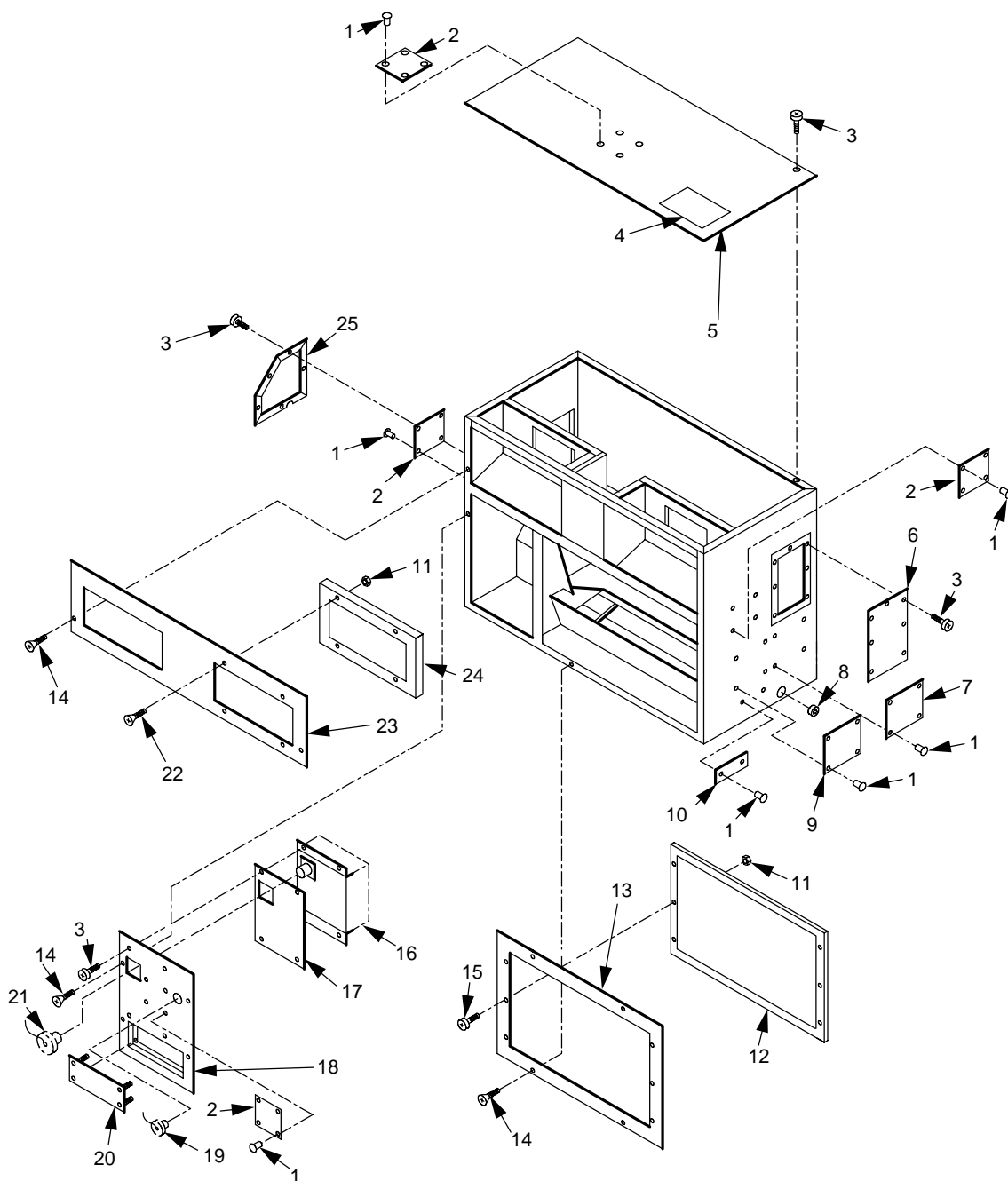


Figure F-2. Evaporator Assembly (Sheet 1 of 4)

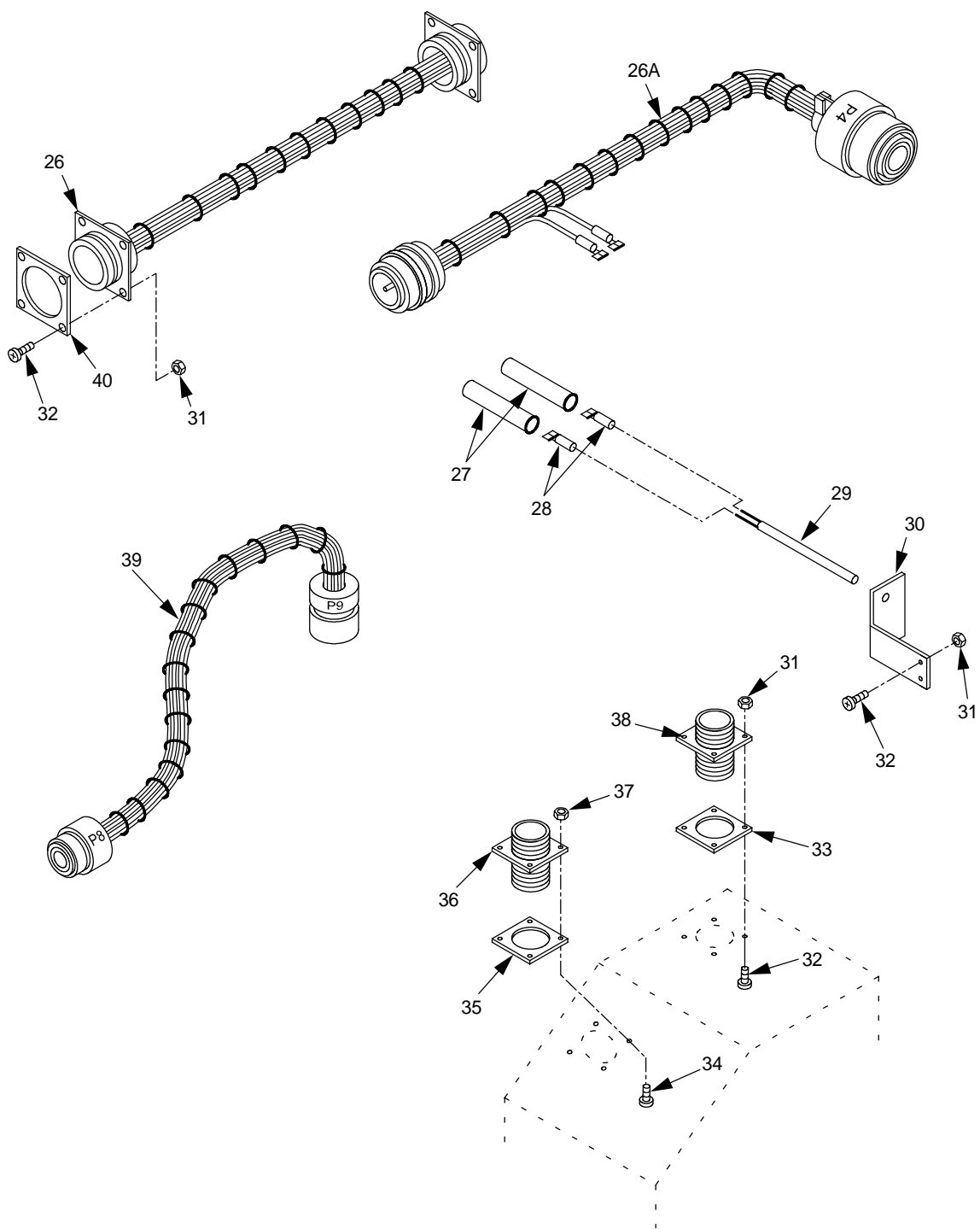


Figure F-2. Evaporator Assembly (Sheet 2 of 4)

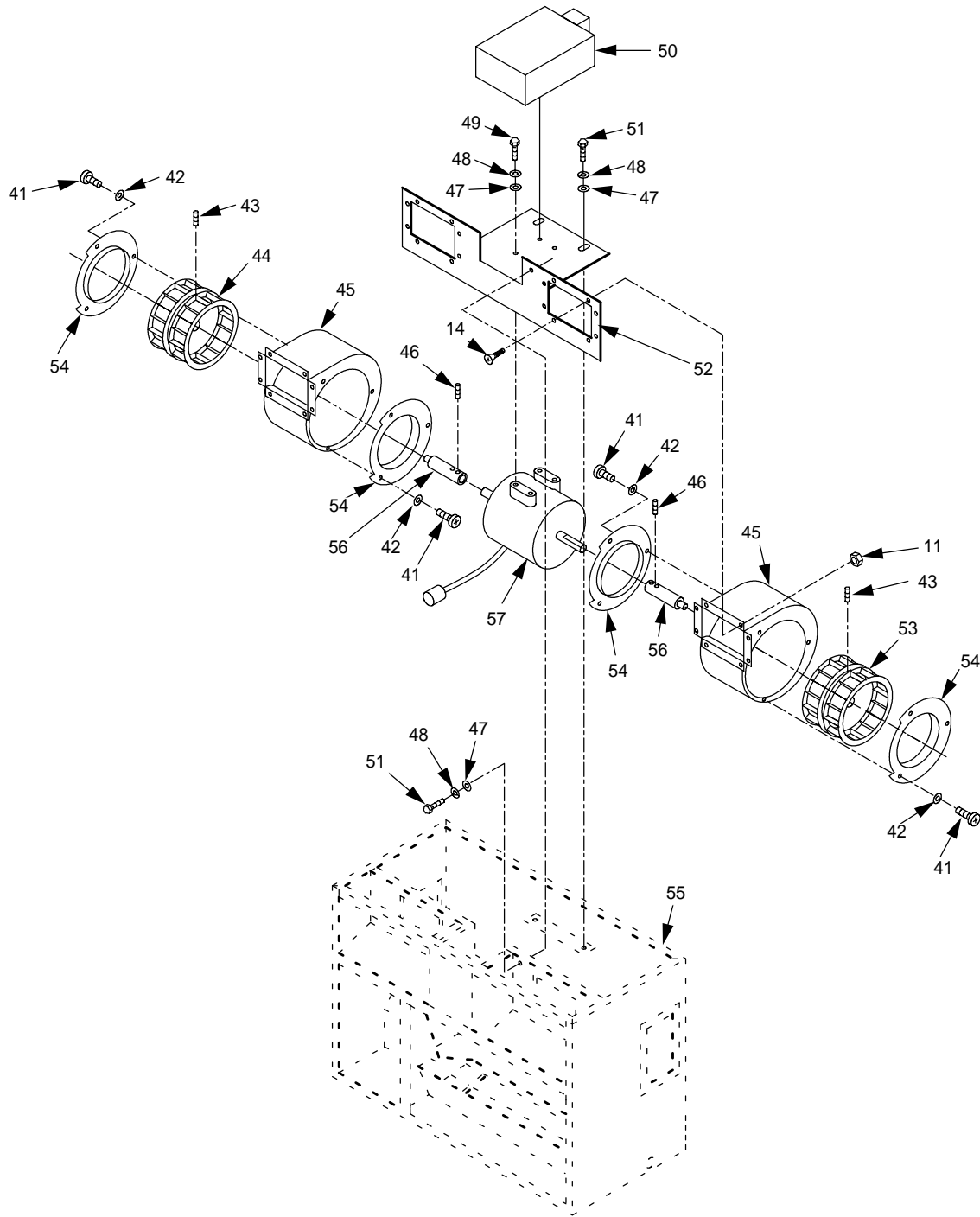


Figure F-2. Evaporator Assembly (Sheet 3 of 4)

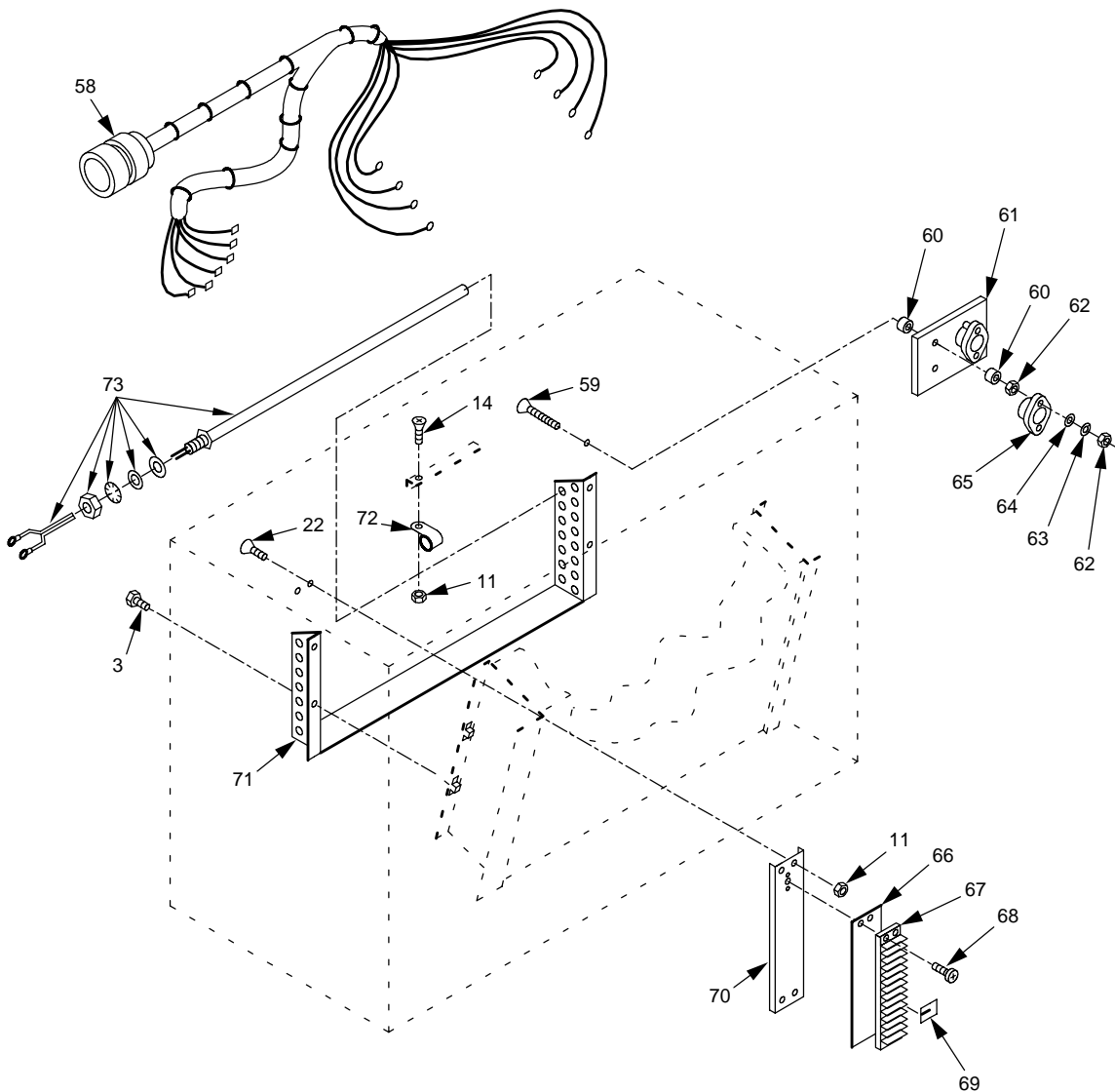


Figure F-2. Evaporator Assembly (Sheet 4 of 4)

SECTION II

TM9-4120-423-14&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 EVAPORATOR ASSEMBLY						
FIGURE F-2						
1	PAFZZ	5320009321972	81349	M24243/6-A402H	RIVET,BLIND.....	26
2	XBFZZ		50935	015W203	PLATE,DANGER.....	4
3	PAOZZ	5305009846195	96906	MS35206-247	SCREW,MACHINE.....	63
4	XBFZZ		50935	015W241	PLATE,DATA.....	1
5	XBOFF		97403	13219E9481	COVER, TOP, EVAPORATOR.....	1
6	XBOFF		97403	13219E9486	COVER,FRESH AIR.....	2
7	XBFZZ		50935	015W238	PLATE, IDENTIFICATION, EVAPORATOR.....	1
8	PAOZZ	4730012229646	81348	WW-P-471ACAAAB	PLUG, PIPE.....	2
9	XBFZZ		50935	015W237	PLATE, IDENTIFICATION, UNIT.....	1
10	XBFZZ		50935	015W240	PLATE, WARRANTY.....	1
11	PAOZZ	5310008113494	80205	MS21044N08	NUT, SELF-LOCKING, HEXAGON.....	50
12	PCFZZ	4130011365629	97403	13219E9575	SCREEN, EVAPORATOR.....	1
13	XBOFF		97403	13219E9589	FRAME, RETURN AIR.....	1
14	PAOZZ	5305009655882	96906	MS24693S52	SCREW, MACHINE.....	60
15	PAOZZ	5305009846198	96906	MS35206-250	SCREW, MACHINE.....	6
16	PAFZZ	5915011382233	97403	13221E9137	FILTER, RADIO FREQUENCY INTERFERENCE.....	1
17	PAFZZ	5999011382191	97403	13221E9147	SHIELDING GASKET, ELECTRONIC.....	1
18	XBOFF		50935	SP3909	COVER, FRONT, EVAPORATOR.....	1
19	PAOZZ	5935011414210	96906	MS27511B20CL	COVER, ELECTRICAL CONNECTOR.....	1
20	XBOFF		50935	SP4075	PLATE, BLOCK OFF.....	1
21	PAOZZ	5935011761708	96906	MS25043-22DA	COVER, ELECTRICAL CONNECTOR.....	1
22	PAOZZ	5305009596640	96906	MS24693S56	SCREW, MACHINE.....	12
23	XBOFF		97403	13219E9564	FRAME, EVAPORATOR, DISCHARGE.....	1
24	PAFZZ	4130011362207	97403	13219E9576	SCREEN, EVAPORATOR.....	2
25	XBOFF		97403	13219E9484	COVER, ACCESS.....	1
26	XBFFF		50935	SP4802-2	WIRING HARNESS.....	1
26A	XBFFF		50935	SP4802-1	WIRING HARNESS.....	1
27	PAFZZ	5940009986126	97403	13221E9146	TERMINAL, QUICK DISCONNECT.....	2
28	PAFZZ	5940004361632	97403	13207E5347-1	TERMINAL, QUICK DISCONNECT.....	2
29	PAFZZ		50935	SP4781	PROBE, TEMPERATURE SENSING.....	1
30	XBFZZ		50935	SP3910	BRACKET, SENSOR.....	1
31	PAFZZ	5310000880551	80205	MS21044N04	NUT, SELF-LOCKING, HEXAGON.....	10
32	PAFZZ	5305008892999	96906	MS35206-217	SCREW, MACHINE.....	10
33	PCFZZ	5999011382193	97403	13219E9584-1	SHIELDING GASKET, ELECTRONIC.....	1
34	PAFZZ	5305008893000	96906	MS35206-230	SCREW, MACHINE.....	4
35	PCFZZ	5999011382194	97403	13219E9584-2	SHIELDING GASKET, ELECTRONIC.....	1
36	PAFFF		97403	13216E0146-4	CONNECTOR, RECEPTACLE.....	1
37	PAFZZ	5310000818087	80205	MS21044N06	NUT, SELF-LOCKING, HEXAGON.....	4
38	PAFZA	5935009041280	97403	13216E0146-3	ADAPTER, CONNECTOR HEAD.....	1
39	XBFFF		97403	13221E9126	WIRING HARNESS.....	1
40	PCFZZ	5999011308664	97403	13219E9584-4	SHIELDING GASKET, ELECTRONIC.....	1
41	PAFZZ	5305001380069	96906	MS51861-44	SCREW, TAPPING.....	12
42	PAFZZ	5310000145850	96906	MS27183-42	WASHER, FLAT.....	12
43	PAFZZ	5305007245812	80205	MS51964-65	SETSCREW.....	2
44	PAFZZ		95933	C631-500DCCW	IMPELLER, FAN, CENTRIFUGAL.....	1
45	XBFZZ		97403	13219E9530	HOUSING, CENTRIFUGAL FAN.....	2
46	PAFZZ	5305010384760	80205	MS51966-122	SETSCREW.....	4

SECTION II

TM9-4120-423-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
47	PAFZZ	5310008094058	96906	MS27183-10	WASHER, FLAT.....	12
48	PAFZZ	5310005825965	96906	MS35338-44	WASHER, LOCK.....	12
49	PAFZZ	5305000680501	96906	MS90725-5	SCREW, CAP, HEXAGON HEAD.....	2
50	PAFFF		50935	SP3912	MODULE ASSEMBLY, EVAPORATOR.....	1
51	PAFZZ	5305000712505	80204	B1821BH025C088N	SCREW, CAP, HEXAGON HEAD.....	10
52	XBFFF		97403	13219E9492	BASE, MOTOR.....	1
53	PAFZZ		95933	C631-500DCW	IMPELLER, FAN, CENTRIFUGAL.....	1
54	XBFZZ		71913	503-6	INLET, FAN, EVAPORATOR.....	4
55	XBHHH		50935	SP3911	HOUSING, EVAPORATOR SECTION.....	1
56	XBFZZ		50935	038W102	SHAFT, EXTENSION, EVAPORATOR.....	2
57	PAFFF	6105011264175	97403	13221E9096	MOTOR, ALTERNATING CURRENT.....	1
58	XBFFF		97403	13226E1623	WIRING HARNESS.....	1
59	PAOZZ	5305000518308	96906	MS24693S40	SCREW, MACHINE.....	4
60	XBFZZ		97403	13226E5891	SPACER, TAPERED.....	8
61	XBFFZ	4130012094368	97403	13226E1619	PANEL SWITCH THERMO.....	1
62	PAFZZ	5310009349747	96906	MS35649-262	NUT, PLAIN, HEXAGON.....	8
63	PAFZZ	5310000454007	96906	MS35338-41	WASHER, LOCK.....	4
64	PAFZZ	5310008094058	96906	MS27183-10	WASHER, FLAT.....	4
65	PAFZZ	5930012094390	97403	13226E1622	SWITCH, THERMOSTATIC.....	2
66	XBFZZ		97403	13219E9489-1	MARKER STRIP.....	1
67	PAFZZ	5940009836055	81349	37TB14	TERMINAL BOARD.....	1
68	PAFZZ	5305009844992	96906	MS35206-232	SCREW, MACHINE.....	2
69	PAFZZ	5935011547058	97403	13219E9544	LINK, TERMINAL CONNE.....	6
70	XBFFF		97403	13219E9551	SUPPORT, TERMINAL BOARD.....	1
71	XBFZZ		97403	13226E1620	BRACKET.....	1
72	PAFZZ	5340002008560	96906	MS21919WDG5	CLAMP, LOOP.....	2
73	PAFZZ	4540012094416	97403	13226E1621	HEATING ELEMENT, ELECTRICAL, NONIMMERSION TYPE.....	15

END OF FIGURE

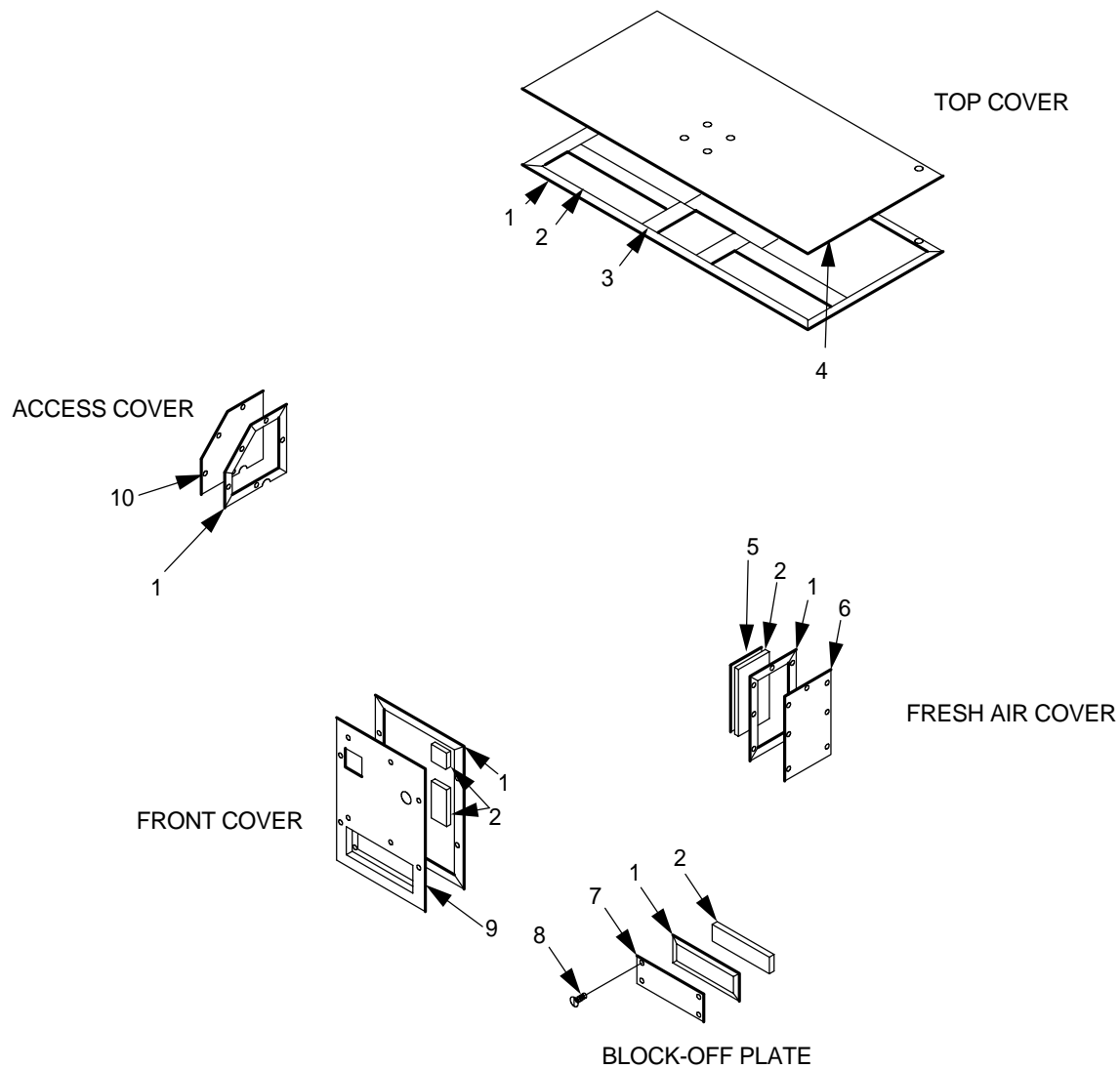


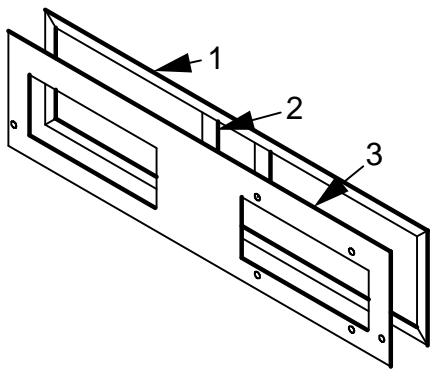
Figure F-3. Covers

SECTION II

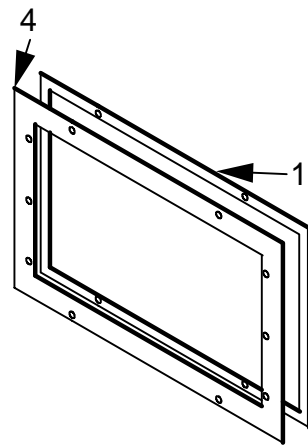
TM9-4120-423-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC) GROUP 0101 COVERS FIGURE F-3	(7) QTY
1	PAFZZ	5999009064683	97403	13219E9568-1	WIRE MESH,KNITTED.....	8
2	XBFZZ		81349	MIL-P-15280 FORM -S-1/2	INSULATION SLEEVING,ELECTRICAL.....	4
3	PCFZZ	9320011382192	97403	13219E9528	TAPE,ADHESIVE,RUBBER.....	3
4	XBFZZ		97403	13219E9481-1	COVER.....	1
5	XBFZZ		97403	13219E9486-4	INSULATION,THERMAL.....	1
6	XBFZZ		97403	13219E9486-1	COVER.....	1
7	XBFZZ		50935	SP4075-1	COVER,BLOCK-OFF.....	1
8	PAOZZ	5305011382219	97403	13221E9109-64	SCREW ASSEMBLY,PANEL.....	4
9	XBFZZ		50935	SP4783	COVER,FRONT,EVAPORATOR.....	1
10	XBFZZ		97403	13219E9484-1	COVER.....	1

END OF FIGURE



FRAME, EVAPORATOR DISCHARGE



FRAME, RETURN AIR

Figure F-4. Frames

SECTION II

TM9-4120-423-14&P

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM	SMR			PART		
NO	CODE	NSN	CAGEC	NUMBER	DESCRIPTION AND USABLE ON CODES(UOC)	QTY
					GROUP 0102 FRAMES	
					FIGURE F-4	
1	PAFZZ	5999009064683	97403	13219E9568-1	WIRE MESH,KNITTED.....	7
2	PCFZZ	9320011382192	97403	13219E9528	TAPE,ADHESIVE,RUBBER.....	2
3	XBFZZ		97403	13219E9564-1	FRAME.....	1
4	XBFZZ		97403	13219E9589-1/2	FRAME.....	1

END OF FIGURE

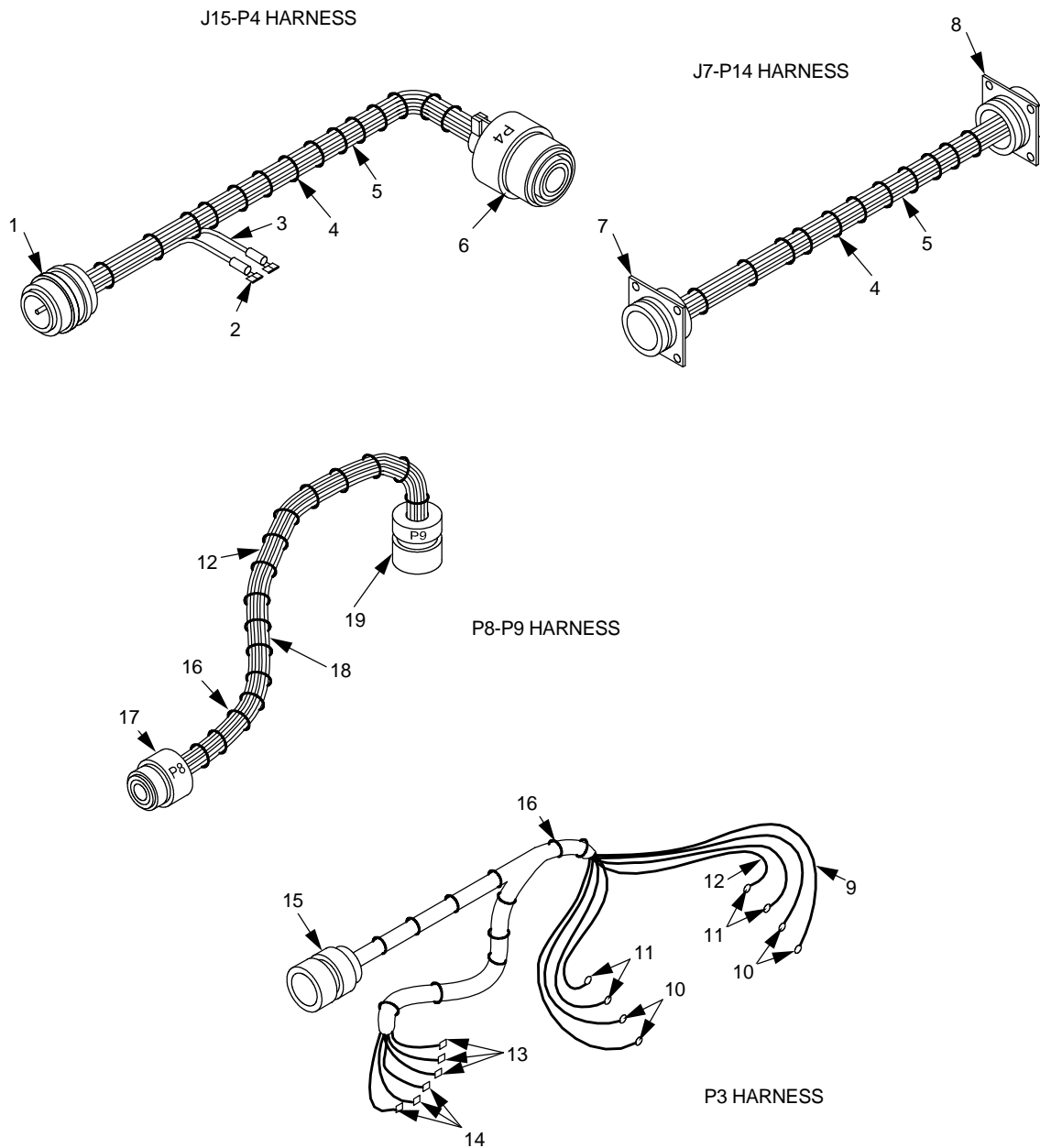


Figure F-5. Harness Assemblies

SECTION II

TM9-4120-423-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 0103 HARNESS ASSEMBLIES						
FIGURE F-5						
1	PAFZA	5935003255872	96906	MS27473T20B16S	CONNECTOR, PLUG, ELECTRICAL.....	1
2	PAFZZ	5940004361632	97403	13207E5347-1	TERMINAL, QUICK DISCONNECT.....	2
3	PAFZZ	6145005787518	81349	M5086/1-18-9	WIRE, ELECTRICAL.....	6
4	PAFZZ	5975000742072	96906	MS3367-1-9	STRAP, TIEDOWN, ELECTRICAL..	V
COMPONENTS.....						
5	PAFZZ	6145005786072	81349	M5086/1-16-9	WIRE, ELECTRICAL.....	37
6	PAFZZ	5935005481529	96906	MS3456W24-28P	CONNECTOR, PLUG, ELECTRICAL.....	1
7	PAFZA	5935004266557	96906	MS27508E20B16P	CONNECTOR, RECEPTACLE, ELECTRICAL.....	1
8	PAFZZ	5935010252210	96906	MS27508E20B16S	CONNECTOR, RECEPTACLE, ELECTRICAL.....	1
9	PAFZZ	6145005787521	81349	M5086/1-12-9	WIRE, ELECTRICAL.....	16
10	PAFZZ	5940001434794	96906	MS25036-112	TERMINAL, LUG.....	4
11	PAFZZ	5940001434780	96906	MS25036-108	TERMINAL, LUG.....	4
12	PAFZZ	6145005787516	81349	M5086/1-14-9	WIRE, ELECTRICAL.....	17
13	PAFZZ	5940008253700	96906	MS17143-14	TERMINAL, LUG.....	3
14	PAFZZ	5940008360360	96906	MS17143-15	TERMINAL, LUG.....	3
15	PAFZZ	5935010890663	96906	MS3456W20-15P	CONNECTOR, PLUG, ELECTRICAL.....	1
16	PAFZZ		81349	MIL-T-45435TYPE-1FNSH-B-NO-2	TAPE, LACING AND TYING.....	15
17	PAFZZ	5935010622402	96906	MS3456W22-22P	CONNECTOR, PLUG, ELECTRICAL.....	1
18	PAFZZ	6145000039527	81349	M5086/1-10-9	WIRE, ELECTRICAL.....	5
19	PAFZZ	5935011185714	96906	MS3456W22-22S	CONNECTOR, PLUG, ELECTRICAL.....	1

