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User manual TOSHIBA RAS-10YAX-T
User guide TOSHIBA RAS-10YAX-T
Operating instructions TOSHIBA RAS-10YAX-T
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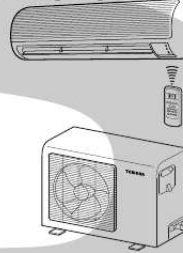
FILE NO. DAS-SM-00-001

SERVICE MANUAL

AIR-CONDITIONER

SPLIT WALL TYPE

RAS-07YKX/RAS-07YAX
RAS-10YKX/RAS-10YAX
RAS-11YKX/RAS-11YAX
RAS-07YK-E/RAS-07YA-E
RAS-10YK-E/RAS-10YA-E
RAS-07YK-ES/RAS-07YA-ES
RAS-10YK-ES/RAS-10YA-ES
RAS-10YK-HX/RAS-10YA-HX
RAS-07YKX-T/RAS-07YAX-T
RAS-10YKX-T/RAS-10YAX-T



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Manual abstract:

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OPERATION DESCRIPTIONS

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15 8. @@20 9. @@33 10. @@46 11. @@50 2 1.

SPECIFICATIONS RAS-07YKX/07YAX, RAS-07YK-E/07YA-E, RAS-07YKX-T/07YAX-T MODEL ITEM Capacity kW 1 Phase V Hz kW % V A A lit/h dB (A) dB (A) kg mm mm m² RAS-07YK-E/YA-E RAS-07YKX/YAX Cooling 220V240V 2,102,20 Single 220240 50 0,600,65 9694 220V240V 0,15/2,700,15/2,72 12 0,8 39 / 33 / 29 4445 R-22 0,59 Capillary tube 9,52 Flare connection 6,35 Flare connection 10 5 16 RAS-07YKX RAS-07YKX-T 265 790 189 8 Finned tube Cross flow fan 550 490 430 20 Polypropylene net filter (Washable) RAS-07YAX 530 770 200 26 Finned tube RAS-07YAX-T RAS-07YKX-T/YAX-T 220V 2,10 220 0,60 96 220V 0,15/2,70 * Power source Power consumption Power factor Running current Starting current Moisture removal Noise (SPL at 1 meter) Refrigerant Refrigerant control Gas side size Connection type Liquid side size Connection type Maximum length (of one way) Maximum height difference Indoor unit Outdoor unit Outer diameter Height Width Depth Indoor (H/M/L) Outdoor (220240V) Name of refrigerant Rated volume Indoor/Outdoor 44 Interconnection pipe * m mm RAS-07YK-E mm mm mm kg Condensate drain pipe INDOOR UNIT Dimensions Net weight Evaporator type Indoor fan type Air flow rate Fan motor output Air filter OUTDOOR UNIT Dimensions Net weight Condenser type Outdoor fan type Air flow rate (220240V) Fan motor output Compressor High fan Medium fan Low fan m³/h m³/h m³/h W RAS-07YA-E Height Width Depth mm mm mm kg m³/h W Model Output W Propeller 15001700 1500 18 (UE6-21SJ5P) 18 (UE6-21A5P), 20 (HF-240-20A) PH80T1-4C 605 Fuse, Overload relay Yes 2143 Safety device Auto louver Usable outdoor temperature range °C Specifications are subject to change without notice. 3 RAS-10YKX/10YAX, RAS-11YKX/11YAX RAS-10YK-E/10YA-E, RAS-10YK-HX/10YA-HX MODEL ITEM Capacity kW 1 Phase V Hz kW % V A A lit/h dB (A) dB (A) kg mm mm m² m mm RAS-10YKX/10YAX RAS-10YK-E/10YA-E RAS-10YK-HX/10YA-HX Cooling 220V240V 2,702,70 Single 220240 50 0,800,85 9694 220V240V 0,15/3,650,15/3,60 16 1,2 44 / 36 / 29 4445 R-22 0,70 Capillary tube 9,52 Flare connection 6,35 Flare connection 10 5 16 RAS-10YK-E RAS-10YKX RAS-11YKX RAS-10YK-HX 265 790 189 8 Finned tube Cross flow fan 650 510 430 20 Polypropylene net filter (Washable) RAS-10YA-E RAS-10YAX RAS-11YAX RAS-10YA-HX 530 770 200 29 Finned tube Propeller 15001700 18 (UE6-21SJ5P) 18 (UE6-21A5P), or 20 (HF-240-20A) PH102T1-4C 2PS146D5AB02 750 Fuse, Overload relay Yes 2143 RAS-11YKX/11YAX * Power source Power consumption Power factor Running current Starting current Moisture removal Noise (SPL at 1 meter) Refrigerant Refrigerant control Gas side size Connection type Liquid side size Connection type Maximum length (of one way) Maximum height difference Indoor unit Outdoor unit Outer diameter Indoor (H/M/L) Outdoor (220240V) Name of refrigerant Rated volume Indoor/Outdoor Interconnection pipe * Condensate drain pipe INDOOR UNIT Dimensions Net weight Evaporator type Indoor fan type Air flow rate Fan motor output Air filter OUTDOOR UNIT Dimensions Net weight Condenser type Outdoor fan type Air flow rate (220240V) Fan motor output Compressor High fan Medium fan Low fan m³/h m³/h m³/h W Height Width Depth mm mm mm kg m³/h W Model Output W Safety device Air flow rate Usable outdoor temperature range °C Specifications are subject to change without notice. 4 RAS-10YK-ES / RAS-10YA-ES RAS-10YKX-T / RAS-10YAX-T MODEL ITEM Capacity kW 1 Phase V Hz kW % V A A lit/h dB (A) dB (A) kg mm mm m² RAS-10YK-ES/10YA-ES Cooling 220V240V 2,652,70 Single 220240 50 0,800,85 9694 220V240V 0,15/3,65 16 1,2 44 / 36 / 29 (220240V) 44 R-410A 0,69 Capillary tube 9,52 Flare connection 6,35 Flare connection 10 5 16 RAS-10YK-ES Height Width Depth mm mm mm kg RAS-10YKX-T 265 790 189 8 Finned tube Cross flow fan 650 510 430 20 Polypropylene net filter (Washable) RAS-10YAX-T 530 770 200 29 Finned tube

Propeller m³/h W Model Output W (220240V) 1500 18 (UE6-21SJ5P) PA98X1T-4FZ (220V)1700 27 (UE6-31C5P) or 30 (HF-240-30A) RM5510GNE92 750 Fuse, Overload relay Yes 2143 31 (220V) 46 R-22 0,75 11 0,80 96 220V 220 RAS-10YKX-T/10YAX-T 220V 2,70 * Power source Power consumption Power factor Running current Starting current Moisture removal Noise (SPL at 1 meter) Refrigerant Refrigerant control Gas side size Connection type Liquid side size Connection type Maximum length (of one way) Maximum height difference Indoor unit Outdoor unit Outer diameter Indoor (H/M/L) Outdoor Name of refrigerant Rated volume Indoor/Outdoor Interconnection pipe * m mm Condensate drain pipe INDOOR UNIT Dimensions Net weight Evaporator type Indoor fan type Air flow rate Fan motor output Air filter OUTDOOR UNIT Dimensions Net weight Condenser type Outdoor fan type Air flow rate Fan motor output Compressor High fan Medium fan Low fan m³/h m³/h m³/h W RAS-10YA-ES Height Width Depth mm mm mm kg Safety device Auto louver Usable outdoor temperature range °C Specifications are subject to change without notice. 5 Note : 1 · Capacity is based on the following temperature conditions.

CONDITION TEMPERATURE (DB) Indoor unit inlet air temperature (WB) (DB) Outdoor unit inlet air temperature (WB) 24 °C 19 °C 35 °C 27 °C COOLING * Notes : 2 CHARGELESS · No additional refrigerant required. · This air conditioner accepts a connection piping length of up to 10m and a head of up to 5m. · There is no need to add the refrigerant as long as the total length of the connection piping is up to 10m. * 7 2.CONSTRUCTION VIEWS

2-1.Indoor Unit Air inlet Air filter 790 Heat exchanger 189 265 1800 Air outlet 47 Knock out system 07YK-E, 07YK-ES, 10YK-E 10YK-ES: Without power cord 07YKX, 10YKX, 11YKX 07YKX-T, 10YKX-T : With power cord 10YK-HX : With power cord & plug Front panel Back body 790 232 326 Hanger 232 321 Connecting pipe (0,49m) (Flare Ø6,35) 10 Drain hose (0,54m) Hanger 50 47 Knock out system Connecting pipe (0,39m) (Flare Ø9,52) 65,5 659 450 326 66 or more Minimum distance to ceiling 65,5 Hanger For stud bolt (Ø8~Ø10) For stud bolt (Ø6) 20 Minimum distance to wall Hanger Minimum distance to wall 120 or more 2,5 46 20 265 178,5 17 120 or more 40,5 3,5 37 20 Hanger Center line 76 319 790 Hanger Installation plate outline 269 126 60,5 -8- 40,5 10 50 2-2.

