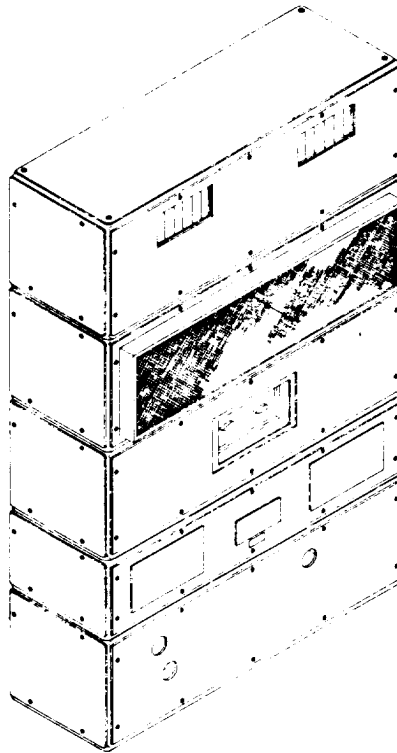


TM 5-4120-364-13

OPERATOR, ORGANIZATIONAL AND DIRECT SUPPORT MAINTENANCE MANUAL



**AIR CONDITIONER, MULTI-PACKAGE,
TYPE I CONFIGURATION, 18,000 BTU/HR,
120/208 VOLT, 50/60 HZ, 3-PHASE,
5-HIGH STACK CONFIGURATION**

NSN 4120-01-077-6931

HEADQUARTERS, DEPARTMENT OF THE ARMY

17 OCTOBER 1980

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TECHNICAL MANUAL
No. 5-4120-364-13

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 17 October 1980

OPERATOR, ORGANIZATIONAL AND DIRECT SUPPORT
MAINTENANCE MANUAL
Air Conditioner, Multi-Purpose, Type I
Configuration, 18,000 BTU/HR, 120/208
Volt, 50/60 Hz, 3-Phase, 5-High Stack
Configuration
Model TM-18K-120/208-3-60
NSN 4120-01-077-6931

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistake or if you know of away to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to: Commander, U. S. Army Troop Support Command, ATTN: AMSTR-MPS, 4300 Goodfellow Boulevard, St. Louis, MO 63120-1798. A reply will be furnished directly to you.

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CHAPTER 1

INTRODUCTION

Section I. General

1-1. SCOPE.

Type of Manual: Operator, Organizational and Direct Support Maintenance.

Model Number and Equipment Name: TM-18K-120/208-3-60 - Air Conditioner, Multi-purpose, 18,000 BTU/HR.

Purpose of Equipment: The air conditioner can be used in temporary buildings, shelters, mobile vans and trailers. The unit accomplishes three functions; cooling, dehumidification and ventilation.

1-2. MAINTENANCE FORMS AND RECORDS.

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

1-3. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR's).

If your air conditioner needs improvements, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design. Tell us why a procedure is hard to perform. Put it on an SF 368 (Quality Deficiency Report). Mail it to us at U. S. Army Troop Support Command, ATTN: AMSTR-QX, 4300 Goodfellow Boulevard, St. Louis, MO 63120-1798. We'll send you a reply.

1-4. HAND RECEIPT.

Hand receipts for Components of End Item (COEI), Basic Issue Item (BII), and Additional Authorization List (AAL) item are published in a Hand Receipt manual, TM 5-4120-364-13-HR. This manual is published to aid in property accountability and is available through: Commander, U.S. Army Publication Center, 2800 Eastern Boulevard, Baltimore, MD 21220-2896.

Section II. Equipment Description

1-5. EQUIPMENT PURPOSE.

The tactical design of the 18,000 BTU/HR air conditioner allows it to be used in many different type installations. These include temporary buildings and shelters, mobile vans and trailers. The unit accomplishes three functions; cooling (air conditioning), dehumidification, and ventilation.

1-6. CAPABILITIES AND FEATURES.

The air conditioner is semi-portable and has a capacity of 18,000 BTU/HR. The unit may be operated on 120 or 208 volts, 3-phase, 50/60 Hz power. It is shipped wired

for 208 volt, 3-phase, 50/60 Hz power. It may be converted for use on 120 volt, 3-phase, 50/60 Hz power by changing the heater elements, adding an electrical jumper, and reconnecting certain leads (see electrical wiring diagram, figure 3-2). For cooling, the unit may be operated from an internal or external thermostat.

1-7. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS.

Figures 1-1 and 1-2 show the location of the major sections and gives a description of the major components of the air conditioner.

1-8. DIFFERENCE BETWEEN MODELS.

This manual was prepared for the Tiernay Manufacturing Model TM-18K-120/208-3-60. There are no differences between models.

1-9. PERFORMANCE DATA.

