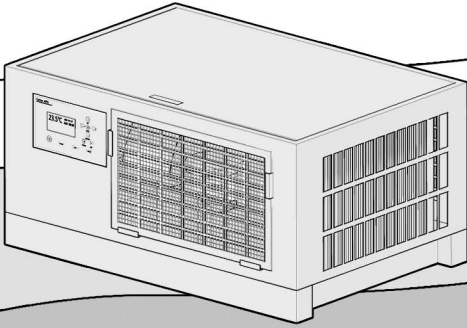


# Carrier APA

Air-conditioning Practical Application Service Co.  
Muginae dong 351-1, Siheung-si, Gyeonggi-do, Korea  
tel : 82+031)404-0710  
http://www.carrierapa.com



## Air-L Series

L13P/L17P/L24P/L36P  
(EL070/EL090/EL120/EL135)

# User Manual

First of all, please read this manual.

At first, please read this manual before driving the unit.

For further instructions, please refer to the manual.

Design and specifications of product could be changed by performance.

### Precaution for Safety

On installation, on use, on check.....1

### Name and Function of each parts

Unit.....2

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### How to Operate

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How to clean evaporator tank and heat exchanger.....25

### Attachment

Warranty

# Precaution for Safety

Do respect followings for safety precaution

## Marks Meanings

- ✓ Caution) It indicates 'caution'.
- ⊘ Prohibition) It indicates 'prohibition' and presents 'not to do'.
- ! Compulsion) It indicates 'compulsion' and presents 'to do with obligation'.

## On installation



- ▷ To read the instruction manual carefully to avoid the fault of unit.  
(It may cause danger of electric shock ,leakage and fire)
- ▷ Be careful of water leakage, if drain hose not installed with stability.  
(Condensed water fall into elevator interior, if installation is not stable.)



- ▷ Use exclusive circuit breaker and electric leakage interrupter according to installation conditions. (It may cause electric shock ,if not installed.)
- ▷ Do grounding properly.  
(It may cause breakdown and electric shock, if not grounded.)

## On Use



- ▷ Do not disassemble, repair or remodel.  
(It may cause electric shock ,fire and breakdown .Contact with unit supplier in case of break down.)
- ▷ Do not step on or put heavy material on unit.  
(It may cause electric shock or break down.)



- ▷ Do not put your finger or foreign material into supply/return air hole of unit.  
(It may cause fire and breakdown of unit.)

