



Toshiba Carrier MMD-UP0121VHG-UL Installation, Operation And Maintenance Manual

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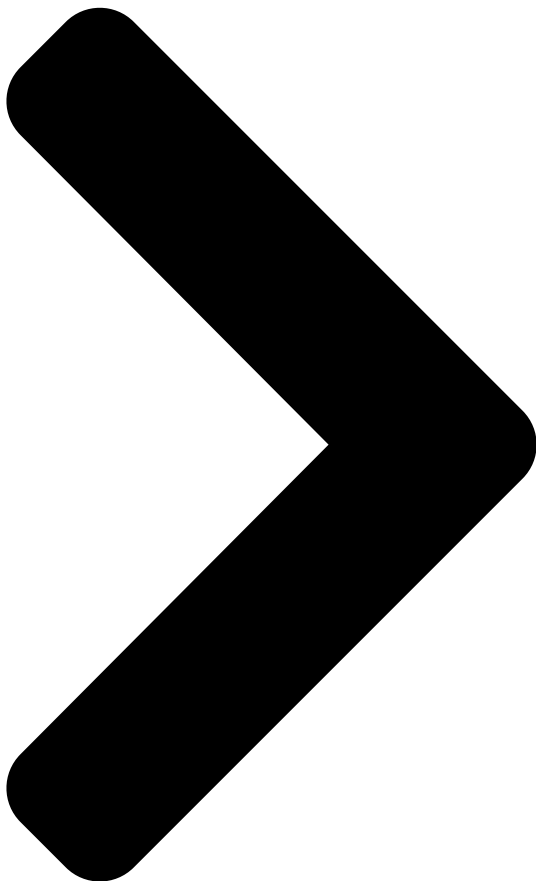
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Vertical Air Handling Unit
TOSHIBA
Installation, Operation and Maintenance

Manual
Carrier

Model name:

MMD-UP0121VHG-UL

MMD-UP0181VHG-UL

MMD-UP0241VHG-UL

MMD-UP0301VHG-UL

MMD-UP0361VHG-UL
MMD-UP0421VHG-UL

TOSHIBA

MMD-UP0481VHG-UL

MMD-UP0601VHG-UL

Carrier

035-000051-002

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For Commercial Use

MMD IOM 1.3 8-15-2023

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Related Manuals for Toshiba Carrier MMD-UP0121VHG-UL

[Air Handlers Toshiba Carrier MMDMMD-AP0120VHG2UL Installation, Operation And Maintenance Manual](#)

Vertical air handling unit (60 pages)

[Air Handlers Toshiba Carrier TCB-IFDMR01UP-UL Design Manualline](#)

Vrf dx coil interface (60 pages)

Summary of Contents for Toshiba Carrier MMD-UP0121VHG-UL

[Page 1](#) Vertical Air Handling Unit Installation, Operation and Maintenance Manual Model name: For Commercial Use MMD-UP0121VHG-UL MMD-UP0181VHG-UL MMD-UP0241VHG-UL MMD-UP0301VHG-UL MMD-UP0361VHG-UL MMD-UP0421VHG-UL MMD-UP0481VHG-UL MMD-UP0601VHG-UL 035-000051-002 Page 1 of 64 MMD IOM 1.3 8-15-2023...

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[Page 5: General Information](#)

GENERAL INFORMATION DANGER NEVER enter an enclosed fan cabinet or reach into a unit while the fan is running. LOCK OPEN AND TAG the fan motor power disconnect switch before working on a fan. Take fuses with you and note removal on tag. Electric shock GENERAL can cause personal injury or death.

[Page 6: Product Nomenclature](#)

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[Page 7](#) PRODUCT NOMENCLATURE—ACCESSORIES 035-000051-002 Page 7 of 64 MMD IOM 1.3 8-15-2023...

[Page 8: Installation](#)

INSTALLATION WARNING-AUXILIARY DRAIN RECOMMENDED: Pre-installation This product has an auxiliary condensate drain 1. Check items received against packing list, which should be piped to a condensate overflow 2. Do not stack unit components or accessories or safe drain location or both to protect riefes during storage.

[Page 9](#) INSTALLATION Figure 1 Return Configurations and Unit Orientations 035-000051-002 Page 9 of 64 MMD IOM 1.3 8-15-2023...

[Page 10](#) INSTALLATION—SERVICE CLEARANCES CLEARANCE DIMENSION (INCHES) UNIT SIZE
12/18/24 36.0 36.0 36.0 22.0 6.0 30/36 36.0 36.0 36.0 25.0 6.0 10.0 42/48 36.0 36.0 36.0 27.0
6.0 11.0 36.0 36.0 36.0 31.0 6.0 11.0 12/18/24 12.0 7.0 19.4 35.7 45.0 30/36 12.0 7.0 23.5 40.6
50.0 42/48 12.0 7.0 26.3 43.6 54.0...

