Listing Constructional Data Report (CDR)

1.0 Reference and Address				
Report Number	GZ08051040-1	Original Issued: 29-May-08		Revised: None
Standard(s)	Room Air Conditioners - UL 484, 8th Edition, Dated Dec. 21, 2007			
Applicant	Electra air-conditioning (shenzhen) co.,ltd		Manufacturer 1	Electra air-conditioning (shenzhen) co.,ltd
Address	2 WUHE AVE. S., BANTIAN , BUJI, SHENZHEN, 518129, CHINA		Address	2 WUHE AVE. S., BANTIAN , BUJI, SHENZHEN, 518129, CHINA
Country	China		Country	China
Contact	Artemis Luo Wen Jing Amanda Wang Xiu Ping		Contact	Artemis Luo Wen Jing Amanda Wang Xiu Ping
Phone	86-755-89956222-3290		Phone	86-755-89956222-3290

2.0 Product Description				
Product	In-wall Type Air Conditioner			
Brand name	Airwell and Electra			
Description	The products covered by this report are in-wall type air conditioners, have cooling mode, rated 220-240 V, 60 Hz, provided with a permanently connected 3-wire flexible power supply cord terminated in a grounding type attachment LCDI plug.			
Models	KC20M/B1S, KC25M/B1S with trade name Electra MAY 70 S 60Hz AW, MAY 90 S 60Hz AW with trade name Airwell			
Model Similarity	Model KC20M/B1S and KC25M/B1S are provided with the same structural, dimension, refrigerant and electrical components except the compressor and its capacitor. Model KC20M/B1S and MAY 70 S 60Hz AW are the same product with different model name and brand name. Model KC25M/B1S and MAY 90 S 60Hz AW are the same product with different model name and brand name.			
Ratings	Product	Voltage	Input	Frequency
	KC20M/B1S	220-240 V	3.3 A	60Hz
	MAY 70 S 60Hz AW	220-240 V	3.3 A	60Hz
	KC25M/B1S	220-240 V	4.6 A	60Hz
	MAY 90 S 60Hz AW	220-240 V	4.6 A	60Hz
Other Ratings	Product	Refrigerant Mass R22	High Side Pressure	Low Side Pressure
	KC20M/B1S	15.16 Oz	400 PSIG	150 PSIG
	MAY 70 S 60Hz AW	15.16 Oz	400 PSIG	150 PSIG
	KC25M/B1S	16.93 Oz	400 PSIG	150 PSIG
	MAY 90 S 60Hz AW	16.93 Oz	400 PSIG	150 PSIG

3.0 Product Photographs

Photo 1-4 - Overall view of the unit

Photo No. 1

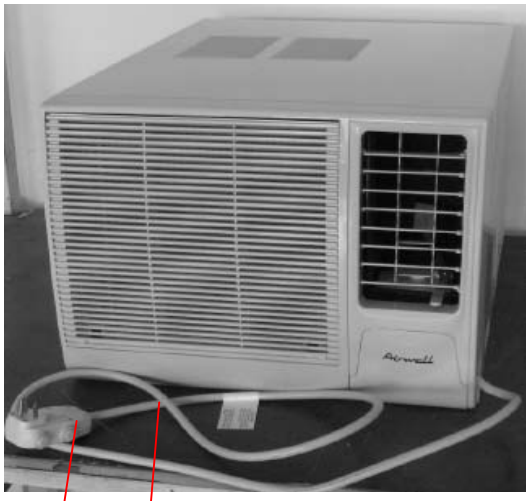
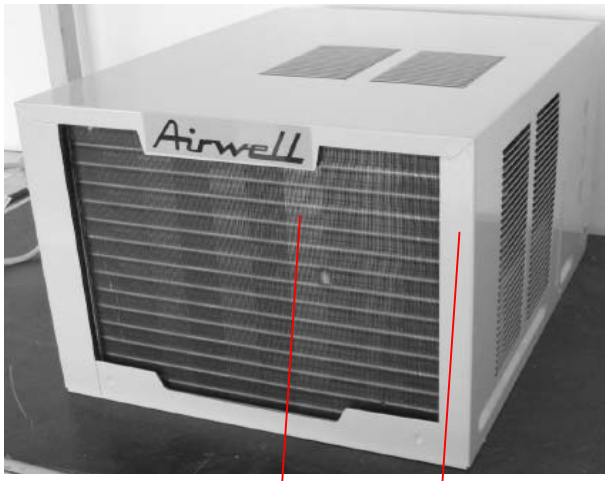