## On Check

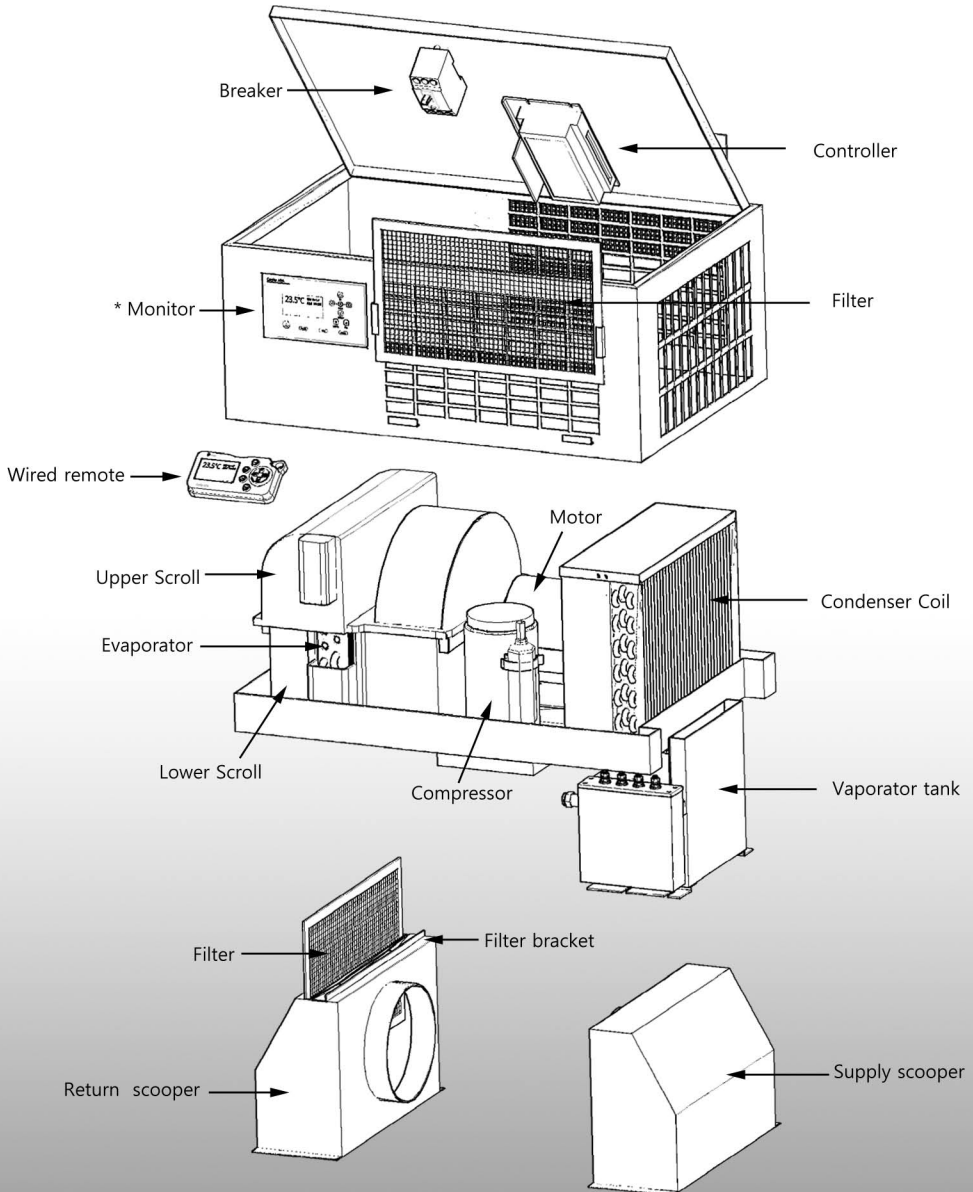


- ▷ after switching off the power and stopping fan operation ,Start cleaning.  
(It may cause electric shock or danger of injuries.)
- ▷ clean air filter once in 4weeks.  
(It may cause breakdown. Clean it more frequently in dusty environment.)
- ▷ Make inquiries to supplier, you should switch off power immediately, if there is any strange noise, burning smell or smoke found in operation.  
(It may cause danger of electric shock and fire)
- ▷ Do not give severe shock to remote monitor or disassemble it.

# Name and Function of each parts

Check the name of parts.

Design and specifications of product may have changed by performance.



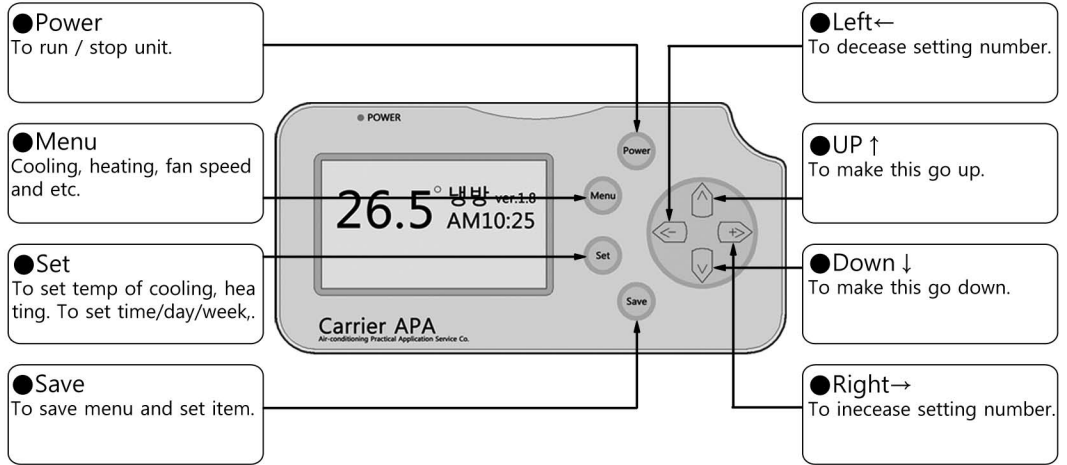
\* It could be excepted if using wired remote.

# Name and Function of each parts

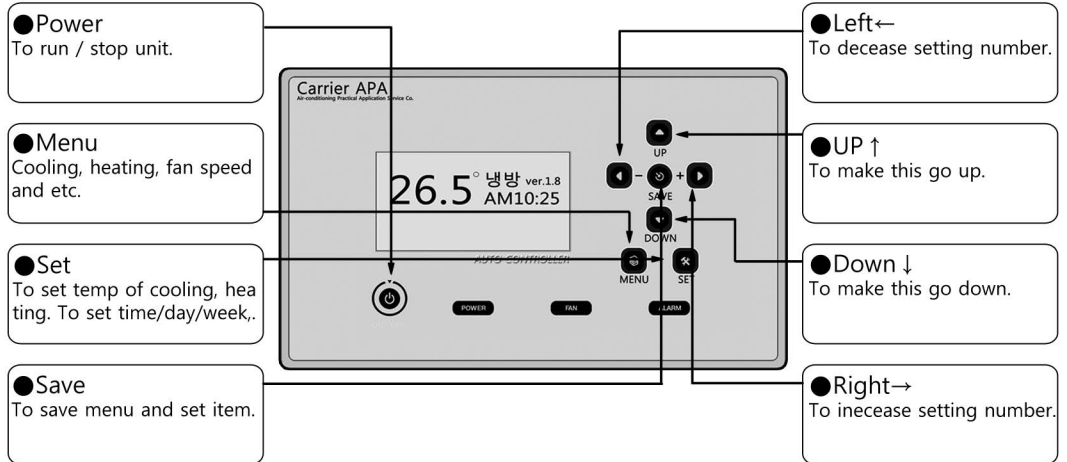
Check the name of parts.