[Page 11](#) INSTALLATION Ceiling Suspension: Mount the unit in ceiling-suspended horizontal orientation per suspension details (Figure 4a). Unit is NOT intended to be wall mounted. Consult a qualified structural engineer for special mounting considerations. Install the unit so

that it pitches slightly -(1/8 inch) -...

[Page 12](#) Figure 4a CEILING SUSPENSION DETAILS 035-000051-002 Page 12 of 64 MMD IOM 1.3 8-15-2023...

[Page 13](#) INSTALLATION CAUTION Direct-expansion coils are shipped pressurized with dry nitrogen. Release pressure from the coil through valves in protective caps before removing caps. Do not leave piping open to the atmosphere unnecessarily. Water and water vapor are detrimental to the refrigerant system.

[Page 14](#) INSTALLATION—ELECTRIC HEAT Electric Heater Accessory The electric heater may be factory-installed or DANGER field-installed. See Figures 5 through 8. WARNING: Hazardous voltage. Only qualified personnel must install the electrical service. Dis- To remove the electric heater, connect and Lock Out all incoming power sources 1.

[Page 15](#) INSTALLATION—ELECTRIC HEAT DANGER WARNING: Hazardous voltage. Only qualified Electric Heater Accessory-MMD size 12, 18 personnel must install the electrical service. Dis- and 24 connect and Lock Out all incoming power sources The electric heater must be adjusted to fit unit before connecting to electrical service.

[Page 16](#) INSTALLATION-ELECTRIC HEAT DANGER Install Procedure: WARNING: Hazardous voltage. Only qualified To install the electric heater, personnel must install the electrical service. Dis- 1. Disconnect and lock out electrical power from connect and Lock Out all incoming power sources the unit. Remove heater access panel. Discon- before connecting to electrical service.

[Page 17: Installation-Electrical](#)

INSTALLATION-ELECTRICAL DANGER DANGER NEVER enter an enclosed fan cabinet or reach into a unit while the fan is running. WARNING: Hazardous voltage. Only qualified LOCK OPEN AND TAG the fan motor power dis- personnel must install the electrical service. Dis- connect switch before working on a fan.

[Page 18](#) DANGER INSTALLATION-ELECTRICAL WARNING: Hazardous voltage. Only qualified Provide strain relief where field wiring passes personnel must install the electrical service. Dis- through cabinet. Wiring within the cabinet has connect and Lock Out all incoming power sources been positively located and supported so that it before connecting to electrical service.

[Page 19](#) INSTALLATION-ELECTRICAL (cont'd) TYPICAL WIRING DIAGRAM 035-000051-002 Page 19 of 64 MMD IOM 1.3 8-15-2023...

[Page 20: Typical Wiring Diagrams](#)

INSTALLATION-ELECTRICAL (cont'd) TYPICAL WIRING DIAGRAMS— Electric Heat: 1-6kW and 8-9.5kW TYPICAL WIRING—ELECTRIC HEAT TYPICAL WIRING—ELECTRIC HEAT 035-000051-002 Page 20 of 64 MMD IOM 1.3 8-15-2023...

[Page 21](#) START-UP Pre-Startup Building Envelope—All building windows and doors should be installed and closed before starting unit. During summer construction, avoid unit sweating by allowing for gradual pull down: use reduced capacity and use maximum available airflow. Temperature Controls-Check that unit is connected to the controls system and communicating properly.

[Page 22](#) DANGER NEVER enter an enclosed fan cabinet or reach into a unit while the fan is running. LOCK OPEN AND TAG the fan motor power dis- MOTOR HARNESS & connect switch before working on a fan. Take fus- CONNECTORS es with you and note removal on tag. Electric shock can cause personal injury or death.

[Page 23](#) DANGER NEVER enter an enclosed fan cabinet or reach into a unit while the fan is running. LOCK OPEN AND TAG the fan motor power dis- connect switch before working on a fan. Take fus- es with you and note removal on tag. Electric shock can cause personal injury or death.

[Page 24: Service-Filters](#)

SERVICE—Filters FILTER SECTIONS — Open or remove filter panel to replace old filter with a new filter. See physical data tables for filter data. See Figure 21. Figure 22 Access Panels

The 3 sections of the unit can be reached using the front access panels, removable Figure 21 using 5/16”...

