TB 9-2320-302-13&P-3

TECHNICAL BULLETIN

OPERATOR'S, UNIT, AND DIRECT SUPPORT MAINTENANCE MANUAL, INSTALLATION INSTRUCTIONS, AND REPAIR PARTS AND SPECIAL TOOLS LIST (RPSTL)

FOR

TRUCK, TRACTOR, LINE HAUL
52,000 GVWR, 6 x 4, M915A2P1
NSN: 2320-01-523-2482

TRUCK, TRACTOR, LIGHT EQUIPMENT TRANSPORTER (LET)
68,000 GVWR, 6 x 6, W/WINCH, M916A1P1
NSN: 2320-01-531-2629

WITH

AIR CONDITIONING KIT

HEADQUARTERS, DEPARTMENT OF THE ARMY

MARCH 2008

WARNING SUMMARY

This warning summary contains general safety warnings and hazardous materials warnings that must be understood and applied during operation and maintenance of this equipment. Failure to observe these precautions may cause serious injury or death to personnel. Also included are explanations of safety and hazardous materials icons used within this technical bulletin.

BIOLOGICAL - Abstract symbol bug shows that a material may contain bacteria or viruses that present a danger to life or health.

CHEMICAL - Drop of liquid on hand shows that the material will cause burns or irritation to human skin or tissue.

ELECTRICAL - Electrical wire to arm with electricity symbol running through human body shows that shock hazard is present.

EYE PROTECTION - Person with goggles shows that the material will injure the eyes.

FIRE - Flame shows that a material may ignite and cause burns.

FLYING PARTICLES - Arrows bouncing off face with face shield shows that particles flying through the air will harm face.

HEAVY PARTS - Hand with heavy object on top shows that heavy parts can crush and harm.

HEAVY PARTS - Heavy object on human figure shows that heavy parts present a danger to life or limb.

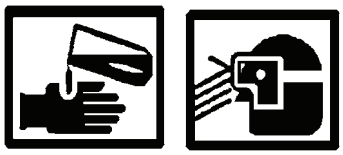
HYDRAULIC FLUID PRESSURE - Hydraulic fluid spraying human hand shows that fluid escaping under great pressure can cause injury or death to personnel.

RADIOACTIVE - Identifies a material that emits radioactive energy and can injure human tissue or organs.

SLICK FLOOR - Wavy line on floor with legs prone shows that slick floor presents a danger from falling.

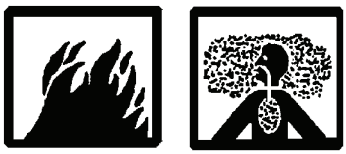
VAPOR - Human figure in a cloud shows that material vapors present a danger to life or health.

FOR INFORMATION ON FIRST AID, REFER TO FM 4-25.11.



WARNING

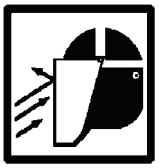
ADHESIVES AND SEALANTS



Use caution when using adhesives and sealants. Prolonged inhalation of vapors can cause lung irritation. Contact with skin can cause dermatitis. Wear gloves and safety goggles and use product in a well-ventilated area away from open flame. If ingested, keep individual calm and seek medical attention. DO NOT induce vomiting. If contact with skin or eyes is made, flush thoroughly with water. Dispose of cleanup rags IAW local policy and ordinances. Failure to follow this warning may cause injury to personnel.

WARNING

COMPRESSED AIR



Particles blown by compressed air are hazardous. DO NOT exceed 15 psi (103 kPa) nozzle pressure when drying parts with compressed air. Use a maximum of 30 psi (207 kPa) when cleaning components. DO NOT direct compressed air against human skin. Make sure air stream is directed away from user and other personnel in the area. To prevent injury, user must wear protective goggles or face shield. Failure to follow this warning may result in injury or death to personnel.

WARNING

ELECTRICAL

Before removing any component of electrical system, be sure battery disconnect switch is in OFF position. Remove all jewelry before working on electrical system. Failure to follow this warning may cause injury to personnel.

WARNING

HEAVY COMPONENTS

Use caution when handling heavy parts. Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Keep clear of heavy parts supported only by lifting device. Failure to follow this warning may cause injury or death to personnel.

WARNING

NBC EXPOSURE

- If NBC exposure is suspected, personnel wearing protective equipment must handle all air cleaner media. Consult your NBC Officer or NBC NCO for appropriate handling or disposal procedures.
- NBC contaminated filters must be handled using adequate precautions and must be disposed of by trained personnel.
- Failure to follow these warnings may result in injury or death to personnel.

To order this NBC decal use:
National Stock Number (NSN) - 7690-01-114-3702
Part Number (PN) - 12296626
Commercial and Government Entity Code (CAGEC) - 19207

WARNING

RECEIVER/DRYER

Receiver/dryer unit will fall when clamps are loosened. Support receiver/dryer while loosening clamps. Failure to comply may cause injury to personnel.

- Contact with refrigerant can cause frostbite. Keep hands and face away to prevent personal injury.
- Protective face shield must always be worn when refrigerant lines are opened, even if the gauges indicate the system is empty.
- Always use caution if a fitting is removed. Slowly loosen the fitting. If the system is still under any pressure, release it slowly in a well-ventilated area.
- DO NOT smoke when servicing A/C or wherever refrigerant gas may be present.
- Failure to follow these warnings may result in injury or death to personnel.


WARNING

SOLVENT CLEANING COMPOUND


- Solvent cleaning compound MIL-PRF-680 Type II and III may be irritating to the eyes and skin. Use protective gloves and goggles. Use in well-ventilated areas. Use respirator as needed. Accidental ingestion can cause irritation of digestive tract and respiratory tract, may cause lung and central nervous system damage. Can be fatal if swallowed. Inhalation of high/massive concentrations can cause coma or be fatal. First aid for ingestion: do not induce vomiting. Seek immediate medical attention. First aid for skin contact: remove contaminated clothing. Wash skin thoroughly with soap and water. If symptoms persist, seek medical attention. First aid for eye contact: flush with water for 15 minutes or until irritation subsides. If symptoms persist, seek medical attention. First aid for inhalation: move to fresh air. If not breathing, provide artificial respiration. If symptoms persist, seek medical attention. Keep away from open flames and other sources of ignition.
- The flashpoint for type II solvent cleaning compound is 141-198°F (61-92°C) and type III is 200-241°F (93-116°C).
- Improper cleaning methods and use of unauthrized cleaning solvents may injure personnel and damage equipment.
- Fire extinguishers should be placed nearby when using solvent cleaning compound.
- Cloths or rags saturated with solvent cleaning compound must be disposed of IAW authorized facilities' procedures.
- Eye shields must be worn when cleaning with a wire brush. Flying rust and metal particle may cause injury.
- Failure to follow these warnings may result in injury or death to personnel.

WARNING

HAZARDOUS WASTE

When servicing this vehicle, performing maintenance, or disposing of materials such as engine coolant, hydraulic fluid, lubricants, battery acids or batteries, and CARC paint, consult your unit/local hazardous waste disposal center or safety office for local regulatory guidance. If further information is needed, please contact The Army Environmental Hotline at 1-800-872-3845.

WARNING

WELDING

To ensure survivability of personnel, welding repairs on armor kit are NOT authorized. If armor plates are damaged, they must be replaced. Failure to follow this warning may cause failure of armor, resulting in injury or death to personnel.

LIST OF EFFECTIVE PAGES/WORK PACKAGES

Date of issue for original manual is:

Original . . . . . 31 March 2008

Total number of pages for front and rear matter is 20 and total number of work packages is 29 consisting of the following:

Page/WP No.	*Change No.	Page/WP No.	*Change No.
Front cover	0	WP 0028 00 (6 pp.)	0
a to f	0	WP 0029 00 (16 pp.)	0
i to iv	0	Index-1 to Index-2	0
Ch. 1 title page	0	Metric conversion chart	0
WP 0001 00 (4 pp.)	0	Back cover	0
WP 0002 00 (4 pp.)	0		
WP 0003 00 (2 pp.)	0		
Ch. 2 title page	0		
WP 0004 00 (2 pp.)	0		
WP 0005 00 (2 pp.)	0		
WP 0006 00 (2 pp.)	0		
WP 0007 00 (2 pp.)	0		
Ch. 3 title page	0		
WP 0008 00 (4 pp.)	0		
WP 0009 00 (8 pp.)	0		
WP 0010 00 (2 pp.)	0		
Ch. 4 title page	0		
WP 0011 00 (8 pp.)	0		
WP 0012 00 (2 pp.)	0		
WP 0013 00 (18 pp.)	0		
Ch. 5 title page	0		
WP 0014 00 (6 pp.)	0		
WP 0015 00 (10 pp.)	0		
WP 0016 00 (8 pp.)	0		
WP 0017 00 (20 pp.)	0		
WP 0018 00 (4 pp.)	0		
WP 0019 00 (4 pp.)	0		
WP 0020 00 (14 pp.)	0		
WP 0021 00 (12 pp.)	0		
Ch. 6 title page	0		
WP 0022 00 (2 pp.)	0		
WP 0023 00 (4 pp.)	0		
WP 0024 00 (2 pp.)	0		
WP 0025 00 (4 pp.)	0		
WP 0026 00 (4 pp.)	0		
WP 0027 00 (30 pp.)	0		

* Zero in this column indicates an original page or work package.

TECHNICAL BULLETIN
TB 9-2320-302-13&P-3

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D.C., 31 March 2008

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WITH

AIR CONDITIONING KIT

Current as of January 2008

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this publication. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Submit your DA Form 2028 (Recommended Changes to Equipment Technical Publications), through the Internet, on the Army Electronic Product Support (AEPS) website. The Internet address is https://aeps.ria.army.mil. The DA Form 2028 is located under the Public Applications section in the AEPS Public Home Page. Fill out the form and click on SUBMIT. Using this form on the AEPS will enable us to respond quicker to your comments and better manage the DA Form 2028 program. You may also mail, fax or E-mail your letter or DA Form 2028 direct to: AMSTA-LC-LMPP/ TECH PUBS, TACOM-RI, 1 Rock Island Arsenal, Rock Island, IL 61299-7630. The E-mail address is ROCK-TACOM-TECH-PUBS@conus.army.mil. The fax number is DSN 793-0726 or Commercial (309) 782-0726.

Table of Contents

Table of Contents - Continued

HOW TO USE THIS TECHNICAL BULLETIN

NOTE

If at any time you are unsure how to use this bulletin or you cannot locate the information you need, notify your supervisor.

INTRODUCTION

1. This bulletin is designed to help you operate, maintain, and install the Air Conditioning Kit for the M915A2P1 and M916A1P1. It also provides installation instructions and the *Repair Parts and Special Tools List (RPSTL)* for the Air Conditioning Kit.
2. This bulletin is written in work package format:
   a. Chapters divide the bulletin into major categories of information (e.g., *General Information, Equipment Description and Data, and Theory of Operation*, *Operator Instructions, Operator Maintenance Instructions*, *A/C Troubleshooting Procedures, Unit and Direct Support Maintenance Instructions*, and *Supporting Information*).
   b. Each chapter is divided into work packages, which are identified by a 6-digit number (e.g. 0001 00, 0002 00) located in the upper right-hand corner of each page. The work package page number (e.g. 0001 00-1, 0001 00-2) is located centered at the bottom of each page.
   c. If a Change Package is issued to this bulletin, added work packages use the 5^{th} and 6^{th} digits of their number to indicate new material. For instance, work packages inserted between WP 0001 00 and WP 0002 00 are numbered WP 0001 01, WP 0001 02, etc.
3. Read through this bulletin to become familiar with its organization and contents before attempting to operate or maintain the Air Conditioning Kit.

CONTENTS OF THIS BULLETIN

1. *Warning Summary.* Located at the beginning of this bulletin. Become familiar with these warnings before operating or performing maintenance on the Air Conditioning Kit.
2. *Table of Contents*. Located in the front of the bulletin, lists all chapters and work packages in the technical bulletin.
   a. The *Table of Contents* also provides *Reporting Errors and Recommending Improvements* information and DA Form 2028 addresses, for the submittal of corrections to this bulletin.
   b. If you cannot find what you are looking for in the *Table of Contents*, refer to the alphabetical *Index* at the back of the bulletin.
3. Chapter 1, *General Information, Equipment Description and Data, and Theory of Operation*. This chapter includes *General Information*, *Equipment Description and Data*, and *Theory of Operation*. Provides general information on the bulletin and the Air Conditioning Kit.
4. Chapter 2, *Operator Instructions*. Explains and illustrates all operator procedures for the Air Conditioning Kit. *Description and Use of Operator Controls*, *Operation Under Usual Conditions, Operation Under Unusual Conditions,* and *Decal and Data Plate Guide*.
5. Chapter 3, *Operator Maintenance Instructions*. This chapter includes *Operator Preventive Maintenance Checks and Services (PMCS) Introduction, Operator Preventive Maintenance Checks and Services (PMCS),* and *A/C Air Filter Replacement*.
6. Chapter 4, *A/C Troubleshooting Procedures*. This chapter includes *A/C Troubleshooting Introduction, A/C Troubleshooting Symptom Index,* and *A/C Troubleshooting Procedures.* Provides information for diagnosing and correcting malfunctions in the A/C system.
7. Chapter 5, *Unit and Direct Support Maintenance Instructions*. This chapter includes all maintenance tasks.

CONTENTS OF THIS BULLETIN - CONTINUED

8. Chapter 6, *Supporting Information.* This chapter includes *References*, *Maintenance Allocation Chart (MAC) Introduction*, *Maintenance Allocation Chart (MAC)*, *Expendable and Durable Items List*, *Torque Limits*, *A/C Kit Installation Instructions*, *Repair Parts and Special Tools List (RPSTL) Introduction*, and *Repair Parts and Special Tools List (RPSTL)*.

FEATURES OF THIS BULLETIN

1. WARNINGs, CAUTIONs, NOTEs, subject headings, and other important information are highlighted in **BOLD** print as a visual aid.

WARNING

A WARNING indicates a hazard which may cause injury or death to personnel.

CAUTION

A CAUTION is a reminder of safety practices or directs attention to usage practices that may cause damage to equipment.

NOTE

A NOTE is a statement containing information that will make the procedures easier to perform.

2. Statements and words of particular interest may be printed in CAPITAL LETTERS to create emphasis.
3. Within a procedural step, reference may be made to another work package in this bulletin or to another publication. These references indicate where you should look for more complete information.
   a. If you are told: "Refer to *A/C Kit Installation Instructions* (WP 0027 00)", go to WP 0027 00 in this bulletin for instructions on this procedure.
   b. If you are told: "For complete information on M915A2 Operator PMCS, refer to TM 9-2320-302-10", go to *References* in WP 0022 00 for complete information on the cited reference.
4. Illustrations are placed after, and as close to, the procedural steps to which they apply. Callouts placed on the art are text or numbers.
5. Numbers located at lower right corner of art (e.g., 449-001; 449-002, etc.) are art control numbers and are used for tracking purposes only.
6. Technical instructions include metric units as well as standard units. For your reference, a *Metric Conversion Chart* is located on the inside back cover of the bulletin.

CHAPTER 1
GENERAL INFORMATION, EQUIPMENT DESCRIPTION AND DATA, AND THEORY OF OPERATION

GENERAL INFORMATION 0001 00

SCOPE

This technical bulletin is for your use in operating and performing Operator, Unit, and Direct Support Maintenance on the Air Conditioning Kit installed on Truck, Tractor, M915A2P1, Line Haul and Truck, Tractor, M916A1P1, Light Equipment Transporter (LET).

This technical bulletin also covers *Installation Instructions* and *Repair Parts and Special Tools List (RPSTL)* for the Air Conditioning Kit.

MAINTENANCE FORMS, RECORDS, AND REPORTS

Department of the Army forms and procedures used for the equipment will be those prescribed by DA PAM 750-8, *Functional Users Manual for the Army Maintenance Management System (TAMMS*), as contained in the Maintenance Management Update.

REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATION (EIR)

If your Air Conditioning Kit needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you do not like about your equipment. Let us know why you do not like the design or performance. If you have Internet access, the easiest and fastest way to report problems or suggestions is to go to https://aeps.ria.army.mil/aepspublic.cfm (scroll down and choose the "Submit Quality Deficiency Report" bar). The Internet form lets you choose to submit an Equipment Improvement Recommendation (EIR), or a Product Quality Deficiency Report (PQDR). You may also submit your information using an SF Form 368 *(Product Quality Deficiency Report)*. You can send your SF Form 368 via e-mail, regular mail, or facsimile using the addresses/facsimile numbers specified in DA PAM 750-8, *Functional Users Manual for the Army Maintenance Management System (TAMMS)*. We will send you a reply.

CORROSION PREVENTION AND CONTROL (CPC)

1. 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.
2. 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 Form 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 750-8.

DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE

For destruction of Army materiel to prevent enemy use, refer to TM 750-244-6.

PREPARATION FOR STORAGE OR SHIPMENT

Refer to TM 9-2320-363-20-1.

LIST OF ABBREVIATIONS/ACRONYMS

NOTE

Refer to ASME Y14.38-1999 for standard abbreviations.

ABBREVIATION/ACRONYM	DEFINITION
A/C	Air Conditioning
C	Celsius
CAGEC	Commercial and Government Entity Code
cm	Centimeter
CPC	Corrosion Prevention and Control

LIST OF ABBREVIATIONS/ACRONYMS - CONTINUED

ABBREVIATION/ACRONYM	DEFINITION
EIR	Equipment Improvement Recommendation
EMP	Electromagnetic Pulse
F	Fahrenheit
ft	Foot
g	Gram
gal	Gallon
HCI	Hardness Critical Item
IAW	In Accordance With
in	Inch
inHg	Inches of Mercury
kg	Kilogram
kPa	Kilopascal
L	Liter
lb	Pound
lb-ft	Pound Foot
lb-in	Pound Inch
LET	Light Equipment Transporter
m	Meter
MAC	Maintenance Allocation Chart
min	Minutes
mm	Millimeter
N	Newton
Nm	Newton Meter
NHA	Next Higher Assembly
NSN	National Stock Number
oz	Ounce
PMCS	Preventive Maintenance Checks and Services
PQDR	Product Quality Deficiency Report
psi	Pounds per Square Inch
P/N	Part Number
RFI	Radio Frequency Interference
ROPS	Rollover Protection System
RPM	Revolutions per Minute
RPSTL	Repair Parts and Special Tools List
SMR	Source, Maintenance, and Recoverability
SRA	Specialized Repair Activity
TAMMS	Functional Users Manual for the Army Management System
TMDE	Test, Measurement, and Diagnostic Equipment

LIST OF ABBREVIATIONS/ACRONYMS - CONTINUED

ABBREVIATION/ACRONYM	DEFINITION
UM	Unit of Measure
UOC	Description and Usable on Code
UUT	Unit Under Test
V	Volt
VDC	Volts Direct Current

SAFETY, CARE, AND HANDLING

Follow procedures, warnings, cautions, and notes as written in this technical bulletin.

END OF WORK PACKAGE

EQUIPMENT DESCRIPTION AND DATA 0002 00

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES

1. The Air Conditioning Kit provides cooling of the vehicle cab for the Truck, Tractor, M915A2P1, Line Haul and Truck, Tractor, M916A1P1, Light Equipment Transporter (LET).

2. The Air Conditioning Kit can be installed on vehicles with TB 9-2320-302-13&P-1 or TB 9-2320-302-13&P-2 Crew Protection Kits.

3. The Air Conditioning Kit consists of the following components:

   a. Compressor

   b. Condenser

   c. Evaporator assembly

   d. Hoses and electrical harness

   e. Receiver/dryer

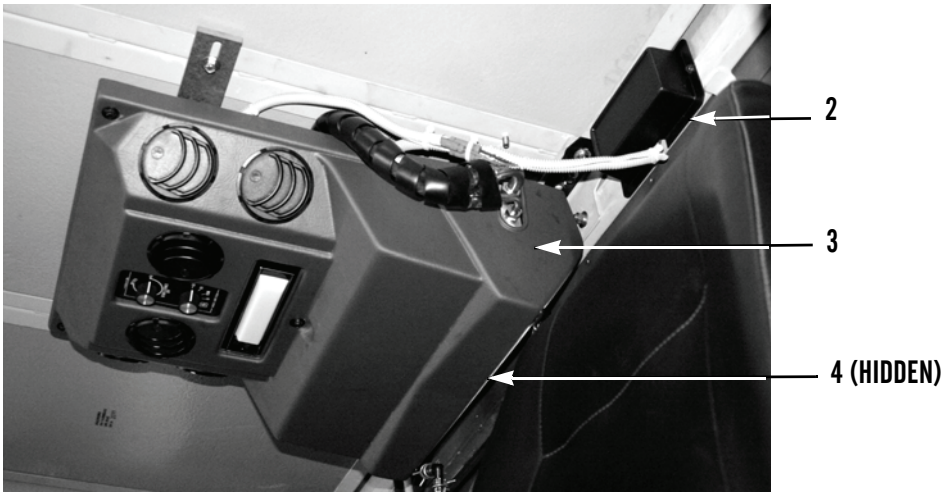
   f. RFI filter

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

The illustration below shows major Air Conditioning Kit components and their location in relation to the cab.

KEY	COMPONENT
1	Condenser

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS - CONTINUED

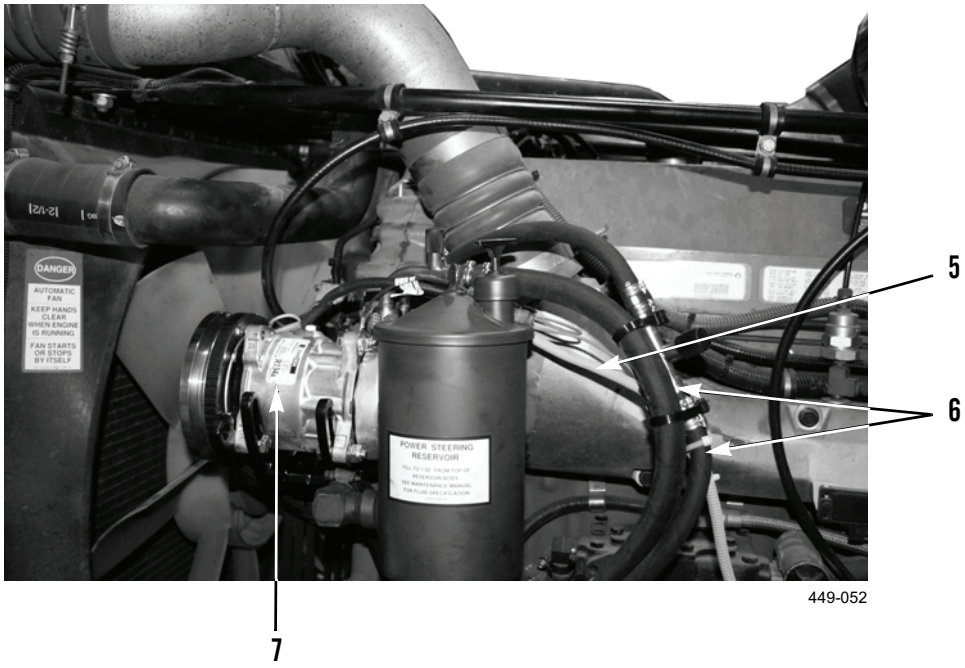


449-051

KEY	COMPONENT
2	RFI Filter
3	Evaporator Assembly
4	A/C Air Filter

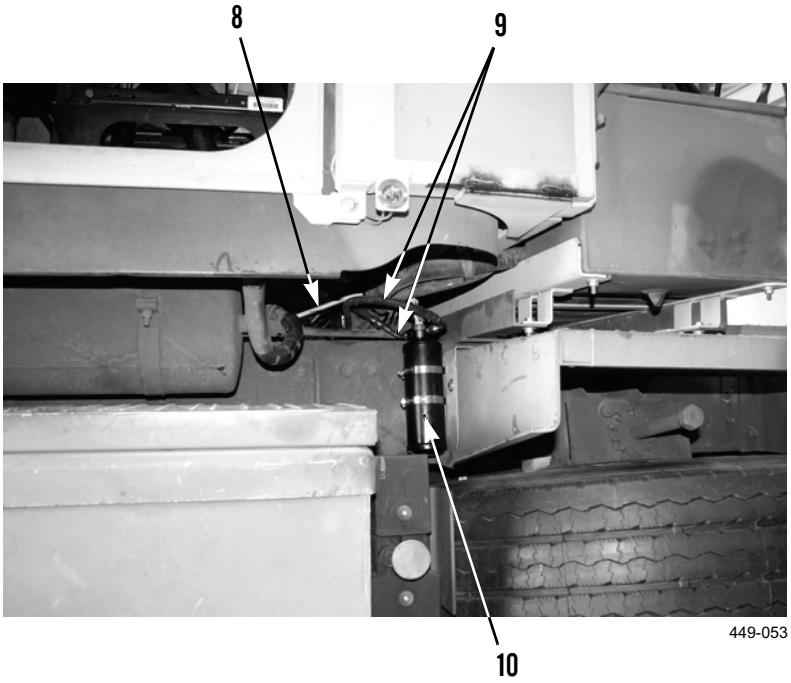
EQUIPMENT DESCRIPTION AND DATA - CONTINUED **0002 00**

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS - CONTINUED



KEY	COMPONENT
5	A/C Electrical Harness
6	A/C Hoses
7	Compressor

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS - CONTINUED



KEY	COMPONENT
8	A/C Electrical Harness
9	A/C Hoses
10	Receiver/Dryer

EQUIPMENT DATA

A/C SYSTEM

The roof mounted A/C system includes an evaporator assembly, condenser, receiver/dryer, compressor, RFI filter, hoses, and wiring harnesses. This system operates from compressor a mounted on the side of engine. It is an R-134a system that holds 3.25 lb of refrigerant. A separate set of controls are provided for this added A/C system (WP 0004 00).

Refer to *A/C System Maintenance* (WP 0015 00) for evacuating and recharging information. Refer to *Troubleshooting Symptom Index* (WP 0012 00) for troubleshooting information.

END OF WORK PACKAGE

THEORY OF OPERATION 0003 00

GENERAL

1. The Air Conditioning Kit for the M915A2P1 and M916A1P1 consists of the following, as illustrated and described in the *RPSTL* (WP 0029 00):
2. The Air Conditioning Kit consists of the following components:
   a. Compressor
   b. Condenser
   c. Evaporator assembly
   d. Hoses and electrical harness
   e. Receiver/dryer
   f. RFI filter
3. This Air Conditioning Kit is installed on an armored vehicle to control the temperature inside the cab. A belt-driven compressor is installed on the engine, a condenser is installed below the vehicle radiator, an evaporator assembly is installed on the interior of the cab, and a receiver/dryer is installed on the outside of the cab. Refrigerant is transferred to each of these components through O-ring sealed hoses. Electrical power is tied into the existing electrical system on the vehicle. The entire system is controlled by a switch with A/C ON/OFF and three speed fan control, and adjustable thermostat located on the evaporator assembly.

END OF WORK PACKAGE

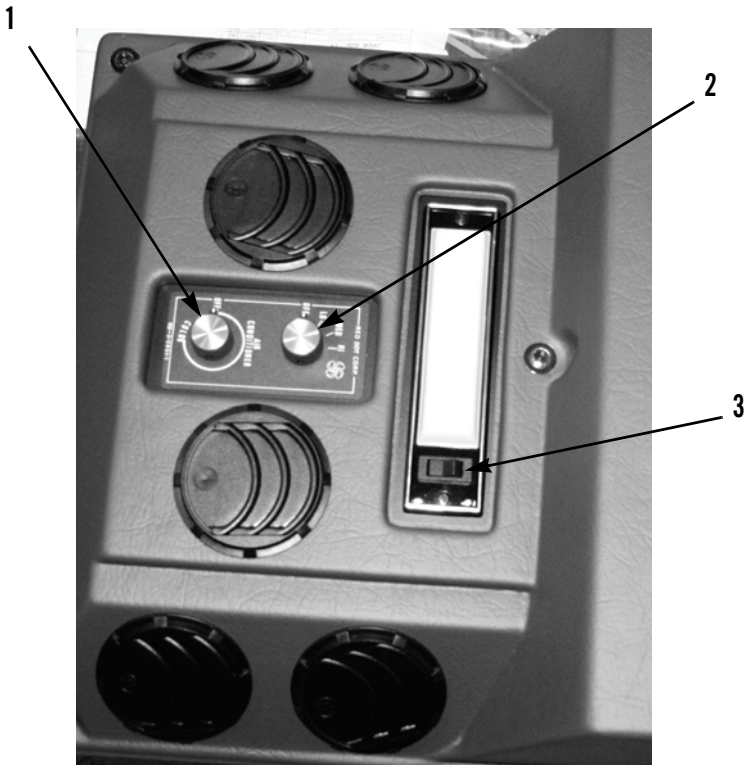
CHAPTER 2
OPERATOR INSTRUCTIONS

DESCRIPTION AND USE OF OPERATOR CONTROLS 0004 00

GENERAL

1. This work package describes all operator controls for the Air Conditioning Kit.
2. Use the following information to operate the Air Conditioning Kit controls.

A/C KIT CONTROLS



449-054

Key	Control or Indicator	Function
1	Temperature Control Variable Knob	Provides continuous adjustment for the thermostat. Control can be varied from OFF (full left) to COLD (full right).
2	A/C Fan Switch	Provides power ON/OFF and controls the fan speed for the A/C unit. Move switch to left position for OFF, next position right for LOW speed, next position right for MEDIUM speed, and all the way to the right for HIGH speed.
3	Dome Light Switch	Two position rocker switch that turns the dome light ON and OFF.

END OF WORK PACKAGE

OPERATION UNDER USUAL CONDITIONS 0005 00

GENERAL

1. This work package contains instructions for safely operating the Air Conditioning Kit on armored M915A2P1 and M916A1P1 vehicles.
2. Read and follow the procedures in *Operation Under Usual Conditions* in TM 9-2320-363-10 before operating Air Conditioning Kit.

INITIAL ADJUSTMENTS AND DAILY CHECKS

NOTE

Refer to WP 0004 00 for the location and operation of operator controls.

Perform *Before* operation *Preventive Maintenance Checks and Services (PMCS)* before operating Air Conditioning Kit (WP 0008 00 and WP 0009 00).

OPERATING A/C KIT

1. Start engine and allow engine to reach operating temperature (TM 9-2320-363-10).
2. Move A/C fan switch to ON position and adjust fan speed as necessary (WP 0004 00).
3. Adjust temperature control variable knob to temperature required (WP 0004 00).

END OF WORK PACKAGE

OPERATION UNDER UNUSUAL CONDITIONS 0006 00

Read and follow the procedures in *Operation Under Unusual Conditions* in TM 9-2320-363-10 for the M915A2P1 and M916A1P1 before operating Air Conditioning Kit.

OPERATION IN EXTREME TEMPERATURES

Operation in extreme temperatures with armor installed requires altering operating procedures.

Extreme Cold

NOTE

Clearing frost from ballistic glass requires more time than standard glass.

1. Extend vehicle warm up time and operate heater/defroster to clear frost from ballistic glass (TB 9-2320-302-13&P-1 and TB 9-2320-302-13&P-2).
2. It will require more effort to open and close door, egress window, and access door.

Extreme Heat

NOTE

The armored cab absorbs and retains more heat than a standard cab.

1. Park vehicle away from direct sunlight whenever possible.
2. Extended A/C usage is required to cool the interior of cab.
3. Extend vehicle warm up times and operate A/C to cool down interior of cab (WP 0004 00).

END OF WORK PACKAGE

DECAL AND DATA PLATE GUIDE 0007 00

INTRODUCTION

This work package includes illustrations showing the location of decals and data plates specific to the Air Conditioning Kit. For stowage and decal/data plate guide specific M915A2P1 or M916A1P1, refer to TM 9-2320-363-10.

DECALS AND DATA PLATES

There are no decals or data plates specific to the Air Conditioning Kit.

END OF WORK PACKAGE

CHAPTER 3
OPERATOR MAINTENANCE INSTRUCTIONS

OPERATOR PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) INTRODUCTION 0008 00

GENERAL

NOTE

- Information in this PMCS Introduction applies only to preventive maintenance checks and services for the Air Conditioning Kit.
- For information specific to the M915A2P1 and M916A1P1, refer to *PMCS Introduction* in TB 9-2320-302-13&P-1 and TB 9-2320-302-13&P-2.

1. To ensure that the Air Conditioning Kit is ready for operation at all times, it must be inspected on a regular basis so that defects may be found and corrected before they result in injury or death due to equipment failure.
2. The *PMCS Table* in WP 0009 00 contains systematic instructions for inspections and services to keep equipment in good operating condition and ready for its primary mission.

EXPLANATION OF TABLE ENTRIES

1. **Item Number (Item No.) Column.** Numbers in this column are for reference. When completing DA Form 2404 or DA Form 5988-E *(Equipment Inspection and Maintenance Worksheet)*, include the item number for the check/service indicating a fault. Item numbers also appear in the order in which you must perform checks and services for the interval listed.
2. **Interval Column.** This column tells you when you must perform the procedure in the *Procedure* column.
   a. *Before* procedures must be done immediately before you operate vehicle with Air Conditioning Kit installed.
   b. *After* procedures must be done immediately after operating vehicle with Air Conditioning Kit installed.
   c. *Weekly* procedures must be done once each week.
3. **Location, Item to Check/Service Column.** This column provides the location and item to be checked or serviced.

NOTE

The WARNINGs and CAUTIONs appearing in your PMCS table should always be observed. WARNINGs and CAUTIONs appear before applicable procedures. You must observe these WARNINGs to prevent injury or death to personnel, and CAUTIONs to prevent your equipment from being damaged.

4. **Procedure Column.** This column includes the procedure you must perform to know if the equipment is ready or available for its intended mission. You must perform the procedure at the time stated in the Interval column.
5. **Not Fully Mission Capable If: Column.** Information in this column tells you what faults will keep your equipment from being capable of performing its primary mission. If you perform check/service procedures that show faults listed in this column, the equipment is not mission-capable. Follow standard operating procedures for maintaining the equipment or reporting equipment failure.

GENERAL PMCS PROCEDURES

1. Always perform PMCS in the same order. With experience, you should be able to identify problems easily.
2. If anything looks wrong and you cannot fix it, write it on your DA Form 2404 or DA Form 5988-E. If you find something seriously wrong, IMMEDIATELY report it to your Supervisor.
3. Before performing preventive maintenance, read all the checks required for the applicable interval and prepare everything needed to make all the checks. For example, you will always need a Rag, Wiping (Item 9, WP 0025 00) or two.

GENERAL PMCS PROCEDURES - CONTINUED

- Solvent cleaning compound MIL-PRF-680 Type II and III may be irritating to the eyes and skin. Use protective gloves and goggles. Use in well-ventilated areas. Use respirator as needed. Accidental ingestion can cause irritation of digestive tract and respiratory tract, may cause lung and central nervous system damage. Can be fatal if swallowed. Inhalation of high/massive concentrations can cause coma or be fatal. First aid for ingestion: do not induce vomiting. Seek immediate medical attention. First aid for skin contact: remove contaminated clothing. Wash skin thoroughly with soap and water. If symptoms persist, seek medical attention. First aid for eye contact: flush with water for 15 minutes or until irritation subsides. If symptoms persist, seek medical attention. First aid for inhalation: move to fresh air. If not breathing, provide artificial respiration. If symptoms persist, seek medical attention. Keep away from open flames and other sources of ignition.
- The flashpoint for type II solvent cleaning compound is 141-198°F (61-92°C) and type III is 200-241°F (93-116°C).
- Improper cleaning methods and use of unauthrized cleaning solvents may injure personnel and damage equipment.
- Fire extinguishers should be placed nearby when using solvent cleaning compound.
- Cloths or rags saturated with solvent cleaning compound must be disposed of IAW authorized facilities' procedures.
- Eye shields must be worn when cleaning with a wire brush. Flying rust and metal particle may cause injury.
- Failure to follow these warnings may result in injury or death to personnel.

a. **Keep It Clean.** Dirt, grease, oil, and debris get in the way and may cover up a serious problem. Clean as you work and as needed. Use Cleaning Compound, Solvent, Type III (Item 2, WP 0025 00) on all metal surfaces. Use Detergent, General Purpose, Liquid (Item 5, WP 0025 00) and water when you clean rubber, plastic, and painted surfaces.

- Contact with refrigerant can cause frostbite. Keep hands and face away to prevent personal injury.
- Protective face shield must always be worn when refrigerant lines are opened, even if the gauges indicate the system is empty.
- Always use caution if a fitting is removed. Slowly loosen the fitting. If the system is still under any pressure, release it slowly in a well-ventilated area.
- DO NOT smoke when servicing A/C or wherever refrigerant gas may be present.
- Failure to follow these warnings may result in injury or death to personnel.

b. **A/C Hoses and Fittings.** Inspect A/C hoses and fittings for any signs of leakage. Leaks can be identified by oily residue on or near fittings and hoses.

c. **A/C Evaporator and Condenser.** Inspect condenser and evaporator cores for damaged vanes or any signs of leakage. Leaks can be identified by oily residue on the evaporator core or condenser core.

GENERAL PMCS PROCEDURES - CONTINUED

WARNING

When servicing this vehicle, performing maintenance, or disposing of materials such as engine coolant, hydraulic fluid, lubricants, battery acids or batteries, and CARC paint, consult your unit/local hazardous waste disposal center or safety office for local regulatory guidance. If further information is needed, please contact The Army Environmental Hotline at 1-800-872-3845.

d. **Hazardous Waste Disposal.** Ensure all spills are cleaned up and disposed of IAW local policy and ordinances.

e. **Rust and Corrosion.** Check metal parts for rust and corrosion. If any bare metal or corrosion exists, clean and apply a light coat of clean Oil, Lubricating, OE/HDO-10 (Item 7, WP 0025 00). Report it to your supervisor.

f. **Bolts, Nuts, and Screws.** Check bolts, nuts, and screws for obvious loose, missing, bent, or broken condition. If you find loose or missing components, notify your supervisor.

g. **Electric Wires and Connectors.** Look for cracked or broken insulation, bare wires, and loose or broken connectors. Reconnect loose connectors. Ensure that wires are in good condition.

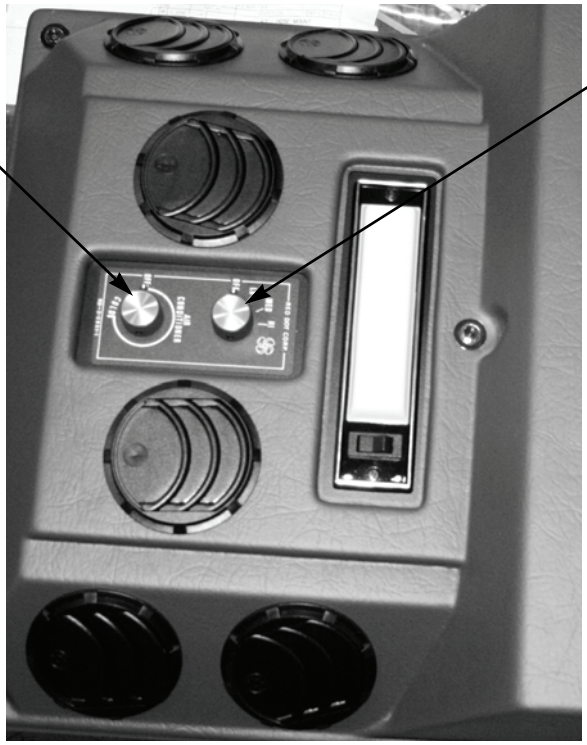
END OF WORK PACKAGE

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

Item No.	Interval	Location / Item To Check/ Service	Procedure	Not Fully Mission Capable If:
			NOTE • Perform PMCS for the Crew Protection Kit (TB 9-2320-302-13&P-1) BEFORE performing PMCS for the Air Conditioning Kit. • Review all WARNINGs, CAUTIONs, and NOTEs before performing PMCS and operating the air conditioning. • Perform all PMCS checks if: a. You are the assigned operator but have not operated the vehicle with air conditioning since the last weekly checks. b. You are operating the vehicle with air conditioning for the first time. • Perform PMCS with vehicle stopped on level ground, parking brake applied, transmission in N (Neutral), wheels chocked, and engine shut down.	

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

Item No.	Interval	Location / Item To Check/ Service	Procedure	Not Fully Mission Capable If:
		Operation		
1	During	**Blower Unit**	a. Start engine (TM 9-2320-363-10). b. Turn A/C system ON, fan speed switch to HIGH position, and the thermostat to COLD (WP 0004 00). c. Operate A/C system for five minutes and check temperature of air coming out of blower unit vents.	Temperature of air coming out of vents is not cold and A/C is required for mission.



449-054

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

Item No.	Interval	Location Item To Check/ Service	Procedure	Not Fully Mission Capable If:
		Interior of Cab		
2	**Weekly**	**Evaporator Assembly**	a. Inspect evaporator assembly for damaged and loose or missing mounting hardware.	Evaporator assembly is damaged or has loose or missing mounting hardware and A/C is required for mission.
			b. Inspect RFI filter for damaged and loose or missing mounting hardware.	RFI filter is damaged or has loose or missing mounting hardware and A/C is required for mission.
			c. Inspect A/C hoses and electrical harness for damage and loose or missing mounting hardware.	A/C hoses or electrical harness are damaged or have loose or missing mounting hardware and A/C is required for mission.
			d. Inspect A/C hoses for leaks. Leaks can be identified by oil residue on fittings or along hose.	Leaks are evident and A/C is required for mission.

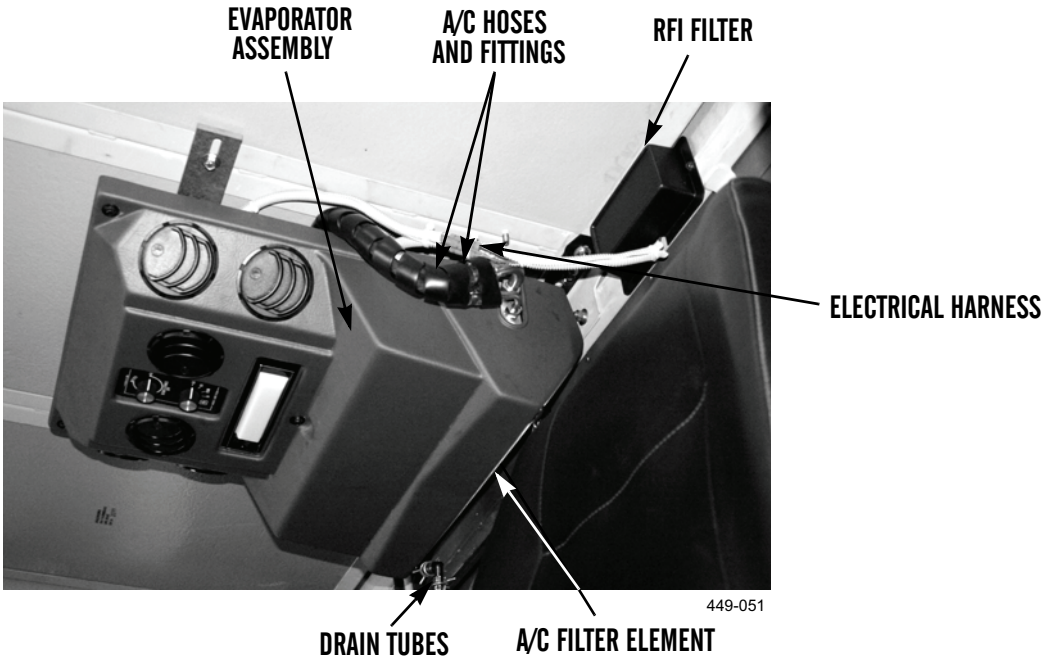


Table 1. Operator Preventive Maintenance Checks and Services (PMCS) - Continued.

Item No.	Interval	Location: Item To Check/ Service	Procedure	Not Fully Mission Capable If:
2 (Con't)	Weekly	Evaporator Assembly	**WARNING** • If NBC exposure is suspected, personnel wearing protective equipment should handle all air cleaner media. Consult your NBC Officer or NBC NCO for appropriate handling or disposal procedures. • NBC contaminated filters must be handled using adequate precautions and must be disposed of by trained personnel. • Wear eye protection while removing filter. • Failure to follow these warnings may cause injury to personnel. e. Inspect A/C filter element and clean or replace if necessary (WP 0010 00). f. Inspect drain tubes for damage, looseness, and blockage. Clean or replace as necessary (WP 0017 00).	

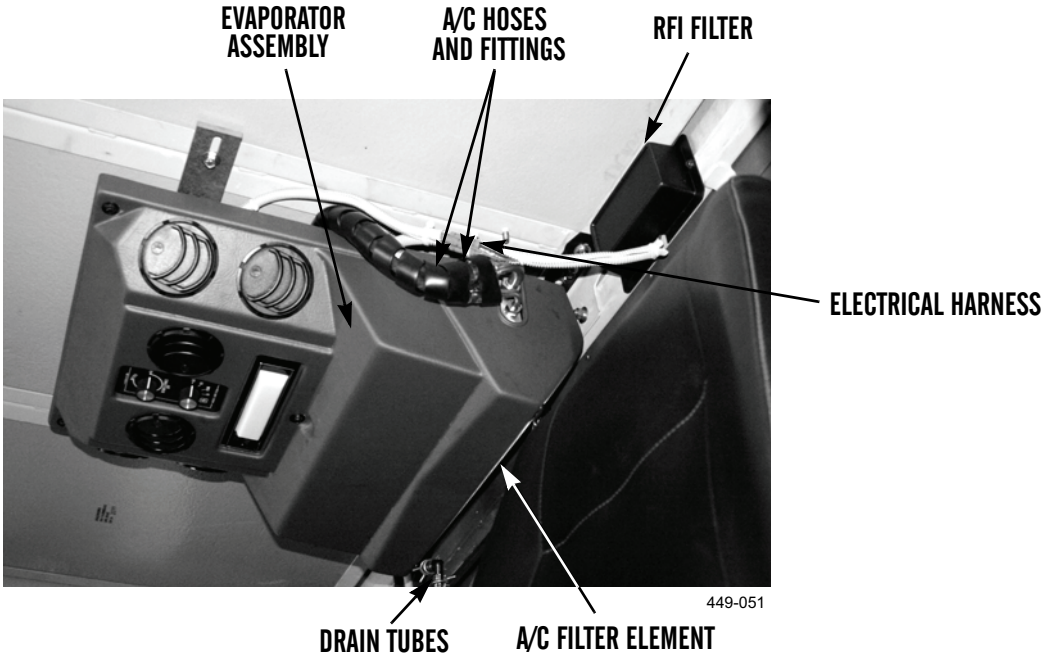


Table 1. Operator Preventive Maintenance Checks and Services (PMCS) - Continued.

Item No.	Interval	Location Item To Check/ Service	Procedure	Not Fully Mission Capable If:
		Outside of Cab Left Side		
3	**Weekly**	**Receiver/ Dryer Unit**	a. Inspect receiver/dryer unit for damaged and loose or missing mounting hardware.	Receiver/dryer unit is damaged or has loose or missing mounting hardware and A/C is required for mission.
			b. Inspect receiver/dryer unit for leaks. Leaks can be identified by oil residue on fittings.	Leaks are evident and A/C is required for mission.
			c. Inspect A/C hoses and electrical harness for damage and loose or missing mounting hardware.	A/C hoses or electrical harness are damaged or have loose or missing mounting hardware and A/C is required for mission.
			d. Inspect A/C hoses for leaks. Leaks can be identified by oil residue on fittings or along hose.	Leaks are evident and A/C is required for mission.

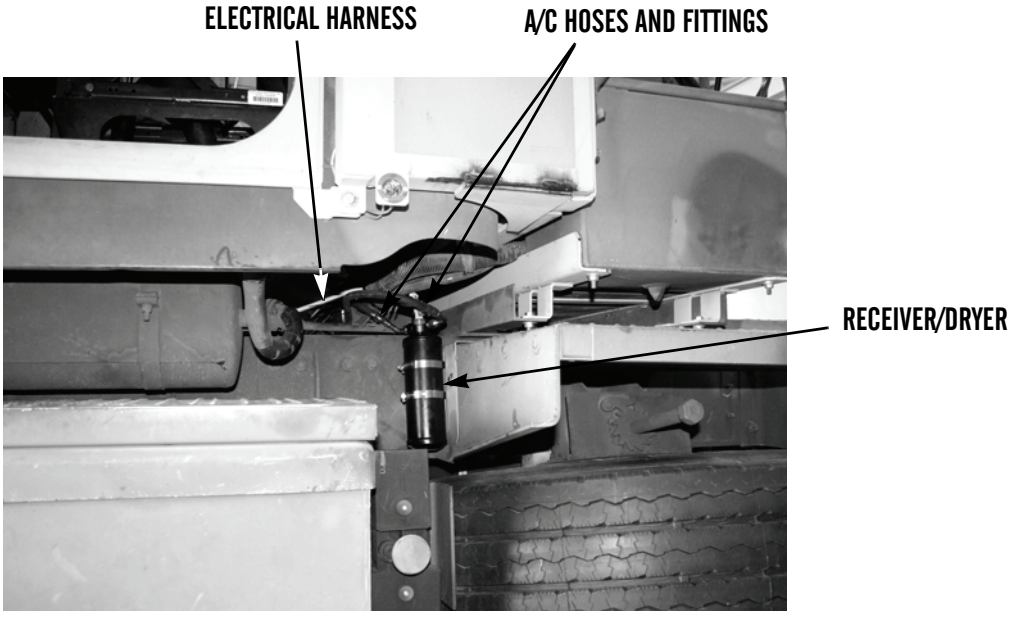
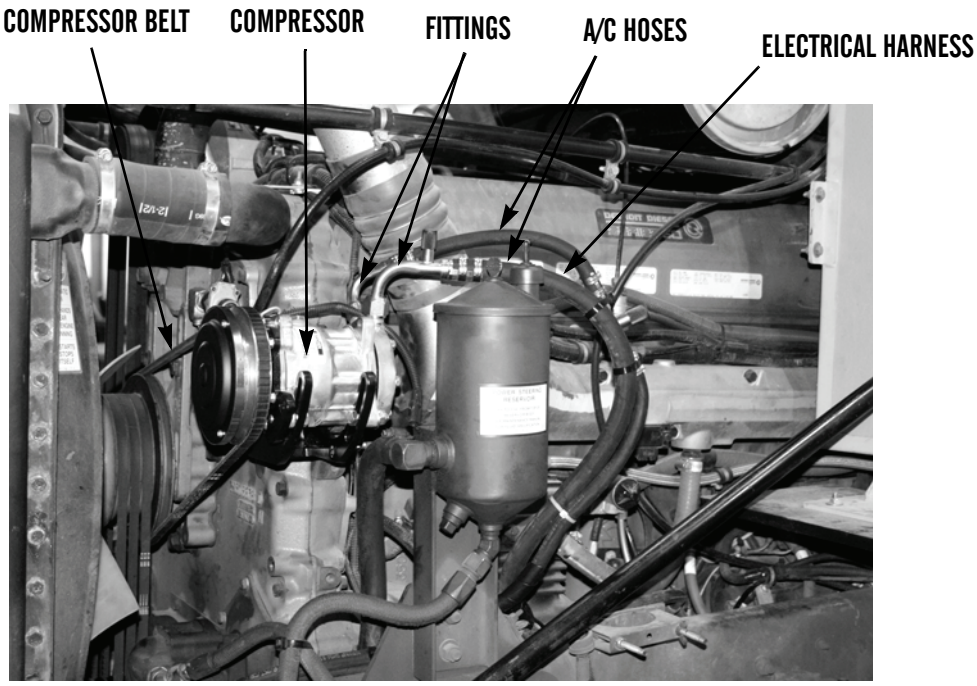


Table 1. Operator Preventive Maintenance Checks and Services (PMCS) - Continued.

Item No.	Interval	Location Item To Check/ Service	Procedure	Not Fully Mission Capable If:
		Engine Compartment		
4	**Weekly**	**Compressor**	a. Hood opened (TM 9-2320-363-10).	
			b. Inspect compressor for damage and loose or missing mounting hardware.	Compressor is damaged, or mounting bolts are loose or missing and A/C is required for mission.
			c. Inspect compressor for leaks. Leaks can be identified by oil residue on fittings.	Leaks are evident and A/C is required for mission.
			d. Inspect A/C hoses and electrical harness for damage and loose or missing mounting hardware.	A/C hoses or electrical harness are damaged or have loose or missing mounting hardware and A/C is required for mission.
			e. Inspect A/C hoses for leaks. Leaks can be identified by oil residue on fittings or along hose.	Leaks are evident and A/C is required for mission.
			f. Inspect compressor belt for damage and correct tightness (120 lb for new belts and 90 lb for used belts).	Compressor belt is damaged or loose and A/C is required for mission.