▷ Monitor could be excepted if using wired remote.

## Wired remote



## monitor

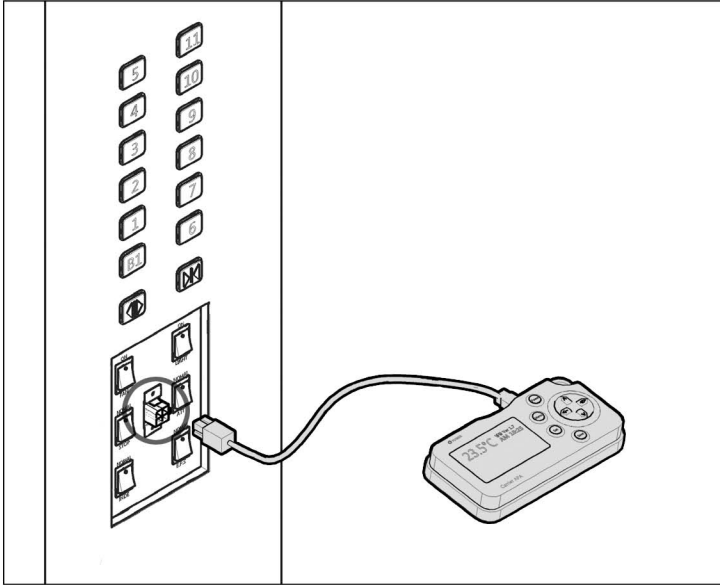


# Name and Function of each parts

Check the name of parts.

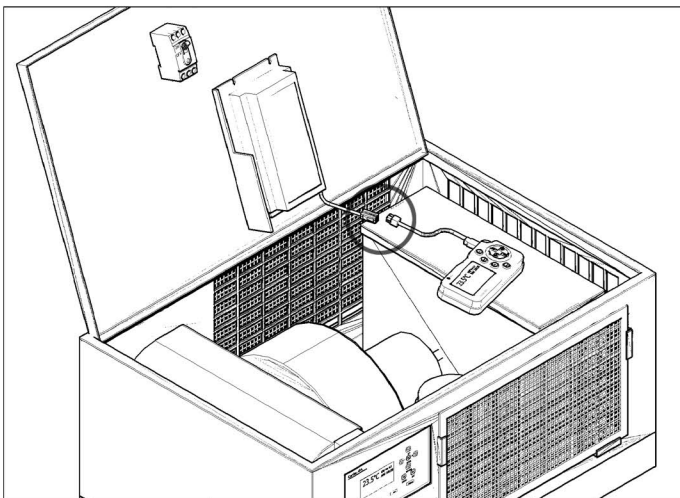
## Wired remote connection

▷ Wired remote can control all functions of unit in the elevator.



## When using wired remote to unit(repair or a/s)

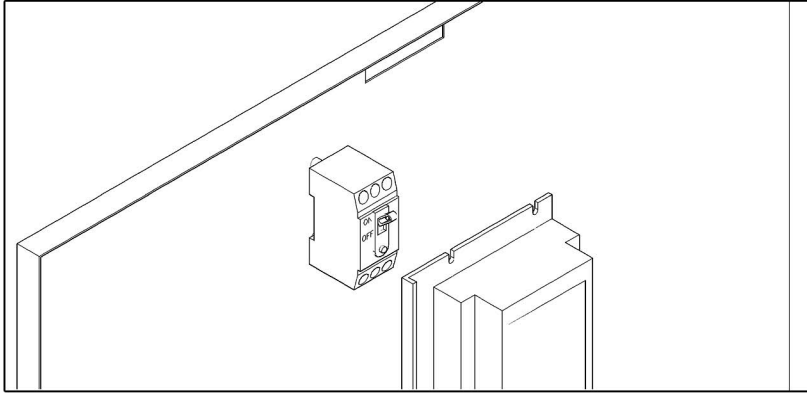
▷ Open the cover of unit, disassemble a terminal(4pin) from controller, and assemble it with a terminal of wired remote as below the picture.



# How to Operate

## When using at first

▷It is check list when using at first.



- ▷ Check distribution box(or in CP) of machine room)and breaker switch-on of unit.
- ▷ Check air-con switch-on of OPB in the elevator.  
(If switch is off, the unit doesn't drive.)