Photo No. 2



Unit Dimension 600×450×350mm

Photo No. 3

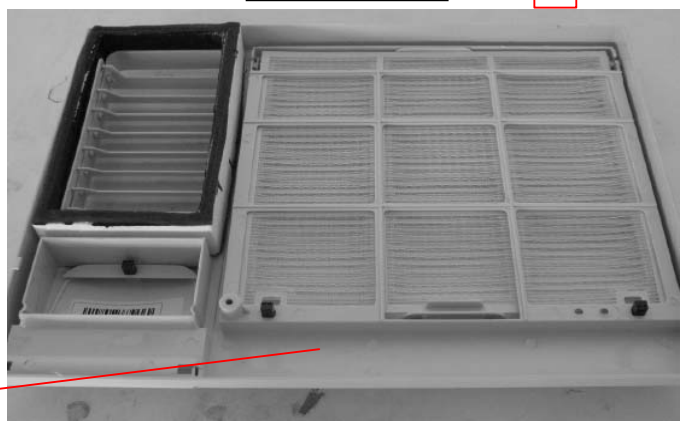
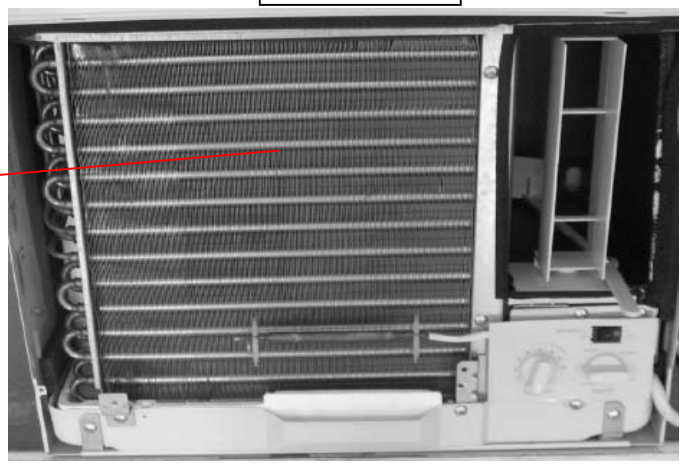