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

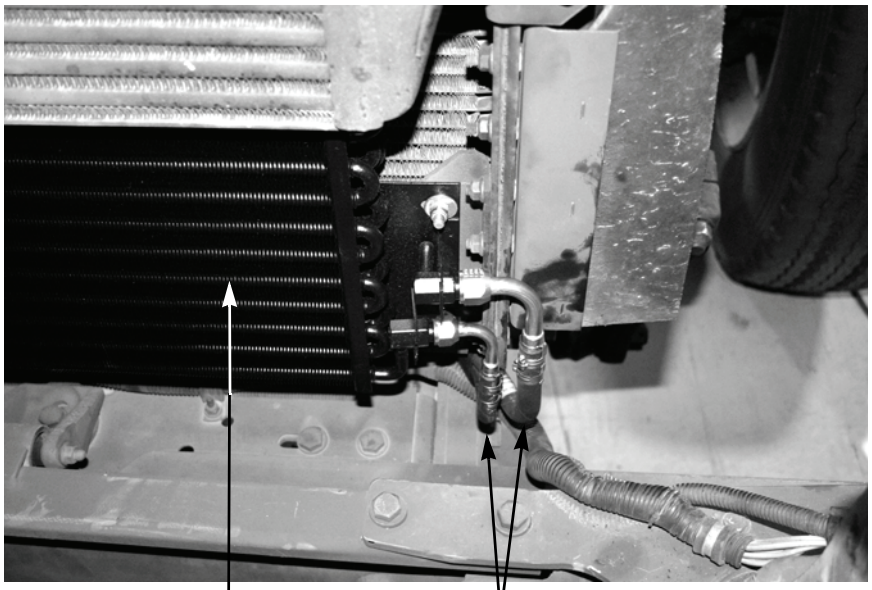
Item No.	Interval	Location / Item To Check/ Service	Procedure	Not Fully Mission Capable If:
4 (Con't)	Weekly	Compressor		



449-057

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

Item No.	Interval	Location: Item To Check/ Service	Procedure	Not Fully Mission Capable If:
5	**Weekly**	**Condenser**	a. Hood opened (TM 9-2320-363-10).	
			b. Inspect condenser for damage and loose or missing mounting hardware.	Condenser is damaged, or mounting bolts are loose or missing and A/C is required for mission.
			c. Inspect condenser for leaks. Leaks can be identified by oil residue on fittings or on condenser core.	Leaks are evident and A/C is required for mission.
			d. Inspect A/C hoses for damage and loose or missing mounting hardware.	A/C hoses are damaged or have loose or missing mounting hardware and A/C is required for mission.
			e. Inspect A/C hoses for leaks. Leaks can be identified by oil residue on fittings or along hose.	Leaks are evident and A/C is required for mission.



END OF WORK PACKAGE

A/C AIR FILTER REPLACEMENT 0010 00

THIS WORK PACKAGE COVERS

Removal, Cleaning and Inspection, Installation

INITIAL SETUP

Maintenance Level

Operator

Materials/Parts

Rag, Wiping (Item 9, WP 0025 00)

References

WP 0014 00

Equipment Conditions

Vehicle parked on level ground (TM 9-2320-363-10)

Parking/Emergency Brake applied (TM 9-2320-363-10)

Engine OFF (TM 9-2320-363-10)

Ignition Key Switch in OFF position (TM 9-2320-363-10)

REMOVAL

WARNING

- If NBC exposure is suspected, personnel wearing protective equipment should handle all air cleaner media. Consult your NBC Officer or NBC NCO for appropriate handling or disposal procedures.
- NBC contaminated filters must be handled using adequate precautions and must be disposed of by trained personnel.
- Wear eye protection when removing filter.
- Failure to follow these warnings may cause injury to personnel.

Remove air filter (2) from rear of evaporator blower assembly (1) across evaporator coils.

449-051

CLEANING AND INSPECTION

Clean and inspect all parts IAW *General Maintenance Instructions* (WP 0014 00).

INSTALLATION

Install air filter (2) across evaporator coils on rear of evaporator blower assembly (1).

END OF WORK PACKAGE

CHAPTER 4
A/C TROUBLESHOOTING PROCEDURES

A/C TROUBLESHOOTING INTRODUCTION 0011 00

GENERAL

1. This chapter provides information for identifying and correcting malfunctions which may develop while operating the A/C system in the armored M915A2P1 and M916A1P1.
2. The A/C *Troubleshooting Symptom Index* in WP 0012 00 lists common malfunctions which may occur and refers you to the proper page in WP 0013 00 for a troubleshooting procedure.
3. Refer to electrical schematic diagram and component identification at the end of this work package.
4. Before performing troubleshooting, read and follow all safety instructions found in the *Warning Summary* at the front of this bulletin.
5. The A/C *Troubleshooting Symptom Index* (WP 0012 00) cannot list all malfunctions that may occur, nor all tests or inspections and corrective actions. If a malfunction is not listed, or is not corrected by the listed corrective actions, notify your supervisor.
6. When troubleshooting a malfunction:
   a. Locate the symptom or symptoms in WP 0012 00 that best describe the malfunction.
   b. Turn to the page in WP 0013 00 where the troubleshooting procedures for the malfunction in question are described. Headings at the top of each page show how each troubleshooting procedure is organized: MALFUNCTION, TEST OR INSPECTION (in step number order), and CORRECTIVE ACTION.
   c. Perform each step in the order listed until the malfunction is corrected. DO NOT perform any maintenance task unless the troubleshooting procedure tells you to do so.

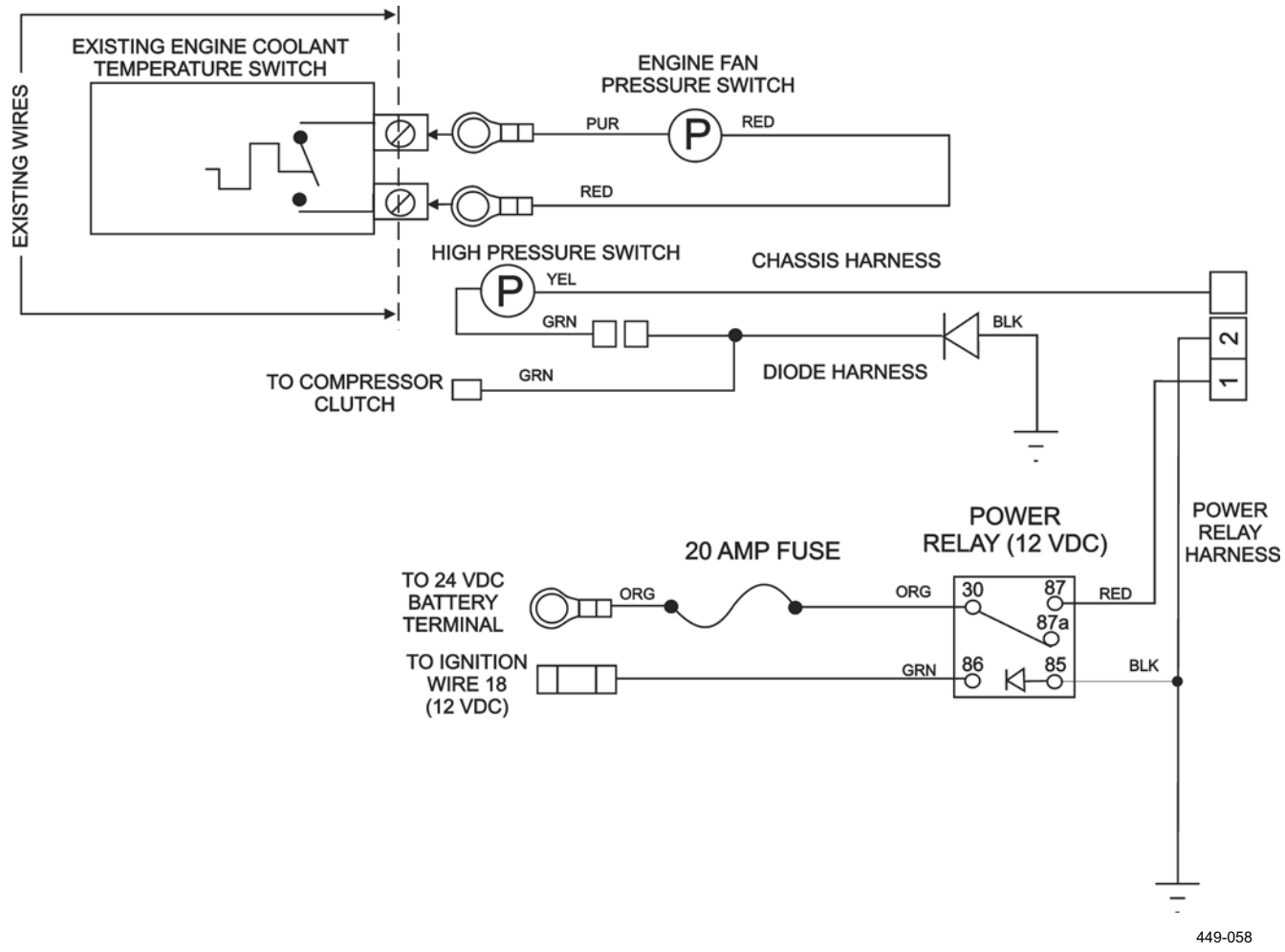
EXPLANATION OF COLUMNS

The columns in Table 1 in WP 0013 00 are defined as follows:

1. **MALFUNCTION.** A visual or operational indication that something is wrong with the equipment.
2. **TEST OR INSPECTION.** A procedure to isolate the problem in a system or component.
3. **CORRECTIVE ACTION.** A procedure to correct the problem.

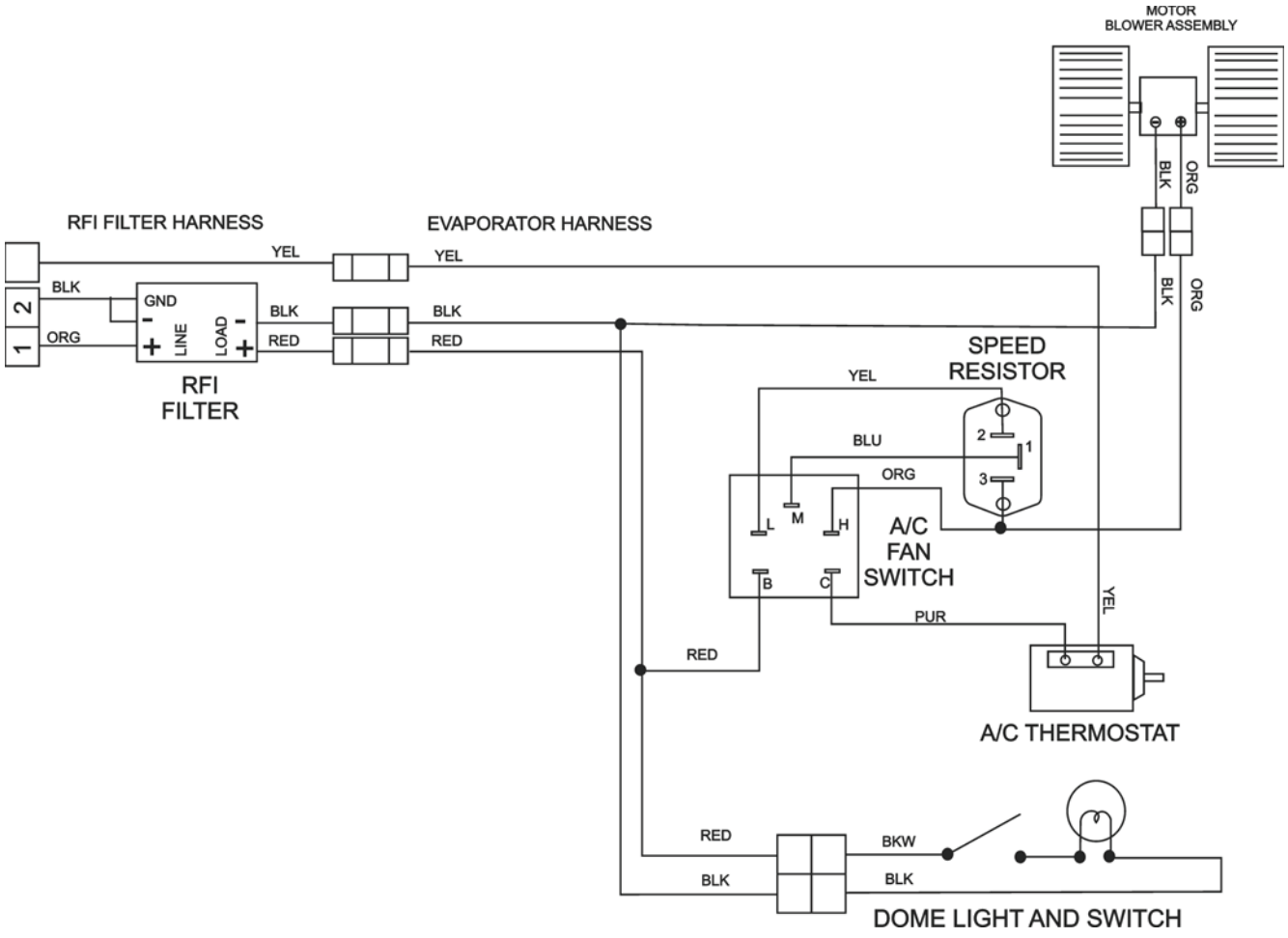
A/C TROUBLESHOOTING INTRODUCTION - CONTINUED 0011 00

COMPONENT IDENTIFICATION



A/C TROUBLESHOOTING INTRODUCTION - CONTINUED 0011 00

COMPONENT IDENTIFICATION - CONTINUED



449-059

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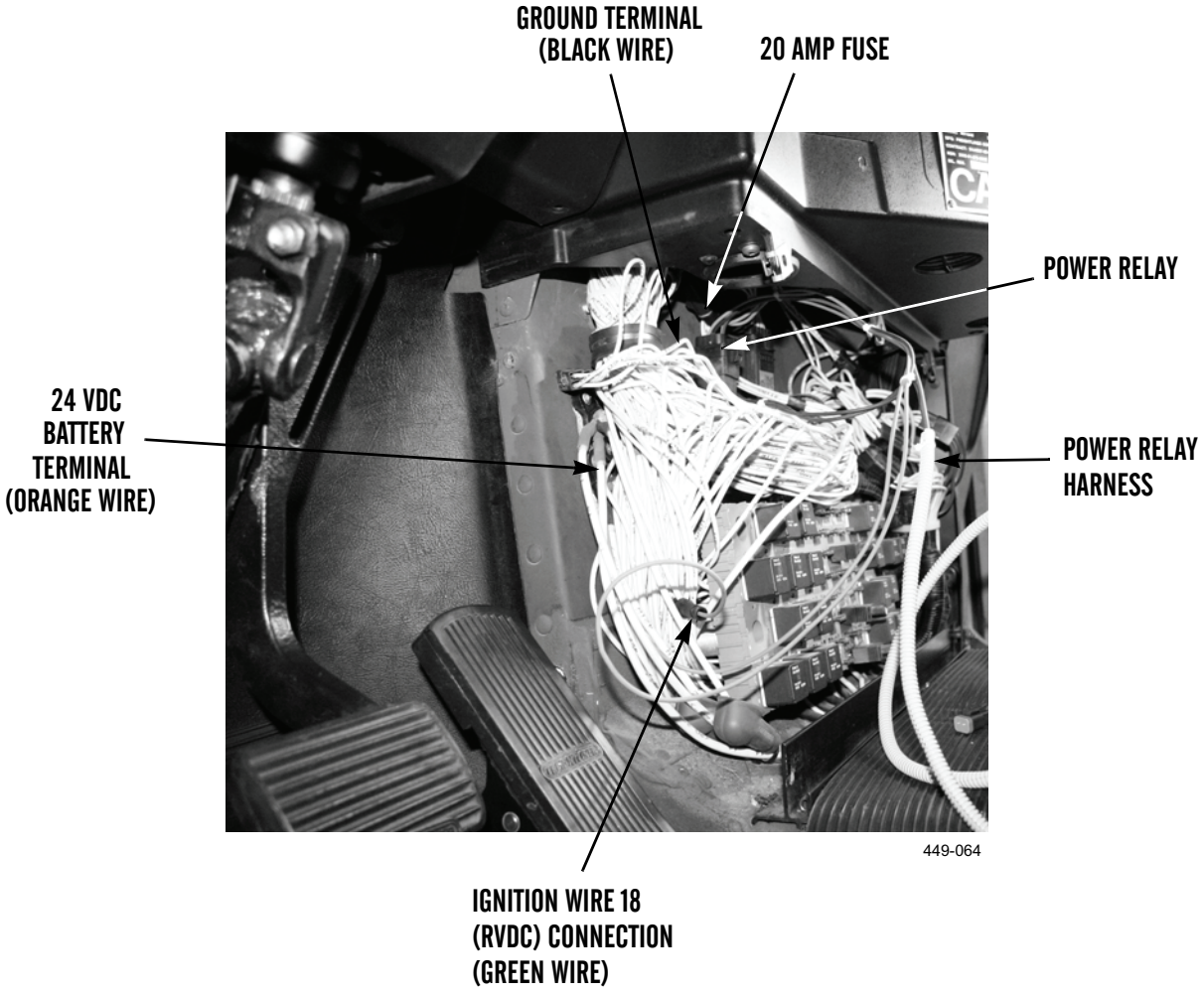

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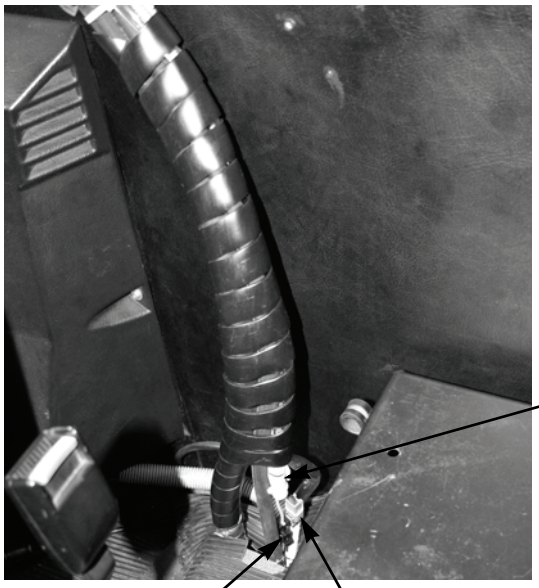

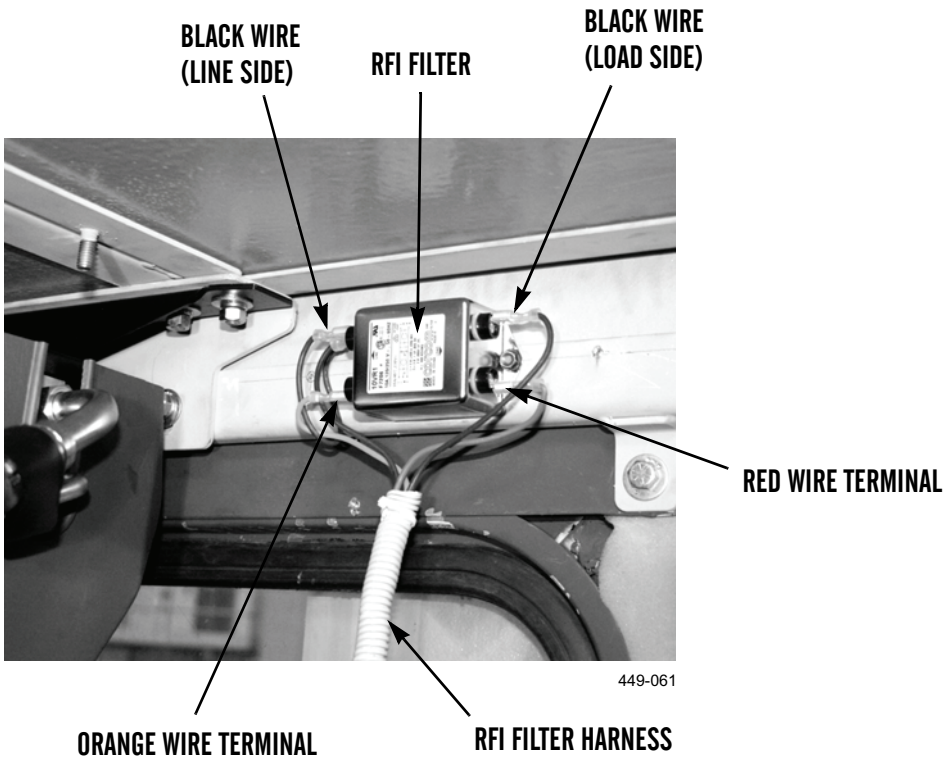

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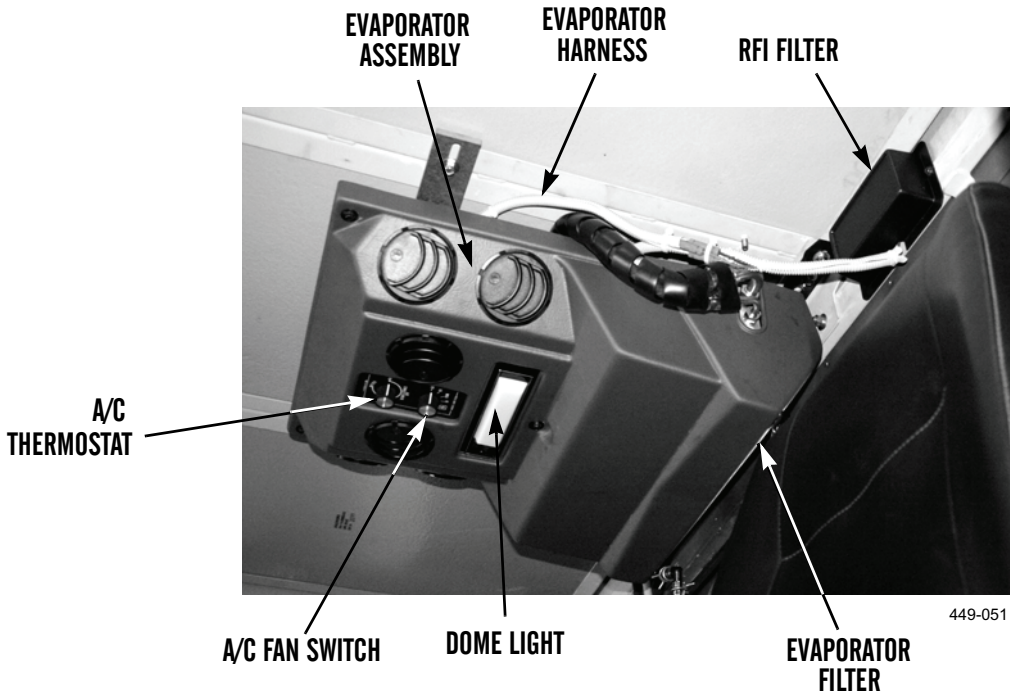

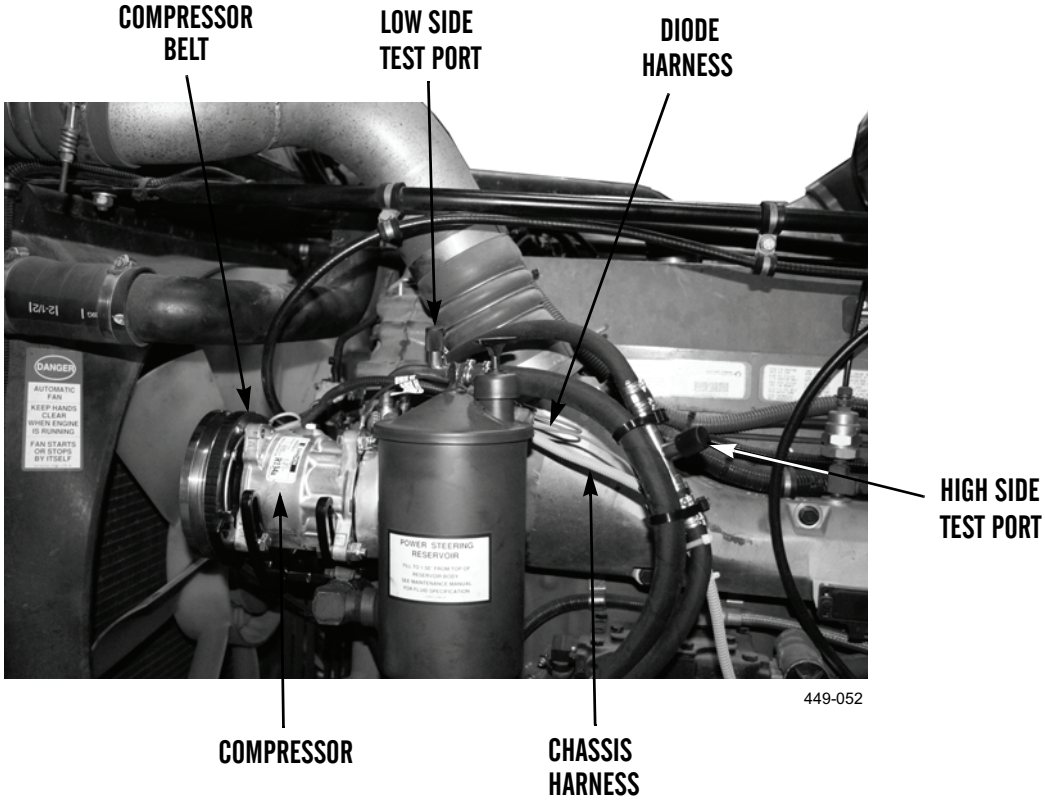

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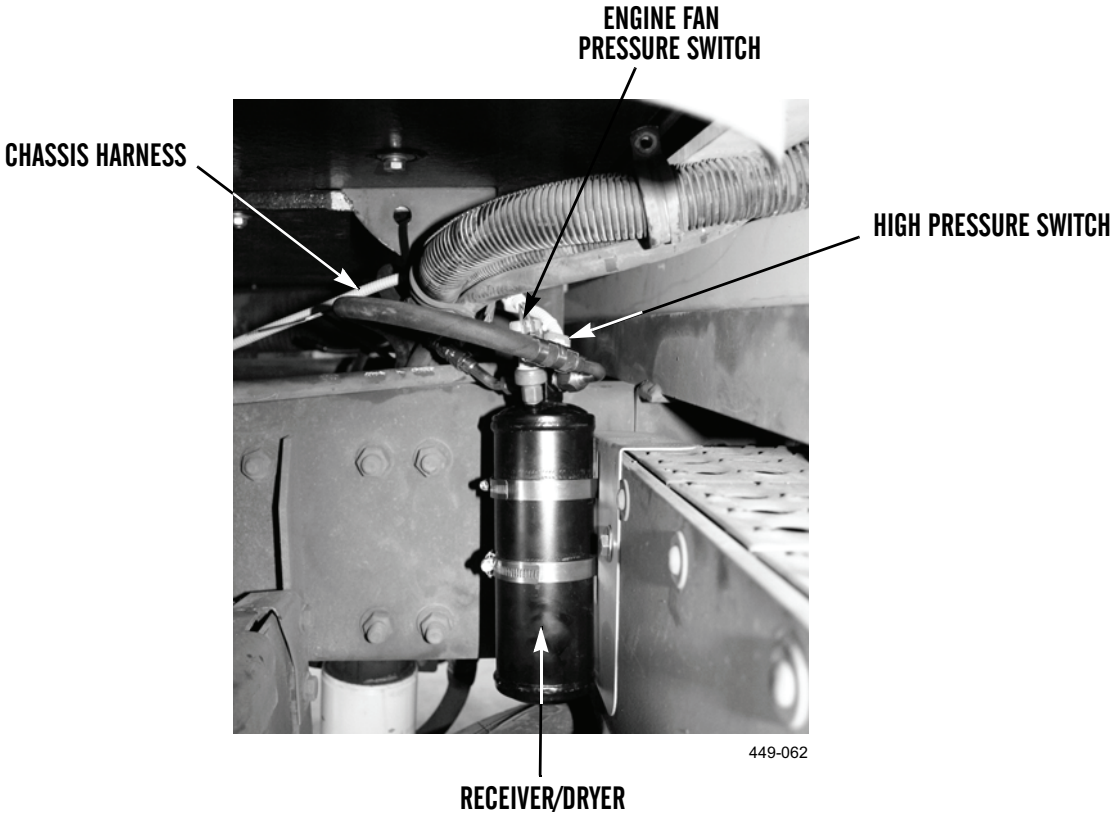


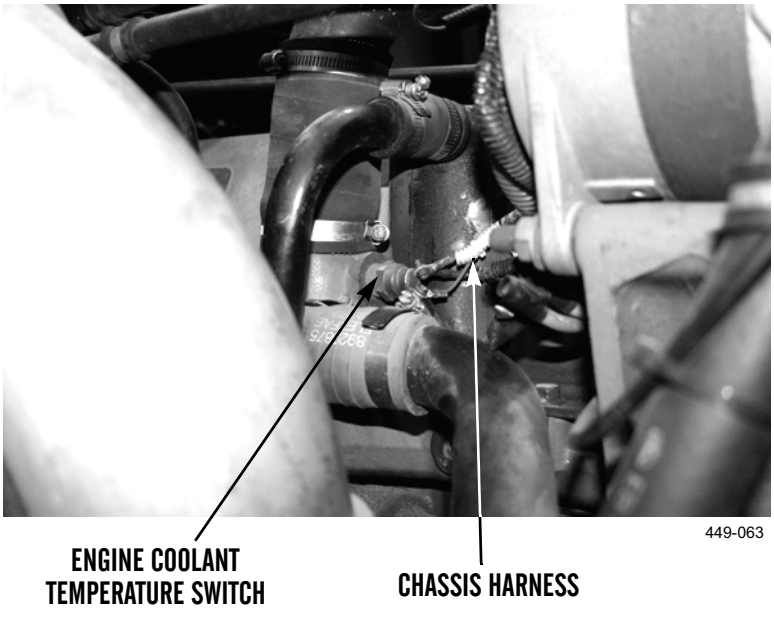


Table 1. High Side/Low Side Gauge Pressure at Ambient Temperature Cross-Reference.

Ambient Temperature °F (°C)	High Side Pressure psi (kPa)	Low Side Pressure psi (kPa)
61°F (16°C)	123 to 174 psi (850 to 1,200 kPa)	3 to 15 psi (20 to 100 kPa)
70°F (21°C)	152 to 254 psi (1,050 to 1,750 kPa)	3 to15 psi (20 to 100 kPa)
81°F (27°C)	181 to 276 psi (1,250 to 1,900 kPa)	3 to 15 psi (20 to 100 kPa)
90°F (32°C)	203 to 312 psi (1,400 to 2,150 kPa)	4 to 22 psi (30 to 150 kPa)
100°F (38°C)	232 to 334 psi (1,600 to 2,300 kPa)	4 to 29 psi (30 to 200 kPa)
109°F (43°C)	276 to 363 psi (1,900 to 2,500 kPa)	4 to 36 psi (30 to 250 kPa)

END OF WORK PACKAGE

A/C TROUBLESHOOTING SYMPTOM INDEX 0012 00

Malfunction/Symptom **Troubleshooting Procedure Page**

GENERAL TROUBLESHOOTING

A/C ELECTRICAL SYSTEM

A/C SYSTEM PRESSURE DIAGNOSIS

END OF WORK PACKAGE

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
	GENERAL TROUBLESHOOTING	
1. A/C Unit Not Producing Cool Air.	1. Inspect evaporator assembly filter (WP 0010 00).	1. Replace filter if obstructed. 2. If filter is not obstructed, proceed to next step.
	2. Check system pressures to ensure all components are operating correctly.	Refer to *A/C System Pressure Diagnosis* in this work package.
	3. Check system for leaks (WP 0015 00).	Repair or replace leaking components and recharge system (WP 0015 00).
2. Compressor Noise or Vibration.	1. Set A/C Fan Switch to OFF position (WP 0004 00).	
	2. Turn ignition key switch to OFF position (TM 9-2320-363-10).	
	3. Check to see that belt tension is correct (120 lb).	Adjust belt tension (WP 0016 00).
	4. Check to see if compressor is seized.	
	(a) Remove belt (WP 0016 00).	
	(b) Attempt to rotate compressor by hand.	Replace compressor (WP 0016 00).
	5. Check alignment of pulley.	Align pulley (WP 0016 00).
	6. Check compressor mounting bolts for tightness.	Tighten compressor mounting bolts (WP 0016 00).
	7. Check if system is overcharged. System should contain 3.25 lb of refrigerant.	1. Recover refrigerant (WP 0015 00). 2. Recharge system (WP 0015 00).
3. Frozen Evaporator Assembly Coil - Reduced Air Flow.	1. Troubleshoot compressor and thermostat (refer to *A/C Electrical Troubleshooting*, Malfunction, step 5).	Replace compressor (WP 0016 00) or thermostat (WP 0017 00).
	2. Verify A/C system pressures (WP 0015 00).	Refer to *A/C System Pressure Diagnosis* in this work package.
	3. Inspect wiring harness inside evaporator assembly for damage. Remove evaporator assembly cover (WP 0017 00) to access wiring harness.	

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
	GENERAL TROUBLESHOOTING - CONTINUED	
3. Frozen Evaporator Assembly Coil - Reduced Air Flow - Continued.	4. Inspect wiring harness for damage.	1. If damage is found, repair wire or replace wiring harness (WP 0021 00). 2. If no damage is found, replace power relay (WP 0021 00).
	A/C ELECTRICAL SYSTEM	
	 **WARNING** Before removing any component of electrical system, be sure battery disconnect switch is in OFF position. Remove all jewelry before working on electrical system. Failure to follow this warning may cause injury to personnel.	
1. A/C System Does Not Function.	1. Verify A/C fan switch is not in the OFF position (WP 0004 00).	1. Select the ON position. 2. If ON/OFF switch is in the ON position, proceed to next step.
	NOTE A/C power is present if the dome light is lit when the dome light is turned ON.	
	2. Verify power to evaporator assembly. (a) Turn ignition key switch to the OFF position (TM 9-2320-363-10). (b) Disconnect red wire connector and black wire connector to evaporator blower assembly (WP 0017 00). (c) Turn ignition key switch to the ON position. (TM 9-2320-363-10). (d) Check for 24 VDC on red wire connector to black wire connector (ground).	1. If 24 VDC is indicated, proceed to step 15. 2. If 24 VDC is not indicated, proceed to next step.
	3. Verify power at power relay wiring harness. (a) Turn ignition key switch to the OFF position (TM 9-2320-363-10).	

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
	A/C ELECTRICAL SYSTEM - CONTINUED	
1. A/C System Does Not Function - Continued.	(b) Remove connector from power relay wiring harness (WP 0021 00).	
	(c) Remove connector from power relay wiring harness (WP 0021 00).	
	(d) Turn ignition key switch to the ON position (TM 9-2320-363-10).	
	(e) Check for 24 VDC between red wire terminal and black wire terminal of power relay wiring harness.	1. If 24 VDC is indicated, proceed to step 11. 2. If 24 VDC is not indicated, proceed to next step.
	4. Verify power to power relay.	
	(a) Remove connector from power relay (WP 0021 00).	
	(b) Check for 24 VDC on orange wire terminal on power relay connector to vehicle ground.	1. If 24 VDC is indicated, proceed to step 7. 2. If 24 VDC is not indicated, proceed to next step.
	5. Verify 20 Amp fuse is not blown.	
	(a) Remove 20 Amp fuse from holder (WP 0021 00).	
	(b) Check continuity between fuse terminals.	1. If fuse does not have continuity replace 20 Amp fuse. 2. If fuse does have continuity, proceed to next step.
	(c) Return equipment to normal condition.	
	6. Verify power to fuse.	
	(a) Check for 24 VDC on orange wire terminal (from 24 VDC power) on 20 Amp fuse holder to vehicle ground.	1. If 24 VDC is not indicated, replace orange wire from 24 VDC power. 2. If 24 VDC is indicated, replace orange wire from 20 Amp fuse to power relay.
	(b) Return equipment to normal condition.	
	7. Verify ignition power to power relay.	
	(a) Turn ignition key switch to the OFF position (TM 9-2320-363-10).	

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
	A/C ELECTRICAL SYSTEM - CONTINUED	
1. A/C System Does Not Function - Continued.	(b) Remove cable connector from power relay (WP 0021 00).	
	(c) Turn ignition key switch to the ON position (TM 9-2320-363-10).	
	(d) Check for 12 VDC between green wire terminal and black wire terminal on connector from power relay.	1. If 12 VDC is not indicated, repair or replace green wire to power relay. 2. If 12 VDC is indicated, proceed to next step.
	(e) Return equipment to normal condition.	
	8. Verify continuity of red wire from power relay.	
	(a) Turn ignition key switch to the OFF position (TM 9-2320-363-10).	
	(b) Check for continuity from red wire terminal on power relay wiring harness and red wire terminal on connector from power relay.	1. If continuity is not indicated, repair or replace red wire. 2. If continuity is indicated, proceed to next step.
	(c) Return equipment to normal condition.	
	9. Verify continuity of ground connection to power relay.	
	(a) Check for continuity of black wire terminal on power relay to black wire connected to ground terminal.	1. If continuity is not indicated, repair or replace black wire. 2. If continuity is indicated, proceed to next step.
	(b) Return equipment to normal condition.	
	10. Verify continuity of ground connection to power relay wire harness.	
	(a) Check for continuity from black wire terminal on power relay wire harness to black wire connected to ground terminal.	1. If continuity is not indicated, repair or replace black wire. 2. If continuity is indicated, replace power relay.
	(b) Return equipment to normal condition.	
	11. Verify power at RFI filter.	

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
	A/C ELECTRICAL SYSTEM - CONTINUED	
1. A/C System Does Not Function - Continued.	(a) Turn ignition key switch to the OFF position (TM 9-2320-363-10).	
	(b) Connect power relay wiring harness to RFI wiring harness (WP 0021 00).	
	(c) Remove cover from RFI filter (WP 0017 00).	
	(d) Turn ignition key switch to the ON position (TM 9-2320-363-10).	
	(e) Check for 24 VDC between orange wire terminal and black wire terminal on line side of RFI filter.	1. If 24 VDC is indicated, proceed to step 13. 2. If 24 VDC is not indicated, proceed to next step.
	12. Verify continuity of orange wire to RFI filter.	
	(a) Turn ignition key switch to the OFF position (TM 9-2320-363-10).	
	(b) Disconnect power relay wiring harness (WP 0021 00).	
	(c) Check for continuity from orange wire terminal on RFI wiring harness to orange wire terminal on RFI filter.	1. If continuity is not indicated, repair or replace orange wire. 2. If continuity is indicated, replace black wire in RFI wiring harness to line connection on RFI filter.
	(d) Return equipment to normal condition.	
	13. Verify power through RFI filter.	
	(a) Check for 24 VDC between red wire terminal and black wire terminal on load side of RFI filter.	1. If 24 VDC is not indicated, replace RFI filter. 2. If 24 VDC is indicated, proceed to next step.
	(b) Return equipment to normal condition.	
	14. Verify continuity of red wire from RFI filter.	
	(a) Turn ignition key switch to the OFF position (TM 9-2320-363-10).	

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
	A/C ELECTRICAL SYSTEM - CONTINUED	
1. A/C System Does Not Function - Continued.	(b) Disconnect power relay wiring harness (WP 0021 00).	
	(c) Check for continuity from red wire connector on RFI wiring harness to red wire terminal on RFI filter.	1. If continuity is not indicated, repair or replace red wire. 2. If continuity is indicated, replace black wire in RFI wiring harness to load connection on RFI filter.
	(d) Return equipment to normal condition.	
	15. Verify power to A/C fan switch.	
	(a) Return equipment to normal condition.	
	(b) Turn ignition key switch to the OFF position (TM 9-2320-363-10).	
	(c) Remove cover from evaporator assembly (WP 0017 00).	
	(d) Remove A/C fan switch connector (WP 0017 00).	
	(e) Turn ignition key switch to the ON position (TM 9-2320-363-10).	
	(f) Check for 24 VDC on red wire terminal of A/C fan switch connector to vehicle ground.	1. If 24 VDC is indicated, replace black wire from evaporator assembly power cable to blower motor connector. 2. If 24 VDC is not indicated, replace red wire.
	(g) Return equipment to normal condition.	
2. A/C System Energized But Evaporator Assembly Does Not Function.	1. Inspect fan motor. Ensure that fan motor is not seized.	
	(a) Turn ignition key switch to the OFF position (TM 9-2320-363-10).	
	(b) Remove access cover from evaporator assembly (WP 0017 00).	

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
	A/C ELECTRICAL SYSTEM - CONTINUED	
2. A/C System Energized But Evaporator Assembly Does Not Function - Continued.	(c) Attempt to spin fan motor.	1. If motor is seized, replace fan motor assembly (WP 0017 00). 2. If motor is not seized, proceed to next step.
	(d) Return equipment to normal condition.	
	2. Verify operation of A/C fan switch.	
	(a) Turn ignition key switch to the ON position (TM 9-2320-363-10).	
	(b) Set A/C fan switch to the ON position (WP 0004 00).	
	(c) Cycle A/C fan switch through speed settings (WP 0004 00).	1. Observe blower operation. If blower does not operate on any speed, go to step 9. 2. If blower does not operate on one speed setting, troubleshoot non-functional circuit (LOW speed step 3, MEDIUM speed step 5, HIGH speed step 7). 3. If blower does not operate on two speed settings, replace resistor speed control (WP 0017 00).
	(d) Return equipment to normal condition.	
	3. Verify A/C fan switch low speed setting.	
	(a) Turn ignition key switch to the OFF position (TM 9-2320-363-10).	
	(b) Set A/C fan switch to the OFF position (WP 0004 00).	
	(c) Remove A/C fan switch connector from A/C fan switch inside evaporator assembly (WP 0017 00).	
	(d) Set A/C fan switch to LO (WP 0004 00).	
	(e) Check continuity between contact “B” and contact “L” on A/C fan switch.	1. If continuity is not indicated, replace selector switch (WP 0017 00). 2. If continuity is indicated, proceed to next step.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
	A/C ELECTRICAL SYSTEM - CONTINUED	
2. A/C System Energized But Evaporator Assembly Does Not Function - Continued.	(f) Return equipment to normal condition.	
	4. Verify blower low speed circuit to speed resistor.	
	(a) Disconnect connector to speed resistor (WP 0017 00).	
	(b) Check continuity between yellow wire terminal on A/C fan switch and yellow wire terminal on speed resistor connector.	1. If continuity is not indicated, repair or replace yellow wire. 2. If continuity is indicated, replace speed resistor.
	(c) Return equipment to normal condition.	
	5. Verify A/C fan switch medium speed setting.	
	(a) Turn ignition key switch to the OFF position (TM 9-2320-363-10).	
	(b) Set A/C fan switch to the OFF position (WP 0004 00).	
	(c) Remove A/C fan switch connector from A/C fan switch inside evaporator assembly (WP 0017 00).	
	(d) Set fan switch to MED (WP 0004 00).	
	(e) Check continuity between contact “B” and contact “M” on A/C fan switch.	1. If continuity is not indicated, replace selector switch (WP 0017 00). 2. If continuity is indicated, proceed to next step.
	(f) Return equipment to normal condition.	
	6. Verify blower medium speed circuit to speed resistor.	
	(a) Disconnect connector to speed resistor (WP 0017 00).	

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
	A/C ELECTRICAL SYSTEM - CONTINUED	
2. A/C System Energized But Evaporator Assembly Does Not Function - Continued.	(b) Check continuity between blue wire terminal on A/C fan switch and blue wire terminal on speed resistor connector.	1. If continuity is not indicated, repair or replace blue wire. 2. If continuity is indicated, replace speed resistor.
	(c) Return equipment to normal condition.	
	7. Verify A/C fan switch high speed setting.	
	(a) Turn ignition key switch to the OFF position (TM 9-2320-363-10).	
	(b) Set A/C fan switch to the OFF position (WP 0004 00).	
	(c) Remove A/C fan switch connector from A/C fan switch inside evaporator assembly (WP 0017 00).	
	(d) Set A/C fan switch to HI (WP 0004 00).	
	(e) Check continuity between contact “B” and contact “H” on A/C fan switch.	1. If continuity is not indicated, replace selector switch (WP 0017 00). 2. If continuity is indicated, proceed to next step.
	(f) Return equipment to normal condition.	
	8. Verify blower high speed circuit to speed resistor.	
	(a) Remove A/C fan switch connector from A/C fan switch inside evaporator assembly (WP 0017 00).	
	(b) Check continuity between orange wire terminal on A/C fan switch and orange wire terminal on speed resistor connector.	1. If continuity is not indicated, repair or replace orange wire. 2. If continuity is indicated, replace speed resistor.
	(c) Return equipment to normal condition.	
	9. Verify ground to blower motor.	
	(a) Turn ignition key switch to the OFF position (TM 9-2320-363-10).	

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
	A/C ELECTRICAL SYSTEM - CONTINUED	
2. A/C System Energized But Evaporator Assembly Does Not Function - Continued.	(b) Set A/C fan switch to the OFF position (WP 0004 00).	
	(c) Remove black wire connector from evaporator blower assembly (WP 0017 00).	
	(d) Disconnect black wire connector from blower motor assembly (WP 0017 00).	
	(e) Check continuity between black wire terminal on connector to evaporator blower assembly and black wire terminal on wire disconnected from blower motor (wire from dome light connector).	1. If continuity is not indicated, repair or replace black wire. 2. If continuity is indicated, proceed to next step.
	(f) Return equipment to normal condition.	
	10. Verify power circuit to blower motor.	
	(a) Connect black wire connector from evaporator blower assembly (WP 0017 00).	
	(b) Disconnect orange wire connector from blower motor assembly (WP 0017 00).	
	(c) Turn ignition key switch to the ON position (TM 9-2320-363-10).	
	(d) Set A/C fan switch to the ON position (WP 0004 00).	
	(e) Check for 24 VDC on orange wire terminal of wire disconnected from blower motor to black wire connector disconnected from blower motor assembly (wire from dome light connector).	1. If 24 VDC is indicated, replace blower motor. 2. If 24 VDC is not indicated, replace orange wire.
	(f) Return equipment to normal condition.	

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
	A/C ELECTRICAL SYSTEM - CONTINUED	
3. Evaporator Assembly Works But Engine Fan Does Not.	1. Verify operation of engine fan pressure switch on receiver/dryer. (a) Start engine (TM 9-2320-363-10). (b) Set A/C fan switch to the ON position (WP 0004 00). (c) Disconnect engine fan pressure switch connector on receiver/dryer (connector with purple and red wires) (WP 0019 00). (d) Install jumper wire across engine fan switch connector. (e) Verify engine fan operation.	1. If engine fan does not operate, proceed to step 3. 2. If engine fan operates, proceed to next step.
	2. Verify A/C system pressures (WP 0015 00).	1. If system is operating within normal parameters, replace pressure switch (WP 0019 00). 2. If system is not operating within normal parameters, inspect system for leaks (WP 0015 00).
	3. Verify continuity on purple wire to engine fan pressure switch. (a) Turn ignition key switch to the OFF position (TM 9-2320-363-10). (b) Set A/C fan switch to the OFF position (WP 0004 00). (c) Disconnect engine fan pressure switch connector on receiver/dryer (connector with purple and red wires) (WP 0019 00). (d) Disconnect purple wire from engine coolant temperature switch (WP 0018 00). (e) Check continuity from purple wire terminal on engine fan pressure switch and purple wire terminal removed from engine coolant temperature switch.	1. If continuity is not indicated, repair or replace purple wire. 2. If continuity is indicated, repair or replace red wire.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
	A/C ELECTRICAL SYSTEM - CONTINUED	
3. Evaporator Assembly Works But Engine Fan Does Not - Continued.	(f) Return equipment to normal condition.	
4. Evaporator Assembly Works But Compressor Does Not.	1. Verify power at compressor.	
	(a) Disconnect green diode harness from compressor clutch connector.	
	(b) Turn ignition key switch to the ON position (TM 9-2320-363-10).	
	(c) Set A/C fan switch to the ON position (WP 0004 00).	
	(d) Check for 24 VDC on green connector to vehicle ground.	1. If 24 VDC is not indicated, proceed to step 4. 2. If 24 VDC is indicated, proceed to next step.
	2. Verify ground connection at compressor frame.	
	(a) Turn ignition key switch to the OFF position (TM 9-2320-363-10).	
	(b) Set A/C fan switch to the OFF position (WP 0004 00).	
	(c) Check for continuity between compressor frame and vehicle ground.	1. If continuity is not indicated, repair ground on compressor. 2. If continuity is indicated, proceed to next step.
	(d) Return equipment to normal condition.	
	3. Verify operation of compressor clutch.	
	(a) Start engine (TM 9-2320-363-10).	
	(b) Set A/C fan switch to the ON position (WP 0004 00).	
	(c) Verify compressor clutch engages.	1. If compressor clutch engages, proceed to step 13. 2. If compressor clutch does not engage, replace compressor.
	(d) Return equipment to normal condition.	
	4. Check diode shorted to ground.	

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
	A/C ELECTRICAL SYSTEM - CONTINUED	
4. Evaporator Assembly Works But Compressor Does Not - Continued.	(a) Turn ignition key switch to the OFF position (TM 9-2320-363-10). (b) Set A/C fan switch to the OFF position (WP 0004 00). (c) Disconnect diode harness from chassis harness (WP 0019 00). (d) Disconnect diode harness from compressor clutch connector (WP 0019 00). (e) Check for continuity between green wire terminal of diode harness (positive lead of meter) and vehicle ground (negative lead of meter). (f) Return equipment to normal condition. 5. Check high pressure switch on receiver/dryer for proper operation. (a) Turn ignition key switch to the OFF position (TM 9-2320-363-10). (b) Set A/C fan switch to the OFF position (WP 0004 00). (c) Disconnect wiring connector at high pressure switch on receiver/dryer (yellow and green wires) (WP 0019 00). (d) Install jumper wire across high pressure switch connector. (e) Start engine (TM 9-2320-363-10). (f) Set A/C fan switch to the ON position (WP 0004 00). (g) Verify compressor clutch engages. (h) Return equipment to normal condition.	1. If continuity is indicated (less then 1 Meg Ohm), replace diode. 2. If continuity is not indicated (greater then 1 Meg Ohm), proceed to next step. 1. If compressor clutch does not engage, proceed to step 7. 2. If compressor clutch engages, proceed to next step.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
	A/C ELECTRICAL SYSTEM - CONTINUED	
4. Evaporator Assembly Works But Compressor Does Not - Continued.	6. Verify system for normal high side operating pressure (WP 0015 00).	1. If system pressure is within parameters, replace high pressure switch on receiver/dryer (WP 0019 00). 2. If system pressure is not within parameters, inspect air conditioner system for leaks (WP 0015 00).
	Return equipment to normal condition.	
	7. Verify power at high pressure switch on receiver/dryer. (a) Turn ignition key switch to the OFF position (TM 9-2320-363-10). (b) Set A/C fan switch to the OFF position (WP 0004 00). (c) Disconnect wiring connector at high pressure switch on receiver/dryer (yellow and green wires) (WP 0019 00). (d) Turn ignition key switch to the ON position (TM 9-2320-363-10). (e) Set A/C fan switch tothe ON position (WP 0004 00).	
	(f) Check for 24 VDC on yellow wire terminal on high pressure switch connector to vehicle ground.	1. If 24 VDC is indicated, replace green wire from high pressure switch. 2. If 24 VDC is not indicated, proceed to next step.
	8. Verify power on yellow wire of RFI filter harness. (a) Turn ignition key switch to the OFF position (TM 9-2320-363-10). (b) Set A/C fan switch to the OFF position (WP 0004 00). (c) Disconnect yellow wire connector RFI filter harness (WP 0017 00) (next to A/C bulkhead fittings on floor of cab). (d) Turn ignition key switch to the ON position (TM 9-2320-363-10).	

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
	A/C ELECTRICAL SYSTEM - CONTINUED	
4. Evaporator Assembly Works But Compressor Does Not - Continued.	(e) Set A/C fan switch to the ON position (WP 0004 00).	
	(f) Check for 24 VDC on yellow wire terminal on RFI filter harness to vehicle ground.	1. If 24 VDC is indicated, repair or replace yellow wire in chassis harness connected to high pressure switch. 2. If 24 VDC is not indicated, proceed to next step.
	(g) Return equipment to normal condition.	
	9. Verify power on yellow wire at evaporator harness.	
	(a) Turn ignition key switch to the OFF position (TM 9-2320-363-10).	
	(b) Set A/C fan switch to the OFF position (WP 0004 00).	
	(c) Disconnect yellow wire connector from evaporator harness.	
	(d) Turn ignition key switch to the ON position (TM 9-2320-363-10).	
	(e) Set A/C fan switch to the ON position (WP 0004 00).	
	(f) Check for 24 VDC on yellow wire terminal on evaporator harness to vehicle ground.	1. If 24 VDC is indicated, repair or replace yellow wire in RFI harness. 2. If 24 VDC is not indicated, proceed to next step.
	(g) Return equipment to normal condition.	
	10. Verify yellow wire continuity to thermostat.	
	(a) Turn ignition key switch to the OFF position (TM 9-2320-363-10).	
	(b) Set A/C fan switch to the OFF position (WP 0004 00).	
	(c) Remove cover from evaporator assembly (WP 0017 00).	

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
	A/C ELECTRICAL SYSTEM - CONTINUED	
4. Evaporator Assembly Works But Compressor Does Not - Continued.	(d) Remove connector from A/C thermostat (WP 0017 00).	
	(e) Check continuity between yellow wire terminal on evaporator harness and yellow wire terminal on A/C thermostat connector.	1. If continuity is not indicated, repair or replace yellow wire. 2. If continuity is indicated, proceed to next step.
	(f) Return equipment to normal condition.	
	11. Verify purple wire continuity from A/C Thermostat to A/C fan switch.	
	(a) Disconnect connector from A/C fan switch.	
	(b) Check continuity between purple wire terminal on A/C thermostat connector and purple wire terminal on A/C fan switch connector.	1. If continuity is not indicated, repair or replace purple wire. 2. If continuity is indicated, proceed to next step.
	(c) Return equipment to normal condition.	
	12. Verify A/C fan switch continuity for power to thermostat.	
	(a) Disconnect connector from A/C fan switch.	
	(b) Set A/C fan switch to the ON position (WP 0004 00).	
	(c) Check continuity from terminal “B” and terminal “C” on A/C fan switch.	1. If continuity is not indicated, replace A/C fan switch. 2. If continuity is indicated, replace A/C thermostat.
	(d) Return equipment to normal condition.	
	13. Troubleshoot compressor to ensure it is not seized. Refer to *General Troubleshooting*, Malfunction, step 2 in this work package.	

