

TM 5-4120-285-15

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

OPERATOR'S, ORGANIZATIONAL, DIRECT SUPPORT, GENERAL SUPPORT,
AND DEPOT MAINTENANCE MANUAL

AIR CONDITIONER, COMPACT VERTICAL: 208V,
3 PHASE, 18,000 BTUH COOLING, 12,000 BTUH HEATING
(TRANE MODEL MAC 4V20-4950-03)
400 CYCLE FSN 4120-926-9567,
(TRANE MODEL MAC 6V20-4950-05)
50/60 CYCLE FSN 4120-926-9568

This copy is a reprint which includes current pages from Changes 1 through 5.
--

HEADQUARTERS, DEPARTMENT OF THE ARMY
APRIL 1969

TECHNICAL MANUAL

No. 5-4120-285-15

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D. C., 9 April 1969OPERATORS, ORGANIZATIONAL, DIRECT SUPPORT, GENERAL SUPPORT,
AND DEPOT MAINTENANCE MANUAL

AIR CONDITIONER, COMPACT VERTICAL: 208V, 3 PHASE,
18,000 BTUH COOLING, 12,000 BTUH HEATING
(TRANE MODEL MAC 4V20-4950-03) 400 CYCLE FSN 4120-926-9567,
(TRANE MODEL MAC 6V20-4950-05) 50/60 CYCLE FSN 4120-926-9568

		Paragraph	Page
CHAPTER 1.	INTRODUCTION		
Section I.	General.	1-1, 1-2	1-1
II.	Description and data.	1-3—1-5	1-1
CHAPTER 2.	INSTALLATION AND OPERATING INSTRUCTIONS		
Section I.	Service upon receipt of equipment.	2-1, 2-3	2-2
II.	Movement to a new work site.	2-4, 2-5	2-2
III.	Controls and instruments.	2-6, 2-7	2-2
IV.	Operation under usual conditions.	2-8—2-11	2-5
V.	Operation under unusual conditions.	2-12—2-16	2-5
CHAPTER 3.	OPERATOR'S AND ORGANIZATIONAL MAINTENANCE INSTRUCTIONS		
Section I.	Operator's and organizational maintenance repair parts, tools and equipment.	3-1, 3-2	3-1
II.	Preventative maintenance checks and services.	3-3, 3-4	3-1
III.	Operator's maintenance.	3-5—3-8	3-3
IV.	Troubleshooting.	3-9, 3-10	3-4
V.	Field expedient repairs.	3-11—3-13	3-5
VI.	Organizational maintenance procedures.	3-14—3-32	3-5
CHAPTER 4.	SHIPMENT AND LIMITED STORAGE AND DEMOLITION TO PREVENT ENEMY USE		
Section I.	Shipment and limited storage.	4-1, 4-2	4-1
II.	Demolition.	4-3—4-6	4-1
CHAPTER 5.	DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE INSTRUCTIONS		
Section I.	General.	5-1, 5-2	5-1
II.	Description and data.	5-3, 5-4	5-1
III.	Repair parts, special tools and equipment.	5-5—5-7	5-1
IV.	Troubleshooting.	5-8, 5-9	5-1
V.	Removal and installation of major components.	5-10-5-26	5-3
CHAPTER 6.	REPAIR INSTRUCTIONS		
Section I.	Refrigeration system.	6-1, 6-2	6-1
II.	Control panel and blower motor.	6-3, 6-4	6-4
APPENDIX A.	REFERENCES		
B.	BASIC ISSUE ITEMS LIST		
C.	MAINTENANCE ALLOCATION CHART		
INDEX			I-1

CHAPTER 1

INTRODUCTION

Section I. GENERAL

1-1. Scope

a. This manual is published for the use of personnel to who the Military Models MAC6V20-4920-05 (hereinafter designated as 6V20) and the MAC4V20-4950-03 (hereinafter designated as 4V20) are issued. Chapters 1 through 3 provide information on installation, operation, preventive maintenance, and operator's and organizational maintenance of the equipment, accessories, components, and attachments. Chapter 4 provides information on shipment, and limited storage, and demolition of the equipment. Chapters 5 and 6 provide instructions for direct support, general support, and depot maintenance. Also included are descriptions of main units and their relationship to other components.

b. Appendix A contains a list of publications applicable to this manual. Appendix B contains a

list of basic issue items authorized the operator of this equipment. Appendix C contains the maintenance allocation chart. The organizational, direct support, general support, and depot maintenance repair parts and special tools are listed and illustrated in TM 5-4120-285-25P.

c. Reports of errors, omissions, and recommendations for improving this publication by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to DA Publications) and forwarded direct to Commanding General, U.S. Army Mobility Equipment Command, ATTN, AMSME-MPP, 4300 Goodfellow Boulevard, St. Louis, Mo. 63120.