Photo No. 4



3.0 Product Photographs

Photo 5-7 - Inside view of the unit

Photo No. 5

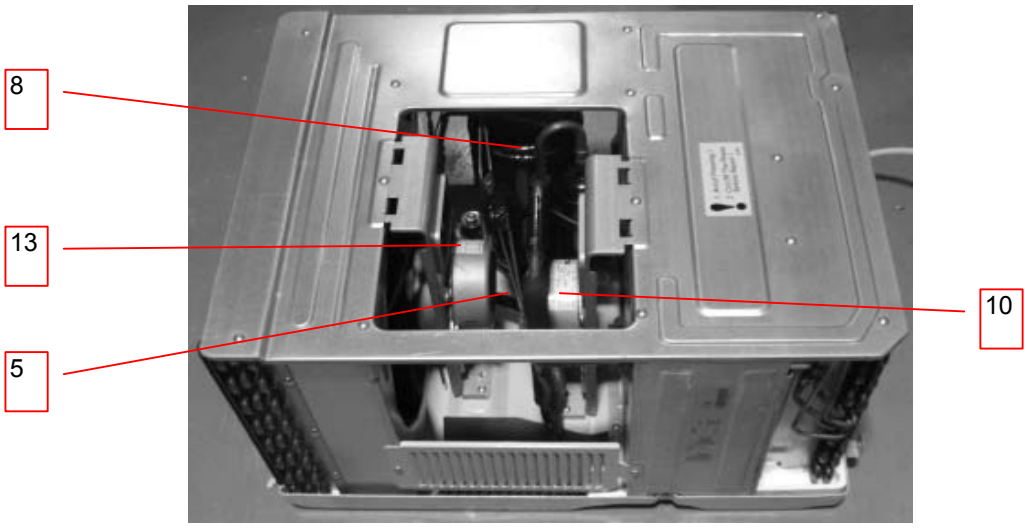


Photo No. 6

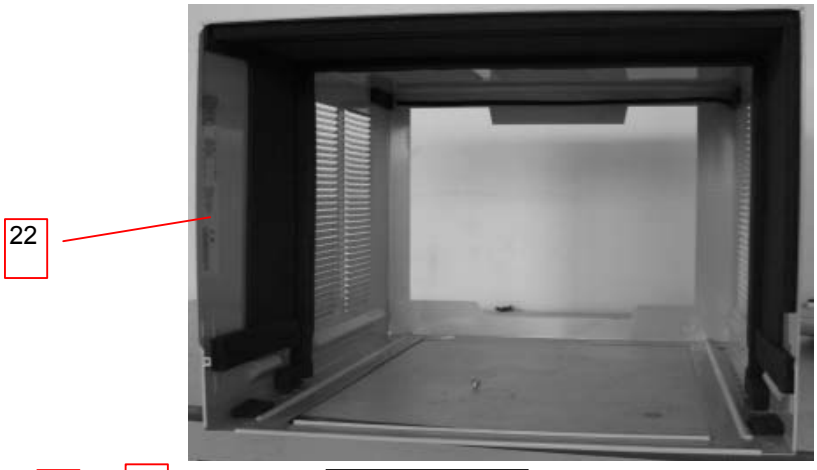
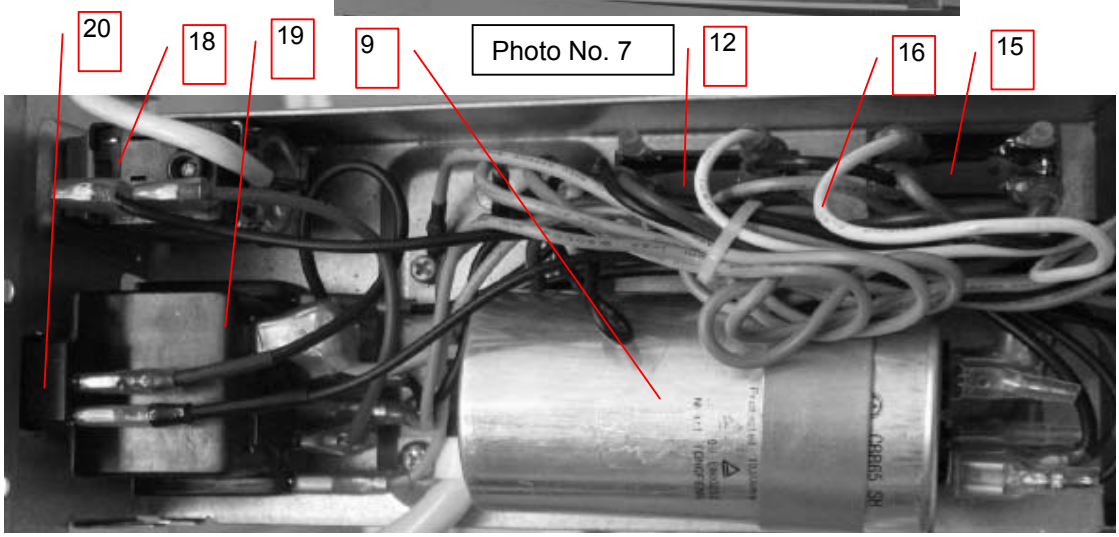


Photo No. 7



4.0 Critical Listed Components						
Photo no.	Item no.	Name1	Manufacturer/ trademark2	Type / model2	Technical data and securement means	Mark(s) of conformity 3
1	1	Main Enclosure	-	-	Metal thickness 0.8 mm pained entirely	-
3	2	Front Panel	FORMOSA CHEMICALS & FIBRE CORP PLASTICS DIV	ABS AG15E1	All colors HB 60°C minimum thickness 1.6mm	URus
4	3	Evaporator	-	-	Copper tube. The outside diameter Φ7, thickness 0.33 mm, 2 rows 14 tubing, 22 piece thin per inch	-
2	4	Condenser	-	-	Copper tube. The outside diameter Φ7, thickness 0.33 mm, 3 rows 24 tubing, 18 piece thin per inch	-
5	5	Capillary Tube	-	-	Copper tube.φ2.6×φ1.2× 1100 Qty 2 for all model.	-
1	6	LCDI Plug	TOWER MFG CORP	30387	240 V, 13 A	URus
1	7	Power Supply Cord	TOWER MFG CORP	21571	16 AWG×3C, rating: 300 V, 105 °C, VW-1, length in range of 1.2-1.8 m	URus
5	8	Compressor	GUANGDONG MEIZHI COMPRESSOR LIMITED	PH150X1C-3DZDU for KC25M/B1S	230V,60Hz, RLA 4A LRA 27A R22	URus
				PH108X1C-3DZDU3 for KC20M/B1S	230V,60Hz, RLA 3A LRA 20A R22	URus
7	9	Capacitor for compressor	ANHUI TONG FENG ELECTRONICS CO LTD	CBB65A for KC25M/B1S	35 uF，450V,70℃	URus
			SHANGHAI HAOYE ELECTRIC CO.,LTD	CBB65A for KC20M/B1S	30 uF，450V,70℃	URus
			ANHUI TONG FENG ELECTRONICS CO LTD	CBB65 for KC20M/B1S	30 uF，450V,70℃	URus
			WUHU JINXIN ELECTRICALS CO., LTD.	CBB65 for KC20M/B1S	30 uF，450V,70℃	URus
			ANHUI FEIDA INDUSTRIES CO., LTD	CBB65A-1 for KC20M/B1S	30 uF，450V,70℃	URus
5	10	Evaporator Fan Motor	GUANGDONG WELLING MOTOR MANUFACTURING CO.,LTD	YSLB-14-6-0001	230V 15W 60Hz class A	URus
5	11	Evaporator Fan Blade (Not Shown)	NINGBO LG YONGXING CHEMICAL CO LTD	ABS AI-121H	All colors HB 60°C minimum thickness 1.5mm	URus