Outdoor Unit A Detail Drawing 600 36 50 R10 230 216 30 A 36 600 111 Ø25 Drain hole 85 Gas side (flare Ø9,52) 230 216 25 Liquid side (flare Ø6,35) Ø6 Hole 50 8-Ø6 Holes (For fixing the outdoor unit) Fan guard 4-Ø11x14 Long holes (For anchor bolt Ø8-Ø10) 200 12 11 Ø11x14 Hole Handle 11 111 ø420 TOSHIBA Electric parts cover Z 525 530 54 268 62 89 Access for charging 250 5 770 59 89 59 770 Z 45 or more View 600 Inlet port 600 or more Visible outline (Minimum distance of the product of the wall) 230 Inlet port 100 or more 400 or more Outlet port 4-Ø11x14 Long holes (For anchor bolt Ø8-Ø10) Center port Mounting dimension of anchor bolt -9- 268 3.



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WIRING DIAGRAM LOUVER MOTOR Detail A RAS-07YK-E/10YK-E RAS-07YKX/10YKX/11YKX RAS-07YKX-T/10YKX-T/10YK-HX RAS-07YK-ES/10YK-ES RAS-10YK-HX L N Power cord with plug INFRARED RAYS RECEIVE AND INDICATION PARTS 123456789 CN25 123456789 THERMAL FUSE 77°C x 2 1 ORN ORN ORN THERMAL FUSE 77°C x 2 ORN BLU PNK YEL ORN RED BRW 654321 12 CN04 1 2 RAS-07YK-E RAS-10YK-E RAS-07YK-ES RAS-10YK-ES A POWER L TERMINAL N BLOCK BLK P04 GRN&YEL SG01 DSA R22 VARISTOR F01 BRW BLU RY02 BLK 4 RAS-07YKX RAS-10YKX RAS-11YKX RAS-07YKX-T RAS-10YKX-T WHI 4 3 6,3A 250V 3 R21 C15 RY01 L01 VARISTOR CN07 6 5 4 3 2 1 C01 R01 DB01 C02 POWER SUPPLY CIRCUIT DC 12V DC 5V CR03 IC 03 C58 1 2 3 CN11 123 5 5 3 3 1 CN10 1 1 2 CN03 12 YEL BLK BRW BLK BLK BLK 123456 123456 PNK WHI FAN MOTOR INDOOR TERMINAL 1 BLOCK OUTDOOR TERMINAL BLOCK BLK OVER LOAD RELAY BLK BLK BLK GRN&YEL THERMO SENSOR (TA) HEAT EXCHANGER SENSOR (TC) WHI AC FAN MOTOR INDOOR OUTDOOR COLOR IDENTIFICATION BRW : BROWN RED : RED WHI : WHITE YEL : YELLOW BLU : BLUE BLK : BLACK GRY : GRAY PNK : PINK ORN : ORANGE GRN&YEL : GREEN & YELLOW 2 RAS-10YAX-T only COMPRESSOR 1 2 RED FAN MOTOR GRN & YEL CHASSIS RED CAPACITOR RED WHI CAPACITOR RAS-10YA-ES only COMPRESSOR PNK WHI 10 BLK BLK BLU BLU BLU BLU BLU BLU PNK BLK WHI 1 2 3 4 5 6 7 8 9 CN13 MCC-798 1 2 CN01 12 4. SPECIFICATIONS OF ELECTRICAL PARTS 4-1. Indoor Unit No. PARTS NAME TYPE SPECIFICATIONS Output (Rated) 20W, 6poles, 1phase, 220240V, 50Hz 1 Fan motor (for indoor) MMF-240-20-4A Winding resistance (W) (at 20°C) 10kW at 25°C Red-Black 220,8 White-Black 324,3 2 3 4 5 6 7 8 9 10 11 12 13 Thermo. sensor (TA-sensor) Switching transformer Microcomputer Power relay, Common relay Heat exchanger sensor (TC-sensor) Line filter Diode Capacitor Fuse Varistor Resistor Louver motor (Microprocessor) SWT-47 TMP87CK40AN D11U (Microprocessor) SS11V-06180 D3SBA60 ECEC2GA470BL TSCR 15G561K Coil : DC 12V 75mA, Rated AC 250V 20A 10kW at 25°C 18mH, AC 0,6A 4A, 600V 47mF, 400V T6, 3A, 250V 560V 5,6W, 2W MP35EA12 Output (Rated) 2W, 10poles, 1phase, DC 12V 4-2. Outdoor Unit RAS-07YAX, RAS-07YA-E, RAS-07YAX-T No. 1 PARTS NAME Compressor TYPE PH80T1-4C SPECIFICATIONS Output (Rated) 605W, 2poles, 1phase, 220240V, 50Hz Winding resistance (W) (at 20°C) C-R 4,80 Red-Black 370 Red-Black 370 Red-Black 387 C-S 8,37 White-Black 370 White-Black 370 White-Black 466 Output (Rated) 18W, 6poles, 1phase, 220240V, 50/60Hz RAS-07YA-E UE6-21SJ5P Winding resistance (W) (at 20°C) Output (Rated) 18W, 6poles, 1phase, 220240V, 50/60Hz 2 Fan motor (for outdoor) RAS-07YAX RAS-07YAX-T HF-240-20A RAS-07YA-E RAS-07YAX RAS-07YAX-T SK-50FMP1,5U1 DS501155BPQA SK-40CMP15U1 JMRA99208-9201 UE6-21A5P Winding resistance (W) (at 20°C) Output (Rated) 20W, 6poles, 1phase, 220240V, 50/60Hz Winding resistance (W) (at 20°C) AC 500V, 1,5mF AC 500V, 1,5mF AC 400V, 15mF U/T 4,2A (25°C), OPEN 130 ± 5°C, CLOSE 69 ± 11°C 3 4 5 Running capacitor (for fan motor) Running capacitor (for compressor) Overload relay 11 Indoor Unit Control Panel Heat Exchanger Sensor Functions C. P. U Operation Display Timer Display Thermo. Sensor · Louver Control Infrared Rays Signal Receiver · 3-minute Delay at Restart for Compressor ECONO. Sign Display Infrared Rays Remote Control Operation (START/STOP) Initializing Circuit Clock Frequency Oscillator Circuit · Motor Revolution Control FAN-ONLY Sign Display · Processing (Temperature Processing) · Timer Indoor Fan Motor 6. CONTROL BLOCK DIAGRAM Operation Mode Selection AUTO, COOL, DRY, FAN ONLY Thermo. Setting Fan Speed Selection Noise Filter ON TIMER Setting OFF TIMER Setting Louver ected according to room temperature at which operation is to start, as shown in Fig. 7-4-1.

The Fan mode will continue until room temperature reaches a level at which another mode is selected. 7-4-1. Temporary Auto When the TEMPORARY button is pushed (1 sec), the set temperature is fixed at 24°C and controlled in accordance with the chart shown in Fig. 7-4-1. (Room temp. Set temp.) Powerful Cooling mode +4 Cooling mode +1 Dry mode (The same cooling mode as the room temperature control is set at set temp. 1°C) The Louver moved downward. (DIRECT AUTO COOL) (The same cooling mode as the is not required to run at this time, push the TEMPORARY button once more or use the remote control and Stop the unit. 0 3S TEMPORARY · When the system is operating OPERATION Push the TEMPORARY button continuously more than three seconds. MOTION Operating The orange light is lit. The system stops to operate. The orange light is turned off. about three seconds after The unit beeps three times. The system stops.

