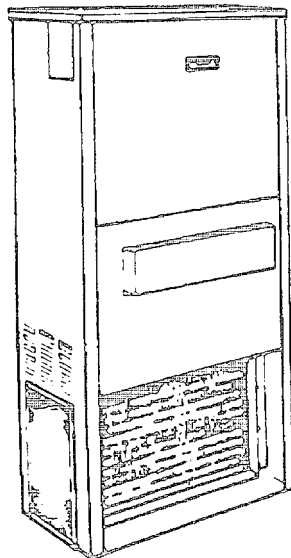


**TECHNICAL MANUAL
OPERATOR'S, UNIT, DIRECT SUPPORT,
AND
GENERAL SUPPORT
MAINTENANCE MANUAL INCLUDING
REPAIR PARTS AND SPECIAL TOOLS LIST**

FOR

**AIR CONDITIONER,
24, 000 BTUH COOLING,
23, 600 BTUH HEATING,
WALL MOUNTED, VERTICAL,
MODEL AVP24HPA-08
NSN 4120-01-279-5659**



DISTRIBUTION STATEMENT A
Approved for public release
Distribution is unlimited.

INTRODUCTION
PAGE 1-1

OPERATING INSTRUCTIONS
PAGE 2-1

OPERATOR MAINTENANCE
PAGE 4-1

UNIT MAINTENANCE
PAGE 4-1

DIRECT SUPPORT
MAINTENANCE
PAGE 5-1

GENERAL SUPPORT
MAINTENANCE
PAGE 6-1

REFERENCES
PAGE A-1

MAINTENANCE ALLOCATION
CHART (MAC)
PAGE B-1

REPAIR PARTS AND SPECIAL
TOOLS LIST
PAGE C-1

COMPONENTS OF END ITEM
AND BASIC ISSUE ITEMS LIST
PAGE D-1

ADDITIONAL AUTHORIZATION
LIST (AAL) ITEMS
PAGE E-1

EXPENDABLE, DURABLE
SUPPLIES AND MATERIALS LIST
PAGE F-1

ILLUSTRATED LIST OF
MANUFACTURED ITEMS
PAGE G-1

GLOSSARY
GLOSSARY-1

ALPHABETICAL INDEX
INDEX-1

* This manual supersedes TM 5-4120-395-14&P, dated 15 March 90

**HEADQUARTERS, DEPARTMENT OF THE ARMY
28 MAY 1993**

**OPERATOR'S, UNIT, DIRECT SUPPORT, AND
GENERAL SUPPORT MAINTENANCE MANUAL INCLUDING
REPAIR PARTS AND SPECIAL TOOLS LIST
FOR
AIR CONDITIONER, 24,000 BTUH COOLING, 23, 600 BTUH HEATING,
WALL MOUNTED, VERTICAL,
MODEL AVP24HPA-08
NSN 4120-01-279-5659**

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

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

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

TABLE OF CONTENTS

			Page
CHAPTER	1	INTRODUCTION	1-1
Section I		General Information.....	1-1
Section II		Equipment Direction and Data	1-2
Section III		Principles of Operation.....	1-6
CHAPTER	2	OPERATING INSTRUCTIONS	2-1
Section I		Description and Use of Operator's Controls and Indicators.....	2-1
Section II		Operator Preventive Maintenance Checks and Services (PMCS)	2-2
Section III		Operation Under Usual Conditions.....	2-4
Section IV		Operation Under Unusual Conditions	2-8
CHAPTER	3	OPERATOR MAINTENANCE	3-1
Section I		Lubrication Instructions	3-1
Section II		Troubleshooting Procedures	3-1
CHAPTER	4	UNIT MAINTENANCE	4-1
Section I		Repair Parts, Special Tools, and Support Equipment.....	4-1
Section II		Service Upon Receipt	4-1
Section III		Installation	4-4
Section IV		Lubrication	4-14
Section V		Unit Preventive Maintenance Checks and Services (PMCS).....	4-14
Section VI		Troubleshooting	4-18
Section VII		Maintenance Procedures	4-23
Section VIII		Preparation for Storage or Shipment.....	4-90

- This manual supersedes TM 5-4120-395-14&P, 15 March 1990, including all changes.

