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You can read the recommendations in the user guide, the technical guide or the installation guide for TOSHIBA RAS-13YK-E. You'll find the answers to all your questions on the TOSHIBA RAS-13YK-E in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

User manual TOSHIBA RAS-13YK-E  
User guide TOSHIBA RAS-13YK-E  
Operating instructions TOSHIBA RAS-13YK-E  
Instructions for use TOSHIBA RAS-13YK-E  
Instruction manual TOSHIBA RAS-13YK-E

**TOSHIBA**

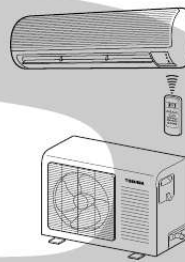
FILE NO. DAS-SM-00-002

SERVICE MANUAL

**AIR-CONDITIONER**

SPLIT WALL TYPE

**RAS-13YKX/RAS-13YAX**  
**RAS-13YK-E/RAS-13YA-E**  
**RAS-13YK-ES/RAS-13YA-ES**  
**RAS-13YK-HX/RAS-13YA-HX**  
**RAS-13YKX-T/RAS-13YAX-T**  
**RAS-13YKX-T2/RAS-13YAX-T2**



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*Manual abstract:*

*@@@3 2. @@7 3. @@9 4. SPECIFICATIONS OF ELECTRICAL PARTS .....*

*.....  
.....  
.....*

*10 5. REFRIGERANT CYCLE DIAGRAM ....*

*.....  
.....  
.....  
.....  
.....*

*... 12 6. CONTROL BLOCK DIAGRAM .....*

*.....  
.....  
.....  
.....  
.....*

*..... 13 7. OPERATION DESCRIPTIONS ...*

*.....  
.....  
.....  
.....  
.....*

*. 14 8. INSTALLATION PROCEDURE ...*

*.....  
.....  
.....  
.....  
.....*

*.....  
..... 19 9.*

*TROUBLESHOOTING CHART .....*

*.....  
.....  
.....  
.....  
.....*

*.. 32 10. PART REPLACEMENT ..*

*.....  
.....  
.....  
.....*

.. 47 11. EXPLODED VIEWS AND PARTS LIST .....

... 51 2 1.