MALFUNCTION	CAUSE OR TEST	CORRECTIVE ACTION
	A/C SYSTEM PRESSURE DIAGNOSIS	
1. High Side and Low Side Pressure Normal and Evaporator Assembly Not Producing Cold Air.	Excessive oil in system.	Restore proper oil level in compressor (WP 0015 00).
2. High Side Pressure Normal to High - Low Side Pressure Normal to High.	Moisture in system. Moisture freezes, temporarily stopping cycle; normal system operation returns when ice melts.	Replace receiver/dryer (WP 0019 00).
3. High Side Pressure Low - Low Side Pressure Low.	1. Leak test A/C system (WP 0016 00).	Repair or replace any leaks found in system. If no leaks are found, proceed to step 2.
	2. Incorrect charge.	Recharge system (WP 0015 00).
4. High Side Pressure Low - Low Side Pressure Zero to Negative - Frost on Tubes From Receiver/Dryer to Evaporator Assembly.	Refrigerant flow obstructed in receiver/ dryer.	Replace receiver/dryer (WP 0019 00).
5. High Side Pressure Low - Low Pressure Side High.	1. Internal leak in compressor or compressor mechanically broken.	Replace compressor (WP 0016 00).
	2. Compressor drive belt slipping.	Adjust drive belt tension (WP 0016 00).
6. High Side Pressure High - Low Pressure Side Low.	1. Inspect system for kinked or damaged hoses.	Replace damaged hose (WP 0020 00). If no damage is found, proceed to step 2.
	2. Restriction in condenser.	Replace condenser (WP 0018 00).
7. High Side Pressure High - Low Pressure Side High - Low Side Lines Hot to Touch.	1. Inspect system for kinked or damaged hoses.	Replace damaged hoses (WP 0020 00). If no damaged hoses are found, proceed to step 2.
	2. Verify system for air contamination.	Leak test system (WP 0015 00). Repair as necessary.
8. High Side Pressure High - Low Pressure Side High.	1. Condenser fins obstructed.	Clean condenser fins.
	2. Engine cooling fan not working properly.	Troubleshoot engine fan. Proceed to correct symptom (WP 0012 00).
	3. Refrigerant system overcharged.	Recover refrigerant and recharge system (WP 0015 00).
	4. Expansion valve not operating correctly.	Replace expansion valve (WP 0017 00).

END OF WORK PACKAGE

CHAPTER 5
UNIT AND DIRECT SUPPORT MAINTENANCE INSTRUCTIONS

GENERAL MAINTENANCE INSTRUCTIONS 0014 00

THIS WORK PACKAGE COVERS

Scope
Work Safety
General Information
Cleaning Instructions
Inspection Instructions
Painting Instructions
Standard Tool Requirements
Use of Thread Adhesive
Use of Sealant
Applying Torque
Tagging Instructions

INITIAL SETUP

Maintenance Level

Unit

Tools and Special Tools

Tool Kit, General Mechanic's (Item 9, WP 0024 00)

Shop Equipment, Common No. 1 (Item 6, WP 0024 00)

Materials/Parts

Adhesive, Thread (Item 1, WP 0025 00)

Cleaning Compound, Solvent, Type III (Item 2, WP 0025 00)

Cloth, Abrasive (Item 3, WP 0025 00)

Materials/Parts - Continued

Detergent, General Purpose, Liquid (Item 5, WP 0025 00)

Oil, Lubricating, OE/HDO-10 (Item 7, WP 0025 00)

Rag, Wiping (Item 9, WP 0025 00)

Tag, Marker (Item 13, WP 0025 00)

References

TB 43-0209

TB 43-0242

TM 9-2320-363-10

TM 9-247

WP 0026 00

SCOPE

1. These general maintenance instructions contain general shop practices and specific methods you must be familiar with to properly install and maintain the Air Conditioning Kit.
2. Read and understand these practices and methods before starting maintenance tasks on the armor kit.

WORK SAFETY

1. Before starting a task, think about the risks and hazards to your safety as well as others. Wear protective gear such as safety goggles or lenses, face shield, safety shoes, and gloves. Protect yourself against injury.
2. Observe all WARNINGs, CAUTIONs, and NOTEs.
3. When lifting heavy parts, have someone help you. Make sure that lifting equipment is working properly, that it is suitable for the task assigned, of sufficient load capacity, and is secured against slipping.
4. Always use power tools carefully.

WORK SAFETY - CONTINUED

5. Before beginning a procedure, ensure work tool is lowered to ground and the following conditions have been observed, unless otherwise specified:
   a. Vehicle must be parked on level ground with wheels chocked and parking/emergency brake applied (TM 9-2320-363-10).
   b. Transmission must be in N (Neutral) (TM 9-2320-363-10).
   c. Engine must be OFF (TM 9-2320-363-10).
   d. Ignition key switch must be in the OFF position (TM 9-2320-363-10).
   e. If equipped, battery disconnect switch must be in the OFF position (TM 9-2320-363-10).

GENERAL INFORMATION

1. Before beginning a task, find out how much teardown is needed to fix the equipment as described in this bulletin. Sometimes complete teardown is not necessary. Remove components only as far as necessary to replace damaged or broken parts.
2. All tags and forms attached to the equipment must be checked to learn the reason for removal from service. Check all Modification Work Orders (MWOs) and Technical Bulletins (TBs) for equipment changes and updates.
3. Replace all locknuts and lockwashers removed during procedure.
4. Inspect seals for damage. Replace seals if damaged.

CLEANING INSTRUCTIONS

1. **General.**
   a. The importance of cleaning must be thoroughly understood by maintenance personnel. Great care and effort are required in cleaning. Dirt and foreign material are a constant threat to satisfactory maintenance.
   b. The following should apply to all cleaning operations:
      (1) Keep all related parts and components together. Do not mix parts.
      (2) Clean all parts before inspection and before installation.
      (3) To prevent contamination, hands should be kept free of accumulation of grease, which can collect dust, dirt, or grit.

CLEANING INSTRUCTIONS - CONTINUED

2. **Cleaning Instructions.**

- Solvent cleaning compound MIL-PRF-680 Type II and III may be irritating to the eyes and skin. Use protective gloves and goggles. Use in well-ventilated areas. Use respirator as needed. Accidental ingestion can cause irritation of digestive tract and respiratory tract, may cause lung and central nervous system damage. Can be fatal if swallowed. Inhalation of high/massive concentrations can cause coma or be fatal. First aid for ingestion: do not induce vomiting. Seek immediate medical attention. First aid for skin contact: remove contaminated clothing. Wash skin thoroughly with soap and water. If symptoms persist, seek medical attention. First aid for eye contact: flush with water for 15 minutes or until irritation subsides. If symptoms persist, seek medical attention. First aid for inhalation: move to fresh air. If not breathing, provide artificial respiration. If symptoms persist, seek medical attention. Keep away from open flames and other sources of ignition.
- The flashpoint for type II solvent cleaning compound is 141-198°F (61-92°C) and type III is 200-241°F (93-116°C).
- Improper cleaning methods and use of unauthrized cleaning solvents may injure personnel and damage equipment.
- Fire extinguishers should be placed nearby when using solvent cleaning compound.
- Cloths or rags saturated with solvent cleaning compound must be disposed of IAW authorized facilities' procedures.
- Eye shields must be worn when cleaning with a wire brush. Flying rust and metal particle may cause injury.
- Failure to follow these warnings may result in injury or death to personnel.

a. Use solvent cleaning compound to clean any surface coated with grease or oil.

Particles blown by compressed air are hazardous. DO NOT exceed 15 psi (103 kPa) nozzle pressure when drying parts with compressed air. Use a maximum of 30 psi (207 kPa) when cleaning components. DO NOT direct compressed air against human skin. Failure to follow this warning may result in injury or death to personnel. Make sure air stream is directed away from user and other personnel in the area. To prevent injury, user must wear protective goggles or face shield.

b. Clear out all drilled or tapped (threaded) holes with compressed air to remove dirt and solvent cleaning compound.

c. Wash externally exposed parts, not subject to grease and oil, with detergent and water. Rinse thoroughly and air dry.

d. Remove old sealing compound using a wire brush and solvent cleaning compound.

e. Clean all rusted surfaces using a wire brush and abrasive cloth.

f. After cleaning, cover or wrap all parts to protect them from dust and dirt. Any part that is subject to rust should be lightly coated with lubricating oil.

INSPECTION INSTRUCTIONS

1. **General.** All components and parts must be carefully inspected to determine if they are serviceable for reuse or if they must be replaced.
2. **Drilled and Tapped (Threaded) Holes.**
   a. Inspect for wear, distortion (stretching), cracks, or any other damage in or around holes.
   b. Inspect threaded areas for wear, distortion, or evidence of cross-threading.
   c. If damage is noted, entire part should be replaced.
3. **Armor Plates.**
   a. Inspect for breaks, cracks, dents, rust damage, and sharp edges.
   b. Inspect areas around studs, screw openings, and edges.

WARNING

To ensure survivability of personnel, welding repairs on armor kit are NOT authorized. If armor plates are damaged, they must be replaced. Failure to follow this warning may cause failure of armor, resulting in injury or death to personnel.

   c. Replace any damaged armor plate. DO NOT repair by welding.
4. **Bolts and Screws.** Replace if threads are damaged, bent, loose, or stretched.
5. **Studs.** If studs are damaged, repair or replace as necessary.
6. **Rubber Seals.** Replace seal if damaged, cracked, or shows signs of excessive wear.

PAINTING INSTRUCTIONS

CAUTION

- Whenever paint is applied, care must be taken to prevent covering up installation aid markings (THIS SIDE UP, up arrows ⇑, etc.). These installation aid markings must be protected during paint application by using masking tape, paper, etc.
- Whenever paint is applied, avoid painting rubber or glass components.

Parts must be painted in accordance with TB 43-0209, *Color, Marking, and Camouflage Painting of Military Vehicles, Construction Equipment, and Materials Handling Equipment*, and TB 43-0242, *CARC Spot Painting*.

STANDARD TOOL REQUIREMENTS

1. The following are general practices regarding the use of tools:
   a. Always use the proper tool kit and tools for the procedure being performed.
   b. Ensure tools are clean and lubricated to reduce wear and to prevent rust.
   c. Keep track of tools. Do not be careless with them.
   d. Return tools to toolbox when finished with repair or maintenance.
   e. Return toolboxes and tools to tool storage when not in use.
   f. Inventory tools before and after each use.
2. Some maintenance tasks may require special or fabricated tools. The “Initial Setup” of the procedure will specify any special or fabricated tools needed to perform that procedure. Use these special tools only for the maintenance procedures for which they are designed or called out. If you are unfamiliar with a required tool, see your supervisor.

USE OF THREAD ADHESIVE

WARNING

Use caution when using adhesives and sealants. Prolonged inhalation of vapors can cause lung irritation. Contact with skin can cause dermatitis. Wear gloves and safety goggles and use product in a well-ventilated area away from open flame. If ingested, keep individual calm and seek medical attention. DO NOT induce vomiting. If contact with skin or eyes is made, flush thoroughly with water. Dispose of cleanup rags IAW local policy and ordinances. Failure to follow this warning may cause injury to personnel.

NOTE

Selected bolts and screws require use of adhesive during installation of the armor kit, or when replacing armor kit components. Generally, if no locking fastener (i.e., locknut or lockwasher) is used, thread adhesive is required.

USE OF SEALANT

1. When applying sealant, follow manufacturer's instructions on label of container.
2. Sealant should be applied with an even and continuous 1/4 in. bead along mating surfaces. Make semi-circular pattern around bolt holes and studs.

APPLYING TORQUE

1. When tightening fasteners, use torque value as specified in *Torque Limits* (WP 0026 00).
2. If a unique torque value is required, it will be provided in the procedural step of the task.

TAGGING INSTRUCTIONS

1. Use marker tags to identify all electrical wires and any other parts which may be hard to identify or replace later. Fasten tags to parts during removal by wrapping wire fasteners around or through parts and twisting ends together. Position tags out of the way during cleaning, inspection, and repair. Mark tags with a pencil, pen, or marker.
2. Whenever possible, identify electrical wires with the number of the terminal or wire to which it connects. If no markings can be found, tag both wires or wire and terminal, and use the same identifying mark for both. If you cannot tag a wire because it must fit through a small hole or you cannot reach it, write down the description of the wire and the point to which it connects or draw a simple diagram on paper. Be sure to write down enough information so you will be able to properly connect the wires during assembly. If you need to identify a loose wire, look for identifying number near end of the wire, stamped on a permanent metal tag. Compare the number to wire numbers on the appropriate electrical schematic.
3. Identify and tag other parts as required by name and installed location.

END OF WORK PACKAGE

A/C SYSTEM MAINTENANCE 0015 00

THIS WORK PACKAGE COVERS

Leak Test, Recovery, Evacuation, Charging

INITIAL SETUP

Maintenance Level

Direct Support

Tools and Special Tools

Tool Kit, General Mechanic's (Item 9, WP 0024 00)

Reclaimer, Refrigerant (Item 5, WP 0024 00)

Tool Kit, Refrigeration Equipment (Item 10, WP 0024 00)

Materials/Parts

Oil, Lubricating, Refrigerant Compressor (Item 8, WP 0025 00)

Rag, Wiping (Item 9, WP 0025 00)

Refrigerant (Item 10, WP 0025 00)

Personnel Required

Two

References

WP 0004 00

Equipment Conditions

Vehicle parked on level ground (TM 9-2320-363-10)

Parking/Emergency Brake applied (TM 9-2320-363-10)

Engine OFF (TM 9-2320-363-10)

Ignition Key Switch in OFF position (TM 9-2320-363-10)

WARNING

- Contact with refrigerant can cause frostbite. Keep hands and face away to prevent personal injury.
- Protective face shield must always be worn when refrigerant lines are opened, even if the gauges indicate the system is empty.
- Always use caution if a fitting is removed. Slowly loosen the fitting. If the system is still under any pressure, release it slowly in a well-ventilated area.
- DO NOT smoke when servicing A/C or wherever refrigerant gas may be present.
- Failure to follow these warnings may result in injury or death to personnel.

NOTE

Replace receiver/dryer if one or more of the following conditions occurs before you purge A/C system:

- A/C system has been previously opened for service.
- Too much air or moisture in A/C system, indicated by low refrigerant.
- Receiver/dryer has been operated for 2 or more years.
- A/C system opened for longer than 5 minutes.
- Large A/C system leak (break in hose or line).

LEAK TEST

NOTE

- If service work is required on an A/C system, the refrigerant must be recovered first before components are removed.
- The A/C system must contain at least 0.88 lb (0.4 kg) of refrigerant. The manifold gauge set can determine if pressure exists in the system.
- Leaks that are in the high side of the A/C system are more easily found if the A/C is operated for 5 to 10 minutes. The leak test must be performed immediately after the unit is turned off. The leak test for the high side needs to be performed before the pressure in the A/C system equalizes.
- Leaks that are in the low side of the A/C system are more easily found if the A/C has been shut off for 5 to 10 minutes. The leak test for the low side needs to be performed before the pressure in the A/C system equalizes.

1. Move leak detector sensor tip along possible leak points, at a rate of 1 in. per second.
2. Leak detector will indicate if leak is present in A/C system.

RECOVERY

NOTE

- Refrigerant identifier will prevent other refrigerants from contaminating R-134a recovery and charging tools. Refrigerant identifier will also detect a percentage of air that may be in the A/C system.
- If service is required on the A/C system, refrigerant must be recovered before A/C system components are removed. Use the following procedure:

1. Use refrigerant identifier to ensure refrigerant in A/C system is R-134a.
2. Make sure both manifold gauge set (1) valves (2 and 3) are closed. Turn valves clockwise to close.
3. Connect manifold gauge set (1) low-side hose (4) to suction (low) side of A/C compressor.
4. Connect manifold gauge set (1) high-side hose (5) to discharge (high) side of A/C compressor.
5. Attach charging hose (6) to recovery station inlet (7).

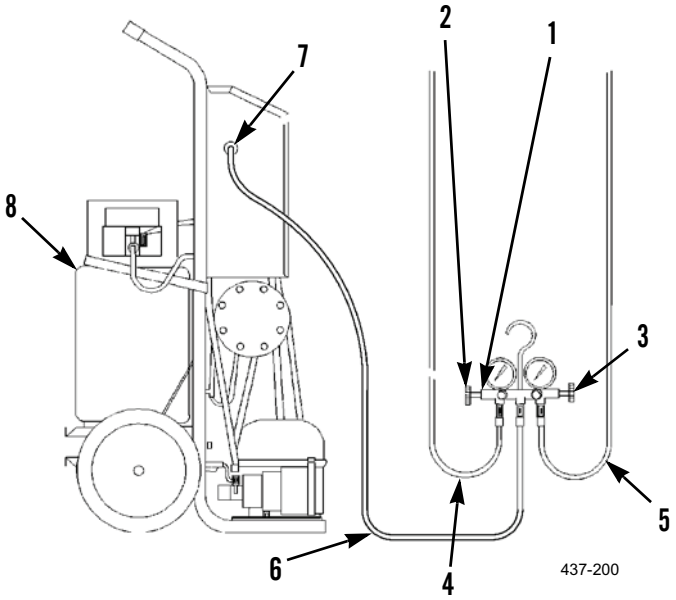
NOTE

One valve is for vapor and the other valve is for liquid.

6. Ensure valves on refrigerant recovery tank (8) are open.

RECOVERY - CONTINUED

7. Follow recovery station OEM instructions and recover R-134a refrigerant.



EVACUATION

CAUTION

- Moisture will combine with metals in the refrigerant system and this will produce highly corrosive by-products. The by-products are oxides, iron hydroxide, and aluminum hydroxide and they will damage the A/C system.
- Moisture in the A/C system can freeze and damage the expansion valve and orifice tube. If there is water in the system, the water must be removed by evacuation.
- Failure to follow those cautions could cause equipment damage.

NOTE

- If replacement or repair of a component is necessary, refrigerant must be recovered from A/C system.
- If A/C system has lost any charge after a long period of time, refrigerant in A/C system must be recovered.
- It is necessary to perform evacuating procedure to remove all air and moisture from the A/C system.
- A complete charge must never be given to a system without first performing the evacuating procedure.
- If the system has been left open for more than a half hour, the system has been exposed to air and moisture. A new receiver/dryer must be installed.
- Evacuating the A/C system with a vacuum pump will boil and remove any water in the system. Remove water from the A/C system by evacuating the system with a vacuum pump.

EVACUATION - CONTINUED

1. Ensure manifold gauge set (1) valves (2 and 3) are closed.
2. Disconnect charging hose (6) from recovery station inlet (7) on refrigerant service unit.
3. Check oil level in vacuum pump. Add oil as necessary. Refer to vacuum pump OEM manual for correct procedure.
4. Connect charging hose (6) to inlet (9) on vacuum pump.
5. Open both manifold gauge set (1) valves (2 and 3) completely. Turn valves counterclockwise to open.
6. Evacuate A/C system. Refer to vacuum pump OEM manual for operation instructions.

NOTE

At high elevations, less vacuum is required. 28 inHg to 29 inHg (95 kPa to 98 kPa) is the required specification at sea level. For every 1,000 ft (305 m) above sea level, decrease the required specification by 1 inHg (3 kPa).

Ambient Temperature °F (°C)	Vacuum Required to Boil Water in A/C System inHg (kPa)
100°F (38°C)	28 inHg (95 kPa)
90°F (32°C)	28.5 inHg (96.5 kPa)
81°F (27°C)	28.8 inHg (97.5 kPa)
70°F (21°C)	29.2 inHg (98.8 kPa)

7. Operate vacuum pump until low pressure gauge (10) indicates a vacuum between 28 inHg to 29 inHg (95 kPa to 98 kPa).
8. After vacuum in A/C system reaches between 28 inHg to 29 inHg (95 kPa to 98 kPa), operate vacuum pump for a minimum of 90 minutes.

NOTE

The evacuating procedure removes air and moisture from the system. Do not use the vacuum pump primarily to indicate a system leak.

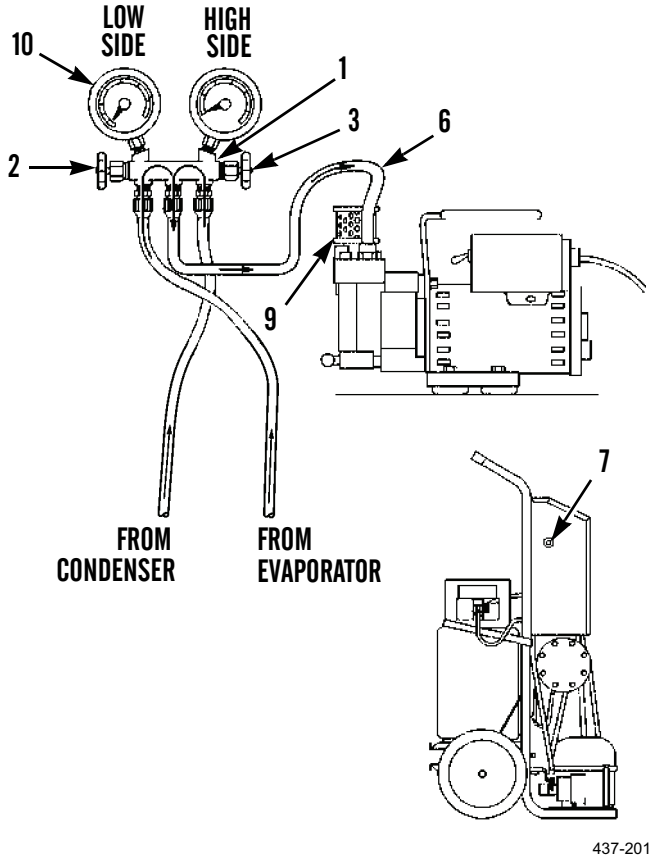
9. If specific vacuum cannot be reached, A/C system may have a leak. Repair all leaks and repeat steps 1 through 8.
10. After 28 inHg to 29 inHg (95 kPa to 98 kPa) vacuum has been reached and held for an additional 90 minutes, close manifold gauge set (1) valves (2 and 3) completely.
11. Turn OFF vacuum pump. Refer to vacuum pump OEM manual for operation instructions.

EVACUATION - CONTINUED

NOTE

- Excessive vacuum loss is an indication of a possible leak in the system.
- The maximum amount of vacuum loss in 5 minutes must not be more than 2 inHg (7 kPa). Repair all leaks and repeat steps 1 through 11.

12. If vacuum loss does not exceed 2 inHg (7 kPa) in 5 minutes, system is ready to charge.



CHARGING

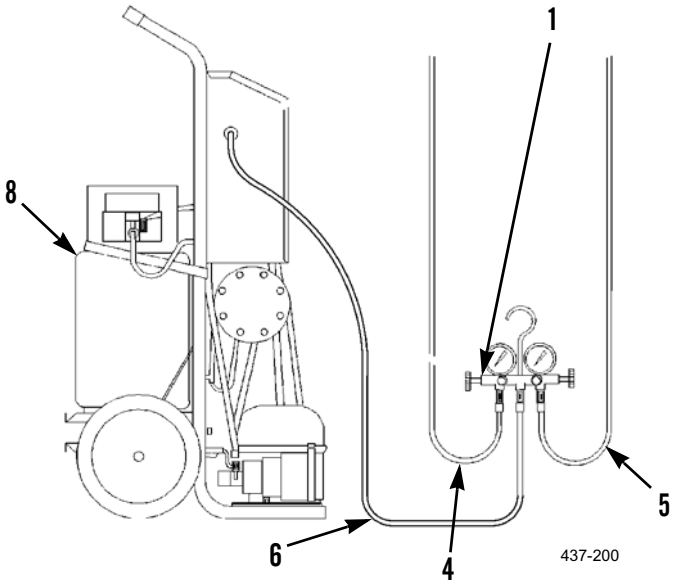
CAUTION

DO NOT charge the A/C system with liquid refrigerant through the compressor suction ports. This could seriously damage the compressor.

NOTE

- Charging should be performed at air temperatures of 70°F (21°C) and above. Changes in ambient air temperature will affect the system's ability to take a charge and will vary gauge readings.
- When adding a partial charge to the A/C system, if there is no evidence of air in the system and there are no system leaks, it is not necessary to discharge and evacuate the A/C system.
- Operating A/C system periodically during the off-season will lubricate the seals and reduce the possibility of refrigerant loss.
- Up to 7 oz. (200 g) of refrigerant loss per year is considered normal.
- Steps 1 through 3 only need to be performed if a partial charge is being done.

1. Connect manifold gauge set (1) low-side hose (4) to suction (low) side of A/C compressor.
2. Connect manifold gauge set (1) high-side hose (5) to discharge (high) side of A/C compressor.



CHARGING - CONTINUED

WARNING

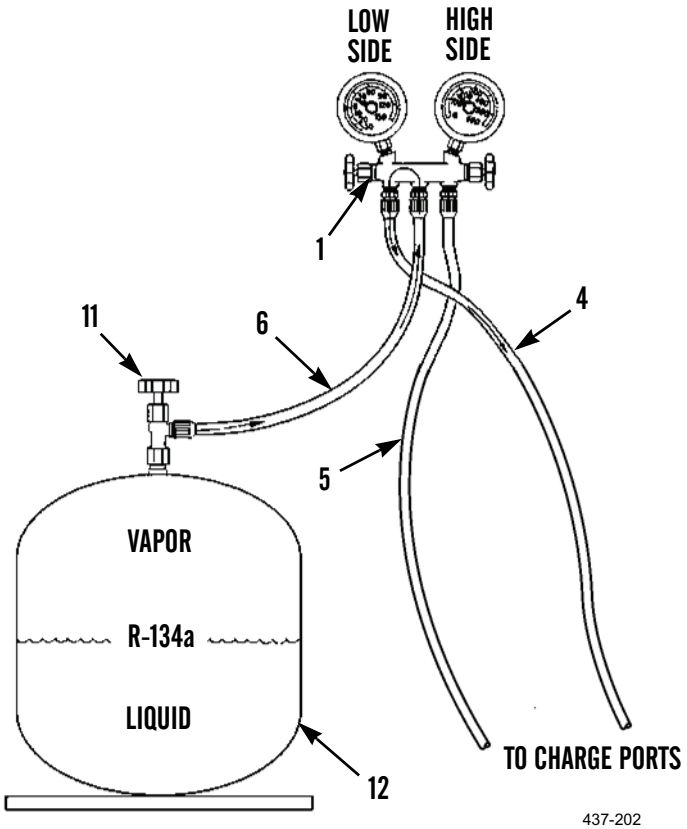
Only service refrigerant in a well-ventilated area. Personal injury or death can result from inhaling refrigerant.

3. Connect charging hose (6) to R-134a refrigerant tank valve (11).

CAUTION

DO NOT invert the R-134a refrigerant tank while charging the system. Liquid refrigerant entering the low side of the A/C system will permanently damage the compressor.

4. Ensure R-134a refrigerant tank (12) stands upright vertically, to ensure only refrigerant vapor can be charged into A/C system.
5. Open refrigerant tank valve (11) on R-134a refrigerant tank (12).
6. Start engine (TM 9-2320-363-10).
7. Set A/C controls to HIGH COOL (WP 0004 00).

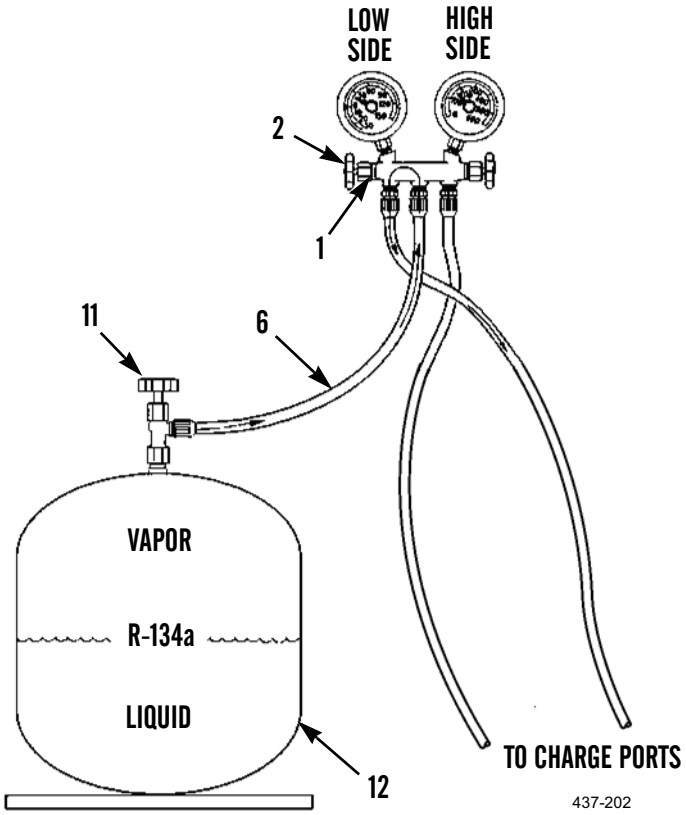


CHARGING - CONTINUED

NOTE

Keep high-side valve closed on manifold gauge set while charging the A/C system.

8. Slowly open low-side valve (2) on manifold gauge set (1).
9. Continue charging until bubbles disappear from receiver/dryer sight glass and high-side/low-side pressures are within acceptable range.
10. Close refrigerant tank valve (11) on R-134a refrigerant tank (12).
11. Close low-side valve (2) on manifold gauge set (1).
12. Shut off engine (TM 9-2320-363-10).
13. Disconnect charging hose (6) from R-134a refrigerant tank valve (11).
14. Disconnect manifold gauge set (1) from A/C compressor.
15. Operate A/C system to verify correct operation (WP 0004 00).



CHARGING - CONTINUED

Table 1. A/C Sight Glass Check.

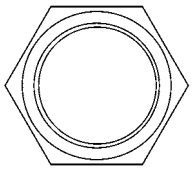
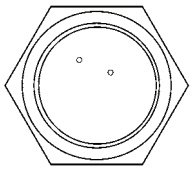
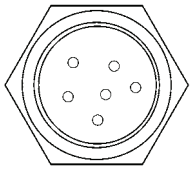
Sight Glass Appearance	Refrigerant Condition	Action Required
No Liquid 	No refrigerant charge.	a. Charge the system with R-134a refrigerant. b. Ensure shutoff valves are open. c. Ensure receiver/dryer is not blocked.
Clear liquid or some bubbles appear only during cooling modes. 	Good refrigerant charge.	System is normal.
Bubbles in stream. 	Refrigerant charge is low.	System requires refrigerant charge.

Table 2. High-Side/Low-Side Gauge Pressures at Ambient Temperature Cross-Reference.

Ambient Temperature °F (°C)	High-Side Pressure psi (kPa)	Low-Side Pressure psi (kPa)
61°F (16°C)	123 to 174 psi (850 to 1,200 kPa)	3 to 15 psi (20 to 100 kPa)
70°F (2 °C)	152 to 254 psi (1,050 to 1,750 kPa)	3 to 15 psi (20 to 100 kPa)
81°F (27°C)	181 to 276 psi (1,250 to 1,900 kPa)	3 to 15 psi (20 to 100 kPa)
90°F (32°C)	203 to 312 psi (1,400 to 2,150 kPa)	4 to 22 psi (30 to 150 kPa)
100°F (38°C)	232 to 334 psi (1,600 to 2,300 kPa)	4 to 29 psi (30 to 200 kPa)
109°F (43°C)	276 to 363 psi (1,900 to 2,500 kPa)	4 to 36 psi (30 to 250 kPa)

END OF WORK PACKAGE

COMPRESSOR REPLACEMENT 0016 00

THIS WORK PACKAGE COVERS

Removal, Cleaning and Inspection, Installation

INITIAL SETUP

Maintenance Level

Direct Support

Tools and Special Tools

Tool Kit, General Mechanic's (Item 9, WP 0024 00)

Shop Equipment, Common No. 1 (Item 6, WP 0024 00)

Reclaimer, Refrigerant (Item 5, WP 0024 00)

Tool Kit, Refrigeration Equipment (Item 10, WP 0024 00)

Materials/Parts

Oil, Lubricating, Refrigerant Compressor (Item 8, WP 0025 00)

Rag, Wiping (Item 9, WP 0025 00)

Refrigerant (Item 10, WP 0025 00)

Locknut (6)

O-ring (2)

References

WP 0014 00

Equipment Conditions

Vehicle parked on level ground (TM 9-2320-363-10)

Parking/Emergency Brake applied (TM 9-2320-363-10)

Engine OFF (TM 9-2320-363-10)

Ignition Key Switch in OFF position (TM 9-2320-363-10)

If equipped, Battery Disconnect Switch in OFF position (TM 9-2320-363-10), otherwise, disconnect battery cables (TM 9-2320-363-20)

A/C Refrigerant recovered (WP 0015 00)

Fan Belt Tensioner released (TM 9-2320-363-20)

Fan Clutch Air Hose removed (TM 9-2320-363-20)

REMOVAL

WARNING

- Contact with refrigerant can cause frostbite. Keep hands and face away to prevent personal injury.
- Protective face shield must always be worn when refrigerant lines are opened, even if the gauges indicate the system is empty.
- Always use caution if a fitting is removed. Slowly loosen the fitting. If the system is still under any pressure, release it slowly in a well-ventilated area.
- DO NOT smoke when servicing A/C or wherever refrigerant gas may be present.
- Failure to follow these warnings may result in injury or death to personnel.

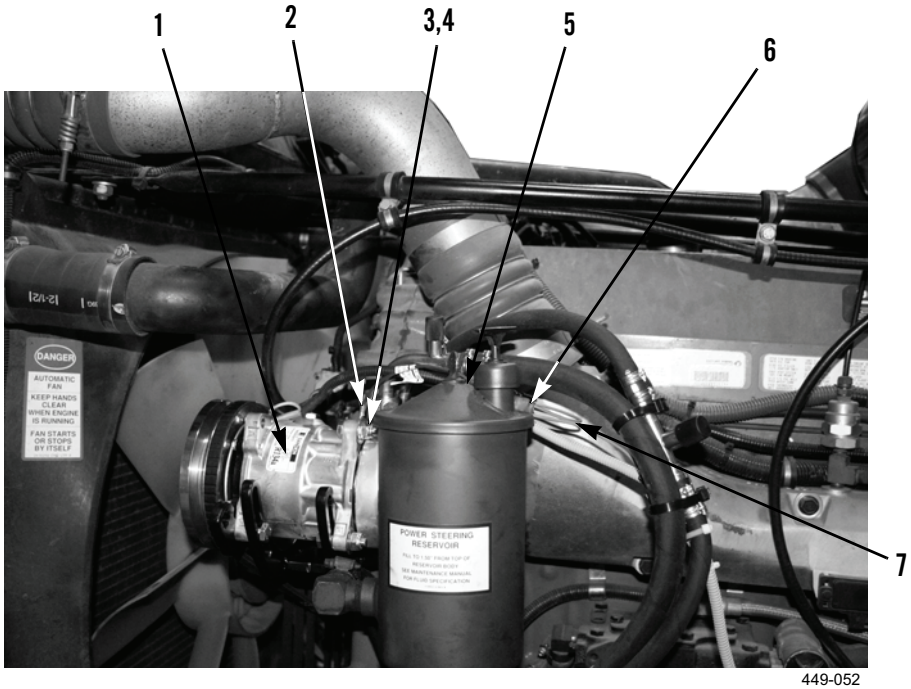
CAUTION

Cap all A/C hose ends and component connections during removal to protect against contamination. Failure to comply may cause damage to equipment.

NOTE

Tag wires and hoses to aid in installation.

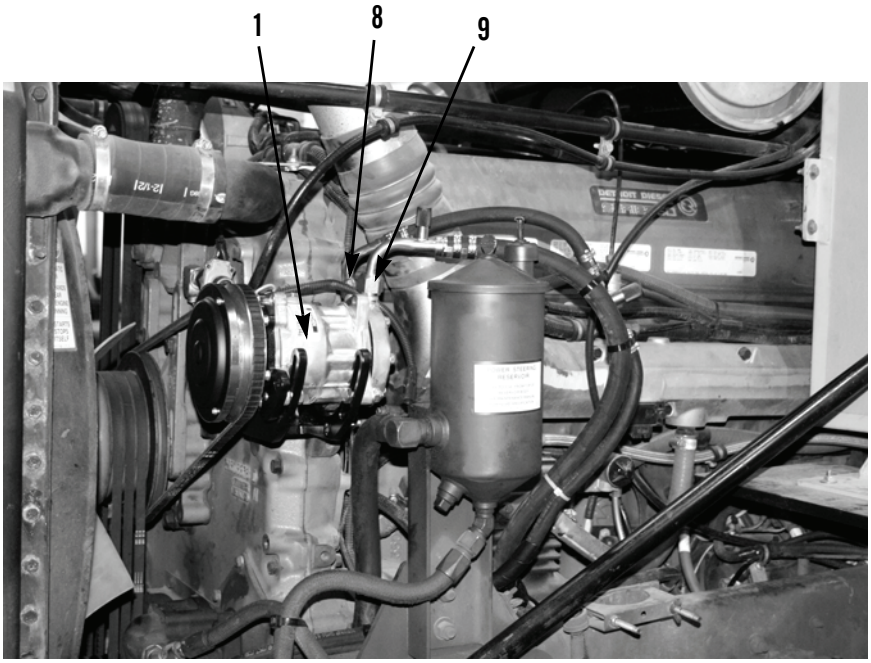
1. Remove nut (3), diode harness ground connector (2), and bolt (4) from compressor (1).
2. Disconnect compressor connector (5), chassis connector (6), and remove diode harness (7) from compressor (1).



449-052

REMOVAL - CONTINUED

3. Disconnect A/C hose (8) from compressor (1). Cap fitting to prevent contamination. Discard O-ring.
4. Disconnect A/C hose (9) from compressor (1). Cap fitting to prevent contamination. Discard O-ring.



449-057

REMOVAL - CONTINUED

5. Loosen two locknuts (11) and bolts (10) on compressor (1).
6. Loosen two locknuts (14), washers (13), and bolts (12) on compressor (1).
7. Slide compressor (1) down on compressor mounting bracket (15) to loosen drive belt (17).

NOTE

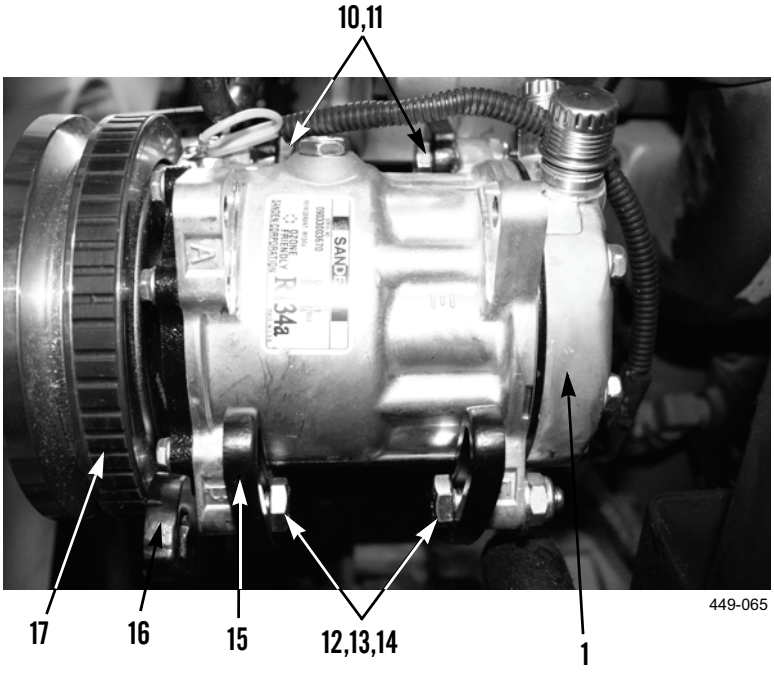
Record which groove drive belt is mounted in on compressor to aid installation.

8. Remove drive belt (17) from compressor (1).

NOTE

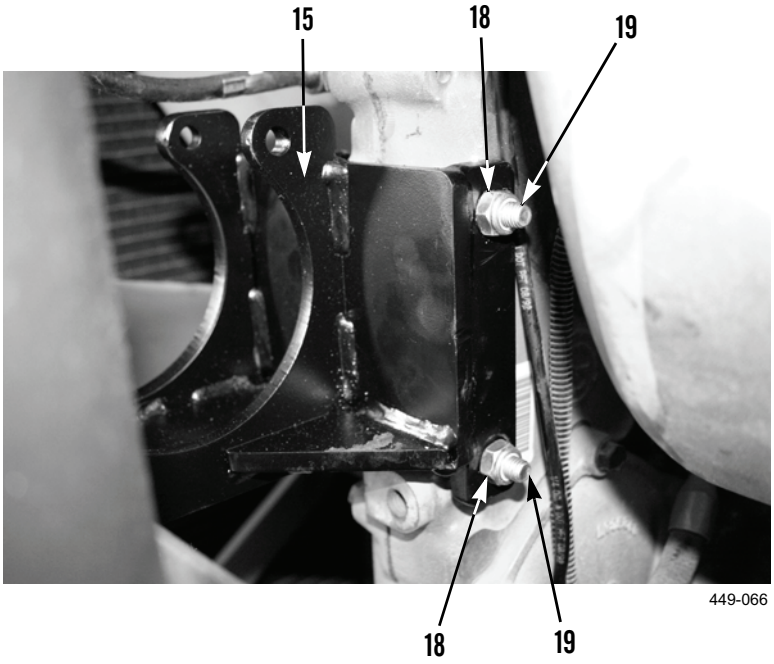
Compressor mounting bolts are metric.

9. Remove two locknuts (11) and bolts (10) from compressor (1). Discard locknuts.
10. Remove two locknuts (14), washers (13), bolts (12), and adjusting plate (16) from compressor (1). Discard locknuts.
11. Remove compressor (1) from compressor mounting bracket (15).



REMOVAL - CONTINUED

12. Remove two locknuts (18) and bolts (19) from compressor mounting bracket (15). Discard locknuts.
13. Remove compressor mounting bracket (15) from vehicle.



CLEANING AND INSPECTION

Clean and inspect all parts IAW *General Maintenance Instructions* (WP 0014 00).

INSTALLATION

1. Install compressor mounting bracket (15), two bolts (19), and new locknuts (18) on vehicle. Tighten to 35 lb-ft (47.5 Nm).

INSTALLATION - CONTINUED

2. Install compressor (1) on compressor mounting bracket (15).

NOTE

Leave bolts loose enough so that compressor can slide on mounting bracket.

3. Loosely install adjusting plate (16), two bolts (12), washers (13), and new locknuts (14) on compressor (1).
4. Loosely install two bolts (10) and new locknuts (11) on compressor (1).

NOTE

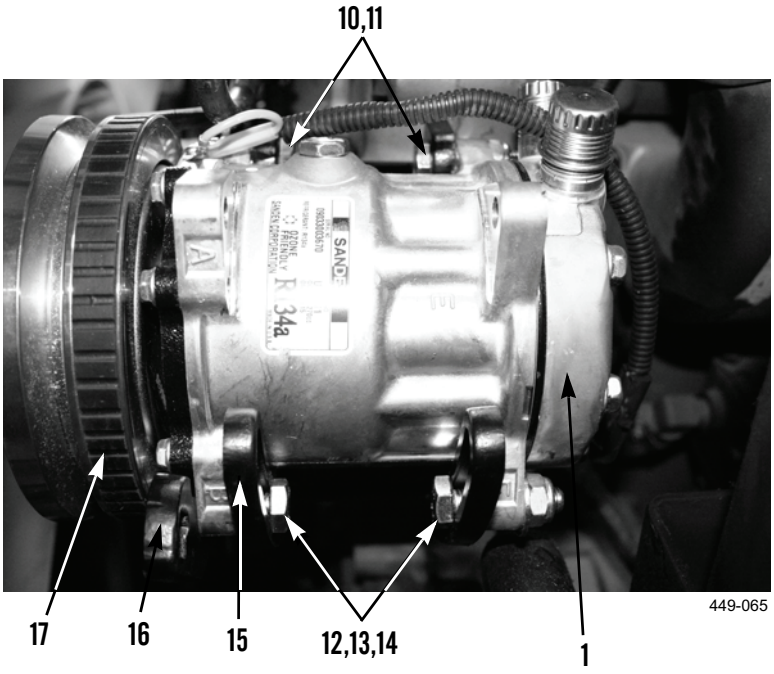
Install drive belt in pulley groove noted in removal.

5. Install drive belt (17) on compressor (1).

NOTE

- Belt tension gage indication should be 120 lb (534 Newtons) for new belts and 90 lb (400 Newtons) for used belts.
- Belts are considered used if they have more than 30 minutes of operation.
- Make sure compressor does not tilt during belt tensioning.

6. Using breaker bar in adjusting plate (16), adjust drive belt (17) tension.
7. Tighten adjusting plate (16), two bolts (12), washers (13), and new locknuts (14) to 35 lb-ft (47.5 Nm) on compressor (1).
8. Tighten install two bolts (10) and new locknuts (11) to 35 lb-ft (47.5 Nm) on compressor (1).
9. Check drive belt (17) tension and adjust as required.



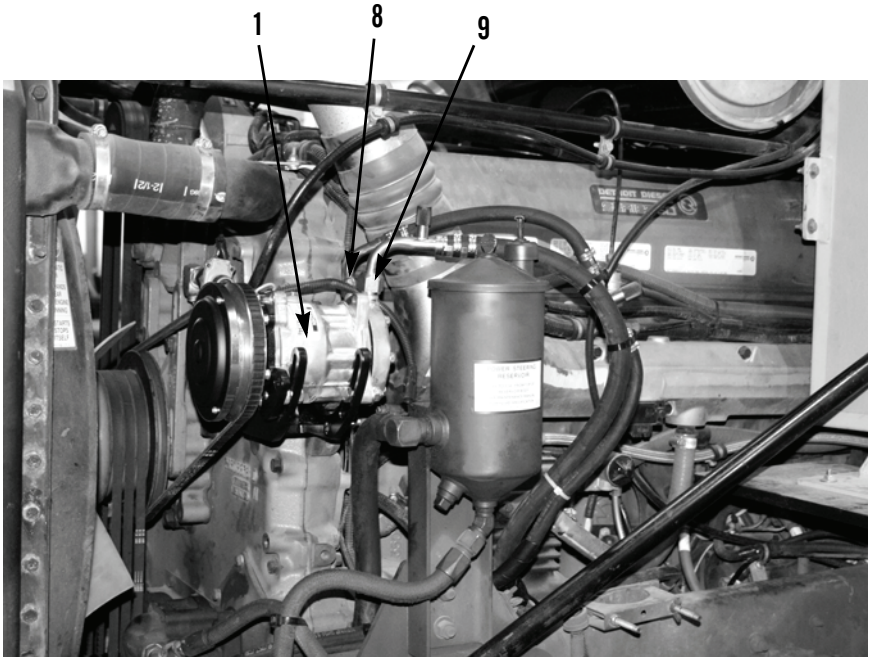
INSTALLATION - CONTINUED

- Contact with refrigerant can cause frostbite. Keep hands and face away to prevent personal injury.
- Protective face shield must always be worn when refrigerant lines are opened, even if the gauges indicate the system is empty.
- Always use caution if a fitting is removed. Slowly loosen the fitting. If the system is still under any pressure, release it slowly in a well-ventilated area.
- DO NOT smoke when servicing A/C or wherever refrigerant gas may be present.
- Failure to follow these warnings may result in injury or death to personnel.

NOTE

Install wires and hoses as tagged during removal.

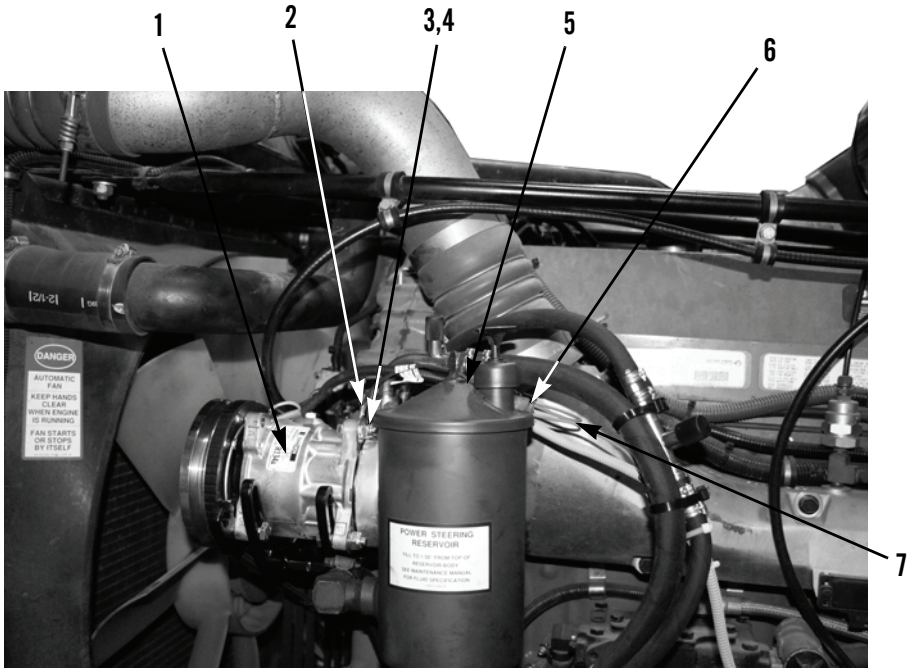
10. Apply refrigerant oil to new O-ring, remove cap, and install A/C hose (9) on compressor (1).
11. Apply refrigerant oil to new O-ring, remove cap, and install A/C hose (8) on compressor (1).



449-057

INSTALLATION - CONTINUED

12. Install diode harness (7), connect chassis connector (6), and compressor connector (5) to compressor (1).
13. Install bolt (4), diode harness ground connector (2), and nut (3) on compressor (1).



449-052

14. Install fan clutch air hose (TM 9-2320-363-20).
15. Tighten fan belt and fan belt tensioner (TM 9-2320-363-20).
16. Evacuate and recharge A/C system (WP 0015 00).

END OF WORK PACKAGE

EVAPORATOR ASSEMBLY MAINTENANCE 0017 00

THIS WORK PACKAGE COVERS

Removal, Disassembly, Cleaning and Inspection, Assembly, Installation

INITIAL SETUP

Maintenance Level

Direct Support

Tools and Special Tools

Tool Kit, General Mechanic's (Item 9, WP 0024 00)

Shop Equipment, Common No. 1 (Item 6, WP 0024 00)

Tool Kit, Refrigeration Equipment (Item 10, WP 0024 00)

Materials/Parts

Oil, Lubricating, Refrigerant Compressor (Item 8, WP 0025 00)

Rag, Wiping (Item 9, WP 0025 00)

Strap, Tiedown (Item 12, WP 0025 00)

Tag, Marker (Item 13, WP 0025 00)

Locknut (4)

Lockwasher (4)

O-ring (2)

Personnel Required

Two

References

WP 0004 00

WP 0014 00

Equipment Conditions

Vehicle parked on level ground (TM 9-2320-363-10)

Parking/Emergency Brake applied (TM 9-2320-363-10)

Engine OFF (TM 9-2320-363-10)

Ignition Key Switch in OFF position (TM 9-2320-363-10)

Air Filter removed (WP 0010 00)

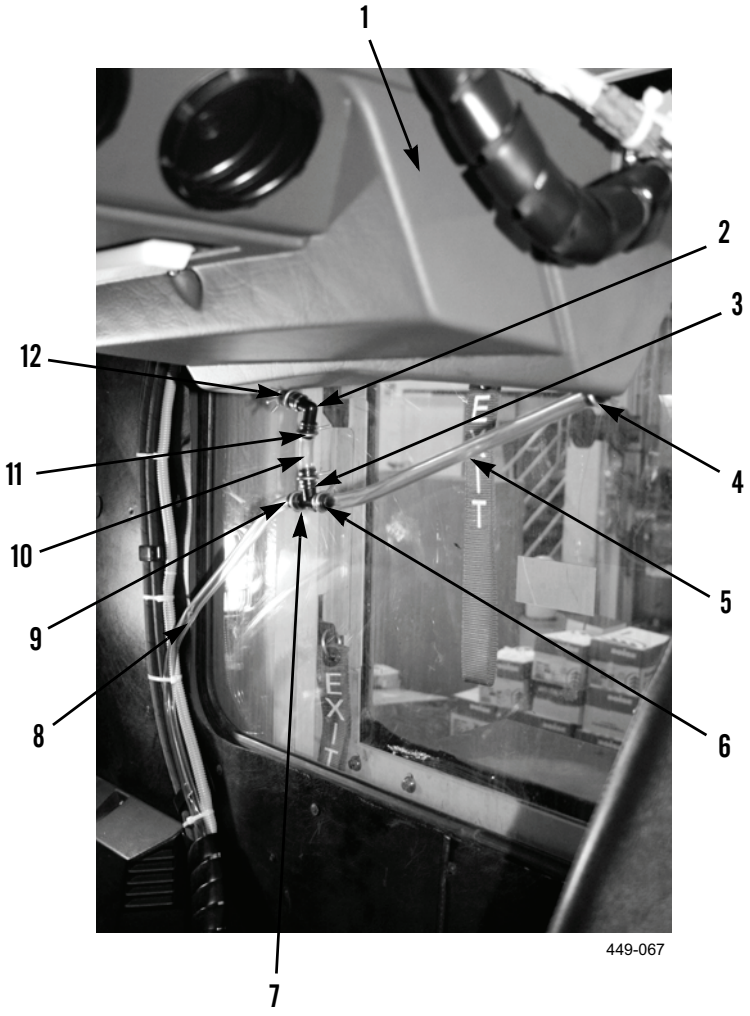
A/C Refrigerant recovered (WP 0015 00)

REMOVAL

NOTE

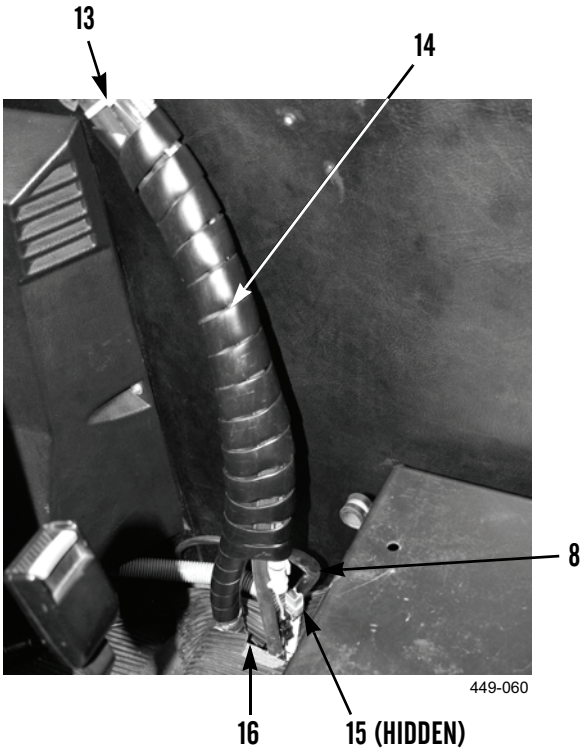
Tag wires and hoses to aid in installation.