If the system is not required to stop at this time, use the remote control and to restart. During subsequent operation, the green light goes on. 0 3S TEMPORARY 7-7-3. In Case of Power Failure during the Timer Operation (1) If ON-TIMER operation is reserved with setting of Auto Restart operation, it is cancelled with power failure. (The OPERATION lamp on the main unit goes on and off to inform of power failure.) In that case, try to reserve ON-TIMER operation once again. (2) If OFF-TIMER operation is reserved without setting of Auto Restart operation, the reservation is cancelled with power failure. (The OPERATION lamp on the main unit goes on and off to inform of power failure.) In that case, try to reserve OFF-TIMER operation. When Auto Restart operation is set, OFF-TIMER reservation is also cancelled with power failure.

19 8. INSTALLATION PROCEDURE 8-1. Safety Cautions For general public use Power supply cord of parts of appliance for Outdoor use shall be more than polychloroprene sheathed flexible cord (design H05 RN-F), or cord designation 245 IEC 57. CAUTION TO DISCONNECT THE APPLIANCE FROM THE MAINS SUPPLY. This appliance must be connected to the mains by means of a circuit breaker or a switch with a contact separation of at least 3 mm. If this is not possible, a power supply plug with earth must be used. This plug must be easily accessible after installation. The plug must be disconnected from the power supply socket in order to disconnect the appliance completely from the mains. DANGER ENGAGE DEALER OR SPECIALIST FOR INSTALLATION. `FOR ELECTRICAL WORKS THE WIRING AND CABLES MUST BE PERFORMED IN COMPLIANCE WITH NATIONAL WIRING STANDARD OR REGULATION.

IF INCORRECT AND INCOMPLETE WIRING IS CARRIED OUT, IT WILL CAUSE AN ELECTRICAL FIRE OR ELECTRICAL SHOCK. `USE THE SPECIFIED CABLE (1,5 to 2,0mm²) AND CONNECT TIGHTLY FOR INDOOR/OUTDOOR CONNECTION. CONNECT TIGHTLY AND CLAMP THE CABLE SO THAT EXTERNAL FORCE WILL BE ACTED ON THE TERMINAL. `WIRE ROUTING MUST BE PROPERLY ARRANGED SO THAT CONTROL BOARD COVER IS FIXED PROPERLY.



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DO NOT DAMAGE OR SCRATCH THE CONDUCTIVE CORE AND INNER INSULATOR OF THE CABLES. DO NOT DEFORM OR SMASH ON THE SURFACE OF THE CABLES. DO NOT PRESS OR FIX THE CORD AND CABLES FIRMLY WITH STAPLES, etc. DO NOT USE THE EXTENSION CABLE FOR POWER SUPPLY CORD OR INTER-CONNECTING CABLE. NEVER EXECUTE THE CONNECTION OF WIRING WITH OTHER METHOD THAN THE APPROVED ONE. OTHERWISE, OVERHEAT, SMOKE OR FIRE MAY BE GENERATED BY CONTACT ERROR.

TURN OFF MAIN POWER SUPPLY AND BREAKER BEFORE ATTEMPTING ANY ELECTRICAL WORK. MAKE SURE ALL POWER SWITCHES AND BREAKER TURN OFF. FAILURE TO DO SO MAY CAUSE ELECTRIC SHOCK. CONNECT THE CONNECTING CABLE CORRECTLY. IF THE CONNECTING CABLE IS CONNECTED BY WRONG WAY, ELECTRIC PARTS MAY BE DAMAGED. GROUNDING WIRE WORKS MUST BE CONSTRUCTED IN COMPLIANCE WITH INSTALLATION MANUAL. DO NOT INSTALL NEAR CONCENTRATIONS OF COMBUSTIBLE GAS VAPORS. FAILURE TO FOLLOW THIS INSTRUCTION CAN RESULT IN FIRE OR EXPLOSION. TO PREVENT OVERHEATING THE INDOOR UNIT AND CAUSING A FIRE HAZARD. PLACE THE UNIT WELL AWAY (MORE THAN 2M.

) FROM HEAT SOURCE SUCH AS RADIATORS, HEAT REGISTORS, FURNACE, STOVES, etc. IF A REFRIGERATION GAS LEAKS DURING INSTALLATION, BE SURE TO PERFORM VENTLATION. IF THE REFRIGERANT GAS COMES INTO CONTACT WITH FIRE, A POISONOUS GAS MAY OCCUR. WHEN INSTALLING AN AIR CONDITIONER, DO NOT ALLOW AIR OR MOISTURE TO REMAIN IN THE REFRIGERATION CYCLE. OTHERWISE, PRESSURE IN THE REFRIGERATION CYCLE MAY BECOME ABNORMALLY HIGH SO THAT A RUPTURE OR PERSONAL INJURY MAY BE CAUSED. BE SURE TO USE THE CORD-CLAMPS AND THE ELECTRIC PARTS COVER TO THE SPECIFIED POSITION WITH ATTACHED TO THE PRODUCT. MOUNT THE ELECTRIC PARTS COVER FOR CABLES OF CONNECTING SECTION FIRMLY WITH THE SCREWS. 20 WARNING · Never modify this unit by removing any of the safety guards or by-passing any of the safety interlock switches. · Do not install in a place which cannot bear the weight of the unit.

Personal injury and property damage can result if the unit falls. · Before doing the electrical work, attach an approved plug to the power supply cord. And make sure the equipment to be earthed. · Appliance shall be installed in accordance with national wiring regulations. If you detect any damage, do not install the unit. Contact your Toshiba dealer immediately. CAUTION · Exposure of unit to water or other moisture before installation will result in an electrical short. Do not store in a wet basement or expose to rain or water. · After unpacking the unit, examine it carefully for possible damage. · Do not install in a place that can increase the vibration of the unit.

Do not install in a place that can amplify the noise level of the unit or where noise and discharged air might disturb user's neighbors. · To avoid personal injury, be careful when handling parts with sharp edges. · Please read the installation manual carefully before installing the unit. It contains further important instructions for proper installation. UK Plugs and Sockets etc (Safety) Regulations 1994 SI Number 1768 With regard to Schedule 3, Item 7 of the above UK Regulations, this appliance must be permanently connected to the fixed wiring of the main electrical supply by means other than the use of an approved 13 Amp. plug-top as outlined in the Regulations. Electrical work must be carried by suitably qualified persons and in accordance with all relevant safety standards and codes of practice. We recommend that the power supply for this appliance is derived from a suitably protected dedicated circuit. (for U.K. only) 21 8-2. Installation Diagram of Indoor and Outdoor Units For installation of the indoor unit, use the paper pattern on the back. Clip anchor Hook 66 mm or more For the rear left and left piping Wall 120 Front cabinet Front panel mm or m Hook ore 1 Installation plate Insert the cushion between the indoor unit and wall, and lift indoor unit to make work easier. Do not allow the drain hose to get slack. Hook 120 m or m m ore 5 Mounting screw Air (At tac h to filte r Shield pipe Cut the piping hole sloped slightly the fron t ca bin et) (At tac h to Pan head wood screw 8 the fron t ca bin et) Make sure to run the drain hose sloped downward.

The auxiliary piping can be connected the left, rear left, rear, right or bottom. 5 Deodorizing filter 600 mm or more 7 Purifying filter 2 Wireless remote control 4 Remote control holder Right Before install the wireless remote control 100 mm or m ore m 45 m ore or m Rear Rear left Bottom Left · With the remote control cover open, load the batteries supplied correctly, observing their polarity. 2 Wireless remote control ore or m mm 400 Extension drain hose (Option: RB-821SW) 600 mm or m ore Insulation of refrigerant pipes insulates the pipes separately, not together. 3 Batteries Cover Be sure to use the Electric parts cover Loop the connective cable (about 100 mm in diameter and 300~350 mm long). 6 mm thick heat resisting polyethylene foam 22 8-3.