END OF FIGURE

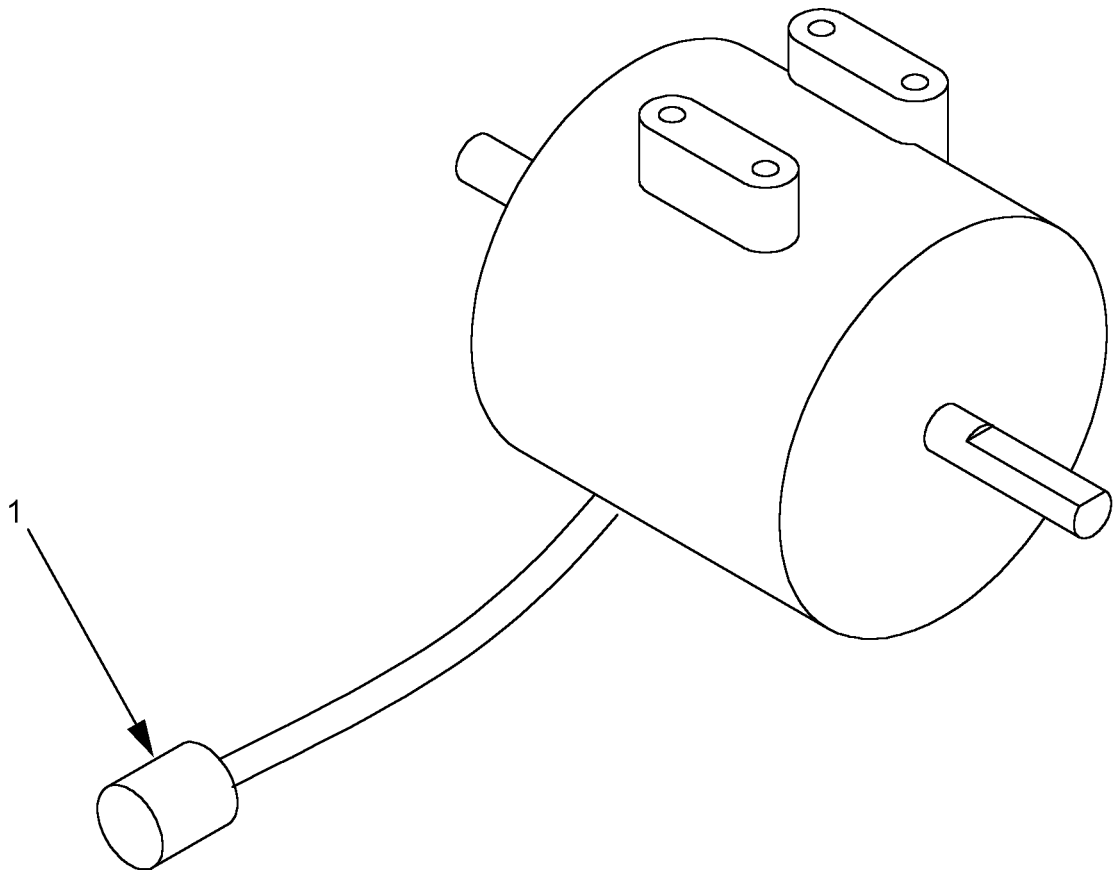


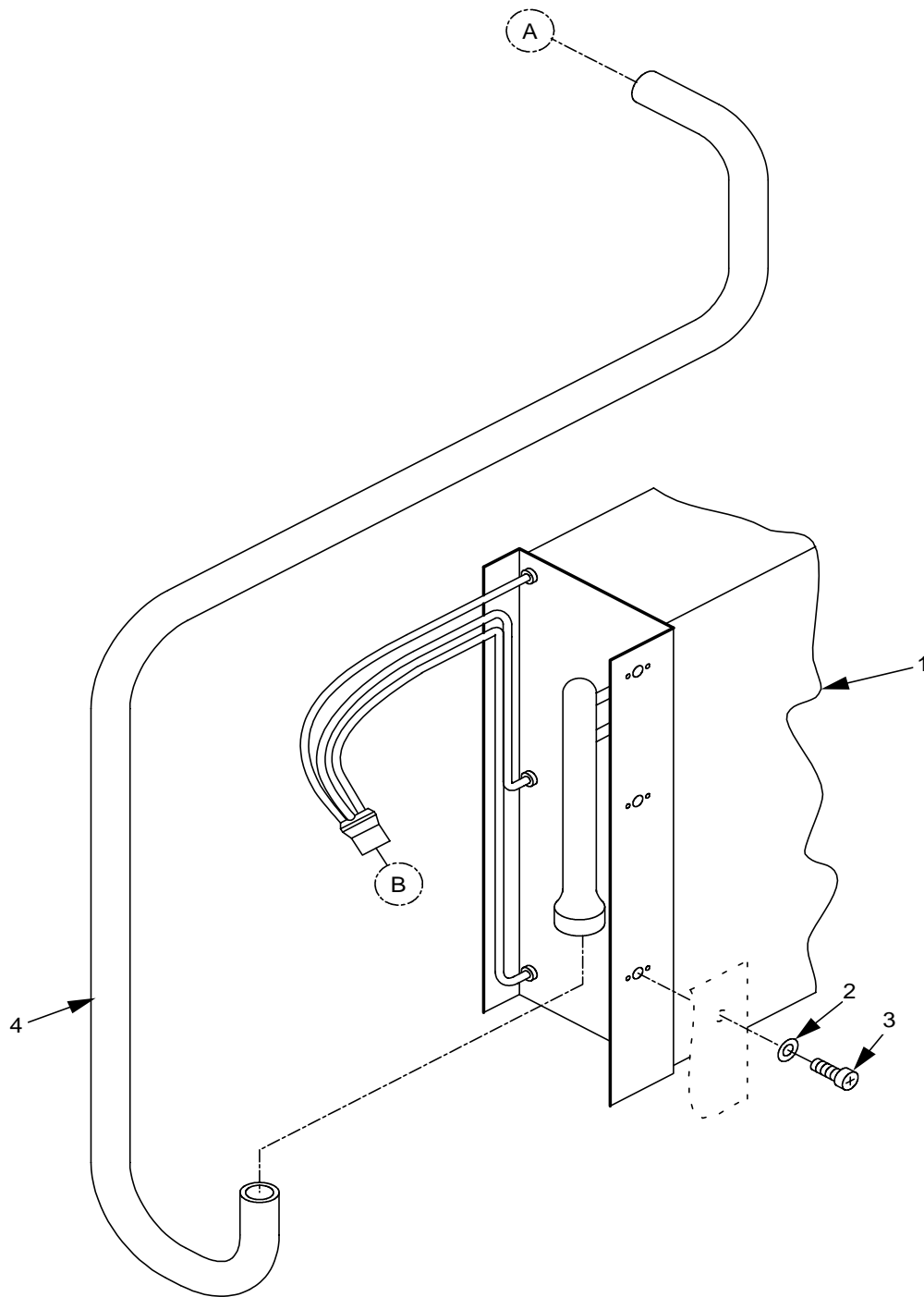
Figure F-6. Motor Assembly

SECTION II

TM9-4120-423-14&P

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM	SMR			PART		
NO	CODE	NSN	CAGEC	NUMBER	DESCRIPTION AND USABLE ON CODES(UOC)	QTY
					GROUP 0104 MOTOR ASSEMBLY	
					FIGURE F-6	
1	PAFZA	5935006222924	96906	MS3456W14S-6P	CONNECTOR, PLUG, ELECTRICAL.....	1

END OF FIGURE



(A) FIG F9

(B) FIG F9

Figure F-7. Coil, Evaporator

SECTION II

TM9-4120-423-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC) GROUP 0105 COIL, EVAPORATOR FIGURE F-7	(7) QTY
1	PAFFF	4130011290858	97403	13219E9506	COOLING COIL,AIR,DUCT TYPE.....	1
2	PAFZZ	5310007653197	96906	MS27183-41	WASHER,FLAT.....	6
3	PAFZZ	5305009846195	96906	MS35206-247	SCREW,MACHINE.....	6
4	MFFZZ		50935	EHSP24C30H/48	TUBE,COPPER MAKE ITEM FROM (81346) ASTM-B280.625OD.....	1

END OF FIGURE

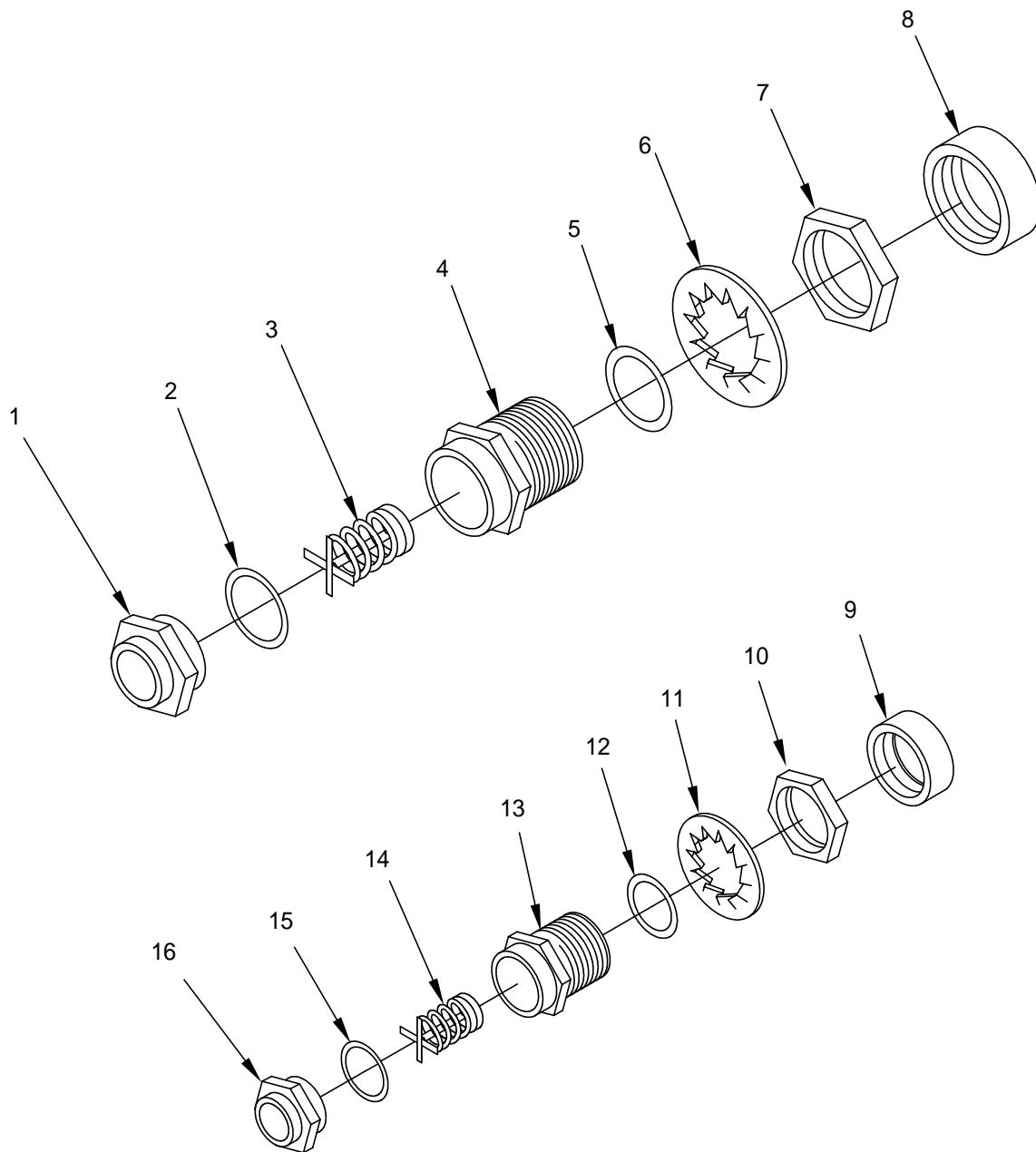


Figure F-8. Coupling Halves, Male

SECTION II

TM9-4120-423-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC) GROUP 0106 COUPLING HALVES, MALE FIGURE F-8	(7) QTY
1	XBFZZ		01276	202208-10-12	ADAPTER,STRAIGHT PIPE TO TUBE.....	1
2	XBFZZ	5330007157723	01276	22546-23	PACKING,PREFORMED.....	1
3	XBFZZ		01276	5400-S20-12	VALVE,REGULATING,FLUID PRESSURE.....	1
4	XBFZZ		01276	5400-17-12	BODY.....	1
5	XBFZZ		01276	22008-12	GASKET.....	1
6	XBFZZ		01276	5400-54-12S	WASHER,LOCK.....	1
7	XBFZZ		01276	5400-53-12S	NUT,JAM.....	1
8	XBFZZ		01276	5400-S6-12	PLUG,PROTECTIVE,DUST AND MOISTURE... SEAL.....	1
9	XBFZZ	4730006139864	01276	5400-S6-8	CAP,TUBE.....	1
10	XBFZZ		01276	5400-53-8S	NUT,JAM.....	1
11	XBFZZ		01276	5400-54-8S	WASHER,LOCK.....	1
12	XBFZZ		01276	22008-8	GASKET.....	1
13	XBFZZ		01276	5400-17-8	BODY.....	1
14	XBFZZ		01276	5400-S20-8	VALVE,REGULATING,FLUID PRESSURE.....	1
15	XBFZZ	5330007271286	01276	22546-17	O-RING.....	1
16	XBFZZ		01276	202208-6-8	ADAPTER,STRAIGHT PIPE TO TUBE.....	1

END OF FIGURE

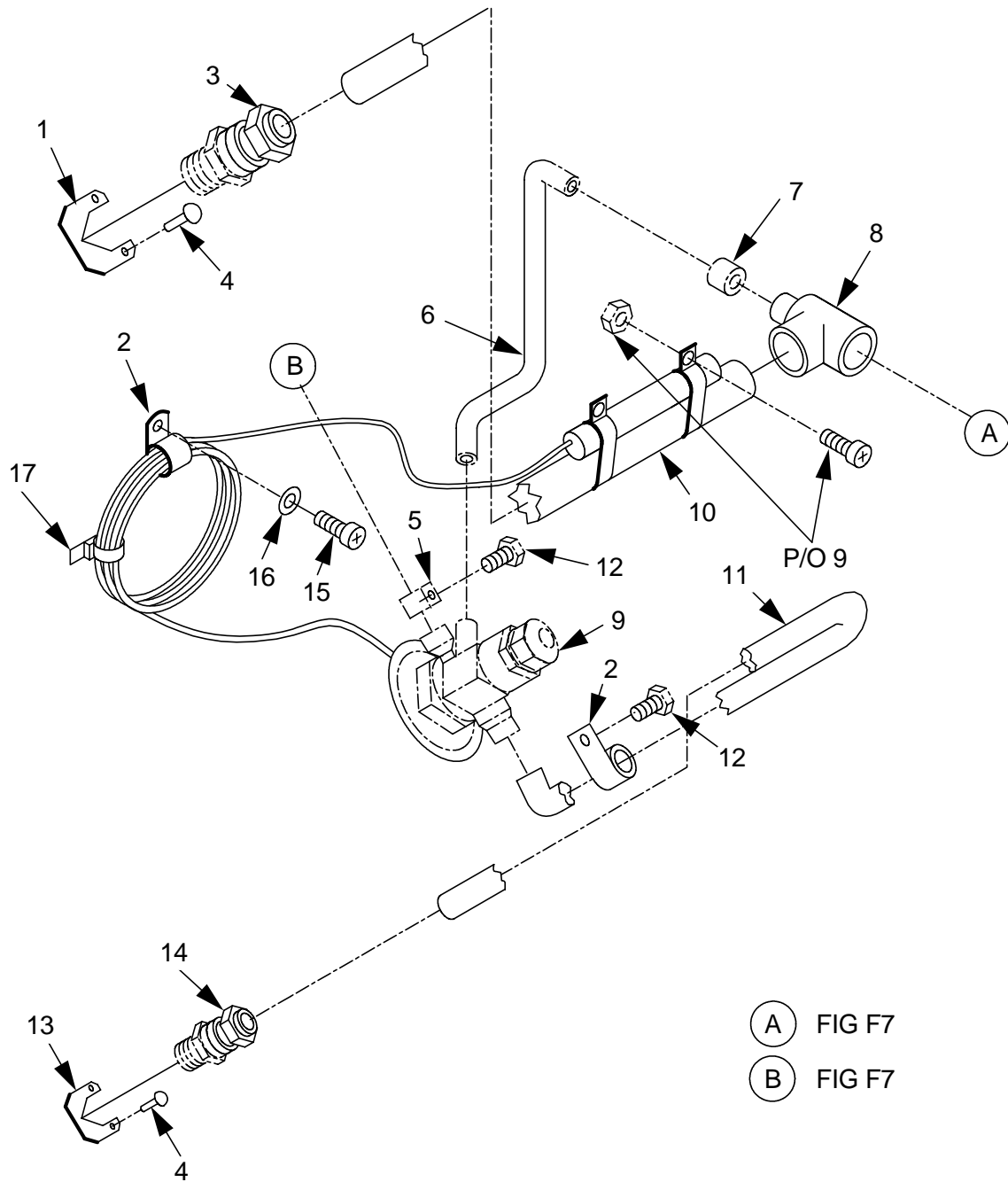


Figure F-9. Valve, Expansion

SECTION II

TM9-4120-423-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 0107 VALVE, EXPANSION						
FIGURE F-9						
1	XBFZZ		50935	SP3934-2	RETAINER HALF, COUPLING.....	1
2	PAFZZ	5340005980146	96906	MS21919WDG6	CLAMP, LOOP.....	2
3	PAFFF	4730012793419	01276	5401-S17-10-12	COUPLING HALF, SELF-SEALING.....	1
4	PAFZZ	5320012919121	81349	M24243/6-A405H	RIVET, BLIND.....	4
5	PAFZZ		96906	MS21919WDG11	CLAMP, LOOP.....	1
6	MFFZZ		50935	EHSP24C30H/23	TUBE, COPPER MAKE ITEM FROM (81346) ASTM-B280.250OD.....	1
7	PAFZZ	4730008221274	97403	13211E3799-1	REDUCER, TUBE.....	1
8	PAFZZ	4730010932799	97403	13211E4043-26	TEE, TUBE.....	1
9	PAFZZ	4820011382244	97403	13219E9496	VALVE, EXPANSION.....	1
10	MFFZZ		50935	EHSP24C30H/29	TUBE, COPPER MAKE ITEM FROM (81346) ASTM-B280.625OD.....	1
11	MFFZZ		50935	EHSP24C30H/26	TUBE, COPPER MAKE ITEM FROM (81346) ASTM-B280.375OD.....	1
12	PAFZZ	5305009846195	96906	MS35206-247	SCREW, MACHINE.....	2
13	XBFZZ		50935	SP3934-1	RETAINER HALF, COUPLING.....	1
14	PAFFZ	4730008592243	01276	5401-S17-6-8	COUPLING HALF, SELF-SEALING.....	1
15	PAFZZ	5305009846193	96906	MS35206-245	SCREW, MACHINE.....	1
16	PAFZZ	5310007653197	96906	MS27183-41	WASHER, FLAT.....	1
17	PAFZZ	5975000742072	96906	MS3367-1-9	STRAP, TIEDOWN, ELECTRICAL.. COMPONENTS.....	2

END OF FIGURE

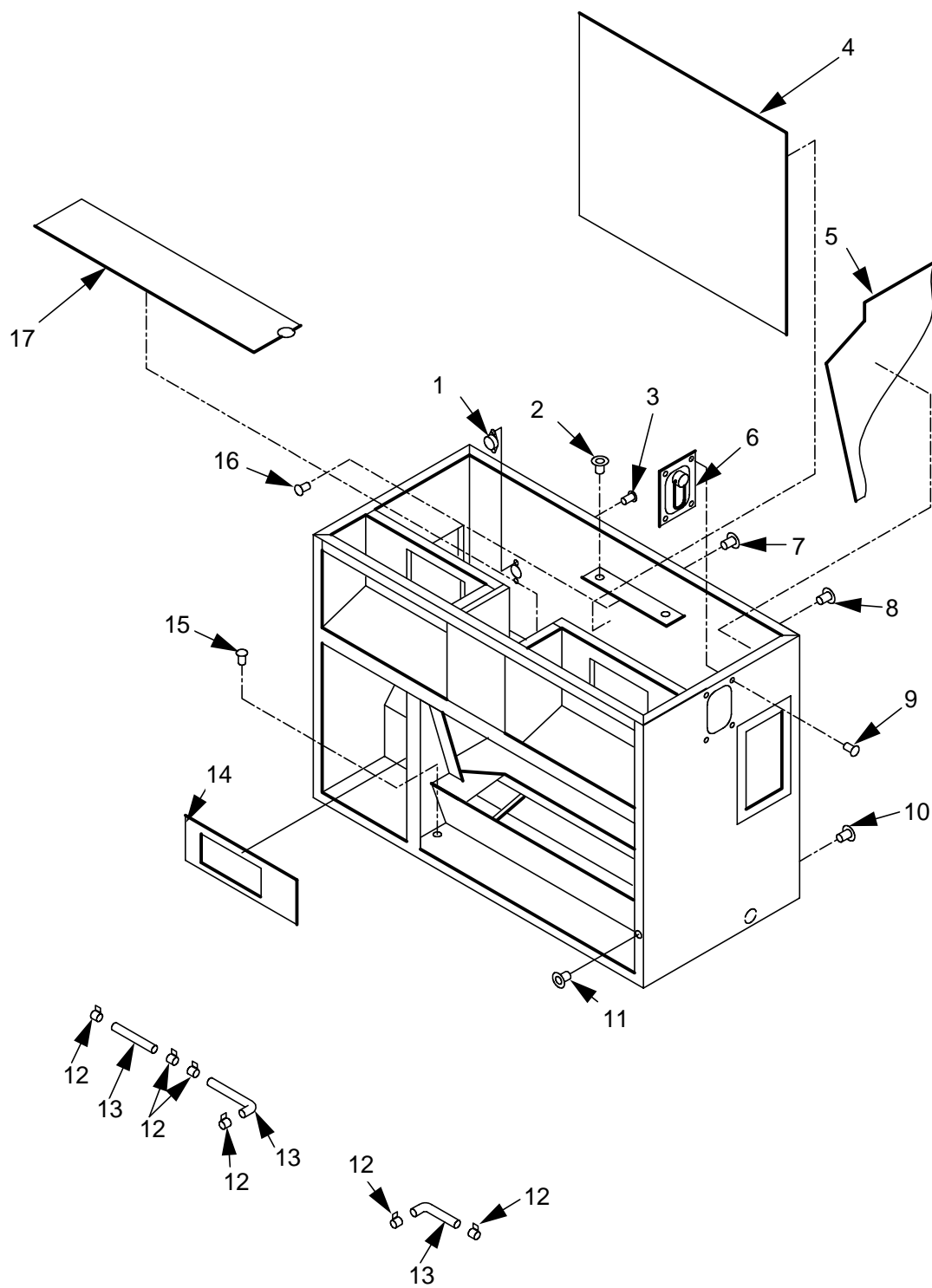


Figure F-10. Housing Assembly

SECTION II

TM9-4120-423-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 0108 HOUSING ASSEMBLY						
FIGURE F-10						
1	PAHZZ	5310007283469	96906	MS21077-08	NUT, SELF-LOCKING, PLATE.....	4
2	PAHZZ	5310009931548	97403	13219E9547-2	NUT, PLAIN, BLIND RIVET.....	2
3	PAHZZ	5320004119439	97403	13220E5213-3	RIVET, BLIND.....	8
4	XBHZZ		50935	SP3911-68	PANEL, REFLECTIVE.....	1
5	XBHZZ		50935	SP3911-66	PANEL, REFLECTIVE.....	1
6	XBHHH		97403	13219E9553	LIFTING RING ASSEMBLY.....	2
7	PAHZZ		97403	13219E9588-20	NUT, PLAIN, BLIND RIVET.....	1
8	PAHZZ		97403	13219E9547-20	NUT, PLAIN, BLIND RIVET.....	4
9	PAHZZ	5320009567355	81349	M24243/6-A604H	RIVET, BLIND.....	8
10	PAHZZ		97403	13219E9548-20	NUT, PLAIN, BLIND RIVET.....	3
11	PAHZZ	5310006162589	96906	MS27130-S93K	NUT, PLAIN, BLIND RIVET.....	100
12	PAFZZ		97403	13218E0250-5	CLAMP, HOSE.....	6
13	PCFZZ		81349	ZZR-R-765CLAGR50 5236K17	TUBING, SILICONE.....	1
14	XBFBZZ		81349	MIL-P-15280 FORM -S-1/2	INSULATION SLEEVING, ELECTRICAL.....	V
15	PAHZZ	5320001436149	81349	M24243/7-A403H	RIVET, BLIND.....	53
16	PAHZZ	5320004202169	81349	M24243/7-A404H	RIVET, BLIND.....	5
17	XBHZZ		50935	SP3911-67	PANEL, REFLECTIVE.....	1

END OF FIGURE

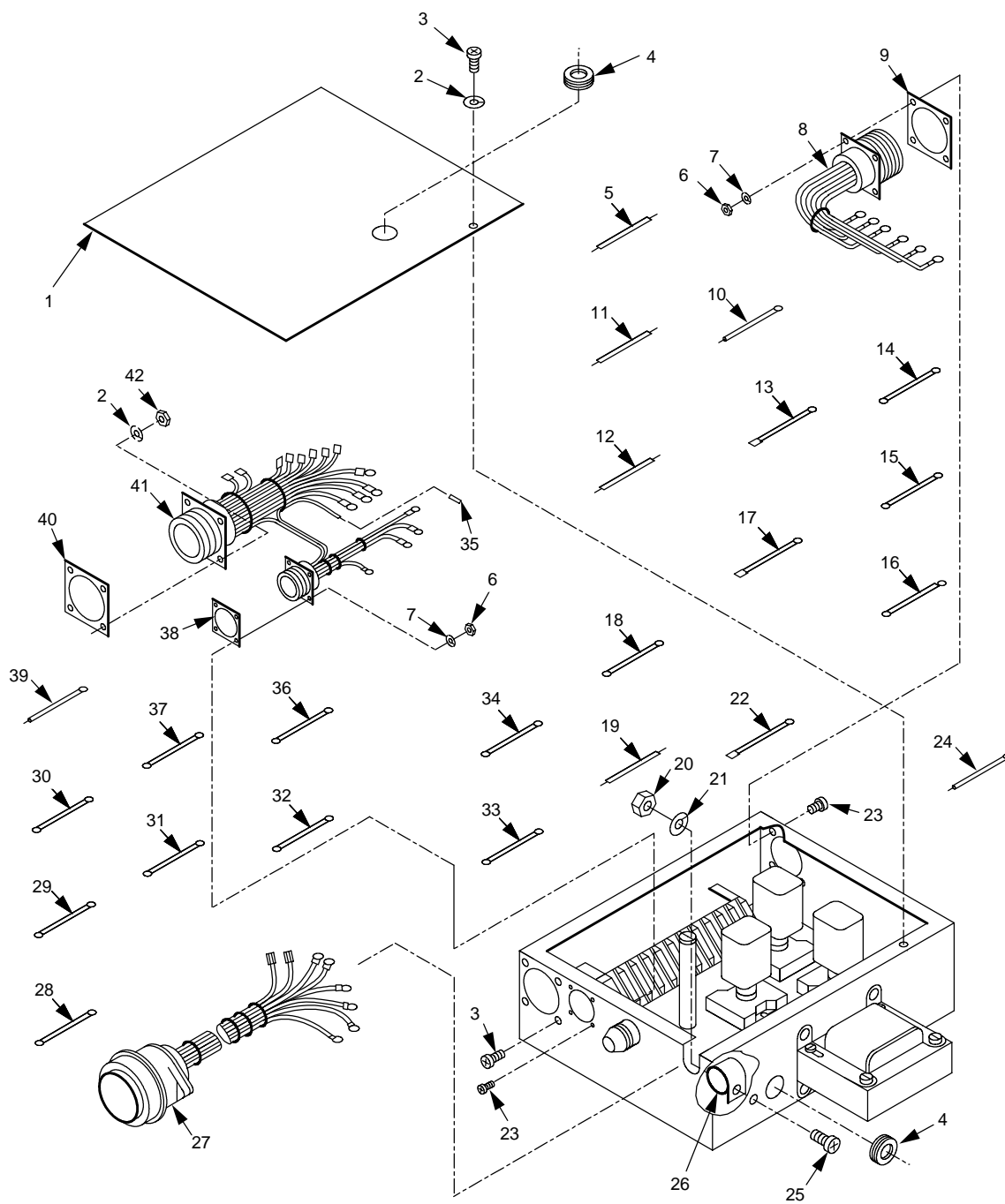


Figure F-11. Electrical Module (Sheet 1 of 2)

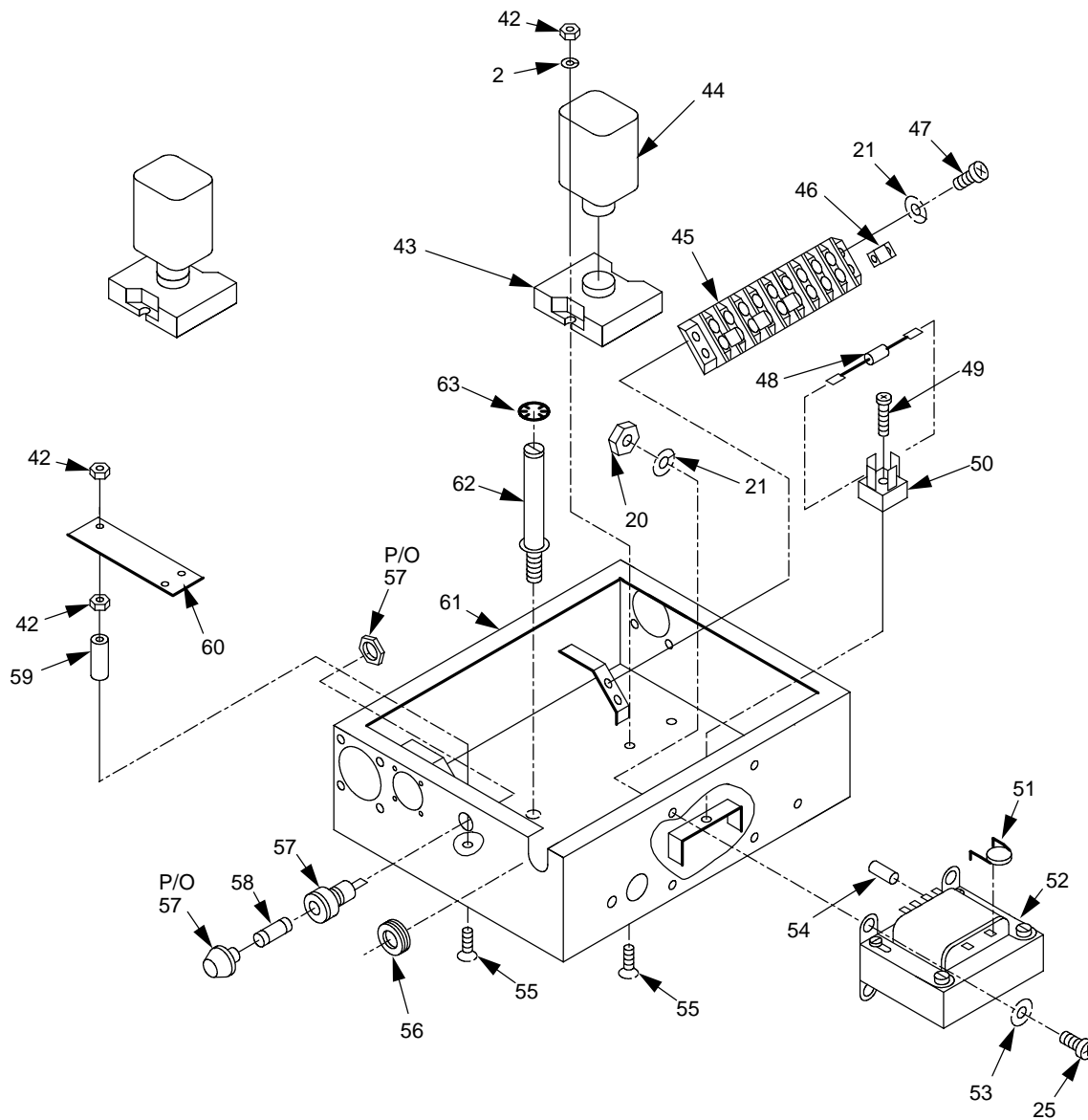


Figure F-11. Electrical Module (Sheet 2 of 2)