4.0 Critical Listed Components						
7	12	Capacitor for Evaporator Fan Motor	SHANGHAI HAOYE ELECTRIC CO.,LTD	STA-31	1uF，450V,70℃	URus
		Alternative	ANHUI TONG FENG ELECTRONICS CO LTD	CBB65	1uF，450V,70℃	URus
5	13	Condenser Fan Motor	GUANGDONG WELLING MOTOR MANUFACTURING CO.,LTD	YSLB-22-6-0015	230V 22W 60Hz class A	URus
5	14	Condenser Fan Blade (Not Shown)	FORMOSA CHEMICALS & FIBRE CORP PLASTICS DIV	AG15E1	All colors HB 60°C minimum thickness 1.5mm	URus
7	15	Capacitor for Condenser Fan Motor	SHANGHAI HAOYE ELECTRIC CO.,LTD	STA-31	2 uF，450V,70℃	URus
		Alternate	FOSHAN SHUNDE DAHUA ELECTRIC	CBB6-1	2 uF，450V,70℃	URus
		Alternative	ANHUI TONG FENG ELECTRONICS CO LTD	CBB65	2 uF，450V,70℃	URus
7	16	Internal Wire	-	-	UL1015 18 AWG 600 V, 105 °C, VW-1for the internal connecton	URus
5	17	Synchronous Motor (Not Shown)	JIANGSU HUAYANG ELECTRICAL APPLIANCE CO LTD	50TYZA-4D	220/240V,50/60Hz,,3W	URus
7	18	Thermostat	CHANGZHOU THERMOSTER ELECTRICAL APPLIANCE CO LTD	WP15H-L	250V 20A	URus
7	19	Main switch	CHANGZHOU CHANGHENG XINYU ELECTRIC APPLIANCES CO LTD	XK20/5 07L-1	250V 20A 65°C endurance 6k	URus
7	20	Swtich for Synchronous Motor	SHANGHAI YONGXING ELECTRONIC SWITCH CO LTD KCD3 250V 6A	KCD3	250V 6A	URus
7	21	Control Box	-	-	Metal thickness 0.8mm dimension 210×110×80mm	-
5	22	Marking	-	-	Affixed to painted sheet steel, for temperature not less than 60 ºC. Loaction on the left side of the main enclosure, and visible from the room side.	-

5.0 Critical Unlisted Components								
Photo no.	Item no.	Name	Manufacturer/ trademark	Type / model	Technical data and securement means	Freq [1]	Qty [2] send to CEC	Required Action[3]
		None						

NOTES:
1) Quarterly, semi-annual, annual.
2) Indicate any samples not available and provide the anticipated date that the component will be available.
3) Required Action (select one of the three): Visual / Partial / Full Evaluation

6.0 Critical Features

Recognized Component – A component part, which has been previously evaluated by an accredited certification body with restrictions and must be evaluated as part of the basic product considering the restrictions as specified by the Conditions of Acceptability.

Listed Component - A component part, which has been previously Listed or Certified by an accredited Certification Organization with no restrictions and is used in the intended application within its ratings.

Unlisted Component - A part that has not been previously evaluated to the appropriate designated component standard. It may also be a listed or recognized component that is being used outside of its evaluated Listing or component recognition.

Critical Features/Components - An essential part, material, subassembly, system, software, or accessory of a product that has a direct bearing on the product's conformance to applicable requirements of the product standard.

Construction Details - For specific construction details, reference should be made to the photographs and descriptions. All dimensions are approximate unless specified as exact or within a tolerance. In addition to the specific construction details described in this Report, the following general requirements also apply.

1. Spacing - In the parmary circuit, minimum spacing 2.4mm are maintained through air and over surfaces of insulating material between current-carrying parts of opposite polarity and 6.4mm between current-carrying parts and dead-metal parts.
2. Mechanical Assembly - Components such as switches, fuseholders, connectors, wiring terminals and display lamps are mounted and prevented from shifting or rotating by the use of lockwashers, starwashers, or other mounting format that prevents turning of the component.
3. Corrosion Protection - All ferrous metal parts are protected against corrosion by painting, plating or the equivalent.
4. Grounding - All exposed dead-metal parts and all dead-metal parts within the enclosure that are exposed to contact during any servicing operation and that are likely to become energized are reliably connected to the grounding lead of the power supply cord.
5. Internal Wiring -Internal wiring is reliably routed away from sharp or moving parts. Internal wiring leads terminating in soldered connections are made mechanically secure prior to soldering. Recognized separable (quick disconnect) connectors of the positive detent type, closed loop connectors, or other types specifically described in the text of this report are also acceptable as internal wiring terminals. At points where internal wiring passes through metal walls or partitions, the wiring insulation is protected against abrasion or damage by plastic bushings or grommets
6. Schematics - Refer to Illustration 2 for schematics requiring verification during Field Representative Inspection Audits.
7. Accessibility of Live Parts - All uninsulated live parts in primary circuitry are housed within a metal or plastic enclosure constructed with no openings other than those specifically described in the constructions details.
8. Markings - The product is marked on a component labeling system as follows:
   - manufacturer's name, trade name or trade mark
   - model number
   - date of manufacture
   - electrical ratings (volts, amperes & frequency)
   - the kind and amount of refrigerant in pounds, ounces, or both
   - the high and low side design pressures
9. Cautionary Markings - The product is marked on a component labeling system, If the supply cord is damaged, it must be replaced with a new power supply cord obtained from the manufacturer or its service agent.
   Note: The letters of the above markings are not less than 4.8 mm in height.
10. Installation, Operating and Safety Instructions - Direction and information that the manufacturer considers necessary for installation, maintenance and use of the appliance are included. Refer to illustration 3

7.0 Illustrations

Illustration 1 - Marking

Control No is 3153767

AIRWELL	MODEL: MAY 70 S 60Hz AW		
Prod. No:		Rev: A	
Cooling Btu/h : 7800	Heating Btu/h :	Design Pressure	
Cooling Amps : 3.3	Heating Amps :	High Side: 400PSIG	
Cooling Watts: 750	Heating Watts:	Low Side: 150PSIG	
Compressor RLA: 3A	Compressor LRA: 20 A		
Refrigrant:R22 15.16 oz	Volts:220-240 60Hz 1Ph	Weight: 37Kg	

XXXXXXX

Series No.

