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# COMMERCIAL DISPLAY CASE

# Operation Manual

**Importance:**

**For your safety, read the manual carefully before installing or using this product.  
Save this manual for future reference .**

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## **contents**

A. acknowledge of use .....	3
B. brief introduction to products .....	3
C. safety sign .....	3
D. ready item for transportation and opening package .....	3
E. notice in operation .....	4
F. maintenance .....	8
G. exception handles and after-sale service .....	10

Attachment : electronical thermostat adjustment

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## A. acknowledge of use

Dear Clients:

Thanks for your purchase my company products. Be sure to take advantage of all products to offer, read these instructions carefully and operate properly. If there is any new alternation we will not be obliged to inform.

## B. brief introduction to product

My company display case is a high performance product, featuring an advanced design and technology, high reliability and constructive quality.

My company products hold grand appearance, definite functions, showing relevant cold or frozen foods. our display case is supermarket, restaurant, shopping mall best selection.

We are sincerely hope my company Display case bring excellent showing efficiency and economic benefit for you.

## C. safety and sign

Safety: display case should install on the place where coincide with operation manual.

Authorization: all works to my company display case and cooling system should be operated by qualify authorized skilled staff

Safe operation: in order to avoid danger maybe happen, before operation all workers must read carefully such operation manual

Safety sign: safety sign has been special point out, in order to avoid danger sign must be obey wholly

attention!



Prevent possible danger to equipment occur

carefully!



Prevent possible danger to person occur

caution!



Prevent serious danger to person occur

Danger!



Prevent fatal accident to person occur

## D、 ready item for transportation and opening package




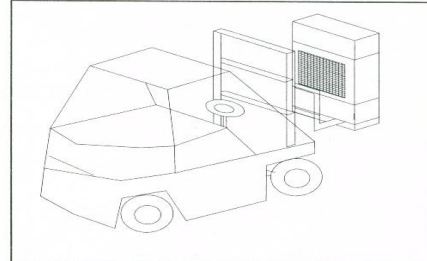
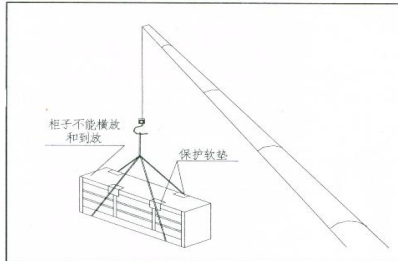
There are glass or other easy smash goods in equipment and package, please be carefully in transporting, handling or moving equipment.





When receive equipment, please check and examine all products as per packing list listed, only confirming all products are good without damage or missing can accept products. If there is visible destroy or damage please remark on the transportation documents or receipt and confirmed signature by transportation agent, unless transportation agent can reject claims for compensation. At the same time please contact


with local staff, our local staff will provide necessary examination paper for claims for compensation.


 Unload from truck, double fork is necessary and more attention for safety ,if unload by crane,  $\phi 10\text{mm}$  or above tightwire or metal strip should bind to pointed place, slowly unload to ground.




 When moving equipment please move wooden pallet under equipment bottom, do not carry or seize equipment parts avoid to damage; Meanwhile equipment should be delivery balanced, no slant, no fell flat, no upset equipment.

 There are one set of operation manual, one eligible certificate, one contract products packing list, one set of assembly packing list (if there is no assembly needed, there is no such packing list),please check each listed item .


 To Split model of display case, cabinet, unit and assembly installation should be made by our company authorized staff ,please do not open package avoid damage to cabinet and accessory.