SECTION II

TM9-4120-423-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC) GROUP 0109 ELECTRICAL MODULE FIGURE F-11	(7) QTY
1	XBFFF		97403	13221E9114	COVER.....	1
2	PAFZZ	5310000454007	96906	MS35338-41	WASHER, LOCK.....	26
3	PAFZZ	5305008893000	96906	MS35206-230	SCREW, MACHINE.....	22
4	PAFZZ	5325002919366	96906	MS35489-11	GROMMET, NONMETALLIC.....	2
5	XBFFF		97403	13221E9104-5	LEAD, ELECTRICAL.....	1
6	PAFZZ	5310009349739	96906	MS35649-242	NUT, PLAIN, HEXAGON.....	8
7	PAFZZ	5310005432410	96906	MS35338-40	WASHER, LOCK.....	8
8	XBFFF		97403	13221E9125	WIRING HARNESS.....	1
9	PCFZZ	5999011308664	97403	13219E9584-4	SHIELDING GASKET, ELECTRONIC.....	1
10	XBFFF		97403	13221E9104-8	LEAD, ELECTRICAL.....	1
11	XBFFF		97403	13221E9104-6	LEAD, ELECTRICAL.....	1
12	XBFFF		97403	13221E9104-7	LEAD, ELECTRICAL.....	1
13	XBFFF		97403	13221E9104-9	LEAD, ELECTRICAL.....	1
14	XBFFF		97403	13221E9104-12	LEAD, ELECTRICAL.....	1
15	XBFFF		97403	13221E9104-13	LEAD, ELECTRICAL.....	1
16	XBFFF		97403	13221E9104-14	LEAD, ELECTRICAL.....	1
17	XBFFF		97403	13221E9104-10	LEAD, ELECTRICAL.....	1
18	XBFFF		97403	13221E9104-45	LEAD, ELECTRICAL.....	1
19	XBFFF		97403	13221E9104-46	LEAD, ELECTRICAL.....	1
20	PAFZZ	5310009349757	96906	MS35649-282	NUT, PLAIN, HEXAGON.....	5
21	PAFZZ	5310000453299	96906	MS35338-42	WASHER, LOCK.....	13
22	XBFFF		97403	13221E9104-11	LEAD, ELECTRICAL.....	1
23	PAFZZ	5305008892998	96906	MS35206-216	SCREW, MACHINE.....	8
24	XBFFF		97403	13221E9104-34	LEAD, ELECTRICAL.....	1
25	PAFZZ	5305009846193	96906	MS35206-245	SCREW, MACHINE.....	5
26	PAFZZ	5340002008560	96906	MS21919WDG5	CLAMP, LOOP.....	1
27	XBFFF		97403	13221E9133	WIRING HARNESS.....	1
28	XBFFF		97403	13221E9104-38	LEAD, ELECTRICAL.....	1
29	XBFFF		97403	13221E9104-37	LEAD, ELECTRICAL.....	1
30	XBFFF		97403	13221E9104-36	LEAD, ELECTRICAL.....	1
31	XBFFF		97403	13221E9104-40	LEAD, ELECTRICAL.....	1
32	XBFFF		97403	13221E9104-42	LEAD, ELECTRICAL.....	1
33	XBFFF		97403	13221E9104-44	LEAD, ELECTRICAL.....	1
34	XBFFF		97403	13221E9104-43	LEAD, ELECTRICAL.....	1
35	PAFZZ	5940009986126	97403	13221E9146	TERMINAL, QUICK DISCONNECT.....	2
36	XBFFF		97403	13221E9104-41	LEAD, ELECTRICAL.....	1
37	XBFFF		97403	13221E9104-39	LEAD, ELECTRICAL.....	1
38	PCFZZ	5999004718953	97403	13219E9584-3	SHIELDING GASKET, ELECTRONIC.....	1
39	XBFFF		97403	13221E9104-35	LEAD, ELECTRICAL.....	1
40	PCFZZ	5999011382194	97403	13219E9584-2	SHIELDING GASKET, ELECTRONIC.....	1
41	XBFFF		97403	13221E9131	WIRING HARNESS.....	1
42	PAFZZ	5310009349747	96906	MS35649-262	NUT, PLAIN, HEXAGON.....	13
43	PAFZZ	5935010529171	77342	27E123	SOCKET, PLUG-IN ELECTRONIC. COMPONENTS.....	3
44	PAFZZ	5945012220847	77342	KR14DGE-24	RELAY, ELECTROMAGNETIC.....	3
45	XBFFF		81349	39TB-9	TERMINAL BOARD.....	1
46	XBFFF		97403	13221E9107-4	BUS, CONDUCTOR.....	4
47	PAFZZ	5305009846196	96906	MS35206-248	SCREW, MACHINE.....	4

SECTION II

TM9-4120-423-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
48	PAFZZ	5910000990541	81349	M39014/05-2261	CAPACITOR, FIXED, CERAMIC DIELECTRIC..	1
49	PAFZZ	5305009844993	96906	MS35206-233	SCREW, MACHINE.....	1
50	PAFZZ	5961014762422	97403	13227E8321	SEMICONDUCTOR DEVICE, DIODE.....	1
51	PAFZZ	5905002559504	97403	13221E9119-1	RESISTOR, VOLTAGE SENSITIVE.....	1
52	PAFZZ	5950011362195	97403	13221E9117	TRANSFORMER, POWER.....	1
53	PAFZZ	5310007653197	96906	MS27183-41	WASHER, FLAT.....	4
54	PCFZZ	5970007670524	81349	M23053/5-206-C	INSULATION SLEEVING, ELECTRICAL.....	2
55	PAFZZ	5305009577820	96906	MS24693S31	SCREW, MACHINE.....	9
56	PAFZZ		96906	MS35489-14	GROMMET, NONMETALLIC.....	1
57	PAFZZ	5920005560144	81349	FHN20G	FUSEHOLDER, EXTRACTOR POST.....	1
58	PAFZZ	5920005483126	81349	F02A250V6A	FUSE, CARTRIDGE.....	1
59	XBFZZ		97403	13221E9132	SPACER, SLEEVE.....	3
60	PAFZZ		60445	7021011112	CONTROLLER, TEMPERATURE.....	1
61	XBFFF		50935	SP3914	CHASSIS, ELECTRICAL EQUIPMENT.....	1
62	PBFZZ	5305011284072	97403	13221E9144	SCREW, MACHINE.....	2
63	PAFZZ		96906	MS90707-2037	RING, RETAINING.....	2

END OF FIGURE

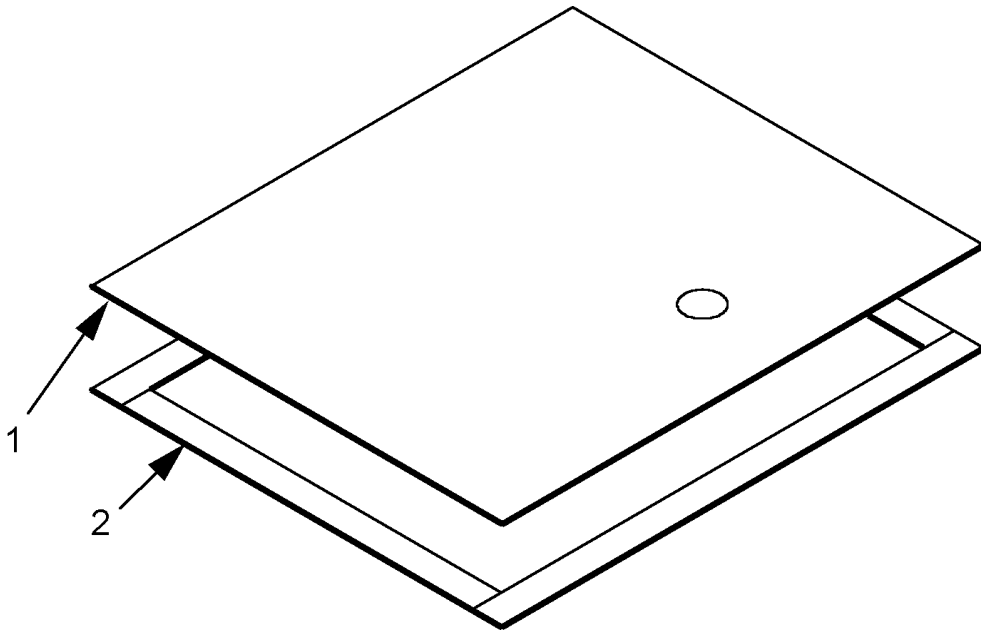


Figure F-12. Cover

0112 00-1

SECTION II

TM9-4120-423-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC) GROUP 010901 COVER FIGURE F-12	(7) QTY
1	XBFZZ		97403	13221E9114-1	COVER.....	1
2	PAFZZ	5999009064683	97403	13219E9568-1	WIRE MESH,KNITTED.....	3

END OF FIGURE

TM9-4120-423-14&P

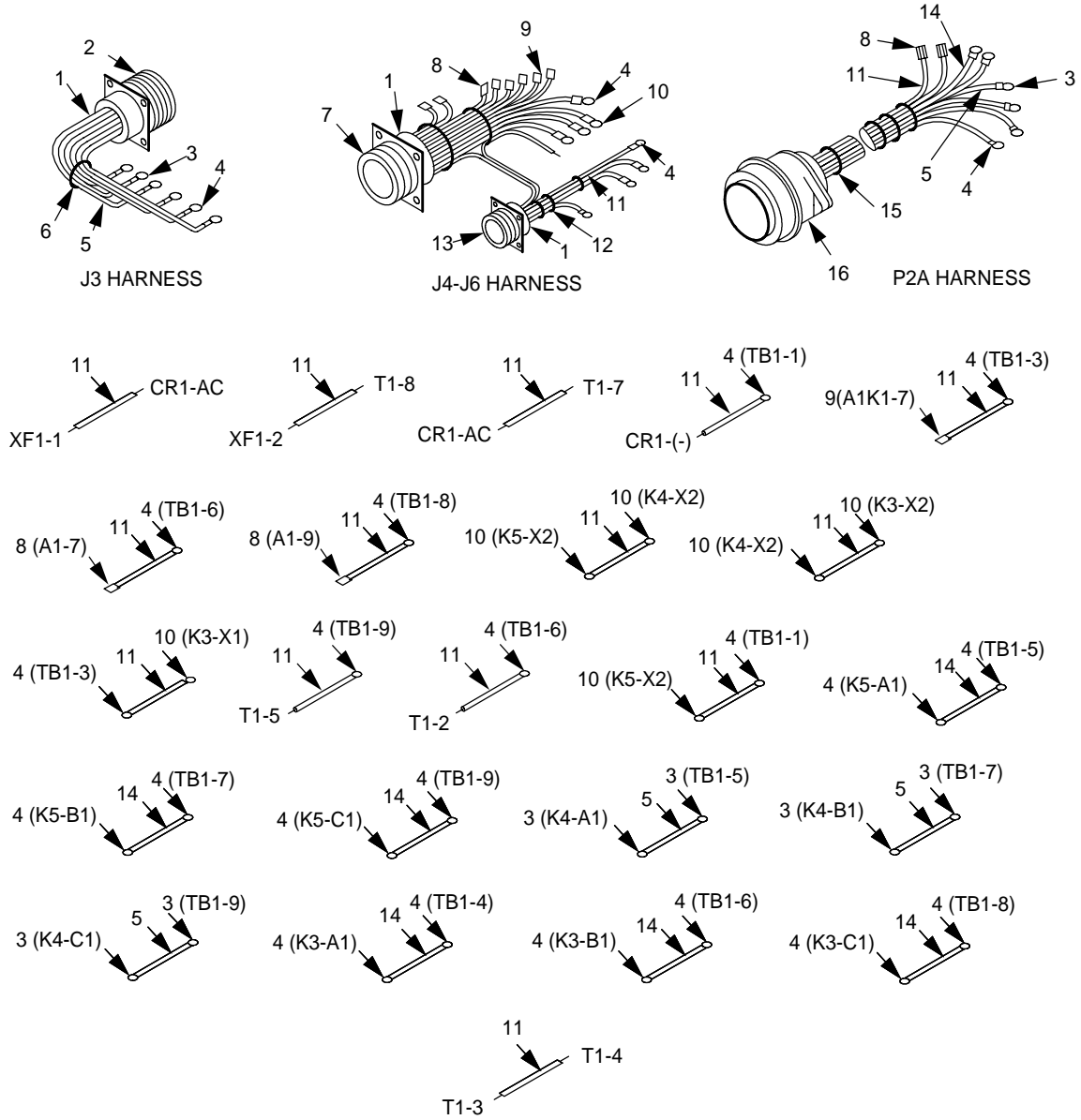


Figure F-13. Harness Assemblies and Leads

SECTION II

TM9-4120-423-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC) GROUP 010902 HARNESS ASSEMBLIES AND LEADS FIGURE F-13	(7) QTY
1	PCFZZ	5970007670515	81349	M23053/5-205-C	INSULATION SLEEVING,ELECTRICAL.....	3
2	PAFZZ	5935011734811	96906	MS3452W20-15S	CONNECTOR,RECEPTACLE,ELECTRICAL.....	1
3	PAFZZ	5940001434775	96906	MS25036-156	TERMINAL,LUG.....	12
4	PAFZZ	5940001434774	96906	MS25036-153	TERMINAL,LUG.....	31
5	PAFZZ	6145005787521	81349	M5086/1-12-9	WIRE,ELECTRICAL.....	V
6	PAFZZ		81349	MIL-T-43435TYPE- 1FNSH-B-NO-2	TAPE,LACING AND TYING.....	2
7	PAFZZ	5935012290140	96906	MS3452W24-28S	CONNECTOR,RECEPTACLE,ELECTRICAL.....	1
8	PAFZZ	5940009260085	97403	13207E5347-2	TERMINAL,QUICK DISCONNECT.....	11
9	PAFZZ	5940010499661	97403	13221E9123-1	TERMINAL,QUICK DISCONNECT.....	2
10	PAFZZ	5940002835280	96906	MS25036-106	TERMINAL,LUG.....	9
11	PAFZZ	6145005786072	81349	M5086/1-16-9	WIRE,ELECTRICAL.....	V
12	PAFZZ		81349	MIL-T-43435TYPE- 1FNSH-B-NO-2	TAPE,LACING AND TYING.....	3
13	PAFZA	5935008016620	96906	MS3102R14S-6S	CONNECTOR,RECEPTACLE,ELECTRICAL.....	1
14	PAFZZ	6145005787516	81349	M5086/1-14-9	WIRE,ELECTRICAL.....	V
15	PAFZZ		81349	MIL-T-43435TYPE- 1FNSH-B-NO-2	TAPE,LACING AND TYING.....	3
16	PAFZA	5935011989937	96906	MS3456W24-11P	CONNECTOR,PLUG,ELECTRICAL.....	1

END OF FIGURE

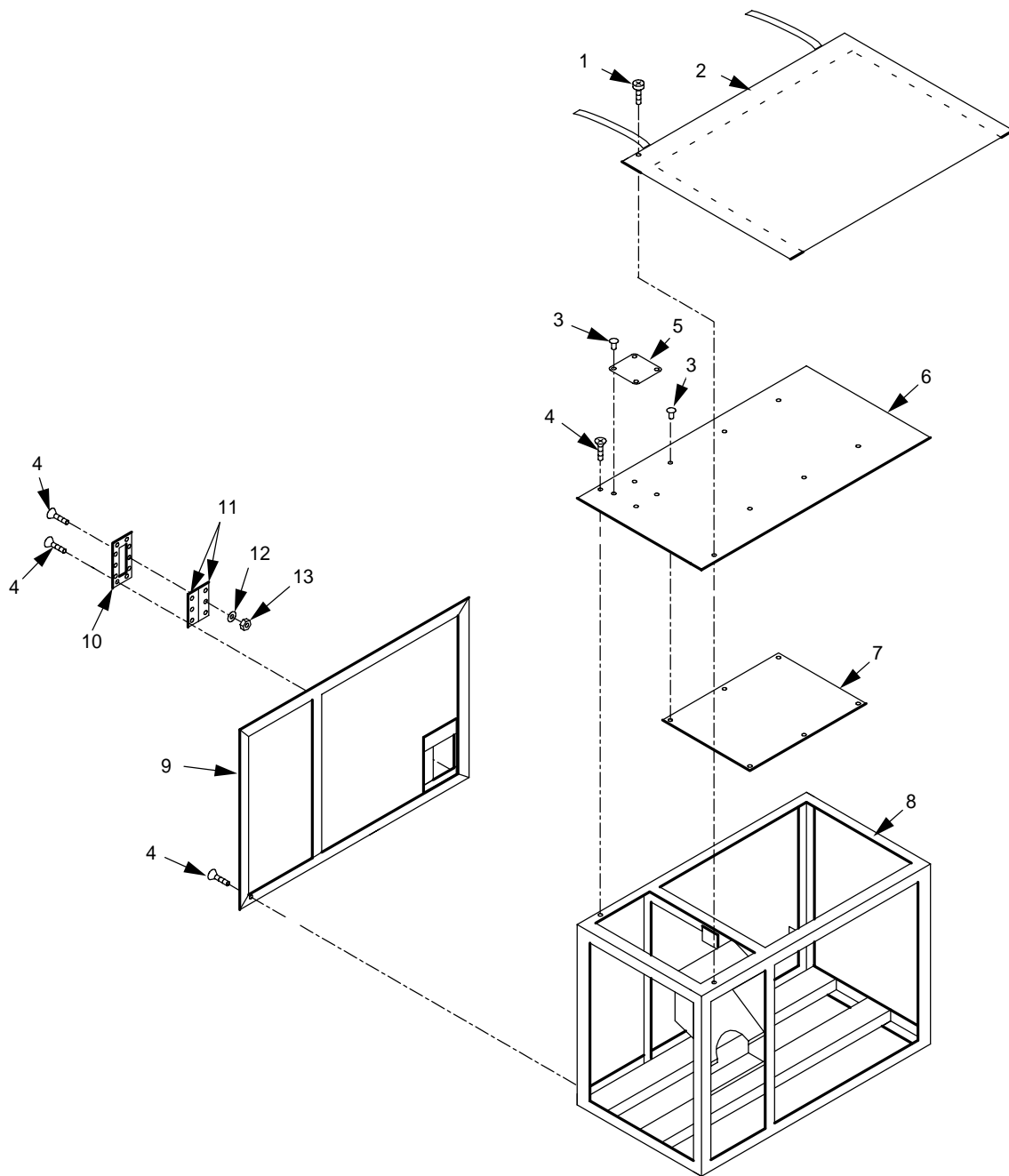


Figure F-14. Condenser Assembly (Sheet 1 of 6)

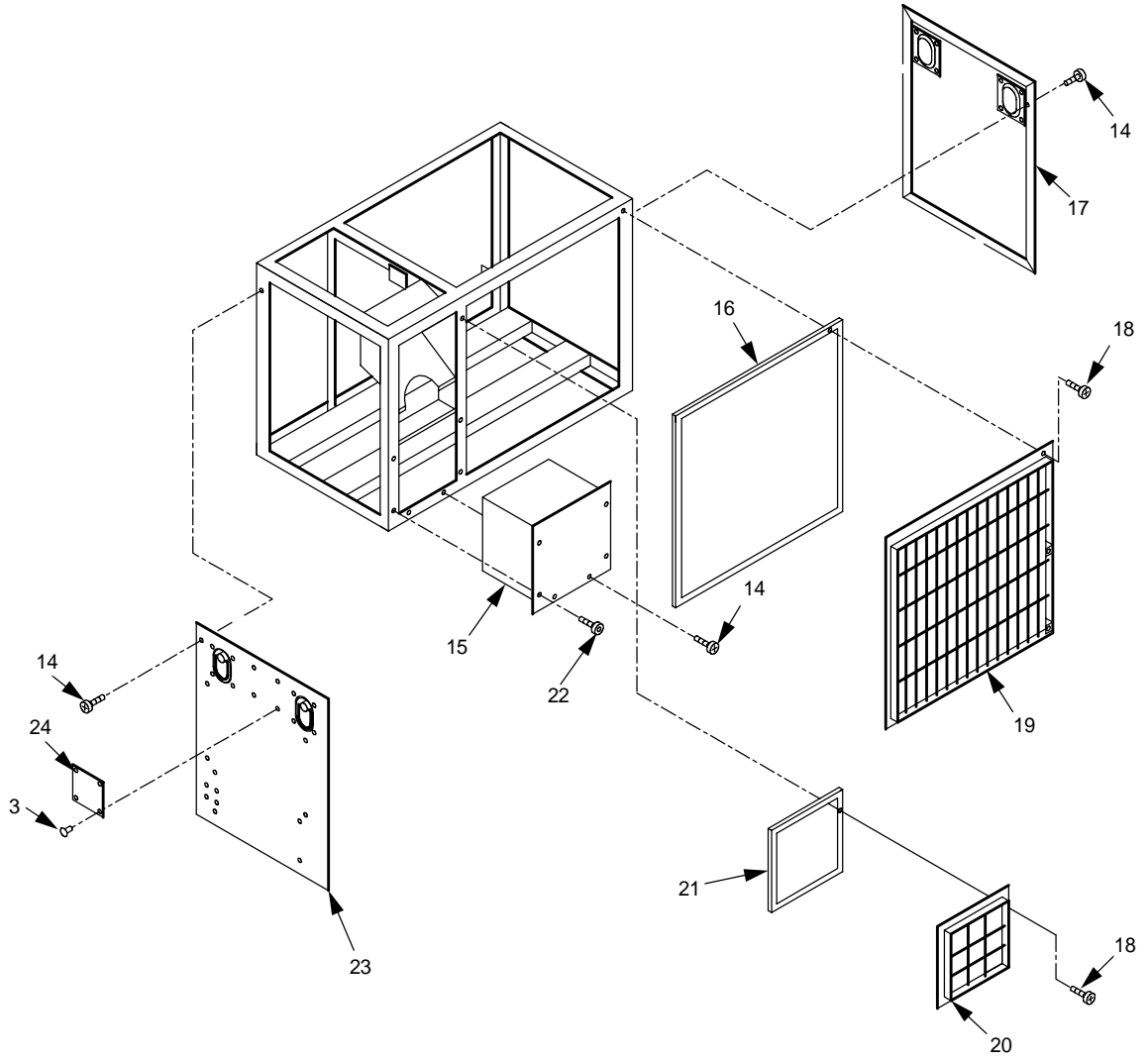


Figure F-14. Condenser Assembly (Sheet 2 of 6)

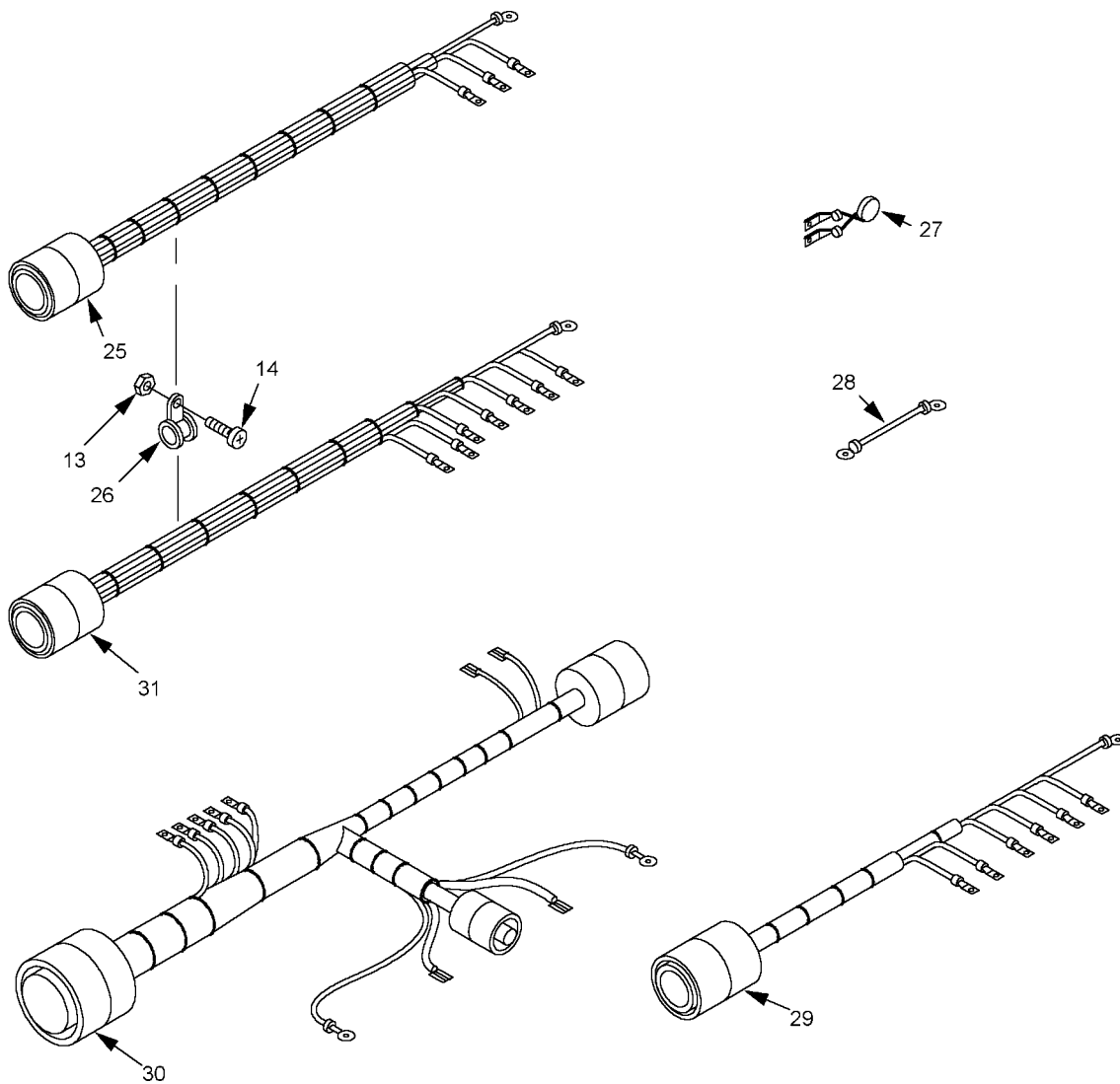


Figure F-14. Condenser Assembly (Sheet 3 of 6)

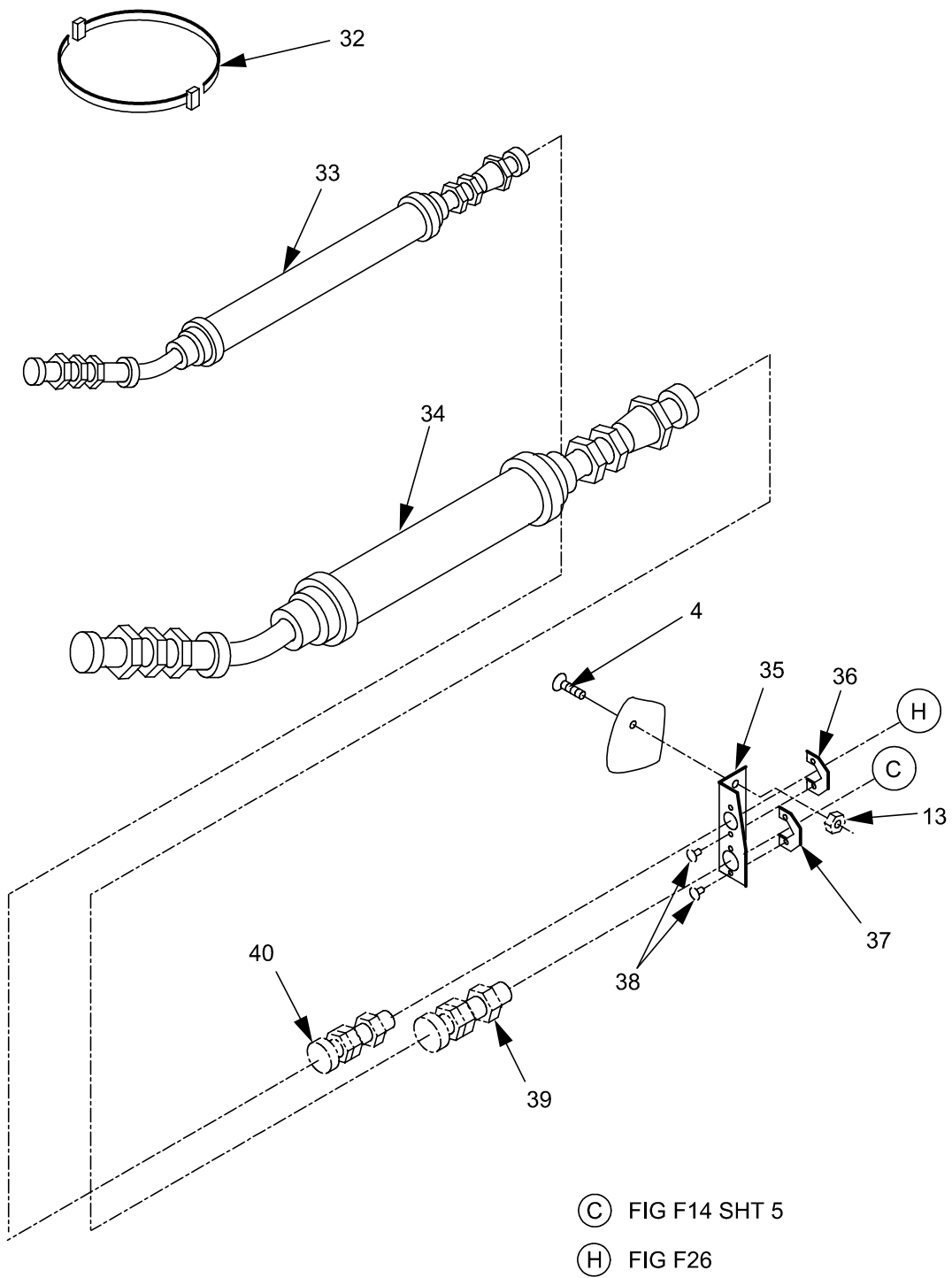


Figure F-14. Condenser Assembly (Sheet 4 of 6)

TM9-4120-423-14&P

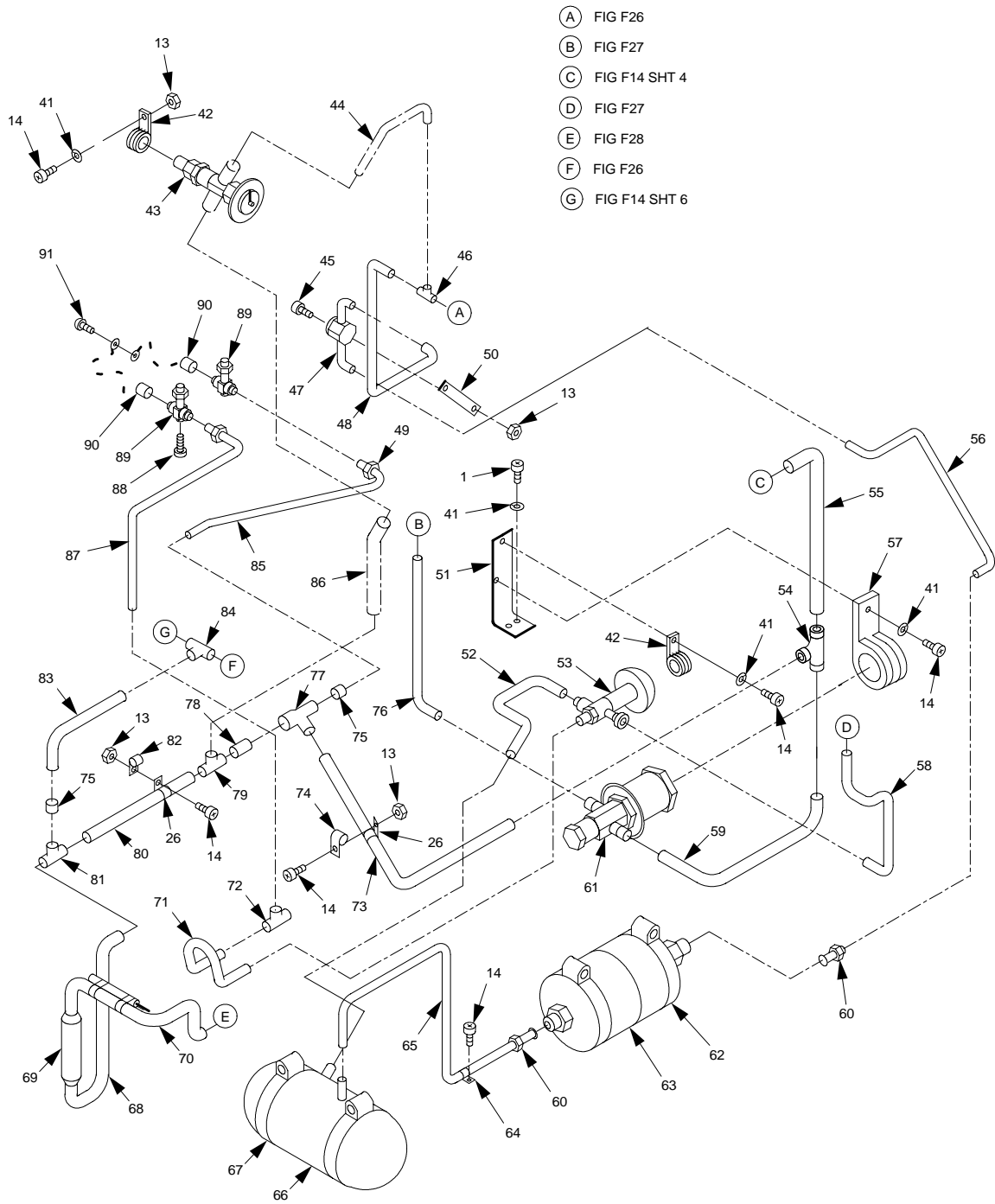


Figure F-14. Condenser Assembly (Sheet 5 of 6)

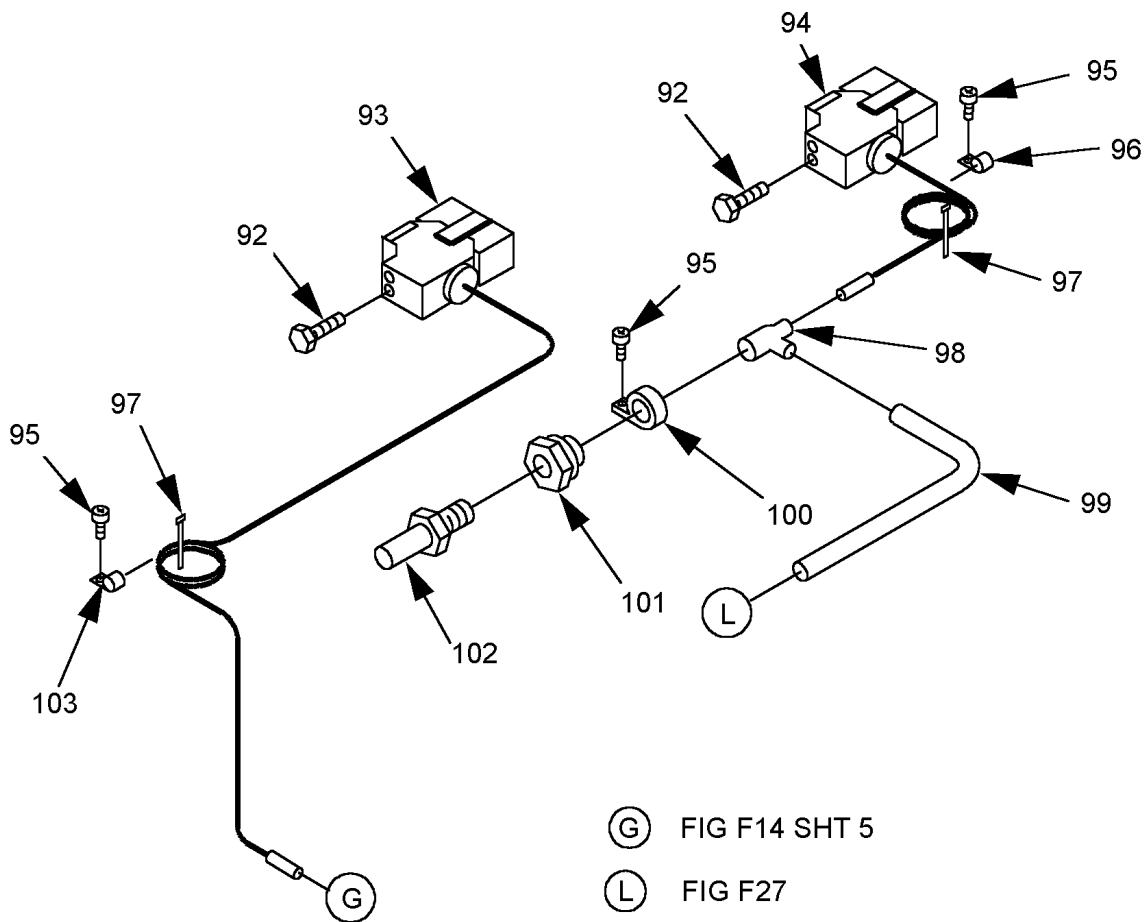


Figure F-14. Condenser Assembly (Sheet 6 of 6)