Installation 8-3-1. Optional Parts Part code A Parts name Refrigerant piping Liquid side : ϕ 6,35 mm Gas side : ϕ 9,52 mm Pipe insulating material (polyethylene foam, 6 mm thickness) Putty, PVC tapes Each one Q'ty <Anchor bolt arrangement of outdoor unit> 600mm Air inlet B C 1 Each one Air outlet 230mm Fig 8-3-1 Air outlet · Secure the outdoor unit with the anchor bolts if the unit is likely to be exposed to a strong wind. · Use ϕ 8 or ϕ 10 anchor bolts. 8-3-2. Installation Parts Part No. Name of parts Q'ty Part No. Name of parts Q'ty 1 Installation plate x 1 5 Mounting screw ϕ 4 x 25 x 6 2 Wireless remote control x 1 6 Deodorizing filter x 1 3 Batteries x 2 7 Purifying filter x 1 4 Remote control holder x 1 8 Pan head wood screw ϕ 3,1 x 16 x 2 Others Name Installation manual Owner's manual This model is not equipped with an extension drain hose. Option : For the extension drain hose, use an optionally available RB-821SW or commercially available one. 23 8-4. Indoor Unit K Installation place · A place which provides the spaces around the indoor unit as shown in the diagram in section 8-2.

· A place where there is no obstacle near the air inlet and outlet. · A place which allows an easy installation of the piping to the outdoor unit. · A place which allows the front panel to be opened. 8-4-1. Cutting a Hole and Mounting Installation Plate <Cutting a hole> When installing the refrigerant pipes from the rear. CAUTION · Direct sunlight to the indoor unit wireless receiver should be avoided. · The microprocessor in the indoor unit should not be too close to r-f noise sources. (For details, see the owner's manual.) The center of the piping slot is above the arrow.



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The center of the pipe hole is above the arrow.

Pipe hole 65 mm 40,5 mm 65,5mm 1 Installation plate 80mm <Remote control> · A place where there are no obstacles such as a curtain that may block the signal from the remote control. · Do not install the remote control in a place exposed to direct sunlight or close to a heating source, such as a stove. · Keep the remote control at least 1 m apart from the nearest TV set or stereo equipment. (This is necessary to prevent image disturbances or noise interference.) · The

location of the remote control should be determined as shown below.

Fig. 8-4-2 (1) After determining the pipe hole position with the mounting plate (80 mm), drill the pipe hole (ø65 mm) at a slight downward slant to the outdoor side. NOTE : · When drilling the wall that contains a metal lath, wire lath or metal plate, be sure to use a pipe hole brim ring sold separately.

<Mounting the installation plate> For installation of the indoor unit, use the paper pattern on the back. Anchor bolt hole (Side view) Indoor unit (Top view)

7m Indoor unit 5m 5m 4 *7m 45° 5° 75 ° 65,5mm Reception range *:Axial distance Remote control Reception Remote control range Pipe hole Pipe hole Thread Indoor unit Weight 5 Mounting screw Fig.

8-4-1 Fig. 8-4-3 24 m <When the installation plate is directly mounted on the wall> (1) Securely fit the installation plate onto the wall by screwing it in the upper and lower parts to hook up the indoor unit. (2) Install the installation plate horizontally in the wall. (3) To mount the installation plate on a concrete wall with anchor bolts, utilize the anchor bolt holes as shown in the above figure. CAUTION Failure to firmly install the unit may result in personal injury and property damage if the unit falls. · In case of block, brick, concrete or similar type walls, make holes in the wall. · Insert clip anchors for appropriate U mounting screws. NOTE : · Install the installation plate using 4 to 6 pieces of mounting screw securing four corners with screws. CAUTION When installing the installation plate with mounting screw, do not use the anchor bolt hole. Otherwise the unit may fall down and result in personal injury and property damage.

8-4-2. Electrical Work (1) The supply voltage must be the same as the rated voltage of the air conditioner. (2) Prepare the power source for exclusive use with the air conditioner. Installation plate (Keep horizontal direction) Anchor bolt CAUTION Projection 15mm or less 5mm dia, hole Clip anchor 5 Mounting screw Ø4 x 25 · Use power specified above table. · This appliance can be connected to the mains in either of the following two ways. (1) Connection to fixed wiring: A switch or circuit breaker which disconnects all poles and has a contact separation of at least 3 mm must be incorporate in the fixed wiring. An approved circuit breaker or switches must be used. (2) Connection with power supply plug: Attach power supply plug with power cord and plug it into wall outlet. An approved power supply cord and plug must be used. NOTE : · Perform wiring works so as to allow a generous wiring capacity.

Fig. 8-4-4 MODEL RAS-07YKX RAS-07YK-E RAS-07YK-ES RAS-10YKX RAS-11YKX RAS-10YK-E RAS-10YK-ES RAS-10YK-HX RAS-07YKX-T RAS-10YKX-T Power source Maximum running current Plug socket & fuse rating Wiring 50Hz *220240V ~ Single-phase 5A 7,5A 16A 1mm² or more 50Hz *220V ~ Single-phase 5A 7,5A * No adjustment is necessary. 25 8-4-3. Wiring Connection Taking out the power cord WARNING To plug the cable in the plug receptacle, take the following precaution. THIS APPLIANCE MUST BE EARTHED.

Slitted portion IMPORTANT THE WIRES IN THIS MAINS LEAD ARE COLORED IN ACCORDANCE WITH THE FOLLOWING CODE: L : Brown N : Blue : Green and Yow -LIVE -NEUTRAL -EARTH · Cut off the slitted portion in the side face of the rear panel to take out the power cord. After this, remove burrs, sharp edges, etc., to . smooth the cut face. L N <How to connect the power cord> (For RAS-07YK-E, RAS-07YK-ES, RAS-10YK-E, RAS-10YK-ES only) For the air conditioner that has no power cord, connect a power cord to it as mentioned below.

· After removing the front cabinet, remove the terminal cover and the cord clamp. · Connect and secure the power supply cord and secure the cord clamp and the terminal cover. · Cut the rear panel following the cutting mark and put the power supply cord through the notch. · Be sure to smooth out the notch with a file, etc. Terminal block Power supply cord L N Cord clamp Terminal cover Screw Fig. 8-4-5 As the colors of the flexible cord of this appliance may not correspond with the colored markings, to identify terminals in your plug, as follows: Connect BROWN colored core to plug terminal marked letter "L".

Connect BLUE colored core to plug terminal marked letter "N". Connect GREEN AND YELLOW colored core to plug terminal marked Earth Symbol " ". The installation of the cables has to be done in such a way that the basic insulated wires for the infrared sensor can not be touched. <How to remove the front cabinet> 4 4 Screw 12 12 3 Vertical air flow louver.

Fig. 8-4-6 Earth line Screw Fig. 8-4-7 How to open the screw cap <Stripping length of power cord> 30mm 10mm · Place your finger on the lower part and push up to open the screw cap. (1) Open the screw caps and remove the two screws securing the front cabinet. (2) Close the screw caps as behind. (3) Open the vertical airflow louver horizontally by hand. (4) Slightly open the lower part of the front cabinet then pull the upper part of the front cabinet toward you to remove it from the rear plate. L N 10mm 40mm Earth line NOTE : · Use standard wire only. · Wire type: More than H05-RN-F Fig. 8-4-8 26 <How to connect the connecting cable> Wiring of the connecting cable can be carried out without removing of the front panel.

(1) Remove the front panel. Fully open the front panel. Disengage the support arm located in the upper center while pushing its handle leftwards, and then remove the front panel toward you. (2) Remove the terminal cover and cord clamp. (3) Insert the connecting cable (according to local codes) into pipe hole on the wall.

(4) Take out the connecting cable through the cable slot on the rear panel so that it is exploded by about 15 cm long in the front side. (5) Insert the connecting cable fully into the terminal block and secure it by screw tightly. (6) Tightening torque:1,2 N·m (0,12 kgf·m) (7) Secure the connecting cable with the cord clamp. (8) Fix the terminal cover and front panel on the indoor unit. <How to install the front cabinet on the indoor unit> Install the front cabinet through the opposite order of "How to remove the front cabinet".



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When the panel is removed and mounted again, take the following actions: After fastening the two screws, one each at the left and right of the air outlet, be sure to push the upper center Q right end R, left end S and the lower center T of the air outlet, and confirm that no gap is left between the front cabinet and the rear plate. · If cooling (dry) operation is made without pushing the air outlet, dew can be deposited on the front cabinet surface. In addition a gap between the front cabinet and the rear plate will become wider, spoiling the appearance. Push 3 Push 1 Push 2 4 CAUTION · Be sure to refer the wiring system diagram labeled inside the front panel. · Check local electrical codes and also any specific wiring instructions or limitation. Connecting cable Push Fig. 8-4-11 8-4-4. Piping and Drain Hose Installation <In case of rightward piping> · After scribing slits of the front panel and the rear panel by a knife or a marking-off pin, cut them by a pair of nippers or the like. Earth line Terminal block Cord Terminal clamp cover Screw 12 Slit (front panel) about 15cm Screw Screw Connecting cable Slit (rear panel) Fig. 8-4-9 Fig.