1. Remove clip (6) and drain hose (5) from T-connector (7).
2. Remove clip (4) and drain hose (5) from evaporator assembly (1).
3. Remove remove clip (9) and drain hose (8) from T-connector (7).
4. Remove clip (3) and T-connector (7) from drain hose (10).
5. Remove clip (11) and drain hose (10) from elbow connector (2).
6. Remove clip (12) and elbow connector (2) from evaporator assembly (1).



REMOVAL - CONTINUED

7. Follow drain hose (8) to the floor of the cab and remove tiedown straps (13) and spiral wrap (14) from drain hose (8). Discard tiedown straps.
8. Pull drain hose (8) through grommet (16) in floor of cab, remove duck bill fitting (15) and drain hose (8) from vehicle.



REMOVAL - CONTINUED

WARNING

- Contact with refrigerant can cause frostbite. Keep hands and face away to prevent personal injury.
- Protective face shield must always be worn when refrigerant lines are opened, even if the gauges indicate the system is empty.
- Always use caution if a fitting is removed. Slowly loosen the fitting. If the system is still under any pressure, release it slowly in a well-ventilated area.
- DO NOT smoke when servicing A/C or wherever refrigerant gas may be present.
- Failure to follow these warnings may result in injury or death to personnel.

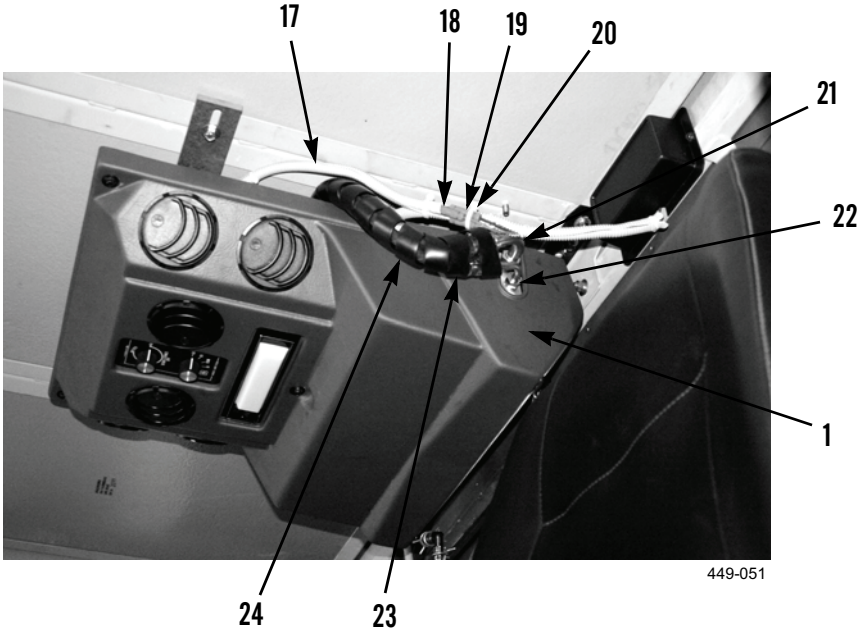
CAUTION

Cap all A/C hose ends and component connections during removal to protect against contamination. Failure to comply may cause damage to equipment.

NOTE

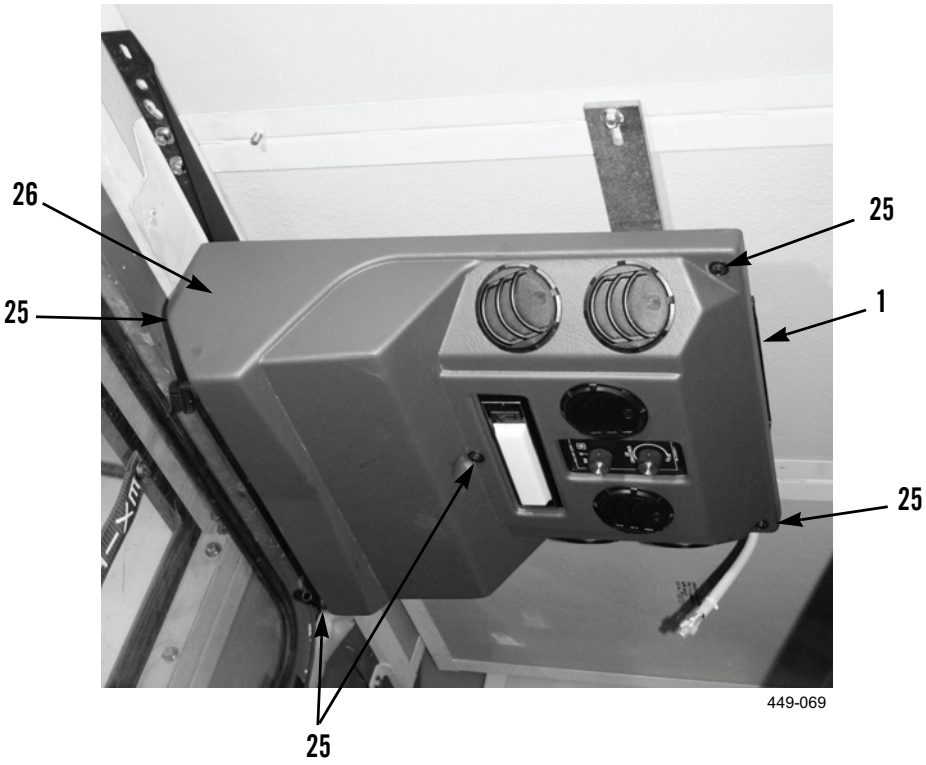
Tag wires and hoses to aid in installation.

9. Remove A/C hose connection (21) from evaporator assembly (1). Discard O-rings.
10. Remove A/C hose connection (22) from evaporator assembly (1). Discard O-rings.
11. Remove tiedown straps (20) and spiral wrap (24) from evaporator wiring harness (17) as required. Discard tiedown straps.
12. Disconnect RFI filter wiring harness connector (18) (red wire), connector (19) (black wire), and connector (23) (yellow wire) from evaporator wiring harness (17).



REMOVAL - CONTINUED

13. Remove five screws with contained washers (25) and evaporator assembly cover (26) from evaporator assembly (1).

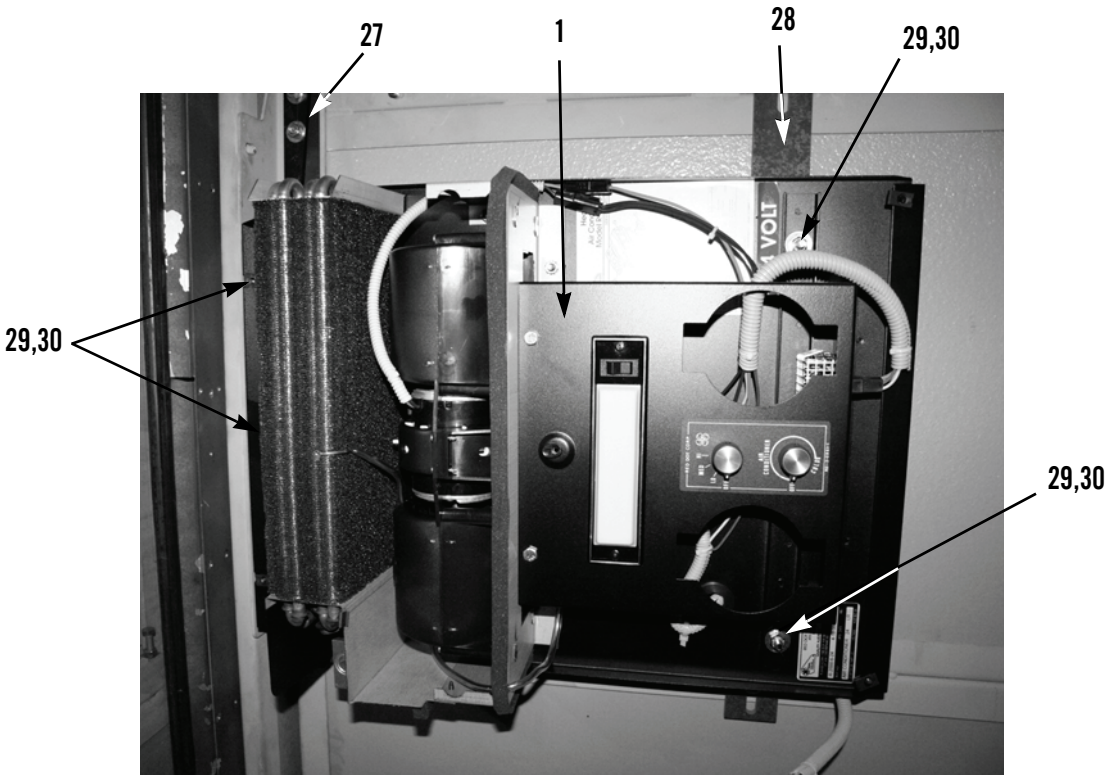


REMOVAL - CONTINUED

WARNING

Evaporator assembly weighs approximately 24 lb (11 kg). Use extreme caution when handling heavy parts. Provide adequate support and use assistance during procedure. Failure to follow this warning may cause injury or death to personnel.

14. With assistance, remove four nuts (29), washers (30), and evaporator assembly (1) from front evaporator mounting bracket (28) and rear evaporator mounting bracket (27).



449-070

REMOVAL - CONTINUED

NOTE

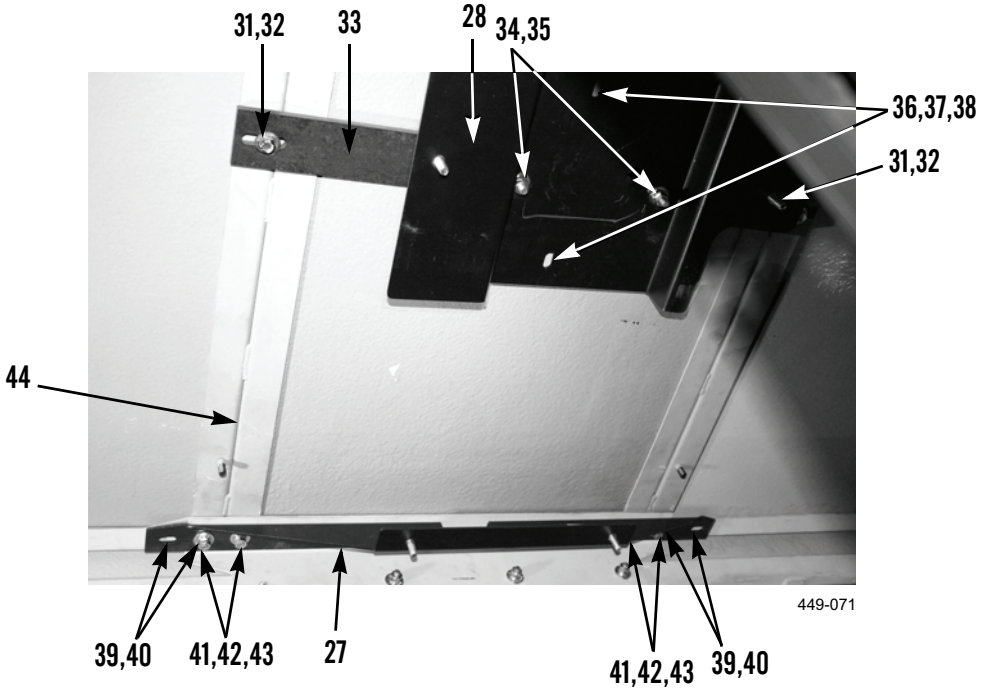
The Air Conditioning Kit can be installed on vehicles with TB 9-2320-302-13&P-1 or TB 9-2320-302-13&P-2 Crew Protection Kits. Perform steps 15 and 16 for TB 9-2320-302-13&P-1 Crew Protection Kit.

15. Remove two bolts (36), washers (37), and front evaporator mounting bracket (28), and two thick washers (38) from roof assembly (44).
16. Remove four bolts (39), washers (40), and rear evaporator mounting bracket (27) from roof assembly (44).

NOTE

The Air Conditioning Kit can be installed on vehicles with TB 9-2320-302-13&P-1 or TB 9-2320-302-13&P-2 Crew Protection Kits. Perform steps 17 through 19 for TB 9-2320-302-13&P-2 Crew Protection Kit.

17. Remove two locknuts (34), washers (35), and front evaporator mounting bracket (28) from front evaporator bracket (33). Discard locknuts.
18. Remove two locknuts (31), washers (32), and front evaporator mounting bracket (33) from roof frame (44). Discard locknuts.
19. Remove four nuts (41), lockwashers (42), washers (43), and rear evaporator mounting bracket (27) from roof frame (44). Discard lockwashers.

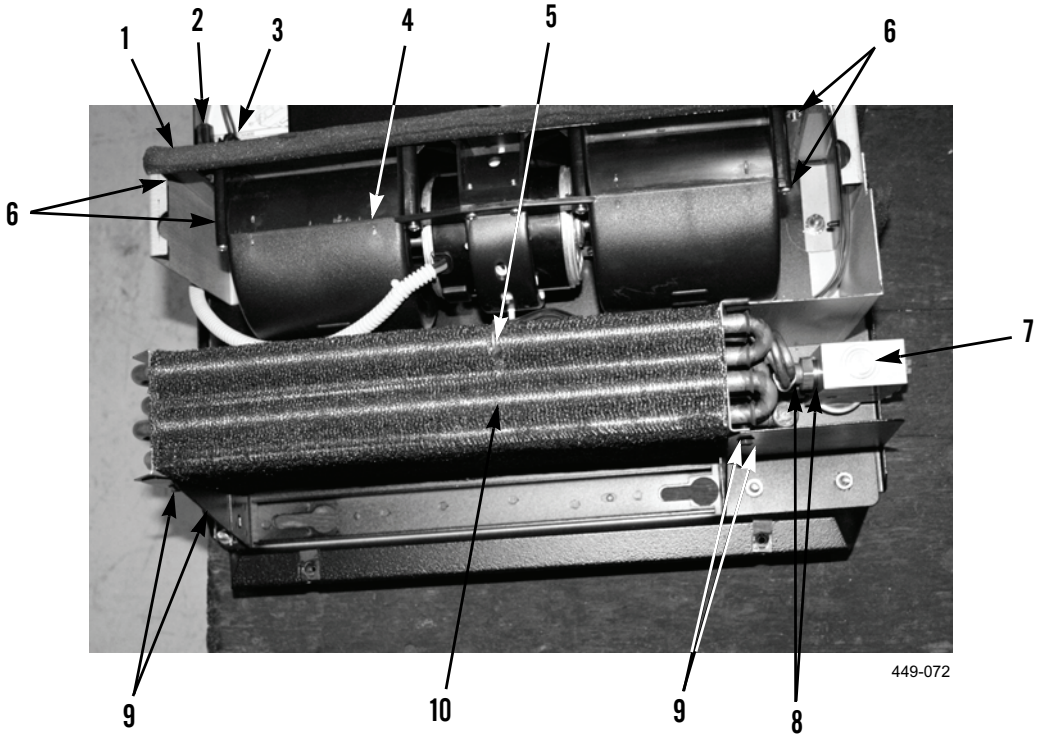


DISASSEMBLY

NOTE

Tag wires and hoses to aid in installation.

1. Remove thermostat probe (5) from evaporator core assembly (10).
2. Remove four screws (9) and evaporator core assembly (10) from evaporator assembly (1) and place on work surface.
3. Remove two fittings (8) and expansion valve (7) from evaporator assembly (1).
4. Remove four nuts (6), red wire power connector (2), black wire ground connector (3), and blower motor assembly (4) from evaporator assembly (1).

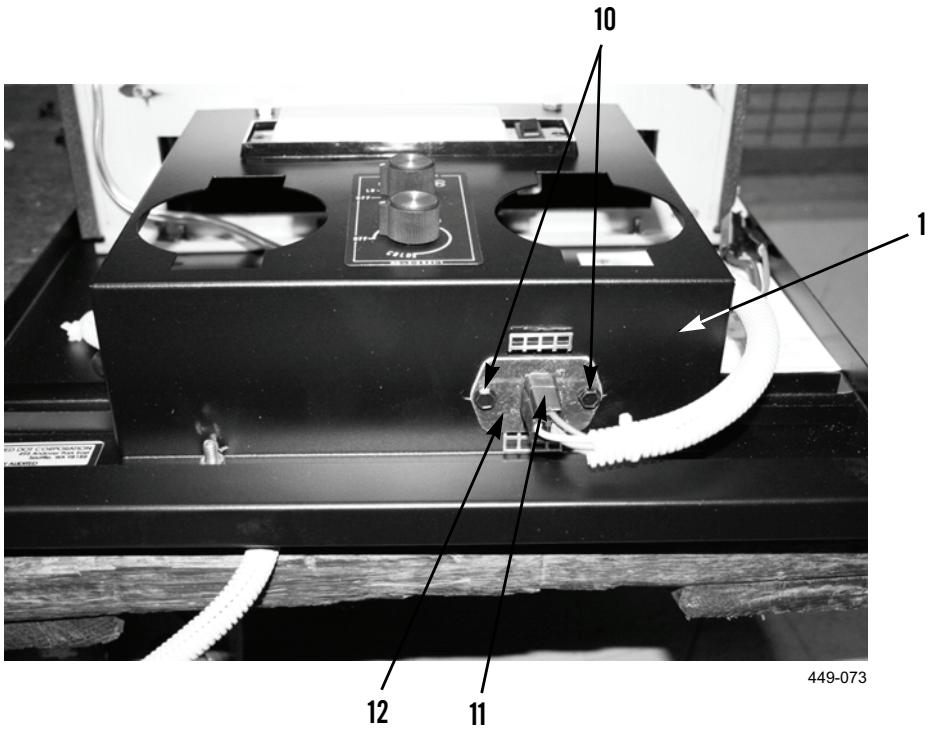


DISASSEMBLY - CONTINUED

NOTE

Tag wires and hoses to aid in installation.

5. Remove speed resistor cable connector (11), two screws (10), and speed resistor (12) from evaporator assembly (1).

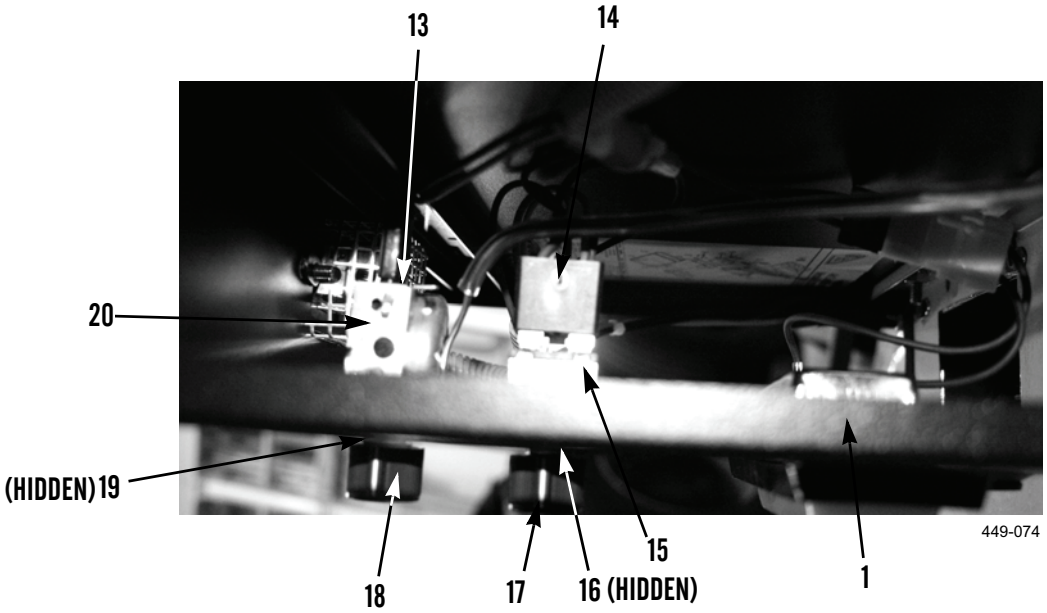


DISASSEMBLY - CONTINUED

NOTE

Tag wires and hoses to aid in installation.

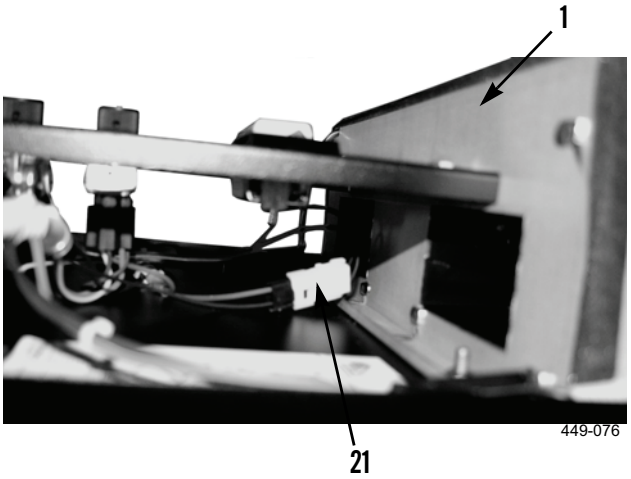
6. Remove A/C fan switch knob (17), A/C fan switch connector (14), nut (16), and A/C fan switch (15) from evaporator assembly (1).
7. Remove A/C thermostat knob (18), A/C thermostat connector (13), nut (19), and A/C thermostat (20) from evaporator assembly (1).



NOTE

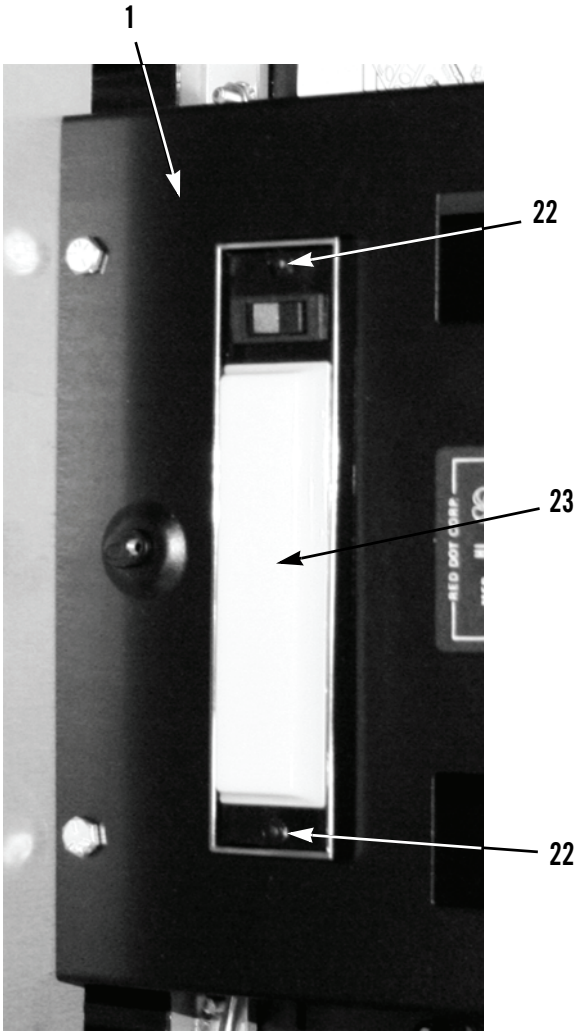
Tag wires and hoses to aid in installation.

8. Disconnect dome light connector (21) on evaporator assembly (1).



DISASSEMBLY - CONTINUED

9. Remove two screws (22) and dome light assembly (23) from evaporator assembly (1).



449-075

CLEANING AND INSPECTION

Clean and inspect all parts IAW *General Maintenance Instructions* (WP 0014 00).

ASSEMBLY

NOTE

Install wires as tagged during removal.

1. Install dome light assembly (23) and two screws (22) on evaporator assembly (1).

NOTE

Tag wires and hoses to aid in installation.

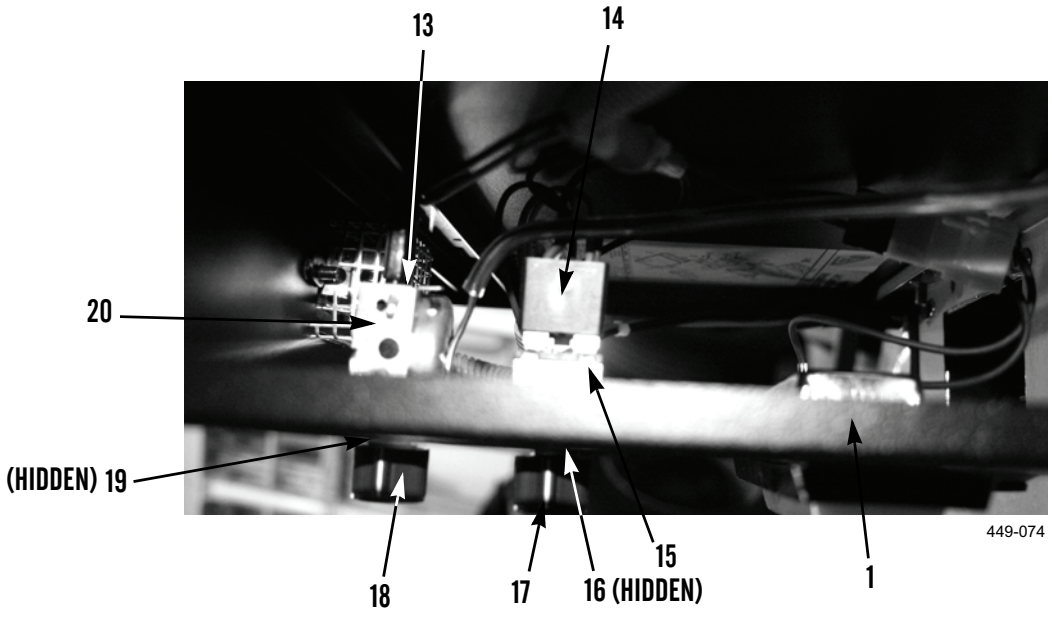
2. Connect dome light connector (21) to evaporator assembly (1).

ASSEMBLY - CONTINUED

NOTE

Tag wires and hoses to aid in installation.

3. Install A/C thermostat (20), nut (19), A/C thermostat connector (13), and A/C thermostat knob (18) on evaporator assembly (1).
4. Install A/C fan switch (15), nut (16), A/C fan switch connector (14), and A/C fan switch knob (17) on evaporator assembly (1).

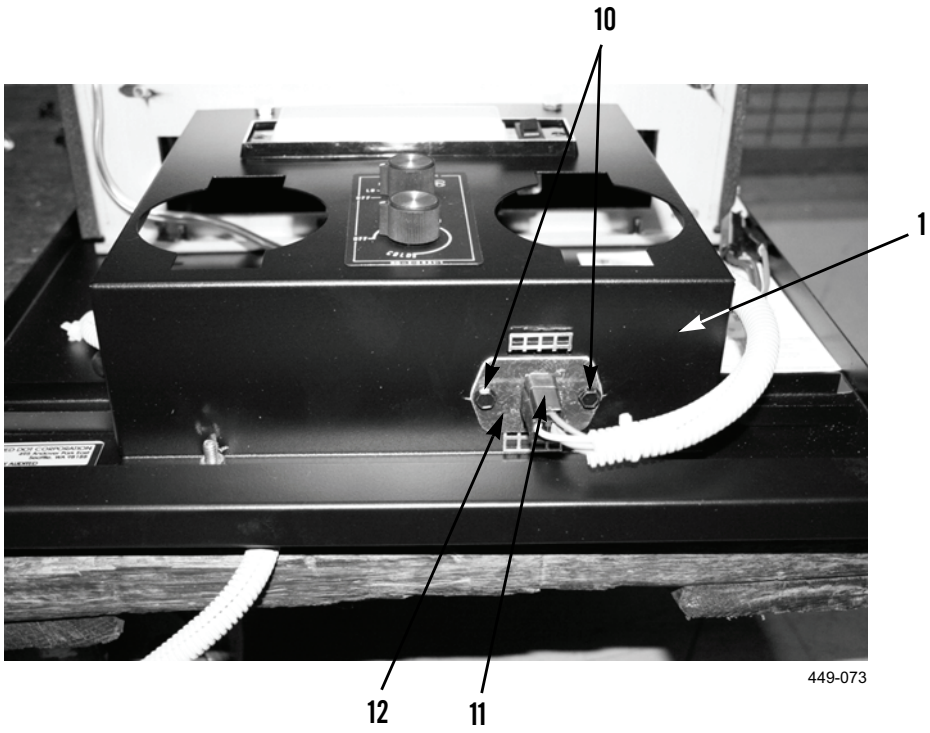


ASSEMBLY - CONTINUED

NOTE

Tag wires and hoses to aid in installation.

5. Install speed resistor (12), two screws (10), and speed resistor cable connector (11) on evaporator assembly (1).

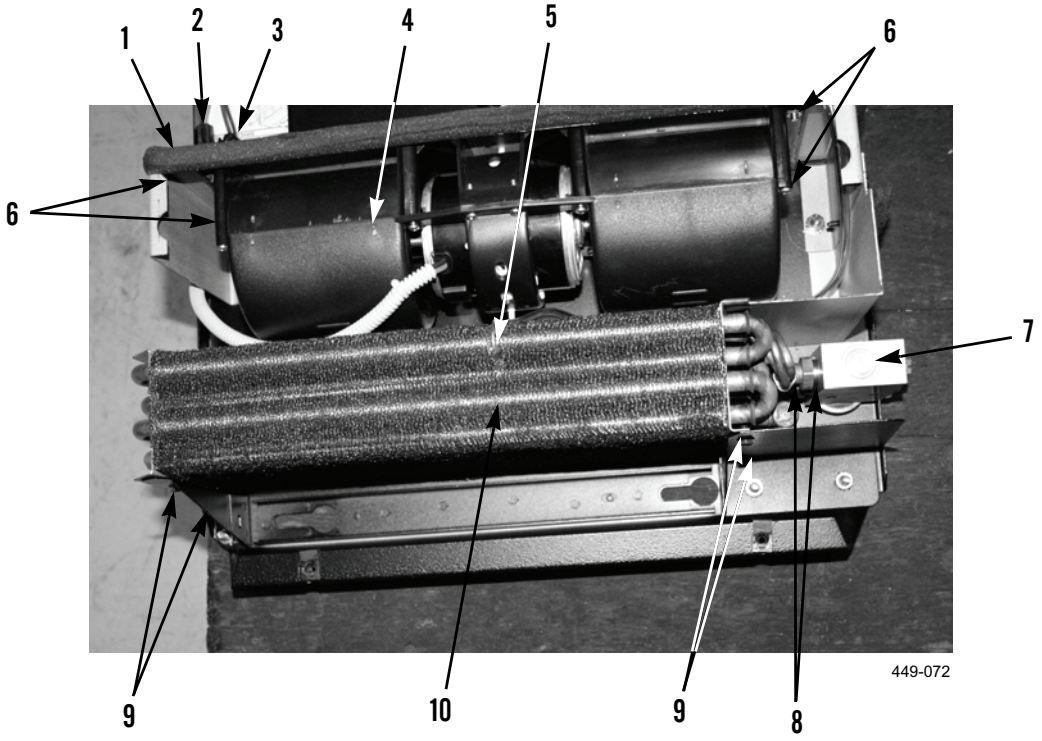


ASSEMBLY - CONTINUED

NOTE

Tag wires and hoses to aid in installation.

6. Install blower motor assembly (4), black wire ground connector (3), red wire power connector (2), and four nuts (6) on evaporator assembly (1).
7. Install expansion valve (7) and two fittings (8) on evaporator assembly (1).
8. Install evaporator core assembly (10) and four screws (9) on evaporator assembly (1).
9. Push thermostat probe (5) into evaporator core (10) fins as shown.



INSTALLATION

NOTE

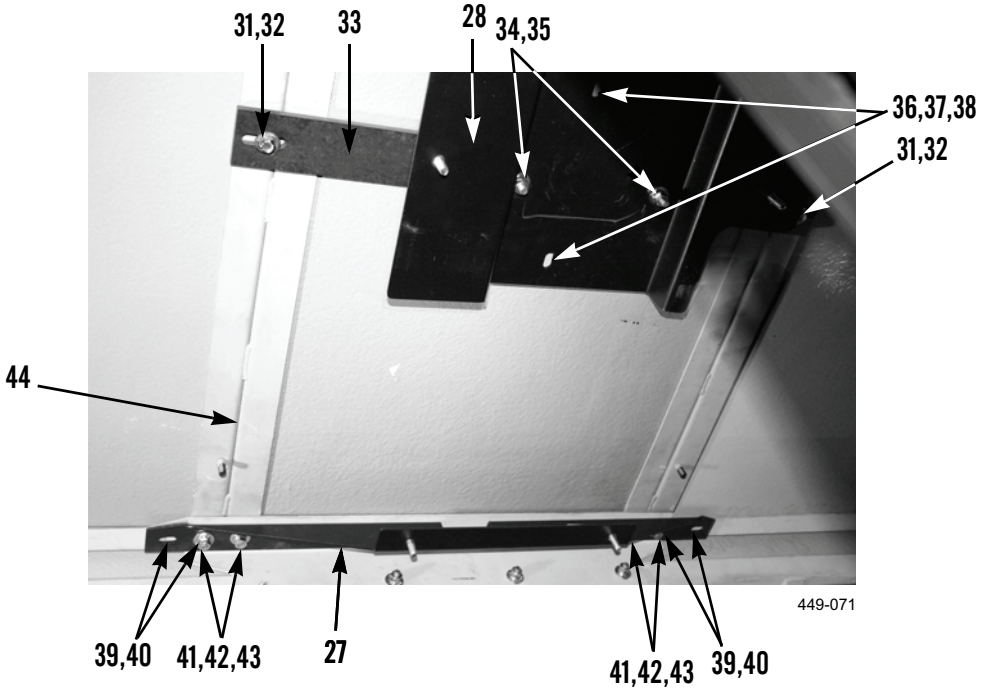
The Air Conditioning Kit can be installed on vehicles with TB 9-2320-302-13&P-1 or TB 9-2320-302-13&P-2 Crew Protection Kits. Perform steps 1 through 3 for TB 9-2320-302-13&P-2 Crew Protection Kit.

1. Install rear evaporator mounting bracket (27), four washers (43), new lockwashers (42), and nuts (41) on roof frame (44).
2. Install front evaporator bracket (33), two washers (32), and new locknuts (31) on roof frame (44).
3. Install front evaporator mounting bracket (28), two washers (35), and new locknuts (34) on front evaporator bracket (33).

NOTE

The Air Conditioning Kit can be installed on vehicles with TB 9-2320-302-13&P-1 or TB 9-2320-302-13&P-2 Crew Protection Kits. Perform steps 4 and 5 for TB 9-2320-302-13&P-1 Crew Protection Kit.

4. Install rear evaporator mounting bracket (27), four washers (40), and bolts (39) on roof assembly (44).
5. Install two thick washers (38), front evaporator mounting bracket (28), two washers (37), and bolts (36) on roof assembly (44).

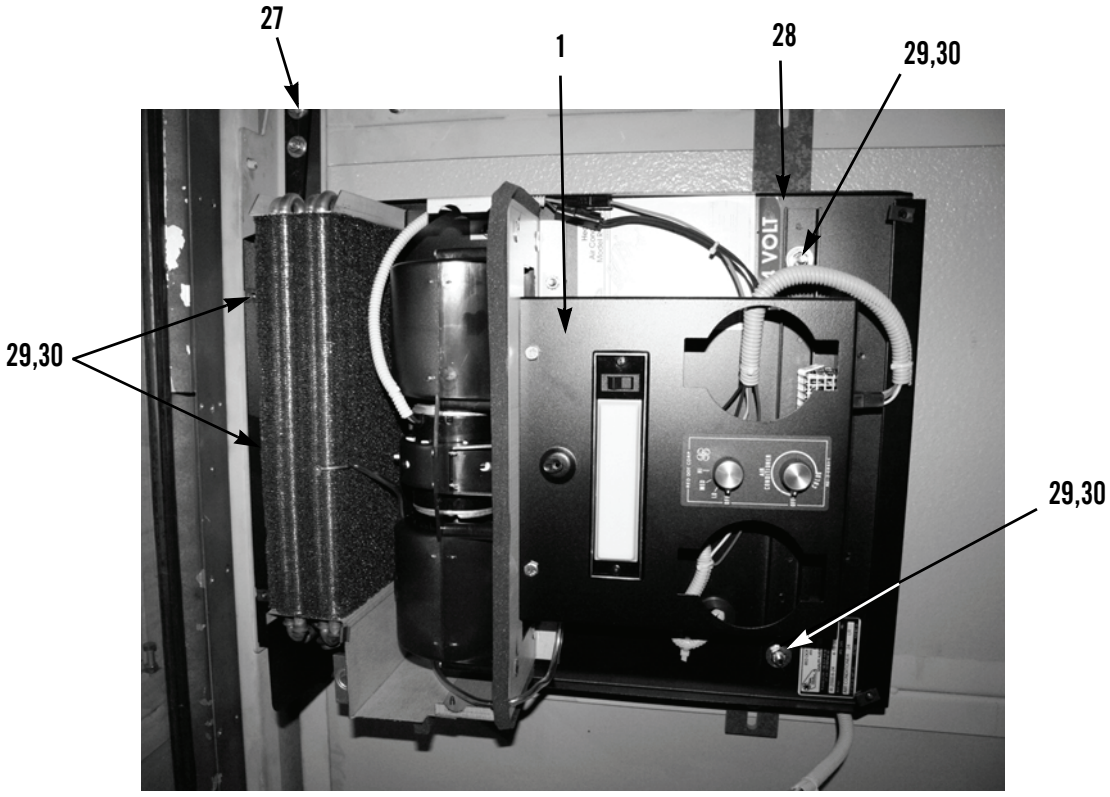


INSTALLATION - CONTINUED

WARNING

Evaporator assembly weighs approximately 24 lb (11 kg). Use extreme caution when handling heavy parts. Provide adequate support and use assistance during procedure. Failure to follow this warning may cause injury or death to personnel.

6. With assistance, install evaporator assembly (1), four washers (30), and nuts (29) on front evaporator mounting bracket (28) and rear evaporator mounting bracket (27).



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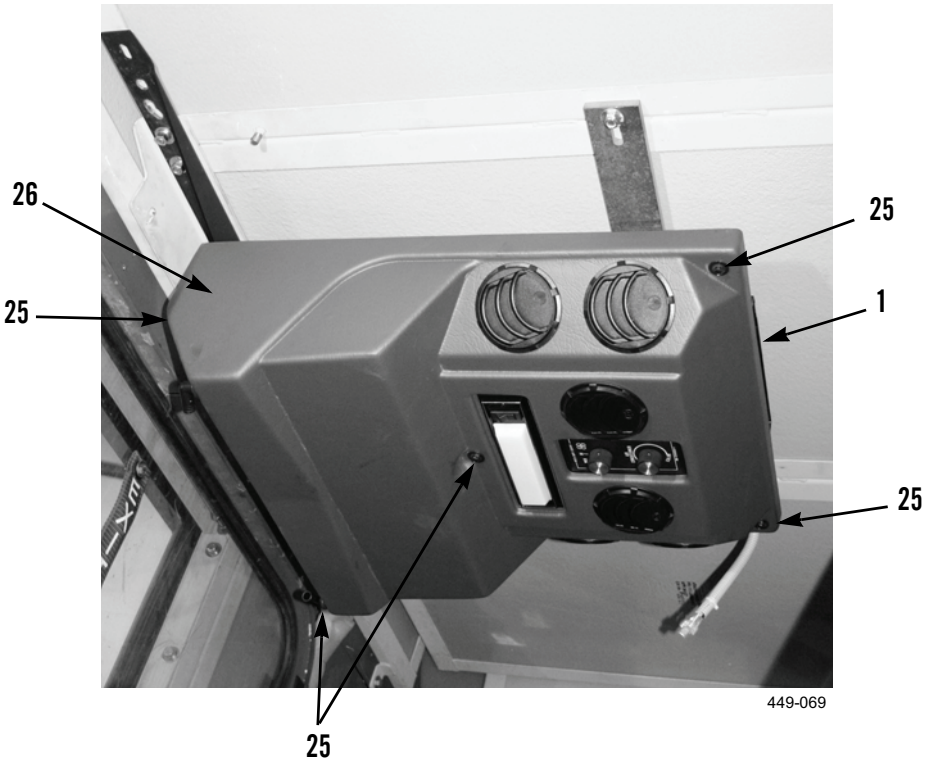
INSTALLATION - CONTINUED

7. Install evaporator assembly cover (26) and five screws with contained washers (25) on evaporator assembly (1).



INSTALLATION - CONTINUED

NOTE

Install hoses and wires as tagged during removal.

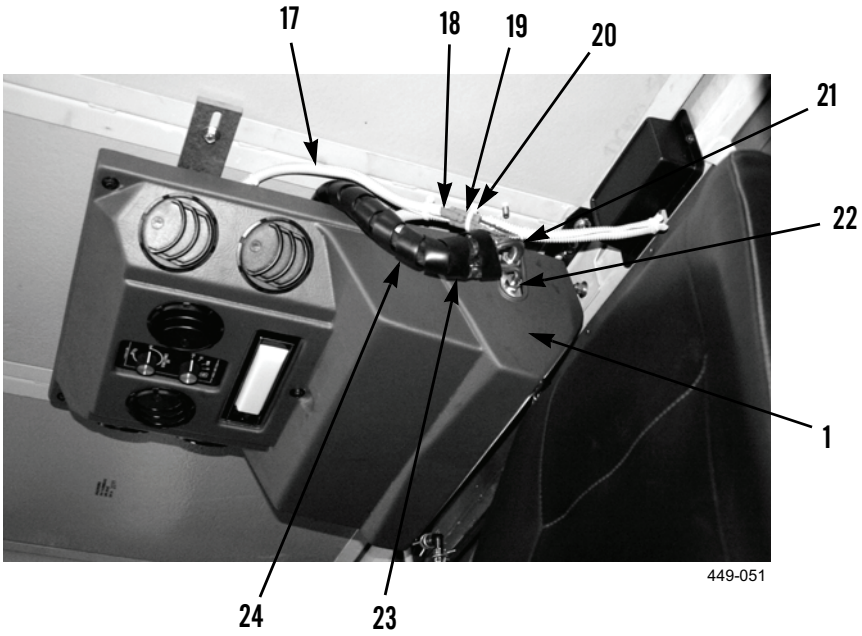
8. Connect RFI filter wiring harness connector (23) (yellow wire), connector (19) (black wire), and connector (18) (red wire) to evaporator wiring harness (17).

9. Install sprial wrap (24) and new tiedown strap (20) on evaporator wiring harness (17) as required.

- Contact with refrigerant can cause frostbite. Keep hands and face away to prevent personal injury.
- Protective face shield must always be worn when refrigerant lines are opened, even if the gauges indicate the system is empty.
- Always use caution if a fitting is removed. Slowly loosen the fitting. If the system is still under any pressure, release it slowly in a well-ventilated area.
- DO NOT smoke when servicing A/C or wherever refrigerant gas may be present.
- Failure to follow these warnings may result in injury or death to personnel.

10. Apply refrigerant oil to new O-ring, remove cap, and install A/C hose connection (22) on evaporator assembly (1).

11. Apply refrigerant oil to new O-ring, remove cap, and install A/C hose connection (21) on evaporator assembly (1).

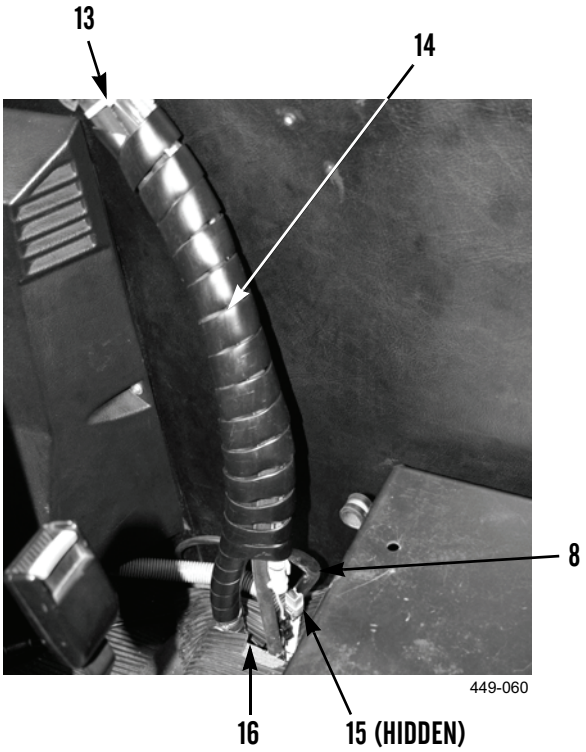


INSTALLATION - CONTINUED

NOTE

Install hoses and wires as tagged during removal.

12. Install duck bill fitting (15) on drain hose (8) and push through grommet (16) in floor of cab.
13. Install spiral wrap (14) and new tiedown straps (13) routing drain hose (8) along hose and wiring harness bundle leading to evaporator.

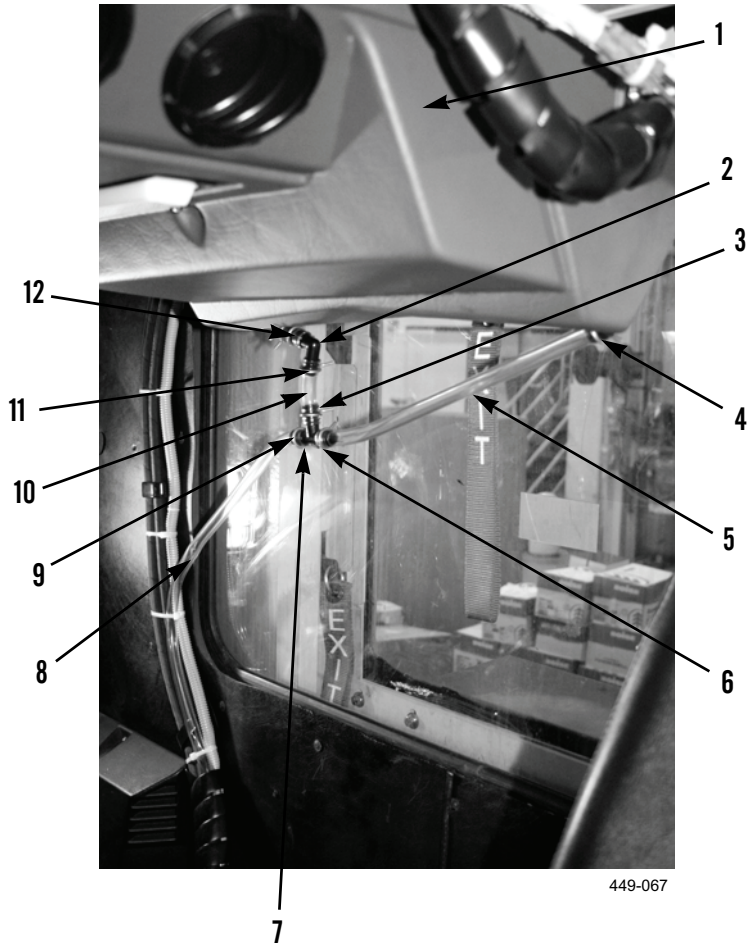


INSTALLATION - CONTINUED

NOTE

Install hoses and wires as tagged during removal.

14. Install elbow connector (2) and clip (12) on evaporator assembly (1).
15. Install drain hose (10) and clip (11) on elbow connector (2).
16. Install T-connector (7) and clip (3) on drain hose (10).
17. Install drain hose (8) and clip (9) on T-connector (7).
18. Install drain hose (5) and clip (4) on evaporator assembly (1).
19. Install drain hose (5) and clip (6) on T-connector (7).



20. Install air filter (WP 0010 00).
21. Evacuate and recharge A/C system (WP 0015 00).
22. Verify correct operation of A/C system (WP 0004 00).

END OF WORK PACKAGE

CONDENSER REPLACEMENT 0018 00

THIS WORK PACKAGE COVERS

Removal, Cleaning and Inspection, Installation

INITIAL SETUP

Maintenance Level

Direct Support

Tools and Special Tools

Tool Kit, General Mechanic's (Item 9, WP 0024 00)

Shop Equipment, Common No. 1 (Item 6, WP 0024 00)

Reclaimer, Refrigerant (Item 5, WP 0024 00)

Tool Kit, Refrigeration Equipment (Item 10, WP 0024 00)

Wrench Set, Torx (Item 11, WP 0024 00)

Materials/Parts

Oil, Lubricating, Refrigerant Compressor (Item 8, WP 0025 00)

Rag, Wiping (Item 9, WP 0025 00)

Materials/Parts - Continued

Tag, Marker (Item 13, WP 0025 00)

Locknut (4)

O-ring (2)

Personnel Required

Two

References

WP 0014 00

Equipment Conditions

Vehicle parked on level ground (TM 9-2320-363-10)

Parking/Emergency Brake applied (TM 9-2320-363-10)

Engine OFF (TM 9-2320-363-10)

Ignition Key Switch in OFF position (TM 9-2320-363-10)

A/C Refrigerant recovered (WP 0015 00)

WARNING

- Contact with refrigerant can cause frostbite. Keep hands and face away to prevent personal injury.
- Protective face shield must always be worn when refrigerant lines are opened, even if the gauges indicate the system is empty.
- Always use caution if a fitting is removed. Slowly loosen the fitting. If the system is still under any pressure, release it slowly in a well-ventilated area.
- DO NOT smoke when servicing A/C or wherever refrigerant gas may be present.
- Failure to follow these warnings may result in injury or death to personnel.

CAUTION

Cap all A/C hose ends and component connections during removal to protect against contamination. Failure to comply may cause damage to equipment.

REMOVAL

NOTE

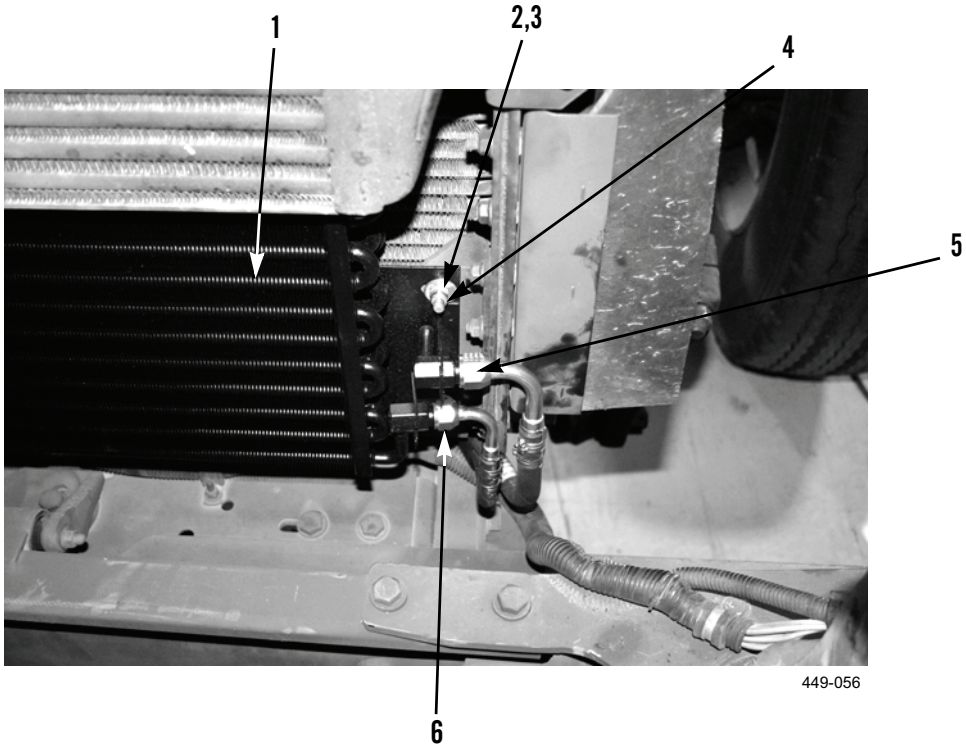
Tag wires and hoses to aid in installation.

1. Remove A/C hose (5) from condenser (1). Discard O-ring.
2. Remove A/C hose (6) from condenser (1). Discard O-ring.

WARNING

A/C condenser weighs approximately 40 lb (18 kg). Use caution when handling heavy parts. Provide adequate support and use assistance during procedure. Failure to follow this warning may cause injury to personnel.

3. Remove four locknuts (2), washers (3), and condenser (1) from four mounting studs (4). Discard locknuts.



CLEANING AND INSPECTION

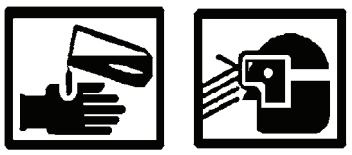
Clean and inspect all parts IAW *General Maintenance Instructions* (WP 0014 00).

INSTALLATION

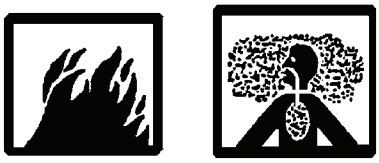
WARNING

A/C condenser weighs approximately 40 lb (18 kg). Use extreme caution when handling heavy parts. Provide adequate support and use assistance during procedure. Failure to follow this warning may cause injury to personnel.