SECTION II

TM9-4120-423-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC) GROUP 02 CONDENSER ASSEMBLY FIGURE F-14	(7) QTY
1	PAOZZ	5305009846195	96906	MS35206-247	SCREW,MACHINE.....	5
2	PAOFF		50935	SP4821	COVER,PROTECTIVE,CONDENSER.....	1
3	PAOZZ	5320009321972	81349	M24243/6-A402H	RIVET,BLIND.....	14
4	PAOZZ	5305009655882	96906	MS24693S52	SCREW,MACHINE.....	50
5	XBFZZ		50935	015W235	PLATE,INFORMATION.....	1
6	XBOFF		50935	SP4818	COVER, TOP, CONDENSER.....	1
7	XBFZZ		50935	015W244	PLATE,WIRING DIAGRAM.....	1
8	XAHHH		50935	SP3917	HOUSING,CONDENSER.....	1
9	XBOFF		97403	13219E9522	COVER,FRONT,CONDENSER.....	1
10	XBOFF		97403	13222E8982	COVER,FEED THRU.....	1
11	PCOZZ	5330011382248	97403	13219E9563	SEAL,NONMETALLIC STRIP.....	2
12	PAOZZ	5310007653197	96906	MS27183-41	WASHER,FLAT.....	6
13	PAOZZ	5310008113494	80205	MS21044N08	NUT,SELF-LOCKING,HEXAGON.....	16
14	PAOZZ	5305009846194	96906	MS35206-246	SCREW,MACHINE.....	51
15	PFFFF		50935	SP3918	ELECTRICAL MODULE,CONDENSER.....	1
16	PCFZZ	4130011362209	97403	13219E9573	SCREEN,CONDENSER.....	1
17	XBOFF		97403	13219E9516	COVER,LEFT END,CONDENSER.....	1
18	PAOZZ	5305009846199	96906	MS35206-251	SCREW,MACHINE.....	26
19	PBOFF		50935	SP4819	GUARD,CONDENSER.....	1
20	XBOFF		97403	13219E9517	GRILLE,CONDENSER DISCHARGE.....	1
21	PCFZZ	4130011362208	97403	13219E9572	SCREEN,CONDENSER DISCHARGE.....	1
22	PAFZZ	5325010886923	96906	MS27980-14B	STUD,SNAP FASTENER.....	2
23	XBOFF		97403	13221E9106	COVER,RIGHT END,CONDENSER.....	1
24	XBFZZ		50935	015W239	PLATE,IDENTIFICATION,CONDENSER.....	1
25	XBFFF		97403	13221E9124	WIRING HARNESS.....	1
26	PAFZZ	5340005846556	96906	MS21919WDG10	CLAMP,LOOP.....	3
27	XBFZZ		97403	13221E9149	VARISTOR WITH TERMINALS.....	3
28	XBFFF		97403	13221E9104-29	LEAD,ELECTRICAL.....	1
29	XBFFF		97403	13221E9141	WIRING HARNESS.....	1
30	XBFFF		97403	13221E9127	WIRING HARNESS.....	1
31	XBFFF		97403	13221E9139	WIRING HARNESS.....	1
32	PAFZZ	5975001338696	96906	MS3367-6-9	STRAP,TIEDOWN,ELECTRICAL..	2
33	PAFFF		50935	SP3915	COMPONENTS.....	1
34	PAFFF		50935	SP3916	HOSE ASSEMBLY.....	1
35	XBFZZ		50935	SP3889	BRACKET,FEED THRU CONNECTORS.....	1
36	XBFZZ		50935	SP3934-2	RETAINER HALF,COUPLING.....	1
37	XBFZZ		50935	SP3934-1	RETAINER HALF,COUPLING.....	1
38	PAFZZ	5320008503282	81349	M24243/1-A408	RIVET,BLIND.....	4
39	PAFFF	4730012793419	01276	5401-S17-10-12	COUPLING HALF,SELF-SEALING.....	1
40	PAFFZ	4730008592243	01276	5401-S17-6-8	COUPLING HALF,SELF-SEALING.....	1
41	PAFZZ	5310000453299	96906	MS35338-42	WASHER,LOCK.....	4
42	PAFZZ	5340002007449	96906	MS21919WDG18	CLAMP,LOOP.....	2
43	PAFZZ	4820011382245	97403	13221E9099	VALVE,EXPANSION.....	1
44	MFFZZ		50935	BHSP24C/141	TUBE,COPPER MAKE ITEM FROM (81346)	1
45	PAFZZ	5305009846200	96906	MS35206-252	ASTM-B280.3750D.....	2
46	PAFZZ	4730002636460	96906	MS35929-3	TEE,TUBE.....	1

SECTION II

TM9-4120-423-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
47	PAFZZ	6680000738404	97403	13211E8218	INDICATOR,SIGHT,LIQUID.....	1
48	MFFZZ		50935	BHSP24C/130	TUBE,COPPER MAKE ITEM FROM (81346) ASTM-B280.375OD.....	1
49	PAFZZ	4730001892737	96906	MS35872-2	NUT,TUBE COUPLING.....	2
50	XBFZZ		97403	13219E9498	BRACKET,SIGHT GLASS.....	1
51	XBFFF		97403	13221E9090	BRACKET,VALVE MOUNTING.....	1
52	MFFZZ		50935	BHSP24C/92	TUBE,COPPER MAKE ITEM FROM (81346) ASTM-B280.375OD.....	1
53	PAFZZ		0CLB1	HPST3B	CONTROL,HEAD PRESSURE.....	1
54	PAFZZ	4730002636472	96906	MS35929-5	TEE,TUBE.....	1
55	MFFZZ		50935	BHSP24C/82	TUBE,COPPER MAKE ITEM FROM (81346) ASTM-B280.625OD.....	1
56	MFFZZ		50935	BHSP24C/25	TUBE,COPPER MAKE ITEM FROM (81346) ASTM-B280.375OD.....	1
57	PAFZZ	5340002003045	96906	MS21919WDG24	CLAMP,LOOP.....	1
58	MFFZZ		50935	BHSP24C/62	TUBE,COPPER MAKE ITEM FROM (81346) ASTM-B280.375OD.....	1
59	MFFZZ		50935	BHSP24C/137	TUBE,COPPER MAKE ITEM FROM (81346) ASTM-B280.625OD.....	1
60	PAFZZ	4730001892739	96906	MS35872-3	NUT,TUBE COUPLING.....	2
61	PAFZZ	4820011382214	97403	13221E9105	VALVE,EXPANSION.....	1
62	PAFZZ	4730009098627	96906	MS35842-13	CLAMP,HOSE.....	2
63	PAFZZ	4130005724709	96906	MS35845-1	FILTER-DRIER,REFRIGERANT.....	1
64	PAFZZ	5340005980146	96906	MS21919WDG6	CLAMP,LOOP.....	2
65	MFFZZ		50935	BHSP24C/121	TUBE,COPPER MAKE ITEM FROM (81346) ASTM-B280.375OD.....	1
66	XBFZZ		0B8D4	8964	RECEIVER,LIQUID REFRIGERANT.....	1
67	PAFZZ	4730009086293	96906	M835842-15	CLAMP,HOSE.....	2
68	MFFZZ		50935	BHSP24C/79	TUBE,COPPER MAKE ITEM FROM (81346) ASTM-B280.625OD.....	1
69	PAFZZ		7V772	VIB-5	ABSORBER,VIBRATION.....	1
70	MFFZZ		50935	BHSP24C/38	TUBE,COPPER MAKE ITEM FROM (81346) ASTM-B280.625OD.....	1
71	MFFZZ		50935	BHSP24C/166	TUBE,COPPER MAKE ITEM FROM (81346) ASTM-B280.375OD.....	1
72	PAFZZ	4730008187778	97403	13211E4043-6	TEE,TUBE.....	1
73	MFFZZ		50935	BHSP24C/88	TUBE,COPPER MAKE ITEM FROM (81346) ASTM-B280.625OD.....	1
74	PAFZZ	5340002915353	96906	MS21919WDG2	CLAMP,LOOP.....	1
75	PAFZZ	4730008221274	97403	13211E3799-1	REDUCER,TUBE.....	2
76	MFFZZ		50935	BHSP24C/77	TUBE,COPPER MAKE ITEM FROM (81346) ASTM-B280.500OD.....	1
77	PAFZZ	4730010932799	97403	13211E4043-26	TEE,TUBE.....	1
78	MFFZZ		50935	BHSP24C/182	TUBE,COPPER MAKE ITEM FROM (81346) ASTM-B280.625OD.....	1
79	PAFZZ	4730002636471	97403	13211E4043-20	TEE,TUBE.....	1
80	MFFZZ		50935	BHSP24C/183	TUBE,COPPER MAKE ITEM FROM (81346) ASTM-B280.625OD.....	1
81	PAFZZ	4730002636470	97403	13211E4043-21	TEE,TUBE.....	1
82	PAFZZ	5340002915347	96906	MS21919WDG8	CLAMP,LOOP.....	1
83	MFFZZ		50935	BHSP24C/129	TUBE,COPPER MAKE ITEM FROM (81346) ASTM-B280.250OD.....	1

SECTION II

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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
84	PAFZZ	4730002572163	96906	MS35929-2	TEE,TUBE.....	1
85	MFFZZ		50935	BHSP24C/30	TUBE,COPPER MAKE ITEM FROM (81346) ASTM-B280.250OD.....	1
86	MFFZZ		50935	BHSP24C/61	TUBE,COPPER MAKE ITEM FROM (81346) ASTM-B280.500OD.....	1
87	MFFZZ		50935	BHSP24C/32	TUBE,COPPER MAKE ITEM FROM (81346) ASTM-B280.250OD.....	1
88	PAFZZ	5305009844983	96906	MS35206-226	SCREW,MACHINE.....	4
89	PAFZZ	4820011382213	97403	13221E9098	VALVE,GATE.....	2
90	PAFZZ	4730010923835	97403	13219E9540	CAP,TUBE.....	2
91	PAFZZ		81349	M24243/2-A403H	RIVET,BLIND.....	1
92	PAFZZ	5305002308586	96906	MS51849-34	SCREW,MACHINE.....	4
93	PAFZZ	5930002921087	97403	13219E9546-2	SWITCH,PRESSURE.....	1
94	PAFZZ	5930002757800	97403	13211E8404	SWITCH,PRESSURE.....	1
95	PAFZZ	5305001380069	96906	MS51861-44	SCREW,TAPPING.....	3
96	PAFZZ	5340002008560	96906	MS21919WDG5	CLAMP,LOOP.....	1
97	PAFZZ	5975000742072	96906	MS3367-1-9	STRAP,TIEDOWN,ELECTRICAL.. COMPONENTS.....	10
98	PAFZZ	4730011250420	97403	13211E4043-18	TEE,TUBE.....	1
99	MFFZZ		50935	BHSP24C/51	TUBE,COPPER MAKE ITEM FROM (81346) ASTM-B280.250OD.....	1
100	PAFZZ	5340002869421	96906	MS21919WDG13	CLAMP,LOOP.....	1
101	PAFZZ	4730008080394	41947	w-1526	ADAPTER,STRAIGHT PIPE TO TUBE.....	1
102	PAFZZ	4820000738405	97403	13211E8369	VALVE,SAFETY RELIEF.....	1
103	PAFZZ	5340002915322	96906	MS21919WDG3	CLAMP,LOOP.....	1

END OF FIGURE

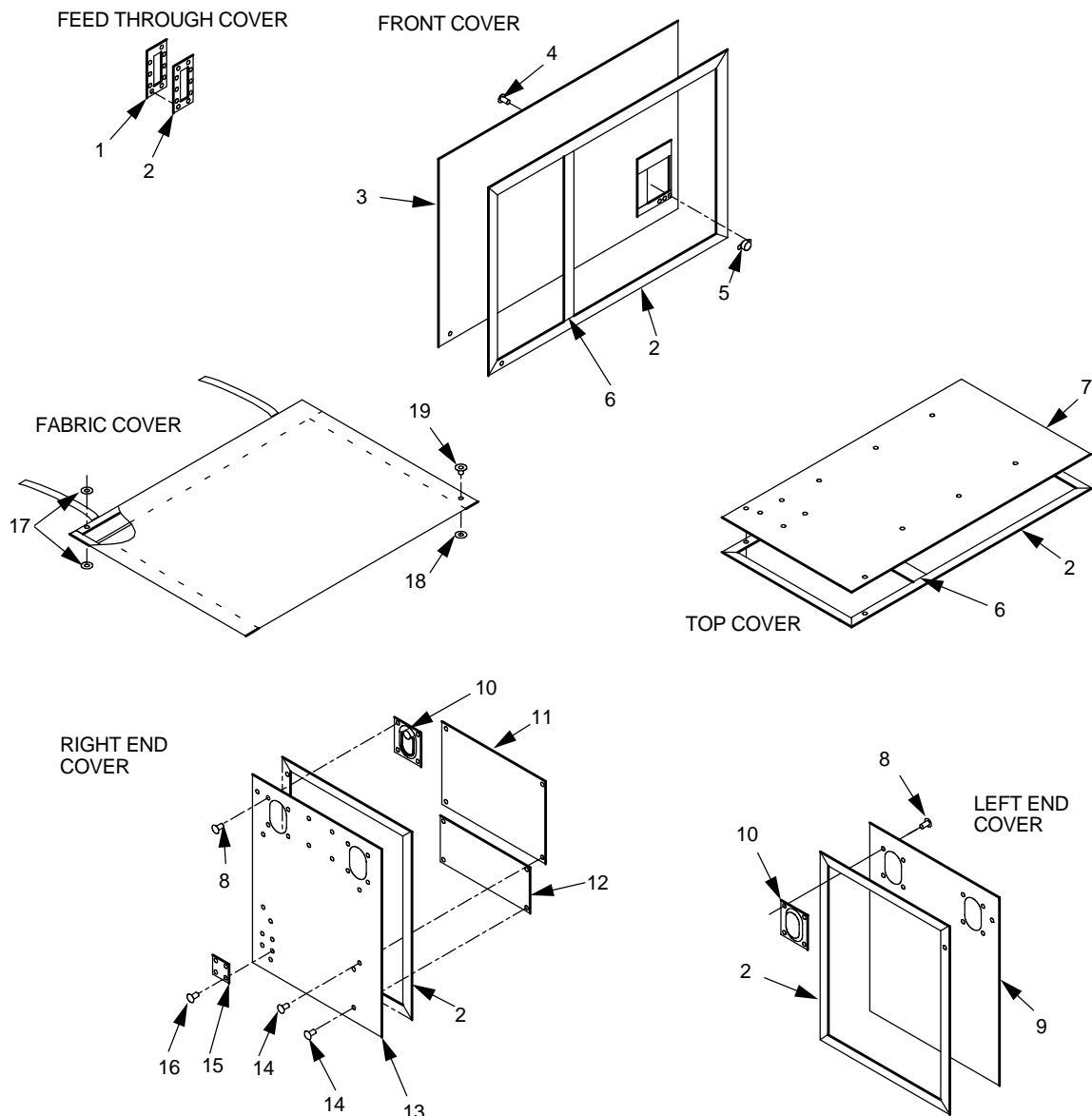


Figure F-15. Covers

SECTION II

TM9-4120-423-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
					GROUP 0201 COVERS	
					FIGURE F-15	
1	XBFZZ		97403	13222E8982-1	COVER.....	1
2	PAFZZ	5999009064683	97403	13219E9568-1	WIRE MESH,KNITTED.....	V
3	XBFZZ		97403	13219E9522-1	COVER.....	1
4	PAOZZ	5320004119439	97403	13220E5213-3	RIVET,BLIND.....	8
5	PAOZZ	5310007283469	96906	MS21077-08	NUT,SELF-LOCKING,PLATE.....	4
6	PCOZZ	9320011382192	97403	13219E9528	TAPE,ADHESIVE,RUBBER.....	4
7	XBFZZ		50935	SP4818-1	COVER.....	1
8	PAFZZ	5320001182000	96906	MS20470B6-6	RIVET,SOLID.....	16
9	XBFZZ		97403	13219E9516-1	COVER.....	1
10	XBFZZ		97403	13219E9529	RING,TIEDOWN.....	4
11	XBFZZ		50935	015W242	PLATE,IDENTIFICATION.....	1
12	XBFZZ		50935	SP4820	PLATE,IDENTIFICATION.....	1
13	XBFZZ		97403	13221E9106-1	COVER.....	1
14	PAFZZ	5320009321972	81349	M24243/6-A402H	RIVET,BLIND.....	8
15	XBFZZ		50935	015W203	PLATE,DANGER.....	1
16	PAFZZ	5320001658771	96906	MS20426B4-5	RIVET,SOLID.....	4
17	PAOZZ	5325010709180	81349	MIL-G-16491 TY1 CL3 SIZE 0	GROMMET,METALLIC.....	3
18	PAOZZ	5325002764946	96906	MS27980-6N	SOCKET,SNAP FASTENER.....	4
19	PAOZZ	5325002764953	96906	MS27980-1N	CAP,SNAP FASTENER.....	4

END OF FIGURE

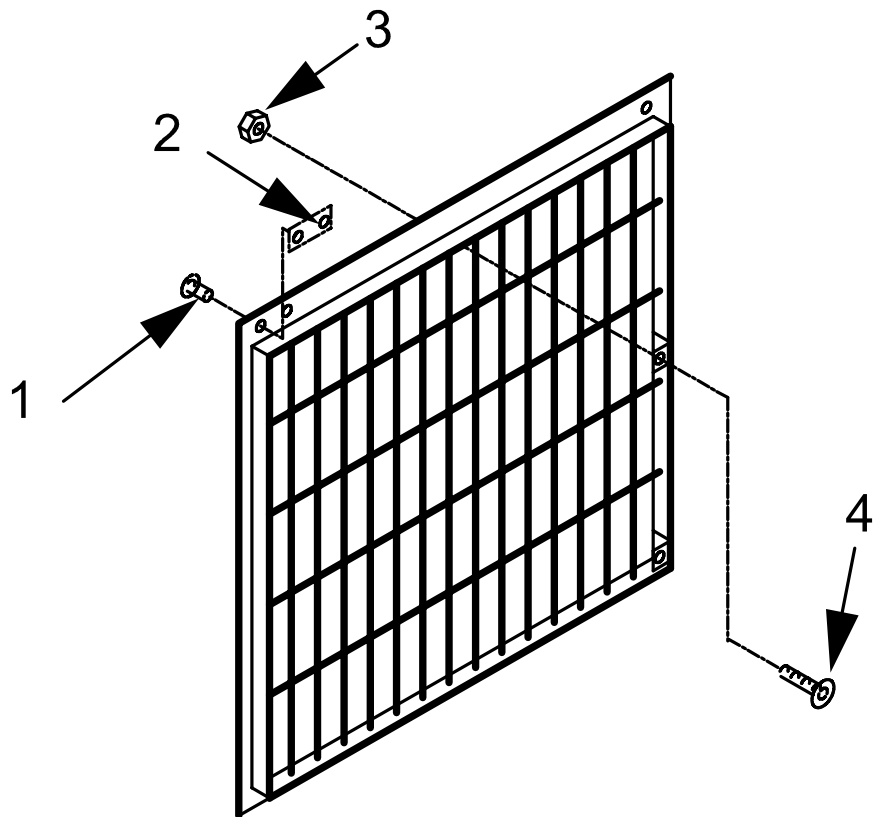


Figure F-16. Guard, Condenser

0116 00-1

SECTION II

TM9-4120-423-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC) GROUP 0202 GUARD, CONDENSER FIGURE F-16	(7) QTY
1	PAFZZ	5320001658771	96906	MS20426B4-5	RIVET,SOLID.....	2
2	XBFZZ		50935	015W200	PLATE,IDENTIFICATION.....	1
3	PAOZZ	5310008113494	80205	MS21044N08	NUT,SELF-LOCKING,HEXAGON.....	2
4	PAFZZ	5325002856295	96906	MS27980-13B	STUD,SNAP FASTENER.....	2

END OF FIGURE

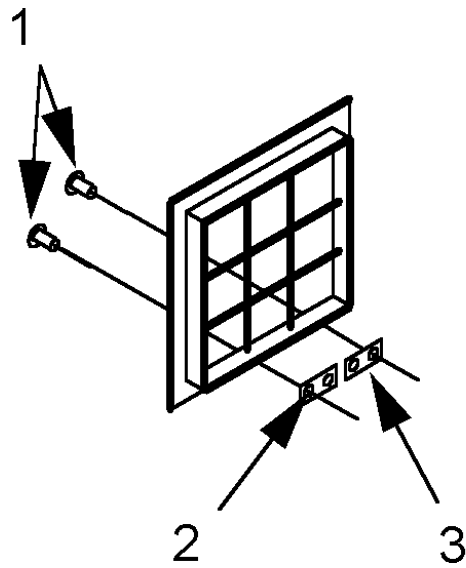


Figure F-17. Grille, Discharge

SECTION II

TM9-4120-423-14&P

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM	SMR			PART		
NO	CODE	NSN	CAGEC	NUMBER	DESCRIPTION AND USABLE ON CODES(UOC)	QTY
					GROUP 0203 GRILLE, DISCHARGE	
					FIGURE F-17	
1	PAFZZ	5320001658771	96906	MS20426B4-5	RIVET,SOLID.....	4
2	XBFZZ		50935	015W199	PLATE,IDENTIFICATION.....	1
3	XBFZZ		50935	015W198	PLATE,IDENTIFICATION.....	1

END OF FIGURE

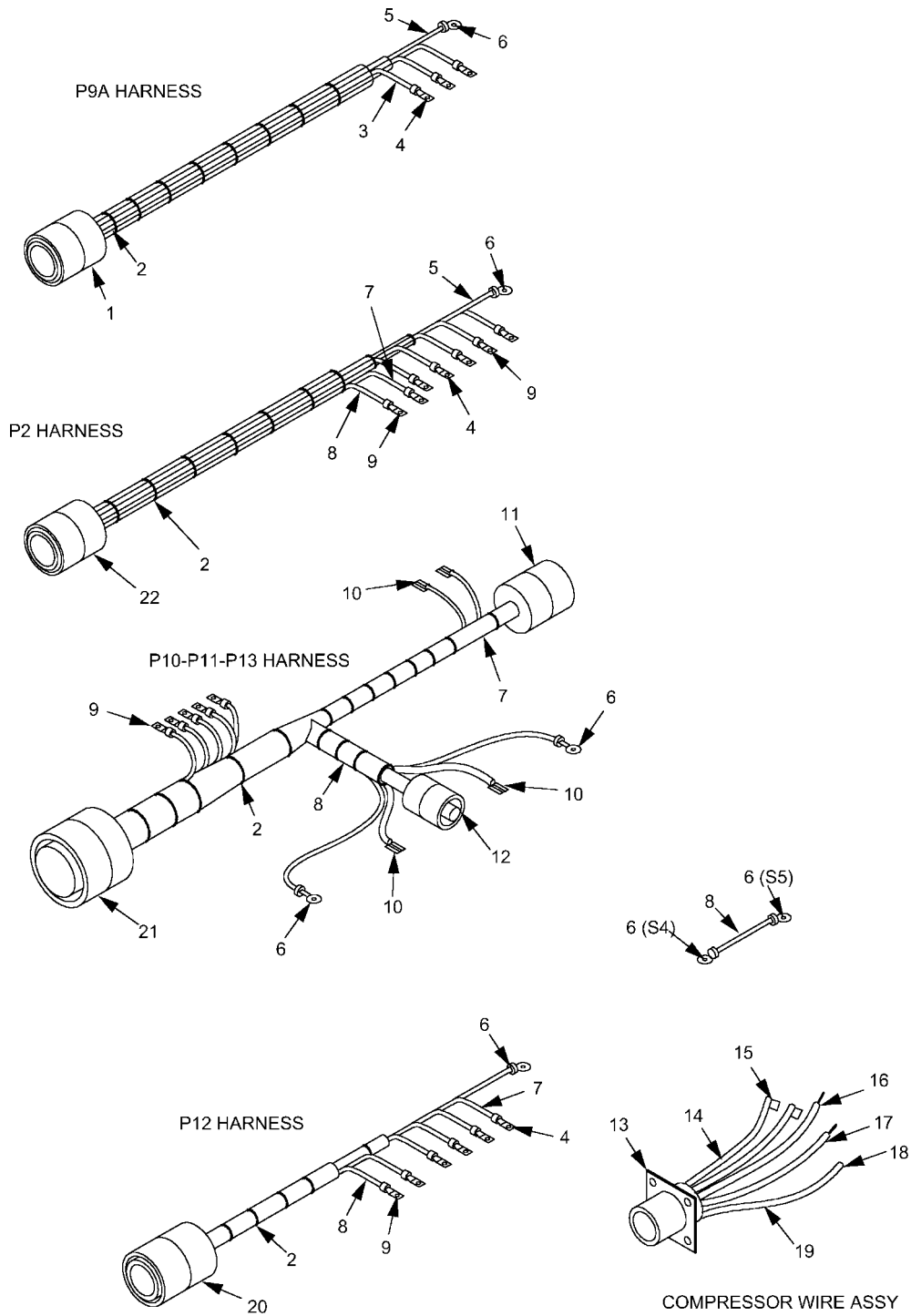


Figure F-18. Harness Assemblies and Leads

SECTION II

TM9-4120-423-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC) GROUP 0204 HARNESS ASSEMBLIES AND LEADS FIGURE F-18	(7) QTY
1	PAFZZ	5935010622402	96906	MS3456W22-22P	CONNECTOR, PLUG, ELECTRICAL.....	1
2	PAFZZ		81349	MIL-T-43435TYPE- 1FNSH-B-NO-2	TAPE, LACING AND TYING.....	V
3	PAFZZ	6145000039527	81349	M5086/1-10-9	WIRE, ELECTRICAL.....	V
4	PAFZZ	5940008253695	96906	MS17143-3	TERMINAL, LUG.....	9
5	PAFZZ	6145005787516	81349	M5086/1-14-9	WIRE, ELECTRICAL.....	V
6	PAFZZ	5940001434774	96906	MS25036-153	TERMINAL, LUG.....	7
7	PAFZZ	6145005787521	81349	M5086/1-12-9	WIRE, ELECTRICAL.....	V
8	PAFZZ	6145005786072	81349	M5086/1-16-9	WIRE, ELECTRICAL.....	V
9	PAFZZ	5940008255029	96906	MS17143-2	TERMINAL, LUG.....	12
10	PAFZZ	5940009260085	97403	13207E5347-2	TERMINAL, QUICK DISCONNECT.....	4
11	PAFZZ		96906	MS3106R20-15S	CONNECTOR, PLUG, ELECTRICAL.....	1
12	PAFZZ	5935005178519	96906	MS3456W14S6S	CONNECTOR, PLUG, ELECTRICAL.....	1
13	PAFZZ	5935007545638	96906	MS3102R20-15P	CONNECTOR, RECEPTACLE, ELECTRICAL.....	1
14	PAFZZ		50935	008W200A-1	LEAD, COMMON.....	1
15	PAFZZ		50935	008W200A-2	LEAD, RUN.....	1
16	PAFZZ		50935	008W200A-3	LEAD, START.....	1
17	PAFZZ		50935	008W200A-4	SLEEVE, POWER.....	1
18	PAFZZ		50935	008W200A-5	LEAD, INTERNAL OVERLOAD.....	1
19	PAFZZ		50935	008W200A-6	SLEEVE, INTERNAL OVERLOAD.....	1
20	PAFZA	5935011989937	96906	MS3456W24-11P	CONNECTOR, PLUG, ELECTRICAL.....	1
21	PAFZZ		96906	MS3106R32-13S	CONNECTOR, PLUG, ELECTRICAL.....	1
22	PAFZA	5935011737654	96906	MS3456W24-11S	CONNECTOR, PLUG, ELECTRICAL.....	1

END OF FIGURE

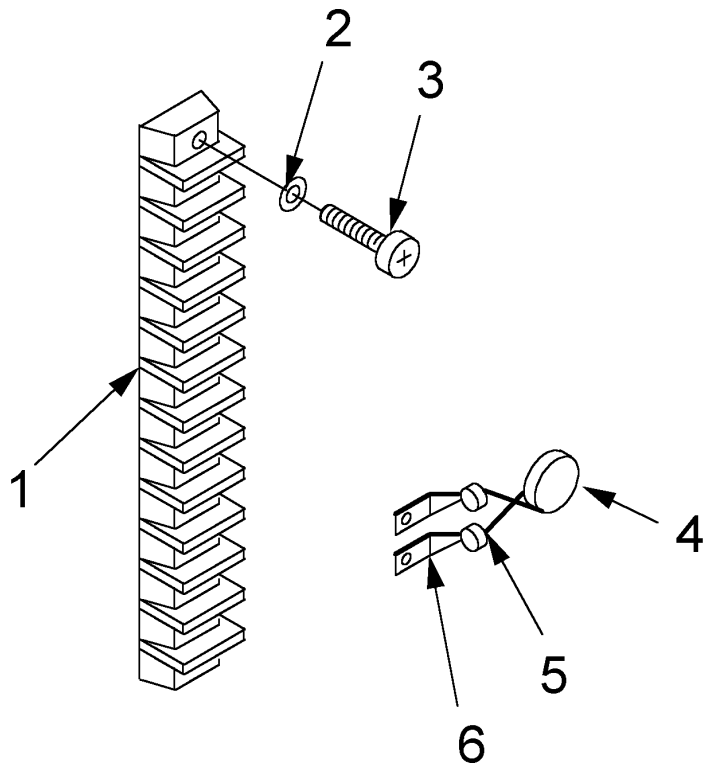


Figure F-19. Terminal Board

SECTION II

TM9-4120-423-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
					GROUP 0205 TERMINAL BOARD	
					FIGURE F-19	
1	PAFZZ	5940008290430	81349	18TB12	TERMINAL BOARD.....	1
2	PAFZZ	5310000453299	96906	MS35338-42	WASHER, LOCK.....	2
3	PAFZZ	5305009846199	96906	MS35206-251	SCREW, MACHINE.....	2
4	PAFZZ	5905011023887	97403	13221E9119-2	RESISTOR, VOLTAGE SENSITIVE.....	1
5	PCFZZ	5970011391013	81349	M23053/2-201-C	INSULATION SLEEVING, ELECTRICAL.....	1
6	PAFZZ	5940008358833	96906	MS17143-1	TERMINAL, LUG.....	2

END OF FIGURE

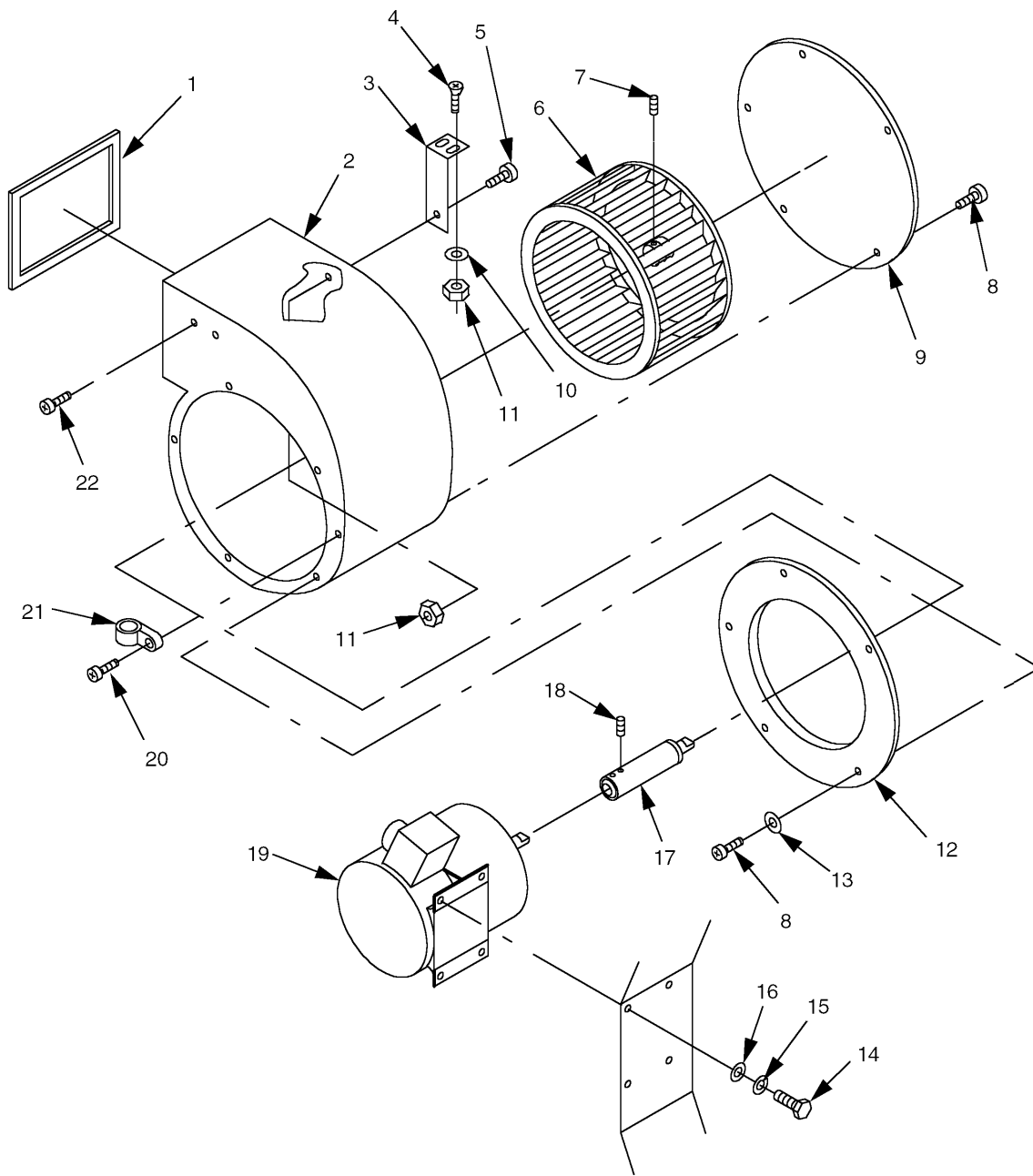


Figure F-20. Housing, Blower

SECTION II

TM9-4120-423-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC) GROUP 0206 HOUSING, BLOWER FIGURE F-20	(7) QTY
1	PAFZZ	5330011362213	97403	13219E9549	RUBBER STRIP.....	2
2	XBFZZ		97403	13219E9523	HOUSING,CENTRIFUGAL FAN.....	1
3	XBFZZ		97403	13221E9153	BRACKET,BLOWER MOUNTING.....	1
4	PAFZZ	5305009655882	96906	MS24693S52	SCREW,MACHINE.....	2
5	PAFZZ	5305004556840	96906	MS35206-332	SCREW,MACHINE.....	1
6	PAFZZ	4140011382205	97403	13219E9535	IMPELLER,FAN,CENTRIFUGAL.....	1
7	PAFZZ	5305007245823	80205	MS51964-80	SETSCREW.....	1
8	PAFZZ	5305001380069	96906	MS51861-44	SCREW,TAPPING.....	10
9	XBFZZ		97403	13219E9539	PLATE,COVER,CONDENSER.....	1
10	PAFZZ	5310007653197	96906	MS27183-41	WASHER,FLAT.....	2
11	PAFZZ	5310008113494	80205	MS21044N08	NUT,SELF-LOCKING,HEXAGON.....	3
12	XBFZZ		97403	13219E9536	INLET,FAN,CONDENSER.....	1
13	PAFZZ	5310000145850	96906	MS27183-42	WASHER,FLAT.....	5
14	PAFZZ	5305000712505	80204	B1821BH025C088N	SCREW,CAP,HEXAGON HEAD.....	4
15	PAFZZ	5310005825965	96906	MS35338-44	WASHER,LOCK.....	4
16	PAFZZ	5310008094058	96906	MS27183-10	WASHER,FLAT.....	4
17	XBFZZ		50935	SP4050	SHAFT,EXTENSION,CONDENSER.....	1
18	PAFZZ		96906	MS18065-14	SETSCREW.....	2
19	PAFFF		5L920	W1853-3	MOTOR,ALTERNATING CURRENT.....	1
20	PAFZZ	5305009846195	96906	MS35206-247	SCREW,MACHINE.....	1
21	PAFZZ	5340005846556	96906	MS21919WDG10	CLAMP,LOOP.....	1
22	PAFZZ	5305009846194	96906	MS35206-246	SCREW,MACHINE.....	2