8-4-12 <Stripping length of connecting cable> 50mm 10mm Earth line <In case of downward piping> · After scribing the slit of the front panel and slit in the lower part of the rear panel by a knife or a marking-off pin, cut them by a pair of nippers or the like. 2 1 10mm 40mm For a three conductor cable NOTE : · Use stranded wire only. · Wire type: More than H05 RN-F Fig. 8-4-10 Slit (front panel) Slit (rear panel) Fig. 8-4-13 27 <Left-hand connection with piping> Bend the connecting pipe so that it is laid within 43 mm above the wall surface. If the connecting pipe is laid exceeding 43 mm above the wall surface, the indoor unit may unstably be set on the wall. When bending the connecting pipe, make sure to use spring bender so as not to crush the pipe. Bend the connection pipe within a radius of 30 mm. To connect pipe after installation of unit (figure) (To the forefront of flare) 196mm 96mm 8-4-5. Indoor Unit Installation (1) Pass the pipe through the hole in the wall, and hook the indoor unit on the installation plate at the upper hooks. (2) Swing the indoor unit to right and left to confirm that it is firmly hooked up on the installation plate. (3) While pushing the indoor unit onto the wall by the lower part, hook it up on the installation plate by the lower part. Pull the indoor unit toward you by the lower part to confirm that it is firmly hooked up on the installation plate. Side of liquid flow Side of gas flow Outward form of indoor unit (1) Hook here 43mm 1 Installation plate (2) R 30mm (Use polisin or the like for bending pipe.) Hook 80 ° Push Use the handle of screwdriver, etc.

Fig. 8-4-14 NOTE : If the pipe is bent incorrectly, the indoor unit may unstably be set on the wall. After passing the connecting pipe through the pipe hole, connect the connecting pipe to auxiliary pipes and wrap the facing tape around them. Fig. 8-4-15 · For detaching the indoor unit from the installation plate pull the indoor unit toward you while pushing its bottom up by the specified parts.

CAUTION · Bind the auxiliary pipes (two) and connecting cable with facing tape tightly. In case of leftward piping and rear-leftward piping, bind the auxiliary pipes (two) only with facing tape. Indoor unit Auxiliary pipes Installation plate Connecting cable Push Push Fig. 8-4-16 · Carefully arrange pipes so that any pipe does not stick out of the rear plate of the indoor unit. · Carefully connect the auxiliary pipes and connecting pipes to each other and cut off the insulating tape wound on the connecting pipe to avoid double-taping at the joint, moreover, seal the joint with the vinyl tape, etc. · Since dewing results in a machine trouble, make sure to insulate both the connecting pipes. (Use polyethylene foam as insulating material.) · When bending a pipe, carefully do it not to crush it. 28 8-4-6. Drainage (1) Run the drain hose sloping downwards.

NOTE : · Hole should be made at a slight downward slant to the outdoor side. Do not rise the drain hose. Do not form the drain hose into the wared shape. 8-5. Outdoor Unit Installation place · A place which provides the spaces around the outdoor unit as shown in the diagram in page 19. · A place which can bear the weight of the outdoor unit and does not allow an increase in noise level and vibration. @@ · A place which is not exposed to a strong wind. · A place free of a leakage of combustible gases. · A place which does not block a passage. @@ · An allowable length of the connecting pipe is up to 10 m. · An allowable head level is up to 5 m. @@@@ · Improper drainage can result in damage to property. @@@@ · Do not install the unit in such places. · A place full of machine oil. · A saline place such as coast. · A place full of sulfide gas. · A place where high-frequency waves are likely to be generated as from radio equipment, welders, and medical equipment. Space for pipes Fig. 8-4-19 29 8-5-1. @@@@ · Do not use the refrigerant in the outdoor unit. For details, see the manual of vacuum pump. Fig. @@@@ (2) Connect the charge hose (B) to the port of vacuum pump. (3) Open fully the low pressure side handle of the manifold valve. (4) Operate the vacuum pump. @@@@ (6) Open the stems of packed valves A and B all the way. @@@@ · Process them so that they do not touch any electrical or metal parts. @@@@ · Securely tighten the valve stem cap with the wrench or like. @@@@ (size of wire and wiring method etc.) · Every wire must be connected firmly.

NOTE : · Wipe type : More than H05 RN-F <A5 mm hexagon wrench is required.> Flare nut Valve body Wrench Stopper Service port Valve stem Service port cap Valve stem cap Note : Service port at Gas pipes valve only. Fig. 8-5-6 5m m 31 8-6. Others 8-6-1. Gas Leak Test 8-6-3. Auto Restart Setting This product is designed so that, after a power failure, it can restart automatically in the same operating mode as before the power failure. Flare nut connections (indoor unit) C D INFORMATION The product was shipped with Auto Restart function in the off position. Turn it on as required. * See detail in section 7-7. Auto Restart Function Electric parts cover Valve stem cap connection A B Service port Valve stem cap connection Flare nut connections (Outdoor unit) Fig. 8-6-1 · Check the flare nut connections, valve stem cap connections and service cap connections for gas leak with a leak detector or soap water. 8-6-2. Test Operation To switch the TEST RUN (COOL) mode, push TEMPORARY button for 10 sec.



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(The beeper will make a short beep.

) TEMPORARY button TEMPORARY Fig. 8-6-2 32 9. TROUBLESHOOTING CHART TROUBLESHOOTING PROCEDURES : · Following details of "What to be pre-checked first", make sure of the basic items. · When there is no trouble corresponding to above, check in detail the faulty parts following "How to judge faulty parts by symptoms" later. 9-1.

What to be Prechecked First 9-1-1. Power Supply Voltage The line voltage must be AC 220240V (220V for RAS-07YKX-T, RAS-10YKX-T). If the line voltage is not within this range, this air conditioner may not work normally. 9-1-2. Incorrect Cable Connection between Indoor and Outdoor Units The indoor unit is connected to the outdoor unit with 3 cables. Make certain that the indoor and outdoor units have been connected properly, with terminals assigned the same numbers wired to each other. If the connectors are not connected as specified, the outdoor unit will not operate normally. 9-1-3. Misleading but Good Operations (Program Controlled Operation) The microcomputer performs the operations listed in Table 9-1-1 to control the air conditioner. If a claim is made on the operation, check whether it corresponds to the contents in the Table 9-1-1.

If it does, it is an indispensable operation for the control and maintenance of the air conditioner: it is not a failure of the unit. Table 9-1-1 No. Operation of air conditioner When the power plug or the power cord of the indoor unit is inserted, the OPERATION lamp on the setting indication part blinks. Fan speed remains unchanged in the dry mode. The compressor will not switch on or off even when the thermo. control is operated in the dry operation. Compressor does not work though room temperature is in the range of turning the compressor on. Description The OPERATION lamp blinks, indicating that power is turned on. If this happens, push the START/STOP button once to cause the lamp to stop blinking. @@@@ according to the room temperature. @@@@ Primary Judgement of Trouble Sources 9-2-1. @@@@ sensor (TA) short/break Heat exchanger sensor (TC) short/break Indoor fan lock, abnormality of indoor fan Indoor P.C. board failure · Gas shortage, other refrigerant cycle trouble · Heat exchanger sensor open/break/short · Overload relay trouble F OPERATION, TIMER and FAN-ONLY display blinking (5 Hz) (1) Judgement from defective operation or abnormal operation Table 9-2-2 Symptom Check Remote control is not possible. Remote control is possible.

Primary judgement The indoor part (including the remote control) is defective. OK. The outdoor part is defective. (outdoor fan motor) The inside part is defective. No reaction on remote control operation Turn off the power once, turn it on again and try to operate the remote control again. The outdoor fan does not rotate The compressor operates. The compressor does not operate. 34 (2) Self-diagnosis with remote control With the indoor unit control, self-diagnosis of protective circuit action can be done by turning the remote control operation into service mode, operating the remote control, observing the remote control indicators and checking whether TIMER lamp blinks (5 Hz). [METHOD] 1 Push the [CHK] button with a thin tip of pencil or others. The remote control display shows " MODE TEMP . AUTO COOL DRY FAN ONLY Hr.ON OFF TIMER ". FAN AUTO LOW 2 Push " C MED. HIGH " key of TEMP. one by one.