SPECIFICATIONS RAS-13YK-E/13YA-E, RAS-13YK-ES/13YK-ES MODEL ITEM Capacity kW 1 Phase V Hz kW % V A A lit/h dB (A) dB (A) kg mm mm m2  
RAS-13YK-E/13YA-E RAS-13YK-ES/13YA-ES Cooling 220V240V 3,703,75 Single 220240 50 1,251,29 9895 220V240V 0,15/5,660,15/5,53 24 2,0 44 / 39 / 34  
4748 R-410A 0,82 Capillary tube 9,52 Flare connection 6,35 Flare connection 15 6 16 RAS-13YK-ES 265 790 189 8 Finned tube Cross flow fan 650 560 510  
20 Polypropylene net filter (Washable) RAS-13YA-E RAS-13YA-ES 538 780 300 37 39 Finned tube Propeller 17001900 27 (UE6-31C5P) 2KS224D5CD02  
PA150X2T-4FM 1100 Fuse, Overload relay Yes 2143 RAS-13YK-E \* 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 4748 R-22 0,90 12,7 Interconnection pipe \* m 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 m<sup>3</sup>/h m<sup>3</sup>/h m<sup>3</sup>/h W Height Width Depth mm mm mm kg m<sup>3</sup>/h W Model  
Output W Safety device Auto louver Usable outdoor temperature range °C Specifications are subject to change without notice. 3 RAS-13YKX/13YAX,  
RAS-13YK-HX/11-3YA-HX MODEL ITEM Capacity kW 1 Phase V Hz kW % V A A lit/h dB (A) dB (A) kg mm mm m2 RAS-13YKX/13YAX Cooling 220V240V  
3,703,75 Single 220240 50 1,251,29 9895 220V240V 0,15/5,660,15/5,53 24 2,0 44 / 39 / 34 4748 R-22 0,80 Capillary tube 12,7 Flare connection 6,35 Flare  
connection 15 6 16 RAS-13YKX Height Width Depth mm mm mm kg RAS-13YK-HX 265 790 189 8 Finned tube Cross flow fan 650 560 510 20 Polypropylene  
net filter (Washable) RAS-13YA-HX 538 780 300 37 Finned tube Propeller m<sup>3</sup>/h W Model Output W 17001900 27 (UE6-31C5P) or 30 (HF-240-30A)  
PH160T2-4L2 1100 17301930 28 (HF-230-28P) PH142T2-4K7 40 0,75 44 / 39 / 34 4950 0,15/4,680,15/4,61 22 1,041,08 9895 3,553,55 RAS-13YK-HX/13YA-  
HX \* 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 \* 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 (220240V) Fan motor output Compressor High fan Medium fan Low fan m<sup>3</sup>/h m<sup>3</sup>/h m<sup>3</sup>/h W RAS-13YAX Height  
Width Depth mm mm mm kg Safety device Auto louver Usable outdoor temperature range °C Fuse, Overload relay Yes 2143 Specifications are subject to  
change without notice. 4 RAS-13YKX-T / 13YAX-T, RAS-13YKX-T2/13YAX-T2 MODEL ITEM Capacity kW 1 Phase V Hz kW % V A A lit/h dB (A) dB (A) kg  
mm mm m2 RAS-13YKX-T/13YAX-T Cooling 220V 3,60 Single 220 50 1,16 98 220V 0,15/5,24 22 2,0 44 / 39 / 34 47 R-22 0,72 Capillary tube 12,7 Flare  
connection 6,35 Flare connection 15 6 16 RAS-13YKX-T Height Width Depth mm mm mm kg RAS-13YKX-T 265 790 189 8 Finned tube Cross flow fan 650  
560 510 20 Polypropylene net filter (Washable) RAS-13YAX-T 538 780 300 38 Finned tube Propeller m<sup>3</sup>/h W Model Output W 1700 1830 27 (UE6-31C5P) or  
30 (HF-240-30A) 28 (AF-230-28P) or 42 (HF-240-42A) RM5515FNE96 1100 Fuse, Overload relay Yes 2143 41 0.83 49 0,15/4,68 1,04 RAS-13YKX-  
T2/13YAX-T2 \* 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 (220V) 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 (220V) Fan motor output Compressor High fan Medium fan Low fan m<sup>3</sup>/h m<sup>3</sup>/h m<sup>3</sup>/h W RAS-13YAX-  
T 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 15m and a head of up to 6m. - There is no need to add the refrigerant as long as the total length of the  
connection piping is up to 15m. \* 6 2. CONSTRUCTION VIEWS 2-1.

Indoor Unit Air inlet Air filter 790 Heat exchanger 189 265 1800 Air outlet 47 Knock out system 13YK-E, 13YK-ES : Without power cord 13YKX, 13YKX-T,  
13YKX-T2 : With power cord 13YK-HX : With power cord & plug 790 232 326 Hanger 232 Front panel Back body 321 Connecting pipe (0,49m) (Flare  
Ø6,35) 10 Drain hose (0,54m) Hanger 50 47 Knock out system Connecting pipe (0,39m) Flare Ø12,7 (Flare Ø9,52 for 13YK-ES only) 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 Hanger 46 20 2,5 Minimum distance to wall 120 or more 265  
178,5 Minimum distance to wall 17 120 or more 40,5 3,5 37 20 Hanger Center line 76 319 790 Hanger Installation plate outline 269 126 60,5 7 40,5 10 50  
2-2. Outdoor Unit A A Detail Drawing 600 50 36 120 Gas side (Flare Ø12,7) (Flare Ø9,52 for 13YA-ES) 23 325 52,5 R10 325 301 Liquid side (Flare Ø6,35)  
Ø6 hole Ø11x14 hole Ø25 Drain outlet Handle Fan guard 8-Ø6 hole (for fixing outdoor unit) 6-Ø11x14 hole (for Ø8-Ø10 anchor bolt) Electric parts cover  
ø420 Z 27 54 61 538 100 130 Service port 325 (pitch) 342 (8,5) 300 600 780 90 59 (8,5) Z View Installation dimension 100 or more 600 Air inlet 600 or more  
325 100 or more Air outlet 600 or more 4xØ11x14 Long holes (for Ø8-Ø10 anchor bolt) 8 3.