1. Install condenser (1), four washers (3), and new locknuts (2) on four mounting studs (4).



WARNING



Use caution when using adhesives and sealants. Prolonged inhalation of vapors can cause lung irritation. Contact with skin can cause dermatitis. Wear gloves and safety goggles and use product in a well-ventilated area away from open flame. If ingested, keep individual calm and seek medical attention. DO NOT induce vomiting. If contact with skin or eyes is made, flush thoroughly with water. Dispose of cleanup rags IAW local policy and ordinances. Failure to follow this warning may cause injury to personnel.

NOTE

Install wires and hoses as tagged during removal.

2. Apply refrigerant oil to new O-ring and install A/C hose (6) on condenser (1).
3. Apply refrigerant oil to new O-ring and install A/C hose (5) on condenser (1).
4. Evacuate and recharge A/C system (WP 0015 00).

END OF WORK PACKAGE

RECEIVER/DRYER REPLACEMENT 0019 00

THIS WORK PACKAGE COVERS

Removal, Cleaning and Inspection, Installation

INITIAL SETUP

Maintenance Level

Direct Support

Tools and Special Tools

Tool Kit, General Mechanic's (Item 9, WP 0024 00)

Shop Equipment, Common No. 1 (Item 6, WP 0024 00)

Reclaimer, Refrigerant (Item 5, WP 0024 00)

Tool Kit, Refrigeration Equipment (Item 10, WP 0024 00)

Materials/Parts

Oil, Lubricating, Refrigerant Compressor (Item 8, WP 0025 00)

Rag, Wiping (Item 9, WP 0025 00)

Materials/Parts - Continued

Tag, Marker (Item 13, WP 0025 00)

Locknut (1)

O-ring (2)

References

WP 0014 00

Equipment Conditions

Vehicle parked on level ground (TM 9-2320-363-10)

Parking/Emergency Brake applied (TM 9-2320-363-10)

Engine OFF (TM 9-2320-363-10)

Ignition Key Switch in OFF position (TM 9-2320-363-10)

A/C Refrigerant recovered (WP 0015 00)

CAUTION

Cap all A/C hose ends and component connections during removal to protect against contamination. Failure to comply may cause damage to equipment.

REMOVAL

NOTE

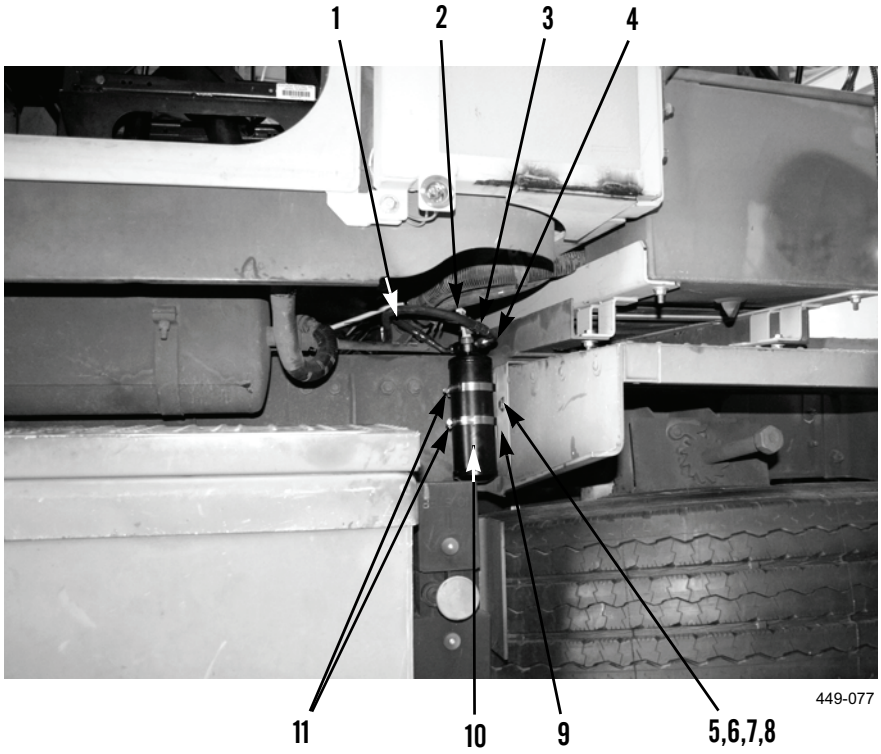
Tag wires and hoses to aid in installation.

1. Remove A/C hose (1) from receiver/dryer unit (10). Discard O-ring.
2. Remove A/C hose (4) from receiver/dryer unit (10). Discard O-ring.
3. Disconnect chassis wiring harness connector (2) and chassis wiring harness connector (3) from high pressure switches on receiver/dryer unit (10).

WARNING

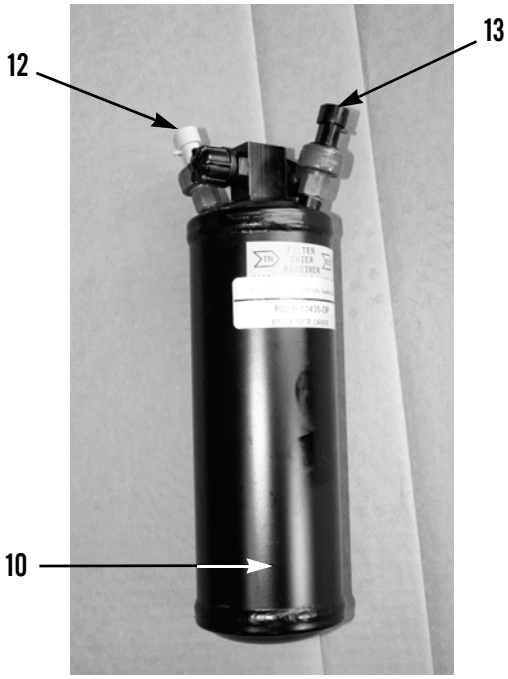
Receiver/dryer unit will fall when clamps are loosened. Support receiver/dryer while loosening clamps. Failure to comply may cause injury to personnel.

4. Remove locknut (8), washer (7), bolt (5), washer (6), bracket (9), and receiver/dryer unit (10) from vehicle. Discard locknut.
5. Loosen two clamps (11) and remove receiver/dryer unit (10) from bracket (9).



REMOVAL - CONTINUED

6. If required, remove engine fan pressure switch (12) (gray) from receiver/dryer unit (10).
7. If required, remove high pressure switch (13) (black) from receiver/dryer unit (10).



449-078

CLEANING AND INSPECTION

Clean and inspect all parts IAW *General Maintenance Instructions* (WP 0014 00).

INSTALLATION

1. If removed, install high pressure switch (13) (black) on receiver/dryer unit (10).
2. If removed, install engine fan pressure switch (12) (gray) on receiver/dryer unit (10).

WARNING

Receiver/dryer unit will fall until clamps are tightened. Support receiver/dryer while tightening clamps. Failure to comply may cause injury to personnel.

3. If removed, install receiver/dryer unit (10) inside two clamps (11) on bracket (9). Tighten clamps.

NOTE

Install wires and hoses as tagged during removal.

4. Install receiver/dryer unit (10) with bracket (9), washer (6), bolt (5), washer (7), and new locknut (8) on vehicle.
5. Connect chassis wiring harness connector (3) and chassis wiring harness connector (2) to receiver/dryer unit (10).
6. Apply refrigerant oil to new O-ring and install A/C hose (4) on receiver/dryer unit (10).
7. Apply refrigerant oil to new O-ring and install A/C hose (1) on receiver/dryer unit (10).
8. Evacuate and recharge A/C system (WP 0015 00).

END OF WORK PACKAGE

A/C HOSE REPLACEMENT 0020 00

THIS WORK PACKAGE COVERS

Removal, Cleaning and Inspection, Installation

INITIAL SETUP

Maintenance Level

Direct Support

Tools and Special Tools

Tool Kit, General Mechanic's (Item 9, WP 0024 00)

Shop Equipment, Common No. 1 (Item 6, WP 0024 00)

Reclaimer, Refrigerant (Item 5, WP 0024 00)

Tool Kit, Refrigeration Equipment (Item 10, WP 0024 00)

Materials/Parts

Oil, Lubricating, Refrigerant Compressor (Item 8, WP 0025 00)

Rag, Wiping (Item 9, WP 0025 00)

Refrigerant (Item 10, WP 0025 00)

Strap, Tiedown (Item 12, WP 0025 00)

Tag, Marker (Item 13, WP 0025 00)

Materials/Parts - Continued

Locknut (3)

O-ring (10)

References

WP 0014 00

Equipment Conditions

Vehicle parked on level ground (TM 9-2320-363-10)

Parking/Emergency Brake applied (TM 9-2320-363-10)

Engine OFF (TM 9-2320-363-10)

Ignition Key Switch in OFF position (TM 9-2320-363-10)

If equipped, Battery Disconnect Switch in OFF position (TM 9-2320-363-10), otherwise, disconnect battery cables (TM 9-2320-363-20-2)

Hood opened (TM 9-2320-363-10)

A/C Refrigerant recovered (WP 0015 00)

REMOVAL - CONTINUED

WARNING

- Contact with refrigerant can cause frostbite. Keep hands and face away to prevent personal injury.
- Protective face shield must always be worn when refrigerant lines are opened, even if the gauges indicate the system is empty.
- Always use caution if a fitting is removed. Slowly loosen the fitting. If the system is still under any pressure, release it slowly in a well-ventilated area.
- DO NOT smoke when servicing A/C or wherever refrigerant gas may be present.
- Failure to follow these warnings may result in injury or death to personnel.

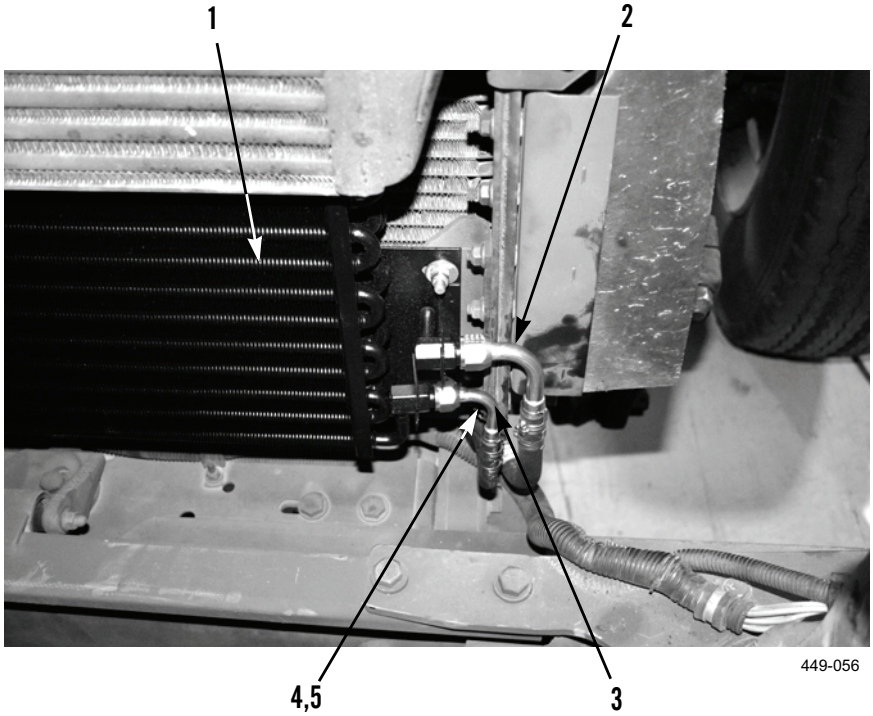
CAUTION

Cap all A/C hose ends and component connections during installation to protect against contamination. Failure to comply may cause damage to equipment.

NOTE

- Tag wires and hoses to aid in installation.
- Note routing of wires and hoses prior to removal to aid installation.

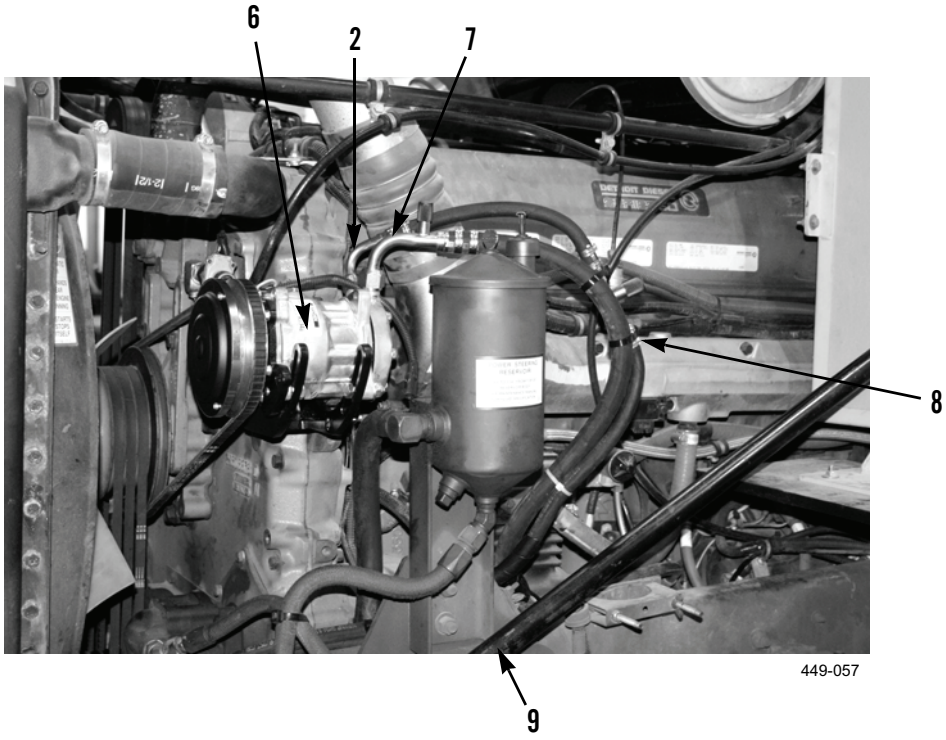
1. Remove A/C hose (2) connection from condenser (1). Discard O-rings.
2. Remove A/C hose (3) connection from condenser (1). Discard O-rings.
3. Remove tiedown straps (4) and spiral wrap (5) as necessary from A/C hoses (2 and 3). Discard tiedown straps.



449-056

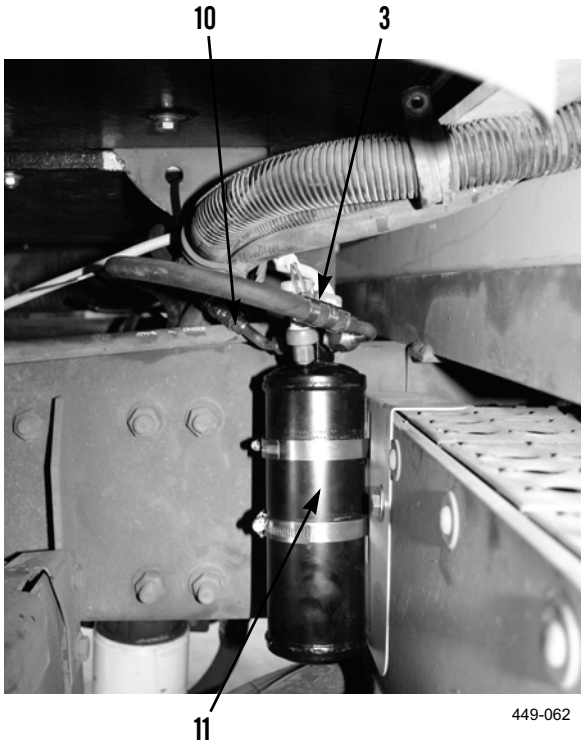
REMOVAL - CONTINUED

4. Remove A/C hose (2) connection from compressor (6). Discard O-rings.
5. Remove A/C hose (7) connection from compressor (6). Discard O-rings.
6. Remove tiedown straps (8) and spiral wrap (9) from A/C hose (2) and A/C hose (7). Discard tiedown straps.
7. Remove A/C hose (2) from vehicle.

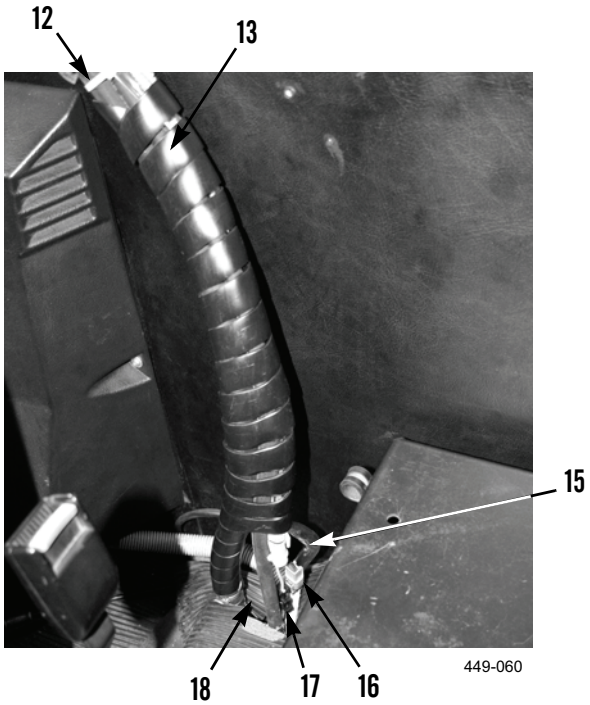


REMOVAL - CONTINUED

8. Remove A/C hose (10) connection from receiver/dryer (11). Discard O-rings.
9. Remove A/C hose (3) connection from receiver/dryer (11). Discard O-rings.
10. Remove tiedown straps and spiral wrap from A/C hoses from receiver/dryer and condenser on under side of cab. Discard tiedown straps.
11. Remove A/C hose (3) from vehicle.

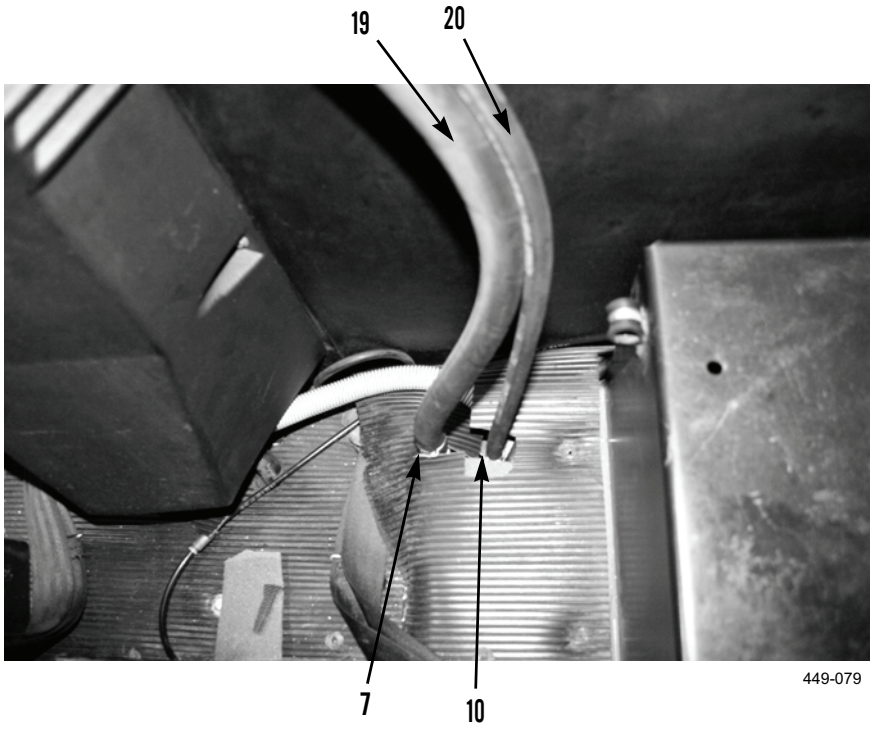


12. Remove tiedown straps (12) and spiral wrap (13) from A/C hoses. Discard tiedown straps.
13. Remove drain hose (15) from grommet (18) in cab floor.
14. Disconnect chassis harness connector (17) (yellow wire).
15. Disconnect power relay harness connector (16) (red and black wires).



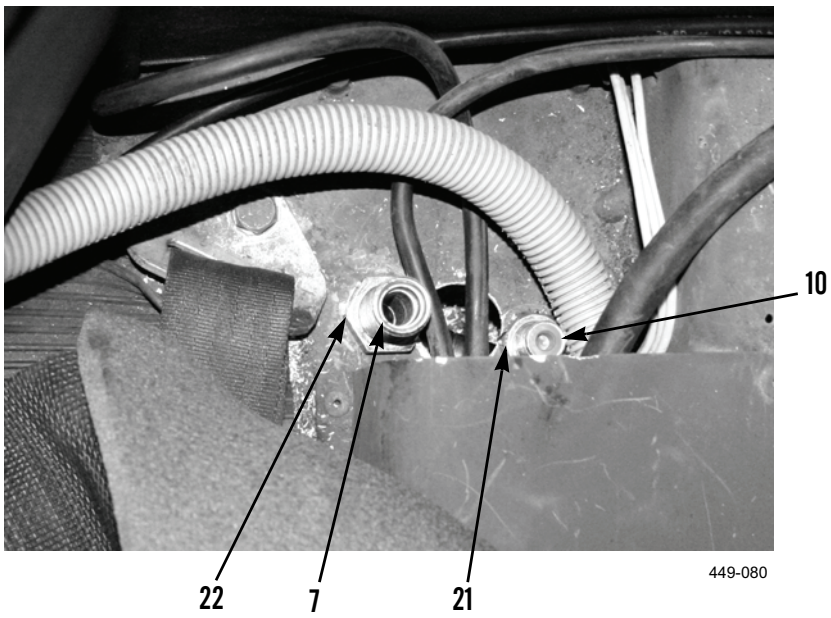
REMOVAL - CONTINUED

16. Remove A/C hose (19) connection from A/C hose (7) connection in floor of cab. Discard O-rings.
17. Remove A/C hose (20) connection from A/C hose (10) connection in floor of cab. Discard O-rings.



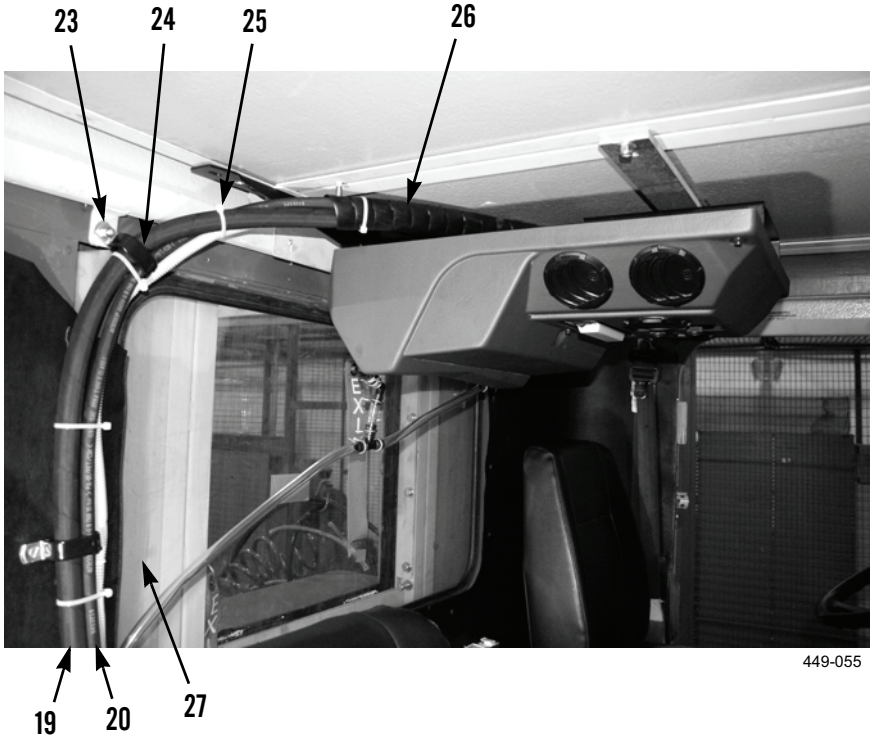
REMOVAL - CONTINUED

18. Remove nut (21) from A/C hose (10) connection.
19. Remove A/C hose (10) from under vehicle cab.
20. Remove nut (22) from A/C hose (7) connection.
21. Remove A/C hose (7) from under vehicle cab.



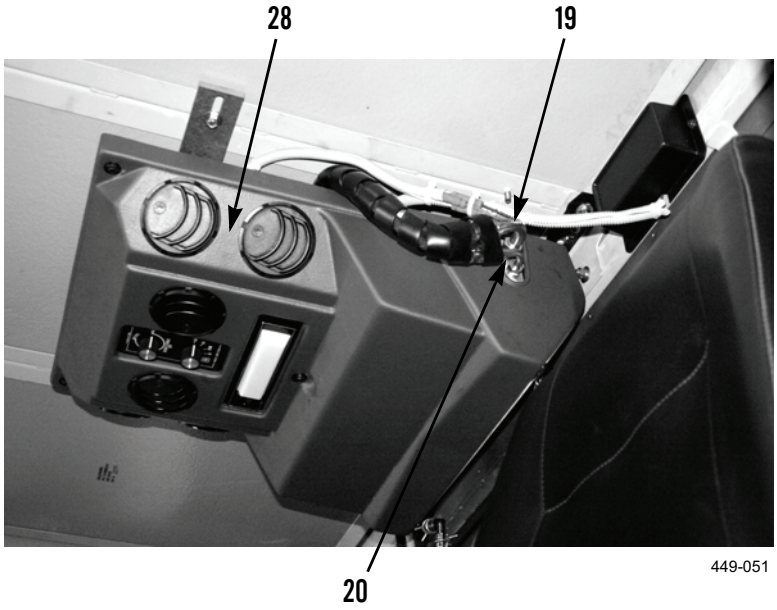
REMOVAL - CONTINUED

22. Remove three locknuts (23) (or other hose clamp mounting hardware) and hose clamps (24) from rear wall of vehicle (27). Discard locknuts.
23. Remove tiedown straps (25) and spiral wrap (26) from A/C hose (19) and A/C hose (20). Discard tiedown straps.



REMOVAL - CONTINUED

24. Remove A/C hose (19) connection from evaporator assembly (28). Discard O-rings.
25. Remove A/C hose (20) connection from evaporator assembly (28). Discard O-rings.
26. Remove A/C hose (19) and A/C hose (20) from vehicle.



CLEANING AND INSPECTION

Clean and inspect all parts IAW *General Maintenance Instructions* (WP 0014 00).

INSTALLATION

WARNING

- Contact with refrigerant can cause frostbite. Keep hands and face away to prevent personal injury.
- Protective face shield must always be worn when refrigerant lines are opened, even if the gauges indicate the system is empty.
- Always use caution if a fitting is removed. Slowly loosen the fitting. If the system is still under any pressure, release it slowly in a well-ventilated area.
- DO NOT smoke when servicing A/Cs or wherever refrigerant gas may be present.
- Failure to follow these warnings may result in injury or death to personnel.

INSTALLATION - CONTINUED

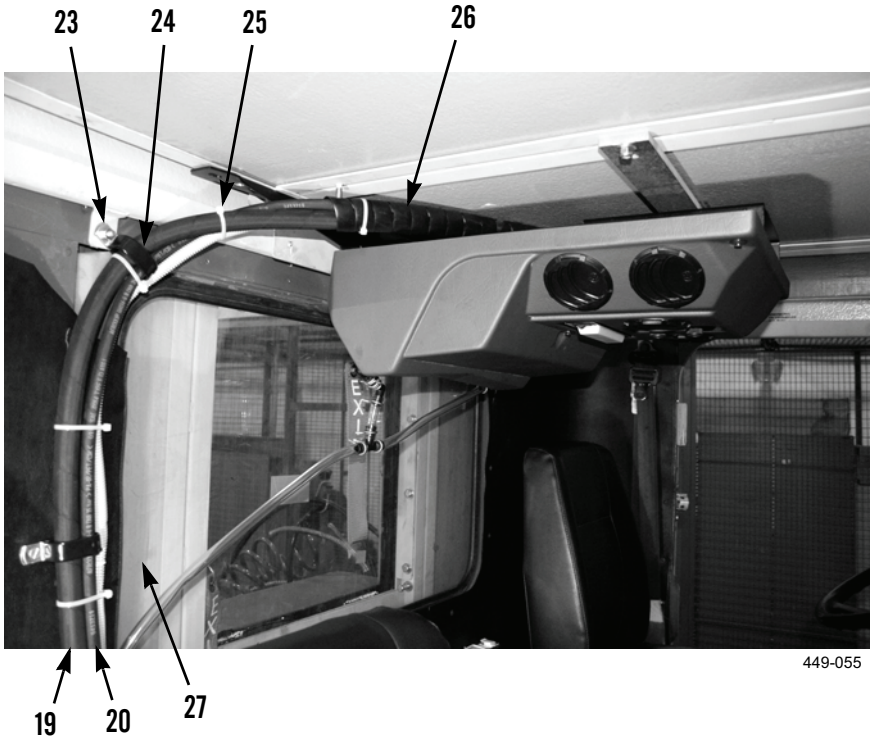
CAUTION

Cap all A/C hose ends and component connections during installation to protect against contamination. Failure to comply may cause damage to equipment.

NOTE

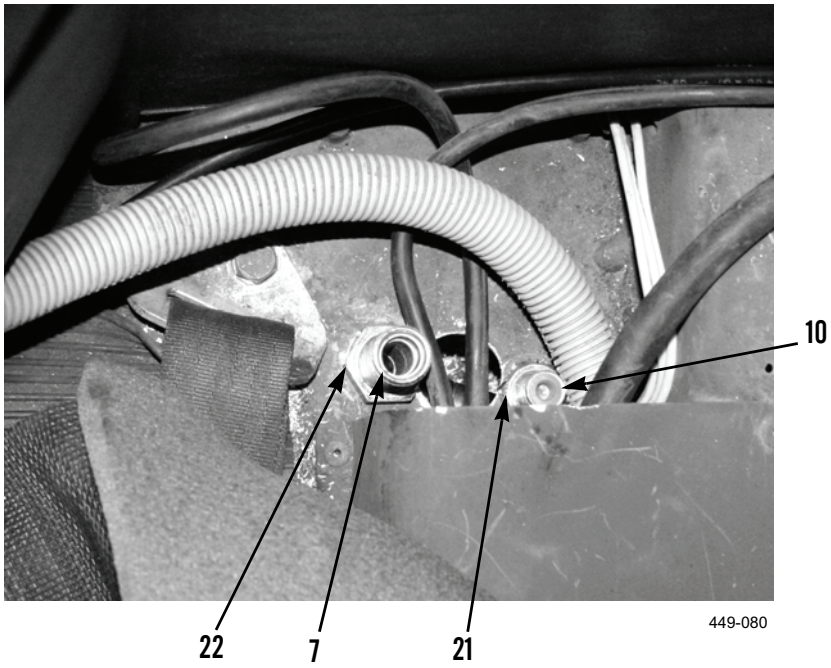
- Install hoses as tagged at removal.
- During installation, route hoses as noted during removal from vehicle.

1. Install A/C hose (20) and A/C hose (19) route from fittings on left side of evaporator assembly over the top and down the right side of the evaporator assembly.
2. Apply refrigerant oil to new O-ring and install A/C hose (20) connection on evaporator assembly (28).
3. Apply refrigerant oil to new O-ring and install A/C hose (19) connection on evaporator assembly (28).
4. Install spiral wrap (26) and new tiedown straps (25) on A/C hose (19) and A/C hose (20).
5. Install three hose clamps (24) and new locknuts (23) (or other hose clamp mounting hardware) on rear wall of vehicle (27).



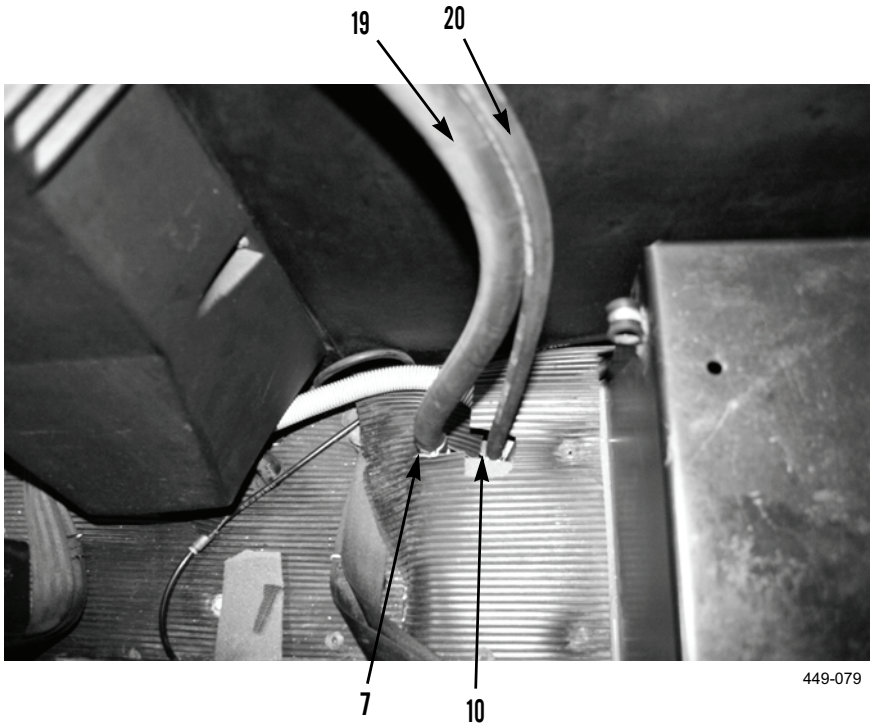
INSTALLATION - CONTINUED

6. Route A/C hose (7) connection under vehicle cab into hole in vehicle cab floor.
7. Install nut (22) on A/C hose (7) connection.
8. Route A/C hose (10) connection under vehicle cab into hole in vehicle cab floor.
9. Install nut (21) on A/C hose (10) connection.

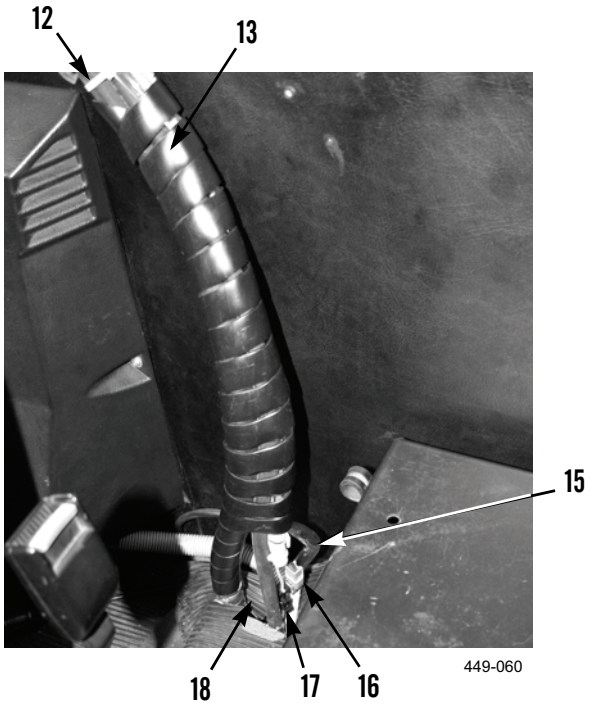


INSTALLATION - CONTINUED

10. Apply refrigerant oil to new O-ring and install A/C hose (20) connection to A/C hose (10) connection in floor of cab.
11. Apply refrigerant oil to new O-ring and install A/C hose (19) connection to A/C hose (7) connection in floor of cab.



12. Connect power relay harness connector (16) (red and black wires) to RFI filter harness.
13. Connect chassis harness connector (17) (yellow wire) to RFI filter harness.
14. Push drain hose (15) into grommet (18) in cab floor.
15. Install spiral wrap (13) and new tiedown straps (12) on A/C hoses.



INSTALLATION - CONTINUED

16. Route A/C hose (3) from receiver/dryer along inside right frame rail of vehicle.
17. Apply refrigerant oil to new O-ring and install A/C hose (3) connection to receiver/dryer (11) inlet side.
18. Install spiral wrap and new tiedown straps on A/C hose (3) from receiver/dryer to condenser on under side of cab.
19. Apply refrigerant oil to new O-ring and install A/C hose (10) connection to receiver/dryer (11) outlet side.
20. Install spiral wrap and new tiedown straps on A/C hose (10) from receiver/dryer to connection on under side of cab.

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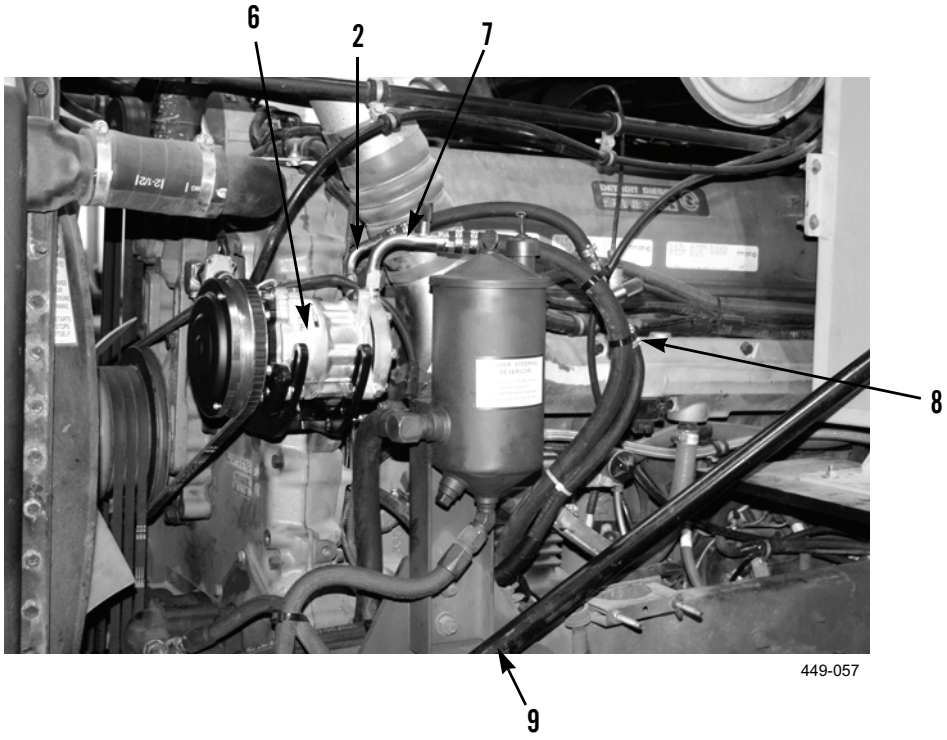
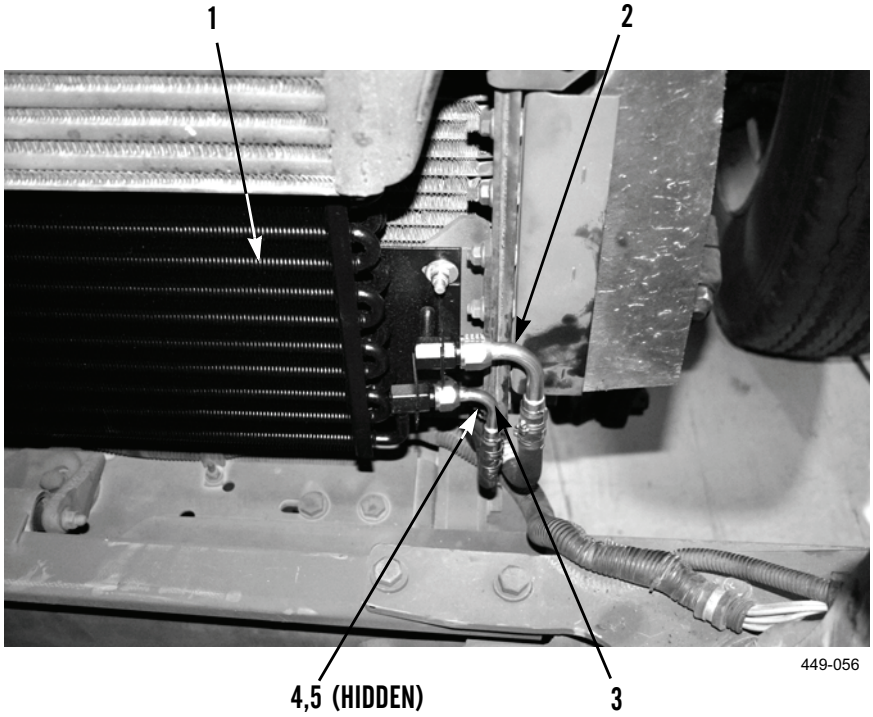
INSTALLATION - CONTINUED

21. Route A/C hose (2) from compressor to condenser.
22. Install new tiedown straps (8) and spiral wrap (9) on A/C hose (2) and A/C hose (7) up to compressor.
23. Apply refrigerant oil to new O-ring and install A/C hose (7) connection to compressor (6).
24. Apply refrigerant oil to new O-ring and install A/C hose (2) connection to compressor (6).



INSTALLATION - CONTINUED

25. Install new tiedown straps (4) and spiral wrap (5) as necessary on A/C hoses (2) and (3) routing them under the radiator to the condenser connections.
26. Apply refrigerant oil to new O-ring and install A/C hose (3) connection to condenser (1).
27. Apply refrigerant oil to new O-ring and install A/C hose (2) connection to condenser (1).



28. Evacuate and recharge A/C system (WP 0015 00).
29. Close hood (TM 9-2320-363-10).
30. Connect battery cables (TM 9-2320-363-20).

END OF WORK PACKAGE

A/C WIRING HARNESS REPLACEMENT 0021 00

THIS WORK PACKAGE COVERS

Removal, Cleaning and Inspection, Installation

INITIAL SETUP

Maintenance Level

Direct Support

Tools and Special Tools

Tool Kit, General Mechanic's (Item 9, WP 0024 00)

Shop Equipment, Common No. 1 (Item 6, WP 0024 00)

Tool Kit, Refrigeration Equipment (Item 10, WP 0024 00)

Materials/Parts

Oil, Lubricating, Refrigerant Compressor (Item 8, WP 0025 00)

Rag, Wiping (Item 9, WP 0025 00)

Refrigerant (Item 10, WP 0025 00)

Strap, Tiedown (Item 12, WP 0025 00)

Tag, Marker (Item 13, WP 0025 00)

References

WP 0014 00

Equipment Conditions

Vehicle parked on level ground (TM 9-2320-363-10)

Parking/Emergency Brake applied (TM 9-2320-363-10)

Engine OFF (TM 9-2320-363-10)

Ignition Key Switch in OFF position (TM 9-2320-363-10)

If equipped, Battery Disconnect Switch in OFF position (TM 9-2320-363-10), otherwise, disconnect battery cables (TM 9-2320-363-20-2)

Hood opened (TM 9-2320-363-10)

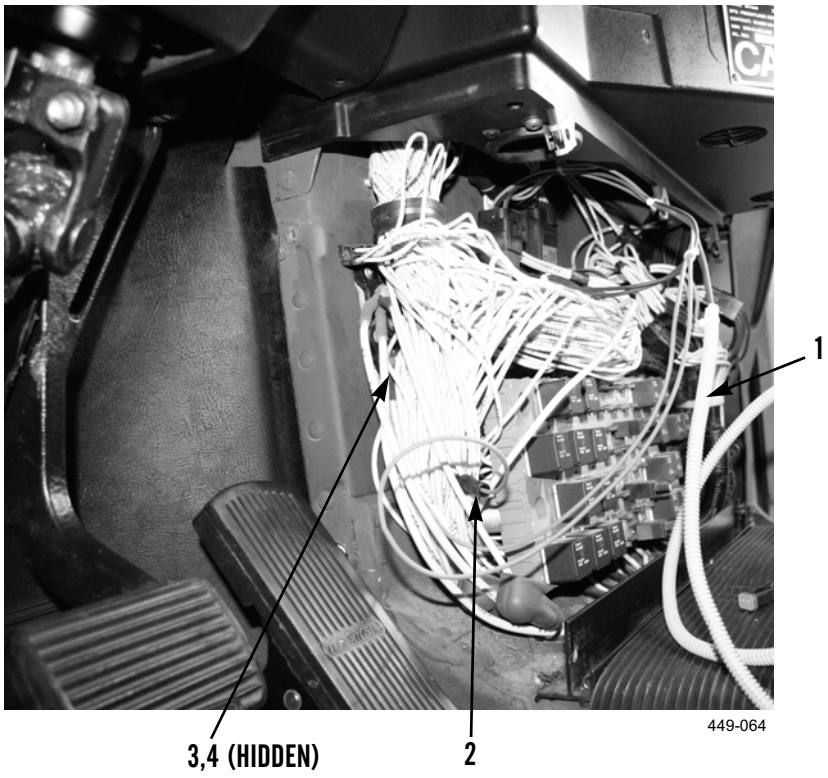
Fuse Access Panel removed (TM 9-2320-363-20-1)

REMOVAL

NOTE

- Tag wires and wiring harnesses to aid in installation.
- Note routing of wiring harness prior to removal to aid installation.

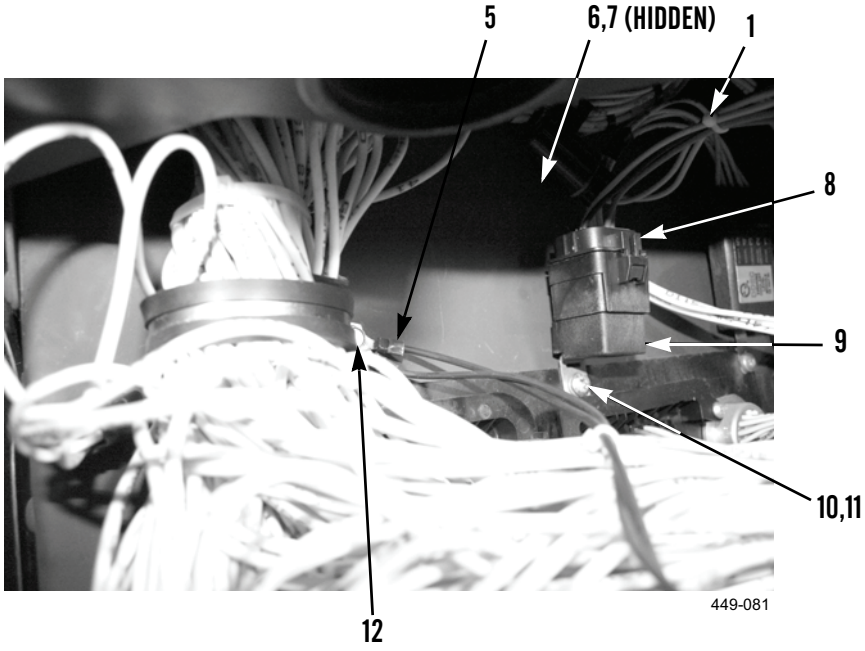
1. Remove nut (3) and orange wire connector (4) of power relay harness (1) from 24 VDC stud.
2. Disconnect green wire on power relay harness (1) from splice connector (2) connected to wire No. 18.



A/C WIRING HARNESS REPLACEMENT - CONTINUED 0021 00

REMOVAL - CONTINUED

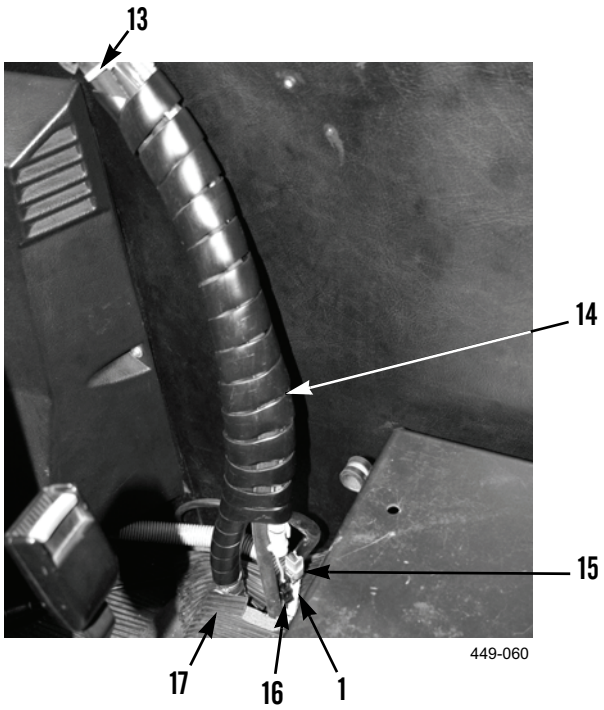
3. Remove screw (12) and two black wire connectors (5) from ground connection.
4. Remove wire tie (6) and fuse (7) from power relay harness (1).
5. Remove screw (10) and washer (11) from power relay (9).
6. Disconnect power relay connector (8) from power relay (9).



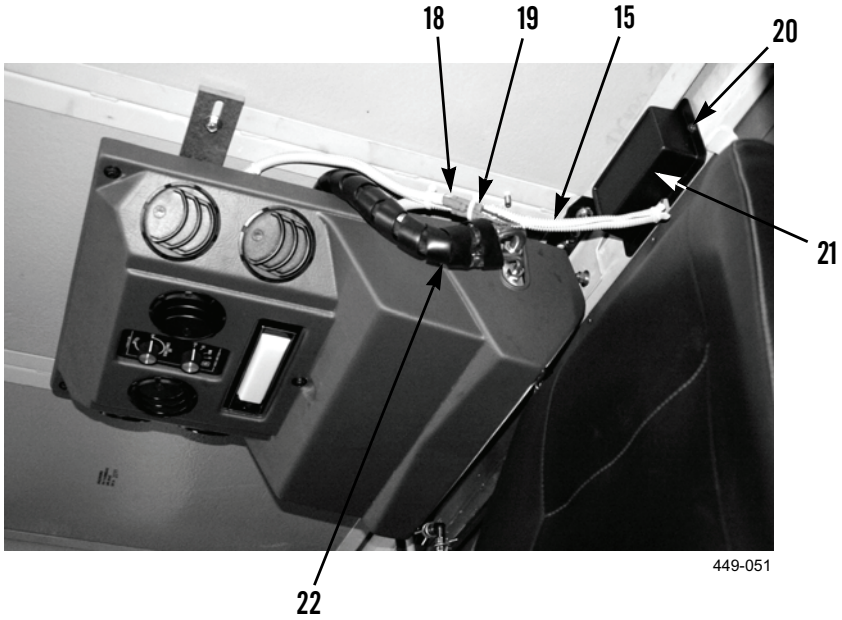
A/C WIRING HARNESS REPLACEMENT - CONTINUED 0021 00

REMOVAL - CONTINUED

7. Remove tiedown straps (13) and spiral wrap (14) from RFI filter wiring harness (15) and A/C hoses. Discard tiedown straps.
8. Disconnect chassis wiring harness connector (16) (yellow wire) from RFI filter wiring harness (15).
9. Disconnect power relay wiring harness (1) (red and black wires) connector from RFI filter wiring harness (15).
10. Remove power relay wiring harness (1) from under wire tunnel (17).

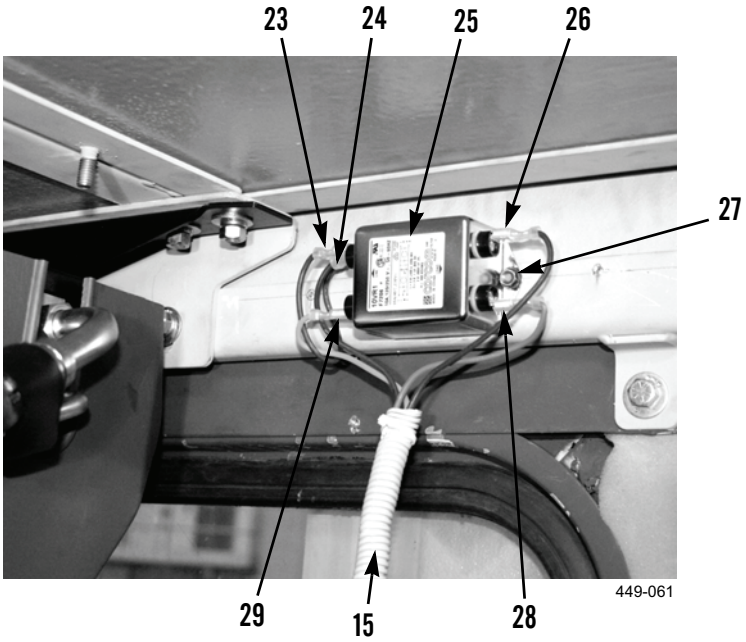


11. Disconnect evaporator wiring harness connector (18) (red wire), connector (19) (black wire), and connector (22) (yellow wire) from RFI filter wiring harness (15).
12. Remove two screws (20) and RFI filter cover (21) from rear of cab.