END OF FIGURE

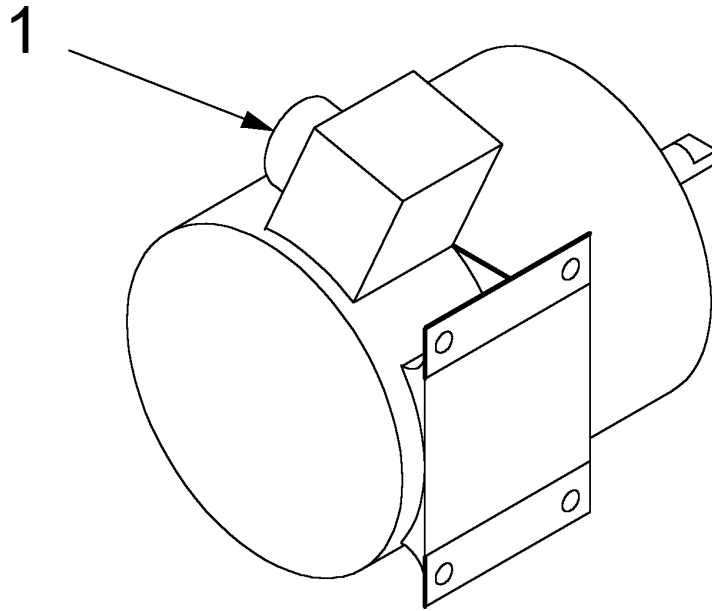


Figure F-21. Motor, AC

0121 00-1

SECTION II

TM9-4120-423-14&P

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM	SMR			PART		
NO	CODE	NSN	CAGEC	NUMBER	DESCRIPTION AND USABLE ON CODES(UOC)	QTY
					GROUP 0207 MOTOR, AC	
					FIGURE F-21	
1	PAFZZ		96906	MS3102R14S-6P	CONNECTOR,RECEPTACLE,ELECTRICAL.....	1

END OF FIGURE

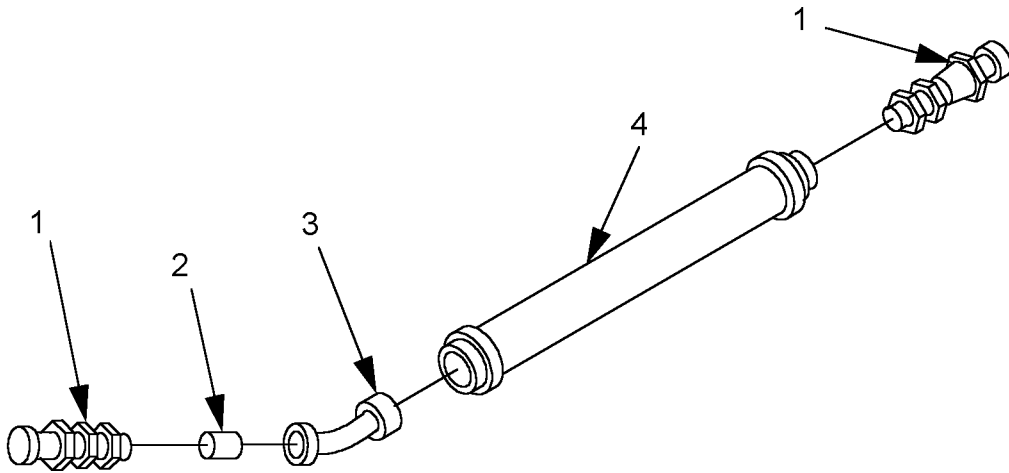


Figure F-22. Hose Assembly, Discharge

SECTION II

TM9-4120-423-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
					GROUP 0208 HOSE ASSEMBLY, DISCHARGE	
					FIGURE F-22	
1	PAFFF	4730011580682	01276	5401-S14-6-8	COUPLING HALF, SELF-SEALING.....	2
2	MFFZZ		50935	SP3915/2	TUBE, COPPER MAKE ITEM FROM (81346) ASTM-B280.375OD.....	1
3	PAFZZ	4730008134441	96906	MS35917-3U	ELBOW, TUBE.....	1
4	PAFZZ	4720011382208	97403	13219E9480-1	HOSE ASSEMBLY, METALLIC.....	1

END OF FIGURE

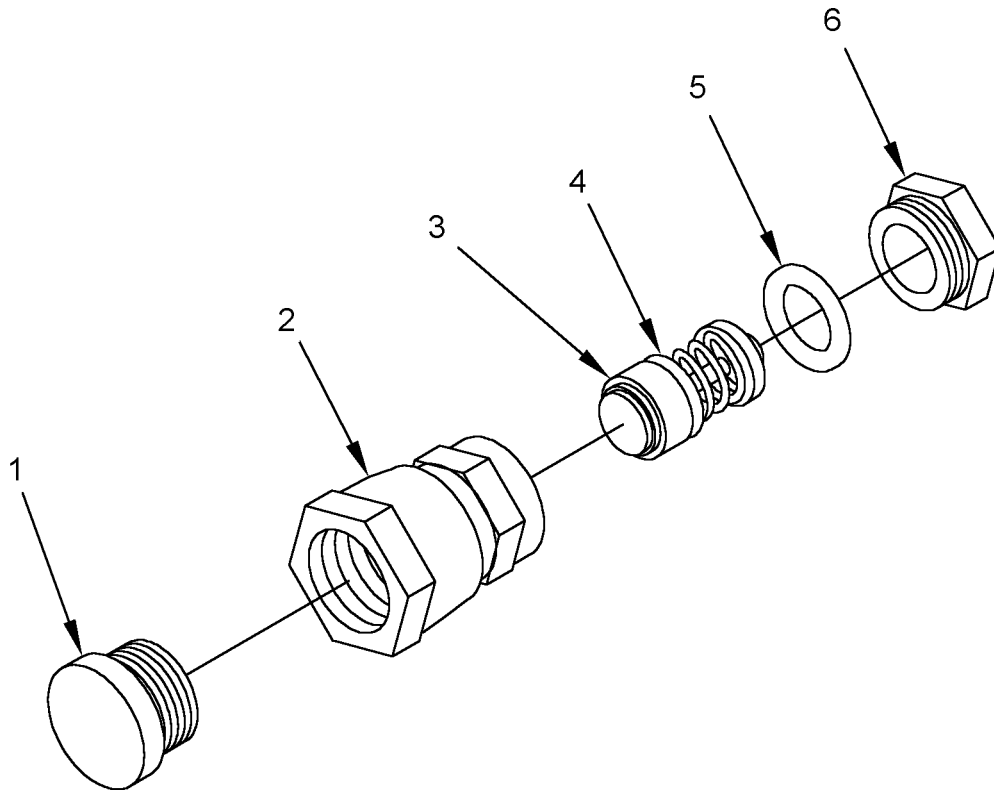


Figure 23. Coupling Half, Female

0123 00-1

SECTION II

TM9-4120-423-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC) GROUP 020801 COUPLING HALF, FEMALE FIGURE F-23	(7) QTY
1	XBFZZ	5340006139866	01276	5400-S8-8	CAP, PROTECTIVE, DUST AND MOISTURE... SEAL.....	1
2	XBFZZ		01276	5400-S16-8	NUT, UNION.....	1
3	XBFZZ		01276	5400-S19-8	VALVE AND SLEEVE ASSEMBLY.....	1
4	XBFZZ		01276	22546-112	PACKING, PREFORMED.....	1
5	XBFZZ	5330007271286	01276	22546-17	O-RING.....	1
6	XBFZZ		01276	202208-6-8	ADAPTER, STRAIGHT PIPE TO HOSE.....	1

END OF FIGURE

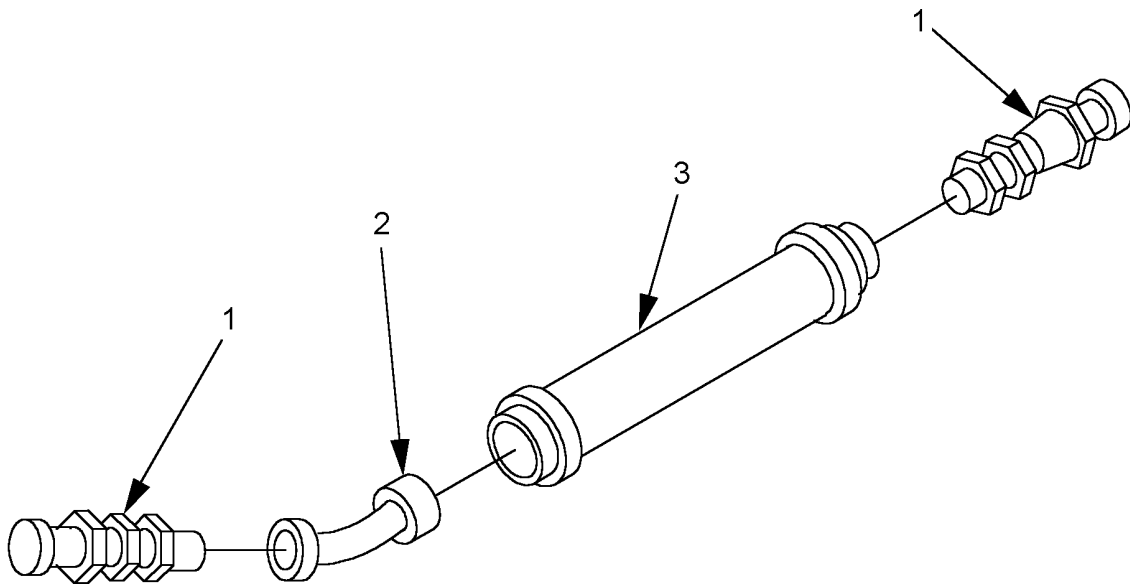


Figure F-24. Hose Assembly, Suction

0124 00-1

SECTION II

TM9-4120-423-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
					GROUP 0209 HOSE ASSEMBLY, SUCTION	
					FIGURE F-24	
1	PAFFF	4730012793420	01276	5401-S14-10-12	COUPLING HALF, SELF-SEALING.....	2
2	PAFZZ	4730011394424	96906	MS35928-5U	ELBOW, TUBE.....	1
3	PAFZZ	4720011382212	97403	13219E9480-2	HOSE ASSEMBLY.....	1

END OF FIGURE

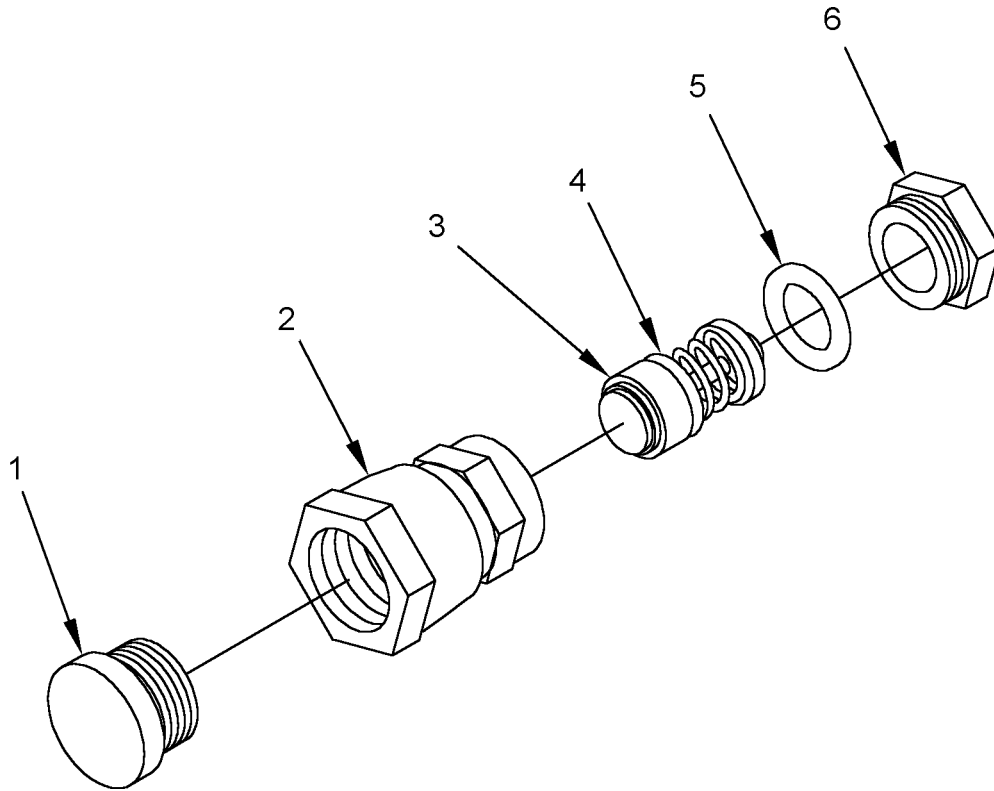


Figure F-25. Coupling Half, Female

SECTION II

TM9-4120-423-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC) GROUP 020901 COUPLING HALF, FEMALE FIGURE F-25	(7) QTY
1	XBFZZ		01276	5400-S8-12	PLUG, PROTECTIVE, DUST AND MOISTURE.. SEAL.....	1
2	XBFZZ		01276	5400-S16-12	NUT, UNION.....	1
3	XBFZZ		01276	5400-S19-12	VALVE AND SLEEVE ASSEMBLY.....	1
4	XBFZZ		01276	22546-116	PACKING, PREFORMED.....	1
5	XBFZZ	5330007157723	01276	22546-23	PACKING, PREFORMED.....	1
6	XBFZZ		01276	202208-10-12	ADAPTER, STRAIGHT PIPE TO HOSE.....	1

END OF FIGURE

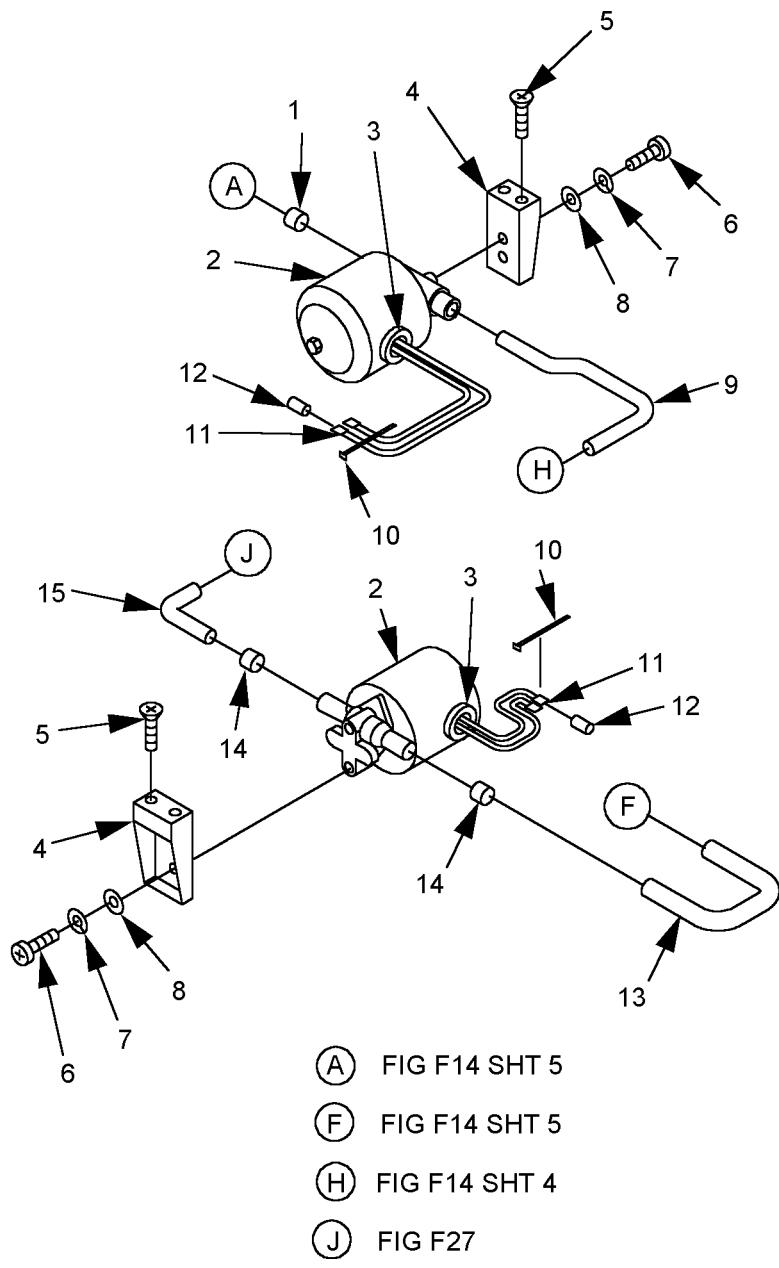


Figure F-26. Valve, Solenoid

SECTION II

TM9-4120-423-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC) GROUP 0211 VALVE, SOLENOID FIGURE F-26	(7) QTY
1	MFFZZ		50935	BHSP24C/131	TUBE,COPPER MAKE ITEM FROM (81346) ASTM-B280.375OD.....	1
2	PAFFF		97403	13216E6158	VALVE,SOLENOID.....	2
3	PAFZZ	5325002636632	96906	MS35489-6	GROMMET,NONMETALLIC.....	2
4	XBFFF		97403	13221E9088	MOUNTING BRACKET,SOLENOID VALVE.....	2
5	PAFZZ	5305009655882	96906	MS24693S52	SCREW,MACHINE.....	4
6	PAFZZ	5305009846193	96906	MS35206-245	SCREW,MACHINE.....	4
7	PAFZZ	5310000453299	96906	MS35338-42	WASHER,LOCK.....	4
8	PAFZZ	5310007653197	96906	MS27183-41	WASHER,FLAT.....	4
9	MFFZZ		50935	BHSP24C/133	TUBE,COPPER MAKE ITEM FROM (81346) ASTM-B280.375OD.....	1
10	PAFZZ	5975000742072	96906	MS3367-1-9	STRAP,TIEDOWN,ELECTRICAL.. COMPONENTS.....	2
11	PAFZZ	5940009986126	97403	13221E9146	TERMINAL,QUICK DISCONNECT.....	4
12	PAFZZ	5940004361632	97403	13207E5347-1	TERMINAL,QUICK DISCONNECT.....	4
13	MFFZZ		50935	BHSP24C/125	TUBE,COPPER MAKE ITEM FROM (81346) ASTM-B280.250OD.....	1
14	PAFZZ	4730008221274	97403	13211E3799-1	REDUCER,TUBE.....	2
15	MFFZZ		50935	BHSP24C/37	TUBE,COPPER MAKE ITEM FROM (81346) ASTM-B280.250OD.....	1

END OF FIGURE

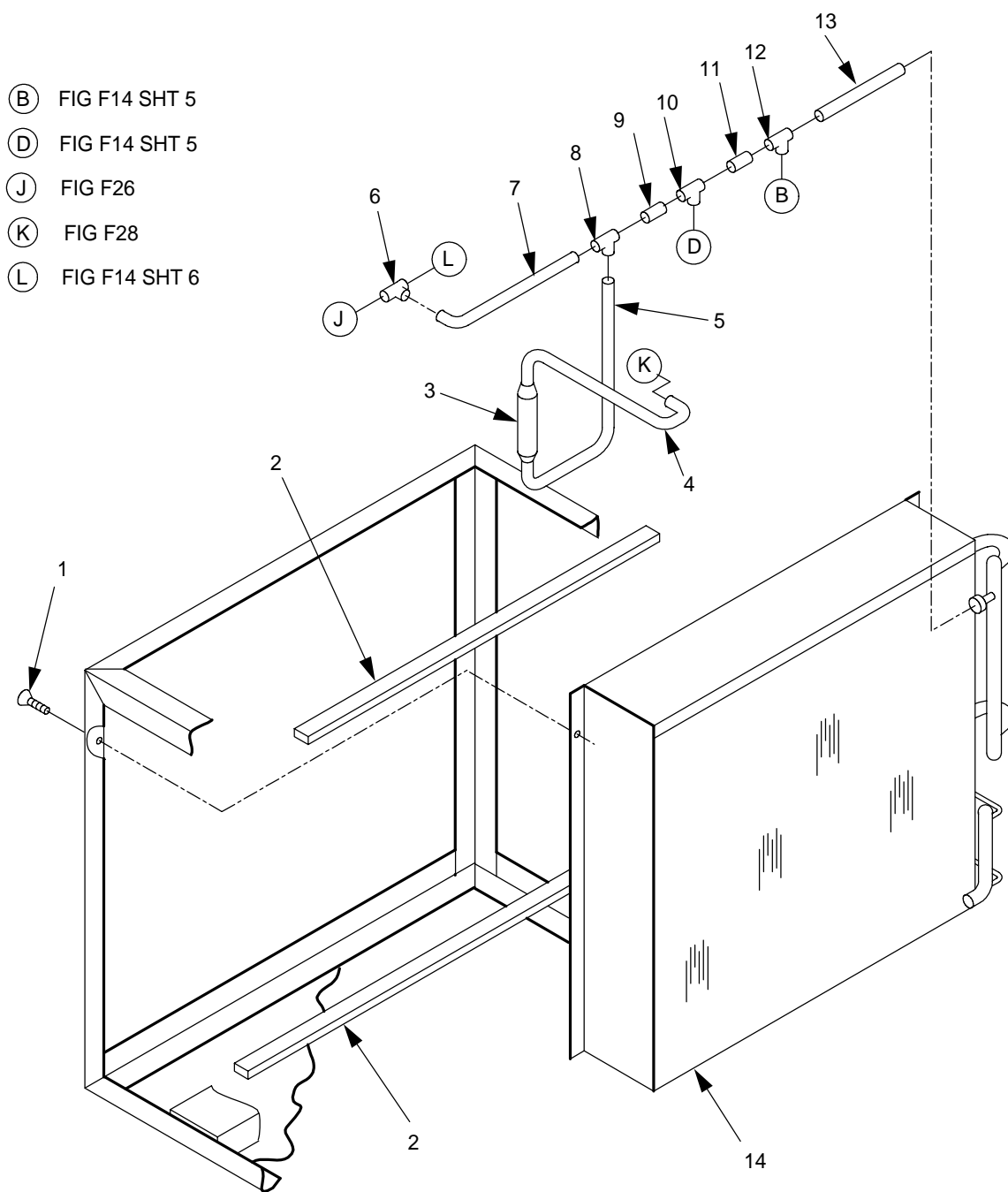


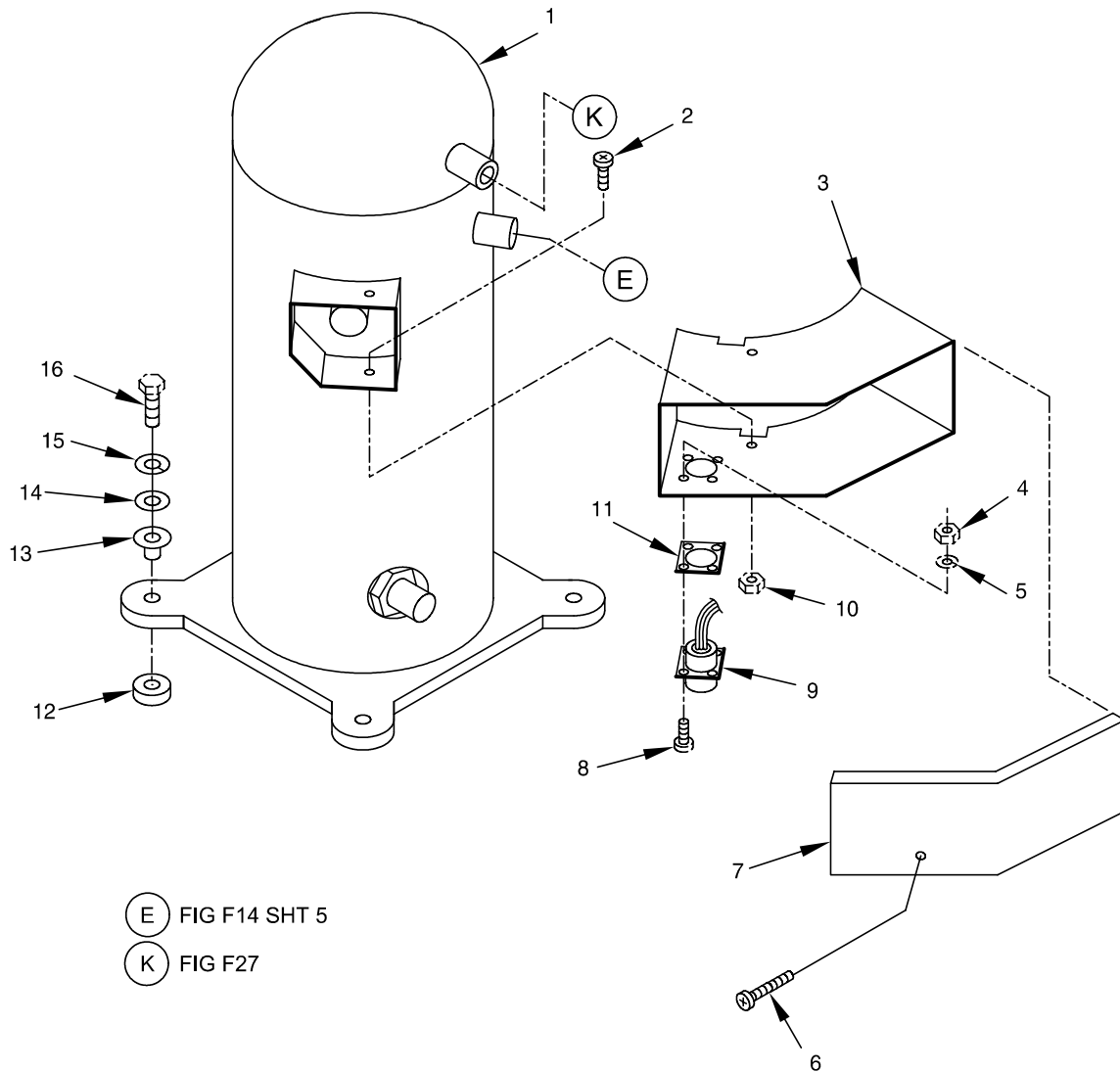
Figure F-27. Coil Condenser

SECTION II

TM9-4120-423-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
					GROUP 0212 COIL, CONDENSER	
					FIGURE F-27	
1	PAFZZ	5305009655882	96906	MS24693S52	SCREW,MACHINE.....	13
2	XBFZZ		81349	MIL-P-15280 FORM -S-1/2	INSULATION SLEEVING,ELECTRICAL.....	V
3	PAFZZ		7V772	VIB-4	ABSORBER,VIBRATION.....	1
4	MFFZZ		50935	BHSP24C/143	TUBE,COPPER MAKE ITEMS FROM (81346) ASTM-B280.500OD.....	1
5	MFFZZ		50935	BHSP24C/142	TUBE,COPPER MAKE ITEMS FROM (81346) ASTM-B280.500OD.....	1
6	PAFZZ	4730002572163	96906	MS35929-2	TEE,TUBE.....	1
7	MFFZZ		50935	BHSP24C/167	TUBE,COPPER MAKE ITEMS FROM (81346) ASTM-B280.250OD.....	1
8	PAFZZ	4730008155672	97403	13211E4043-16	TEE,TUBE.....	1
9	MFFZZ		50935	BHSP24C/180	TUBE,COPPER MAKE ITEMS FROM (81346) ASTM-B280.500OD.....	1
10	PAFZZ	4730002034922	97403	13211E4043-11	TEE,TUBE.....	1
11	MFFZZ		50935	BHSP24C/179	TUBE,COPPER MAKE ITEMS FROM (81346) ASTM-B280.500OD.....	1
12	PAFZZ	4730002636465	96906	MS35929-4	TEE,TUBE.....	1
13	MFFZZ		50935	BHSP24C/53	TUBE,COPPER MAKE ITEMS FROM (81346) ASTM-B280.500OD.....	1
14	PAFFF	4130011285871	97403	13219E9507	COOLING COIL,AIR,DUCT TYPE.....	1

END OF FIGURE



(E) FIG F14 SHT 5

(K) FIG F27

Figure F-28. Compressor Assembly

SECTION II

TM9-4120-423-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 0213 COMPRESSOR ASSEMBLY						
FIGURE F-28						
1	PAFFD		11718	EMC-30-434	COMPRESSOR UNIT, REFRIGERATION.....	1
2	PAFZZ	5305009846194	96906	MS35206-246	SCREW, MACHINE.....	2
3	XBFZZ		50935	SP4386	COVER ASSEMBLY, COMPRESSOR..	1
JUNCTION BOX.....						
4	PAFZZ	5310009349739	96906	MS35649-242	NUT, PLAIN, HEXAGON.....	4
5	PAFZZ	5310005432410	96906	MS35338-40	WASHER, LOCK.....	4
6	PAFZZ	5305009846201	96906	MS35206-253	SCREW, MACHINE.....	1
7	XBFZZ		50935	SP4387	COVER, COMPRESSOR, JUNCTION BOX.....	1
8	PAFZZ	5305008892999	96906	MS35206-217	SCREW, MACHINE.....	4
9	XBFFF		50935	008W200A	WIRE ASSEMBLY.....	1
10	PAFZZ	5310008892549	96906	MS21045-08	NUT, SELF-LOCKING, HEXAGON.....	2
11	PAFZZ	5330008364355	96906	MS51007-7	GASKET.....	1
12	PAFZZ		50935	008W200B-2	MOUNT, RUBBER.....	4
13	PAFZZ		50935	008W200B-1	SLEEVE, MOUNTING.....	4
14	PAFZZ	5310008093078	96906	MS27183-11	WASHER, FLAT.....	4
15	PAFZZ	5310004079566	96906	MS35338-45	WASHER, LOCK.....	4
16	PAFZZ	5306002259095	96906	MS90726-40	BOLT, MACHINE.....	4

END OF FIGURE

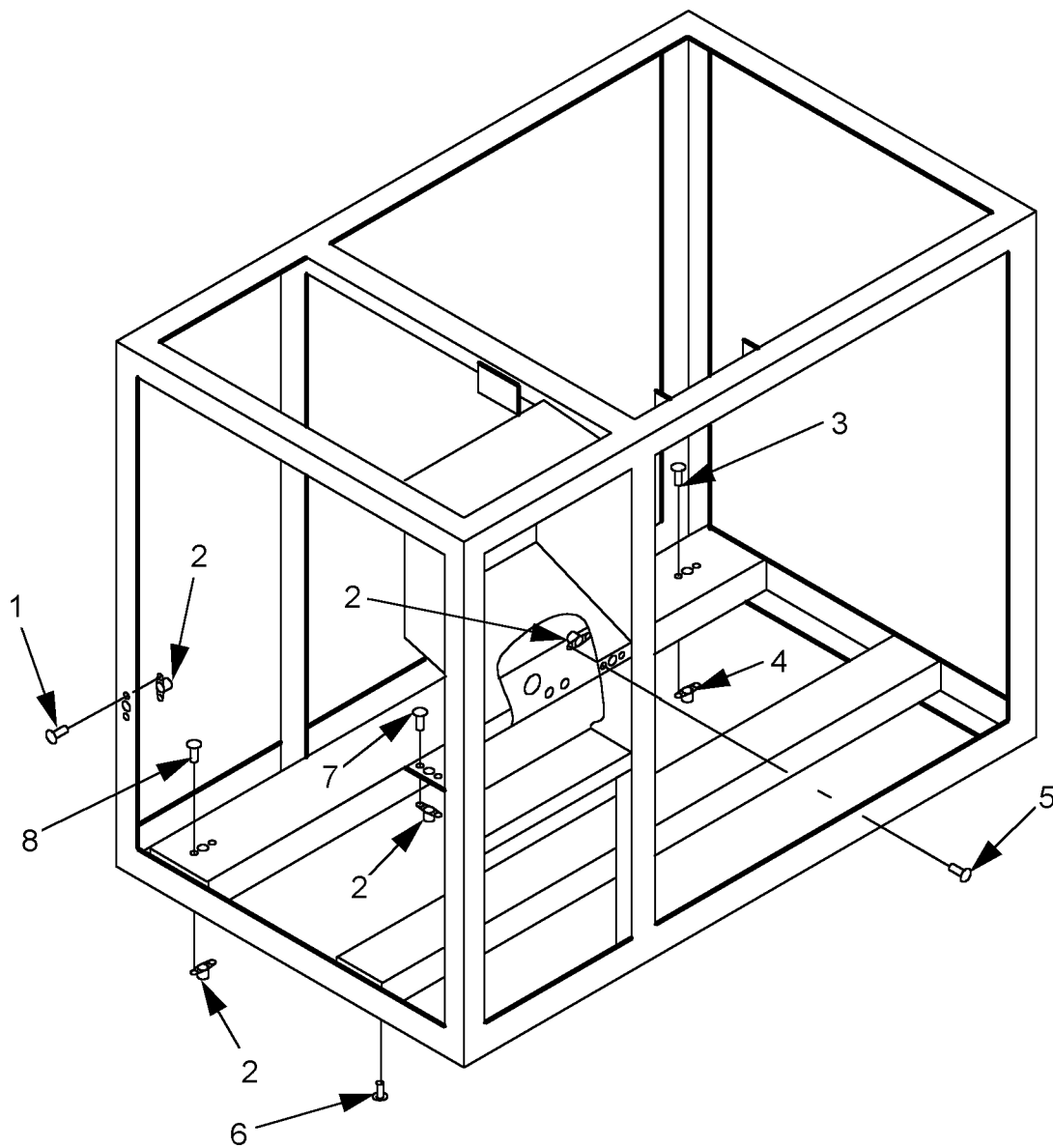


Figure F-29. Housing, Conditioner

SECTION II

TM9-4120-423-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC) GROUP 0214 HOUSING, CONDITIONER FIGURE F-29	(7) QTY
1	PAHZZ	5320000056256	97403	13220E5213-4	RIVET,BLIND.....	174
2	PAHZZ	5310007283469	96906	MS21077-08	NUT,SELF-LOCKING,PLATE.....	98
3	PAHZZ	5320011802567	81349	M24243/7-A405H	RIVET,BLIND.....	8
4	PAHZZ	5310007285504	96906	MS21077-5	NUT,SELF-LOCKING,PLATE.....	4
5	PAHZZ	5320004119439	97403	13220E5213-3	RIVET,BLIND.....	8
6	PAHZZ	5310004809693	96906	MS27130-S140K	NUT,PLAIN,BLIND RIVET.....	4
7	PAHZZ	5320000056425	97403	13220E5213-5	RIVET,BLIND.....	4
8	PAHZZ	5320009828433	97403	13220E5213-6	RIVET,BLIND.....	10