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WIRING DIAGRAM LOUVER MOTOR Detail B Detail A RAS-13YKX, 13YKX-T RAS-13YKX-T2, 13YK-HX RAS-13YK-HX RAS-13YA-HX L N Power cord with plug THERMAL FUSE 77°C x 1 B RAS-13YK-E RAS-13YK-ES INFRARED RAYS RECEIVE AND INDICATION PARTS 123456789 CN25 123456789 THERMAL FUSE 77°C x 2 ORN ORN ORN BLU PNK YEL ORN RED BRW 654321 ORN 12 CN04 1 2 RAS-13YK-E RAS-13YA-E RAS-13YK-ES RAS-13YA-ES POWER L TERMINAL N BLOCK BLK P04 GRN&YEL SG01 DSA R22 VARISTOR F01 BRW BLU RY02 BLK 4 RAS-13YKX RAS-13YAX RAS-13YKX-T RAS-13YAX-T RAS-13YKX-T2 RAS-13YAX-T2 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 A CR03 IC 03 DC 12V DC 5V 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 Detail C FAN MOTOR INDOOR TERMINAL 1 BLOCK OUTDOOR TERMINAL BLOCK BLK C OVER LOAD RELAY BLK BLK COMPRESSOR RED FAN MOTOR BLK WHI 2 GRN&YEL THERMO SENSOR (TA) HEAT EXCHANGER SENSOR (TC) 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 RAS-13YA-ES only 1 2 GRN & YEL CHASSIS RED CAPACITOR RED WHI CAPACITOR PNK WHI 9 BLK BLK 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 RAS-13YKX, RAS-13YK-E, RAS-13YKX-T RAS-13YKX-T2, RAS-13YK-HX, RAS-13YK-ES No. 1 2 3 4 5 6 7 8 9 10 11 12 13 PARTS NAME TYPE MMF-240-20-4A (Microprocessor) SWT-47 TMP87CK40AN D11U (Microprocessor) SS11V-06180 D3SBA60 ECEC2GA470BL TSCR 15G561K MP35EA12 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 Output (Rated) 2W, 10poles, 1phase DC 12V SPECIFICATIONS Output (Rated) 20W, 6poles, 1phase, 220240V, 50Hz Red-Black 220,8 White-Black 324,3 Fan motor (for indoor) Thermo. sensor (TA-sensor) Switching transformer Microcomputer Power relay, Common relay (RY01, RY02) Heat exchanger sensor (TC-sensor) Line filter (LO) Diode (DB01) Capacitor (C02) Fuse (F01) Varistor (R21, R109) Resistor (R01) Louver motor Winding resistance (W) (at 20°C) 10kW at 25°C 4-2. Outdoor Unit RAS-13YAX, RAS-13YA-E, RAS-13YAX-T RAS-13YAX-T2, RAS-13YA-HX, RAS-13YA-ES No. PARTS NAME TYPE SPECIFICATIONS Output (Rated) 1100W, 2poles, 1phase, 220240V, 50Hz RAS-13YA-E 2KS224D5CD02 Winding resistance (W) (at 20°C) C-R 2,21 C-S 2,92 Output (Rated) 1100W, 2poles, 1phase, 220240V, 50Hz RAS-13YAX PH160T2-4L2 Winding resistance (W) (at 20°C) C-R 2,43 C-S 3,78 Output (Rated) 1100W, 2poles, 1phase, 220240V, 50Hz RAS-13YAX-T RAS-13YAX-T2 RM5515FNE96 Winding resistance (W) (at 20°C) C-R 2,16 C-S 3,90 Output (Rated) 1100W, 2poles, 1phase, 220240V, 50Hz RAS-13YA-HX PH142T2-4K7 Winding resistance (W) (at 20°C) C-R 2,43 C-S 3,78 Output (Rated) 1100W, 2poles, 1phase, 220240V, 50Hz RAS-13YA-ES PA150X2T-4FM Winding resistance (W) (at 20°C) C-R 2,49 C-S 3,95 10 No. PARTS NAME RAS-13YA-E RAS-13YA-ES TYPE UE6-31C5P SPECIFICATIONS Output (Rated) 27W, 6poles, 1phase, 220240V, 50/60Hz Winding resistance (W) (at 20°C) Red-Black 210 Red-Black 210 Red-Black 245 Red-Black 162,1 Red-Black 176, White-Black 435 White-Black 435 White-Black 388 White-Black 233,5 White-Black 291 Output (Rated) 27W, 6poles, 1phase, 220240V, 50/60Hz UE6-31C5P RAS-13YAX RAS-13YAX-T 2 Fan motor (for outdoor) HF-240-30A (For alternate use) Winding resistance (W) (at 20°C) Output (Rated) 30W, 6poles, 