## Unit property

- ▷ If cool wind is not blowed DIRECTLY, when the unit is driving.)
  - Cool wind will blow after 1min beacuse of protecting the compressor.
- ▷ If cool wind doesn't blows continously.
  - If temp of the elevator is lower than setting temp of the unit, automadically It is to be fan mode.
- ▷ If the unit's fan is driving continously, when stopping the unit by auto or manual.
  - Compressor protection operation: for 3min (please refer page21-parameter)
  - Vaporizer tank protection operation: for 10~30min (please refer page22 parameter)
- ▷ Condensation from air hole of the elevator ceiling - Please put aluminium lagging sheet to air guide plate.

# How to Operate

## Basic Operation


▷ Operate as followings;

1.  Press [POWER] button.




(buzzing sound is continuing for 4-5 seconds.)



2.  Press [SET] button and check the setting status

1. Cool/Set	23.0℃
2. Cool/Dif	1.0℃
3. Heat/Set	30.0℃
4. Heat/Dif	1.0℃
5. Week Run	On
6. Week Run Set	+>
7. Total Time	+>
8. Time View	+>
9. Time Set	+>
10. Parametet	+>

- ✓ **Basic Setting status**  
Cool mode setting : 23℃  
Week Run : On  
Setting time and Mode



Mon-Fri-1	Cool
Start Time	08H
Stop Time	20H

※ It will drive [Cool] mode 8 am to 8 pm  
From every Monday to every Friday.

※ Basically Saturday and Sunday is [Stop] mode.




# How to Operate

## Current time setting

▷ Operate as followings;


1.  Press [SET] button and check Time View.

1. Cool/Set	23.0℃
2. Cool/Dif	1.0℃
3. Heat/Set	30.0℃
4. Heat/Dif	1.0℃
5. Week Run	On
6. Week Run Set	+>
7. Total Time	+>
8. Time View	+>
9. Time Set	+>
10. Parameter	+>

- ✓ Move button    
Select button: 

2.  Press [Right Move] button and check Time View.

(Time View)
2010Y
2M 25D Tue
AM 11H 40M 16s

- ✓ Check present time and press  [Menu] button

※If you need to change time, it is modified by 'Time set'




# How to Operate

## Current time setting





▷ Operate as followings;

1.  Press [SET] button and check Time Set.

1. Cool/Set	23.0℃
2. Cool/Dif	1.0℃
3. Heat/Set	30.0℃
4. Heat/Dif	1.0℃
5. Week Run	On
6. Week Run Set	+>
7. Total Time	+>
8. Time View	+>
9. Time Set	+>
10. Parameter	+>

2.  Press [Right Move] button and check Time Set.

(Time Setting)	
1. Year	2010Y
2. Month	02M
3. Day	25D
4. Week	TUE
5. Hour	AM 11H
6. Minute	42M
7. Second	58S

- ✓ Move button :  
- Modify button :  
- Save button : 



# How to Operate



## Cooling operation setting


▷ Mode for setting temperature in order to operate cool air. Operate as followings;

1.  Press [SET] button and check Cool/Set.

1. Cool/Set	23.0℃
2. Cool/Dif	1.0℃
3. Heat/Set	30.0℃
4. Heat/Dif	1.0℃
5. Week Run	On
6. Week Run Set	+>
7. Total Time	+>
8. Time View	+>
9. Time Set	+>
10. Parameter	+>

✓ Move button :  



Change Temperature (0.1℃) button :  

2.  Press [Save] button to apply after setting temperature.



※ Set cool temperature properly, 5℃ difference is expected between interior temperature and outdoor one generally



## Cool/Dif


▷ Mode for temperature deviation of cooling operation. Operate as followings;

1.   Press [move] button and check Cool/Dif.

1. Cool/Set	23.0℃
2. Cool/Dif	1.0℃
3. Heat/Set	30.0℃
4. Heat/Dif	1.0℃
5. Week Run	

✓ Move button :  

Change Temperature (0.1℃) button :  

2.  Press [Save] button to apply after setting temperature.

# How to Operate



## Heating operation setting

▷ Mode for setting temperature in order to operate heat air. Operate as followings;

1.  Press [SET] button and check Heat/Set.

1. Cool/Set	23.0℃
2. Cool/Dif	1.0℃
3. Heat/Set	30.0℃
4. Heat/Dif	1.0℃
5. Week Run	On
6. Week Run Set	+>
7. Total Time	+>
8. Time View	+>
9. Time Set	+>
10. Parameter	+>



✓ Move button :  

Change Temperature (0.1℃) button :  

2.  Press [Save] button to apply after setting temperature.



## Heat/Dif

▷ Mode for temperature deviation of heating operation. Operate as followings;

1.   Press [move] button and check Heat/Dif.

1. Cool/Set	23.0℃
2. Cool/Dif	1.0℃
3. Heat/Set	30.0℃
4. Heat/Dif	1.0℃
5. Week Run	

✓ Move button :  

Change Temperature (0.1℃) button :  

2.  Press [Save] button to apply after setting temperature.


# How to Operate

## Week Run



▷ week run is mode of reservation driving.