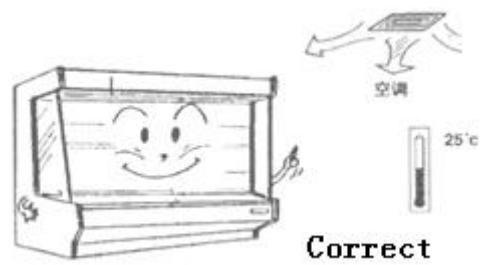
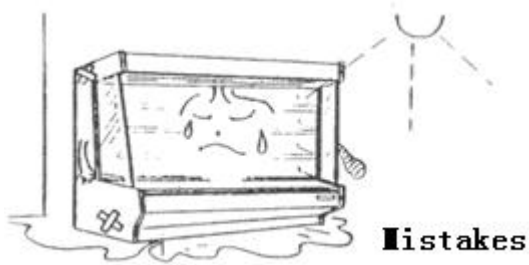
 Please slowly and softly operation when opening package avoid damage to display case and accessory; remove display package please do not confuse or miss parts and accessory within package, please install directly in place

 If damage or destroy only found after opening package, claim must be made for loss. Once find damage written application for transportation agent to check ,examination must be made within 15 days, keep all package for examination too.

## **E.、 notice in operation**

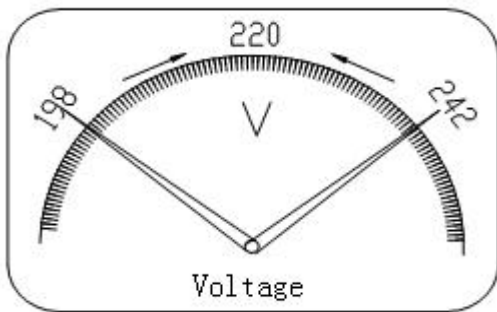
### **1、 emplace**

 Display case must be used indoor, can't be used outdoor, should be used in supermarket, restaurant, shop where air-conditioner working well, in where temperature keep  $25^{\circ}\text{C}$  or below, humidity 60%,environment wind speed $\leq 0.2\text{m/S}$  and without heat fountainhead effect. when temperature, humidity or wind speed in high condition freezing efficiency of display case couldn't meet to use requirement.

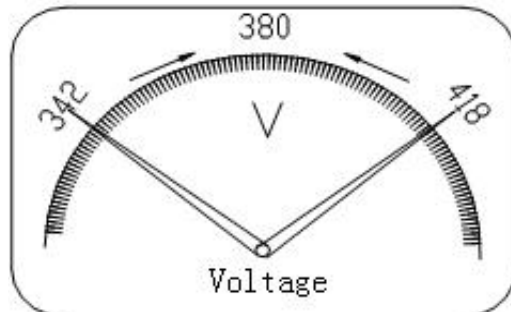


**idiographic use requirement:**

☞ In using voltage should keep within rated voltage  $\pm 10\%$ , if voltage unstable please select safe and reliable regulator



Allow rated voltage 220v range



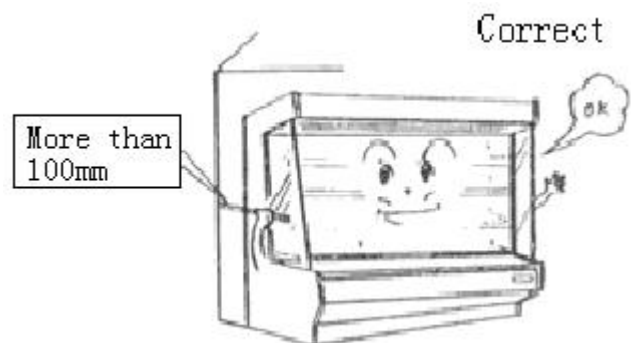
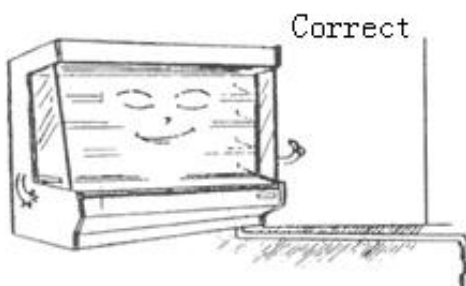
allow rated voltage 380v range

ⓘ Power supply of display case and cooling unit where should add display case appropriate electricity creepage safeguard

ⓘ Cooling unit environment temperature should below  $32^{\circ}\text{C}$ , environment cleanness, no dirty, no sundries, unit in room should in good ventilation; if exposure in air there should add anti-rain, anti-sun sail, wire netting protector.