1phase, 220240V, 50/60Hz Winding resistance (W) (at 20°C) Output (Rated) 28W, 6poles, 1phase, 220240V, 50/60Hz AF-230-28P RAS-13YA-HX RAS-13YAX-T2 HF-240-42A (For alternate use) RAS-13YA-E RAS-13YA-ES 3 Running capacitor (for fan motor) RAS-13YAX RAS-13YAX-T RAS-13YAX-T2 RAS-13YA-HX RAS-13YAX 4 Running capacitor (for compressor) RAS-13YA-E RAS-13YA-ES RAS-13YA-HX RAS-13YAX-T RAS-13YAX-T2 RAS-13YAX RAS-13YA-E RAS-13YAX-T RAS-13YAX-T2 RAS-13YA-HX RAS-13YA-ES SK-50FMP1,5U2 DS501155BPQA DS451205BPQA SK-45FMP02U2 SH-D CAP SK-40CMP35U1 SH-D CAP Winding resistance (W) (at 20&de (RY02) (Room temp. Set temp.) Fig. 7-2-1 28 27 26 25 24 LOW LOW HIGH MED LOW(+) Set temp. (2) Relays RY01 and RY02 are turned on to energize the outdoor unit, and a cool operation is carried out. 1) When the FAN is set to AUTO, the indoor fan motor operates as shown in Fig 7-2-2. 2) When the FAN is set to LOW, MED, or HIGH, the indoor fan motor operates with a constant in volume as listed in Table 7-1-1. Fig. 7-1-1 Auto setting of air volume FAN (Room temp. Set temp.) Table 7-1-1 Manual setting of FAN SPEED Indication of FAN SPEED LOW MED HIGH HIGH Air volume (m3/hr) 510 560 650 AUTO HIGH +4 MED +3 +2 +1 0 RY01 OFF Manual According LOW(+) to the set position LOW LOW (continuous) Set temp. Fig. 7-2-2 (3) Once the setting is made, the operation mode is memorized in the microcomputer so that the same operation can be effected thereafter simply by pushing the START/STOP button. 14 OPERATION display Compressor Outdoor fan (RY01) Set 0 temp. 7-2-1. Louver Control (1) Vertical air flow louvers Positions of vertical air flow louvers are automatically controlled according to the operation status (COOL, AUTO, DRY, FAN ONLY). Besides, positions of vertical air flow louvers can be arbitrarily set by pushing the [SET] button. The louver position which has been set by the [SET] button is stored in microcomputer, and the louver is automatically set at the stored position in the next operation. (2) Swing If the [AUTO] button is pushed during running operation, vertical air flow louvers start swinging. When the [AUTO] button is pushed again, swinging stops. 7-3. DRY Operation (MODE of the remote control : DRY) (1) Compressor, outdoor fan and operation display are controlled as shown in Fig. 7-3-1. ON:6min. OFF:4min. ON:5min. OFF:5min. (Room temp. Set temp.) +3 +2 +1 ON ON OFF Common relay (RY02) OPERATION display Compressor Outdoor fan (RY01) Set 0 temp. Fig. 7-3-1 · The microprocessor turns the compressor on and off at regular intervals (4 to 6 minutes on and/or off). During the compressor off, the indoor fan will operate in the super low position. · The indoor fan will operate in the AUTO position. (2) The pattern of operation depending on the relation between room temperature and set temperature is shown below: Room temp. Set temp. +1 Set temp. Compressor Outdoor fan ON ON ON ON OFF Indoor fan OFF OFF L \*S.L. L. S.L. L. S.L. L. \*Super Low Fig. 7-3-2 15 7-4. AUTO Operation (MODE of the remote control : AUTO) (1) One of the 2 modes, Cooling or Dry is selected according to room temperature at which operation is to start, as shown in Fig.