1.  Press [SET] button and check Week Run.

1. Cool/Set	23.0℃
2. Cool/Dif	1.0℃
3. Heat/Set	30.0℃
4. Heat/Dif	1.0℃
5. Week Run	On
6. Week Run Set	+>
7. Total Time	+>
8. Time View	+>
9. Time Set	+>
10. Parameter	+>

✓ Right move button  : On

Left move button  : Off


2.   Press [move] button to Week Run Set.

1. Cool/Set	23.0℃
2. Cool/Dif	1.0℃
3. Heat/Set	30.0℃
4. Heat/Dif	1.0℃
5. Week Run	On
6. Week Run Set	+>
7. Total Time	+>
8. Time View	+>
9. Time Set	+>
10. Parametet	+>

# How to Operate

## Week Run

▷ week run is mode of reservation driving.

3.  Press [Right move] button to each day of week.

1. Mon-Fri	+>
2. Saturday	+>
3. Sunday	+>
4. Monday	+>
5. Tuesday	+>
6. Wednesday	+>
7. Thursday	+>
8. Friday	+>

✓ Right move button  : more specific reservation set

4. [Mon-Fri] can set specific reservation from Monday to Friday.

All Reserve Set	
Mon-Fri-1	Cool
Start Time	08H
Stop Time	20H
Mon-Fri-2	Stop
Start Time	00H
Stop Time	00H
Mon-Fri-3	Stop
Start Time	00H
Stop Time	00H

### <Basic setting value>

It will drive [Cool] mode 8 am to 8 pm From every Monday to every Friday if you set that value as above.

# How to Operate

## Various and specific reservation

▷ each time, each day

### 1. [Week Run] can set various and specific reservation ; each time, each day

Mon-Fri-1	Cool
Start Time	08H
Stop Time	12H
Mon-Fri-2	Fan
Start Time	12H
Stop Time	13H
Mon-Fri-3	Cool
Start Time	13H
Stop Time	18H

✓ change mode button :

(Cool ▶ heat ▶ Fan ▶ Stop)

✓ change time (1hour) button :

### 2. Press [Save] button to apply after setting temperature and day.

※ It will drive [Cool] mode 8 am to 12 pm  
and drive [Fan] mode 12 pm to 13 pm  
and drive [Cool] mode 13 pm to 18 pm  
from every Monday to every Friday, if you set that value as above.

### 3. Week run can set various and specific reservation in the same order as below.

1. Mon-Fri	+>
2. Saturday	+>
3. Sunday	+>
4. Monday	+>
5. Tuesday	+>
6. Wednesday	+>
7. Thursday	+>
8. Friday	

Saturday-1	Cool
Start Time	08H
Stop Time	12H
Saturday-2	Fan
Start Time	12H
Stop Time	

# How to Operate

## Various and specific reservation

▷ each time, each day

3. Week run can set various and specific reservation in the same order as below.

1. Mon-Fri	+>
2. Saturday	+>
3. Sunday	+>
4. Monday	+>
5. Tuesday	+>
6. Wednesday	+>
7. Thursday	+>
8. Friday	

Monday-1	Cool
Start Time	08H
Stop Time	12H
Monday-2	Fan
Start Time	12H
Stop Time	

4. Saturday and Sunday is selected to Stop mode basically in the same order as below.

1. Mon-Fri	+>
2. Saturday	+>
3. Sunday	+>
4. Monday	+>
5. Tuesday	+>
6. Wednesday	+>
7. Thursday	+>
8. Friday	

Saturday-1	Stop
Start Time	08H
Stop Time	18H
Saturday-2	Stop
Start Time	00H
Stop Time	






# How to Operate

## Driving Mode Select

▷ how to set cool, fan and heat mode manually to drive or stop the unit by on/off switch.

1.  Press [Set] button and check the display as below.

1. Cool/Set	23.0℃
2. Cool/Dif	1.0℃
3. Heat/Set	30.0℃
4. Heat/Dif	1.0℃
5. Week Run	Off
6. Week Run Set	+>
7. Total Time	+>
8. Time View	+>
9. Time Set	+>
10. Parameter	+>

- ✓ Move button :  
- mode select button :  
- Save button : 


❖ For using manual operation; power on-off, please change 'Week run-off'

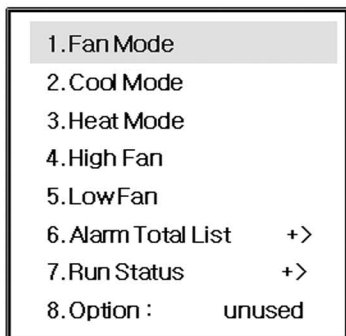


# How to Operate






## Driving Mode Select

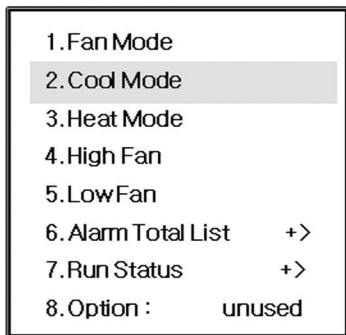
▷ how to set cool, fan and heat mode manually to drive or stop the unit by on/off switch.