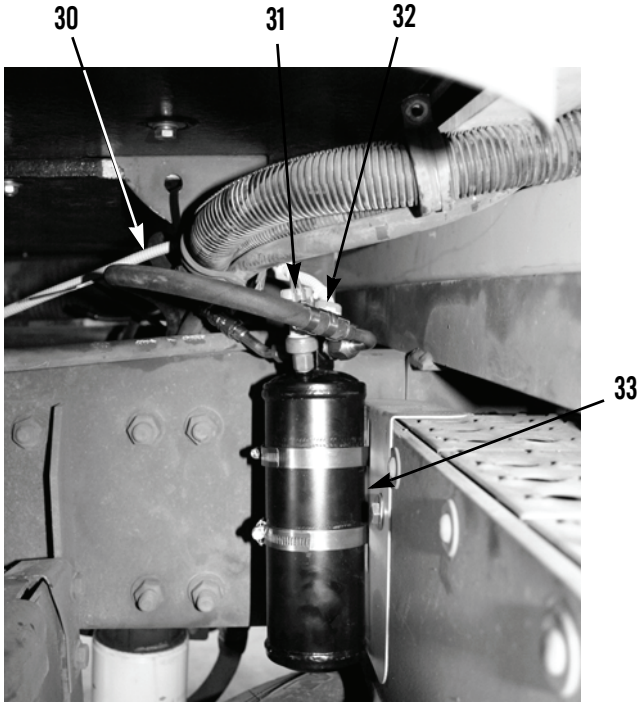


REMOVAL - CONTINUED

13. Disconnect RFI wiring harness connector (23) (black wire), connector (24) (black wire), connector (29) (orange wire), connector (26) (black wire), connector (28) (red wire), and RFI wiring harness (15) from RFI filter (25).
14. Remove two screws (27) and RFI filter (25) from rear of cab.

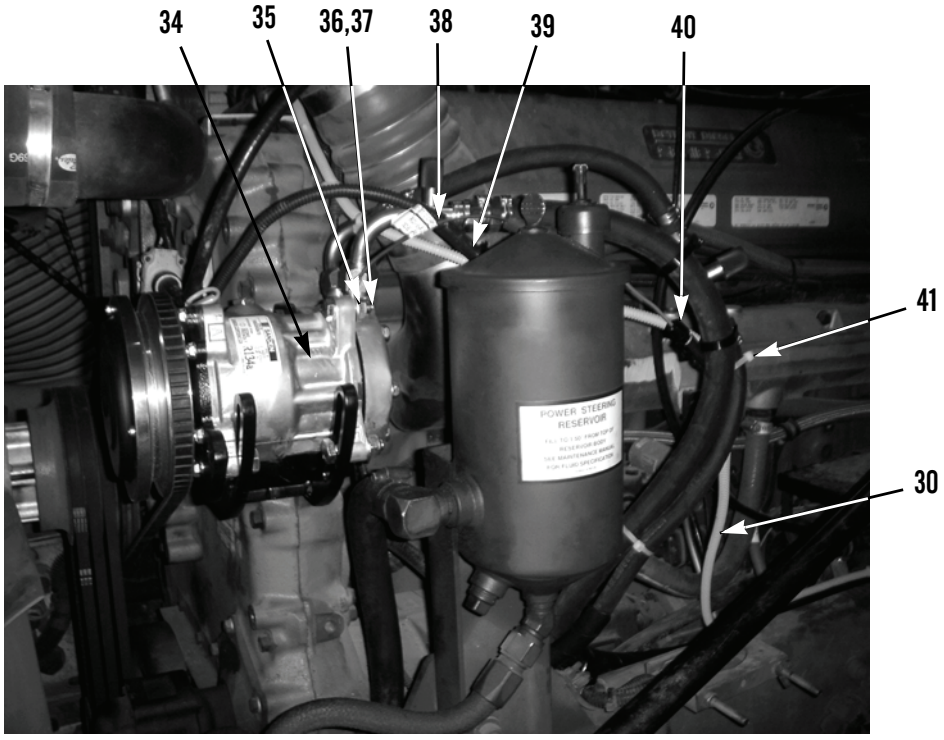


15. Remove tiedown straps from chassis wiring harness (30) under vehicle cab. Discard tiedown straps.
16. Disconnect engine fan pressure switch connector (31) and high pressure switch connector (32) from receiver/dryer (33).



REMOVAL - CONTINUED

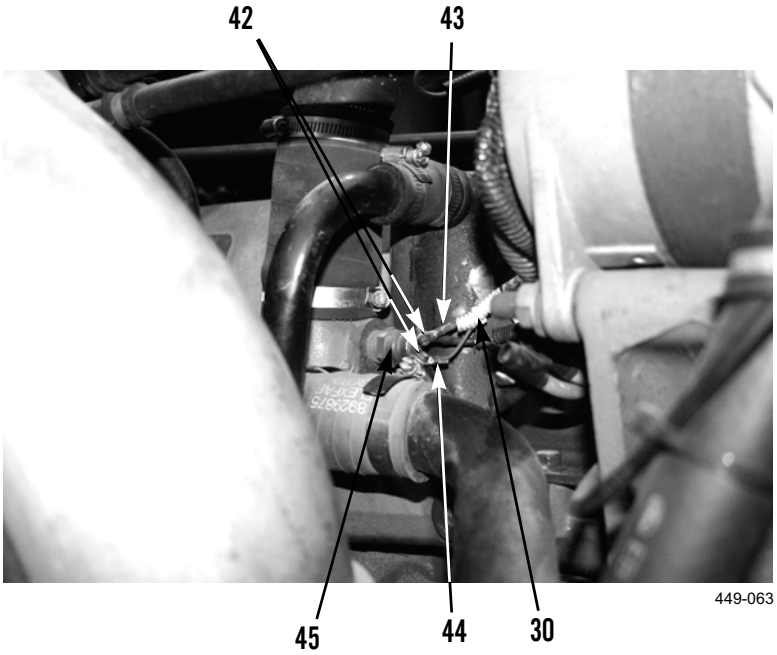
17. Remove tiedown straps (41) from chassis wiring harness (30) along A/C hoses. Discard tiedown straps.
18. Disconnect diode assembly connector (40) from chassis wiring harness (30).
19. Disconnect diode assembly connector (38) from compressor cable (34).
20. Remove locknut (36), bolt (37), diode connector (35), and diode assembly (39) from vehicle.



449-082

REMOVAL - CONTINUED

21. Remove two screws (42), chassis wiring harness connector (43) (red wire), chassis wiring harness connector (44) (purple wire), and chassis wiring harness (30) from engine coolant temperature switch (45).



CLEANING AND INSPECTION

Clean and inspect all parts IAW *General Maintenance Instructions* (WP 0014 00).

INSTALLATION

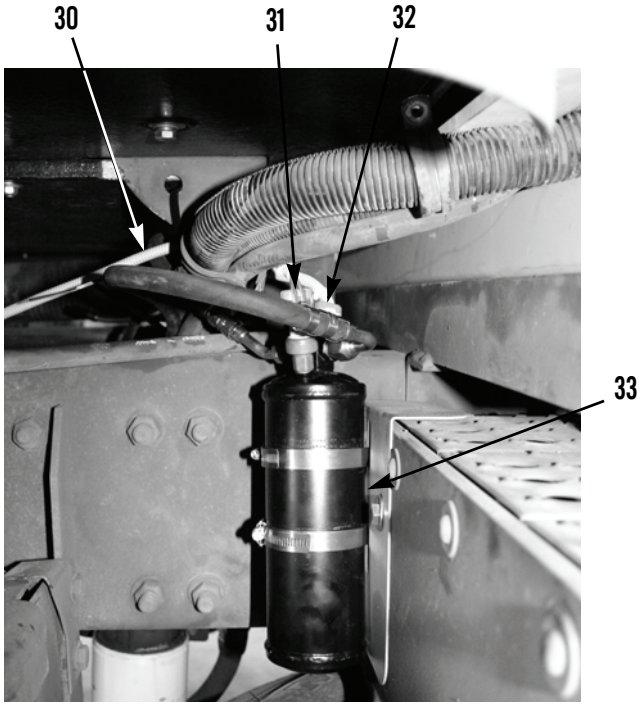
NOTE

- Install wires and wiring harness as tagged at removal.
- During installation, route wiring harnesses as noted during removal.

1. Install chassis wiring harness (30), chassis wiring harness connector (44) (purple wire), chassis wiring harness connector (43) (red wire), and two screws (42) on engine coolant temperature switch (45).
2. Install diode assembly (39), diode connector (35), locknut (36), and bolt (37) on vehicle.
3. Connect diode assembly connector (38) to compressor cable (34).
4. Connect diode assembly connector (40) to chassis wiring harness (30).
5. Install new tiedown straps (41) on chassis wiring harness (30) along A/C hoses to compressor.

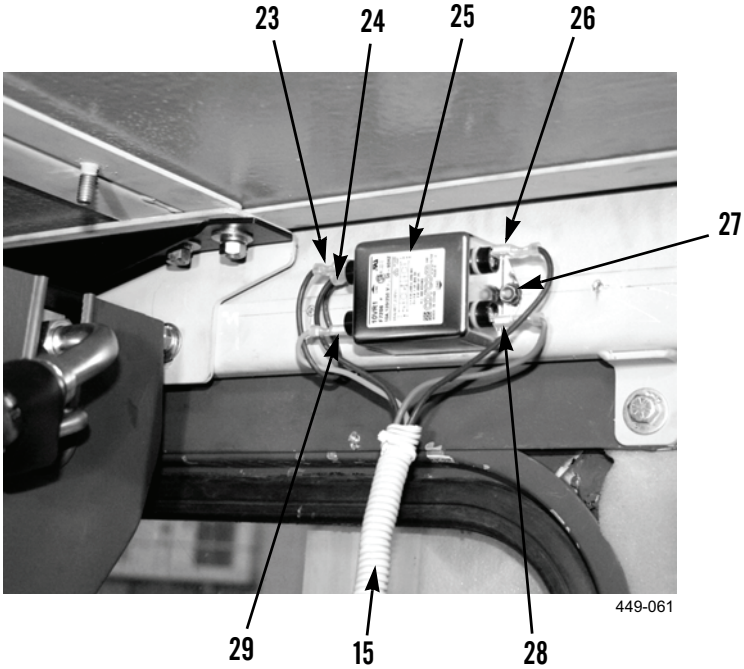
INSTALLATION - CONTINUED

6. Connect high pressure switch connector (32) and engine fan pressure switch connector (31) to receiver/dryer (33).
7. Install new tiedown straps on chassis wiring harness (30) under vehicle cab.



449-062

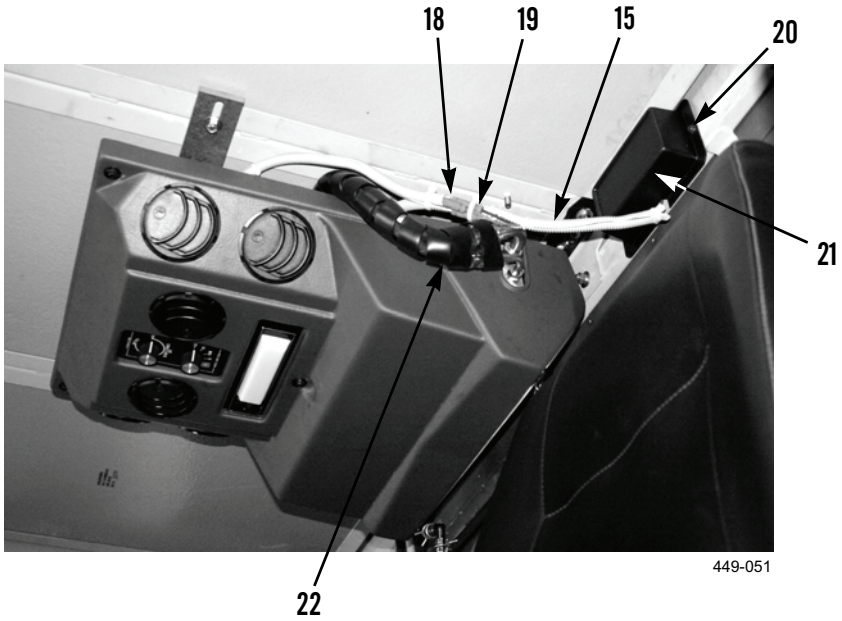
8. Install RFI filter (25) and two screws (27) on rear of cab.
9. Connect RFI wiring harness (15), RFI wiring harness connector (28) (red wire), connector (26) (black wire), connector (29) (orange wire), connector (24) (black wire), and connector (23) (black wire) to RFI filter (25).



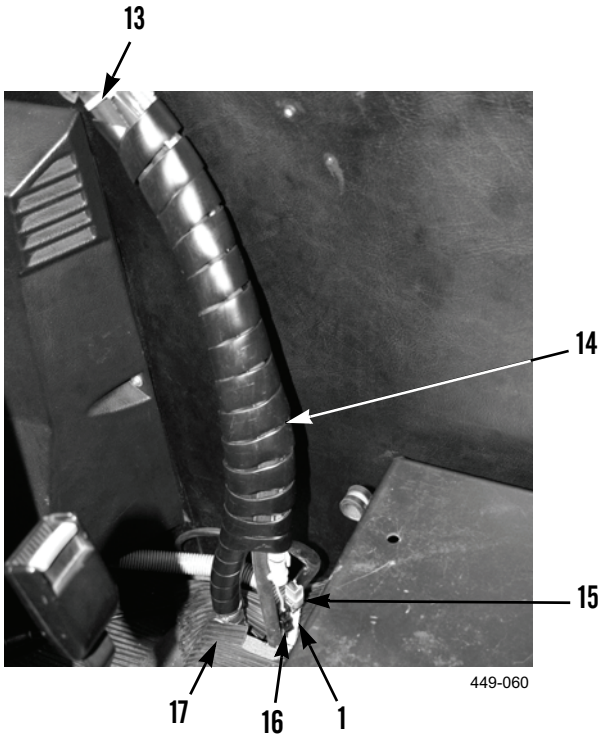
449-061

INSTALLATION - CONTINUED

10. Install two screws (20) and RFI filter cover (21) on rear of cab.
11. Connect Evaporator wiring harness connector (22) (yellow wire), connector (19) (black wire), and connector (18) (red wire) to RFI filter wiring harness (15).

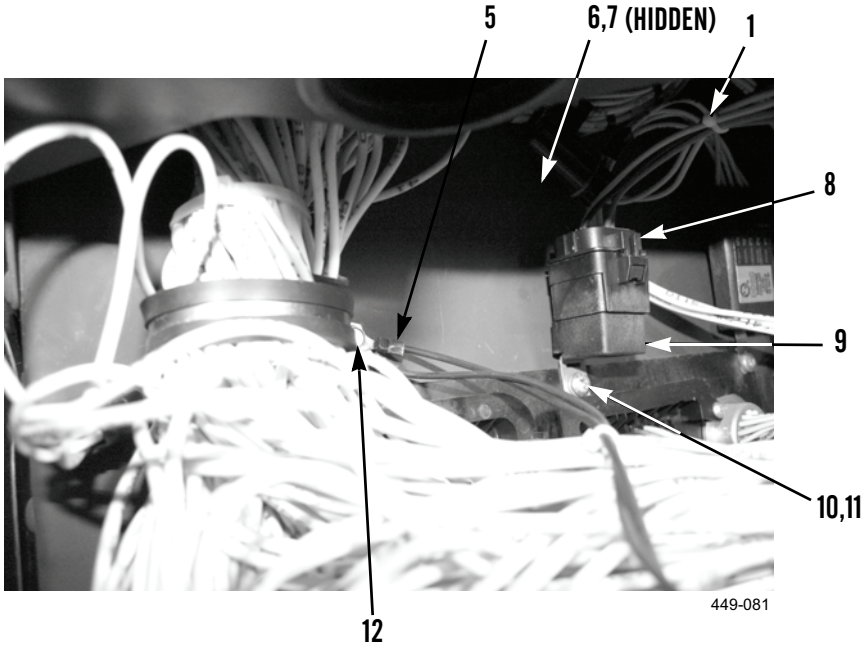


12. Install power relay wiring harness (1) under wire tunnel (17).
13. Connect power relay wiring harness (1) (red and black wires) connector to RFI filter wiring harness (15).
14. Connect chassis wiring harness connector (16) (yellow wire) to RFI filter wiring harness (15).
15. Install spiral wrap (14) and new tiedown straps (13) on RFI filter wiring harness (15) and A/C hoses.



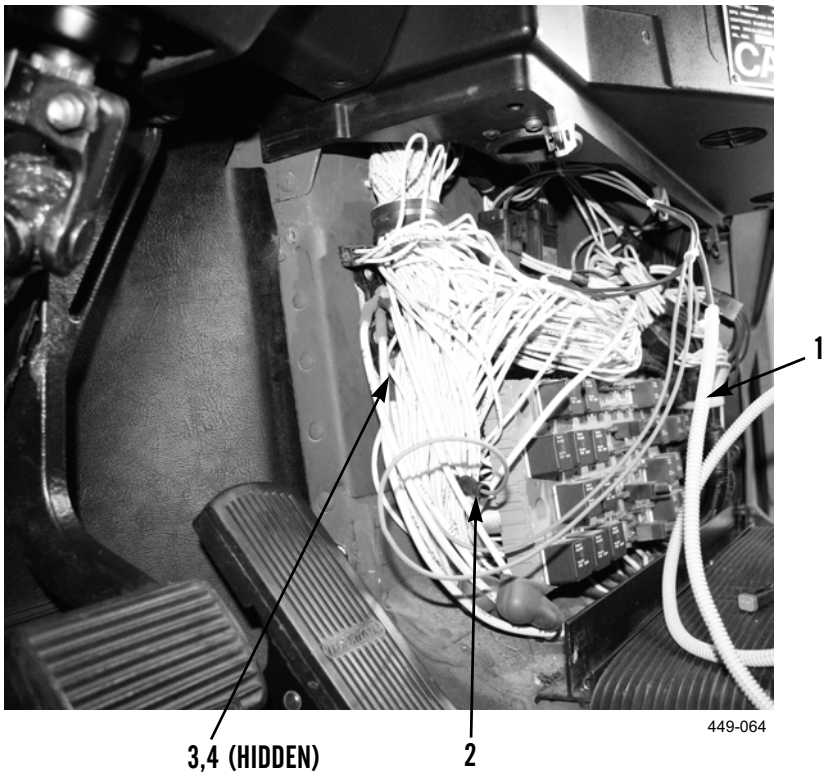
INSTALLATION - CONTINUED

16. Connect power relay connector (8) to power relay (9).
17. Install washer (11) and screw (10) on power relay (9).
18. Install fuse (7) on power relay harness (1) and new tiedown straps (6) to exposed wiring.
19. Install two black wire connectors (5) and screw (12) on ground connection.



INSTALLATION - CONTINUED

20. Connect green wire on power relay harness (1) to splice connector (2) connected to wire No. 18.
21. Install orange wire connector (4) of power relay harness (1) and nut (3) on 24 VDC stud.



22. Install fuse access panel (TM 9-2320-363-20-1).
23. Close hood (TM 9-2320-363-10).
24. Connect battery cables (TM 9-2320-363-20-2).

END OF WORK PACKAGE

CHAPTER 6
SUPPORTING INFORMATION

REFERENCES 0022 00

SCOPE

This work package lists all publication indexes, forms, field manuals, technical bulletins, technical manuals, and other publications referenced in this bulletin and which apply to operation and maintenance of the Air Conditioning Kit.

PUBLICATION INDEXES

The following indexes should be consulted frequently for the latest changes or revisions and for new publications relating to material covered in this technical bulletin.

Consolidated Army Publications and Forms Index. . . . . DA PAM 25-30

Functional Users Manual for the Army Maintenance Management System (TAMMS) . . . . . DA PAM 750-8

FORMS

NOTE

Refer to DA PAM 750-8, *Functional Users Manual for the Army Maintenance Management System (TAMMS)*, for instructions on the use of maintenance forms.

Equipment Inspection and Maintenance Worksheet . . . . . DA Form 2404, DA Form 5988-E

Product Quality Deficiency Report . . . . . SF Form 368

Recommended Changes to Publications and Blank Forms. . . . . DA Form 2028

FIELD MANUALS

First Aid. . . . . FM 4-25.11

TECHNICAL BULLETINS

CARC Spot Painting . . . . . TB 43-0242

Color, Marking, and Camouflage Painting of Military Vehicles, Construction Equipment, and Materials Handling Equipment . . . . . TB 43-0209

TECHNICAL MANUALS

Direct Support and General Support Maintenance Manual for Truck, Tractor, M915A2 and M916A1 Line Haul . . . . . TM 9-2320-363-34

Materials Used for Cleaning, Preserving, Abrading, and Cementing Ordnance Materiel and Related Materials Including Chemicals . . . . . TM 9-247

Operator's Manual for Truck, Tractor, Line Haul: 52,000 GVWR, 6 x 4, M915A2 . . . . . TM 9-2320-363-10

Operator's Manual for Truck, Tractor, Light Equipment Transporter (LET): 68,000 GVWR, 6 x 6, W/Winch, M916A1 . . . . . TM 9-2320-363-10

Procedures for Destruction of Tank-automotive Equipment to Prevent Enemy Use (U. S. Army Tank-Automotive Command) . . . . . TM 750-244-6

Unit, Direct Support, and General Support Including Depot Maintenance RPSTL for Truck, Tractor, Line Haul: 52,000 GVWR, 6 x 4, M915A2. . . . . TM 9-2320-363-24P

Unit, Direct Support, and General Support Including Depot Maintenance RPSTL for Truck, Tractor, Light Equipment Transporter (LET): 68,000 GVWR, 6 x 6, W/Winch, M916A1 . . . . . TM 9-2320-363-24P

Unit Maintenance Manual for Truck, Tractor, Line Haul: 52,000 GVWR, 6 x 4, M915A2 . . . . . TM 9-2320-363-20

Unit Maintenance Manual for Truck, Tractor, Light Equipment Transporter (LET): 68,000 GVWR, 6 x 6, W/Winch, M916A1 . . . . . TM 9-2320-363-20

REFERENCES - CONTINUED **0022 00**

OTHER PUBLICATIONS

Standard Abbreviations . . . . . ASME Y14.38-1999
Army Medical Department Expendable/Durable Items . . . . . CTA 8-100
Expendable/Durable Items (Except Medical, Class V, Repair Parts, and Heraldic Items) . . . . . CTA 50-970

END OF WORK PACKAGE

MAINTENANCE ALLOCATION CHART (MAC) INTRODUCTION 0023 00

THE ARMY MAINTENANCE SYSTEM

1. This introduction provides a general explanation of all maintenance and repair functions authorized at the two maintenance levels under the Two-Level Maintenance System concept.
2. The MAC immediately following this 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 in the *Maintenance Allocation Chart (MAC)* (WP 0024 00) in column (4) as:

Field - includes subcolumns:

C - Operator/Crew
O - Unit
F - Direct Support

Sustainment - includes subcolumns:

H - General Support
D - Depot

3. 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.
4. 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).
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), preserve, drain, paint, or replenish fuel, lubricants, chemical fluids, or gases.
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. Calibration 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. Installation may be the act of emplacing or seating a spare, repair part, or module (component or assembly) into position 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. Replacement is authorized by the MAC and the assigned maintenance level is shown as the third position code of the Source, Maintenance and Recoverability (SMR) code.
9. **Repair.** Repair is 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.

MAINTENANCE FUNCTIONS - CONTINUED

NOTE

The following definitions are applicable to the "repair" maintenance function:

- Services - Inspecting, testing, service, adjustment, alignment, calibration, and/or replacement.
- 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 (UUT).
- Disassembly/assembly - The step-by-step breakdown (taking apart) of a spare/functional group coded item to the level of its least component, assigned a 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 (hours/miles, etc.) considered in classifying Army equipment/components.

EXPLANATION OF COLUMNS IN THE MAC, TABLE 1

1. **Column (1) - Group Number.** Column (1) lists Group numbers, the purpose of which is to identify maintenance significant components, assemblies, subassemblies, and modules with the Next Higher Assembly (NHA).

2. **Column (2) - Component/Assembly.** Column (2) contains the item names of components, assemblies, subassemblies, and modules for which maintenance is authorized.

3. **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).

4. **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:

Field:

C - Operator/Crew Maintenance
O - Unit Maintenance
F - Direct Support Maintenance

Sustainment:

H - General Support Maintenance
D - Depot Maintenance

EXPLANATION OF COLUMNS IN THE MAC, TABLE 1 - CONTINUED

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 CODE column (6). This code is keyed to the remarks, and the SRA complete repair application is explained there.

5. **Column (5) - Tools and Equipment Reference Code.** Column (5) specifies, by code, common tool sets (not individual tools), common Test, Measurement, and Diagnostic Equipment (TMDE), 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.
6. **Column (6) - Remarks Code.** When applicable, this column contains a letter code, in alphabetical order, which is keyed to the remarks table entries (Table 3).

EXPLANATION OF COLUMNS IN THE TOOLS AND TEST EQUIPMENT REQUIREMENTS, TABLE 2

1. **Column (1) - Tool or Test Equipment Reference Code.** The tool and test equipment reference code correlates with a code used in column (5) of the MAC.
2. **Column (2) - Maintenance Level.** The lowest level of maintenance authorized to use the tool or test equipment.
3. **Column (3) - Nomenclature.** Name or identification of the tool or test equipment.
4. **Column (4) - National Stock Number (NSN).** The NSN of the tool or test equipment.
5. **Column (5) - Tool Number.** The manufacturer's part number, model number, or type number.

EXPLANATION OF COLUMNS IN THE REMARKS, TABLE 3

1. **Column (1) - Remarks Code.** The code recorded in column (6) of the MAC.
2. **Column (2) - Remarks.** This column lists information pertinent to the maintenance function being performed as indicated in the MAC.

END OF WORK PACKAGE

Table 1. MAC for the Air Conditioning Kit.

(1)	(2)	(3)	(4) MAINTENANCE LEVEL					(5)	(6)
			FIELD			SUSTAINMENT			
			UNIT		DS	GS	DEPOT	TOOLS AND	
GROUP NUMBER	COMPONENT/ ASSEMBLY	MAINTENANCE FUNCTION	C	O	F	H	D	EQUIPMENT REF CODE	REMARKS CODE
33	**SPECIAL PURPOSE KITS**								
3307	Air Conditioning Kit:	Install			16			1,2,3,4,5,6,7,8, 9,10,11,12	
	Vehicle Preparation				1.0				
	A/C System	Recovery			1.0			5,10,11	
		Evacuation			1.0			5,10,11	
		Charging			1.0			5,10,11	
	Compressor	Inspect	0.2						
		Install			2.0			5,10,11	
		Replace			1.5			5,10,11	
	Evaporator assembly	Inspect	0.2						A
		Repair			1.0			10	C
		Install			2.0			5,6,7,9,10,11	
		Replace			1.5			5,6,7,9,10,11	
	Condenser Unit	Inspect	0.2						A
		Install			2.0			5,7,9,10,11,12	
		Replace			1.5			5,7,9,10,11,12	
	Receiver/Dryer	Inspect	0.2						
		Install			2.0			5,10,11	
		Replace			1.5			5,10,11	
	A/C Hose	Inspect	0.2						A
		Install			2.0			5,10,11	
		Replace			1.0			5,10,11	
	A/C Wiring Harness	Inspect	0.2						A
		Install			2.0			10	
		Replace			1.0			10	

Table 2. Tools and Test Equipment Requirements for the Air Conditioning Kit.

(1) ITEM NO.	(2) MAINTENANCE LEVEL	(3) ITEM NAME	(4) NATIONAL STOCK NUMBER	(5) PART NUMBER/ CAGEC
1	O	Clamp, C: 10 In. Size	5120-00-203-6432	5120-00-203-6432 (08292)
2	O	Dispenser, Sealant	5120-00-679-5655	101 (06798)
3	O	Drill Set, Twist: 33/64 to 3/4 In. in 1/64 In. Increments	5133-00-596-8088	B94.11M (05047)
4	O	Link, Bearing (Lifting)	5120-01-451-1401	1387575 (11083)
5	F	Reclaimer, Refrigerant	4250-01-359-0393	SS90-R134-50/60
6	O	Shop Equipment, Automotive Maintenance and Repair: Organizational Maintenance, Common No. 1, Less Power	4910-00-754-0654	SC 4910-95CLA74 (19204)
7	O	Shop Set, Welding Field Maintenance Post, Camp and Station, Set B	4940-00348-7596	SC3470-95CLA11 (19204)
8	O	Sling, Nylon	2835-01-078-2081	4-8FTX2IN (91796)
9	O	Tool Kit, General Mechanic's Automotive	5180-01-454-3787	12B470000 (59678)
10	F	Tool Kit, Refrigeration Equipment (available in SC 5180-95-N18)	5180-00-596-1474	SC 5180-90-CL-N18
11	O	Wrench Set, Torx	5120-01-529-2707	05253

Table 3. Remarks for the Air Conditioning Kit.

(1) REMARKS CODE	(2) REMARKS
A	Refer to Operator PMCS.
B	Service by cleaning ballistic glass.
C	Limited Repair Authorized.

END OF WORK PACKAGE

EXPENDABLE AND DURABLE ITEMS LIST 0025 00

SCOPE

This technical bulletin lists expendable and durable items you will need to install, operate and maintain the Air Conditioning Kit. This listing is for informational purposes 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

1. **Column (1) - Item Number.** This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the item [e.g., Apply Sealing Compound, Urethane (Item 11, WP 0025 00)].
2. **Column (2) - Level.** This column identifies the lowest level of maintenance that requires the listed item.

   C - Operator/Crew

   O - Unit Maintenance
3. **Column (3) - National Stock Number.** This is the National Stock Number assigned to the item which you can use to requisition it.
4. **Column (4) - Description, CAGEC, and Part Number.** This provides the other information you need to identify the item.
5. **Column (5) - Unit of Measure (U/M).** This column shows the physical measurement or count of an item, such as gallon, dozen, gross, etc.

Table 1. Expendable and Durable Items List for Air Conditioning Kit.

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION, CAGEC, AND PART NUMBER	(5) U/M
1	O		Adhesive, Thread (05972) 242	
		8040-01-250-3969	50 Milliliter Bottle	BT
2	C		Cleaning Compound, Solvent, Type III (81349) MIL-PRF-680	
		6850-01-474-2318	1 Gallon Can	CN
		6850-01-474-2320	5 Gallon Can	CN
		6850-01-474-2321	55 Gallon Drum	DR
3	O		Cloth, Abrasive (80204) ANSI B74.18	
		5350-00-584-4654	50 Sheet Package	PG
4	C		Compound, Antiseize (05972) 051135-08609	
		8030-00-251-3980	1 Pound Can	CN
5	C		Detergent, General Purpose, Liquid (83421) 7930-00-282-9699	
		7930-00-282-9699	1 Gallon Can	CN
		9140-00-286-5294	Bulk	GL
		9140-00-286-5295	5 Gallon Can	CN
		9140-00-286-5296	55 Gallon Drum	DR
6	C	6810-01-075-5546	Isopropyl Alcohol (97403) 13222E0694	BT
7	C		Oil, Lubricating, OE/HDO-10 (81349) MIL-PRF-2104	
		9150-00-189-6727	1 Quart Can	CN
		9150-00-186-6668	5 Gallon Can	CN
		9150-00-191-2772	55 Gallon Drum	DR
8	F	9150-01-524-4276	Oil, Lubricating, Refrigerant Compressor (62534) RD-5-7103-OP	BT
9	C		Rag, Wiping (64067) A-A-431	
		7920-00-205-1711	50 Pound Bale	BL
10	F	6830-01-439-0614	Refrigerant (4V886) R-134a	cyl

Table 1. Expendable and Durable Items List for Air Conditioning Kit - Continued.

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION, CAGEC, AND PART NUMBER	(5) U/M
11	O		Sealing Compound, Urethane (52157) 051135-08609	
		8030-01-320-4710	10.5 Ounce Cartridge	CA
12	O		Strap, Tiedown Electrical Components (06383) PLT35-C-O	
		5975-01-379-4997	Package of 100	PK
13	O		Tag, Marker (64067) 9905-00-537-8954	
		9905-00-537-8954	Bundle of 50	BD
14	O		Tape, Pressure Sensitive Adhesive (81349) MIL-T-23397	
		7510-00-473-9513	60 Yard Roll	RL
15	O	4120-01-523-4007	Tape, Refrigeration	EA

END OF WORK PACKAGE

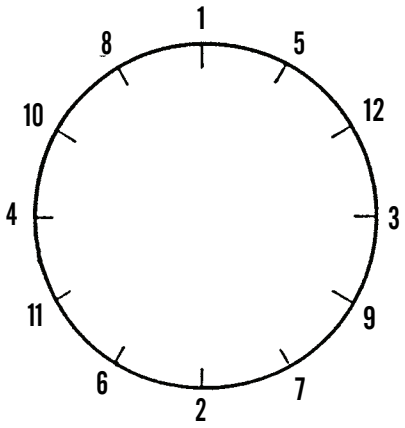
TORQUE LIMITS **0026 00**

SCOPE

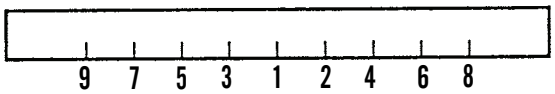
This technical bulletin lists standard torque values and provides general information for applying torque. Special torque values and tightening sequences are indicated in the maintenance procedures for applicable components.

GENERAL

1. Always use torque values listed in Tables 1 and 2 when a maintenance procedure does not give a specific torque value.
   a. Table 1 provides torque limits for SAE standard fasteners.
   b. Table 2 provides torque limits for metric fasteners.
2. Unless otherwise indicated, standard torque tolerance shall be ± 10 percent.
3. Torque values listed are based on clean, dry threads. Reduce torque by 10 percent when engine oil is used as a lubricant. Reduce torque by 20 percent if new plated capscrews are used.
4. If the maintenance procedures do not specify a tightening order, use the following guides:
   a. Unless otherwise specified, lubricate threads of fasteners with clean oil (OE/HDO-10).
   b. When tightening fasteners above 30 lb-ft (41 Nm), use the torque pattern but only tighten to 70 percent of final value (multiply final value by 0.7). Repeat pattern until final value is reached.
   c. Tighten circular patterns using circular torque pattern and tighten straight patterns using straight torque pattern.



CIRCULAR TORQUE PATTERN



STRAIGHT TORQUE PATTERN

CAUTION

If replacement capscrews are of higher grade than originally supplied, use torque specifications for the original. This will prevent equipment damage due to overtorquing.

Table 1. Torque Limits - SAE Standard Fasteners.

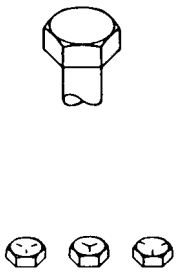
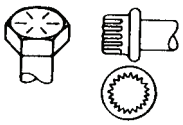
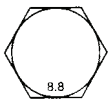
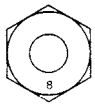
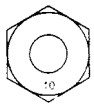
CURRENT USAGE	MUCH USED	MUCH USED	USED AT TIMES	USED AT TIMES
QUALITY OF MATERIAL	INDETERMINATE	MINIMUM COMMERCIAL	MEDIUM COMMERCIAL	BEST COMMERCIAL
SAE Grade Number	1 or 2	5	6 or 7	8
Cap Screw Head Markings Manufacturer's marks may vary These are all SAE Grade 5 (3 line)				
CAPSCREW BODY SIZE IN. - THREAD	TORQUE LB-FT (NM)	TORQUE LB-FT (NM)	TORQUE LB-FT (NM)	TORQUE LB-FT (NM)
1/4 20	5 (7)	8 (11)	10 (14)	12 (16)
28	6 (8)	10 (14)		14 (19)
5/16 18	11 (15)	17 (23)	19 (26)	24 (33)
24	13 (18)	19 (26)		27 (37)
3/8 16	18 (24)	31 (42)	34 (46)	44 (60)
24	20 (27)	35 (47)		49 (66)
7/16 14	28 (38)	49 (66)	55 (75)	70 (95)
20	30 (41)	55 (75)		78 (106)
1/2 13	39 (53)	75 (102)	85 (115)	105 (142)
20	41 (56)	85 (115)		120 (163)
9/16 12	51 (69)	110 (149)	120 (163)	155 (210)
18	55 (75)	120 (163)		170 (231)
5/8 11	83 (113)	150 (203)	167 (226)	210 (285)
18	95 (129)	170 (231)		240 (325)
3/4 10	105 (142)	270 (366)	280 (380)	375 (508)
16	115 (156)	295 (400)		420 (569)
7/8 9	160 (217)	395 (536)	440 (597)	605 (820)
14	175 (237)	435 (590)		675 (915)
1 8	235 (319)	590 (800)	660 (895)	910 (1,234)
14	250 (339)	660 (895)		990 (1,342)

Table 2. Torque Limits - Metric Fasteners.

TORQUE VALUES FOR METRIC THREAD FASTENERS WITH LUBRICATED* OR PLATED THREADS†				
Thread Diameter-Pitch	 **Class 8.8 Bolt**	 **Class 8 Nut**	 **Class 10.9 Bolt**	 **Class 10 Nut**
	Torque: lb-ft (Nm)		Torque: lb-ft (Nm)	
M6 M8 M8 x 1	5 (7) 12 (16) 13 (18)		7 (9) 17 (23) 18 (24)	
M10 M10 x 1.25	24 (33) 27 (37)		34 (46) 38 (52)	
M12 M12 x 1.5	42 (57) 43 (58)		60 (81) 62 (84)	
M14 M14 x 1.5	66 (89) 72 (98)		95 (129) 103 (140)	
M16 M16 x 1.5	103 (140) 110 (149)		148 (201) 157 (213)	
M18 M18 x 1.5	147 (199) 165 (224)		203 (275) 229 (310)	
M20 M20 x 1.5	208 (282) 213 (313)		288 (390) 320 (434)	
M22 M22 x 1.5	283 (384) 315 (427)		392 (531) 431 (584)	
M24 M24 x 2	360 (488) 392 (531)		498 (675) 542 (735)	
M27 M27 x 2	527 (715) 569 (771)		729 (988) 788 (1,068)	
M30 M30 x 2	715 (969) 792 (1,074)		990 (1,342) 1,096 (1,486)	

* All plated and unplated fasteners should be coated with oil before installation.

† Use these torque values if either the bolt or nut is lubricated or plated (zinc-phosphate conversion-coated, cadmium-plated, or waxed).

END OF WORK PACKAGE

Air Conditioner for M915A2 Truck with Plasan Balistic Armor

RD-2-4617-0 INSTALLATION INSTRUCTIONS

Install refrigerant compressor per instructions provided with compressor mount kit.

TOOLS REQUIRED

SYSTEM INSTALLATION

- ❑ Wire cutters
- ❑ Wire strippers
- ❑ Hose clamp pliers or regular slip joint pliers
- ❑ Ratchet
- ❑ 5 or 6 inch extension
- ❑ Torque wrench 0-50 lbs/ft
- ❑ ½ socket
- ❑ 9/16 socket
- ❑ 1 1/16 (1.063) inch crows foot
- ❑ ¾ (.750) inch crows foot
- ❑ 1 1/8 (1.125) deep socket
- ❑ 15/16 deep socket
- ❑ ½ deep socket
- ❑ 7/16 deep socket
- ❑ T25 torx driver
- ❑ T27 torx driver
- ❑ T30 torx driver
- ❑ No 1 phillips' screwdriver
- ❑ No 2 phillips' screwdriver
- ❑ 5/16" or 8mm nut driver
- ❑ 7/16 (.437) inch drill bit
- ❑ 1 ¼ (1.250) inch hole saw
- ❑ Unibit step drill up to 7/8 inch or 5/8 and 7/8 inch hole saws
- ❑ Power drill to fit above drill bits
- ❑ Rat tailed file or deburring tool
- ❑ Tape measurer
- ❑ Center punch
- ❑ Hammer
- ❑ Scissors
- ❑ 7/16" open end wrench
- ❑ ½" open end wrench
- ❑ 9/16" open end wrench
- ❑ 5/8" open end wrench
- ❑ ¾" open end wrench
- ❑ 7/8" open end wrench
- ❑ 1 1/16" (1.063) open end wrench
- ❑ Hose cutter (included in A/C kit)
- ❑ Hose crimper (included in A/C kit)
- ❑ Electrical multimeter
- ❑ Locktite thread locking compound

FOR COMPRESSOR MOUNT KIT

- ❑ Metric hex key wrench set
- ❑ Metric socket set
- ❑ ½ inch breaker bar (for tensioning compressor belt)
- ❑ Belt tensioning gauge
- ❑ Wire brush and scraper

REFRIGERANT CHARGING EQUIPMENT

- ❑ Charging gauge set and scale or charging station
- ❑ Vacuum pump
- ❑ R-134a refrigerant

HINT; To reduce installation labor time for the Air Conditioning system, the following steps may be performed prior to installation of armor kit.

- Compressor mounting, entire section, refer to documentation accompanying compressor.
- Condenser mounting, entire section, starting on page 2.
- Receiver/drier mounting, entire section, starting on page 3.
- Hose routing, steps 1 through 16, starting on page 6.
- Electrical connections, steps 1 through 15, starting on page 11.

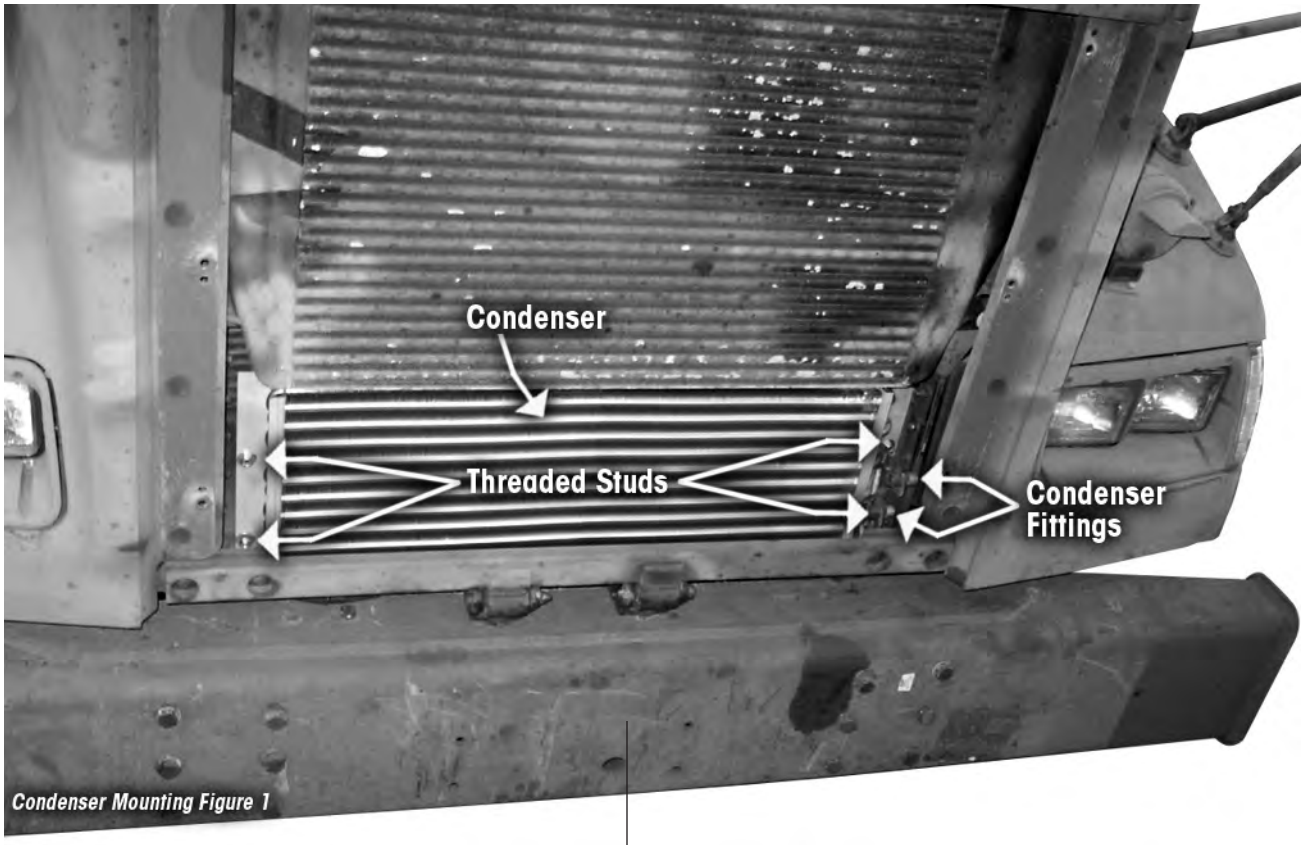
Always use appropriate safety equipment when operating power tools or working with pressurized systems.

Before starting installation review parts list included in kit to verify that all required parts needed for installation were received.

COMPRESSOR MOUNTING

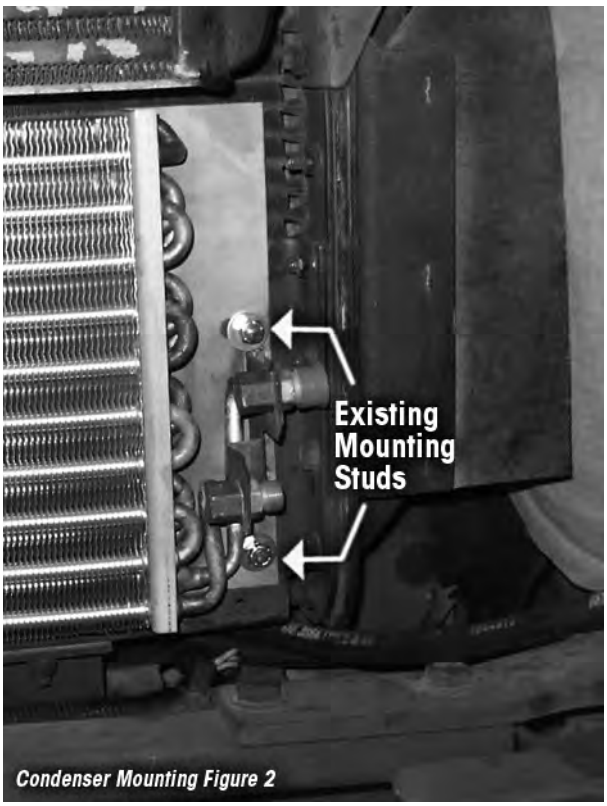
IMPORTANT: Install refrigerant compressor per instructions provided with compressor mount kit.

CONDENSER MOUNTING



Condenser Mounting Figure 1

1. Locate RD-4-6115-0 condenser and RD-2-4535 condenser mount kit. Open hood of truck. Place condenser over threaded studs on lower front of radiator frame with fittings on drivers' side. See figure 1.



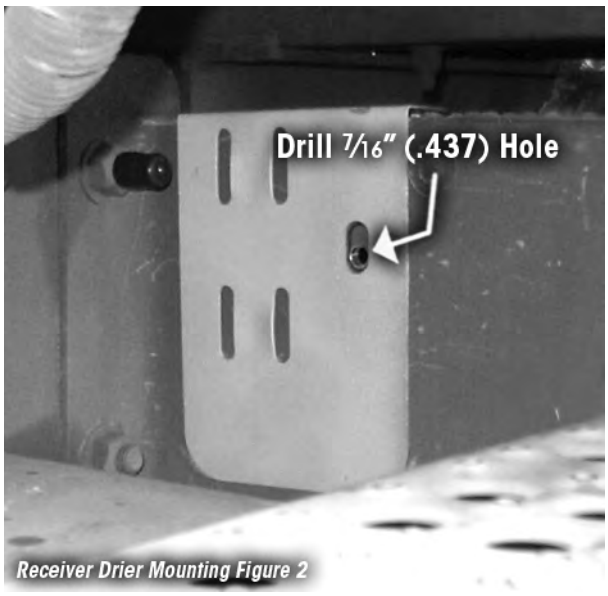
Condenser Mounting Figure 2

2. Attach condenser to threaded studs with hardware from kit. See figure 2

RECEIVER/DRIER MOUNTING

Receiver Drier Mounting Figure 1

1. **Locate receiver drier bracket RD-5-11435-OP in RD-2-4621-0 receiver drier kit. Place drier bracket on front surface of step over spare tire. see figure 1.**



Receiver Drier Mounting Figure 2

2. Mark mounting hole location and drill a 7/16 (.437) inch hole in front surface of step. See figure 2.

Receiver Drier Mounting Figure 3

3. Locate receiver drier **RD-5-11435-OP**, pressure switches and mineral oil **RD-11385-0** in kit. Remove caps from switch ports on top of drier, lubricate o-rings and install pressure switches on switch ports. Switches may go on either port. See figure 3.


Receiver Drier Mounting Figure 4

4. Locate large band clamps in kit. Attach clamps to drier bracket and place drier in clamps. Tighten band clamps until you can still move drier in clamps but it won't fall out. See figure 4.

5. Locate bolt, washer and lock nut in kit. Attach drier bracket and drier to front surface of step through the 7/16" hole from step 2.

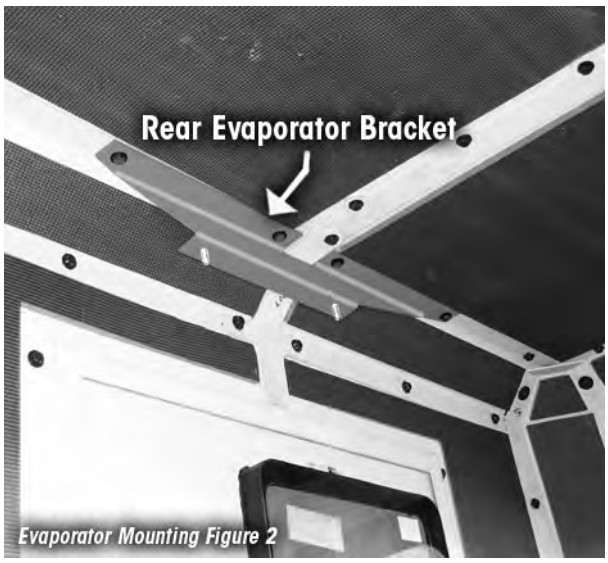

Receiver Drier Mounting Figure 5

6. Position drier with outlet (female fitting) pointing toward passenger side of truck and slightly rearward. Tighten band clamps. See figure 5.

EVAPORATOR MOUNTING

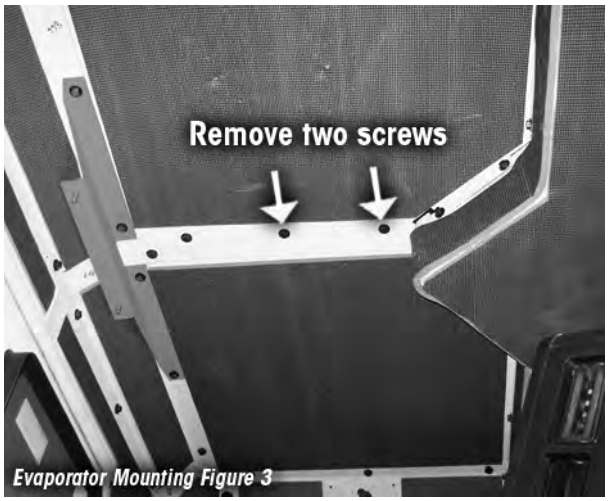
Evaporator Mounting Figure 1

1. Inside cab, remove four bolts from top rear surface. Save washers. See figure 1



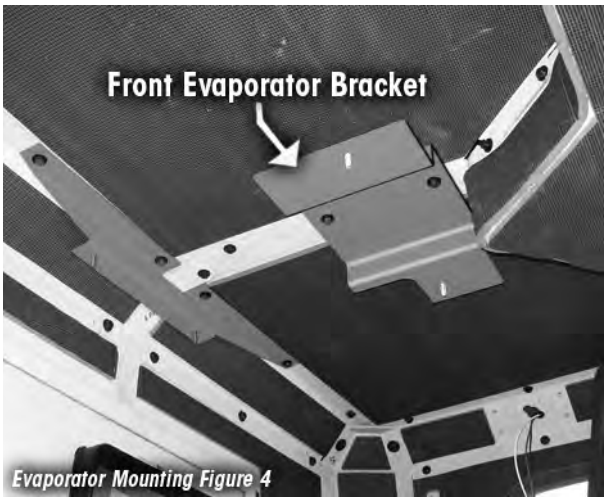
Evaporator Mounting Figure 2

2. Locate RD-2-4655-0 rear evaporator bracket and RD-2-4534-0 evaporator mount kit. Install rear evaporator bracket as shown in figure 2 using new longer bolts and original washers. Install but do not tighten drivers' side bolt. Use locktite and torque to 15 Lbs/Ft per armor installation instructions.



Evaporator Mounting Figure 3

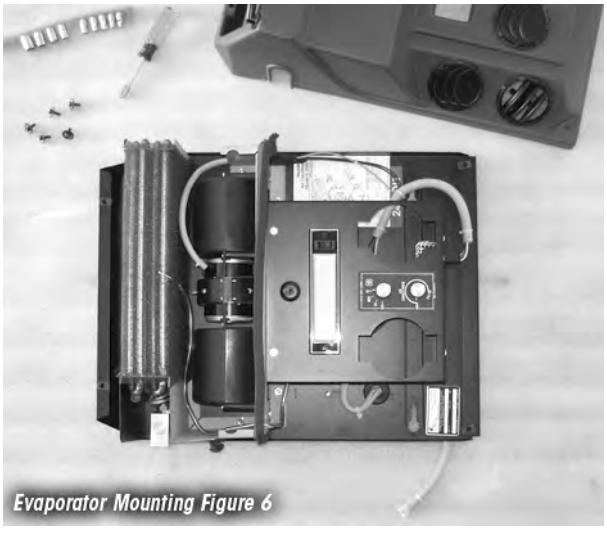
3. Remove two top center bolts. Save washers. See figure 3



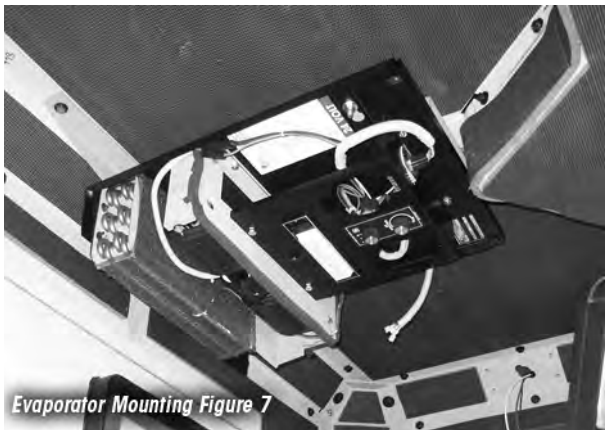
Evaporator Mounting Figure 4

4. Locate RD-5-4654-0 front evaporator bracket. Using new longer bolts from kit, ¼ inch thick washers, original washers and locktite, loosely attach front evaporator bracket to ceiling as shown in figure 4. Place ¼ inch thick washers between bracket and ceiling armor. Hardware sequence should be; bolt, original washer, bracket then ¼ inch thick washer. Do not tighten yet.