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#### 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 room temperature control is set at set temp. 1°C) (The same dry operation as the room temperature control is set at set temp.

1°C) Fig. 7-4-1 7-5. ECONO. Mode When the ECONO. button is pushed, during COOL and AUTO operation, the OPERATION display is turned off and the ECONO.

display is lit and the indoor unit operates quietly and mildly with controlling airflow. 7-6. Low-Temperature Limit Control (Cooling Operation) The microprocessor detects the indoor heat exchanger temperature so as to prevent freezing up the indoor heat exchanger. Control is performed as shown in Fig. 7-6-1.

7-5-1. Cooling (1) In the ECONO. mode, the set temp. by the remote control is changed automatically as shown in Fig. 7-5-1. (2) Fan speed LOW (°C) Set temp. is changed +2 Set temp. is changed +1 Heat exchanger temperature Compressor Outdoor fan ON Less than 5°C continues for 5 minutes OFF (°C) 7 5 Fig. 7-6-1 Set temp. 0H 1H 2H TIME ECONO.

button is pushed Fig. 7-5-1 16 7-7. Auto Restart Function This unit is equipped with an Automatic restarting function which allows the unit to restart and resume the set operating conditions in the event of a supply power shutdown without the use of the hand control. The operation will resume without warning three minutes after the power is restored. 7-7-1. How to Set the Auto Restart To set the Auto Restart function, proceed as follows: Access the TEMPORARY button located in the lower right hand corner beneath the hinged front panel of the indoor unit. The power supply to the unit must be on - the function will not be set if the power is off. To enable the Auto Restart function, push the TEMPORARY button continuously for three seconds. The unit will acknowledge the setting and beep three times. The system will now restart automatically.

The above Auto Restart settings can be carried out: INFORMATION The AUTO RESTART FUNCTION is set not to work on shipment from the factory, and so it is necessary to set it to function as required. · When the system is stand-by (not running) OPERATION Push the TEMPORARY button continuously more than three seconds. MOTION Stand-by The system starts to operate. The green light will be lit. about three seconds after The unit beeps three times.

The orange light will be lit. The system is operating. The orange light is lighting. If the system is not required to run at this time, push the TEMPORARY button once more or use the remote control and the unit will stop. 0 3S TEMPORARY · When the system is operating OPERATION Push the TEMPORARY button continuously more than three seconds.

MOTION Operating The green light is lit. The system stops to operate. The green 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. 0 3S TEMPORARY During subsequent operation, the orange light goes on. · The Auto Restart function will not accept an instruction if timer operation with the remote control is selected. · During louver swing (AUTO) operation, after restarting by the Auto Restart function, the louver swing stops. 17 7-7-2.

How to Cancel the Auto Restart To cancel the Auto Restart function, proceed as follows: Repeat the setting procedure: the unit will acknowledge the instruction and beep three times. The system will now be required to manually restart with the remote control after the main supply is turned off. Cancellation is carried out: · When the system is stand-by (not running) OPERATION Push the TEMPORARY button continuously more than three seconds. MOTION Stand-by The system starts to operate. The orange light will be lit. about three seconds after The unit beeps three times. The green light will be lit. The system is operating. If the system 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. 18 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 2,0mm<sup>2</sup>) 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. `DO NOT DAMAGE OR SCRATCH THE CONDUCTIVE CORE AND INNER INSULATOR OF THE CABLES.