1.  Press [Menu] button and check the display as below.

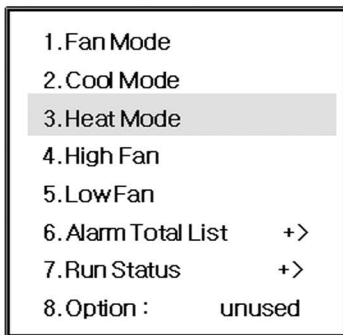


<Fan Mode>

- ✓ Move button :  
- mode select button :  
- Save button : 



<Cool Mode>




<Heat Mode>

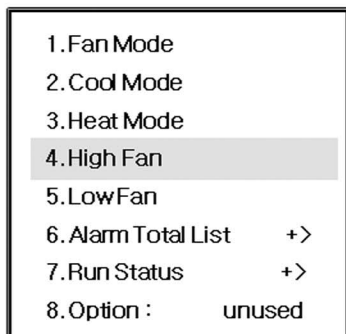
- ❖ Manual operation can be modified only when [Week Run] is 'Off'.
- ❖ If [Week Run] is 'On', it is modified [Week Run] above all.

# How to Operate

## Fan speed select

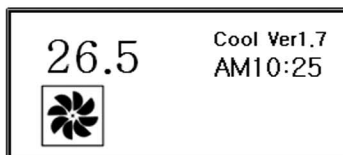
▷ how to set fan speed

1.  Press [Menu] button and check the display as below.



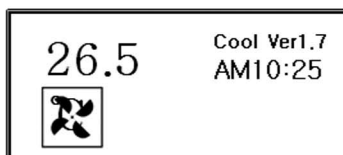
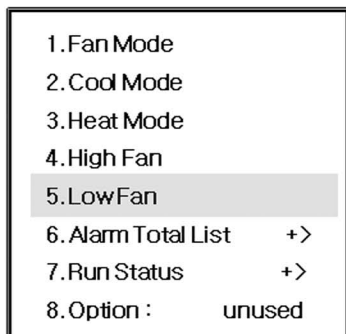
✓ Move button :  

Save button : 



<High Fan status>

2. Set in the same order as above.




<LowFan status>

# How to Operate

## Alarm Total List

▷ how to check alarm list.

1.  Press [Menu] button and check the display as below.

1. Fan Mode	
2. Cool Mode	
3. Heat Mode	
4. High Fan	
5. Low Fan	
6. Alarm Total List	+>
7. Run Status	+>
8. Option :	unused

✓ Move button :  

Select button : 

Alarm Total List
1) Full water level alarm 02M02.25H54
2) Filter alarm

2.  Press [SET] button to delete alarm list.

Alarm Total List
1) Full water level alarm 02M02.25H54

Alarm Total List
------------------

### 3. Alarm details

Alarm	contents	remarks
Temperature Sensor Alarm	To incorrect sensor wire connection	check sensor wire connection
Full Water Level Alarm	When water of condensate evaporator rises to high level	Compressor stopped
High Temp. Alarm	Higher room temperature than high temperature alarm setted.	Only fan operating
Sensor Alarm	Incorrect connection of level wires.	Check wire connection
Fan Alarm	When power input short circuit 5 seconds above in fan operation.	Check wire connection
Over Current Alarm	Higher electric current Higher than setting value continued 5 seconds above.	Check wire connection
Filter clean alarm	When filter cycle is arised.	Clean Filter and evaporator

# How to Operate

## Filter Clean Alarm

▷ How to delete 'filter clean alarm list' to reflect addition time again.

1.  Press [Down] button and delete alarm list.

Filter Clean Alarm  
1) Filter Clean Alarm  
02M02.25H54  
2) Filter Clean Alarm

(Alarm List)  
1) Filter Clean Alarm  
^ delete v Cancel

## Run Status

▷ how to check unit status now.

2.  Press [Menu] button and check the display as below.

1. Fan Mode  
2. Cool Mode  
3. Heat Mode  
4. High Fan  
5. LowFan  
6. Alarm Total List +>  
7. Run Status +>  
8. Option : unused

✓ Move button :  


Select button : 

1. LowFan Stop  
2. High Fan Stop  
3. COMP Stop  
4. Vapor Stop  
5. Heat Stop  
6. UV Stop  
7. O2 Stop

# How to Operate

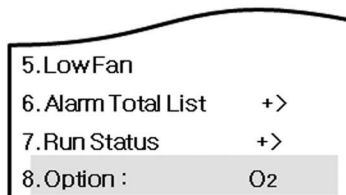
## Option

▷ how to use 'UV', 'O2', 'UV + O2'

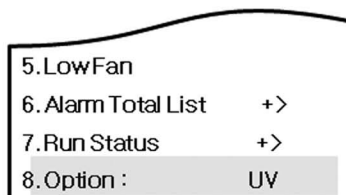
1.  Press [Menu] button and check the display as below.