Electrical Requirements:	120/208 volts, 50/60 Hz, 3-Phase
Capacity:	18,000 BTU/HR
Refrigerant Capacity:	13 pounds 8 ounces of refrigerant Specification BB-F-1421, Type 12
Cabinet Dimensions:	Length: 20 inches (50cm) Width: 46 inches (115cm) Height: 70 inches (175cm) Weight: 596 pounds (268.2kg)

Section III. Technical Principles of Operation

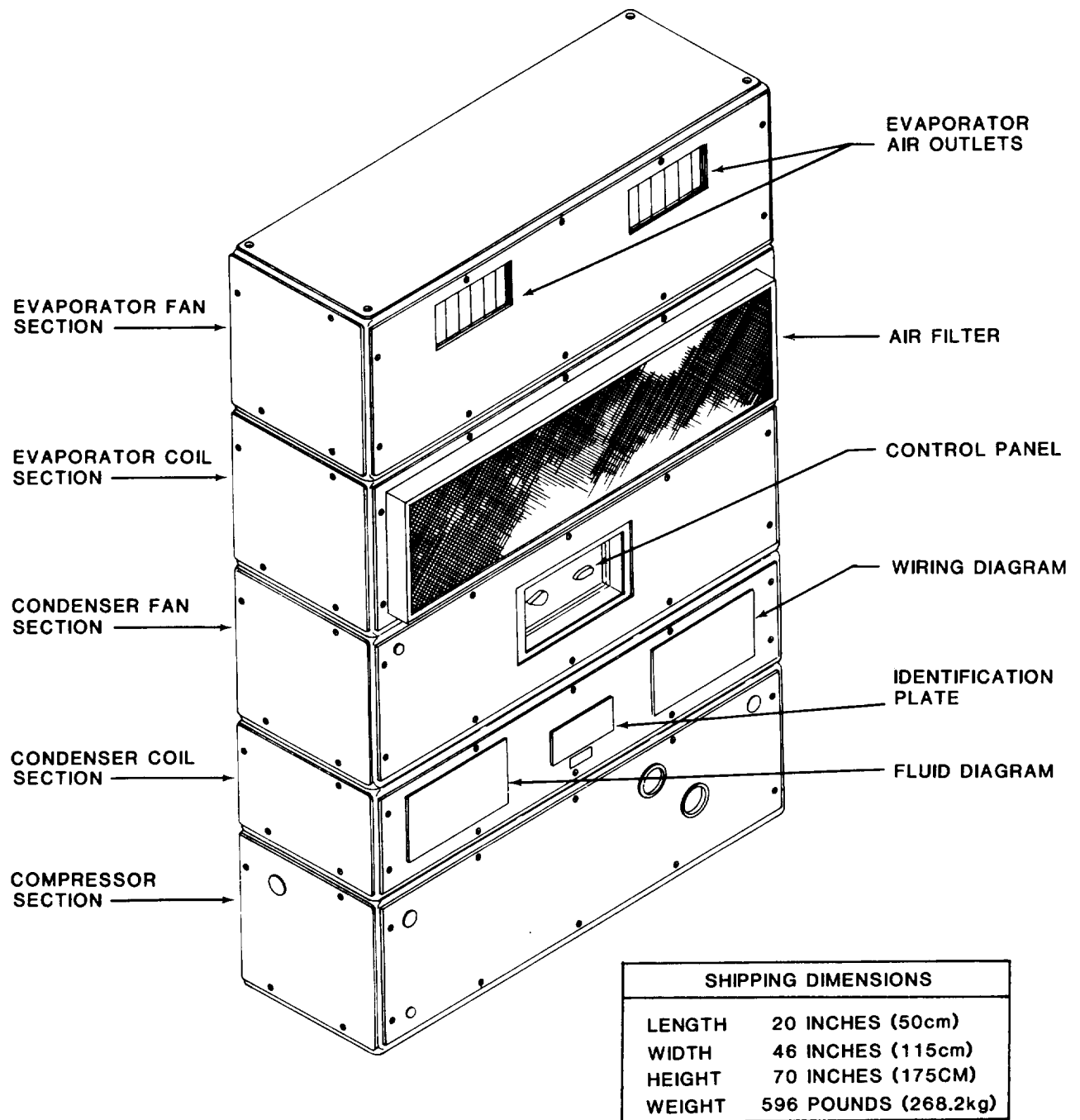
1-10. PRINCIPLES OF OPERATION.

a. General. The air conditioner is in a vertical configuration consisting of five sections bolted together as shown in figure 1-1. The five sections, from top to bottom consist of the following: Evaporator Fan Section, Evaporator Coil Section, Condenser Fan Section, Condenser Coil Section, and the Compressor Section.

b. Evaporator Fan Section. The evaporator fan section houses the evaporator fan motor which drives two squirrel cage fans, The evaporator fans draw air through an air filter, over the evaporator coil mounted in the evaporator coil section, and exhaust it into the conditioned area.

c. Evaporator Coil Section. The evaporator coil section houses the evaporator coil, air filter, expansion valve, suction line shutoff valve and the liquid line shutoff valve. Air from the conditioned area is drawn through the air filter and over the coil by the evaporator fans mounted in the evaporator fan section. Heat is absorbed from the air passing over the evaporator coil by the refrigerant passing through the coil. This actions serves to cool the air as it flows through the evaporator coil.

d. Condenser Fan Section. The condenser fan section houses the condenser fan motor which drives two squirrel cage fans identical to those contained in the



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Figure 1-1. Three-quarter view of air conditioner