Evaporator Mounting Figure 5


Evaporator Mounting Figure 6

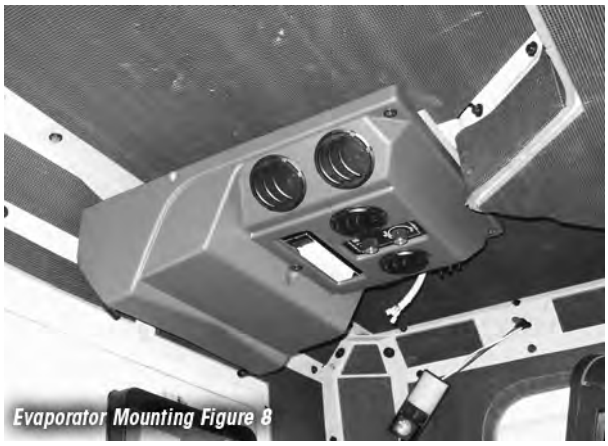
5. Remove evaporator unit from carton. Remove and save five screws and plastic cover from evaporator unit. See figures 5 and 6



Evaporator Mounting Figure 7

6. Check position of front evaporator bracket by placing evaporator unit against ceiling so that the threaded studs on the mount brackets protrude through slots in evaporator mounting panel. See figure 7. Adjust fore-and-aft position of front bracket if required. Remove evaporator unit and tighten front bracket bolts to 15 Lbs/Ft per armor installation instructions.

7. Attach evaporator unit to front and rear bracket studs with lock nuts and flat washers from kit. **Make sure evaporator unit wires are routed behind front bracket and are not pinched between bracket and unit housing.**



Evaporator Mounting Figure 8

8. Reinstall plastic cover using original screws from step 5. See figure 8

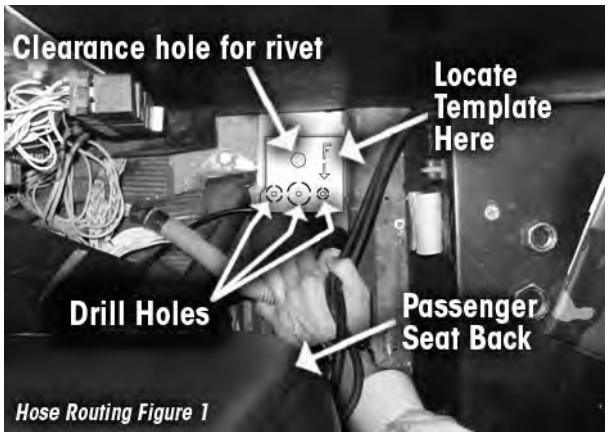
Evaporator Mounting Figure 9

Evaporator Mounting Figure 10

9. Locate RD-5-11819-0 recirculation air filter in RD-2-4534-0 evaporator mount kit. Push filter through air intake openings on evaporator unit and position against rear face of evaporator coil. See figures 9 and 10.

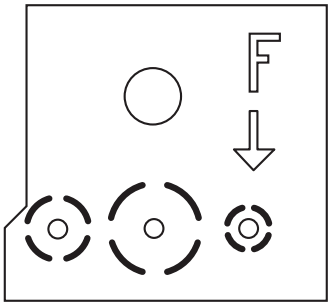
HOSE ROUTING

Note; Steps 1 through 16 may be performed prior to armor installation to ease Air Conditioner installation.

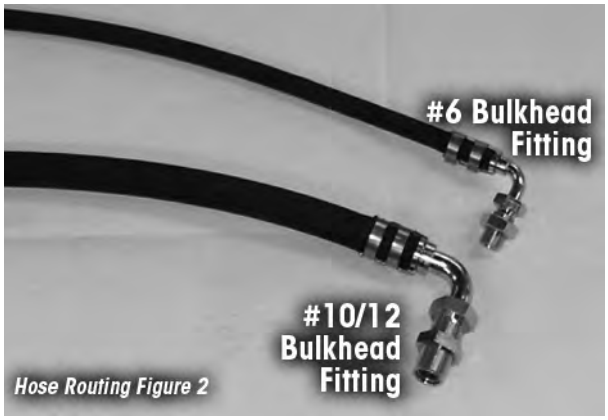


Hose Routing Figure 1

1. Locate RD-2-4662-0 template in RD-2-4619-0 fittings kit. Position template in rectangular area of floor behind passenger's seat with arrow pointing forward. See figure 1. Drill one 7/8 (.875) inch hole, one 1 1/4 (1.250) inch hole and one 5/8 (.625) inch hole. Be sure nothing will be damaged on underside of floor when drilling.

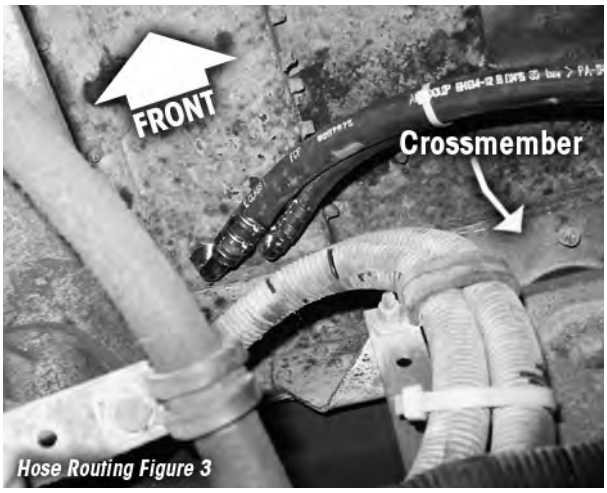


2. Locate #6 and #12 hoses. Cut one 10 foot long piece of #6 and #12 hose. Save remaining hoses. Tape closed ends of hoses to prevent contamination. Set aside 10 foot pieces of hose for use in step 17.



Hose Routing Figure 2

3. Locate #6 and #10/12, 90 degree male bulkhead fittings in fitting kit. Remove jam nuts and save for reinstallation on next step. Lubricate fitting nipples with mineral oil and attach to remaining 17 foot long pieces of #6 and #12 hose. See figure 2 and facing page for hose crimping instructions.



Hose Routing Figure 3

4. From underneath cab, push bulkhead fittings through 5/8 (.625) and 7/8 (.875) holes drilled in step 1. Position fittings so that hoses will route along cross member to receiver/drier on drivers' side of truck. Install and tighten jam nuts on inside of cab. See figure 3.

5. Route #6 hose from bulkhead fitting to receiver/drier outlet. Route #12 hose from bulkhead fitting toward receiver/drier, then forward along drivers' side frame rail to compressor.

6. Secure hoses under cab between bulkhead fittings and receiver/drier using nylon ties provided in RD-2-4620-0 hose mount kit. Do not kink hoses. Avoid sharp edges, hot surfaces and moving parts. Use nylon spiral wrap to protect hoses where necessary.

Hose Routing Figure 4

7. Locate #6, 45 degree male fitting in fitting kit. Lubricate O-ring with mineral oil and loosely attach fitting to receiver drier outlet. Adjust position of drier if necessary. Cut #6 hose (from bulkhead fitting) to length and connect to fitting. Save remainder of hose for use in next step. Tighten fitting. See figure 4

8. Locate #6, 90 degree female fitting in fitting kit. Lubricate fitting nipple and crimp onto remainder of hose from previous step.

9. Locate #8, 90 degree female fitting in fitting kit. Lubricate fitting nipple and crimp onto #8 hose. Tape closed opposite end of hoses to prevent contamination.

AEROQUIP® E-Z CLIP ASSEMBLY INSTRUCTIONS

Cut the Hose

Cut the hose to proper length with an appropriate cutting tool. Aeroquip's hand-held cutter (79R8920) has been specially designed for cutting all non-wire reinforced hose. Be sure the cut is made square to the hose length.

Slip Two Clips on the Hose

Slide two clips (be sure to use the correct size) onto the cut end of the hose. The orientation of the clips does not affect the performance of the connecton. However, for ease of assembly, both clips should be oriented in the same direction. NOTE: If you don't slide the clips over the hose at this time, you will have to stretch the clips over the hose and fitting later. This may permantently damage the clip.

Oil the Nipple

Lubricate the nipple with a generous amount of the refrigeration or A/C system's compressor lubricating oil. This MUST be done to lower the force of nipple insertion.

Insert the Nipple into the Hose

Insert the nipple into the hose. To ensure that the nipple is fully inserted, check the gap between the cut end of the hose and the shoulder of the nipple. Care should be taken to avoid kinking or other damage to the hose during this step. NOTE: Be sure to wipe excess oil from the nipple and hose.

Snap on the Cage

Snap the cage into the groove on the nipple. The arms of the cage should extend over the hose-covered length of nipple. When the cage has been correctly installed in the cage groove, the cage will be able to rotate in the groove. This step MUST be performed to ensure that:

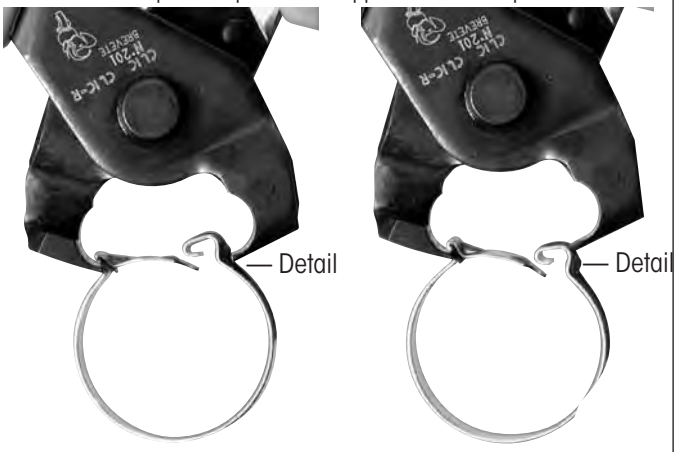
1. The clips will be located over the O-Rings on the nipple.
2. The connection will be compatible with the connection's pressure rating.

Position the Clips

Slide the clips over the cage arms and into the channels on each arm of the cage.

Close the Clips

Using the Connecting Tool (79R8920) to close the clips. The tool should be positioned squarely on the clip connection points and should remain square as pressure is applied and the clip is closed.

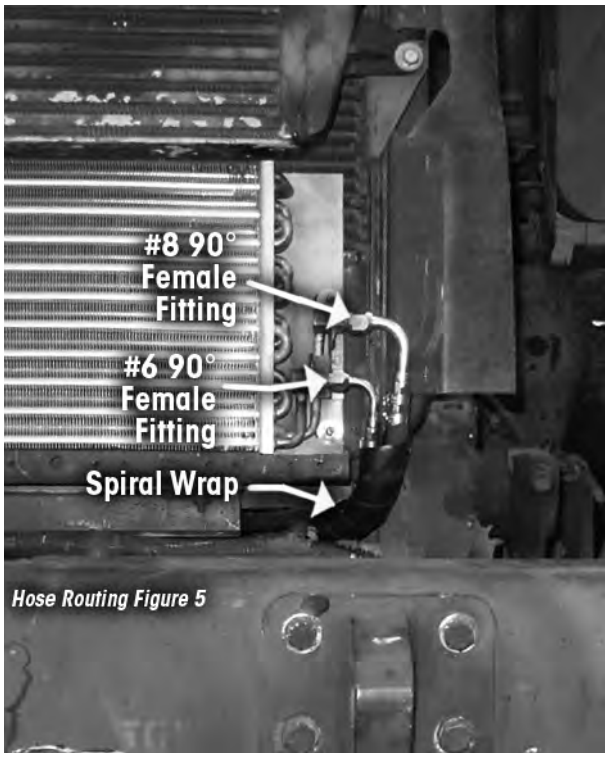


CORRECT INCORRECT

The nose of the plier should be firmly seated under the assembly bump and lock latch. If the pliers are not kept square as you close the clip, the clasp may have an offset. Use the pliers to correct the clasp alignment.

INCORRECT CORRECT

NOTE: E-Z Clip components should not be reused.

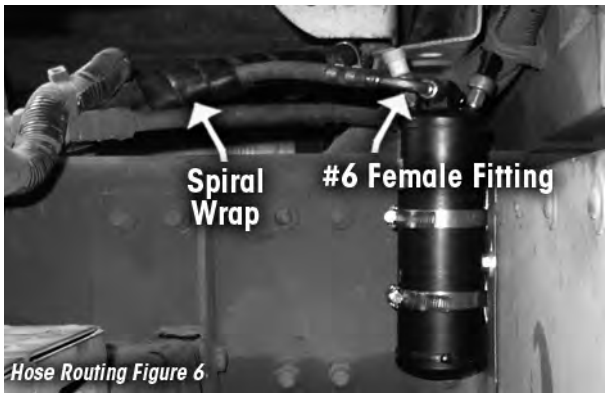


Hose Routing Figure 5

10. From front of truck, route taped ends of #6 and #8 hoses below radiator (near condenser fittings) then rearward along drivers' side frame rail. Cover forward 24 inches of hoses (near fittings) with nylon spiral wrap where they pass under radiator. Lubricate O-rings on fittings with mineral oil and attach fittings to condenser. See figure 5

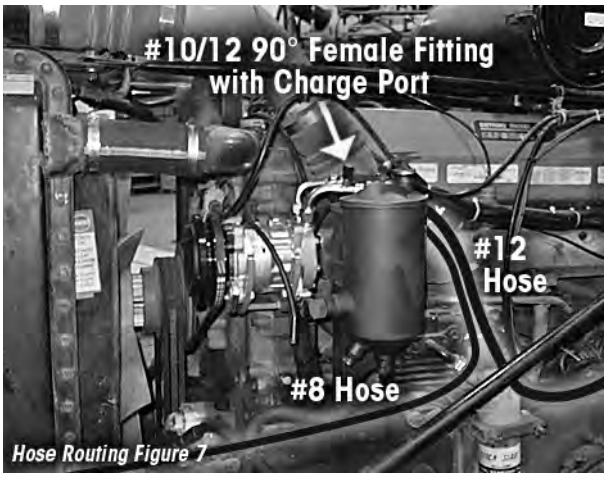
11. Route # 8 hose to compressor outlet and #6 hose to receiver/drier inlet.

12. Secure all A/C hoses along frame rail using nylon ties provided. Do not kink hoses. Avoid sharp edges, hot surfaces and moving parts. Use nylon spiral wrap to protect hoses where necessary.



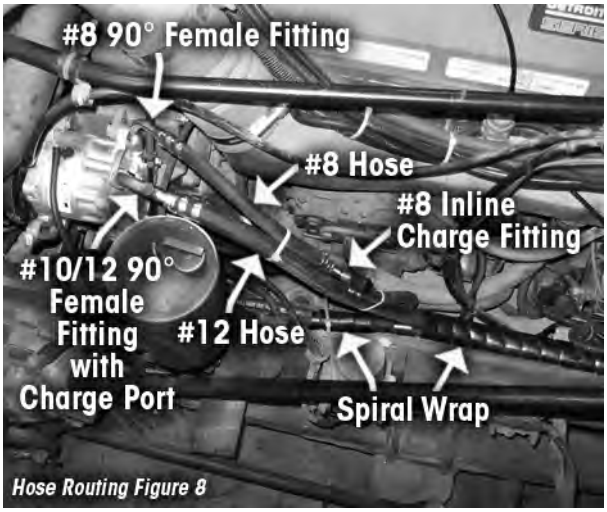
Hose Routing Figure 6

13. Locate remaining #6, 90 degree female fitting in fitting kit. Lubricate O-ring with mineral oil and loosely attach fitting to receiver drier inlet. Adjust position of drier if necessary. Cut #6 hose (from condenser fitting) to length and connect to fitting on drier inlet. Tighten fitting. See figure 6



Hose Routing Figure 7

14. Locate #10/12, 90 degree female fitting with charge port. Lubricate O-ring with mineral oil and loosely attach fitting to compressor inlet. Route #12 hose to fitting, trim hose to length, lubricate fitting nipple and crimp onto fitting. Tighten fitting. See figure 7.



Hose Routing Figure 8

15. Locate remaining #8, 90 degree female fitting and #8 in-line charge fitting. Lubricate O-ring on 90 degree female fitting and loosely attach to compressor outlet. Route #8 hose up from frame rail, along #12 hose to compressor outlet. Install in-line charge fitting in #8 hose between frame rail and compressor. Connect #8 hose to compressor outlet fitting. Tighten fitting on compressor See figure 8

16. Secure #8 and #12 hoses with nylon ties.

Note; Steps 17 through 22 must be performed after armor installation

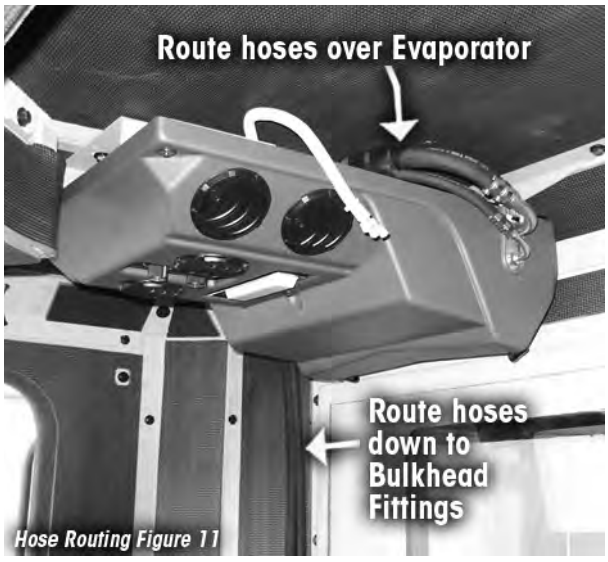
Hose Routing Figure 9

17. Locate #6, 90 degree male and #10/12, 90 degree male fittings. Lubricate fitting nipples and crimp onto 10 foot sections of #6 and #12 hose set aside in step 2. See figure 9

Hose Routing Figure 10

18. Lubricate O-rings on fittings and loosely attach to expansion valve on evaporator unit. See figure 10

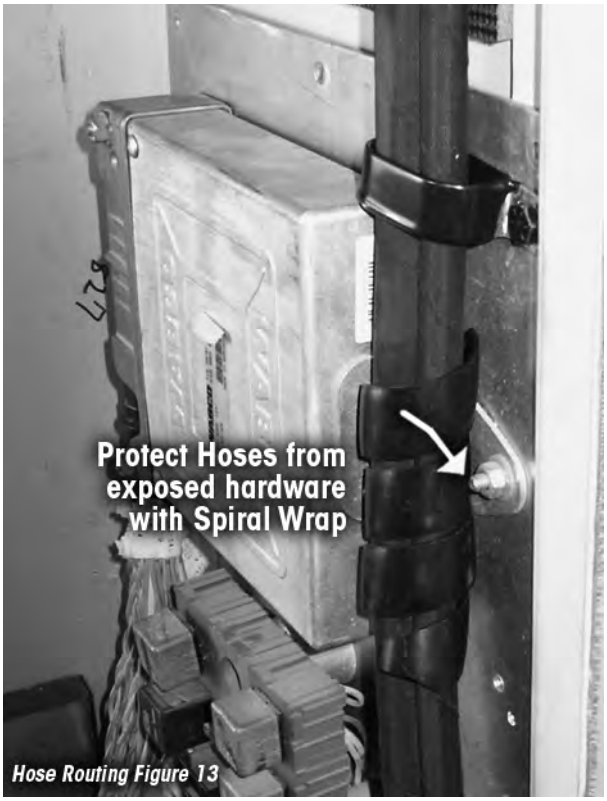
19. Wrap hoses with 24 inches of nylon spiral wrap as shown in figure 10



Hose Routing Figure 11

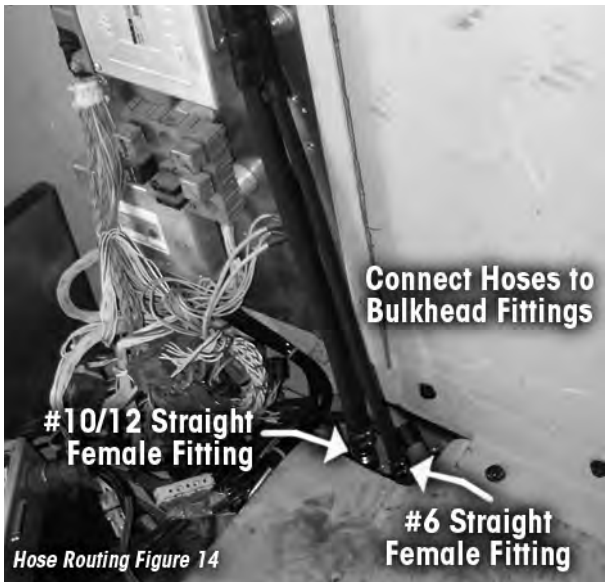
20. Route hoses between evaporator unit and ceiling armor then down back wall to bulkhead fittings. Tighten fittings. See figure 11

Hose Routing Figure 12



Hose Routing Figure 13

21. Secure hoses along escape hatch frame using P-clamps provided in RD-2-4620-0 hose mount kit. Use nylon spiral wrap to protect hoses where required.
See figures 12 and 13.



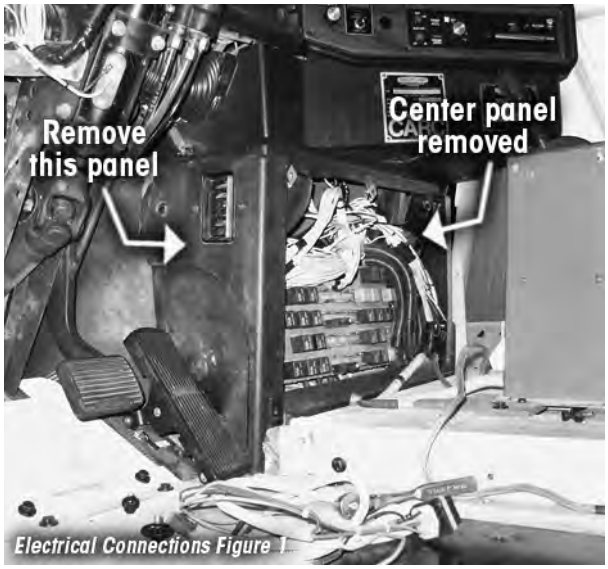
Hose Routing Figure 14

22. Locate #6 and #10/12 straight female fittings. Lubricate O-rings and loosely attach to bulkhead fittings to establish hose lengths. Trim hoses to length, remove fittings from bulkhead fittings and crimp onto trimmed hoses. Attach to bulkhead fittings and tighten. See figure 14

ELECTRICAL CONNECTIONS

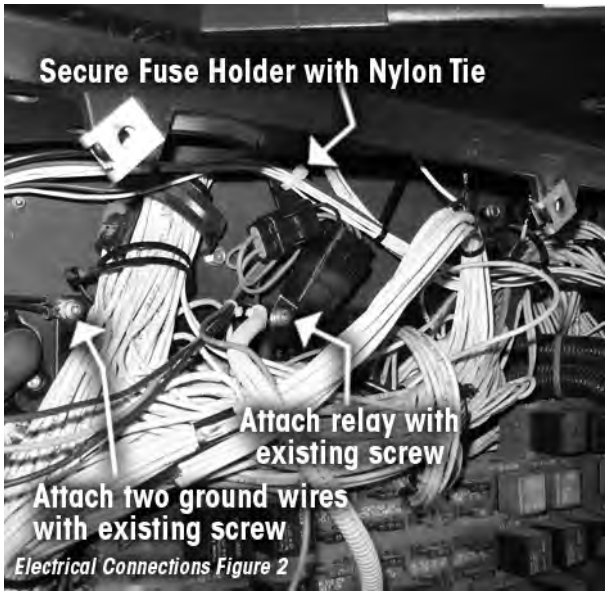
NOTE: Steps 1 through 15 may be performed prior to armor installation to ease air conditioner installation.

1. Disconnect battery.



Electrical Connections Figure 1

2. Remove center firewall panel and panel near accelerator pedal to expose electrical compartment. See figure 1.

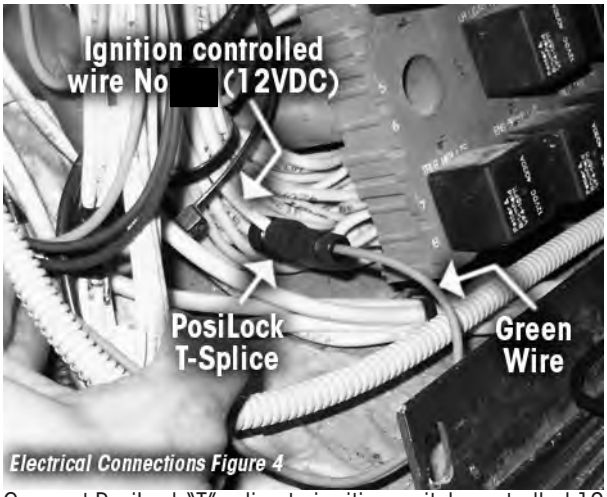


Electrical Connections Figure 2

3. Locate RD-6-5309-0 power relay harness in electrical kit. Attach power relay and ground wires to existing screws in electrical panel. Secure fuse holder with nylon tie. See figure 2.

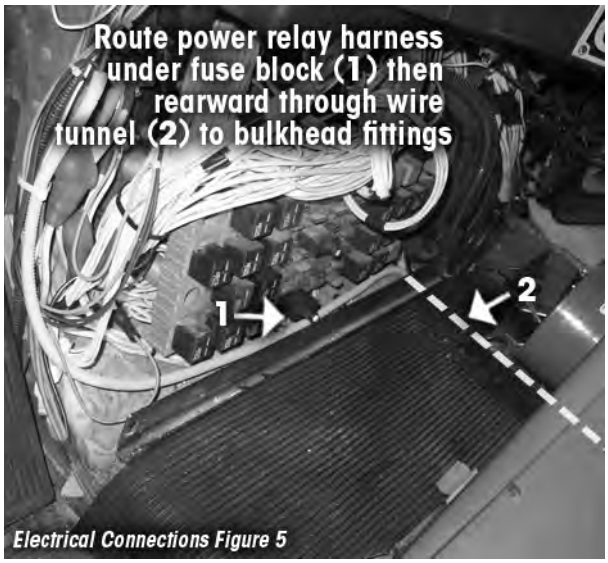
Electrical Connections Figure 3

4. Connect orange power wire to 24 VDC power stud. See figure 3.



Electrical Connections Figure 4

5. Connect PosiLock "T" splice to ignition switch controlled 12 volt power wire **#18**. Connect green wire from power relay harness to PosiLock "T" splice. See figure 4

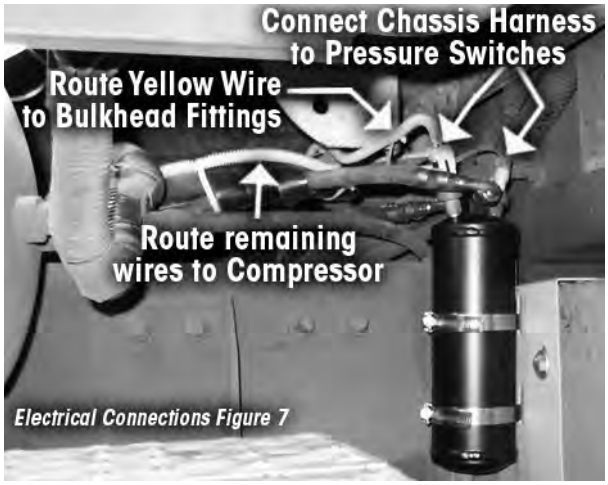


Electrical Connections Figure 5

6. Route power harness across transmission tunnel then route rearward through wiring tunnel to A/C hose bulkhead fittings. See figure 5.

Electrical Connections Figure 6

7. Locate rubber cone grommet in electrical kit. Cut flange of grommet. Trim end off grommet to provide approximately a ¾ (.750) inch hole (see figure 6). Install grommet in 1 ¼ (1.250) inch hole between A/C hose bulkhead fittings.



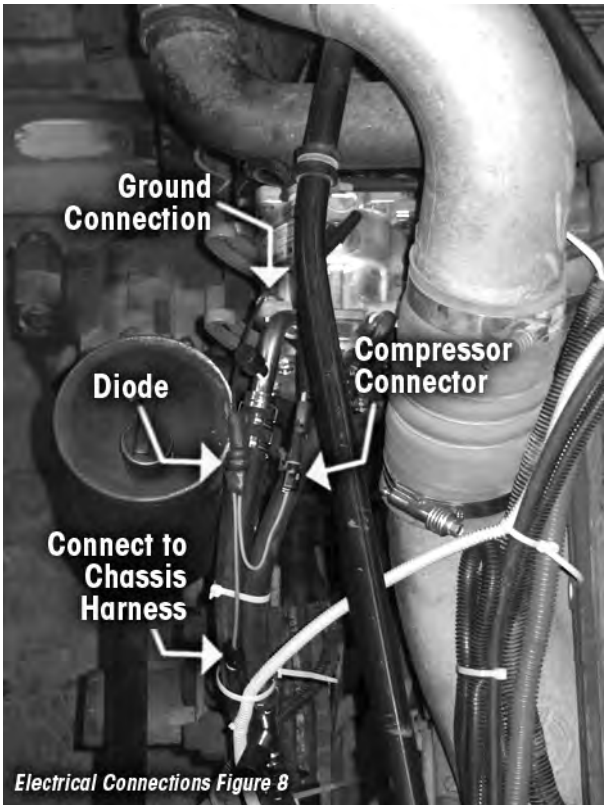
Electrical Connections Figure 7

8. Locate RD-6-5308-0 chassis harness. Connect chassis harness to pressure switches on receiver drier. NOTE; Connectors are different and must be connected to the correct switch. If it does not snap on with minimal pressure, try the other switch. Red connector to gray switch. Gray connector to black switch. See figure 7.

9. Route single yellow wire under cab toward passenger side, along A/C hoses. Route yellow wire up through cone grommet between bulkhead fittings.

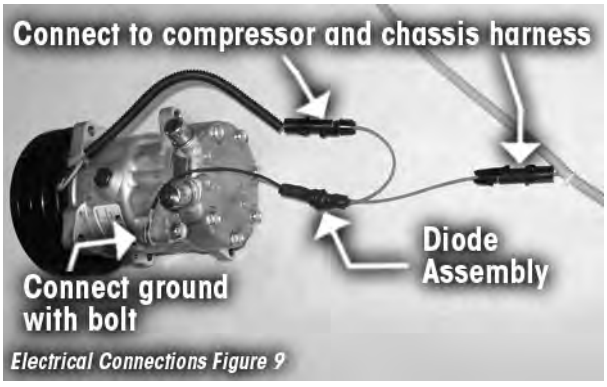
10. Secure yellow wire to hoses with nylon ties.

11. Route remaining chassis harness wires forward along A/C hoses to compressor.



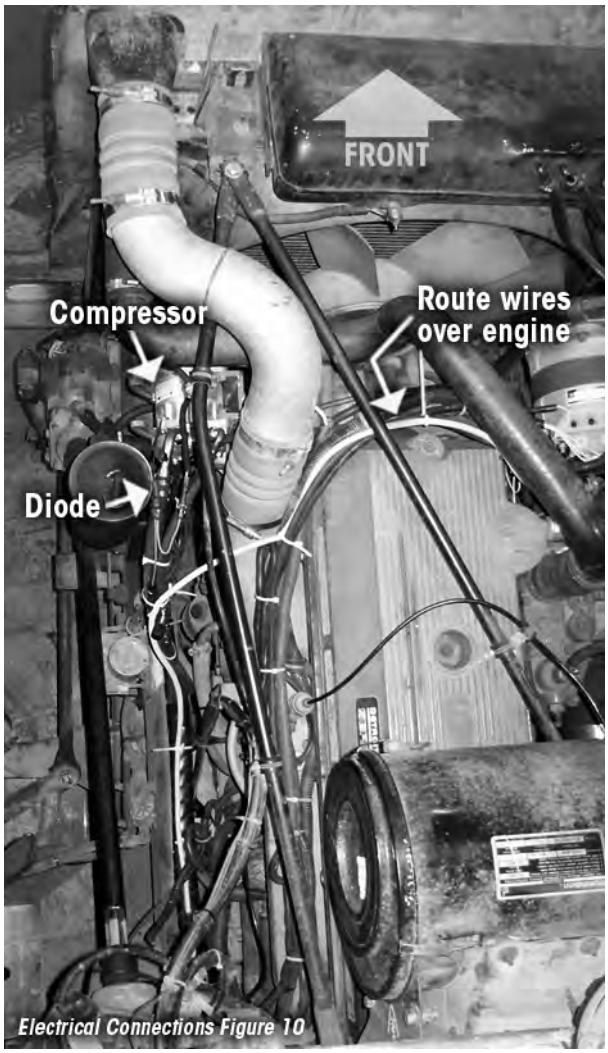
Electrical Connections Figure 8

12. Locate RD-6-5307-0 diode assembly in electrical kit. Connect diode assembly to compressor wire and mating connector on chassis harness. See figure 8.

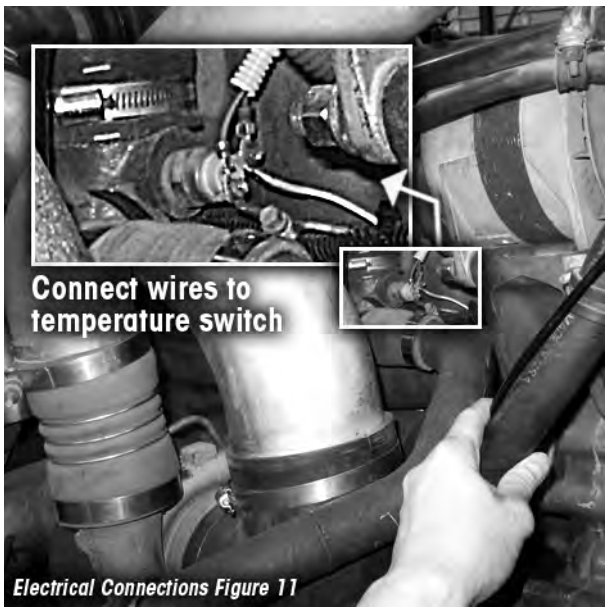


Electrical Connections Figure 9

13. Locate ⅜ bolt, washer and lock nut in electrical kit. Secure diode assembly ground wire to mounting boss on compressor with bolt. See figure 9.



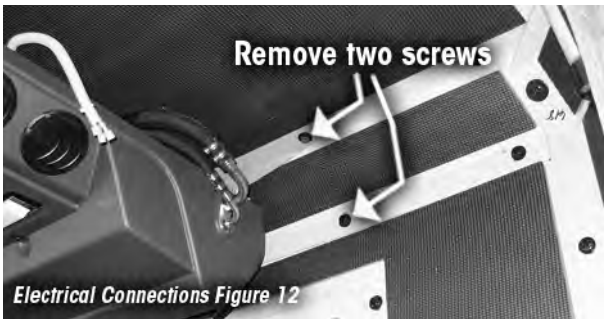
Electrical Connections Figure 10



Electrical Connections Figure 11

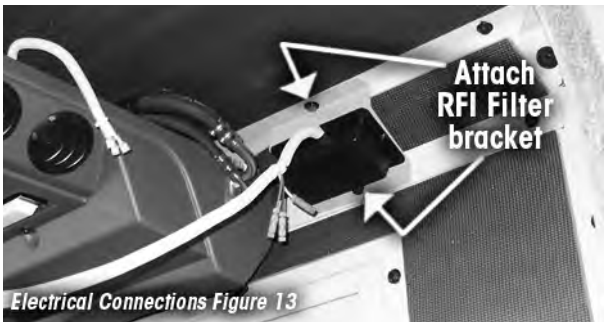
14. Route remaining chassis harness wires over engine to engine coolant temperature switch. Connect wires to switch in parallel with existing wires as shown in figure 10 & 11.

15. Secure chassis harness and diode assembly with nylon ties.
NOTE: Steps 16 through 21 must be performed AFTER armor has been installed.



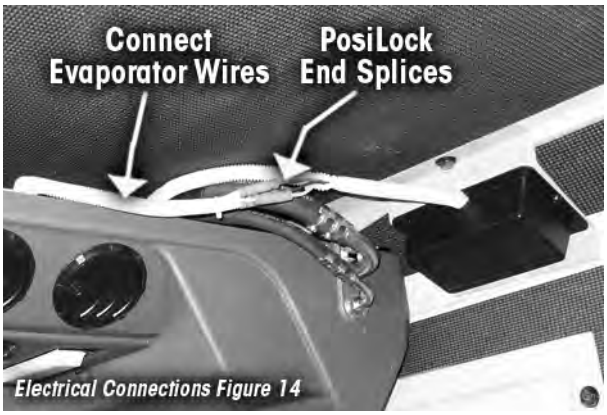
Electrical Connections Figure 12

16. Remove and save two screws on top and rear armor plates near evaporator fittings. See figure 12



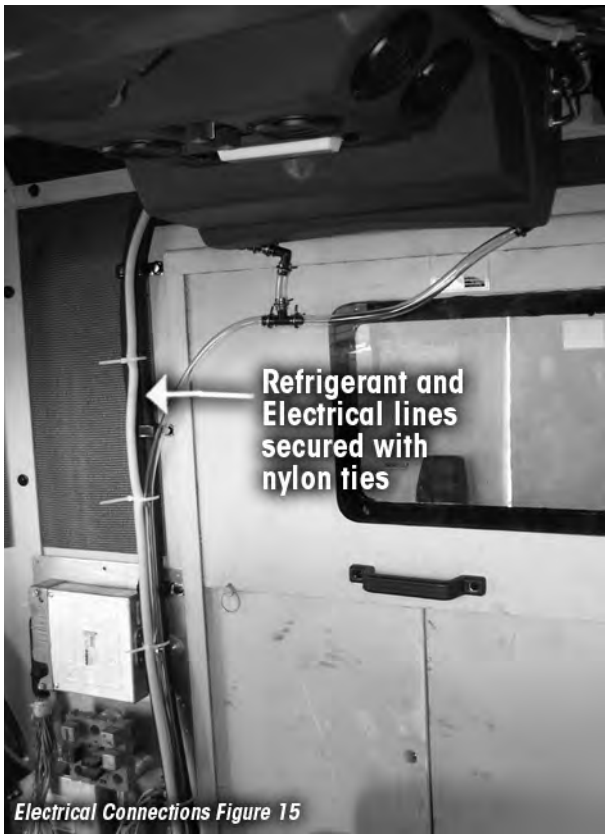
Electrical Connections Figure 13

17. Locate RD-2-4618-0 RFI filter assembly Attach RFI filter bracket using locktite and original screws as shown in figure 13. Tighten screws to 15 lbs/ft per armor installation instructions.



Electrical Connections Figure 14

18. Cut existing terminals off evaporator harness and strip ends of wires. Connect wires from evaporator unit to matching wires on RFI filter using PosiLock end splices. See figure 14



Electrical Connections Figure 15

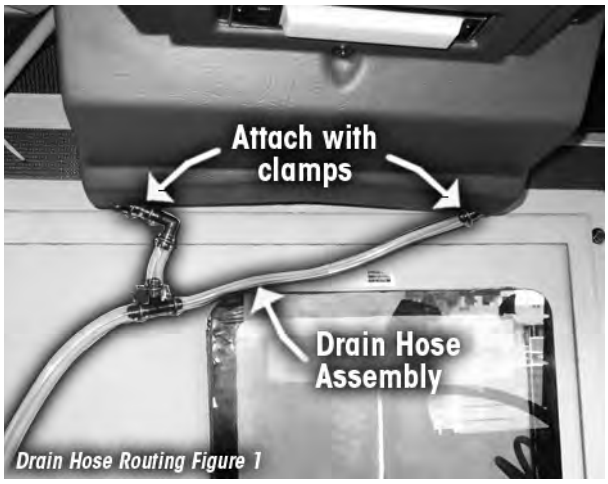
19. Route remaining wires from RFI filter along refrigerant hoses and secure wires with nylon ties. See figure 15

20. Connect RFI filter harness to mating connectors on power relay and chassis harnesses near bulkhead fittings.

21. Reconnect battery, turn on key switch but do not start truck. Check fan function on evaporator unit. Reinstall heater side panel near to cover electrical compartment.

DRAIN HOSE INSTALLATION

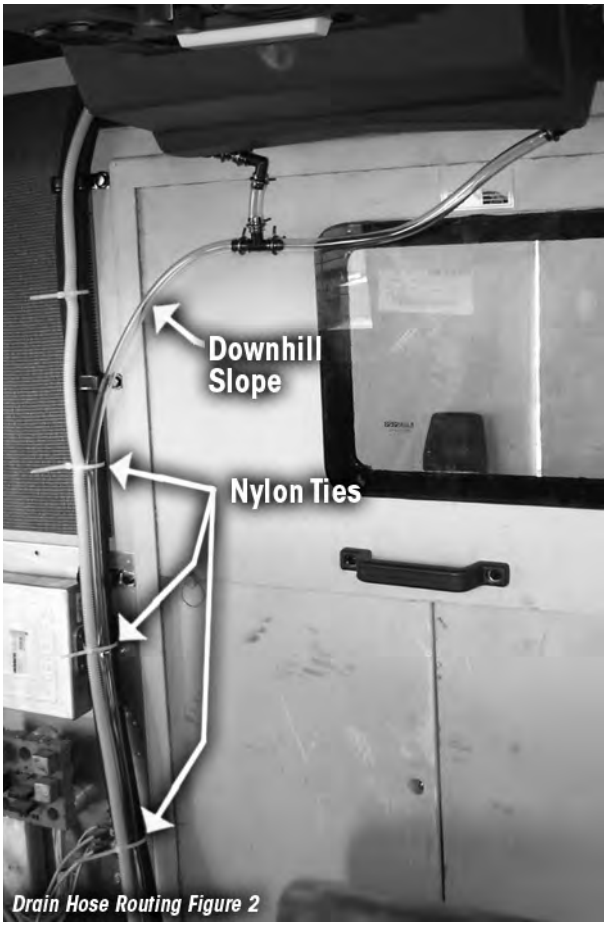
1. Locate drain hose kit provided in A/C kit.



Drain Hose Routing Figure 1

2. Attach drain hose assembly to evaporator unit drain tubes with clamps provided. See figure 1

3. Route drain hose over to A/C hoses then down through cone grommet between A/C bulkhead fittings.



Drain Hose Routing Figure 2

4. Be sure hose is routed continuously downward with no up-hill sections. Secure to refrigerant hoses with nylon ties. Do not over-tighten nylon ties and collapse drain hose. See figure 2

5. Underneath cab, cut Drain hose to (if necessary) length so that approximately 5 inches protrude through grommet. Retrieve plastic coupler from trimmed end of hose. Reinstall plastic coupler to end of hose and attach rubber duck bill (from drain hose kit) to coupler. Duck bill prevents dust and insects from being sucked into evaporator drain.

CHARGING REFRIGERANT SYSTEM

Charging must be done by a certified A/C technician. Charge ports are near the compressor.

Refrigerant	R-134a
Refrigerant charge	3.25 Lbs

Compressor oil	PAG SP15
Oil charge (supplied in compressor) (new system)	270 CC

RED DOT CORPORATION
Aftermarket Office
P.O.Box 88790 Seattle, WA 98138
(206) 575-3840 fax (206) 574-6659

M915/A2 Air Conditioner Compressor Mounting Kit

RED DOT#: RD-9-10060-0

RD-9-10061-0 INSTALLATION INSTRUCTIONS

M915/A2 with DETROIT 60 SERIES

PARTS LIST

Compressor mounting bracket	1	Bolt M10x1.5x40mm	2	Nut, M10x 1.5 nylon lock	5
Belt, 17560	1	Bolt M10x1.5x35mm	2	Washer, M10	2
Compressor Adjusting Plate	1	Bolt M10x1.5x130mm	2	Installation Instructions	1

TOOLS REQUIRED

- 3/8” drive ratchet or air ratchet
- Metric hex wrench set
- Metric socket set
- Torque wrench 0-50 ft-lbs
- ½” Breaker bar
- Belt tension gauge
- Wire brush and scraper

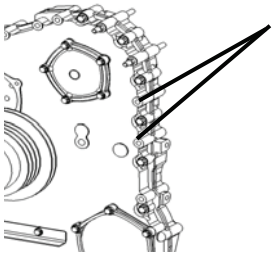
Before starting installation review parts list above to verify that all required parts needed for installation were received.

MACHINE PREPARATION

1. Set parking brake and disconnect battery or use other means to prevent accidental engine starting.
2. Remove fan drive belts (3) from around engine crank drive.

COMPRESSOR MOUNT INSTALLATION

1. Clean around and clean out the two boss holes on the front of the engine. FIGURE 1
2. Install Compressor bracket with (2) M10 x 130mm bolt and nylock nuts.
3. Torque down all mounting bolts to 35 ft-lbs.



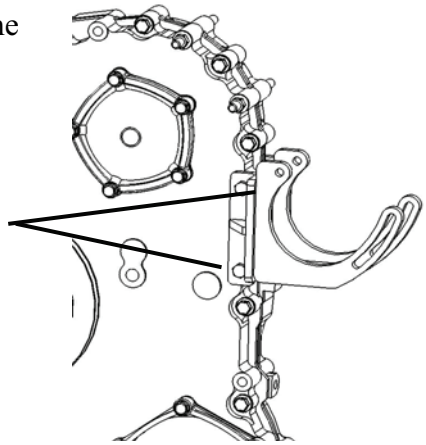


FIGURE 1

COMPRESSOR INSTALLATION

1. Install compressor over compressor mount bracket. Use M10x35 bolts and locking nuts on the two upper pivot holes. FIGURE 2
2. Use M10x40mm bolt with a flat washer and locking nut on the rear slide ear and an M10x40mm bolt with a flat washer and the compressor adjusting plate on the front slide ear. (Note: a flat washer must cover both slide ears and neither of the front mounting bolts can contact the compressor pulley.) FIGURE 2
3. Tighten the bolts so the compressor can still swing.
4. Install drive belt around the larger rear groove fan pulley and the rear groove of the compressor.
5. Use a ½" breaker bar to tension the drive belt. When proper tension is achieved torque the bolt in the adjusting plate to 35ft-lbs. Proper belt tension for a new belt is 120 lbs.
6. Tighten all four compressor mounting bolts to 35 ft-lbs.

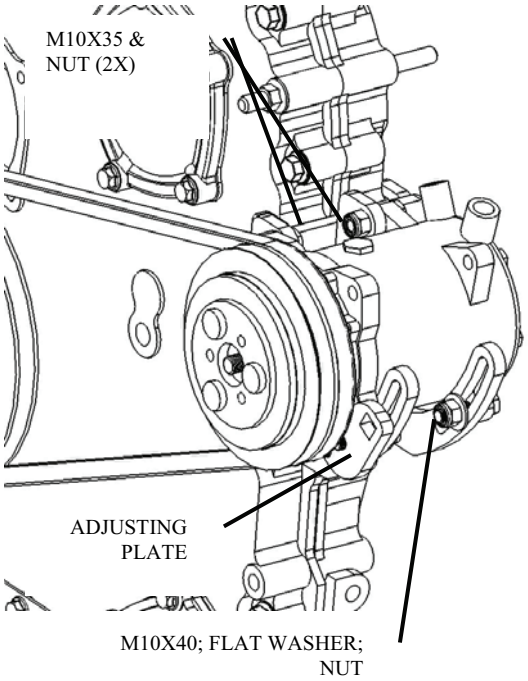


FIGURE 2

INSTALLATION FOLLOW-UP

After AC system installation is complete and a minimum of 15 minutes of operation check that all hardware is tight. Re-tension the belt to 90 lbs when cold and a minimum of 50 lbs when hot.

M915A2/M916A1 ARMORWORKS CPK A/C INSTALLATION

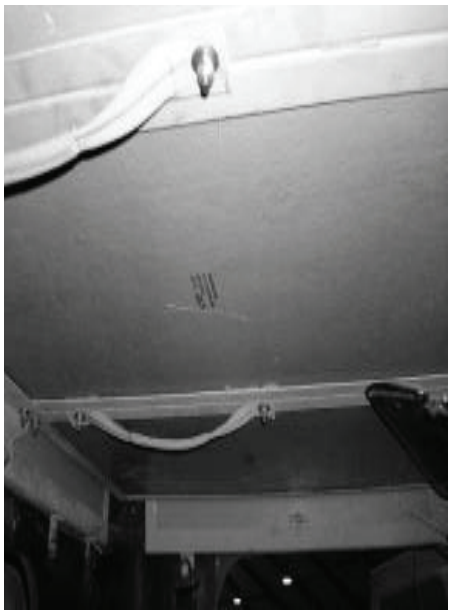
The Red Dot A/C system designed for the M915A2 was designed to fit the vehicle that received the Simula/Armor Holdings CPK.

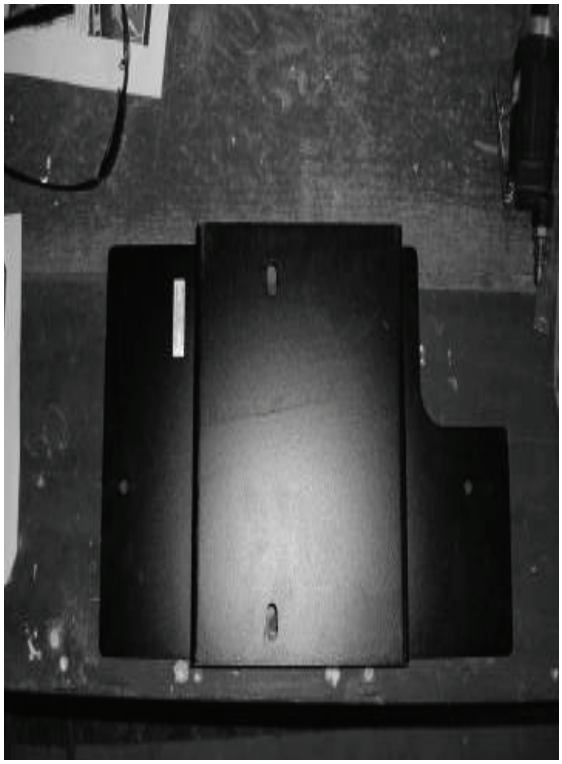
The M915A2's and M916A1's that were kitted with the Armorworks CPK will receive the same A/C kit.

The only difference between the two vehicles will be the mounting of the Evaporator and the RFI Filter which will be covered in this slideshow. Dimensions will follow at the end of the slideshow.

AW: Armorworks
AH: Armor Holdings

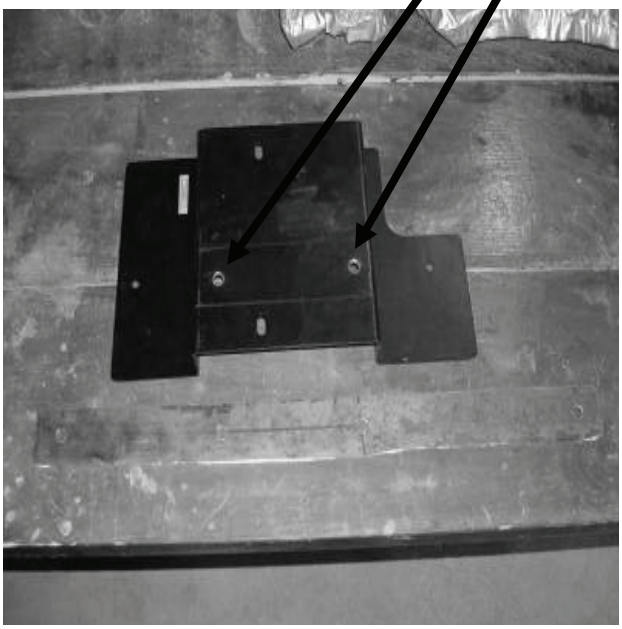
The two brackets shown below were designed to bolt to the existing holes in the AH CPK. These mounting provisions are completely different in the vehicles with the AW CPK.