ELECTRA	MODEL: KC 20M/B1 S		
Prod. No:		Rev: A	
Cooling Btu/h : 7800	Heating Btu/h :	Design Pressure	
Cooling Amps : 3.3	Heating Amps :	High Side: 400PSIG	
Cooling Watts: 750	Heating Watts:	Low Side: 150PSIG	
Compressor RLA: 3A	Compressor LRA: 20 A		
Refrigrant:R22 15.16 oz	Volts:220-240 60Hz 1Ph	Weight: 37Kg	

XXXXXXX

Series No.

AIRWELL	MODEL: MAY 90 S 60Hz AW		
Prod. No:		Rev: A	
Cooling Btu/h : 9300	Heating Btu/h :	Design Pressure	
Cooling Amps : 4.6	Heating Amps :	High Side: 400PSIG	
Cooling Watts: 1050	Heating Watts:	Low Side: 150PSIG	
Compressor RLA: 4A	Compressor LRA: 27 A		
Refrigrant:R22 16.93 oz	Volts:220-240 60Hz 1Ph	Weight: 37Kg	

XXXXXXX

Series No.

ELECTRA	MODEL: KC 25M/B1 S		
Prod. No:		Rev: A	
Cooling Btu/h : 9300	Heating Btu/h :	Design Pressure	
Cooling Amps : 4.6	Heating Amps :	High Side: 400PSIG	
Cooling Watts: 1050	Heating Watts:	Low Side: 150PSIG	
Compressor RLA: 4A	Compressor LRA: 27 A		
Refrigrant:R22 16.93 oz	Volts:220-240 60Hz 1Ph	Weight: 37Kg	

XXXXXXX

Series No.

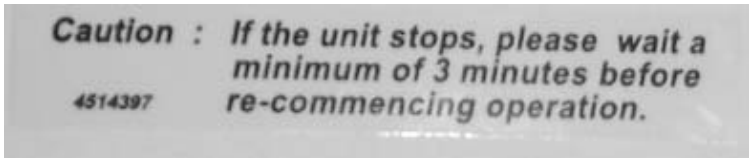
Item Code	A	B	C	D	E	F	G	H	I	J
Series Number Example	2	2	8	1	3	8	6	0	6	2

Explain as below:

- **A: Decade Year Production (199x=1, 200x=2, 201x=3...ect).**
- **B: Manufacture Code, 2 means Electra Air- Conditioning (Shenzhen) Co., Ltd.**
- **C: Year Figure (xxx9=9,xxx0=0,xxx1=1...ect).**
- **D-E: Produced Week,(Produced in Week 13, D=1,E=3).**
- **F~J: The Running Number ,from 10001 to 99999**

If the supply cord Is damaged, It must be replaced with a new power supply cord obtained from the manufacturer or its service agent.

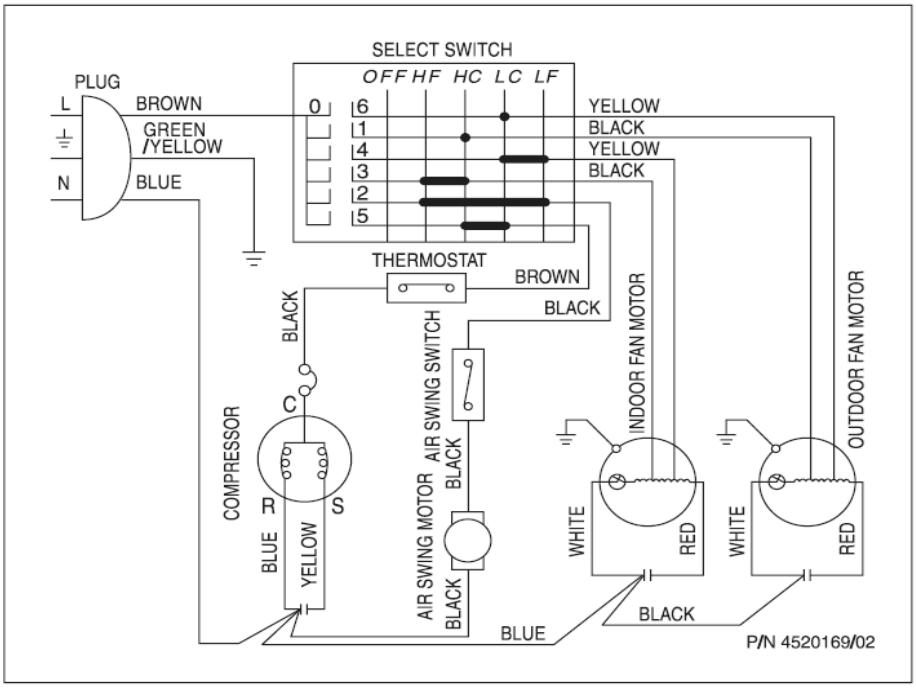
Loaction: on the left side of the main enclosure, and visible from the room side.