END OF FIGURE

TM9-4120-423-14&P

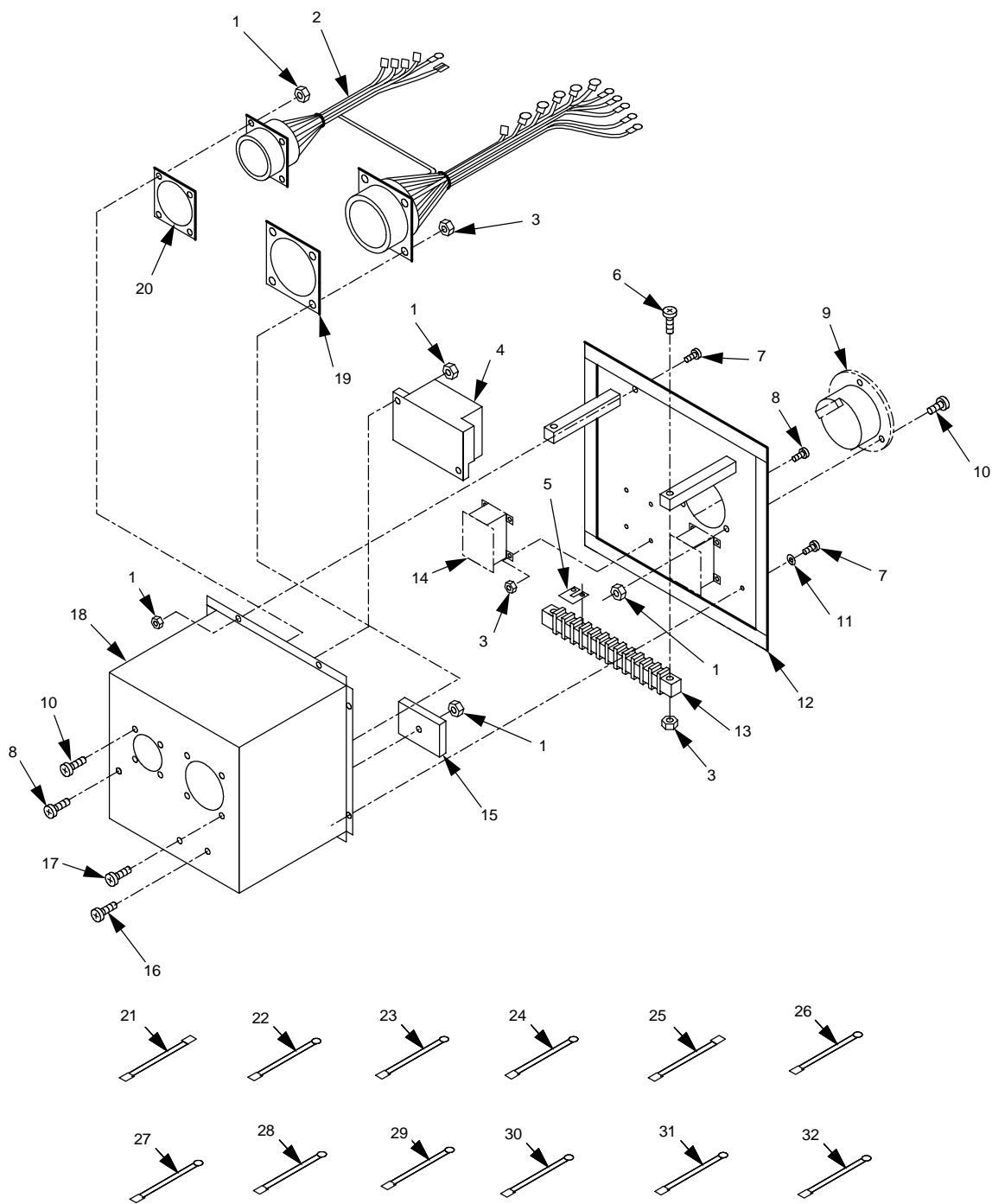


Figure F-30. Electrical Module

SECTION II

TM9-4120-423-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 0215 ELECTRICAL MODULE						
FIGURE F-30						
1	PAFZZ	5310000818087	80205	MS21044N06	NUT, SELF-LOCKING, HEXAGON.....	17
2	XBFFF		97403	13221E9135	WIRING HARNESS.....	1
3	PAFZZ	5310008113494	80205	MS21044N08	NUT, SELF-LOCKING, HEXAGON.....	14
4	PAFZZ		51107	PRA-100-AFN-400	MONITOR, PHASE.....	1
5	PAFZZ	5935011547058	97403	13219E9544	LINK, TERMINAL CONNE.....	2
6	PAFZZ	5305009846199	96906	MS35206-251	SCREW, MACHINE.....	2
7	PAFZZ	5305009844988	96906	MS35206-228	SCREW, MACHINE.....	8
8	PAFZZ	5305009846194	96906	MS35206-246	SCREW, MACHINE.....	10
9	PAFZZ	6645000898842	81349	M3971/1-5	METER, TIME TOTALIZING.....	1
10	PAFZZ	5305008893000	96906	MS35206-230	SCREW, MACHINE.....	7
11	PAFZZ	5310000454007	96906	MS35338-41	WASHER, LOCK.....	6
12	XBFFF		50935	SP3919	CHASSIS, ELECTRICAL EQUIPMENT.....	1
13	PAFZZ	5940005028471	81349	11TB14	TERMINAL BOARD.....	1
14	PAFZZ	5945005496348	96906	MS24192-D1	RELAY, ELECTROMAGNETIC.....	2
15	PAFZZ	5945011597990	97403	13221E9122	RELAY, ELECTROMAGNETIC.....	1
16	PAFZZ	5305009846221	96906	MS35206-234	SCREW, MACHINE.....	1
17	PAFZZ	5305009846195	96906	MS35206-247	SCREW, MACHINE.....	4
18	XBFFF		50935	SP3920	COVER, ELECTRICAL MODULE, CONDENSER...	1
19	PAFZZ	5999012145235	97403	13219E9584-5	SHIELDING GASKET, ELECTRONIC.....	1
20	PAFZZ	5999011382194	97403	13219E9584-2	SHIELDING GASKET, ELECTRONIC.....	1
21	XBFFF		97403	13221E9104-23	LEAD, ELECTRICAL.....	1
22	XBFFF		97403	13221E9104-18	LEAD, ELECTRICAL.....	1
23	XBFFF		97403	13221E9104-15	LEAD, ELECTRICAL.....	1
24	XBFFF		97403	13221E9104-28	LEAD, ELECTRICAL.....	1
25	XBFFF		97403	13221E9104-25	LEAD, ELECTRICAL.....	1
26	XBFFF		97403	13221E9104-19	LEAD, ELECTRICAL.....	1
27	XBFFF		97403	13221E9104-16	LEAD, ELECTRICAL.....	1
28	XBFFF		97403	13221E9104-26	LEAD, ELECTRICAL.....	1
29	XBFFF		97403	13221E9104-20	LEAD, ELECTRICAL.....	1
30	XBFFF		97403	13221E9104-17	LEAD, ELECTRICAL.....	1
31	XBFFF		97403	13221E9104-27	LEAD, ELECTRICAL.....	1
32	XBFFF		97403	13221E9104-22	LEAD, ELECTRICAL.....	1

END OF FIGURE

TM9-4120-423-14&P

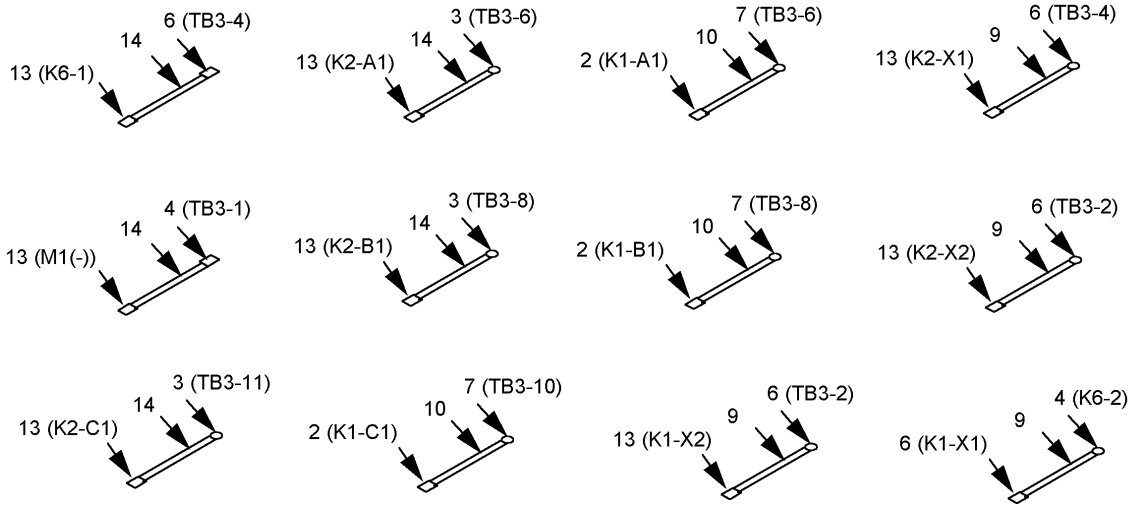
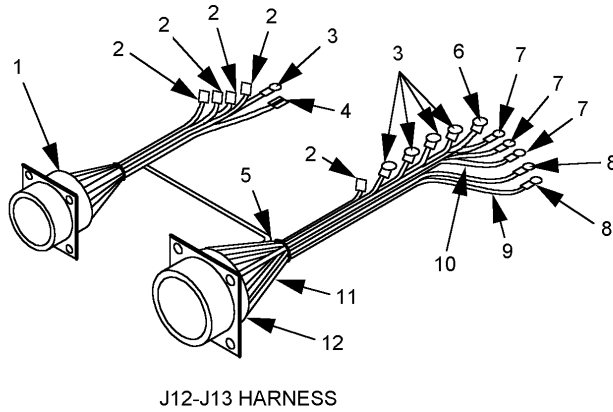


Figure F-31. Harness Assembly and Leads

SECTION II

TM9-4120-423-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC) GROUP 021501 HARNESS ASSEMBLY AND LEADS FIGURE F-31	(7) QTY
1	PAFZA	5935011972626	96906	MS3452W24-11S	CONNECTOR, RECEPTACLE, ELECTRICAL.....	1
2	PAFZZ	5940008360360	96906	MS17143-15	TERMINAL, LUG.....	8
3	PAFZZ	5940001434774	96906	MS25036-153	TERMINAL, LUG.....	8
4	PAFZZ	5940009260085	97403	13207E5347-2	TERMINAL, QUICK DISCONNECT.....	3
5	PCFZZ	5970007276728	81349	M23053/5-207-C	INSULATION SLEEVING, ELECTRICAL.....	1
6	PAFZZ	5940002835280	96906	MS25036-106	TERMINAL, LUG.....	6
7	PAFZZ	5940001434794	96906	MS25036-112	TERMINAL, LUG.....	6
8	PAFZZ	5940001434780	96906	MS25036-108	TERMINAL, LUG.....	2
9	PAFZZ	6145005786072	81349	M5086/1-16-9	WIRE, ELECTRICAL.....	V
10	PAFZZ	6145005787521	81349	M5086/1-12-9	WIRE, ELECTRICAL.....	V
11	PCFZZ	5970007670515	81349	M23053/5-205-C	INSULATION SLEEVING, ELECTRICAL.....	2
12	PAFZZ	5935012349621	96906	MS3452W32-13P	CONNECTOR, RECEPTACLE, ELECTRICAL.....	1
13	PAFZZ	5940008253700	96906	MS17143-14	TERMINAL, LUG.....	8
14	PAFZZ	6145005787516	81349	M5086/1-14-9	WIRE, ELECTRICAL.....	V

END OF FIGURE

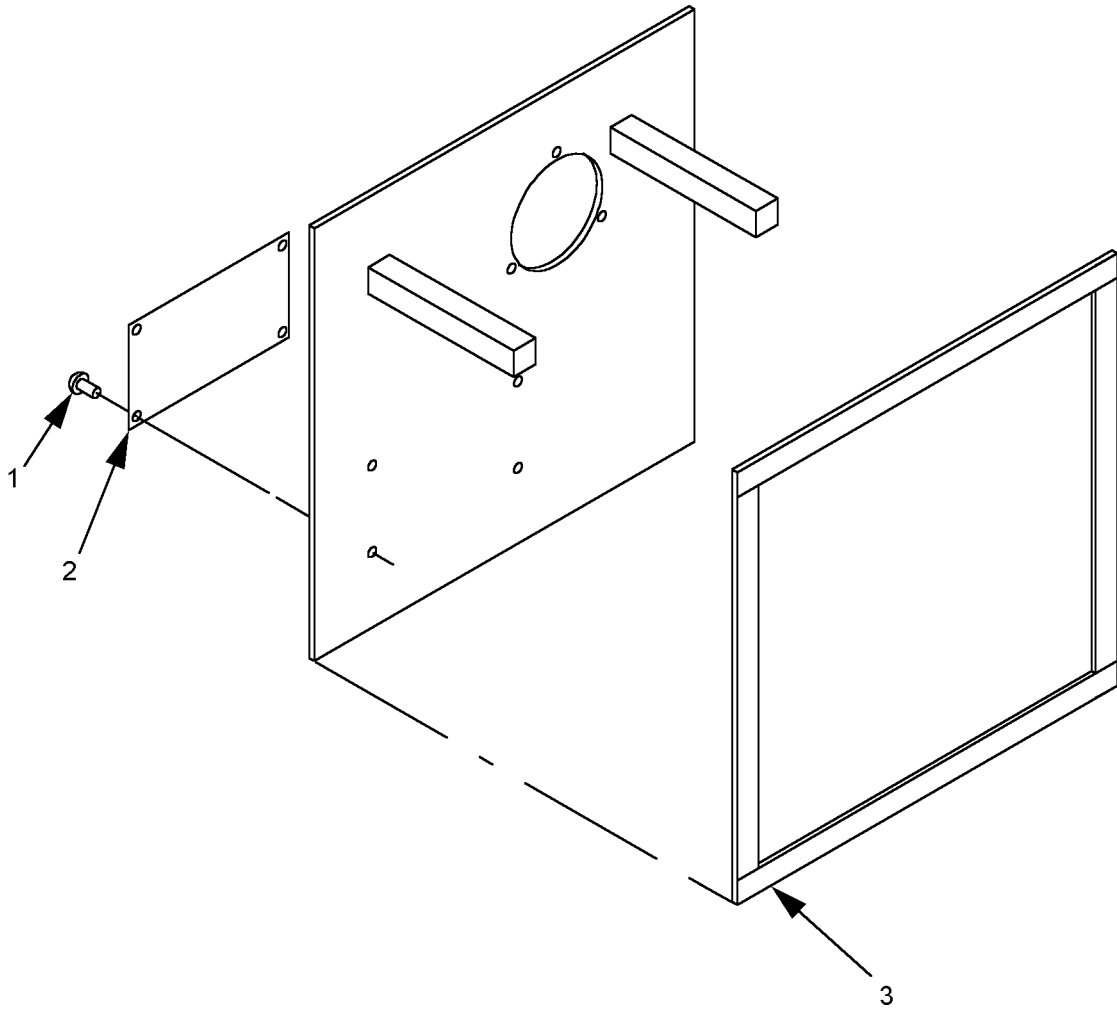


Figure F-32. Chassis

0132 00-1

SECTION II

TM9-4120-423-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC) GROUP 021502 CHASSIS FIGURE F-32	(7) QTY
1	PAFZZ	5320001658771	96906	MS20426B4-5	RIVET,SOLID.....	4
2	XBFZZ		50935	015W203	PLATE,DANGER.....	1
3	PAFZZ	5999009064683	97403	13219E9568-1	WIRE MESH,KNITTED.....	4

END OF FIGURE

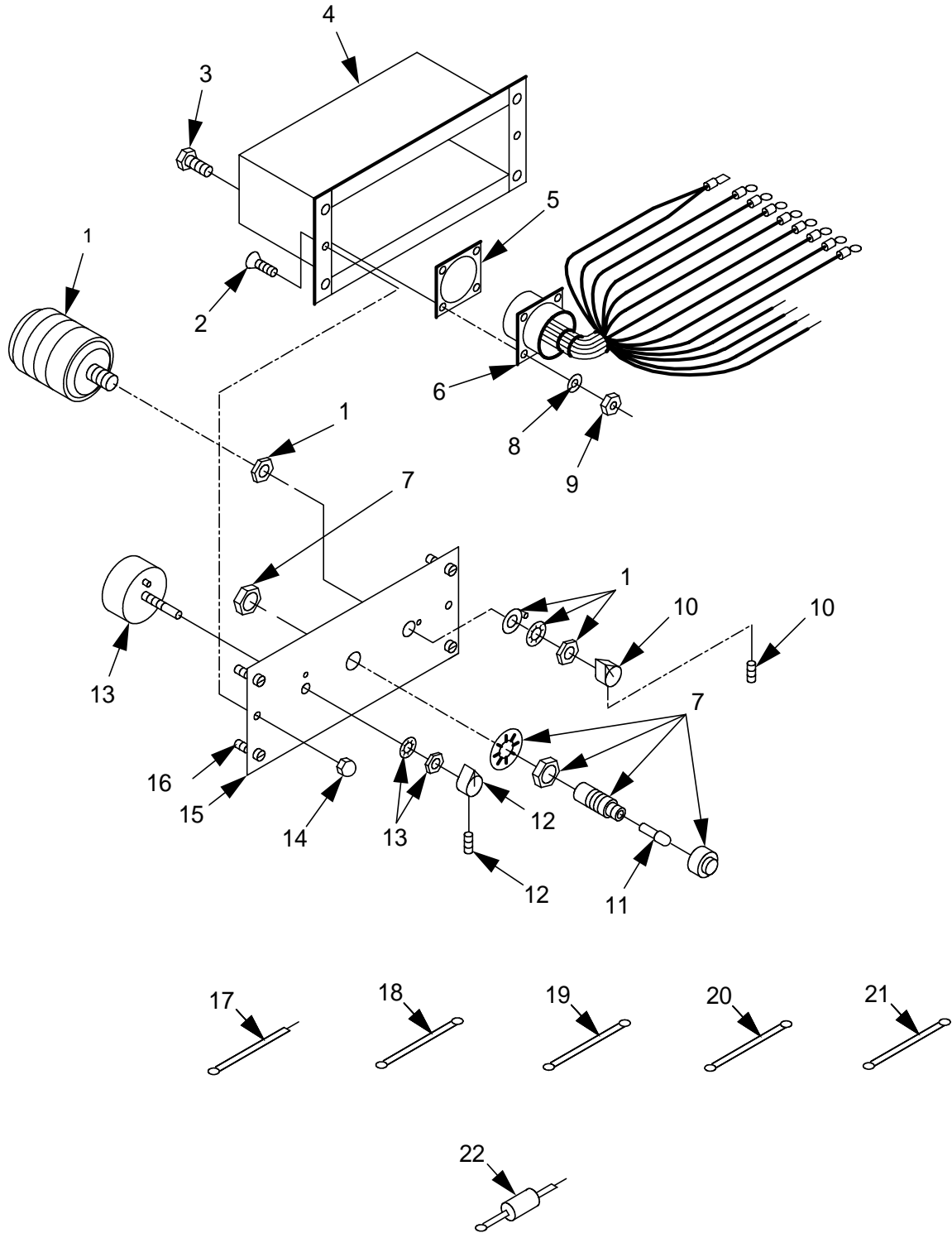


Figure F-33. Remote Control Assembly

SECTION II

TM9-4120-423-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 03 REMOTE CONTROL ASSEMBLY						
FIGURE F-33						
1	PAFZZ	5930005569791	96906	MS25002-4	SWITCH, ROTARY.....	1
2	PAFZZ	5305009585453	80205	MS35190-236	SCREW, MACHINE.....	2
3	PAFZZ	5305008892998	96906	MS35206-216	SCREW, MACHINE.....	4
4	XBFFF		50935	SP3922	REMOTE BOX.....	1
5	PAFZZ	5999011308664	97403	13219E9584-4	SHIELDING GASKET, ELECTRONIC.....	1
6	XBFFF		97403	13221E9108	WIRING HARNESS.....	1
7	PAFZZ	6210007260790	96906	MS25331-7	LIGHT, INDICATOR.....	1
8	PAFZZ	5310005432410	96906	MS35338-40	WASHER, LOCK.....	4
9	PAFZZ	5310009349739	96906	MS35649-242	NUT, PLAIN, HEXAGON.....	4
10	PAFZZ	5355001516034	96906	MS91528-2T4B	KNOB.....	1
11	PAFZZ	6240002996126	08806	1828	LAMP, INCANDESCENT.....	1
12	PAFZZ	5355001637524	96906	MS91528-2T2B	KNOB.....	1
13	PAFZZ		60445	90-0002	POTENTIOMETER, TEMPERATURE CONTROL...	1
14	PAFZZ	5310010228113	96906	MS51865-1	NUT, SELF-LOCKING, CAP.....	2
15	XBFFA		50935	SP4212	COVER, REMOTE BOX.....	1
16	PAOZZ	5305011382219	97403	13221E9109-64	SCREW ASSEMBLY, PANEL.....	4
17	XBFFF		97403	13221E9104-1	LEAD, ELECTRICAL.....	1
18	XBFFF		97403	13221E9104-2	LEAD, ELECTRICAL.....	1
19	XBFFF		97403	13221E9104-3	LEAD, ELECTRICAL.....	1
20	XBFFF		97403	13221E9104-4	LEAD, ELECTRICAL.....	1
21	XBFFF		97403	13221E9104-24	LEAD, ELECTRICAL.....	1
22	XBFFF		97403	13221E9129	DIODE WITH TERMINAL.....	1

END OF FIGURE

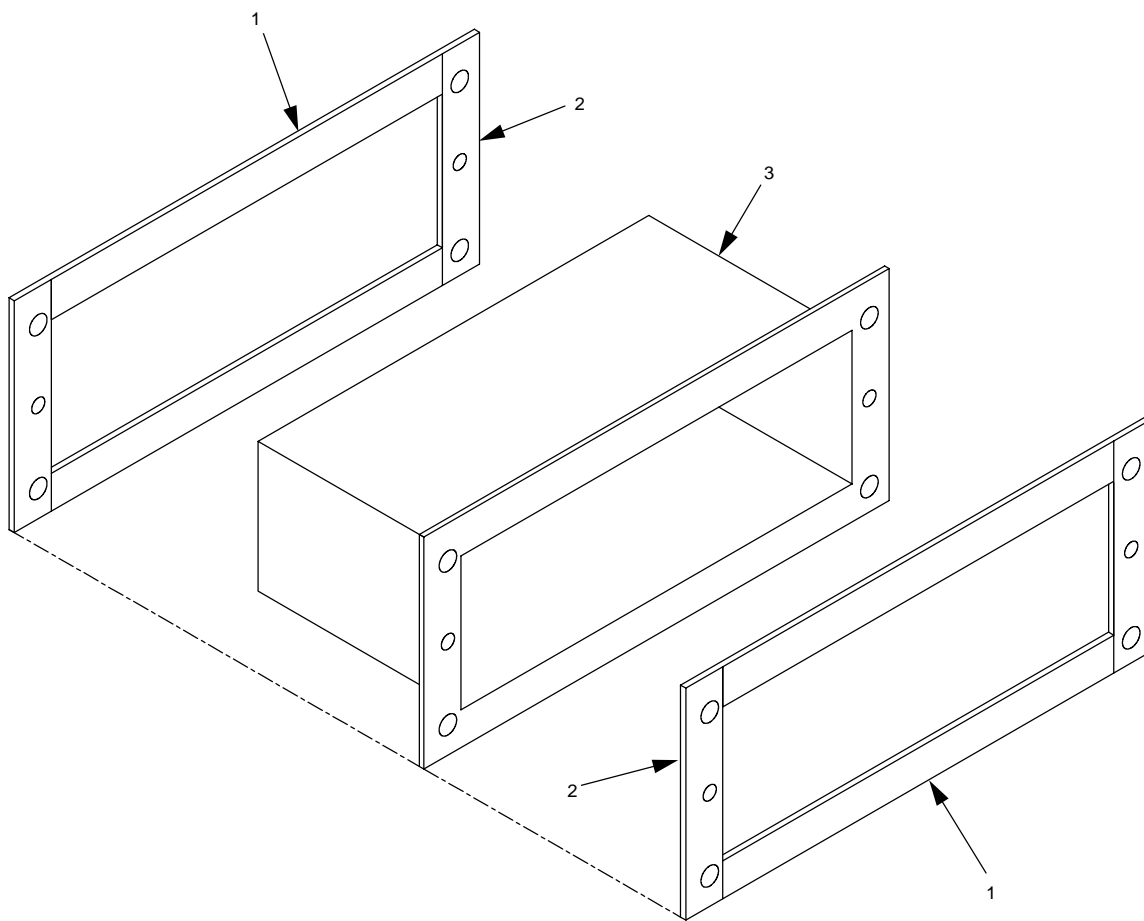


Figure F-34. Remote Box

0134 00-1

SECTION II

TM9-4120-423-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC) GROUP 0301 REMOTE BOX FIGURE F-34	(7) QTY
1	PAFZZ	5999009064682	97403	13219E9568-2	GASKETING MATERIAL, CONDUCTIVE.....	4
2	PAFZZ	5999009064683	97403	13219E9568-1	WIRE MESH, KNITTED.....	2
3	XBFZZ		50935	SP3922-1	BOX, REMOTE.....	1

END OF FIGURE

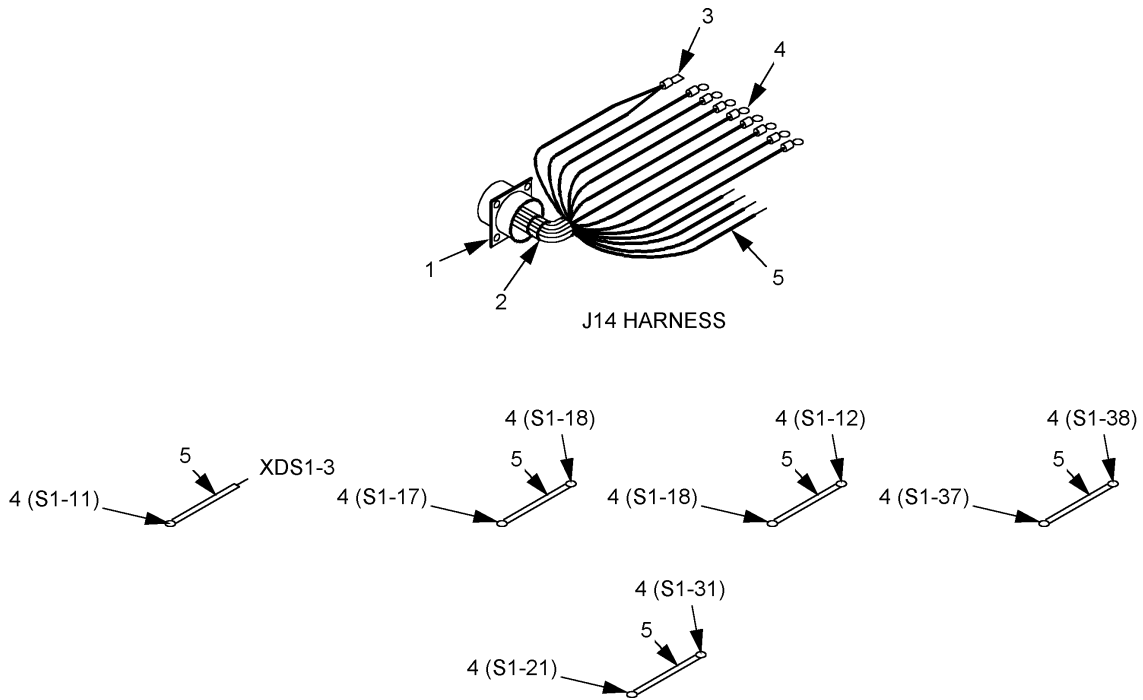


Figure F-35. Harness Assembly and Leads

SECTION II

TM9-4120-423-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC) GROUP 0302 HARNESS ASSEMBLY AND LEADS FIGURE F-35	(7) QTY
1	PAFZA	5935004266557	96906	MS27508E20B16P	CONNECTOR,RECEPTACLE,ELECTRICAL.....	1
2	PAFZZ		81349	MIL-T-43435TYPE- 1FNSH-B-NO-2	TAPE,LACING AND TYING.....	4
3	PAFZZ	5940008360360	96906	MS17143-15	TERMINAL,LUG.....	1
4	PAFZZ	5940002835280	96906	MS25036-106	TERMINAL,LUG.....	17
5	PAFZZ	6145005786072	81349	M5086/1-16-9	WIRE,ELECTRICAL.....	V

END OF FIGURE

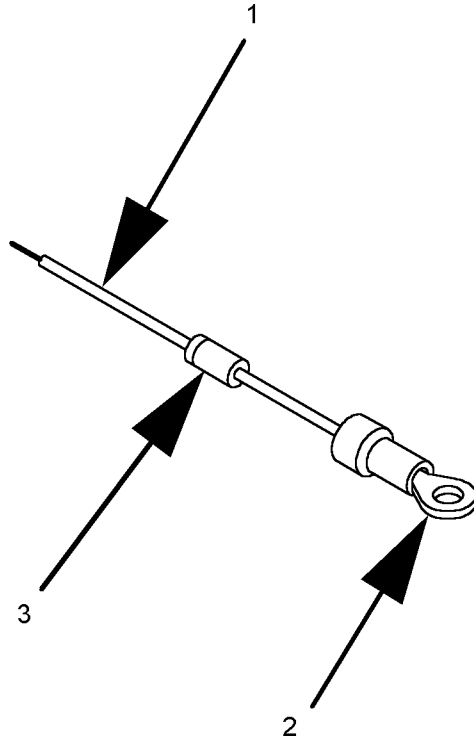


Figure F-36. Diode/Terminal

SECTION II

TM9-4120-423-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC) GROUP 0303 DIODE/TERMINAL FIGURE F-36	(7) QTY
1	PCFZZ	5970011391013	81349	M23053/2-201-C	INSULATION SLEEVING,ELECTRICAL.....	1
2	PAFZZ	5940001133137	96906	MS20659-101	TERMINAL,LUG.....	1
3	PAFZZ	5961004223722	81349	JANTX1N3611	SEMICONDUCTOR DEVICE,DIODE.....	1

END OF FIGURE

SECTION II

TM9-4120-423-14&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 99 BULK MATERIAL LIST						
BULK						
1	PAFZZ		81346	ASTM-B280.2500D	TUBE,COPPER.....	V
2	PAFZZ		81346	ASTM-B280.3750D	TUBE,COPPER.....	V
3	PAFZZ		81346	ASTM-B280.5000D	TUBE,COPPER.....	V
4	PAFZZ	4710002033174	81346	ASTM-B280.6250D	TUBE,METALLIC.....	V

END OF FIGURE

SECTION IV

TM9-4120-423-14&P

CROSS-REFERENCE INDEXES

STOCK NUMBER	NATIONAL STOCK NUMBER INDEX		STOCK NUMBER	FIG. ITEM	
	FIG.	ITEM		FIG.	ITEM
6145-00-003-9527	F-5	18	4730-00-189-2737	F-14	49
	F-18	3	4730-00-189-2739	F-14	60
5320-00-005-6256	F-29	1	5340-00-200-3045	F-14	57
5320-00-005-6425	F-29	7	5340-00-200-7449	F-14	42
5310-00-014-5850	F-2	42	5340-00-200-8560	F-2	72
	F-20	13		F-11	26
5310-00-045-3299	F-11	21		F-14	96
	F-14	41	4710-00-203-3174	BULK	4
	F-19	2	4730-00-203-4922	F-27	10
	F-26	7	5306-00-225-8499	F-1	4
5310-00-045-4007	F-2	63	5306-00-225-9095	F-28	16
	F-11	2	5305-00-230-8586	F-14	92
	F-30	11	5905-00-255-9504	F-11	51
5305-00-051-8308	F-2	59	4730-00-257-2163	F-14	84
5305-00-068-0501	F-2	49		F-27	6
5305-00-071-2505	F-2	51	4730-00-263-6460	F-14	46
	F-20	14	4730-00-263-6465	F-27	12
6680-00-073-8404	F-14	47	4730-00-263-6470	F-14	81
4820-00-073-8405	F-14	102	4730-00-263-6471	F-14	79
5975-00-074-2072	F-5	4	4730-00-263-6472	F-14	54
	F-9	17	5325-00-263-6632	F-26	3
	F-14	97	5930-00-275-7800	F-14	94
	F-26	10	5325-00-276-4946	F-15	18
5310-00-081-4219	F-1	2	5325-00-276-4953	F-15	19
5310-00-081-8087	F-2	37	5325-00-276-6100	F-11	56
	F-30	1	5940-00-283-5280	F-13	10
5310-00-088-0551	F-2	31		F-31	6
6645-00-089-8842	F-30	9		F-35	4
5910-00-099-0541	F-11	48	5325-00-285-6295	F-16	4
5940-00-113-3137	F-36	2	5340-00-286-9421	F-14	100
5320-00-118-2000	F-15	8	5340-00-291-5322	F-14	103
5975-00-133-8696	F-14	32	5340-00-291-5347	F-14	82
5305-00-138-0069	F-2	41	5340-00-291-5353	F-14	74
	F-14	95	5325-00-291-9366	F-11	4
	F-20	8	5930-00-292-1087	F-14	93
5940-00-143-4774	F-13	4	6240-00-299-6126	F-33	11
	F-18	6	5935-00-325-5872	F-5	1
	F-31	3	5310-00-407-9566	F-1	3
5940-00-143-4775	F-13	3		F-28	15
5940-00-143-4780	F-5	11	5320-00-411-9439	F-10	3
	F-31	8		F-15	4
5940-00-143-4794	F-5	10		F-29	5
	F-31	7	5320-00-420-2169	F-10	16
5320-00-143-6149	F-10	15	5961-00-422-3722	F-36	3
5355-00-151-6034	F-33	10	5935-00-426-6557	F-5	7
5355-00-163-7524	F-33	12		F-35	1
5320-00-165-8771	F-15	16	5940-00-436-1632	F-2	28
	F-16	1		F-5	2
	F-17	1		F-26	12
	F-32	1	5305-00-455-6840	F-20	5