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*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 REGISTRORS, 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. 19 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) 20 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 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 8 Pan head wood screw 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. 6 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 21 8-3. Installation 8-3-1. Optional Parts Part code A Parts name Refrigerant piping Liquid side :  $\phi$ 6,35 mm Gas side :  $\phi$ 12,7 mm ( $\phi$ 9,52mm) Q'ty <Anchor bolt arrangement of outdoor unit> 600mm Air inlet \* Each one B C Pipe insulating material (polyethylene foam, 6 mm thickness) Putty, PVC tapes 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  $\phi$ 8 or  $\phi$ 10 anchor bolts. \* for model : RAS-13YK-ES/13YA-ES 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  $\phi$ 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  $\phi$ 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. 22 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.) <Remote control> · A place where there are no obstacles such as a curtain that may block the signal from the remote control.*



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· 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. The center of the piping slot is above the arrow. The center of the pipe hole is above the arrow.

Pipe hole 40,5 mm 65,5mm 1 Installation plate 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 23 65 80mm m 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 Projection 15mm or less 5mm dia, hole CAUTION · 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.

Clip anchor 5 Mounting screw Ø4 x 25 Fig. 8-4-4 MODEL Power source Maximum running current Plug socket & fuse rating Wiring RAS-13YKX, RAS-13YK-E RAS-13YK-ES, RAS-13YK-HX 50Hz \*220240V ~ Single-phase 12A 16A 13mm<sup>2</sup> or more RAS-13YKX-T, RAS-13YKX-T2 50Hz \*220V ~ Single-phase \* No adjustment is necessary. 24 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.

**IMPORTANT THE WIRES IN THIS MAINS LEAD ARE COLORED IN ACCORDANCE WITH THE FOLLOWING CODE: L : Brown N : Blue : Green and Yellow -LIVE -NEUTRAL -EARTH L N Slitted portion** · 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. <How to connect the power cord> (For RAS-13YK-E, RAS-13YK-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 12 12 3 Vertical air flow louver. Fig.

8-4-6 Screw Earth line Screw Fig. 8-4-7 <Stripping length of power cord> 30mm 10mm How to open the screw cap · 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 25 <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". 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.



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· 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 Push 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 Terminal block Cord Terminal clamp cover Screw 12 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 Slit (front panel) about 15cm Screw Screw Connecting cable Slit (rear panel) Fig. 8-4-9 <Stripping length of connecting cable> 50mm 10mm Earth line Fig. 8-4-12 <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 26 <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 1 Installation plate (2) 43mm 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. 27 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 where the operation noise and discharged air do not disturb your neighbors. · 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. · When the outdoor unit is to be installed in an elevated position, be sure to secure its feet. · An allowable length of the connecting pipe is up to 10 m. · An allowable head level is up to 5 m. · A place where the drain water does not raise any problem. 50 mm or more Do not put the drain hose end into water. Do not put the drain hose end in the drainage ditch.

Fig. 8-4-17 (2) Put water in the drain pan and make sure that the water is drained outdoors. (3) When connecting extension drain hose, insulate the connecting part of extension drain hose with shield pipe. Shield pipe CAUTION (1) Install the outdoor unit without anything blocking the air discharging. (2) When the outdoor unit is installed in a place exposed always to a strong wind like a coast or on a high story of a building, secure the normal fan operation using a duct or a wind shield. (3) Specially in windy area, install the unit to prevent the admission of wind. Drain hose Inside the room Extension drain hose Fig. 8-4-18 CAUTION Arrange the drain pipe for proper drainage from the unit. Improper drainage can result in damage to property. This air conditioner has the structure designed to drain water collected from dew, which forms on the back of the indoor unit, to the drain pan.

Therefore, do not store the power cord and other parts at a height above the drain guide. Wall Drain guide Strong wind Fig. 8-5-1 Space for pipes Fig. 8-4-19 28 8-5-2. Refrigerant Piping Connection CAUTION Installation in the following places may result in trouble.