The receiving beep "Pi!" is heard, and the timer lamp of the air conditioner blinks. (5 times for 1 sec.) to " " key, the 35 check codes from " " are sent. " " TEMP. 3 Operating " 4 START/STOP 2 3 FAN 4 To reduce the check code number, push the " 6 AUTO SET MODE ACL CHK TIMER ECONO. key of TEMP. --> <--> --> <--> <--> <--> <--> <--> 1 CNL 5 If the check code agrees with the error code, the ON OFF RSV WC-E1BE receiving beep continues ringing "Pi, Pi, Pi ..." (for approx.

10 sec.), and all the LED of air conditioner blink. (5 times for 1 sec.) [To release the servicing check] 6 Push the [START/STOP] button. Display screen returns to one before check.

The servicing check operation can be also released by [ACL] button. Table 9-2-3 Block level Check code Block Indoor P board .C. Check code Diagnosis function Symptom Thermo. sensor short/break.

Heat exchanger sensor short/break. Indoor fan lock, abnormality of indoor fan or thermal fuse break. Abnormality of other indoor unit P board. .C. Air Conditioner status Condition Indicated when detected abnormal Indicated when detected abnormal Indicated when detected abnormal Judgment and action 1. Check thermo. sensor. 2. If it is OK, check P board.

.C. 1. Check heat exchanger sensor. 2. If it is OK, check P board. .C. Continued operation Continued operation All off All off Indicated when detected abnormal Replace P board. .

C. Contents detected by the check codes " " to " " are stored in memory of the microcomputer even if the power supply is turned off. Therefore, contents of operations in the past are all displayed. 35 9-3. Troubleshooting Flowcharts 9-3-1.

Power can not be Turned on (No Operation at All) <Preliminary checks> (1) Is the supply voltage normal? (2) Is the connection to the AC output OK.? Shut off the power supply from AC outlet once and turn it on after 5 seconds. Operation Check Items Main cause Countermeasure Symptom NO Does the OPERATION lamp blink? YES Does the power turn on by pushing the [START/STOP] button of the remote control? YES (No problem) Does the transmission indicator of remote control flash normally and transmit certainly? YES Replace the remote control. NO NO Remote control is defective. Does the fuse (F01) blow? NO Does the thermal fuse blow? (Under PF.

Terminal) NO NO Is the indication voltage (DC12V or 5V) of main PC board correct? YES YES Parts (R21, R22, SG01, C15, C01, DB01, C02, Q01, T01) are defective. YES Wrong wiring of AC cord or connecting cable is defective. Replace the thermal fuse set. Check connection. Does the CN13 connector the wrong connecting? YES NO P.C. board is defective. Replace the main P.C. board.

Is the voltage NO Refer to the paragraph "Pre-check", or defective circuit across C02 measured before power P.C. board block. DC310V~340V? YES Is the secondary voltage of SW transformer (T01) measured DC12V, and DC7V ? YES Shut off the power NO supply once, and turn it on again after disconnecting the motor connector CN10 . Is the secondary voltage of SW transformer measured DC12V, and DC7V? YES Re-wiring the cable. NO * SW transformer (T01) or Tr (Q01) for power supply is defective. Replace the main P.C. board. Motor is defective.

* Be sure to disconnect the motor connector CN10 after shut off the power supply, or it will be a cause of damage of the motor.



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36 9-3-2. Power can not be Turned on after Replacing Indoor P.C. Board <Checking Procedure> Connect the AC Power supply Return the wiring of the power relay is returned to the normal procedure.

Does the OPERATION lamp blink? YES NO Is it wired as shown in Figure below? YES NO To the paragraph of "No Power turns on". Black White Blue Brown 3 C02 1 2 NL Power terminal block RY01 4 PC board 3 RY02 T02 4 Indoor terminal block 9-3-3. Outdoor Unit does not Operate Shut off the power supply from AC outlet once and turn it on after 5 seconds. NO Does the OPERATION lamp blink? YES Does the power turn on by pushing the [START/STOP] button of the remote control? YES Is AC 220240V (AC220V)** supplied between terminal block 1-2? YES Is cable connection between indoor and outdoor units correct? YES Check items as following procedure in 9-3-4, 9-3-5, 9-3-6. See "Power can not be turned on".

NO See "Power can not be turned on". NO Relays (RY01, RY02) or IC31 or IC30 is failure. Replace the P.C. board. NO Correct cabling between indoor and outdoor units. ** for model RAS-07YKX-T, RAS-10YKX-T 37 9-3-4. Only Compressor does not Operate Shut off the power supply from AC outlet once and turn it on after 5 seconds. Does the OPERATION lamp blink? YES Does the power turn on by pushing the [START/STOP] button of the remote control? YES Is the voltage across the indoor terminal (1 - 2) AC 220240V (AC 220V)**? YES Is cable connection between indoor and outdoor units correct? YES Is the voltage across the outdoor terminal (1 - 2) AC 220240V (AC 220V)**? YES Are all the cords for compressor normal? YES Is the compressor motor winding normal? (Check the winding resistor.) YES Is the capacitor for compressor normal? YES Is the overload relay normal? YES Does the compressor start? YES Compressor starts but it stops after a while? YES Is the gas quantity normal? (Check the pressure) YES Compressor is defective NO See "Power can not be turned on".

NO See "Power can not be turned on". NO Relays (RY01, RY02) or IC31 or IC30 is failure. Replace the P.C. board. NO Correct cabling between indoor and outdoor units. NO Cables between indoor and outdoor units are defective. NO Re-wire or replace the defective cords. NO Compressor is defective. NO Capacitor is defective.

NO Overload relay is defective. NO Compressor is defective. NO Gas shortage (Gas leakage) ** for model RAS-07YKX-T, RAS-10YKX-T 38 9-3-5. Only Outdoor Fan does not Operate Shut off the power supply from AC outlet once and turn it on after 5 seconds. Does the OPERATION lamp blink? YES Does the power turn on by pushing the [START/STOP] button of the remote control? YES Is the voltage across the indoor terminal (1 - 2) AC 220240V (AC 220V)**? YES Is cable connection between indoor and outdoor units correct? YES Is the voltage across the outdoor terminal (1 - 2) AC 220240V (AC 220V)**? YES Are all the cords for outdoor fan motor normal? YES Is the outdoor fan motor winding normal? (Check the winding resistance) YES Is the capacitor for compressor normal? YES Outdoor fan motor is defective.

NO See "Power can not be turned on". NO See "Power can not be turned on". NO Relays (RY01, RY02) or IC31 or IC30 is failure. Replace the P.C. board. NO Correct cabling between indoor and outdoor units. NO Cables between indoor and outdoor units are defective. NO Correct the wire or replace the defective cords. NO Outdoor fan motor is defective. NO Capacitor for outdoor fan motor is defective. ** for model RAS-07YKX-T, RAS-10YKX-T 39 9-3-6. Only the Indoor Fan does not Operate < Check procedure > Shut off the power supply once. Turn the power supply. Does the fan stop in no operating status? YES Start the operation with low fan setting in cool operation.

NO Control P.C. board is defective. Replace the P.C. board. Does the fan rotate? YES NO Does AC 120V or higher voltage apply to between red and black lead of fan motor? YES NO Replace the P.C. board. Shut off the power supply.

Motor control circuit failure (IC30, IC03) or 12V Power circuit or Thermal fuse in fan motor failure. Change the setting of cooling to high fan. Does the cross flow fan rotate normally? YES NO Repair the bearing of the drain fan. Turn on the power supply. Does the fan speed become higher? YES NO Operation stops Is the rotation signal (DC+5V-0V) output between 4 (blue lead wire) and 2 (black lead wire) of the motor connector (CN10) when rotating the cross flow fan by hand in no operating status ? (2 pulses/one turn) YES NO Replace the fan motor.

Normal Replace the control P.C. board. * Be sure to disconnect the motor connector CN10 after shut off the power supply, or it will be a cause of damage of the motor. 40 9-4.