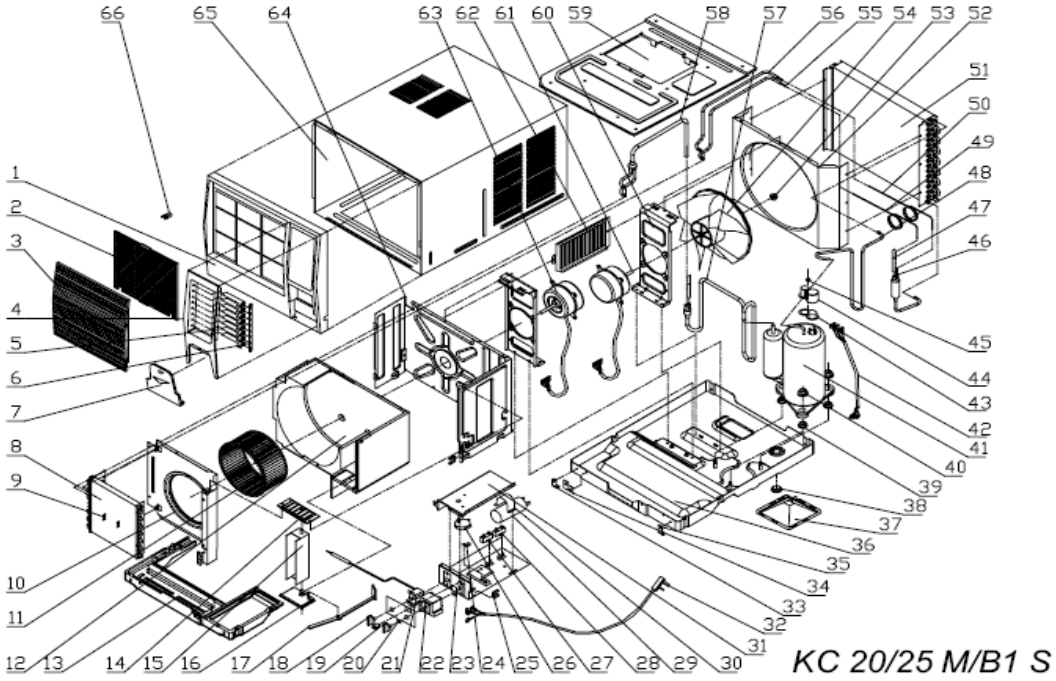


Open the control pannel can easy see the caution marking

7.0 Illustrations

Illustration 2 - Wiring Diagram and Explosive View





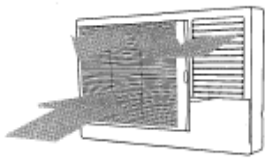
Airwell In-Wall Type Air Conditioner Installation Manual

INSTALLATION PROCEDURE

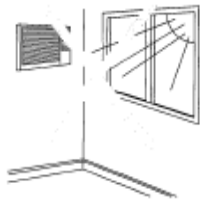
Selecting the installation location → **Confirm installation dimensions** → **Installation** → **Electrical installation work** → **Operation testing** → **Completion of installation**

- Choose a location which meets the conditions below and obtain the customer approval.

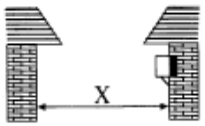
Be sure that the air flow is unobstructed.



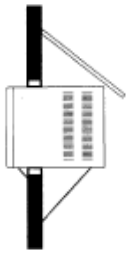
Be sure that the unit is not exposed to direct sunlight.



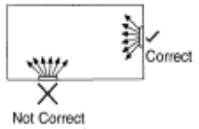
Do not install the unit where your neighbors will be disturbed.



Do not expose the back of the unit to direct sunlight.



If installing in a long & narrow room, please locate the unit along the shorter wall to ensure optimal air delivery to the entire room.



- Dimension(MM)

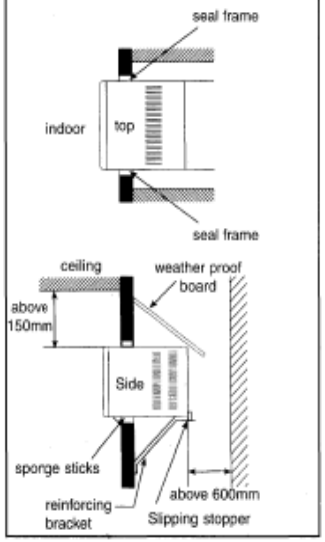
	MAY 110(RC)	MAY 70,90
Height:	375	350
Width:	560	450

Installation hole dimension: unit dimension + segler dimension

Installation Notes:
- Rubber cushion must be positioned on the bottom of the machine to lower noise and vibration.
- Sponge must be positioned on both the top and side to prevent loss of cool air.