1-2. Forms and Records

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

Section II. DESCRIPTION AND DATA

1-3. Description

a. *General.* The air conditioners (fig. 1-1 and 1-2) are used primarily in van type enclosures for providing filtered, conditioned, or heated air as required to maintain the service conditions necessary for the efficient operation of electronic equipment and the comfort of operating personnel housed within the specified vans. The units are completely self-contained, air cooled, electric motor driven and designed for continuous operation under varying loads. These units are equipped with internal ducting to the low side of the evaporator fan so that ventilation air from a chemical-biological filter may be supplied by the fan. The units furnish 12,000 BTUH for heating and 18,000 BTUH for cooling.

b. *Condenser Fan.* The condensing section, located in the lower compartments, contains the hermetically sealed compressor, condenser coil, control panel and box, thermostatic switch, blower motor, and service valves.

c. *Evaporator Section.* The evaporator section, located in the upper compartment, contains an evaporator coil, evaporator coil drain pan, expansion valves, evaporator heaters, and the sight glass.

1-4. Identification and Tabulated Data

a. Identification.

(1) *Manufacturers identification plate.* Located on the upper rear panel. Specifies the model number, serial number, and the manufacturer.

(2) *Compressor identification plate.* Located on the front of the compressor housing. Specifies the compressor model number, part number, refrigerant oil type, capacity, electrical data, and manufacturer.

(3) *DA identification plate.* Located on the upper rear panel. Specifies the nomenclature, model number, part number, and manufacturer.

(4) *Blower motor identification plate.* Located on top of the blower motor housing. Spec-

fies the horsepower, type, RPM (revolutions per minute), part numbers, and electrical data.

(5) *Wiring diagram*. Located on the reverse side of the front access panel. Illustrates the wiring detail.

(6) *Refrigerant data plate*. Located on the upper rear panel. Specifies the proper refrigerant for the unit.

(7) *Color indicating plate*. Located on the upper rear panel below the sight glass. Indicates the condition of the unit refrigerant by color as shown in the sight glass.

(8) *Reset plate*. Located on the upper rear panel below the reset button.

(9) *Arrow indicator*. Located on upper rear panel. Indicates proper rotation of condenser fan.

b. Tabulated Data.

(1) Model 4V20.

Manufacturer_____Trane Co. Lacrosse Wise.
Federal stock number_____4120-926-9567
Model No._____MAC 4V20-4950-03
Cycle_____400
Voltage_____208
Phase_____3
Cooling_____Air
Length_____20in. (inches)
Height_____46in.
Width_____17 in.
Weight_____210 lb. (pounds)
Capacity
Heating_____12,000 BTUH (British thermal units per hour)
Cooling_____18,000 BTUH

(2) Model 6V20.

Manufacturer_____Trane Co. Lacrosse Wise.
Federal stock no._____4120-926-9568
Model No._____MAC 6V20-4950-05
Cycle_____50/60
Voltage_____208
Phase_____3
Cooling_____Air
Length_____20 in.
Width_____17 in.
Height_____46 in.
Weight_____223 lb.
Capacity
Heating_____12,000 BTUH
Cooling_____18,000 BTUH

(3) Blower motor, (Model 4V20).

Manufacturer_____Welcome Electric Co.
Part No_____M4720-7A
HP (horsepower)_____1.62
Type_____Double extended shaft
Voltage_____208
Amperes_____6.5
Frequency_____406 cycles
Phase_____3
Duty_____Continuous
Drive_____Direct
RPM's_____3700

(4) Blower motor, (Model 6V20).

Manufacturer_____Welco Electric Co.
Part No_____M4725-8

Type_____Double extended shaft
HP_____1.42
Voltage_____208
Frequency_____50/60 cycles
Phase_____3
Duty_____Continuous
Amperes_____5.7
Drive_____Direct
RPM's_____3450

(5) Compressor (Model 4V20).

Manufacturer_____Whirlpool Division, RCA Corp.
Model No_____WHP422-H18-208-3
Part No_____474843
Type_____Rotary vane
Weight_____46 lbs.
Lubrication_____Slinger
Phase_____3
RPM's_____3660
Cycles_____400
Voltage_____208
LRA (locked rotor amperage)_____64

(6) Compressor (Model 6V20).

Manufacturer_____Whirlpool Division, RCA Corp.
Model No_____WHP622-H18-208-3
Part No_____474837
Type_____Rotary vane
Weight_____52 lbs.
Lubrication_____Forced feed
RPM's_____3390
Phase_____3
Cycles_____50/60
Voltage_____208
LRA_____67

(7) Common components (Models 4V20/6V20).

(a) Evaporator and condenser fans.