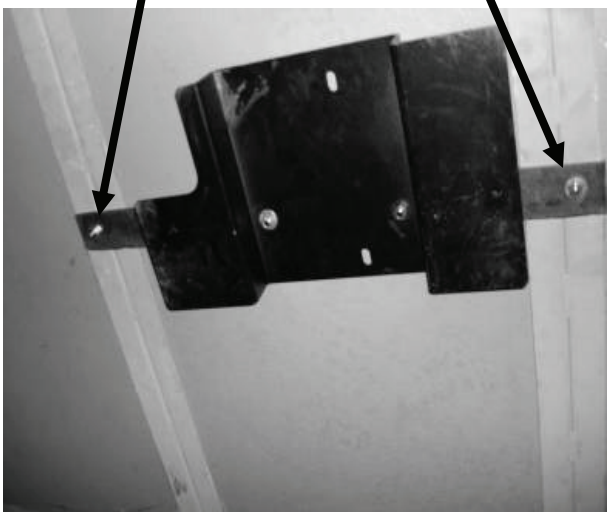




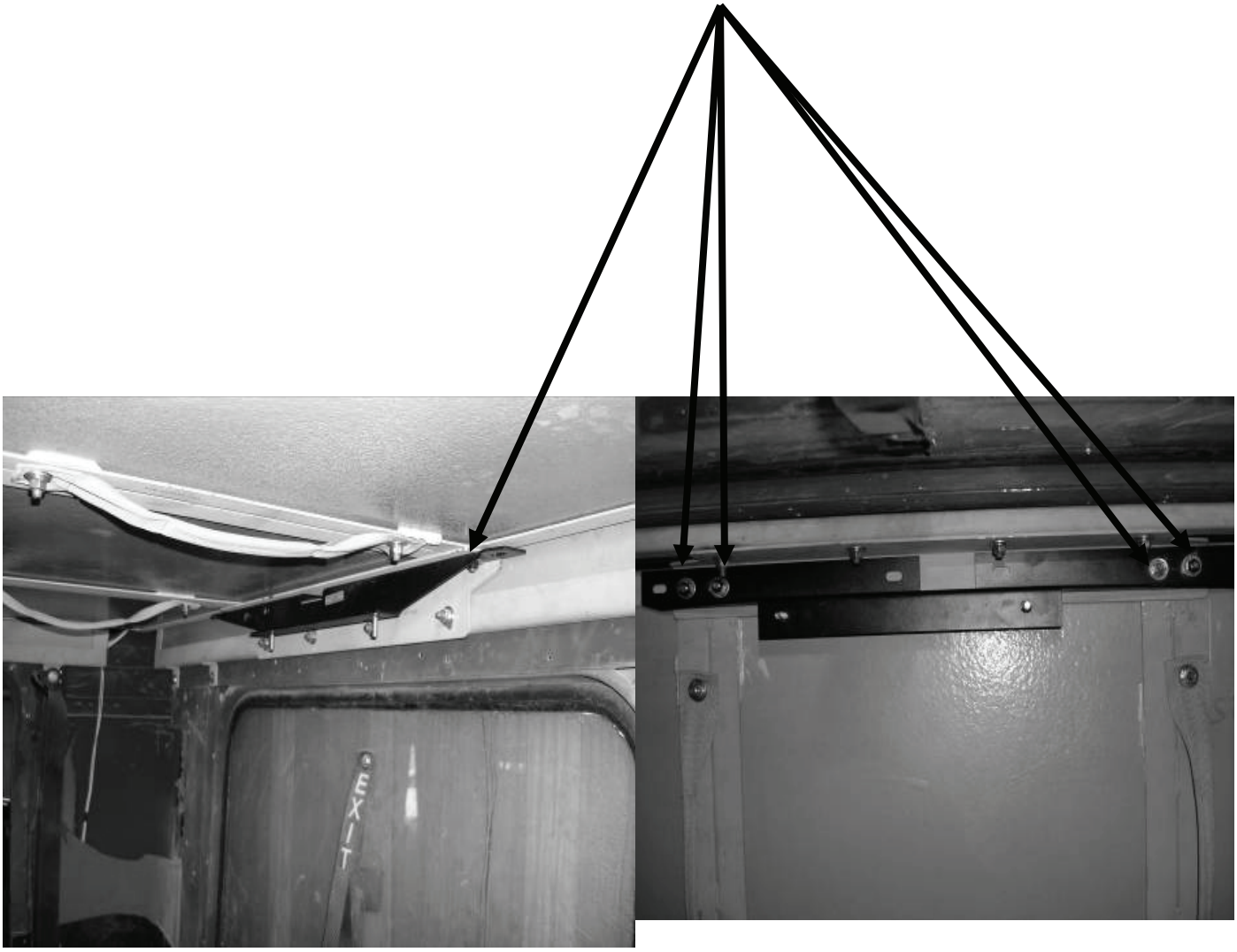
One new front mount bracket will have to be fabricated for the installation of the evaporator.

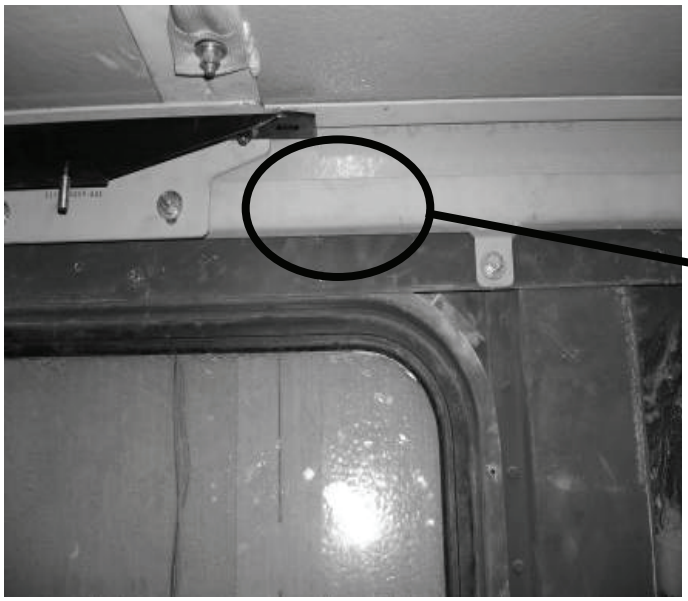
Remove two straps from roof as existing studs will be used for mounting the front evaporator brackets shown below. Two holes need to be match drilled into the front evaporator bracket as shown in the photo to the bottom left.



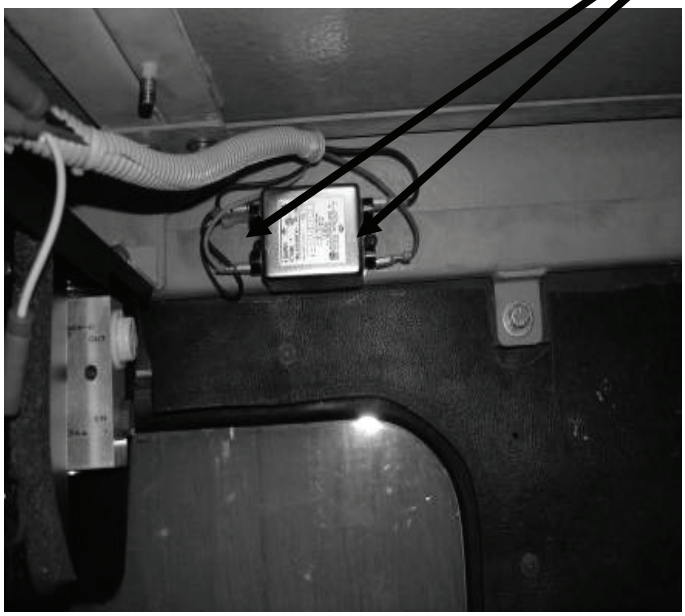


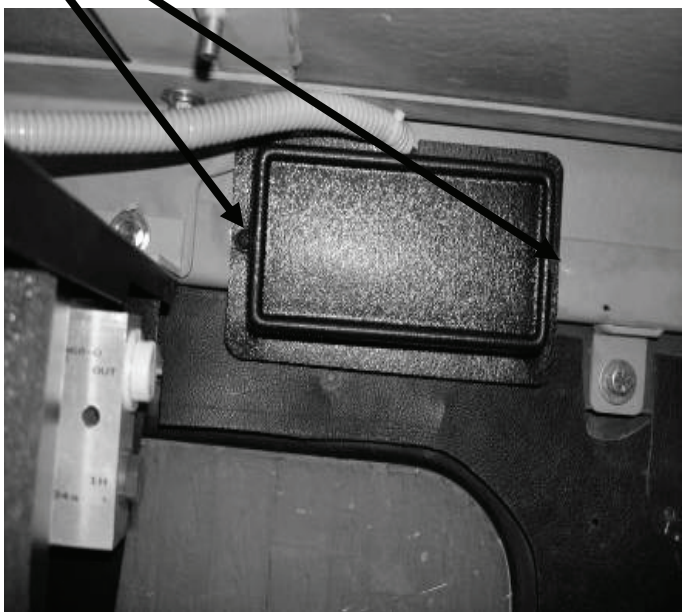
Four new holes will be drilled into the rear evaporator mounting bracket and mounted to the existing four studs on the rear roof armor bracket.





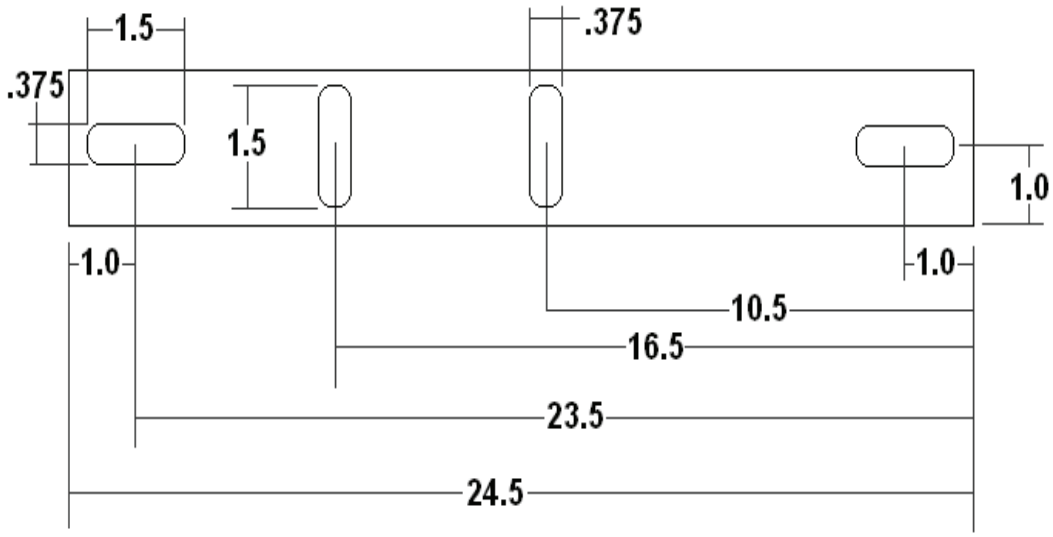
The RFI Filter will not mount to the existing holes in the AW CPK. Disassemble the RFI Filter from the bracket and attach the RFI to the armor channeling to the right of the evaporator with self tapping screws. Install dust cover over RFI Filter using the same self tapping screws. You will need to drill four small pilot holes through the channeling. **ENSURE YOU DO NOT DRILL INTO ARMOR PANELING.** (disregard the rear evaporator bracket in the bottom two photo's; it is not the correct bracket although has no bearing on this instruction)



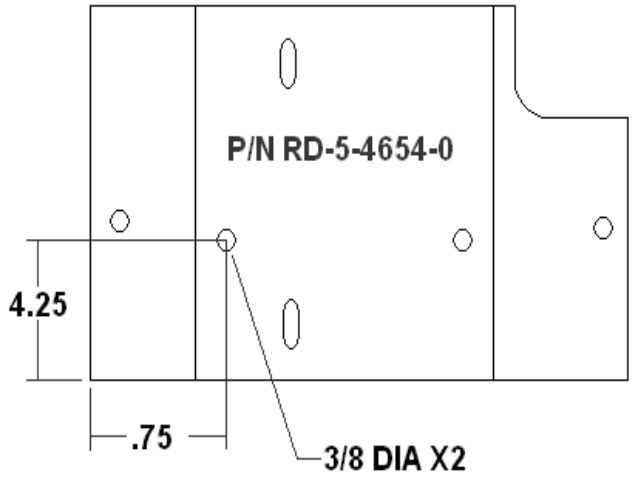


Completed evaporator installation.

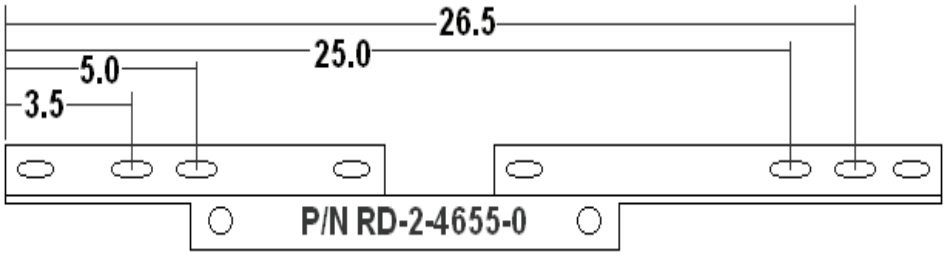
Dimensions for front evaporator bracket to be fabricated. This can be fabricated out of 1/16” or 3/8” steel.



Dimensions for modification to front evaporator mounting bracket.
(Two holes to be drilled are shown in blue below.)



Dimensions for modifications to rear evaporator mounting bracket.
(Four slots to be drilled shown in blue below.)



REPAIR PARTS AND SPECIAL TOOLS LIST (RPSTL) INTRODUCTION 0028 00

SCOPE

This RPSTL lists and authorizes spares and repair parts for performance of Field Level Maintenance of the Air Conditioning Kit for Truck, Tractor, Line Haul M915A2P1 and Truck, Tractor, Light Equipment Transporter (LET) M916A1P1. It authorizes the requisitioning, issue, and disposition of spares and repair parts 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:

a. **Repair Parts Lists Work Package.** Work package containing lists of spares and repair parts authorized by this RPSTL for use in the performance of maintenance. This work package also includes parts which must be removed for replacement of the authorized parts. Parts lists are composed of a single functional group, with the parts in each figure listed. Repair parts kits are listed separately in their own functional group. Items listed are shown on the associated illustrations.

b. **Special Tools List Work Package.** There are no special tools for this Air Conditioning Kit.

c. **Cross-Reference Indexes Work Package.** There are two cross-reference indexes in this RPSTL: National Stock Number Index and Part Number Index.

EXPLANATION OF COLUMNS IN THE REPAIR PARTS LISTS

a. **Item No. (Column 1).** Indicates the number used to identify items called out in the illustration.

b. **SMR Code (Column 2).** The SMR code containing supply/requisitioning information, maintenance level authorization criteria, and disposition instruction, as shown in the following breakout:

SOURCE CODE	MAINTENANCE CODE		RECOVERABILITY CODE
XXxxx	xxXXx		xxxxX
1st two positions	3rd position	4th position	5th position
How you get an item.	Who can install, replace or use the item.	Who can do complete repair* on the item.	Who determines disposition action on an unserviceable item.

* *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.

EXPLANATION OF COLUMNS IN THE REPAIR PARTS LISTS - CONTINUED

(1) **Source Code.** The source code tells you how to get an item needed for maintenance, repair, or overhaul of an end item/equipment. Explanations of source codes follow:

Code	Application/Explanation
PA PB PC PD PE PF PG	Stocked items; use the applicable NSN to request/requisition items with these source codes. They are authorized to the maintenance category indicated by the code entered in the third position of the SMR code. *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 third 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 requested/requisitioned individually. They must be made from bulk materiel which is identified by the part number in the DESCRIPTION AND USABLE ON CODE (UOC) column and listed in the bulk materiel group work package of the RPSTL. If the item is authorized to you by the third position of the SMR code, but the source code indicates it is made at a higher level, order the item from the higher level of maintenance.
AO-Assembled by Unit/ AVUM level AF-Assembled by DS/ AVIM level AH-Assembled by GS level AL-Assembled by SRA AD-Assembled by Depot	Items with these codes are not to be requested/requisitioned individually. The parts that make up the assembled item must be requisitioned or fabricated and assembled at the level of maintenance indicated by the source code. If the third 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 of controlled exchange, when authorized, may be used as a source of supply for items with the above source codes, except for those source coded "XA" or those aircraft support items restricted by requirements of AR 750-1.

EXPLANATION OF COLUMNS IN THE REPAIR PARTS LISTS - CONTINUED

(2) **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:

(a) 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 one of the following levels of maintenance:

Code	Application/Explanation
C	Crew or Operator maintenance done within Field/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 (SRA) can remove, replace, and use the item.
D	Depot Maintenance can remove, replace, and use the item.

(b) 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.

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 (SRA) 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.
Z	Nonrepairable. No repair is authorized.
B	No repair is authorized. No parts or special tools are authorized for the maintenance of a “B”-coded item. However, the item may be reconditioned by adjusting, lubricating, etc., at the user level.

EXPLANATION OF COLUMNS IN THE REPAIR PARTS LISTS - CONTINUED

(3) **Recoverability Code.** Recoverability codes are assigned to items to indicate the disposition action on unserviceable items. The recoverability code is entered in the fifth position of the SMR code as follows:

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 reparable, condemn and dispose of the item at the Unit level maintenance.
F	Reparable item. When uneconomically reparable, condemn and dispose of the item at Direct Support level.
H	Reparable item. When uneconomically reparable, condemn and dispose of the item at 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.
L	Reparable item. Condemnation and disposal of item not authorized below Specialized Repair Activity (SRA).
A	Item requires special handling or condemnation procedures because of specific reasons (e.g., precious metal content, high dollar value, critical material, or hazardous material). Refer to appropriate manuals/directives for specific instructions.

c. **NSN - (Column 3).** The NSN for the item is listed in this column.

d. **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.

e. **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 part number from the part ordered.

f. **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.

EXPLANATION OF COLUMNS IN THE REPAIR PARTS LISTS - CONTINUED

g. **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, group or an assembly. A "V" appearing in this column in lieu of a quantity indicates that the quantity is variable and the quantity may vary from application to application.

EXPLANATION OF CROSS-REFERENCE INDEXES WORK PACKAGE FORMAT AND COLUMNS

a. **National Stock Number (NSN) Index Work Package.**

(1) **STOCK NUMBER Column.** This column lists the NSN by National Item Identification Number (NIIN) sequence. The NIIN consists of the last nine digits of the NSN (i.e., NSN 5305-01-674-1467). 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.

(2) **FIG. Column.** This column lists the number of the figure where the item is identified/located. The figures are in numerical order in WP 0029 00.

(3) **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.

b. **Part Number (P/N) Index Work Package.** Part numbers in this index are listed in ascending alphanumeric sequence (i.e., vertical arrangement of letter and number combination which places the first letter or digit of each group in order A through Z, followed by the numbers 0 through 9 and each following letter or digit in like order).

(1) **PART NUMBER Column.** Indicates the P/N assigned to the item.

(2) **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.

(3) **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

a. **Usable On Code (UOC).** The UOC appears in the lower left corner of the DESCRIPTION column heading. Usable on codes are shown as "UOC:" in the Description Column (justified left) on the first line under the applicable item/nomenclature. Uncoded items are applicable to all models. Identification of the UOC's used in the RPSTL are:

Code	Used On
CP5	Air Conditioning Kit for Truck, Tractor, Line Haul M915A2P1 and Truck, Tractor, Light Equipment Transporter (LET) M916A1P1

b. **Associated Publications.** The publication(s) listed below pertain to the Air Conditioning Kit for Truck, Tractor, Line Haul M915A2P1 and Truck, Tractor, Light Equipment Transporter (LET) M916A1P1 and its components:

Publication	Short Title
TM 9-2320-363- Series	Series of Manuals for the Air Conditioning Kit for Truck, Tractor, Line Haul M915A2P1 and Truck, Tractor, Light Equipment Transporter (LET) M916A1P1

HOW TO LOCATE REPAIR PARTS

a. **When National Stock Number is Known.**

(1) **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.

(2) **Second.** Turn to the figure and locate the item number. Verify that the item is the one you are looking for.

b. **When Part Number is Known.**

(1) **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.

(2) **Second.** Look up the item on the figure in the applicable repair parts list work package.

ABBREVIATIONS

For standard abbreviations see ASME Y14.38-1999, *Abbreviations and Acronyms*.

Abbreviations	Explanation
NIIN	National Item Identification Number (consists of the last 9 digits of the NSN)
RPSTL	Repair Parts and Special Tools Lists
SMR	Source, Maintenance, and Recoverability Code
TMDE	Test, Measurement, and Diagnostic Equipment
THK	Thickness

END OF WORK PACKAGE

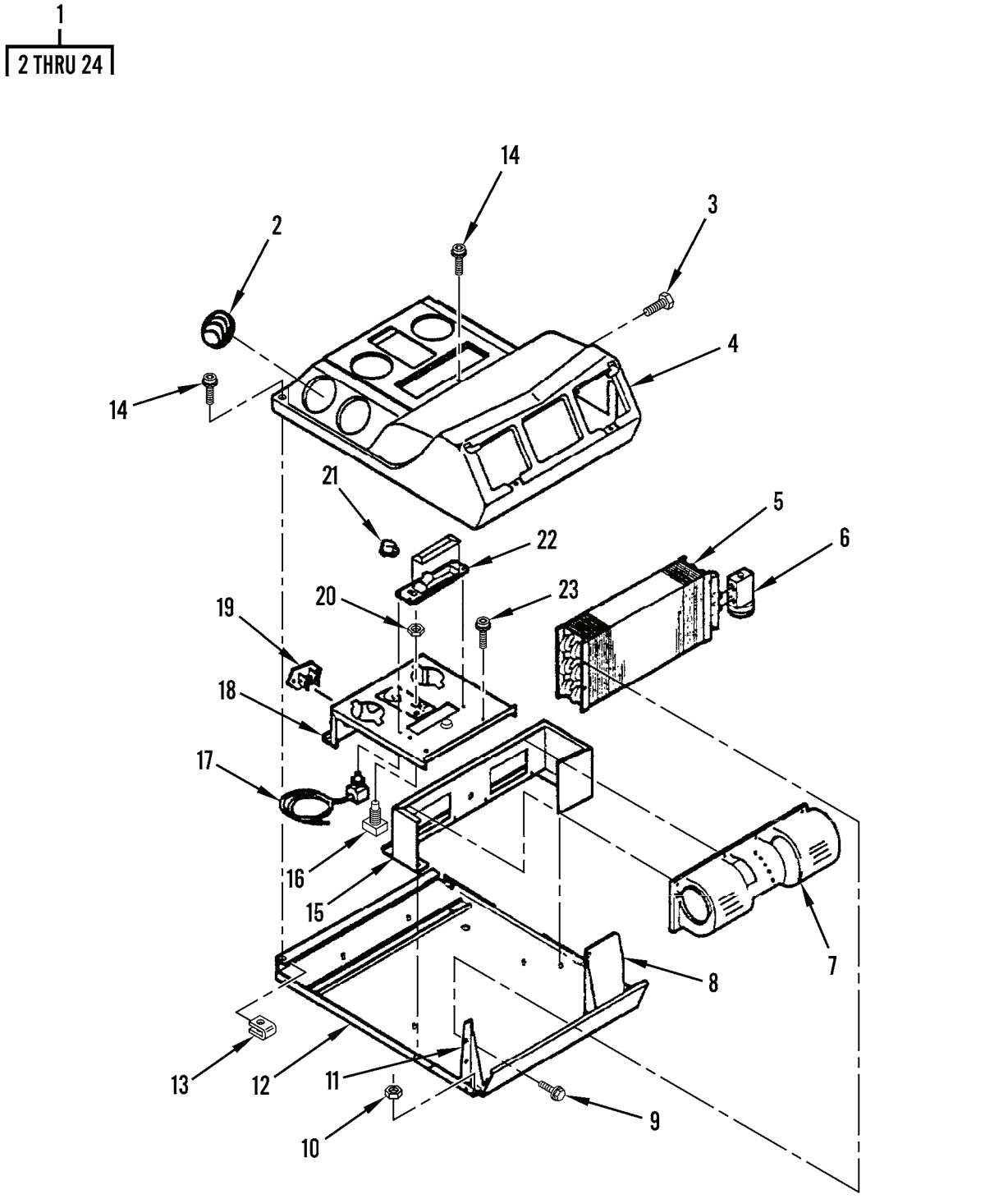
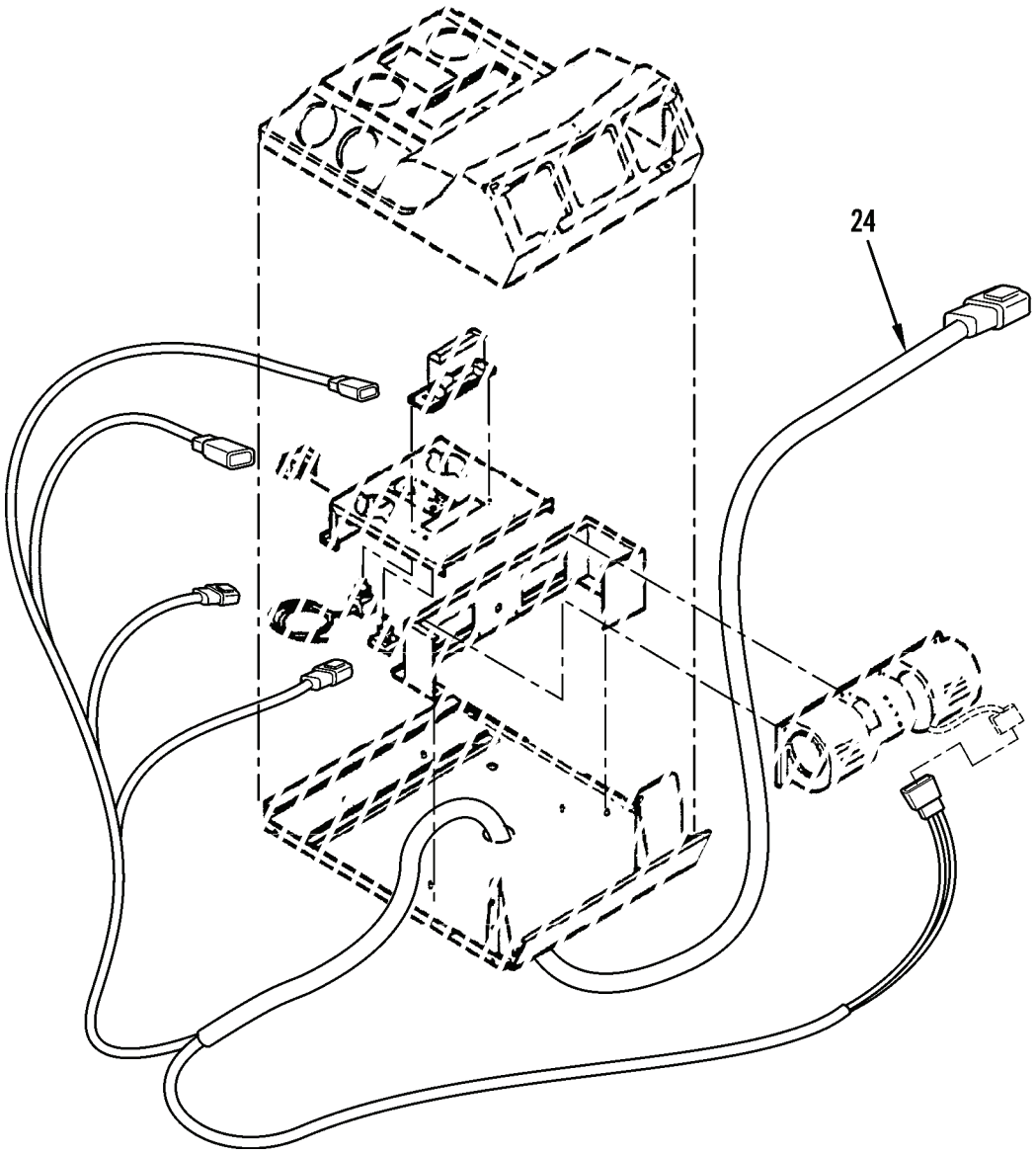


Figure 1. A/C Evaporator Assembly (Sheet 1 of 2)



449-506

Figure 1. A/C Evaporator Assembly (Sheet 2 of 2)

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
					GROUP 33 SPECIAL PURPOSE KITS	
					GROUP 3307 SPECIAL PURPOSE KITS	
					FIG. 1 A/C EVAPORATOR ASSEMBLY	
1	PAOOO		62534	RD-2000-2	.AIR CONDITIONER,.....	1
2	PAOZZ	5340015589858	62534	RD-5-8436-0	.LOUVER.....	1
3	PAOZZ	5305015242260	62534	RD-5-7213-1-.375	.SCREW,CAP,HEXAGON H 10-16 HX WSHR HD.....	1
4	PAOZZ	5340015589811	62534	RD-2-3006-0	.COVER ASSEMBLY.....	1
5	PAOZZ	4130015589941	62534	RD-2-0993-1	.EVAPORATOR CORE.....	1
6	PAOZZ	4820014664615	62534	RD-5-6868-0P	.VALVE,EXPANSION.....	1
7	PAOZZ	4140015589934	62534	RD-5-8526-0	.BLOWER MOTOR.....	1
8	PAOZZ	5340015595764	62534	RD-2-3003-1	.RETAINER,TOP.....	1
9	PAOZZ	5305025589810	62534	RD-5-4062-1-.500	.SCREW 10-32 HX WSHR HD.....	1
10	PAOZZ	5310015593747	62534	RD-5-4071-0	.NUT 1/4-20.....	1
11	PAOZZ	5340015595761	62534	RD-2-0986-1	.RETAINER,BOTTOM.....	1
12	PAOZZ	5340015589859	62534	RD-2-2994-1	.BASE PLATE.....	1
13	PAOZZ	5310015231552	62534	RD-5-5381-0	.NUT,CLIP-ON M5-.8.....	1
14	PAOZZ	5305015231947	62534	RD-5-10825-1-16M	.SCREW,CAP,HEXAGON H M5 X .8 WITH WASHER.....	1
15	PAOZZ	5340015593752	62534	RD-2-3000-2P	.MOUNT,MOTOR.....	1
16	PAOZZ	5930015321455	62534	RD-5-3646-0	.SWITCH SECTION,ROTA.....	1
17	PAOZZ	6685015174892	62534	RD-5-11440-OP	.THERMOSTAT,FLOW CON.....	1
18	PAOZZ	5340015589864	62534	RD-2-2997-2	.PANEL,CONTROL.....	1
19	PAOZZ	5905014662808	62534	RD-5-3647-0P	.RESISTOR.....	1
20	PAOZZ	5310015205884	62534	RD-5-4073-0	.NUT BLANK 10-32.....	1
21	PAOZZ	5355015330606	62534	RD-5-5928-0	.KNOB.....	1
22	PAOZZ	5930015588918	62534	RD-5-8535-0	.DOME LIGHT ASSEMBLY.....	1
23	PAOZZ		62534	RD-5-4061-0-.500	.SCREW 1/4-20.....	1
24	PAOZZ	6150015595918	62534	RD-2-3135-0	.WIRING HARNESS.....	1

END OF FIGURE

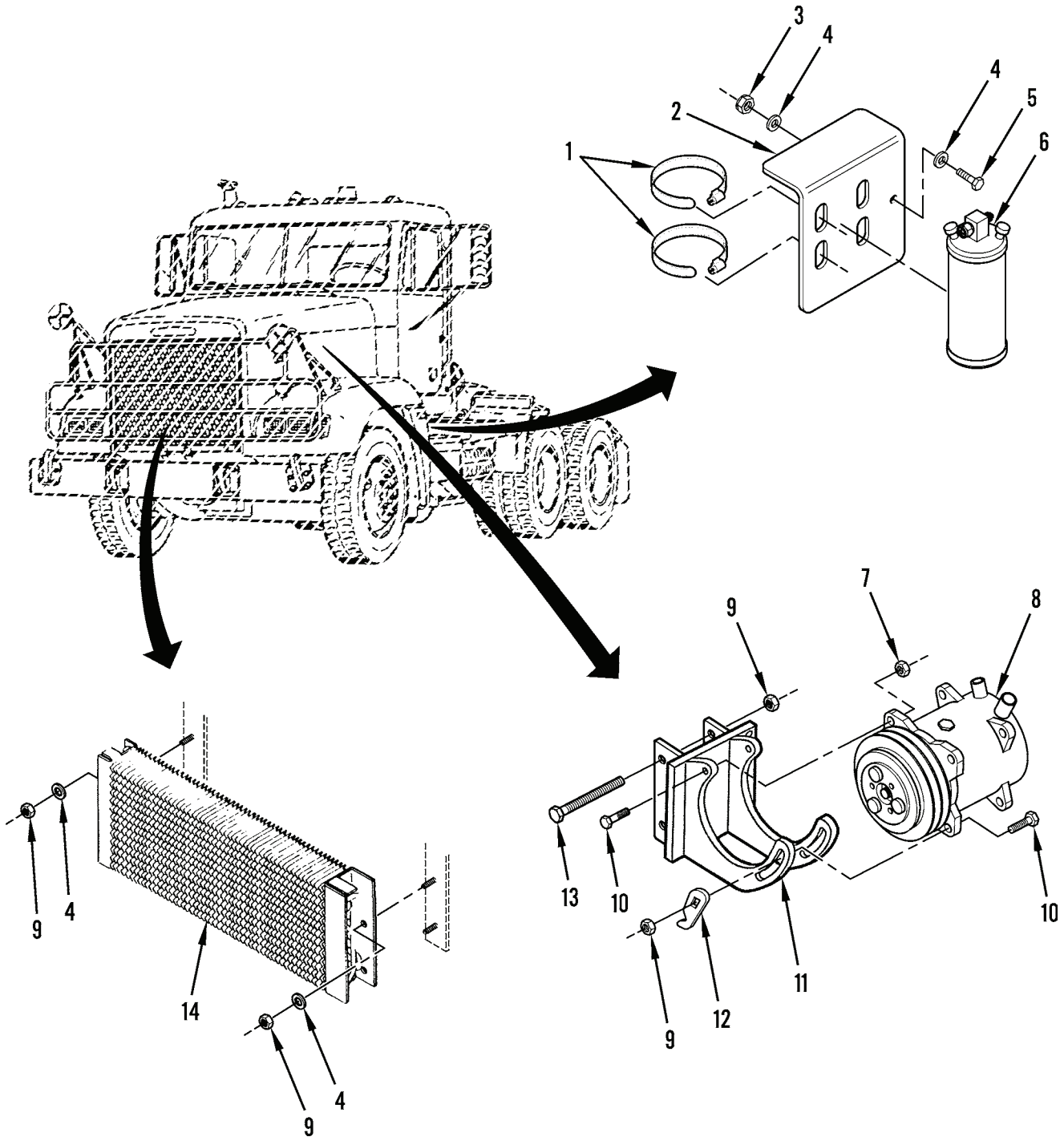


Figure 2. A/C Condenser, Receiver/Dryer, and Compressor

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
					GROUP 3307 SPECIAL PURPOSE KITS	
					FIG. 2 A/C CONDENSER, RECEIVER/ DRYER, AND COMPRESSOR	
1	PAOZZ	4730015265020	62534	RD-5-4035-52	CLAMP,HOSE.....	2
2	PAOZZ		62534	RD-4-6096-0	BRACKET,RECIEVER DR.....	1
3	PAOZZ	5310015314391	62534	RD-5-6400-0	NUT,SELF-LOCKING,HE 3/8".....	1
4	PAOZZ	5310015562907	62534	RD-5-4175-0	WASHER,FLAT 3/8".....	2
5	PAOZZ		62534	RD-5-6358-0-1.250	BOLT 3/8" X 1 1/4.....	1
6	PAOZZ	4130015215745	62534	RD-5-11435-0P	RECEIVER,LIQUID REF.....	1
7	PAOZZ	5310008140673	81349	M45913/35CGBC	NUT,SELF-LOCKING 5/16-18.....	1
8	PAOZZ	4130015217816	62534	RD-5-11393-0P	COMPRESSOR,REFRIGER 24V .2A.....	1
9	PAOZZ	5310015258620	62534	RD-5-9377-0M	NUT,SELF-LOCKING,HE M10.....	1
10	PAOZZ	5305015297949	62534	RD-5-6250-0-40M	SCREW,CAP,HEXAGON H M10X40.....	1
11	PAOZZ	5340015594716	62534	RD-2-4654-0	BRACKET.....	1
12	PAOZZ	5342015314331	62534	RD-9-10049-0P	BRACKET,ENGINE ACCE.....	1
13	PAOZZ	5306015589847	62534	RD-5-6250-130M	SCREW M10X130M.....	4
14	PAOZZ	4130015590395	62534	RD-4-6115-0	CONDENSER.....	1

END OF FIGURE

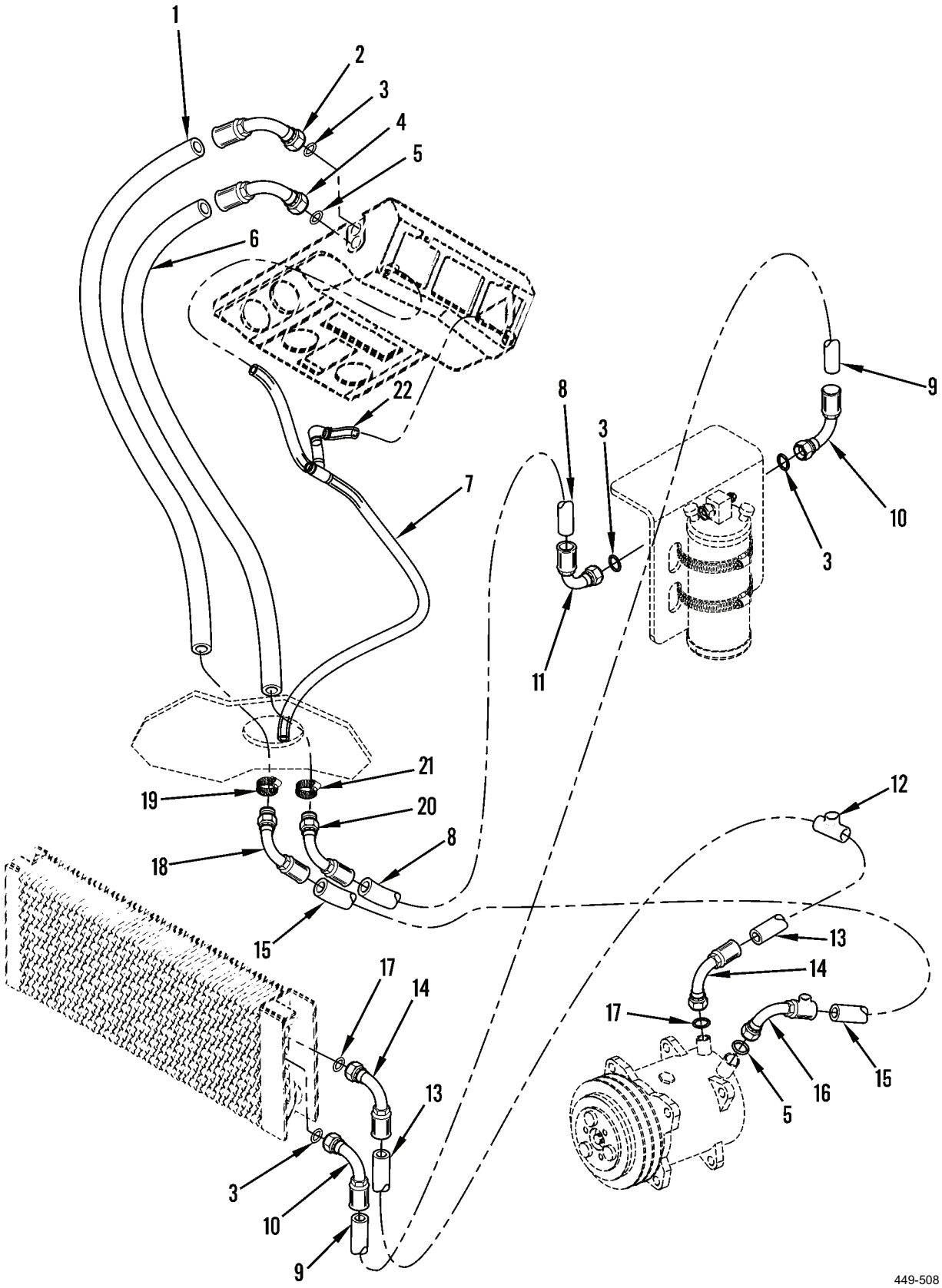


Figure 3. A/C Hoses

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
					GROUP 3307 SPECIAL PURPOSE KITS	
					FIG. 3 A/C HOSES	
1	MFOZZ		62534	RD-5-10507-EVAP	HOSE MAKE FROM BULK PN RD-5-10507-600M, CUT TO LENGTH.....	1
2	PAOZZ	4730015247449	62534	RD-5-10541-1P	ELBOW,HOSE TO BOSS #12, 90 DEG. MALE.....	1
3	PAOZZ	5331015247872	62534	RD-5-11017-0P	O-RING #10/12.....	1
4	PAOZZ	4730015251956	62534	RD-5-10537-0P	ELBOW,TUBE #6, 90 DEG. MALE.....	1
5	PAOZZ	5331015571933	62534	RD-5-11015-0	O-RING #6.....	1
6	MFOZZ		62534	RD-5-10504-EVAP	HOSE MAKE FROM BULK PN RD-5-10504-600M, CUT TO LENGTH.....	1
7	PAOZZ	4720015594386	62534	RD-5-6532-120P	HOSE DRAIN.....	1
8	MFOZZ		62534	RD-5-10504-DRY	HOSE MAKE FROM BULK PN RD-5-10504-600M, CUT TO LENGTH.....	1
9	MFOZZ		62534	RD-5-10504-COND	HOSE MAKE FROM BULK PN RD-5-10504-600M, CUT TO LENGTH.....	1
10	PAOZZ	4730015238622	62534	RD-5-10520-0P	ELBOW,TUBE #6, 90 DEG. FEMALE.....	2
11	PAOZZ	4730015324412	62534	RD-5-10555-0P	ADAPTER,STRAIGHT,HO #6, 45 DEG. FEMALE.....	1
12	PAOZZ	4730015561255	62534	RD-5-10707-0P	SPLICER #8, WITH SIDE CHARGE PORT..	1
13	MFOZZ		62534	RD-5-10505-COMP	HOSE MAKE FROM BULK PN RD-5-10505-600M, CUT TO LENGTH.....	1
14	PAOZZ	4730015254521	62534	RD-5-10522-0P	ELBOW,TUBE #8, 90 DEG. FEMALE.....	2
15	MFOZZ		62534	RD-5-10507-COMP	HOSE MAKE FROM BULK PN RD-5-10507-600M, CUT TO LENGTH.....	1
16	PAOZZ	4730015334964	62534	RD-5-10529-0P	ELBOW,TUBE TO HOSE #12, 90 DEG. FEMALE WITH SIDE CHARGE PORT.....	1
17	PAOZZ	5331015330282	62534	RD-5-11016-0	O-RING #8.....	1
18	PAOZZ		62534	RD-5-10563-0	FITTING #12, 90 DEG. BULKHEAD.....	1
19	PAOZZ	4730015249089	62534	RD-5-10716-0M	CLAMP,HOSE #12.....	1
20	PAOZZ	4730015324416	62534	RD-5-10560-0P	ADAPTER,STRAIGHT,HO #6, 90 DEG. BULKHEAD.....	1
21	PAOZZ	4730015249153	62534	RD-5-10713-0M	CLAMP,HOSE #6.....	1
22	PAOZZ	4720015589853	62534	RD-5-4756-0P	HOSE DRAIN.....	1

END OF FIGURE

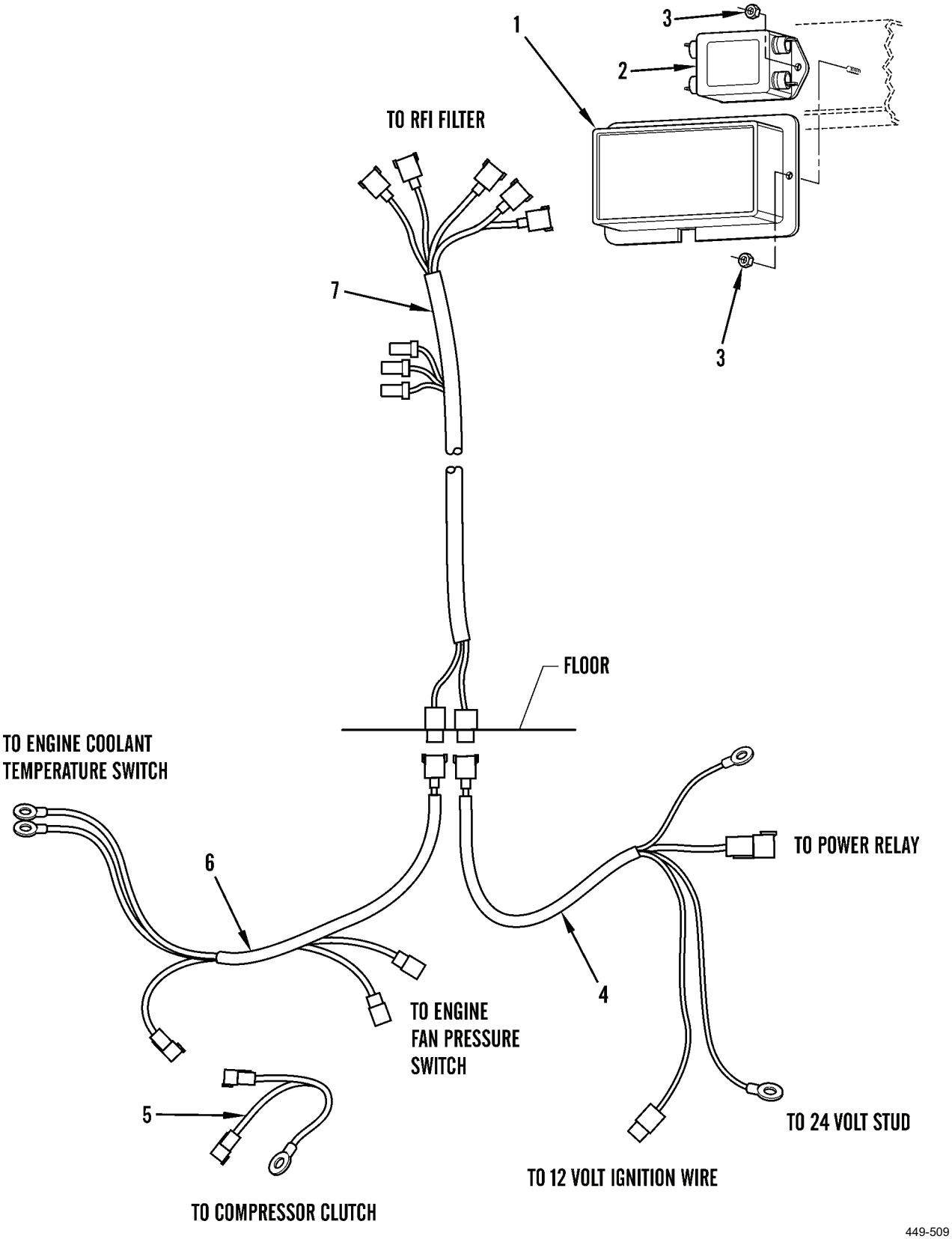


Figure 4. A/C Wiring Harnesses and RFI Filter

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
					GROUP SPECIAL PURPOSE KITS	
					FIG. 4 A/C WIRING HARNESSES AND RFI FILTER	
1	PAOZZ	5340015232408	62534	RD-4-5886-0P	COVER,ACCESS.....	1
2	PAOZZ	5915011683846	05245	10VR1	FILTER,RADIO FREQUE.....	1
3	PAOZZ	5310009591488	81349	M45913/2-6FG5C	NUT,SELF-LOCKING 3/8".....	1
4	PAOZZ	6150015590498	62534	RD-6-5309-0	POWER RELAY HARNESS.....	1
5	PAOZZ	6150015594873	62534	RD-6-5307-0	DIODE ASSEMBLY.....	1
6	PAOZZ	6150015590526	62534	RD-6-5308-0	CHASSIS HARNESS.....	1
7	PAOZZ	6150015590523	62534	RD-2-4618-0	RFI FILTER HARNESS.....	1

END OF FIGURE

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
					GROUP 95 GENERAL USE STANDARDIZED PARTS	
					GROUP 9501 HARDWARE SUPPLIES AND BULK MATERIEL, COMMON	
					FIG. BULK	
1	PAOZZ	4720015239231	62534	RD-5-10504-600M	HOSE,METALLIC #6.....	1
2	PAOZZ	4720015235941	62534	RD-5-10505-600M	HOSE,NONMETALLIC #8.....	1
3	PAOZA	4720015233955	62534	RD-5-10507-600M	HOSE,NONMETALLIC #12.....	1

END OF FIGURE

CROSS-REFERENCE INDEXES

NATIONAL STOCK NUMBER INDEX

STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
5915-01-168-3846	4	2			
4820-01-466-4615	1	6			
6685-01-517-4892	1	17			
5310-01-520-5884	1	20			
4130-01-521-5745	2	6			
4130-01-521-7816	2	8			
5310-01-523-1552	1	13			
5305-01-523-1947	1	14			
5340-01-523-2408	4	1			
4720-01-523-3955	BULK	3			
4720-01-523-5941	BULK	2			
4730-01-523-8622	3	10			
4720-01-523-9231	BULK	1			
5305-01-524-2260	1	3			
4730-01-524-7449	3	2			
5331-01-524-7872	3	3			
4730-01-524-9089	3	19			
4730-01-524-9153	3	21			
4730-01-525-1956	3	4			
4730-01-525-4521	3	14			
5310-01-525-8620	2	9			
4730-01-526-5020	2	1			
5305-01-529-7949	2	10			
5342-01-531-4331	2	12			
5310-01-531-4391	2	3			
5930-01-532-1455	1	16			
4730-01-532-4412	3	11			
4730-01-532-4416	3	20			
5331-01-533-0282	3	17			
5355-01-533-0606	1	21			
4730-01-533-4964	3	16			
5310-01-556-2907	2	4			

CROSS-REFERENCE INDEXES

PART NUMBER INDEX

CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
62534	MS51943-33		2	7
62534	M45913/2-6FG5C		4	3
62534	RD-2-0986-1		1	11
62534	RD-2-0993-1		1	5
62534	RD-2-2994-1		1	12
62534	RD-2-2997-2		1	18
62534	RD-2-3000-2P		1	15
62534	RD-2-3003-1		1	8
62534	RD-2-3006-0		1	4
62534	RD-2-3135-0		1	24
62534	RD-2-4618-0		4	7
62534	RD-2-4654-0		2	11
62534	RD-2000-2		1	1
62534	RD-4-5886-0P	5340-01-523-2408	4	1
62534	RD-4-6096-0		2	2
62534	RD-4-6115-0		2	14
62534	RD-5-10504-COND		3	9
62534	RD-5-10504-DRY		3	8
62534	RD-5-10504-EVAP		3	6
62534	RD-5-10504-600M	4720-01-523-9231	BULK	1
62534	RD-5-10505-COMP		3	13
62534	RD-5-10505-600M	4720-01-523-5941	BULK	2
62534	RD-5-10507-COMP		3	15
62534	RD-5-10507-EVAP		3	1
62534	RD-5-10507-600M	4720-01-523-3955	BULK	3
62534	RD-5-10520-0P	4730-01-523-8622	3	10
62534	RD-5-10522-0P	4730-01-525-4521	3	14
62534	RD-5-10529-0P	4730-01-533-4964	3	16
62534	RD-5-10537-0P	4730-01-525-1956	3	4
62534	RD-5-10541-1P	4730-01-524-7449	3	2
62534	RD-5-10555-0P	4730-01-532-4412	3	11
62534	RD-5-10560-0P	4730-01-532-4416	3	20
62534	RD-5-10563-0		3	18
62534	RD-5-10707-0		3	12
62534	RD-5-10713-0M	4730-01-524-9153	3	21
62534	RD-5-10716-0M	4730-01-524-9089	3	19
62534	RD-5-10825-1-16M	5305-01-523-1947	1	14
62534	RD-5-11015-0		3	5
62534	RD-5-11016-0	5331-01-533-0282	3	17
62534	RD-5-11017-0P	5331-01-524-7872	3	3
62534	RD-5-11393-0P	4130-01-521-7816	2	8
62534	RD-5-11435-0P	4130-01-521-5745	2	6
62534	RD-5-11440-OP	6685-01-517-4892	1	17
62534	RD-5-3646-0	5930-01-532-1455	1	16
62534	RD-5-3647-0		1	19
62534	RD-5-4035-52	4730-01-526-5020	2	1
62534	RD-5-4061-0-.500		1	23
62534	RD-5-4062-1-.500		1	9
62534	RD-5-4071-0		1	10
62534	RD-5-4073-0	5310-01-520-5884	1	20
62534	RD-5-4175-0	5310-01-556-2907	2	4

CROSS-REFERENCE INDEXES

PART NUMBER INDEX

CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
62534	RD-5-4756-0P		3	22
62534	RD-5-5381-0	5310-01-523-1552	1	13
62534	RD-5-5928-0	5355-01-533-0606	1	21
62534	RD-5-6250-0-40M	5305-01-529-7949	2	10
62534	RD-5-6250-130M		2	13
62534	RD-5-6358-0-1.250		2	5
62534	RD-5-6400-0	5310-01-531-4391	2	3
62534	RD-5-6532-120P		3	7
62534	RD-5-6868-0P	4820-01-466-4615	1	6
62534	RD-5-7213-1-.375	5305-01-524-2260	1	3
62534	RD-5-8436-0		1	2
62534	RD-5-8526-0		1	7
62534	RD-5-8535-0		1	22
62534	RD-5-9377-0M	5310-01-525-8620	2	9
62534	RD-6-5307-0		4	5
62534	RD-6-5308-0		4	6
62534	RD-6-5309-0		4	4
62534	RD-9-10049-0P	5342-01-531-4331	2	12
05245	10VR1	5915-01-168-3846	4	2

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By Order of the Secretary of the Army:

GEORGE W. CASEY, JR.
General, United States Army
Chief of Staff

Official:

JOYCE E. MORROW
Administrative Assistant to the
Secretary of the Army
0807102

DISTRIBUTION: To be distributed in accordance with the initial distribution requirements for IDN: 344848, requirements for TB 9-2320-302-13&P-3.

THE METRIC SYSTEM AND EQUIVALENTS

Linear 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 Pounds
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 = 0.0386 Sq Miles

Cubic Measure

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

Temperature

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

APPROXIMATE CONVERSION FACTORS

To Change	To	Multiply By
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Sq Inches	Sq Centimeters	6.451
Sq Feet	Sq Meters	0.093
Sq Yards	Sq Meters	0.836
Sq Miles	Sq Kilometers	2.590
Acres	Sq Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	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 Sq 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
Sq Centimeters	Sq Inches	0.155
Sq Meters	Sq Feet	10.764
Sq Meters	Sq Yards	1.196
Sq Kilometers	Sq Miles	0.386
Sq 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
Liters	Gallons	0.264
Grams	Ounces	0.035
Kilograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pound-Feet	0.738
Kilopascals	Pounds per Sq Inch	0.145
Kilometers per Liter	Miles per Gallon	2.354
Kilometers per Hour	Miles per Hour	0.621

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