Thin Wall Installation

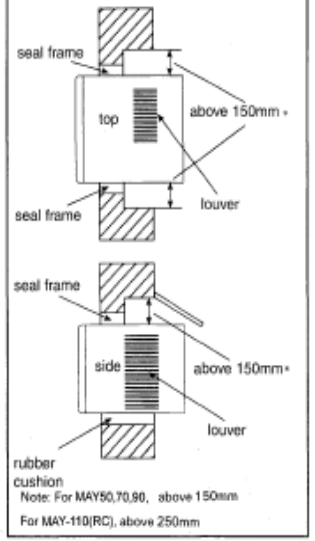
Be sure the rear and the side louver are unobstructed.



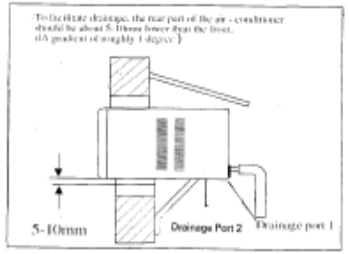
- A stopper should be positioned at the rear to stop machine from slipping out of installation hole.
- Must use the special circuit for the room air conditioner with earth wiring.

If the wall is very thick, make clearance on top and side of the unit for air circulation as shown in the diagram below.

Thick Wall Installation

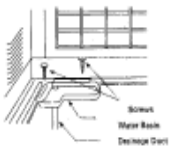


- When the unit is properly installed, explain the operation to the customer and carry out a test operation.



Drainage ports 1 & 2 are for MAY110(RC) Drainage installation as shown in the lower part of the drawing, if needed. Model is MAY110(RC) equipped with the function of using the condenser to dissipate heat. Please use this function as much as possible because it enhances the overall effectiveness of the air-conditioner. (Slight sound of splashing water might be heard) If you do not want to use this function, please remove the rubber stopper of the drainage port 1.
Drainage port 2 is thermostatic drain valve only for MAY11% RC RC which can prevent the fan from freezing and damage the motor in winter. Do not dismount it please. Install the water basin and drainage duct at the drainage port of the unit base as shown in the diagram.

Viewed from inside



Viewed from outside

8.0 Test Summary					
Sample Receipt Date	Mar. 1, 2008	Sample Condition	Prototype	Project No.	GZ08051040
Evaluation Period	Mar. 5, 2008 - Mar. 14, 2008				
Test Location	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch (Address: 1~8th Floor, Block E2, 11 Cai Pin Road, Science City, Guangzhou Economic Development Zone, Guangzhou, China) and Electra air-conditioning (shenzhen) co.,ltd (Address:2 wuhe ave. s., bantian , buji, shenzhen, 518129, China)				
Test Procedure	TMP				
Determination of the result includes consideration of measurement uncertainty from the test equipment and methods. The product was tested as indicated below with results in conformance to the relevant test criteria.					
The following tests were performed:					

Test Description	UL 484, 8th Edition, Dated Dec. 21, 2007	
Strain Relief Test	10.2.8	
Leakage Current Test - Cord-Connected Room Air	33	
Rain Test	34	
Input Test	36	
Temperature and Pressure Test	37	
Starting Test	38	
Dielectric Voltage-Withstand Test	39	
Condenser Fan Motor Failure Test	40	
Overflow Test	47	
Spillage Test	48	
Strength Tests – Pressure Containing Components	59	
Impact Test	74	

8.1 Signatures			
applicable requirements of the standards indicated in Section 1.0			
Completed by:	Peter Peng	Reviewed by:	Benny Zhang
Title:	Engineer	Title:	Technical Team Leader
Signature:	Peter Peng	Signature:	Benny Zhang

9.0 Correlation Page For Multiple Listings	
The following products, which are identical to those identified in this report except for model number and Listee name, are authorized to bear the ETL label under provisions of the Intertek Multiple Listing Program.	
BASIC LISTEE	None
Address	
Country	
Product	

MULTIPLE LISTEE 1	None
Address	
Country	
Brand Name	
ASSOCIATED MANUFACTURER	
Address	
Country	
Brand Name	

MULTIPLE LISTEE 1 MODELS	BASIC LISTEE MODELS

10.0 General Information

The Applicant and Manufacturer have agreed to produce, test and label ETL Listed products in accordance with the requirements of this Report. The Manufacturer has also agreed to notify Intertek and to request authorization prior to using alternate parts, components or materials.

COMPONENTS

Components used shall be those itemized in this Intertek report covering the product, including any amendments

LISTING MARK

The ETL Listing mark applied to the products shall either be separable in form, such as labels purchased from Intertek, or on a product nameplate or other media only as specifically authorized by Intertek. Use of the mark is

MANUFACTURING AND PRODUCTION TESTS

Manufacturing and Production Tests shall be performed as required in this Report.