TABLE OF CONTENTS - Continued

		Page
CHAPTER 5	DIRECT SUPPORT MAINTENANCE	5-1
Section I	Troubleshooting Procedures	5-1
Section II	Maintenance Procedures	5-4
CHAPTER 6	GENERAL SUPPORT MAINTENANCE	6-1
Section I	Repair Parts, Special Tools, TMDE, and Support Equipment	6-1
Section II	Maintenance Procedures	6 1
APPENDIX A.	REFERENCES	A-1
APPENDIX B	MAINTENANCE ALLOCATION CHART	B-1
Section I	Introduction.....	B-1
Section II	Maintenance Allocation Chart	B-3
Section III	Tool and Test Equipment Requirements	B-6
Section IV	Remarks	B-6
APPENDIX C.	REPAIR PARTS AND SPECIAL TOOLS LIST	C-1
Section I	Introduction.....	C-1
Section II	Repair Parts.....	C-2
APPENDIX D.	COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS LISTS	D-1
Section I	Introduction.....	D-1
Section II	Components of End Item	D-2
Section III	Basic Issue Items.....	D-2
APPENDIX E	ADDITIONAL AUTHORIZATION LIST	E-1
Section I	Introduction.....	E-1
Section II	Additional Authorization List.....	E-1
APPENDIX F	EXPENDABLE/DURABLE Supplies and Materials List	F-1
Section I	Introduction.....	F-1
Section II	Expendable/Durable Supplies and Materials List.....	F-2
APPENDIX G	ILLUSTRATED LIST OF MANUFACTURED ITEMS	G-1
Section I	Introduction.....	G-1
Section II	Illustrated List of Manufactured Items.....	G-1
GLOSSARY	Glossary-1
ALPHABETICAL INDEX	Index-1

LIST OF ILLUSTRATIONS

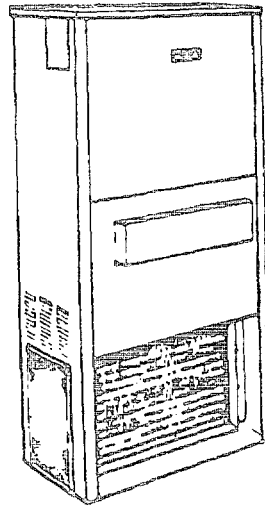
Figure No.	Title	Page No.
1-1	Air Conditioner, 24,000 BTUH Cooling, 23,600 BTUH Heating, Wall Mounted, Vertical Model AVP24HPA-08	1-0
1-2	Component Location	1-3
1-3	Cooling Cycle.....	1-7
1-4	Heating Cycle.....	1-7
2-1	Thermostat.....	2-1
2-2	Decals.....	2-6
2-3	Schematic.....	2-7
4-1	Installation Dimensions	4-2
4-2	Access Doors	4-3
4-3	Boxed Air Conditioner	4-5
4-4	Revolving Shipping Base	4-6
4-5	Installation on Concrete Block Walls	4-7
4-6	Installation on Frame Walls.....	4-7
4-7	Fresh Air Damper.....	4-9
4-8	Ducting.....	4-10
4-9	Control Box Cover	4-12
4-10	Thermostat Assembly.....	4-13
4-11	Subbase Leveling.....	4-14
4-12	Unit PMCS.....	4-15
4-13	Front Door Assemblies.....	4-24
4-14	Information Decals	4-25
4-15	Side Door Assemblies	4-26
4-16	Air Filter	4-27
4-17	Fresh Air Damper.....	4-29
4-18	Condensate Drain	4-31
4-19	Control Box Wiring.....	4-33
4-20	Low Voltage Terminal Block.....	4-35
4-21	Fan Capacitors.....	4-37
4-22	Compressor Capacitor.....	4-39
4-23	Terminal Board	4-41
4-24	Lockout Relay	4-43
4-25	Heat Relays	4-45
4-26	Heat/Cool Relay	4-47
4-27	Low Voltage Transformer	4-49
4-28	Compressor Contactor	4-51
4-29	Fan Relay	4-53
4-30	Fan Delay Relay.....	4-55
4-31	Reversing Valve Solenoid.....	4-57
4-32	Defrost Control and Clock Motor	4-59
4-33	Indoor Fans.....	4-61
4-34	Indoor Fans Motor	4-64
4-35	Indoor Fans Motor Bracket	4-66
4-36	Heater Thermostat	4-68
4-37	Heater Element	4-70
4-38	Fuse Links.....	4-72
4-39	Venturi Panel	4-74
4-40	Outdoor Fan.....	4-76
4-41	Outdoor Fan Motor.....	4-79