SECTION IV

TM9-4120-423-14&P

CROSS-REFERENCE INDEXES

STOCK NUMBER	NATIONAL STOCK NUMBER INDEX		STOCK NUMBER	FIG.	ITEM
	FIG.	ITEM			
5999-00-471-8953	F-11	38	5310-00-765-3197	F-20	10
5310-00-480-9693	F-29	6		F-26	8
4810-00-493-1844	F-26	2	5970-00-767-0515	F-13	1
5940-00-502-8471	F-30	13		F-31	11
5935-00-517-8519	F-18	12	5970-00-767-0524	F-11	54
5310-00-543-2410	F-11	7	5935-00-801-6620	F-13	13
	F-28	5	5935-00-802-0067	F-18	21
	F-33	8	4730-00-808-0394	F-14	101
5935-00-548-1529	F-5	6	5310-00-809-3078	F-28	14
5920-00-548-3126	F-11	58	5310-00-809-4058	F-2	47
5945-00-549-6348	F-30	14		F-2	64
5920-00-556-0144	F-11	57		F-20	16
5930-00-556-9791	F-33	1	5310-00-811-3494	F-2	11
4130-00-572-4709	F-14	63		F-14	13
6145-00-578-6072	F-5	5		F-16	3
	F-13	11		F-20	11
	F-18	8		F-30	3
	F-31	9	4730-00-813-4441	F-22	3
	F-35	5	4730-00-815-5672	F-27	8
6145-00-578-7516	F-5	12	5935-00-816-8646	F-18	11
	F-13	14	4730-00-818-7778	F-14	72
	F-18	5	4730-00-822-1274	F-9	7
	F-31	14		F-14	75
6145-00-578-7518	F-5	3		F-26	14
6145-00-578-7521	F-5	9	5940-00-825-3695	F-18	4
	F-13	5	5940-00-825-3700	F-5	13
	F-18	7		F-31	13
	F-31	10	5940-00-825-5029	F-18	9
5310-00-582-5965	F-2	48	5940-00-829-0430	F-19	1
	F-20	15	5940-00-835-8833	F-19	6
5340-00-584-6556	F-14	26	5940-00-836-0360	F-5	14
	F-20	21		F-31	2
5340-00-598-0146	F-9	2		F-35	3
	F-14	64	5330-00-836-4355	F-28	11
5310-00-616-2589	F-10	11	5320-00-850-3282	F-14	38
5935-00-622-2924	F-6	1	4730-00-859-2243	F-9	14
5340-00-664-8163	F-9	5		F-14	40
5305-00-724-5812	F-2	43	5310-00-889-2549	F-28	10
5305-00-724-5823	F-20	7	5305-00-889-2998	F-11	23
6210-00-726-0790	F-33	7		F-33	3
5970-00-727-6728	F-31	5	5305-00-889-2999	F-2	32
5310-00-728-3469	F-10	1		F-28	8
	F-15	5	5305-00-889-3000	F-2	34
	F-29	2		F-11	3
5310-00-728-5504	F-29	4		F-30	10
5935-00-754-5638	F-18	13	5935-00-904-1280	F-2	38
5310-00-765-3197	F-7	2	5999-00-906-4682	F-34	1
	F-9	16	5999-00-906-4683	F-3	1
	F-11	53		F-4	1
	F-14	12		F-12	2

SECTION IV

TM9-4120-423-14&P

CROSS-REFERENCE INDEXES

STOCK NUMBER	NATIONAL STOCK NUMBER INDEX		STOCK NUMBER		
	FIG.	ITEM		FIG.	ITEM
5999-00-906-4683	F-15	2	5305-00-984-6200	F-14	45
	F-32	3	5305-00-984-6201	F-28	6
	F-34	2	5305-00-984-6221	F-30	16
4730-00-908-6293	F-14	67	5310-00-993-1548	F-10	2
4730-00-909-8627	F-14	62	5940-00-998-6126	F-2	27
5940-00-926-0085	F-13	8		F-11	35
	F-18	10		F-26	11
	F-31	4	5310-01-022-8113	F-33	14
5320-00-932-1972	F-2	1	5935-01-025-2210	F-5	8
	F-14	3	5305-01-038-4760	F-2	46
	F-15	14		F-20	18
5310-00-934-9739	F-11	6	5940-01-049-9661	F-13	9
	F-28	4	5935-01-052-9171	F-11	43
	F-33	9	5935-01-062-2402	F-5	17
5310-00-934-9747	F-2	62		F-18	1
	F-11	42	5325-01-070-9180	F-15	17
5310-00-934-9757	F-11	20	5325-01-088-6923	F-14	22
5320-00-956-7355	F-10	9	5935-01-089-0663	F-5	15
5305-00-957-7820	F-11	55	4730-01-092-3835	F-14	90
5305-00-958-5453	F-33	2	4730-01-093-2799	F-9	8
5305-00-959-6640	F-2	22		F-14	77
5305-00-965-5882	F-2	14	5905-01-102-3887	F-19	4
	F-14	4	5935-01-118-5714	F-5	19
	F-20	4	4730-01-125-0420	F-14	98
	F-26	5	6105-01-126-4175	F-2	57
	F-27	1	5305-01-128-4072	F-11	62
	F-29	8	4130-01-128-5871	F-27	14
	F-2	67	4130-01-129-0858	F-7	1
5320-00-982-8433	F-2	67	5999-01-130-8664	F-2	40
5940-00-983-6055	F-14	88		F-11	9
5305-00-984-4983	F-30	7		F-33	5
5305-00-984-4988	F-2	68		F-11	52
5305-00-984-4992	F-11	49	5950-01-136-2195	F-11	52
5305-00-984-4993	F-9	15	4130-01-136-2207	F-2	24
	F-11	25	4130-01-136-2208	F-14	21
	F-26	6	4130-01-136-2209	F-14	16
	F-14	14	5330-01-136-2213	F-20	1
	F-20	22	4130-01-136-5629	F-2	12
	F-28	2	5999-01-138-2191	F-2	17
	F-30	8	9320-01-138-2192	F-3	3
5305-00-984-6193	F-2	3		F-4	2
	F-7	3		F-15	6
	F-9	12	5999-01-138-2193	F-2	33
	F-14	1	5999-01-138-2194	F-2	35
	F-20	20		F-11	40
	F-30	17		F-30	20
	F-11	47	4140-01-138-2205	F-20	6
5305-00-984-6196	F-11	47	4140-01-138-2205	F-20	6
5305-00-984-6198	F-2	15	4720-01-138-2208	F-22	4
5305-00-984-6199	F-14	18	4720-01-138-2212	F-24	3
	F-19	3	4820-01-138-2213	F-14	89
	F-30	6	4820-01-138-2214	F-14	61
	F-30	6	4820-01-138-2214	F-14	61

SECTION IV

TM9-4120-423-14&P

CROSS-REFERENCE INDEXES

STOCK NUMBER	NATIONAL STOCK NUMBER INDEX		STOCK NUMBER	FIG.	ITEM
	FIG.	ITEM			
5305-01-138-2219	F-3	8			
	F-33	16			
5915-01-138-2233	F-2	16			
4820-01-138-2244	F-9	9			
4820-01-138-2245	F-14	43			
5330-01-138-2248	F-14	11			
5970-01-139-1013	F-19	5			
	F-36	1			
4730-01-139-4424	F-24	2			
5935-01-141-4210	F-2	19			
5935-01-154-7058	F-2	69			
	F-30	5			
4730-01-158-0682	F-22	1			
5945-01-159-7990	F-30	15			
5935-01-173-4811	F-13	2			
5935-01-173-7654	F-18	22			
5935-01-176-1708	F-2	21			
5320-01-180-2567	F-29	3			
5935-01-197-2626	F-31	1			
5935-01-198-9937	F-13	16			
	F-18	20			
5930-01-209-4390	F-2	65			
4540-01-209-4416	F-2	73			
5999-01-214-5235	F-30	19			
5945-01-222-0847	F-11	44			
4730-01-222-9646	F-2	8			
5935-01-229-0140	F-13	7			
5935-01-234-9621	F-31	12			
4730-01-279-3419	F-9	3			
	F-14	39			
4730-01-279-3420	F-24	1			
5320-01-291-9121	F-9	4			
4130-01-463-7371	F-1	1			
4130-01-463-9475	F-1	5			
5961-01-476-2422	F-11	50			

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CAGEC	PART NUMBER	PART NUMBER INDEX		FIG.	ITEM
			STOCK NUMBER		
81346	ASTM-B280.2500D			BULK	1
81346	ASTM-B280.3750D			BULK	2
81346	ASTM-B280.5000D			BULK	3
81346	ASTM-B280.6250D		4710-00-203-3174	BULK	4
50935	BHSP24C		4130-01-463-9475	F-1	5
50935	BHSP24C/121			F-14	65
50935	BHSP24C/125			F-26	13
50935	BHSP24C/129			F-14	83
50935	BHSP24C/130			F-14	48
50935	BHSP24C/131			F-26	1
50935	BHSP24C/133			F-26	9
50935	BHSP24C/137			F-14	59
50935	BHSP24C/141			F-14	44
50935	BHSP24C/142			F-27	5
50935	BHSP24C/143			F-27	4
50935	BHSP24C/166			F-14	71
50935	BHSP24C/167			F-27	7
50935	BHSP24C/179			F-27	11
50935	BHSP24C/180			F-27	9
50935	BHSP24C/182			F-14	78
50935	BHSP24C/183			F-14	80
50935	BHSP24C/25			F-14	56
50935	BHSP24C/30			F-14	85
50935	BHSP24C/32			F-14	87
50935	BHSP24C/37			F-26	15
50935	BHSP24C/38			F-14	70
50935	BHSP24C/51			F-14	99
50935	BHSP24C/53			F-27	13
50935	BHSP24C/61			F-14	86
50935	BHSP24C/62			F-14	58
50935	BHSP24C/77			F-14	76
50935	BHSP24C/79			F-14	68
50935	BHSP24C/82			F-14	55
50935	BHSP24C/88			F-14	73
50935	BHSP24C/92			F-14	52
80204	B1821BH025C088N		5305-00-071-2505	F-2	51
				F-20	14
95933	C631-500DCCW			F-2	44
95933	C631-500DCW			F-2	53
50935	EHSP24C30H		4130-01-463-7371	F-1	1
50935	EHSP24C30H/23			F-9	6
50935	EHSP24C30H/26			F-9	11
50935	EHSP24C30H/29			F-9	10
50935	EHSP24C30H/48			F-7	4
11718	EMC-30-434			F-28	1
81349	FHN20G		5920-00-556-0144	F-11	57
81349	F02A250V6A		5920-00-548-3126	F-11	58
0CLB1	HPST3B			F-14	53
81349	JANTX1N3611		5961-00-422-3722	F-36	3
77342	KR14DGE-24		5945-01-222-0847	F-11	44
81349	MIL-G-16491 TY1		5325-01-070-9180	F-15	17
	CL3 SIZE 0				

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CAGEC	PART NUMBER	PART NUMBER INDEX		FIG.	ITEM
			STOCK NUMBER		
81349	MIL-P-15280 FORM -S-1/2			F-3	2
				F-10	14
				F-27	2
81349	MIL-T-43435TYPE- 1FNSH-B-NO-2			F-13	6
				F-13	12
				F-13	15
				F-18	2
				F-35	2
81349	MIL-T-45435TYPE- 1FNSH-B-NO-2			F-5	16
96906	MS17143-1	5940-00-835-8833		F-19	6
96906	MS17143-14	5940-00-825-3700		F-5	13
				F-31	13
96906	MS17143-15	5940-00-836-0360		F-5	14
				F-31	2
				F-35	3
96906	MS17143-2	5940-00-825-5029		F-18	9
96906	MS17143-3	5940-00-825-3695		F-18	4
96906	MS20426B4-5	5320-00-165-8771		F-15	16
				F-16	1
				F-17	1
				F-32	1
96906	MS20470B6-6	5320-00-118-2000		F-15	8
96906	MS20659-101	5940-00-113-3137		F-36	2
80205	MS21044N04	5310-00-088-0551		F-2	31
80205	MS21044N06	5310-00-081-8087		F-2	37
				F-30	1
80205	MS21044N08	5310-00-811-3494		F-2	11
				F-14	13
				F-16	3
				F-20	11
				F-30	3
96906	MS21045-08	5310-00-889-2549		F-28	10
96906	MS21077-08	5310-00-728-3469		F-10	1
				F-15	5
				F-29	2
96906	MS21077-5	5310-00-728-5504		F-29	4
96906	MS21919WDG10	5340-00-584-6556		F-14	26
				F-20	21
96906	MS21919WDG11	5340-00-664-8163		F-9	5
96906	MS21919WDG13	5340-00-286-9421		F-14	100
96906	MS21919WDG18	5340-00-200-7449		F-14	42
96906	MS21919WDG2	5340-00-291-5353		F-14	74
96906	MS21919WDG24	5340-00-200-3045		F-14	57
96906	MS21919WDG3	5340-00-291-5322		F-14	103
96906	MS21919WDG5	5340-00-200-8560		F-2	72
				F-11	26
				F-14	96
96906	MS21919WDG6	5340-00-598-0146		F-9	2

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CAGEC	PART NUMBER	PART NUMBER INDEX		FIG.	ITEM
		PART NUMBER	STOCK NUMBER		
96906	MS21919WDG6		5340-00-598-0146	F-14	64
96906	MS21919WDG8		5340-00-291-5347	F-14	82
96906	MS24192-D1		5945-00-549-6348	F-30	14
96906	MS24693S31		5305-00-957-7820	F-11	55
96906	MS24693S40		5305-00-051-8308	F-2	59
96906	MS24693S52		5305-00-965-5882	F-2	14
				F-14	4
				F-20	4
				F-26	5
				F-27	1
96906	MS24693S56		5305-00-959-6640	F-2	22
96906	MS25002-4		5930-00-556-9791	F-33	1
96906	MS25036-106		5940-00-283-5280	F-13	10
				F-31	6
				F-35	4
96906	MS25036-108		5940-00-143-4780	F-5	11
				F-31	8
96906	MS25036-112		5940-00-143-4794	F-5	10
				F-31	7
96906	MS25036-153		5940-00-143-4774	F-13	4
				F-18	6
				F-31	3
96906	MS25036-156		5940-00-143-4775	F-13	3
96906	MS25043-22DA		5935-01-176-1708	F-2	21
96906	MS25331-7		6210-00-726-0790	F-33	7
96906	MS27130-S140K		5310-00-480-9693	F-29	6
96906	MS27130-S93K		5310-00-616-2589	F-10	11
96906	MS27183-10		5310-00-809-4058	F-2	47
				F-2	64
				F-20	16
96906	MS27183-11		5310-00-809-3078	F-28	14
96906	MS27183-12		5310-00-081-4219	F-1	2
96906	MS27183-41		5310-00-765-3197	F-7	2
				F-9	16
				F-11	53
				F-14	12
				F-20	10
				F-26	8
96906	MS27183-42		5310-00-014-5850	F-2	42
				F-20	13
96906	MS27473T20B16S		5935-00-325-5872	F-5	1
96906	MS27508E20B16P		5935-00-426-6557	F-5	7
				F-35	1
96906	MS27508E20B16S		5935-01-025-2210	F-5	8
96906	MS27511B20CL		5935-01-141-4210	F-2	19
96906	MS27980-1N		5325-00-276-4953	F-15	19
96906	MS27980-13B		5325-00-285-6295	F-16	4
96906	MS27980-14B		5325-01-088-6923	F-14	22
96906	MS27980-6N		5325-00-276-4946	F-15	18
96906	MS3102R14S-6P			F-21	1
96906	MS3102R14S-6S		5935-00-801-6620	F-13	13

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CAGEC	PART NUMBER	PART NUMBER INDEX		FIG.	ITEM
		PART NUMBER	STOCK NUMBER		
96906	MS3102R20-15P		5935-00-754-5638	F-18	13
96906	MS3106R20-15S		5935-00-816-8646	F-18	11
96906	MS3106R32-13S		5935-00-802-0067	F-18	21
96906	MS3367-1-9		5975-00-074-2072	F-5	4
				F-9	17
				F-14	97
				F-26	10
96906	MS3367-6-9		5975-00-133-8696	F-14	32
96906	MS3452W20-15S		5935-01-173-4811	F-13	2
96906	MS3452W24-11S		5935-01-197-2626	F-31	1
96906	MS3452W24-28S		5935-01-229-0140	F-13	7
96906	MS3452W32-13P		5935-01-234-9621	F-31	12
96906	MS3456W14S-6P		5935-00-622-2924	F-6	1
96906	MS3456W14S6S		5935-00-517-8519	F-18	12
96906	MS3456W20-15P		5935-01-089-0663	F-5	15
96906	MS3456W22-22P		5935-01-062-2402	F-5	17
				F-18	1
96906	MS3456W22-22S		5935-01-118-5714	F-5	19
96906	MS3456W24-11P		5935-01-198-9937	F-13	16
				F-18	20
96906	MS3456W24-11S		5935-01-173-7654	F-18	22
96906	MS3456W24-28P		5935-00-548-1529	F-5	6
80205	MS35190-236		5305-00-958-5453	F-33	2
96906	MS35206-216		5305-00-889-2998	F-11	23
				F-33	3
96906	MS35206-217		5305-00-889-2999	F-2	32
				F-28	8
96906	MS35206-226		5305-00-984-4983	F-14	88
96906	MS35206-228		5305-00-984-4988	F-30	7
96906	MS35206-230		5305-00-889-3000	F-2	34
				F-11	3
				F-30	10
96906	MS35206-232		5305-00-984-4992	F-2	68
96906	MS35206-233		5305-00-984-4993	F-11	49
96906	MS35206-234		5305-00-984-6221	F-30	16
96906	MS35206-245		5305-00-984-6193	F-9	15
				F-11	25
				F-26	6
96906	MS35206-246		5305-00-984-6194	F-14	14
				F-20	22
				F-28	2
				F-30	8
96906	MS35206-247		5305-00-984-6195	F-2	3
				F-7	3
				F-9	12
				F-14	1
				F-20	20
				F-30	17
96906	MS35206-248		5305-00-984-6196	F-11	47
96906	MS35206-250		5305-00-984-6198	F-2	15
96906	MS35206-251		5305-00-984-6199	F-14	18

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CAGEC	PART NUMBER	PART NUMBER INDEX		FIG.	ITEM
		PART NUMBER	STOCK NUMBER		
96906	MS35206-251		5305-00-984-6199	F-19	3
				F-30	6
96906	MS35206-252		5305-00-984-6200	F-14	45
96906	MS35206-253		5305-00-984-6201	F-28	6
96906	MS35206-332		5305-00-455-6840	F-20	5
96906	MS35338-40		5310-00-543-2410	F-11	7
				F-28	5
				F-33	8
96906	MS35338-41		5310-00-045-4007	F-2	63
				F-11	2
				F-30	11
96906	MS35338-42		5310-00-045-3299	F-11	21
				F-14	41
				F-19	2
				F-26	7
96906	MS35338-44		5310-00-582-5965	F-2	48
				F-20	15
96906	MS35338-45		5310-00-407-9566	F-1	3
				F-28	15
				F-11	4
96906	MS35489-11		5325-00-291-9366	F-11	56
96906	MS35489-14		5325-00-276-6100	F-11	3
96906	MS35489-6		5325-00-263-6632	F-11	6
96906	MS35649-242		5310-00-934-9739	F-11	4
				F-28	9
				F-33	62
96906	MS35649-262		5310-00-934-9747	F-2	42
96906	MS35649-282		5310-00-934-9757	F-11	20
96906	MS35842-13		4730-00-909-8627	F-14	62
96906	MS35845-1		4130-00-572-4709	F-14	63
96906	MS35872-2		4730-00-189-2737	F-14	49
96906	MS35872-3		4730-00-189-2739	F-14	60
96906	MS35917-3U		4730-00-813-4441	F-22	3
96906	MS35928-5U		4730-01-139-4424	F-24	2
96906	MS35929-2		4730-00-257-2163	F-14	84
				F-27	6
96906	MS35929-3		4730-00-263-6460	F-14	46
96906	MS35929-4		4730-00-263-6465	F-27	12
96906	MS35929-5		4730-00-263-6472	F-14	54
96906	MS51007-7		5330-00-836-4355	F-28	11
96906	MS51849-34		5305-00-230-8586	F-14	92
96906	MS51861-44		5305-00-138-0069	F-2	41
				F-14	95
				F-20	8
96906	MS51865-1		5310-01-022-8113	F-33	14
80205	MS51964-65		5305-00-724-5812	F-2	43
80205	MS51964-80		5305-00-724-5823	F-20	7
80205	MS51966-122		5305-01-038-4760	F-2	46
				F-20	18
96906	MS90707-2037			F-11	63
96906	MS90725-34		5306-00-225-8499	F-1	4

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CAGEC	PART NUMBER	PART NUMBER INDEX		FIG.	ITEM
		PART NUMBER	STOCK NUMBER		
96906	MS90725-5		5305-00-068-0501	F-2	49
96906	MS90726-40		5306-00-225-9095	F-28	16
96906	MS91528-2T2B		5355-00-163-7524	F-33	12
96906	MS91528-2T4B		5355-00-151-6034	F-33	10
81349	M23053/2-201-C		5970-01-139-1013	F-19	5
				F-36	1
81349	M23053/5-205-C		5970-00-767-0515	F-13	1
				F-31	11
81349	M23053/5-206-C		5970-00-767-0524	F-11	54
81349	M23053/5-207-C		5970-00-727-6728	F-31	5
81349	M24243/1-A408		5320-00-850-3282	F-14	38
81349	M24243/2-A403H			F-14	91
81349	M24243/6-A402H		5320-00-932-1972	F-2	1
				F-14	3
				F-15	14
81349	M24243/6-A405H		5320-01-291-9121	F-9	4
81349	M24243/6-A604H		5320-00-956-7355	F-10	9
81349	M24243/7-A403H		5320-00-143-6149	F-10	15
81349	M24243/7-A404H		5320-00-420-2169	F-10	16
81349	M24243/7-A405H		5320-01-180-2567	F-29	3
81349	M39014/05-2261		5910-00-099-0541	F-11	48
81349	M3971/1-5		6645-00-089-8842	F-30	9
81349	M5086/1-10-9		6145-00-003-9527	F-5	18
				F-18	3
81349	M5086/1-12-9		6145-00-578-7521	F-5	9
				F-13	5
				F-18	7
				F-31	10
81349	M5086/1-14-9		6145-00-578-7516	F-5	12
				F-13	14
				F-18	5
				F-31	14
81349	M5086/1-16-9		6145-00-578-6072	F-5	5
				F-13	11
				F-18	8
				F-31	9
				F-35	5
81349	M5086/1-18-9		6145-00-578-7518	F-5	3
96906	M835842-15		4730-00-908-6293	F-14	67
51107	PRA-100-AFN-400			F-30	4
50935	SP3889			F-14	35
50935	SP3909			F-2	18
50935	SP3910			F-2	30
50935	SP3911			F-2	55
50935	SP3911-66			F-10	5
50935	SP3911-67			F-10	17
50935	SP3911-68			F-10	4
50935	SP3912			F-2	50
50935	SP3914			F-11	61
50935	SP3915			F-14	33
50935	SP3915/2			F-22	2

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CAGEC	PART NUMBER	PART NUMBER INDEX		FIG.	ITEM
			STOCK NUMBER		
50935	SP3916			F-14	34
50935	SP3917			F-14	8
50935	SP3918			F-14	15
50935	SP3919			F-30	12
50935	SP3920			F-30	18
50935	SP3921			F-1	6
50935	SP3922			F-33	4
50935	SP3922-1			F-34	3
50935	SP3934-1			F-9	13
				F-14	37
50935	SP3934-2			F-9	1
				F-14	36
50935	SP4050			F-20	17
50935	SP4075			F-2	20
50935	SP4075-1			F-3	7
50935	SP4212			F-33	15
50935	SP4386			F-28	3
50935	SP4387			F-28	7
50935	SP4781			F-2	29
50935	SP4783			F-3	9
50935	SP4802-1			F-2	26
50935	SP4802-2			F-2	26
50935	SP4818			F-14	6
50935	SP4818-1			F-15	7
50935	SP4819			F-14	19
50935	SP4820			F-15	12
50935	SP4821			F-14	2
7V772	VIB-4			F-27	3
7V772	VIB-5			F-14	69
41947	W-1526	4730-00-808-0394		F-14	101
81348	WW-P-471ACAAAB	4730-01-222-9646		F-2	8
5L920	W1853-3			F-20	19
81349	ZZR-R-765CLAGR50			F-10	13
	5236K17				
50935	008W200A			F-28	9
50935	008W200A-1			F-18	14
50935	008W200A-2			F-18	15
50935	008W200A-3			F-18	16
50935	008W200A-4			F-18	17
50935	008W200A-5			F-18	18
50935	008W200A-6			F-18	19
50935	008W200B-1			F-28	13
50935	008W200B-2			F-28	12
50935	015W198			F-17	3
50935	015W199			F-17	2
50935	015W200			F-16	2
50935	015W203			F-2	2
				F-15	15
				F-32	2
50935	015W235			F-14	5
50935	015W237			F-2	9

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CAGEC	PART NUMBER	PART NUMBER INDEX		FIG.	ITEM
			STOCK NUMBER		
50935	015W238			F-2	7
50935	015W239			F-14	24
50935	015W240			F-2	10
50935	015W241			F-2	4
50935	015W242			F-15	11
50935	015W244			F-14	7
50935	038W102			F-2	56
81349	11TB14	5940-00-502-8471		F-30	13
97403	13207E5347-1	5940-00-436-1632		F-2	28
				F-5	2
				F-26	12
97403	13207E5347-2	5940-00-926-0085		F-13	8
				F-18	10
				F-31	4
97403	13211E3799-1	4730-00-822-1274		F-9	7
				F-14	75
				F-26	14
97403	13211E4043-11	4730-00-203-4922		F-27	10
97403	13211E4043-16	4730-00-815-5672		F-27	8
97403	13211E4043-18	4730-01-125-0420		F-14	98
97403	13211E4043-20	4730-00-263-6471		F-14	79
97403	13211E4043-21	4730-00-263-6470		F-14	81
97403	13211E4043-26	4730-01-093-2799		F-9	8
				F-14	77
97403	13211E4043-6	4730-00-818-7778		F-14	72
97403	13211E8218	6680-00-073-8404		F-14	47
97403	13211E8369	4820-00-073-8405		F-14	102
97403	13211E8404	5930-00-275-7800		F-14	94
97403	13216E0146-3	5935-00-904-1280		F-2	38
97403	13216E0146-4			F-2	36
97403	13216E6158	4810-00-493-1844		F-26	2
97403	13218E0250-5			F-10	12
97403	13219E9480-1	4720-01-138-2208		F-22	4
97403	13219E9480-2	4720-01-138-2212		F-24	3
97403	13219E9481			F-2	5
97403	13219E9481-1			F-3	4
97403	13219E9484			F-2	25
97403	13219E9484-1			F-3	10
97403	13219E9486			F-2	6
97403	13219E9486-1			F-3	6
97403	13219E9486-4			F-3	5
97403	13219E9489-1			F-2	66
97403	13219E9492			F-2	52
97403	13219E9496	4820-01-138-2244		F-9	9
97403	13219E9498			F-14	50
97403	13219E9506	4130-01-129-0858		F-7	1
97403	13219E9507	4130-01-128-5871		F-27	14
97403	13219E9516			F-14	17
97403	13219E9516-1			F-15	9
97403	13219E9517			F-14	20
97403	13219E9522			F-14	9

SECTION IV

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CROSS-REFERENCE INDEXES

CAGEC	PART NUMBER	PART NUMBER INDEX		FIG.	ITEM
		PART NUMBER	STOCK NUMBER		
97403	13219E9522-1			F-15	3
97403	13219E9523			F-20	2
97403	13219E9528		9320-01-138-2192	F-3	3
				F-4	2
				F-15	6
97403	13219E9529			F-15	10
97403	13219E9530			F-2	45
97403	13219E9535		4140-01-138-2205	F-20	6
97403	13219E9536			F-20	12
97403	13219E9539			F-20	9
97403	13219E9540		4730-01-092-3835	F-14	90
97403	13219E9544		5935-01-154-7058	F-2	69
				F-30	5
97403	13219E9546-2		5930-00-292-1087	F-14	93
97403	13219E9547-2		5310-00-993-1548	F-10	2
97403	13219E9547-20			F-10	8
97403	13219E9548-20			F-10	10
97403	13219E9549		5330-01-136-2213	F-20	1
97403	13219E9551			F-2	70
97403	13219E9553			F-10	6
97403	13219E9563		5330-01-138-2248	F-14	11
97403	13219E9564			F-2	23
97403	13219E9564-1			F-4	3
97403	13219E9568-1		5999-00-906-4683	F-3	1
				F-4	1
				F-12	2
				F-15	2
				F-32	3
				F-34	2
97403	13219E9568-2		5999-00-906-4682	F-34	1
97403	13219E9572		4130-01-136-2208	F-14	21
97403	13219E9573		4130-01-136-2209	F-14	16
97403	13219E9575		4130-01-136-5629	F-2	12
97403	13219E9576		4130-01-136-2207	F-2	24
97403	13219E9584-1		5999-01-138-2193	F-2	33
97403	13219E9584-2		5999-01-138-2194	F-2	35
				F-11	40
				F-30	20
97403	13219E9584-3		5999-00-471-8953	F-11	38
97403	13219E9584-4		5999-01-130-8664	F-2	40
				F-11	9
				F-33	5
97403	13219E9584-5		5999-01-214-5235	F-30	19
97403	13219E9588-20			F-10	7
97403	13219E9589			F-2	13
97403	13219E9589-1/2			F-4	4
97403	13220E5213-3		5320-00-411-9439	F-10	3
				F-15	4
				F-29	5
97403	13220E5213-4		5320-00-005-6256	F-29	1
97403	13220E5213-5		5320-00-005-6425	F-29	7

SECTION IV

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CROSS-REFERENCE INDEXES

CAGEC	PART NUMBER	PART NUMBER INDEX		FIG.	ITEM
			STOCK NUMBER		
97403	13220E5213-6		5320-00-982-8433	F-29	8
97403	13221E9088			F-26	4
97403	13221E9090			F-14	51
97403	13221E9096		6105-01-126-4175	F-2	57
97403	13221E9098		4820-01-138-2213	F-14	89
97403	13221E9099		4820-01-138-2245	F-14	43
97403	13221E9104-1			F-33	17
97403	13221E9104-10			F-11	17
97403	13221E9104-11			F-11	22
97403	13221E9104-12			F-11	14
97403	13221E9104-13			F-11	15
97403	13221E9104-14			F-11	16
97403	13221E9104-15			F-30	23
97403	13221E9104-16			F-30	27
97403	13221E9104-17			F-30	30
97403	13221E9104-18			F-30	22
97403	13221E9104-19			F-30	26
97403	13221E9104-2			F-33	18
97403	13221E9104-20			F-30	29
97403	13221E9104-22			F-30	32
97403	13221E9104-23			F-30	21
97403	13221E9104-24			F-33	21
97403	13221E9104-25			F-30	25
97403	13221E9104-26			F-30	28
97403	13221E9104-27			F-30	31
97403	13221E9104-28			F-30	24
97403	13221E9104-29			F-14	28
97403	13221E9104-3			F-33	19
97403	13221E9104-34			F-11	24
97403	13221E9104-35			F-11	39
97403	13221E9104-36			F-11	30
97403	13221E9104-37			F-11	29
97403	13221E9104-38			F-11	28
97403	13221E9104-39			F-11	37
97403	13221E9104-4			F-33	20
97403	13221E9104-40			F-11	31
97403	13221E9104-41			F-11	36
97403	13221E9104-42			F-11	32
97403	13221E9104-43			F-11	34
97403	13221E9104-44			F-11	33
97403	13221E9104-45			F-11	18
97403	13221E9104-46			F-11	19
97403	13221E9104-5			F-11	5
97403	13221E9104-6			F-11	11
97403	13221E9104-7			F-11	12
97403	13221E9104-8			F-11	10
97403	13221E9104-9			F-11	13
97403	13221E9105		4820-01-138-2214	F-14	61
97403	13221E9106			F-14	23
97403	13221E9106-1			F-15	13
97403	13221E9107-4			F-11	46

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CROSS-REFERENCE INDEXES

CAGEC	PART NUMBER	PART NUMBER INDEX		FIG.	ITEM
			STOCK NUMBER		
97403	13221E9108			F-33	6
97403	13221E9109-64		5305-01-138-2219	F-3	8
				F-33	16
97403	13221E9114			F-11	1
97403	13221E9114-1			F-12	1
97403	13221E9117		5950-01-136-2195	F-11	52
97403	13221E9119-1		5905-00-255-9504	F-11	51
97403	13221E9119-2		5905-01-102-3887	F-19	4
97403	13221E9122		5945-01-159-7990	F-30	15
97403	13221E9123-1		5940-01-049-9661	F-13	9
97403	13221E9124			F-14	25
97403	13221E9125			F-11	8
97403	13221E9126			F-2	39
97403	13221E9127			F-14	30
97403	13221E9129			F-33	22
97403	13221E9131			F-11	41
97403	13221E9132			F-11	59
97403	13221E9133			F-11	27
97403	13221E9135			F-30	2
97403	13221E9137		5915-01-138-2233	F-2	16
97403	13221E9139			F-14	31
97403	13221E9141			F-14	29
97403	13221E9144		5305-01-128-4072	F-11	62
97403	13221E9146		5940-00-998-6126	F-2	27
				F-11	35
				F-26	11
97403	13221E9147		5999-01-138-2191	F-2	17
97403	13221E9149			F-14	27
97403	13221E9153			F-20	3
97403	13222E8982			F-14	10
97403	13222E8982-1			F-15	1
97403	13226E1619			F-2	61
97403	13226E1620			F-2	71
97403	13226E1621		4540-01-209-4416	F-2	73
97403	13226E1622		5930-01-209-4390	F-2	65
97403	13226E1623			F-2	58
97403	13226E5891			F-2	60
97403	13227E8321		5961-01-476-2422	F-11	50
81349	18TB12		5940-00-829-0430	F-19	1
08806	1828		6240-00-299-6126	F-33	11
01276	202208-10-12			F-8	1
				F-25	6
01276	202208-6-8			F-8	16
				F-23	6
01276	22008-12			F-8	5
01276	22008-8			F-8	12
01276	22546-112			F-23	4
01276	22546-116			F-25	4
01276	22546-17			F-8	15
				F-23	5
01276	22546-23			F-8	2

SECTION IV

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CROSS-REFERENCE INDEXES

CAGEC	PART NUMBER	PART NUMBER INDEX		FIG.	ITEM
			STOCK NUMBER		
01276	22546-23			F-25	5
77342	27E123		5935-01-052-9171	F-11	43
81349	37TB14		5940-00-983-6055	F-2	67
81349	39TB-9			F-11	45
71913	503-6			F-2	54
01276	5400-S16-12			F-25	2
01276	5400-S16-8			F-23	2
01276	5400-S19-12			F-25	3
01276	5400-S19-8			F-23	3
01276	5400-S20-12			F-8	3
01276	5400-S20-8			F-8	14
01276	5400-S6-12			F-8	8
01276	5400-S6-8			F-8	9
01276	5400-S8-12			F-25	1
01276	5400-S8-8			F-23	1
01276	5400-17-12			F-8	4
01276	5400-17-8			F-8	13
01276	5400-53-12S			F-8	7
01276	5400-53-8S			F-8	10
01276	5400-54-12S			F-8	6
01276	5400-54-8S			F-8	11
01276	5401-S14-10-12		4730-01-279-3420	F-24	1
01276	5401-S14-6-8		4730-01-158-0682	F-22	1
01276	5401-S17-10-12		4730-01-279-3419	F-9	3
				F-14	39
01276	5401-S17-6-8		4730-00-859-2243	F-9	14
				F-14	40
60445	7021011112			F-11	60
0B8D4	8964			F-14	66
60445	90-0002			F-33	13

COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS

0139 00

SECTION I. 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 (NSN). Identifies the stock number of the item to be used for requisitioning purposes.