✓ Move button :  

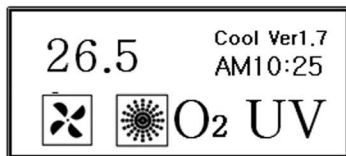
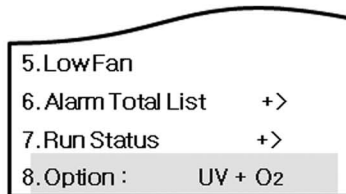
✓ Select button :  UV ▶ O2 ▶ UV + O2



<O2 Mode >



<UV Mode >



<UV + O2 Mode >

# How to Operate

## Parameter setting

▷ Do not modify parameter if possible as it is basic value.

1.  Press [SET] button and check Parameter.

1. Cool/Set	23.0℃
2. Cool/Dif	1.0℃
3. Heat/Set	30.0℃
4. Heat/Dif	1.0℃
5. Week Run	On
6. Week Run Set	+>
7. Total Time	+>
8. Time View	+>
9. Time Set	+>
10. Parameter	+>

2. If using wired remote, you should select 'Monitor'.

1. M/C No	No.1
2. P/Rest	5s
3. P/Delay	180s
4. H/Temp	40℃
5. C/Setting	25A
6. Temp Dif	0℃
7. Curr Dif	0A
8. Language	English
9. Com/Set	Rm PC
10. F/Alarm	-500Hr

✓ Move button:  

Select button:  



← Please change to 'Monitor'.

# How to Operate

## Parameter setting

▷ Do not modify parameter if possible as it is basic value.

3. If it is a climate of high temperature and humidity, you can select to 'Eva enable'.  
'Eva enable' remove condensate water in vaporizer tank after reservation time.

1. M/C No	No.1
2. P/Rest	5s
3. P/Delay	180s
4. H/Temp	40 °C
5. C/Setting	25A
6. Temp Dif	0 °C
7. Curr Dif	0A
8. Language	English
9. Com/Set	Rm PC
10. F/Alarm	-500Hr
11. Eva enable	Unused

✓ Move button:  

Select button:  



← Please change to 'Use'.

# Trouble Shooting Guide

If you have problems with your elevator air conditioner, check this guide before contacting your service representative.

Problem	Check	Solution
Decreasing of Cooling efficiency	※Check return scooper filter to be air flow, blocked by dust	Re-installation after washing out the filter with water
	※Obstruction of condenser and Evaporator coil by dust	The dust is removed by brush or others After opening of unit cover.
	※Check refrigerant leakage	Check the refrigerant fill up or not through refrigerant injection valve.
	※Compressor operation	Check graphic indication of comp. operation on control monitor.
	※Evaporator operation	Check graphic indication of comp. operation on control monitor.
	※check ice stack in evaporator coil lateral	Dust removal of filters(3EA) and evaporator / condenser coil.
Noise	※General noise ※Compressor operating noise and some fan noise	There noises are normal during the operation Of the unit.
	※Mechanically vibration noise	check if compressor and each coil tube contacted with unit cover or compressor level is not correct.
	※Noise due to compressor breakdown	The noise occurred inside damage by over heating due to dust obstruction of filter coils.
Dew drop & leakage	※Dew drop at both end parts of cooling air supply duct	Setting temperature over 20 °C ,after checking if temperature setted is too low. check dusty obstruction of return scooper filter and wash out with water. check air guider of ceiling exist between duct ceiling and car interior.
	※Water leakage from air supply scooper	check dusty obstruction of return duct and wash out with water check return duct installed longer than supply duct check drain hose hang too long and re-installing with shortened length.
Decreasing of heating efficiency	※Heating resistance value is 0 [ $\Omega$ ] ※Fan operation stopped ※Excess heating prevent setted is lower temperature	Change Heater Check motor wiring Temperature of excess heating prevent re-set as 50 °C



# Maintenance Guide

## Periodical maintenance

▷ Following items should be checked on periodically to extend the life span of machinery and to avoid in advance the troubles during its use.

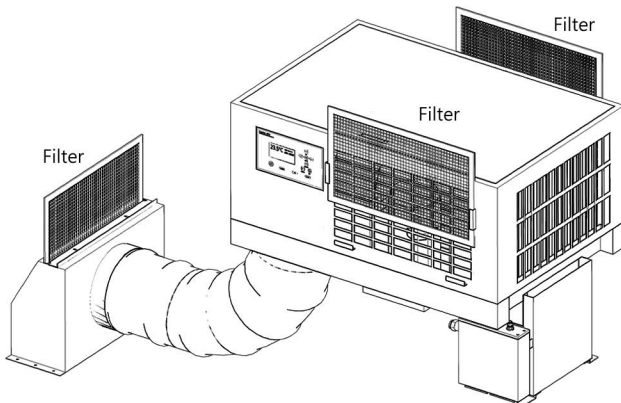
Items	Maintenance period
Cleaning Filters (unit filter 2 EA, return scooper filter 1 EA)	once a month
dust of coil in Evaporator/Condenser coil (Removal by brushing, after opening each cover of coil)	more than once a year
Removal of foreign material in vaporizer tank	once a year
state of motor, compressor, fan	once per 3 years
Inspection of Control Kit	once per 3 years

## How to clean chloride filter

▷ Cleaning of chloride filter should be done, with operation stopped.