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.

<Flaring> (1) Cut the pipe with a pipe cutter. 90° Obliquity Roughness Warp Fig. 8-5-2 (2) Insert a flare nut into the pipe, and flare the pipe. 8-5-1. Required Tools for Installation Work 1) 2) 3) 4) 5) 6) 7) 8) 9) 10) 11) 12) 13) 14) 15) Philips screw driver Hole core drill (65mm) Gaugramanifold Spanner Pipe cutter Knife Reamer Gas leak detector Tape measure Thermometer Mega-tester Electro circuit tester Vacuum pump Hexagonal wrench (5mm) Torque wrench Outer dia. 6,35mm 9,52mm 12,7mm A (mm) R22 Imperial 1,0 ~ 1,5 Rigid 0,5 ~ 1,0 A (mm) R401A Imperial 1,5 ~ 2,0 1,5 ~ 2,0 Rigid 1,0 ~ 1,5 1,0 ~ 1,5 1,5 ~ 2,0 0,5 ~ 1,1 A Die Pipe Fig.



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@@@8-5-4 29 8-5-3. @@@@Do not use the refrigerant in the outdoor unit. For details, see the manual of vacuum pump. @@(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. @@@@@ · Securely tighten the valve stem cap with the wrench or like. @@Fig. 8-5-6 30 5m m 8-5-4. @@@@@@Process them so that they do not touch any electrical or metal parts. <Stripping length of connecting cable> 8-6. Others 8-6-1. @@@@@@@ · Be sure to comply with local code on running the wire from the indoor unit to outdoor unit.

(size of wire and wiring method etc.) · Every wire must be connected firmly. NOTE : · Wipe type : More than H05 RN-F TEMPORARY button TEMPORARY Fig. 8-6-2 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.

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 31 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-13YKX-T, RAS-13YKX-T2). 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. A power outage also causes the lamp to blink. 1 2 Fan speed is automatically controlled in the dry mode. 3 In the dry mode, the compressor goes on and off at regular intervals, independent of the thermo. control. 4 Compressor does not work while the compressor restart delay (3-min.) timer is active. The same is true after power is turned on, as the time is still active. After selection of the cooling and dry operation, the operation mode is selected again when the compressor off mode continues for 15 min. according to the room temperature.

And after selection of the dry operation, the condition of the room temperature which is Room temp. <Set temp.+1 and which is Room temp.<Set temp.4 continues for 15 min., the operation mode is selected again. When the auto restart controlling is selected, the operation is performed automatically in the previous operation mode after the power supply has been turned on. 5 During automatic operation, the operation mode changes. 6 When the power is turned on, the operation starts automatically. 32 9-2.

Primary Judgement of Trouble Sources 9-2-1. Role of Indoor Unit Controller The indoor unit controller receives the operation commands from the remote control and assumes the following functions. · Measurement of the draft air temperature of the indoor heat exchanger by using the thermo sensor (TA). · Louver motor control · Control of the indoor fan motor operation · Control of the LED display · Control of the outdoor unit compressor and the outdoor fan motor. 9-2-2. Display of Abnormalities and Judgement of the Abnormal Spots The indoor unit of this machine observes the operation condition of the air conditioner and displays the contents of the self-diagnosis as block displays on the display panel of the indoor unit. Table 9-2-1 Block display A B C D E OPERATION display blinking (1 Hz) OPERATION display blinking (5 Hz) OPERATION display blinking (5 Hz) OPERATION display blinking (5 Hz) OPERATION display blinking (5 Hz) Description Power failure (when power is ON) Thermo. 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. 33 (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 " 2 Push " " key of TEMP. one by one. MODE TEMP. AUTO COOL DRY FAN ONLY Hr.ON OFF TIMER FAN AUTO LOW The receiving beep "Pi!" is heard, and the timer lamp of the air conditioner blinks. (5 times for 1 sec.) 3 Operating " C MED. HIGH to " " key, the 35 check codes from " " are sent. " " TEMP.