FOLLOW-UP SERVICE

Periodic unannounced audits of the manufacturing facility shall be scheduled by Intertek. An audit report shall be issued after each visit. Special attention will be given to the following:

1. Conformance of the manufactured product to the descriptions in this Report.
2. Conformance of the use of the ETL mark with the requirements of this Report and the Certification Agreement.
3. Manufacturing changes.
4. Performance of specified Manufacturing and Production Tests.

In the event that the Intertek representative identifies non-conformance(s) to any provision of this Report, the Applicant shall take one or more of the following actions:

1. Correct the non-conformance.
2. Remove the ETL Mark from non-conforming product.
3. Contact the issuing product safety evaluation center for instructions.

10.1 Evaluation of Unlisted Components

Because Unlisted Components are uncontrolled, and they do not fall under a third party follow up program, Intertek may require these components to be tested and/or evaluated at least once annually, more often for certain components, as part of the independent certification process. The Unlisted Components in Section 5.0 require testing and/or evaluation as indicated.

Note to Intertek Follow Up Inspector: The Component Evaluation Center, CEC, will notify you in writing when these components must be selected and sent to the CEC for re-evaluation

Ship the samples to:
Intertek Testing Services Shenzhen Ltd. Guangzhou Branch
1~8th floor, Block E2, 11 Cai Pin Road, Science city,
Guangzhou Economic Development Zone,
Guangzhou, China

Sample Disposition: Due to the destructive nature of the testing, all samples will be discarded at the conclusion of testing unless, the manufacturer specifically requests the return of the samples. The request for return **must** accompany the initial component shipment.

11.0 Manufacturing and Production Tests

The manufacturer agrees to conduct the following Manufacturing and Production Tests as specified:

Required Tests

- Pressure Tests for leakage and strength
- Dielectric Voltage Withstand Test
- Grounding Continuity Test

PRESSURE TESTS FOR LEAKAGE AND STRENGTH

Method:

Each room air conditioner shall be tested and proved tight at not less than the design pressure(s) marked on the appliance.

If the final assembly is completed with flare-type fittings or telescoped tubing joints which are sealed with sliver solder, brazing, or the equivalent, the pressure test of the complete system may be at the low-side design pressure provided that the high-side parts are individually tested either by the room air conditioner manufacturer or by the manufacturer of the part at not less than the high-side design pressure.

At least once each year, a strength test shall be conducted on refrigerant-containing components of the shell-type which have an inside diameter greater than 3 inches (76.2mm) including motor-compressor enclosures. The test shall be conducted on at least one sample of each size and type. The part shall comply with requirements of Strength Tests. Such tests may be conducted either by the room air conditioner manufacturer or by the manufacturer of the component.

Products Requiring Pressure Test:

All products covered by this report

PRODUCTION-LINE DIELECTRIC VOLTAGE WITHSTAND TEST:

Method:

One hundred percent of production of the products covered by this Report shall be subjected to a routine production-line dielectric withstand test.

The test shall be conducted on products which are fully assembled. Prior to applying the test potential, all switches, contactors, relays, etc., should be closed so that all primary circuits are energized by the test potential. If all primary circuits cannot be tested at one time, then separate applications of the test potential shall be made.

The test potential specified below shall be applied between primary circuits and accessible dead-metal parts. The test potential may be gradually increased to the specified value but must be maintained at the specified value for one second or one minute as required.

Test Equipment:

The test equipment shall incorporate a transformer with an essentially sinusoidal output, a means to indicate the applied test potential, and an audible and/or visual indicator of dielectric breakdown.

The test equipment shall incorporate a voltmeter in the output circuit to indicate directly the applied test potential if the rated output of the test equipment is less than 500VA.

If the rated output of the test equipment is 500VA or more, the applied test potential may be indicated by either: 1 - a voltmeter in the primary circuit; 2 - a selector switch marked to indicate the test potential; or 3 - a marking in a readily visible location to indicate the test potential for test equipment having a single test potential output. In cases 2 and 3, the test equipment shall include a lamp or other visual means to indicate that the test potential is present at the test equipment output. All test equipment shall be maintained in current calibration.

Products Requiring Dielectric Voltage Withstand Test:

PRODUCT	Test Voltage	Test Time
All products covered by this Report.	1480 VAC	1 minute
	or	
	1776 VAC	1 second

GROUNDING CONTINUITY TEST

Method:

Each appliance that has a power-supply cord having a grounding conductor shall be tested to determine the grounding continuity between the grounding blade of the attachment plug and the accessible dead metal parts of the appliance that are capable of becoming energized. Only a single test is required to be conducted when the accessible metal selected is conductively connected by design to all other accessible metal.

Test Equipment:

Any indication device, such as an ohmmeter, a battery and buzzer combination, or the like, is to be used to determine compliance with the above requirement.

Products Requiring Grounding Continuity Test:

All products covered by this Report.

12.0 Revision Summary				
The following changes have been made to this Report:				
Date/ Proj # Site ID	Project Handler/ Reviewer	Section	Item	Description of Change
				None