[Page 25](#) SERVICE-Coil Removal and Reinstallation Procedure 1. Perform procedure on the ground for safety. If tions for proper unit operation. working at heights USE EXTREME CAUTION ob- 10. Re-install wiring to PMV. serve all FALL SAFETY considerations. Under all 11. Re-install unit access panels. conditions, LOCK OUT all power supplies before 12.

[Page 26: Airflow Performance](#)

AIRFLOW PERFORMANCE Figure 15 MMD-UP0121VHG-UL (1 ton) MMD-UP0181VHG-UL (1.5 ton) Increasing ESP setting MMD-AP0180VHG2UL(1.5ton) Terminal 1 Terminal 2 Terminal 3 Terminal 4 Terminal 5 As Shipped Higher Fan Setting 1000 Air flow rate(cfm) MMD-UP0241VHG-UL (2 ton) MMD-AP0240VHG2UL(1.5ton) MMD-UP0301VHG-UL (2.5 ton) MMD-AP0300VHG2UL(2.5ton) Terminal 1 Terminal 2...

[Page 27](#) AIRFLOW PERFORMANCE MMD-UP0421VHG-UL (3.5 ton) MMD-AP0360VHG2UL(3ton) MMD-UP0361VHG-UL (3 ton) MMD-AP0420VHG2UL(3.5ton) Terminal 1 Terminal 1 Terminal 2 Terminal 2 Terminal 3 Terminal 3 Terminal 4 Terminal 4 Terminal 5 Terminal 5 1000 1200 1400 1600 1000 1200 1400 1600 1800 2000 Air flow rate(cfm) Air flow rate(cfm) MMD-AP0480VHG2UL(4ton)

[Page 28](#) UNIT ELECTRICAL RATINGS MMD Electrical Data TOTAL ELECTRIC MINIMUM CIRCUIT Maximum MOTOR UNIT FLA Unit Motor WIRE ELECTRIC HEAT AMPACITY (MCA) Overcurrent Size SIZE HT (KW) CIRCUIT 1 CIRCUIT 1 CIRCUIT 1 CIRCUIT 1 AWG* 240-208V NONE NONE MMD12 12.5 10.8 13.8 12.1...

[Page 29](#) UNIT DIMENSIONS MMD12-60 Elec Heat Ready RH Drain Connections, Bottom Return TOP VIEW .250 RIGHT VIEW FRONT VIEW 035-000051-002 Page 29 of 64 MMD IOM 1.3 8-15-2023...

[Page 30](#) SPECIAL FACTORY OPTIONS Special construction unit defined by standard model number plus product number (from nameplate): Option Descriptions Table Options Option Suffix Descriptions Number Unit Size Factory Installed Heater - 1kW Factory Installed Heater - 3kW Product Number -TMA Factory Installed Heater - 5kW indicates ducted vertical Factory Installed Heater - 6kW AHU, generation A)

[Page 31: Electrical Work](#)

SPECIAL INSTRUCTIONS—ELECTRICAL WORK ELECTRICAL WORK WARNING •Securely connect the specified wires so that the external tension does not affect the terminal connectors. Improper connection may cause an electric shock or a fire. •Connect earth grounding wire. Incomplete grounding will cause an electric shock. Do not connect ground wires to gas pipes, water pipes, lightning rods, or the grounding wires of telephone lines.

[Page 32](#) SPECIAL INSTRUCTIONS—ELECTRICAL WORK ▼ Power supply Power supply 208 / 230V 1ph 60Hz Wire size Refer to “MMD electrical data” table Power supply wiring Up to 164’1” (50m) 035-000051-002 Page 32 of 64 MMD IOM 1.3 8-15-2023...

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[Page 58](#) REPLACEMENT PARTS THERMISTORS MOTOR ADAPTER HARNESS PMV WIRE HARNESS MOTOR ADAPTER HARNESS 035-000051-002 Page 58 of 64 MMD IOM 1.3 8-15-2023...

[Page 59: Startup Report](#)

MMD Series Air Handling Unit Start-up Report Job Name City Sales Order # Unit Tag Model Number Serial Number Installer Quantity of Units STARTUP REPORT Group Checklist Item Does electrical service correspond to unit nameplate? -Nameplate Supply Voltage/Phase: Rated _____ Measured _____ -Nameplate Rated FLA motor current: Rated _____ Measured _____ Does all field wiring conform to unit wiring diagram? Is field-provided freeze

protection present? (if required)

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This manual is also suitable for:

[Carrier mmd-up0181vhg-ulCarrier mmd-up0241vhg-ulCarrier mmd-up0301vhg-ulCarrier mmd-up0361vhg-ulCarrier mmd-up0421vhg-ulCarrier mmd-up0481vhg-ul](#) ... [Show all](#)