How to Check the Remote Control (Including the Indoor P.C. Board) There is no beep from the indoor unit. The operation lamp of the air conditioner main unit does not light. Push the START/STOP button. Does the transmission indicator blink? YES NO Is there direct sunlight on the receptor of the air conditioner? YES NO Short-circuit the metal terminal at the side of the battery compartment (all-clear terminal) with a pencil. (wait about 10 seconds) Is there any thyristor fluorescent light near by? YES NO NO Is operation possible when the transmitter is moved nearer to the infrared signal receiver of the air conditioner? YES Battery life Push the START/ STOP button NO Is operation possible when setting the temporary switch of the air conditioner main unit to "TEST RUN" or "TEMPORARY AUTO"? YES NO Does the transmission indicator light? YES NO Is there any beep and operation? YES Can any signal tone be heard in a transistor radio when transmitting within 5cm distance from the radio? YES NO P.C. board is failure. Keep the air conditioner away from thyristor fluorescent light.

Remote control is failure. Avoid direct sunlight. Replace P.C. board. Replace the batteries Normal Replace remote control. Note: After battery replacement, shortcircuit the metal terminal at the side of the battery compartment (all-clear terminal) with a pencil. 41 9-4-1. How to Check the P.C.

Board (1) Operating precautions 1) When removing the front panel or the P.C. board, be sure to shut off the power supply. 2) When removing the P board, hold the edge .C.

of the P board and do not apply force to the .C. parts. 3) When connecting or disconnecting the connectors on the P board, hold the whole .C. housing. Do not pull at the lead wire. (2) Inspection procedures 1) When a P board is judged to be defective, .C. check for disconnection, burning, or discoloration of the copper foil pattern or this P .



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C. board. 2) The P board consists of the following 2 . C. parts a.

Main P.C. board part: Power relay, indoor fan motor drive circuit and control circuit, C.P and peripheral .U. circuits, buzzer drive circuit and buzzer. b. Infrared rays receive and indication parts: Infrared rays receive unit and LED. 42 (3) Checking procedure Table 9-4-1 No. 1 Procedure Shut off the power supply and remove the P.

C. board assembly from the electronic parts base. Remove the connecting cable from the terminal block. Remove the connector for the motor, and turn the power on. If the OPERATION lamp blinks (0.

5 sec. : ON, 0.5 sec. :OFF) when the power turning on, the checking points described as 1-5 of right column are not necessary to perform. Check Point (Symptom) 1.

Is the fuse blown? Causes 1. · Application of shock voltage. · Overload by short-circuit of the parts. 2 Voltage check 1. Between TP1 and TP2 (AC 220240V) (AC 220V) 2. Between + and of C02 (DC 310 ~ 340V) 3. Between 12V and GND 4. Between 5 V and GND ** 1. · AC power cord is defective. · Poor contact of the terminal plate.

· Miss wiring of the power relay. 2. · Capacitor (C01, C15) is defective. · Line filter (L01) is defective. · Resistor (R01) is defective. · Diode (DB01) is defective. 3. Q01, IC02, T01, F03 are defective. 4. Q01, IC02, T01, F02, Q29, IC03 are defective.

1. Breaking wire of the relay coil, defective relay driver. (IC31) 2. Poor contact of relay. 3 Make the operation status by pushing once the START/STOP button, except the status of [FAN ONLY], [ON TIMER].

Voltage check 1. Voltage of relay coil. (DC 12V) Between pin 10 of IC31 and GND1 Between pin 11 of IC31 and GND1 2. Between No. 1 and 2 of connecting cable terminal block.

(AC 220240V) (AC 220V) ** 4 Start the operation with the system which the time of the restart delay timer is shortened. Make the operation status by pressing once the START/STOP button. 1. The time of the restart delay timer is shortened. 2. Cool operation 3. Air volume [AUTO] 4. Make the setting temperature lower enough than room temperature. 5. Continuous operation.

The status of No. 5 is continued, and make the following condition. 1. Heat operation 2. Make the setting temperature higher enough than room temperature. 1. All indicators light for 3 sec.. 2. Indicators do not indicate normally after approximate 3 sec.

· 1. Compressor does not operate. 2. OPERATION lamp blinks.

ü ý þ Defective indicator, or poor housing assembly. (CN13) 5 1. The temperature of the indoor heat exchanger is abnormally lower. 2. Poor contact of the heat exchanger sensor.

(The connector is disconnected.) (CN01) 3. Heat exchanger sensor, main P board are .C. defective. (Refer to Table 9-4-2 for the judgment of defective resistance values.) 4. Main P.C. board is defective.

6 1. Compressor does not operate. 2. OPERATION lamp blinks. 1. The temperature of the heat exchanger is abnormally high. 2. The heat exchanger sensor connector has short-circuit. (CN01) 3. The heat exchanger sensor is defective.

(Refer to Table 9-4-2 for the judgment of defective resistance values.) 4. P board is defective. .C.

· 1. Poor contact of the motor connector. 2. P board is defective. .

C. 7 Turn the power on after connecting the motor connector. Start the operation with the following condition. 1. Operation [Cooling] 2. Airflow [High fan] 3. Continuous operation 1. Motor does not rotate. (The key operation is accepted.) 2.

The motor rotates, but it vibrates too much. ** for odel RAS-07YKX-T, RAS-10YKX-T 43 9-4-2. P.C. Board Layout Top View Bottom View 44 Table 9-4-2 Approximate value of the sensor (thermistor) resistance (TA, TC) (= k) Temperature Sensor Themo. Sensor 0°C 35,8 10°C 20,7 20°C 12,6 25°C 10,0 30°C 7,92 9-4-3. How to Reduce the Operation Time of the Anti-Restart Timer (1) Set the operation mode, temperature, and air flow rate to be applied with the timer short mode. (2) Push the [CNL] button while keeping [CHK] button pushed. In this case, the check mode is released, and the timer short mode is waited. (The status is kept even if [CHK] and [CNL] buttons are released.

) (3) Pushing [START/STOP] buttons sends operation code + timer short code. (4) The timer short mode is released by only a transmission. Therefore, repeat steps from (2) to perform the timer short mode again. TEMP. START/STOP SET FAN ECONO.

AUTO MODE ACL CHK TIMER [CHK] button CNL ON OFF RSV WC-E1BE [CNL] button Fig. 9-4-1 45 10. PART REPLACEMENT 10-1. Indoor Unit No. Part name Front panel Procedure 1) After stopping the operation of the air conditioner, be sure to turn off the circuit breaker or disconnect the power plug from the AC wall socket.

2) Open the screw caps and remove the two screws fixing the front panel. 3) Close the screw caps as they were. 4) Open the horizontal louver right below by your finger. 5) Open the lower side of front panel until it touches the horizontal louver, and remove it from the indoor unit by turning it. <To assemble the front panel> 1) Fix the two screws to secure the front panel. 2) Close the screw caps as they were. 3) Press four places where are the center, right end, left end and lower portions of the air outlet. 4) Check the gap between the front panel and the main unit. If cooling or drying operation is performed without pressing the center of the air outlet, the surface of the front panel may be covered with frost and have a waterdrop. 3 3 3 Remarks Q 5 5 32 4 23 3 R Electrical part 1) Perform the process Q above.

assembly 2) Remove the electrical part cover by pressing the nail located on upper portion of the electrical part cover. 3) Remove the drain guide. 4) Remove the screw securing to the end plate of the heat exchanger. 5) Remove the connector (3p+3p) for the fan motor and the connector (6p) for the lower motor from the microcomputer assembly. 6) After unhooking the electrical part base by pressing the fixing nail located on its lower portion, draw the electrical part base out toward you to remove it from the main unit. 7) Pull the TC sensor out from the holder of the heat exchanger. (Keep it with the holder of TC sensor.) 8) Dress the connecting cable securely as shown in the right illustration. (Improper dressing will cause water leakage.) Screw Drain guide Upper nail Screw Electrical part cover Lower fixing nail Screw TC sensor When assembling dress the connecting cable in loop and put it into the drain-pan.

S Drain-pan assembly 1) Perform the process R above. 2) Remove the drain-pan by pressing the four hooks downwards. (Keep it with the drain hose.) Hooks 46 No. Part name Horizontal grille Procedure 1) Perform the process R.

Remarks T 2) Remove the screw fixing the louver motor, and Note: The horizontal remove the louver motor. grille can not be 3) Remove the shaft of the horizontal grille from the removed without drain-pan.