▷ Washing of chloride filter depends on air pollution and operating time, but it should be cleaned one month of cleaning period.

- ① Filter consists of three in total, with two of unit and one of return scooper.
- ② Take filter out of unit and return scooper.
- ③ Remove foreign material by vacuum cleaner or soft brush using water.  
(If the dirt is severe, wash it with neutral detergent.)
- ④ After washing with neutral detergent, dry it out in shadow of good ventilation.



# Maintenance Guide

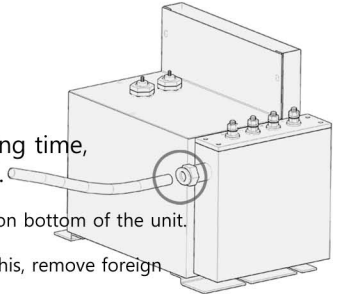
## How to clean vaporizer tank

▷ Please power off of unit.

▷ Cleaning of evaporator depends on air pollution and operating time, but it can be done every year before cooling operation started.

- ① Condensate evaporator (disposal equipment for condensed water) is installed on bottom of the unit.
- ② Separate condensate evaporator from its unit.
- ③ Open condensate evaporator cover and clean its inside parts with water. On this, remove foreign material with brushing.
- ④ Separate level pad of condensate evaporator and remove foreign material fixed to electrode pole.

▷ Removal way of drain hose: It is removed by pushing back its flange of one touch fitting and pulling hose. For its coupling, it can be pushed firmly on and pulled out to be hooked by inner flange teeth.

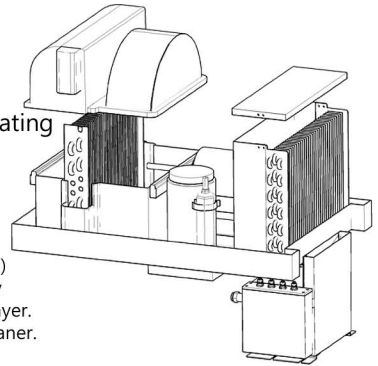


## Handling mode of heat exchanger

▷ Please power off of unit.

▷ Cleaning of heat exchanger depends on air pollution, operating time, but it can be done periodically once a year.

- ① Open cover, pulling out cover handler of unit.
- ② Dismantle Evaporator and Condenser cover.
- ③ Check dusty obstruction of heat exchanger coil.  
(Cooling capacity is widely decreased in case with serious dusty obstruction.)
- ④ As for heat exchanger filled with dust and foreign material, wash it out by brushing from upper direction to downward, after wetting it with water sprayer.
- ⑤ Clean dust and foreign material of heat exchanger around by vacuum cleaner.
- ⑥ Assemble it by opposite way to dismantle unit after cleaning.



- ▷ Clean heat exchanger pin, only equipped with protection tools to avoid any injury due to its much thinness.
- ▷ Use soft type of brush. It can be cleaned by nylon brush for general washing.
- ▷ As for brush washing, keep careful not to bend or damage heat exchanger pin by force.
- ▷ Wetting of the heat exchanger coil dust by water sprayer shouldn't be spilled on.

# Warranty

Product	Air-L Air-con	Model	L13P/L17P/L24P
Installation date		Warranty period	2years
consumer	Name		
	Address	□□□-□□□	
	Contact		

- This product is assumed the responsibility from our company in all route.
- This product is accepted by technical team who has a strict and close inspection test.
- Under the terms of the warranty, a product found to have defects due to poor quality materials or substandard workmanship will be replaced.

## Consumer Indemnification Due

Consumer indemnification type	Indemnification contents	
	Within warranty period	Since warranty period
poor quality materials	Product exchange	
breakdown from normal status	Repair free	Repair at a cost
breakdown from consumer	Repair at a cost	Repair at a cost

## Non-free Services

### 1.Not breakdown

(First of all, please read the user manual. If not breakdown and ask our s ervices, it is caused a cost.)

- To impede unit ability from dust obstruction of filter coils.
- Ice stack in evaporator coil lateral  
(please refer page 23 'Checklist before contacting a/s')

### 2.Breakdown from consumer

- unit remodeling illegal
- Incorrect electric power using(ex. 220v-110v)
- repair from unidentifiable person not our company.

### 3.etc

- Filter clean or coil dust clean
- product re-install
- breakdown from natural disaster

# Carrier APA

Air-conditioning Practical Application Service Co.  
Muginae dong 351-1, Siheung-si, Gyeonggi-do, Korea

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