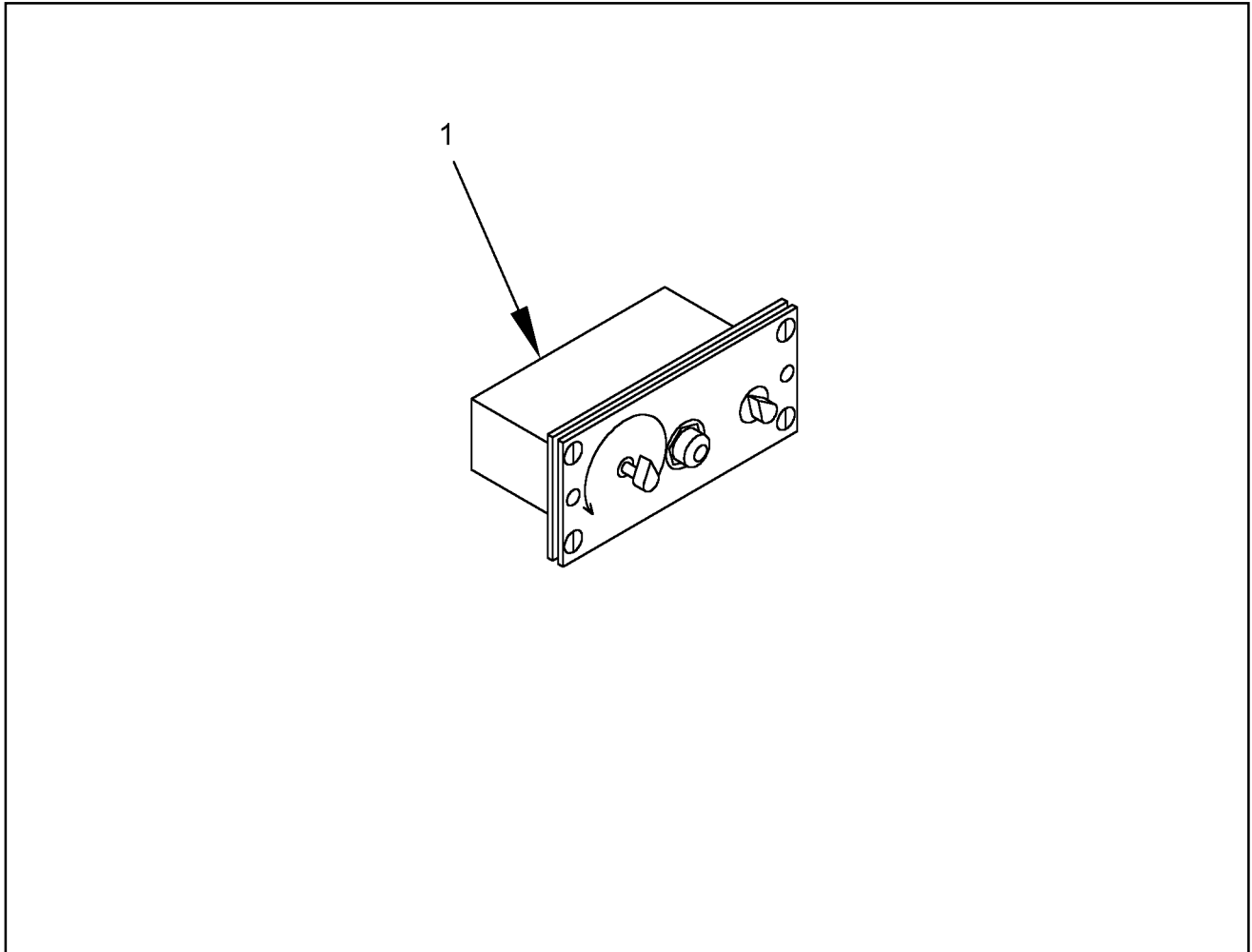
Column (3) - Description, CAGEC, and Part Number. Identifies the Federal item name (in all capital letters) followed by a minimum description when needed. The stowage location of COEI and BII is also included in this column. The last line below the description is the CAGEC (commercial and Government entity code) (in parentheses) and the part number.

Column (4) - Usable On Code. When applicable gives you a code if the item you need is not the same for different models of equipment.

Column (5) - Unit of Measure (U/M). Indicates the physical measurement or count of the item as issued per the National Stock Number shown in column (2).

Column (6) - Qty Rqr. Indicates the quantity required.

SECTION II COMPONENTS OF END ITEM



(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQR
1		REMOTE CONTROL ASSY (97403) 13211E9111		EA	1

SECTION III BASIC ISSUE ITEMS

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQR
1		DEPARTMENT OF THE ARMY TECHNICAL MANUAL; OPERATOR'S, ORGANIZATIONAL, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE MANUAL TM5 4120-423-14&P		EA	1
2	5220-00-559-9618	CASE, MANUAL		EA	1

ADDITIONAL AUTHORIZATION LIST

0140 00

SECTION I INTRODUCTION**SCOPE**

This appendix 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 LISTING

National stock numbers, descriptions, and quantities are provided to help you identify and request that additional items you require to support this equipment. The items are listed in alphabetical sequence by item name under the type document (i.e., CTA, MTOE, TDA, or JTA) which authorizes the item(s) to you. If the item you require differs between serial numbers of the same model, effective serial numbers are shown in the last line of the description.

SECTION II ADDITIONAL AUTHORIZATION LIST

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION, CAGEC, AND PART NUMBER	(3) USABLE ON CODE	(4) (U/M	(5) QTY RECM
	REMOTE CABLE ASSEMBLY(S) AS APPLICABLE. NOTE THAT THE 11455976-1 OR -2 CABLES MAY BE USED BY THEMSELVES AND THAT THE 11455977-1 OR -2 CABLES MUST BE USED WITH A 11455976-1 OR -2 CABLE. (18876) 11455976-1 (18876) 11455976-2 (18876) 11455977-1 (18876) 11455977-2 POWER CABLE (18876) 11453295		EA EA EA EA EA	A/R A/R A/R A/R 1
	SCREW (96906) MS51958-97		EA	8
	WASHER, LOCK (96906) MS35335-62		EA	8
	NUT, SELF LOCKING (96906) MS21044C5		EA	8
	GROUNDING STRAP (18876) 14455133		EA	8
	SCREW, HEX HD (96906) MS35307-338		EA	8
	WASHER, FLAT (18876) 11447172-2		EA	16
	RESILIENT MOUNTS (18876) 11447981		EA	16
	WASHER, FLAT (18876) 11447173		EA	16
	WASHER, FLAT (18876) 11447172-1		EA	8

EXPENDABLE AND DURABLE ITEMS LIST

0141 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 CTA 8-100, 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 brake fluid (item 5, WP0095 00).).

Column (2) - Level. This column identifies the lowest level of maintenance that requires the listed item: C = Operator/Crew O = Unit F = Direct Support H = General Support

Column (3) - National Stock Number (NSN). 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 (CAGEC), 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.

SECTION II EXPENDABLE SUPPLIES AND MATERIALS LIST

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
1	F		SOLDER, LEAD-TIN QQ-S-571, TYPE SN60WRP2	
2	F	6830-00-292-0732	NITROGEN	CY
3	F		BRAZING ALLOY, SILVER QQ-B-564, GRADE 0, I, OR II	
4	F		BRAZING ALLOY, SILVER QQ-B-564, GRADE III	
5	F	3439-00-640-3713	FLUX, BRAZING O-F-499, TYPE B	
6	F	5350-00-192-5047	ABRASIVE CLOTH	PG
7	F	7920-00-205-1711	RAGS	
8	F	6850-00-837-9927	MONOCHLORODIFLUOROMETHANE TECHNICAL: W/CYLINDER 22 LB. (REFRIGERANT-22) BB-F-1421, TYPE 22 (81348)	CY
9	F		PRIMER, YELLOW MIL-P-52192 OR TT-P-1757	
10	F		ENAMEL, FOREST GREEN MIL-E-52798	
11	F		ADHESIVE, LIQUID EPOXY RESIN BASE, GENERAL PURPOSE, A-A-3053	PT
12	F		ADHESIVE, SEALANT, RTV, ONE-COMPONENT MIL-A-46106 TYPE I	
13	F		LUBRICATING OIL VV-L-825, TYPE IV	
14	F		TAPE, INSULATION 13219E9543 (97403) 165 (77464)	ROLL
15	F		SEALING COMPOUND, LOCKING AND RETAINING, SINGLE COMPONENT MIL-S-22473, GRADE CV	
16	F	8030-00-889-3534	TAPE, ANTISEIZE, POLYTETRAFLUOROETHYLENE MIL-T-27730, SIZE 1	ROLL

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
17	F	6830-00-872-5120	TRICHLOROMONOFUOROMETHANE, TECHNICAL: W/CYLINDER 50 LB. (REFRIGERANT-11) BB-F-1421 TYPE II (81348)	CY
18	F	9150-00-058-2301	OIL, VACUUM PUMP, DUO-SEAL	QT
19	O	6850-01-331-3349	DRY CLEANING SOLVENT P-D-680 TYPE III	
20	O		TAPE, LACING MIL-T-43435	FT

STOWAGE AND DECAL/DATA PLATE GUIDE

0142 00

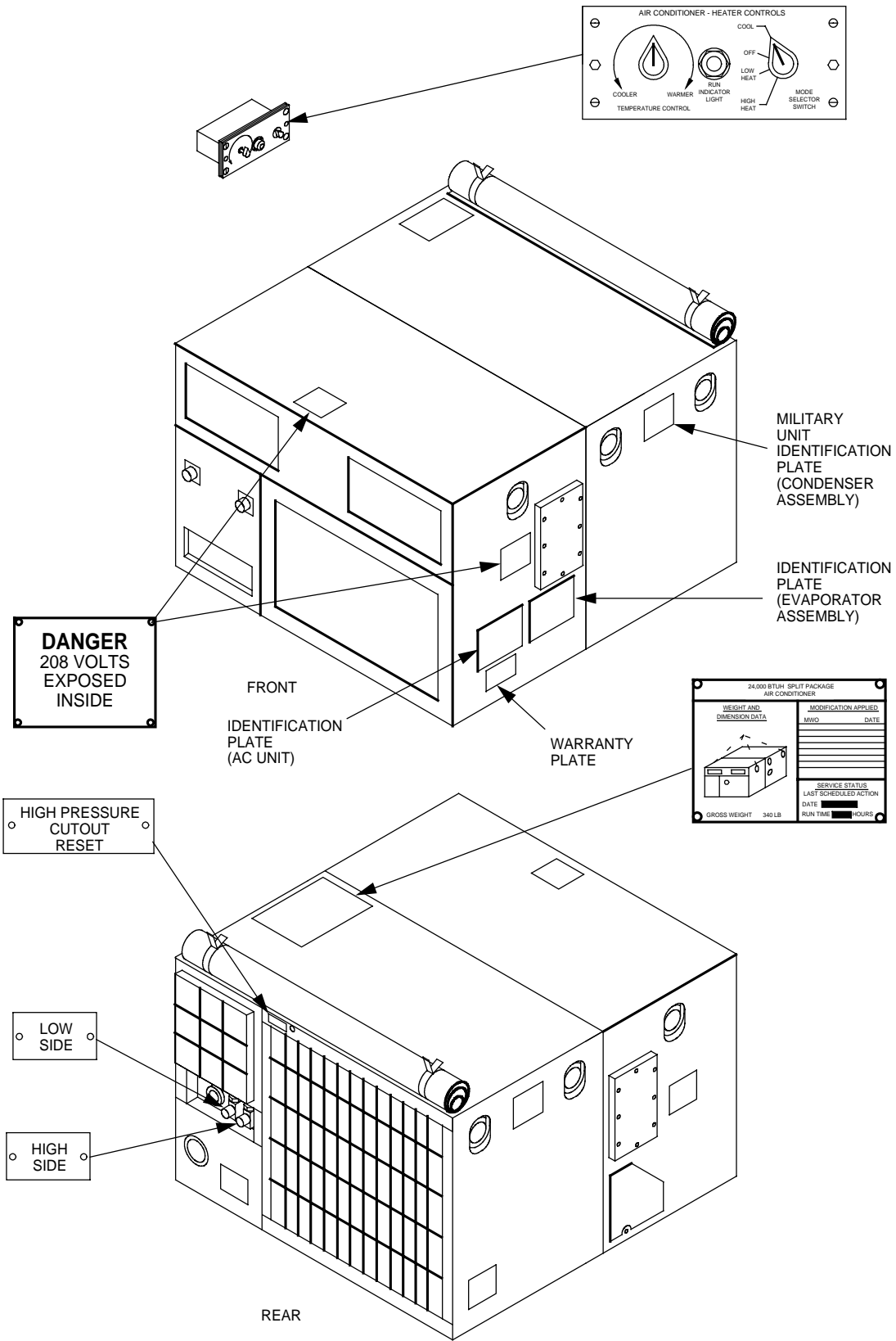
INTRODUCTION**Scope**

This work package shows stowage location for equipment, metal signs, and stencils that must be in place on the Air Conditioner.

General

The following illustration shows stowage locations for Basic Issue Items (BII). Also shown are locations for metal signs and stencils that contain cautions or information required to operate the Air Conditioner safely.

Stowage and Decal Plate Locations



TOOL IDENTIFICATION LIST

0143 00

INTRODUCTION**Scope**

This work package lists all common tools and supplements and special tools/fixtures needed to maintain the Air Conditioner.

Explanation of Columns in the Tool Identification List

Column (1) - Item Number. This number is assigned to the entry in the list and is referenced in the initial setup to identify the item (e.g., Extractor (item 32, WP0087 00)).

Column (2) - Item Name. This column lists the item by noun nomenclature and other descriptive features (e.g., Gage, belt tension).

Column (3) - National Stock Number. This is the National Stock Number (NSN) assigned to the item; use it to requisition the item.

Column (4) - Part Number. 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.

Column (5) - Reference. This column identifies the authorizing supply catalog or RPSTL for items listed in this work package.

ILLUSTRATED LIST OF MANUFACTURED ITEMS

0144 00

INTRODUCTION

Scope

This work package includes complete instructions for making items authorized to be manufactured or fabricated at the direct support and general support levels.

How to Use the Index of Manufactured Items

A part number index in alphanumeric order is provided for cross-referencing the part number of the item to be manufactured to the page, which covers fabrication criteria.

Explanation of the Illustrations of Manufactured Items

All instructions needed by maintenance personnel to manufacture the item are included on the illustrations. All bulk materials needed for manufacture of an item are listed by part number or specification number in a tabular list on the illustration.

INDEX OF MANUFACTURED ITEMS

BHSP24C/130	TUBE, COPPER
BHSP24C/131	TUBE, COPPER
BHSP24C/136	TUBE, COPPER
BHSP24C/137	TUBE, COPPER
BHSP24C/138	TUBE, COPPER
BHSP24C/141	TUBE, COPPER
BHSP24C/143	TUBE, COPPER
BHSP24C/185	TUBE, COPPER
BHSP24C/25	TUBE, COPPER
BHSP24C/30	TUBE, COPPER
BHSP24C/31	TUBE, COPPER
BHSP24C/32	TUBE, COPPER

BHSP24C/37	TUBE, COPPER
BHSP24C/38	TUBE, COPPER
BHSP24C/43	TUBE, COPPER
BHSP24C/51	TUBE, COPPER
BHSP24C/53	TUBE, COPPER
BHSP24C/63	TUBE, COPPER
BHSP24C/66	TUBE, COPPER
BHSP24C/68	TUBE, COPPER
BHSP24C/70	TUBE COPPER
BHSP24C/77	TUBE, COPPER
BHSP24C/79	TUBE, COPPER
BHSP24C/81	TUBE, COPPER
BHSP24C/82	TUBE, COPPER
BHSP24C/86	TUBE, COPPER
BHSP24C/88	TUBE, COPPER
BHSP24C/92	TUBE, COPPER
EHSP24C30H/23	TUBE, COPPER
EHSP24C30H/26	TUBE, COPPER
EHSP24C30H/29	TUBE, COPPER
EHSP24C30H/48	TUBE, COPPER
EHSP24C30H/49	TUBE, COPPER
SP3915/2	TUBE, COPPER

INTRODUCTION

Scope

This work package contains the torque standards for specific types and sizes of hardware. It defines the different types of bolts by grade.

TORQUE TABLES

How To Use Torque Tables

- 1 Measure the diameter of the screw you are installing.
- 2 Count the number of threads per inch or use a pitch grade.
- 3 Under the heading **SIZE**, look down the left-hand column until you find the diameter of the screw you are installing. (There will usually be two lines beginning with the same size.)
- 4 In the second column under **SIZE**, find the numbers of threads per inch that matches the number of threads you counted in step 2. (Not required for metric screws.)

NOTE

Manufacturer's marks may vary. Standard are all SAE Grade 5 (3-line). Metric screws are of three grades: 8.8, 10.9, and 12.9. Grades and manufacturer's marks appear on the screw head.

- 5 To find the grade screw you are installing, match the markings on the head to the correct picture of **CAPSCREW HEAD MARKINGS** in the illustration preceding the torque table.

WIRING DIAGRAMS

0146 00

INTRODUCTION**Scope**

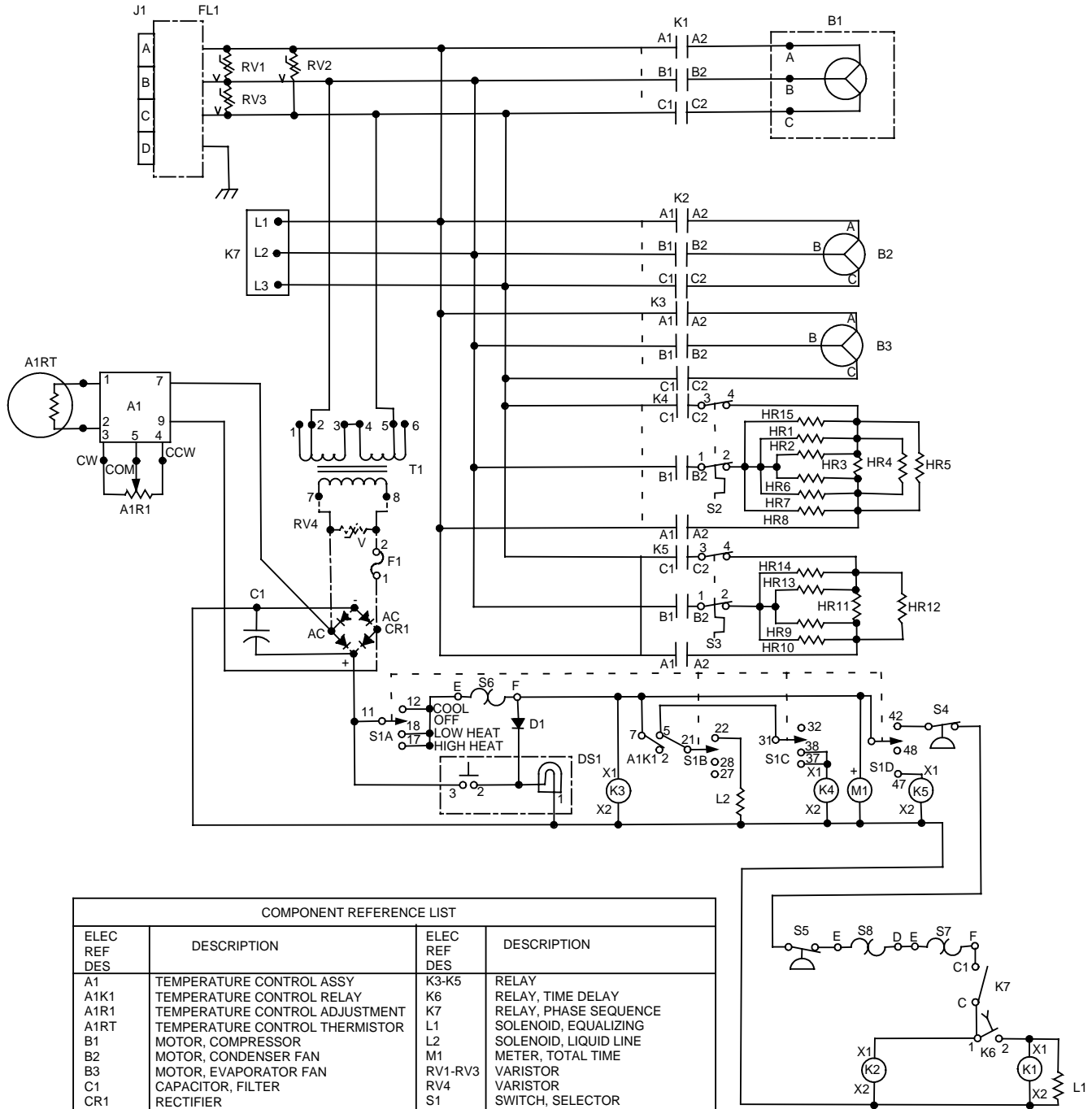
This work package describes the wiring provisions contained in the air conditioner, including all systems or equipment, which can be installed or removed later. Wiring diagrams and essential wiring information are provided for all electrical and electronic systems and circuits. All critical wire and cable data has been included.

WIRE IDENTIFICATION

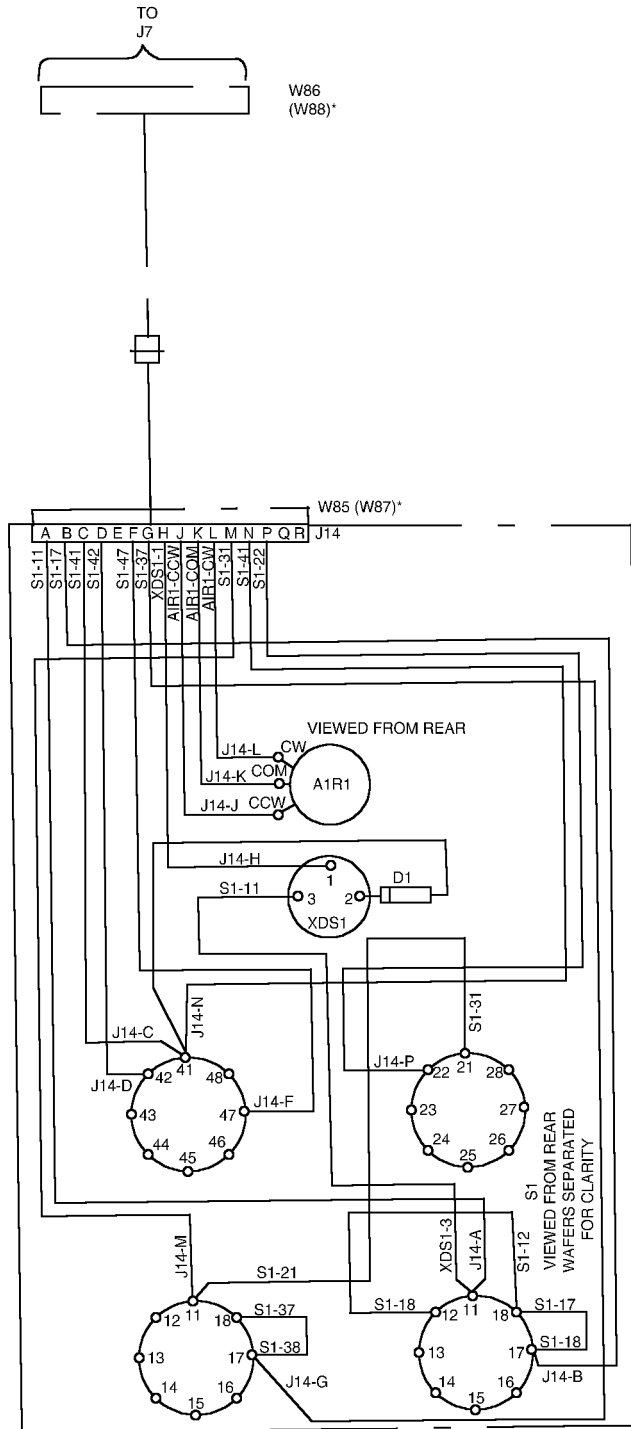
Refer to WP0015 for wire list.

ABBREVIATIONS

All abbreviations are in accordance with MIL-STD-12.



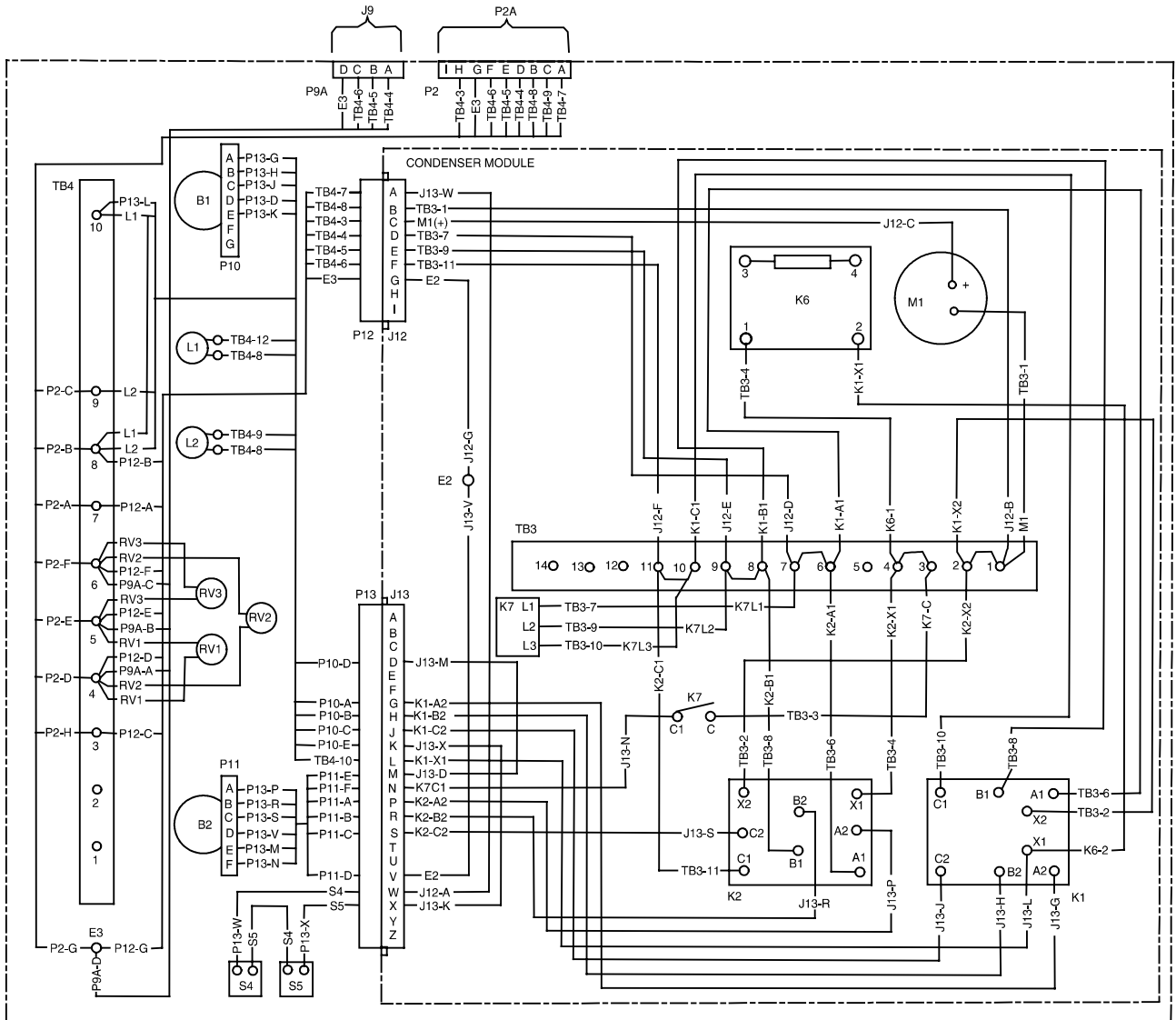
COMPONENT REFERENCE LIST			
ELEC REF DES	DESCRIPTION	ELEC REF DES	DESCRIPTION
A1	TEMPERATURE CONTROL ASSY	K3-K5	RELAY
A1K1	TEMPERATURE CONTROL RELAY	K6	RELAY, TIME DELAY
A1R1	TEMPERATURE CONTROL ADJUSTMENT	K7	RELAY, PHASE SEQUENCE
A1RT	TEMPERATURE CONTROL THERMISTOR	L1	SOLENOID, EQUALIZING
B1	MOTOR, COMPRESSOR	L2	SOLENOID, LIQUID LINE
B2	MOTOR, CONDENSER FAN	M1	METER, TOTAL TIME
B3	MOTOR, EVAPORATOR FAN	RV1-RV3	VARISTOR
C1	CAPACITOR, FILTER	RV4	VARISTOR
CR1	RECTIFIER	S1	SWITCH, SELECTOR
D1	DIODE	S2-S3	SWITCH, THERMOSTATIC
DS1	LAMP	S4	SWITCH, HIGH PRESSURE
F1	FUSE	S5	SWITCH, LOW PRESSURE
FL1	FILTER, RF	S6	SWITCH, THERMAL PROTECTOR
HR1-HR15	HEATING ELEMENT, ELECTRICAL	S7	SWITCH, THERMAL PROTECTOR
J1	CONNECTOR, POWER INPUT	S8	SWITCH, THERMAL PROTECTOR
K1-K2	RELAY	T1	TRANSFORMER



* CABLE DESIGNATIONS SHOWN IN BRACKETS ARE IDENTICAL CABLES USED IN ALTERNATE INSTALLATION. REMOTE CABLE ASSEMBLIES W83, W86, W87, AND W88 ARE SUPPLIED BY THE USER AND ARE SHOWN FOR REFERENCE ONLY.

COMPONENT REFERENCE LIST	
ELEC REF DES	DESCRIPTION
A1	TEMPERATURE CONTROL ASSY
A1-R1	TEMPERATURE CONTROL, ADJUSTMENT
A1-RT	TEMPERATURE CONTROL, THERMISTOR
B1	MOTOR, COMPRESSOR
B2	MOTOR, CONDENSER FAN
B3	MOTOR, EVAPORATOR FAN
C1	CAPACITOR, FILTER
CR1	RECTIFIER
D1	DIODE
E1-E3	GROUNDING SCREWS
FL1	FILTER, RF
HR1-HR15	HEATING ELEMENT, ELECTRICAL
J1	CONNECTOR, POWER INPUT
J2	CONNECTOR, INTERFACE
J3	CONNECTOR, HEATERS
J4	CONNECTOR, EVAP CONTROL
J6	CONNECTOR, EVAP FAN
J7	CONNECTOR, EVAP CONTROL
J8	CONNECTOR, POWER
J9	CONNECTOR, INTERFACE
J10	CONNECTOR, COMPRESSOR
J11	CONNECTOR, CONDENSER FAN
J12	CONNECTOR, CONDENSER MODULE
J13	CONNECTOR, CONDENSER MODULE
J14	CONNECTOR, REMOTE MODULE
J15	CONNECTOR, REMOTE
K1	RELAY
K2	RELAY
K3	RELAY
K4	RELAY
K5	RELAY
K6	RELAY, TIME DELAY
K7	RELAY, PHASE SEQUENCE
L1	VALVE, SOLENOID, EQUALIZING
L2	VALVE, SOLENOID, LIQUID LINE
M1	METER, TOTAL TIME
P2	CONNECTOR, EVAP-COND
P2A	CONNECTOR, EVAP-COND
P3	CONNECTOR, HEATERS
P4	CONNECTOR, EVAP, CONTROL
P6	CONNECTOR, EVAP FAN
P8	CONNECTOR, POWER
P9	CONNECTOR, POWER
P9A	CONNECTOR, POWER
P10	CONNECTOR, COMPRESSOR
P11	CONNECTOR, CONDENSER FAN
P12	CONNECTOR, CONDENSER MODULE
P13	CONNECTOR, CONDENSER MODULE
P14	CONNECTOR, REMOTE
RV1-RV3	VARISTOR
RV4	VARISTOR
S1	SWITCH, SELECTOR
S2, S3	SWITCH, THERMOSTATIC
S4	SWITCH, HIGH PRESSURE
S5	SWITCH, LOW PRESSURE
T1	TRANSFORMER
TB1	TERMINAL BOARD
TB2	TERMINAL BOARD
TB3	TERMINAL BOARD
TB4	TERMINAL BOARD
W85 (W87)	CABLE ASSY, REMOTE
W86 (W88)	CABLE ASSY, REMOTE
XDS1	LAMPHOLDER
XF1	FUSEHOLDER

REMOTE CONTROL MODULE



CONDENSER ASSEMBLY

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By Order of the Secretary of the Army:

Official:


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10 July 1975

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BE EXACT PIN-POINT WHERE IT				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			<p>Recommend that the installation antenna alignment procedure be changed throughout to specify a 20 IFF antenna lag rather than 10.</p> <p>REASON: Experience has shown that with only a 10 lag, the antenna servo system is too sensitive to wind gusting 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 degradation of operation.</p>
3-10	3-3		3-1	<p>Item 5, Functional column. Change "2 dB" to "3 dB".</p> <p>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.</p>
5-6	5-8			<p>Add new step f.1 to read, "Replace cover plate removed in step e.1 above."</p> <p>REASON: To replace the cover plate.</p>
		FO-3		<p>Zone C 3. On J1-2, change "+24 VDC" to "+5 VDC".</p> <p>REASON: This is the output line of the 5 VDC power supply. +24 VDC is the input voltage.</p>

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THE METRIC SYSTEM AND EQUIVALENTS

WEIGHT MEASURE

1 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

WEIGHTS

1 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

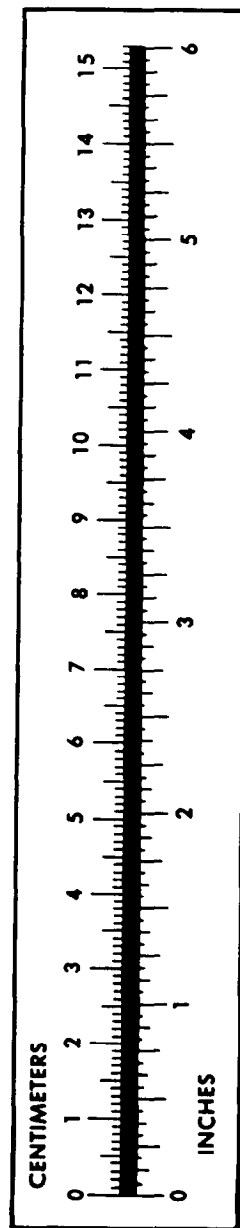
TEMPERATURE

$5/9(^{\circ}\text{F} - 32) = ^{\circ}\text{C}$
 212° Fahrenheit is equivalent to 100° Celsius
 90° Fahrenheit is equivalent to 32.2° Celsius
 32° Fahrenheit is equivalent to 0° Celsius
 $9/5^{\circ}\text{C} + 32 = ^{\circ}\text{F}$

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
its	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
ometers per Liter	Miles per Gallon	2.354
ometers per Hour	Miles per Hour	0.621



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