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removing the louver motor. Horizontal grille Screw Louver motor U Heat exchanger 1) Perform the process S. 2) Remove the pipe holder from the rear side of main unit by removing the screw.

3) Unhook the hooks fixing the left side of the heat exchanger and remove the screw fixing it, then remove the right side of the end plate from the rib fixing the main unit by sliding the heat exchanger slightly to the right side. Hooks Pipe holder Hooks fixing the heat exchanger Shaft bearing base Screw fixing the heat exchanger V Cross flow fan 1) Perform the process S. 2) Loosen the set screw of the cross flow fan. 3) Remove the screw fixing the shaft bearing base. 4) Lift slightly up the left side of the heat exchanger, and pull the shaft bearing base out left downwards. When assembling it, fix it with the set screw on the position where the gap between the rear plate surface and the left end surface of the cross flow fan is 6 ~ 7mm. Hook Screw Shaft bearing base Cross flow fan 6~7mm Rear plate W Shaft bearing 1) Perform the process V above. 2) Remove the shaft bearing from the shaft bearing base. <Caution for assembling> · If a part of the shaft bearing is protruded from the housing, assemble it after pushing its portion into the correct position in the housing. X Fan motor 2) Perform the process V -2) above.

3) Remove the left and right motor bands. 4) Remove the fan motor after pulling the cross flow fan out sliding it left and right. 1) Perform the process U above. Ribs Ribs Mount the fan motor as shown in figure in the left when assembling. @@ Outdoor Unit No. @@2) Remove Electric parts cover. @@4) Remove the front cabinet. @@(1- ST2T Ø4 x 8 l) 2) Remove the cable connected to the terminal. Refer to [Specifications of Electric Parts] in pages 10 and 11. S Capacitor for fan motor 1) Remove the fixing screw of the capacitor band.

(1- ST2T Ø4 x 8 l) 2) Remove the cable connected to the terminal. T Overload relay (Except for 07YA-ES & 10YA-ES) 1) Perform the process Q above. 2) Remove terminal cover of compressor. 3) Remove overload relay holder and pull overload relay up. 4) Remove Fustons of leads.

Compressor 49 11. EXPLODED VIEWS AND PARTS LIST 11-1. Indoor Unit (1) RAS-07YK-E, RAS-07YK-ES, RAS-10YK-E, RAS-10YK-ES 405 404 402 406 413 403 412 402 Location No. 402 403 404 405 Part No. Description Location No.

406 406 412 413 Part No. Description 43T60002 Base, Terminal 3P AC 300V, 20A , 43T69004 Sensor, Heat Exchanger 10k, 25°C 43T69005 Sensor, Thermostat 10k, 25°C 43T60061 Fuse Set, Thermal 77°C 43T69055 P Board Assembly, .C. MCC-798 (07YK-E, 07YK-ES) 43T69054 P Board Assembly, .C. MCC-798 (10YK-E, 10YK-ES) 43T69031 P Board Assembly, .C. @@402 403 404 405 406 Part No. Description Location No. @@@@WRS-LED, MCC-766 43T61001 Base, E-Parts ABS, Black, UL94-5V 51 11-1.

Indoor Unit (2) RAS-07YK-E, RAS-10YK-E, RAS-10YK-ES 240 230 228 233 231 222 229 221 215 211 201 202 214 210 216 217 223 220 224 218 219 213 238 235 236 239 241 227 225 242 226 232 206 207 212 209 208 203 204 Location No. 201 201 201 202 203 204 206 207 208 208 208 209 210 211 211 212 213 214 215 215 216 217 Part No. 43T00301 43T00302 43T00304 43T00044 43T80001 43T80002 43T07021 43T07020 43T08301 43T08302 43T08304 43T19004 43T09035 Description 234 Location No. 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 Part No. 43T47005 43T49007 43T19003 43T49003 43T49028 43T49023 43T49004 43T79002 43T39002 43T39001 43T21301 43T20007 43T22002 43T39003 43T03001 43T07002 43T82001 43T85301 43T69032 43T63002 43T62008 43T62002 43T62003 43T39010 43T62005 43T60305 237 Description Pipe, Suction (10YK-E, 10YK-ES) Pipe, Shield Holder, Sensor Spring (10YK-E, 10YK-ES) Plate, EVA-SEAL Holder, Plate EVA-SEAL Rubber, Sound Insulation Guide, Drain Band, Motor (L) Band, Motor (R) Motor, Fan Fan, Cross Flow Bearing Base, Bearing Plate, Rear Holder, Pipe Plate, Installation Owner's Manual Remote Control, Wireless Holder, Remote Control Cover, E-Parts Cover, Up, Terminal Clamp, Cord Guide, Drain, Up Cover, Down, Terminal Connector, fan motor Panel Assembly, Front (07YK-E) Panel Assembly, Front (10YK-E) Panel Assembly, Front (10YK-ES) Grille, Suction Air Filter (L) Air Filter (R) Cap, Screw (L) Cap, Screw (R) Panel, Control (07YK-E) Panel, Control (10YK-E) Panel, Control (10YK-ES) Filter, Accepted Signal Louver Ass'y, Horizontal for Service Louver Ass'y (07YK-E) 43T09303 Louver Ass'y (10YK-E, 10YK-ES) 43T70301 Hose Ass'y, Drain 43T21302 Motor, Stepping 43T07001 Bushing 43T44301 Refrigeration Cycle Ass'y (07YK-E) 43T44003 Refrigeration Cycle Ass'y (10YK-E) 43T44302 Refrigeration Cycle Ass'y (10YK-ES) 43T47006 Pipe, Delivery 43T47305 Pipe, Suction (07YK-E) 52 RAS-07YK-ES 240 222 229 221 215 211 201 202 214 210 216 217 223 220 224 218 219 213 238 235 227 225 230 228 231 233 232 226 242 206 207 212 209 208 236 239 241 203 204 Location No. 201 202 203 204 206 207 208 209 210 211 212 213 214 215 216 217 218 219 221 222 223 224 225 226 227 Part No. 43T00324 43T00044 43T80001 43T80002 43T07021 43T07020 43T08331 43T19004 43T09035 43T09307 43T70301 43T21302 43T07001 43T44307 43T47006 43T47305 43T49007 43T19003 43T49028 43T49023 43T49004 43T79002 43T39002 43T39001 43T21301 Description Panel Assembly, Front (07YK-ES) Grille, Suction Air Filter (L) Air Filter (R) Cap, Screw (L) Cap, Screw (R) Panel, Control (07YK-ES) Filter, Accepted Signal Louver Ass'y, Horizontal for Service Louver Ass'y (07YK-ES) Hose Ass'y, Drain Motor, Stepping Bushing Refrigeration Cycle Ass'y (07YK-ES) Pipe, Delivery Pipe, Suction (07YK-ES) Pipe, Shield Holder, Sensor Plate, EVA-SEAL Holder, Plate EVA-SEAL Rubber, Sound Insulation Guide, Drain Band, Motor (L) Band, Motor (R) Motor, Fan 234 Location No. 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 Part No. 43T20007 43T22002 43T39003 43T03001 43T07002 43T82001 43T85301 43T69032 43T63002 43T62008 43T62002 43T62003 43T39010 43T62005 43T60305 237 Description Fan, Cross Flow Bearing Base, Bearing Plate, Rear Holder, Pipe Plate, Installation Owner's Manual Remote Control, Wireless Holder, Remote Control Cover, E-Parts Cover, Up, Terminal Clamp, Cord Guide, Drain, Up Cover, Down, Terminal Connector, fan motor 53 RAS-07YKX, RAS-07YKX-T, RAS-10YKX, RAS-10YKX-T, RAS-11YKX, RAS-10YK-HX 240 222 229 221 215 211 201 202 214 210 216 217 230 228 233 231 232 223 220 224 218 219 213 238 235 236 239 227 225 242 226 206 207 212 209 208 203 204 Location No. 201 201 201 201 201 201 202 203 204 206 207 208 208 208 208 208 209 210 211 211 211 212 213 214 215 215 215 216 217 Part No. 43T00310 43T00311 43T00312 43T00313 43T00314 43T00315 43T00044 43T80001 43T80002 43T07021 43T07020 43T08310 43T08311 43T08312 43T08313 43T08314 43T08315 43T19004 43T09035 Description 234 Location No.



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