LIST OF ILLUSTRATIONS - Continued

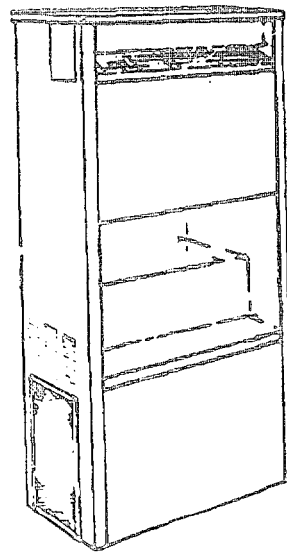
Figure No.	Title	Page No.
4-42	Outdoor Fan Motor Bracket	4-81
4-43	Accumulator	4-83
4-44	Indoor Coil	4-85
4-45	Outdoor Coil	4-87
4-46	Thermostat	4-89
5-1	Charging Valve Locations	5-5
5-2	Drier	5-21
5-3	Capillary Tubes	5-23
5-4	Accumulator	5-25
5-5	Indoor Coil	5-27
5-6	Outdoor Coil	5-29
5-7	Check Valve	5-31
5-8	Pressure Switches	5-33
5-9	Reversing Valve	5-35
5-10	Compressor	5-37
5-11	Oil Trap Valve Connection For Oil Sample	5-39
C-0	Air Conditioner	C-2
C-1	Top Panel Assembly	C-4
C-2	Drain Pan Assembly	C-5
C-3	Blower Motor (Indoor Fans) Assembly	C-6
C-4	Compressor Base Assembly	C-7
C-5	Side Panel Assembly - Right Hand	C-8
C-6	Front Door Assembly-Top	C-9
C-7	Front Door Assembly-Bottom	C-10
C-8	Control Box Assembly	C-11
C-9	Coil Guard Assembly	C-12
C-10	Venturi/Coil/Motor Assembly	C-14
C-11	Side Panel Assembly - Left Hand	C-15
C-12	Dividing Wall Assembly	C-16
C-13	Bottom Duct Flange Assembly	C-17
C-14	Back Panel Assembly-Top	C-18
C-15	Top Duct Flange Assembly	C-19
C-16	Liquid Line Assembly	C-20
C-17	Reversing Valve Assembly	C-21
C-18	Heater Mount Assembly	C-22
C-19	Indoor Coil Assembly	C-23
C-20	Solenoid Coil	C-24
C-21	Compressor and Capacitor	C-25
G-1	Shipping Base	G-1

LIST OF TABLES

Figure No.	Title	Page No.
2-1	Operator Preventive Maintenance Checks and Services	2-3
2-2	Operator Control Settings.....	2-4
3-1	Operator Troubleshooting.....	3-1
4-1	Unit PMCS Quarterly Schedule	4-16
4-2	Unit Maintenance Troubleshooting	4-19
5-1	Direct Support Troubleshooting	5-1
5-2	Pressure Temperature Relationship of Saturated Refrigerant-22	5-19
5-3	Maximum Pressure Drop for Permanent Drier	5-40
5-4	Maximum Pressure Drop for Temporary Drier During Cleanup	5-40



LEFT SIDE/FRONT VIEW



RIGHT SIDE/REAR VIEW

Figure 1-1. Air Conditioner, 24,00 BTUH Cooling, 23,600 BTUH Heating, Wall Mounted, Vertical Model AVP24HPA-08

CHAPTER 1

INTRODUCTION

- Section I. General Information
- Section II. Equipment Description and Data
- Section III. Principles of Operation

Section I. GENERAL INFORMATION

Scope	Para. 1-1
Maintenance Forms and Records.....	1-2
Reporting Equipment Improvement Recommendations (EIR's)	1-3
Warranty Information	1-4
List of Abbreviations.....	1-5
Destruction of Army Materiel to Prevent Enemy Use.....	1-6
Preparation for Storage or Shipment	1-7
Quality Assurance/Quality Control (QA/QC)	1-8

1-1. SCOPE.

- a. Type of Manual. This manual is an Operator's, Unit, Direct Support, and (General Support maintenance manual including Repair Parts and Special Tools List.
- b. Model Number and Equipment Name. The official equipment name is Air Conditioner, 24, 000 BTUH Cooling, 23, 600 BTUH Heating, Wall Mounted, Vertical, Model AVP24HPA-08. Hereafter it will be referred to as the air conditioner.

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 improvement, let us know. Send us an EIR. You the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design or performance. Put it on an SF 368 (Quality Deficiency Report). Mail it to: Commander, U.S. Army Aviation and Troop Command, ATTN: AMSAT-I-MDO, 4300 Goodfellow Boulevard, St. Louis, Missouri 631201798. We'll send you a reply.

1-4. WARRANTY INFORMATION. The air conditioner is warranted by the Marvair Company for a period of one year from date of shipment when properly installed. Warranty starts on the date found on DA Form 2410 or DA Form 2408-16

1-5. LIST OF ABBREVIATIONS.

ac.....	Alternating Current
BTUH.....	British Thermal Units Per Hour
CFM.....	Cubic Feet Per Minute
EIR	Equipment Improvement Recommendation
FLA.....	Full Load Amps
HP	Horse Power
Hz.....	Hertz
LRA.....	Locked Rotor Amps
MAC.....	Maintenance Allocation Chart
MEK.....	Methyl Ethyl Ketone (Solvent)