Manufacturer_____Trane Co.
Type
Condenser_____Propeller
Evaporator_____Centrifugal
No. per unit_____1 each
Rotation_____Clockwise

(b) Evaporator and condenser coils.

Manufacturer_____Trane Co.
Type_____Tube fin
No, per unit_____1each

(c) Motor and heater contactors.

Manufacturer_____Cutler-Hammer Co.
Part No_____9565ED3
Amperes_____25
Type_____3PST (pole, single throw)
Coil_____Pick up at 170 VDC (volts, direct current)
Operating temperature_____+65° F. (Fahrenheit) to + 125° F.

(d) Thermostat control.

Manufacturer_____Penn Control Co.
Part No_____A19AGF-10
Action_____SPDT (single pole double throw)
Operating temperature_____+40° F. to +90° F.
Rating_____120 volts

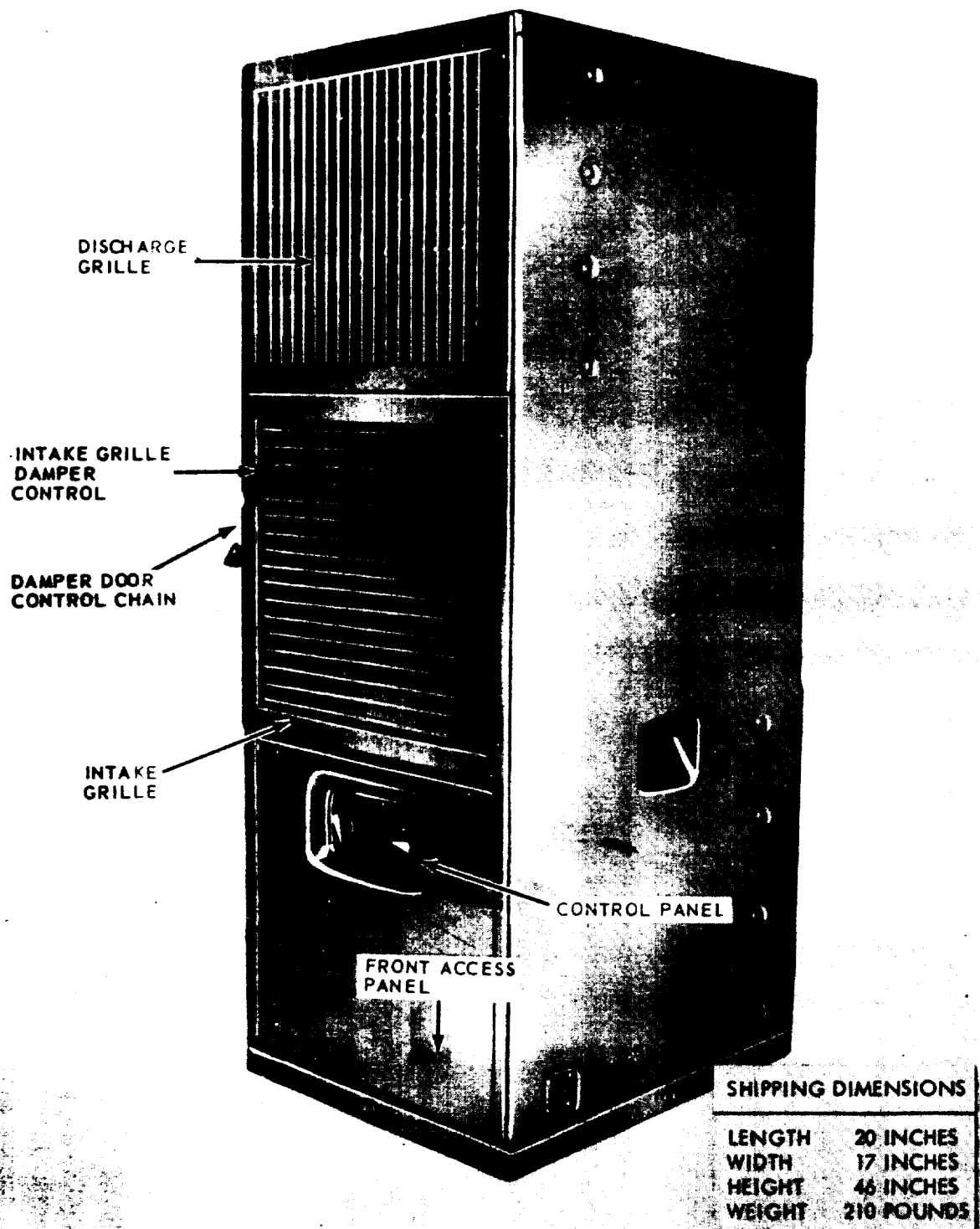


Figure 1-1. Air conditioned, front three quarter view w/shipping dimensions.