4 START/STOP 2 3 FAN 4 To reduce the check code number, push the " key of TEMP.



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--> <--> <--> <-- 6 AUTO SET MODE ACL CHK TIMER ECONO. --> <--> <--> <-- 1 5 If the check code agrees with the error code, the CNL 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. 34 <Caution of servicing check> 1. After finished servicing check, push [START/ STOP] button and confirm to change main body and remote control on normal operation mode. 2.

After finished servicing check, disconnect plug (or turned off circuit breaker) of main body due to reset operation memory of microcomputer but in case of found the check code, it's stoked in microcomputer memory. Therefore, the memory of check code can not delete after disconnected plug (or turned off circuit breaker). 3. After finished repair the main unit, clear the memory of microcomputer. To clear the memory, need to use another service check remote control. (service part No. 43T69032). <How to clear the memory> 1. Push the button (rear bottom ) of the remote control with a tip of pencil for more than 3 seconds. Make sure the setting temperatur " " is displayed on. 2. Adjust the check code to " ". (Use [AUTO] button and TEMP . , button 3. Push [SET] button.

(Data before operation is directly transferred.) 4. Push [ON/OFF] button. (Transfer the signal to main unit.) Table 9-2-3 Block level Check code Block Indoor P board .C. Check code Diagnosis function Symptom Thermo. sensor short/break. Air Conditioner status Judgment and action Condition Indicated when detected abnormal 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 Heat exchanger sensor short/break. Continued operation Indicated when detected abnormal Indoor fan lock, abnormality of indoor fan or thermal fuse break. All off Indicated when detected abnormal 1. Check heat thermal fuse is blow or not? (Terminal block part.) 2.If the thermal fuse is not blow, check indoor fan motor. (Refer to trouble shooting flow charts.) Abnormality of other indoor unit P board .

C. 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 Shut off the power Is the secondary voltage of SW trans- NO supply once, and turn it on again after disformer (T01) measured connecting the motor DC35V, DC12V, connector CN10 . and DC7V ? YES Is the secondary voltage of SW NO transformer measured DC35V, DC12V, and DC7V? YES Re-wiring the cable. \* SW transformer (T01) or Tr (Q01) for power supply is defective. Replace the main P.

C. board. Motor is defective. disconnect \* Be sure to motor. the motor connector CN10 after shut off the power supply, or it will be a cause of damage of the 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 RY01 4 3 RY02 4 Indoor terminal block Power terminal block P.

C. board or Power supply cord 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-13YKX-T, RAS-13YKX-T2 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.



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NO Compressor is defective. NO Gas shortage (Gas leakage) \*\* for model RAS-13YKX-T, RAS-13YKX-T2 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-13YKX-T, RAS-13YKX-T2 39 9-3-6. Only 4-Way Valve does not Operate (During Heating Operation) 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 terminal ( 2 - 3 ) 220/230/240V (220V)\*\*? YES Is cable connection between indoor and outdoor units correct? YES Is the voltage across the terminal ( 2 - 3 ) 220/230/240V (220V)\*\*? YES Is the wiring of solenoid coil for 4-way valve normal? YES 4-way valve is defective. NO See "Power can not be turned on". NO See "Power can not be turned on". NO Relays (RY02, RY04) 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 Solenoid coil is defective. \*\* for model RAS-13YKX-T, RAS-13YKX-T2 40 9-3-7. 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? NO YES Does AC 120V or higher voltage apply to between red and black lead of fan motor? YES Shut off the power supply. NO Does connecting terminal, connecting cable or power supply cord completely? Does not found the short wire about connecting cable and power cord? YES NO Change the setting of cooling to high fan.

Does the cross flow fan rotate normally? YES Turn on the power supply. NO Repair the bearing of the fan. Thermal fuse operated due to prevent temperature rising cause of incompleting connecting. Does the fan speed become higher? YES NO Operation stops Motor control circuit failure (IC30, IC03) or 12V power circuit failure (D03, Q03). Replace the P.

C. board. 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 of fan motor Normal Replace the control P.C. board. Replace connecting the cable (or power cord), thermal fuse and terminal block. 41 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. 42 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.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.

43 (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.



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