☞ Display case must be installed on level off ground, notice installation even, guarantee drainage swimmingly

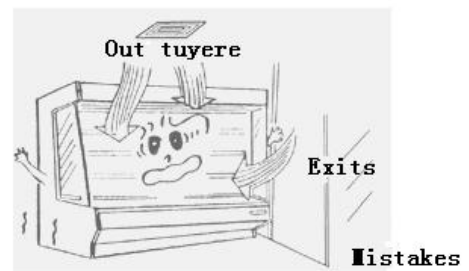
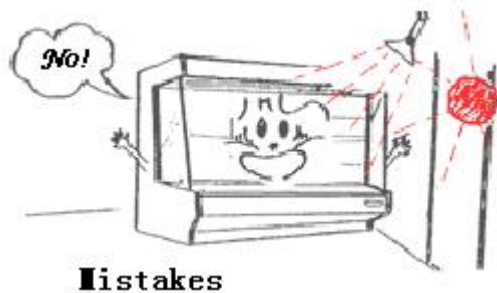
☞ When place against wall, there must be 110mm gap between cabinet backboard and wall, avoid cabinet backboard dew




☞ Avoid install display cabinet on the place sun, light point-blank or near by heat fountainhead


☞ Avoid install cabinet near by pass in and out of wind, exit of ventilation, fan or door,


window turn or off frequently, avoid air curtain of display case effected negatively




## 2、 installation


 notice for moving display case, please refer to <D. ready item for transportation and opening package> part.


 Unload ground bolt, down lift cabinet, set up ground bolt to branch leg ,place display case to position selected


 Take out parts within inner display case, check as per packing list if all parts are there


## 3、 cabinet make up


 Stick sponge adhesive tape to cabinet make up panel, equably and non-corrosiveness spread airproof glue on the outside of sponge adhesive tape


 Move two cabinet which want to make up as near as possible, adjust ground bolt and cabinet, line the front and back, top and bottom


 Fit localizer on the anchor point, close up two cabinets


 Joint cabinet and fix them by bolt and nut

 Fit accessories of each display case, please be noticed that each accessory (such as shelves, support arm, label and so on) should be same position and incline angle


 According to reserved drainage place, fit each case drain elbow, ternate tie-in and so on, please be careful spread reasonable adhesive glue on every joint part to guarantee no water leakage



 Dispose, install and connect refrigeration pipeline and electric control wiring according to project design

 After air tight test pressure confirmed, exhaust air then impregnate freon, then examine if electric error or not






 Fit decorative panel (including bottom panel, side panel, top panel), joint with decorative panel

 Check every accessory, adjust and modulate every parts to appropriate condition

 Examine fixed implement, refrigeration parts and accessory if there is missing ,error


- 
-  Clean inner and outer of cabinet, accessory with alcohol and detergent
  -  Deliver operation manual and usual spare parts to user and explain using methods to user, user signature on the delivery paper, installation finish

#### **4、 use**


-  Interspace should be reserved in display case when put foods in order that cooling air circulation and foods deposited
-  Foods should not exceed or barrier draught back entry to avoid cooling air no circulation
-  Do not put foods on the draught back entry in case, unless temperature couldn't meet to requirement in case
-  Caution: do not put frozen foods or cold foods to wrong display case
-  In order to lessen unnecessary foods waste and energy loss, foods should have reasonable package in case at same time please lessen opening, take out foods frequency as possible


#### **5、 using safety concerned**


Connect power to run the display case, put into showing products only after temperature in case decline to rated range (refrigeration: 5°C~10°C ,freeze: 5°C~10°C)


 Individual three-core single socket fitted with reliable ground wire and suitable air switch with electricity creepage safeguard, ground wire could not select neutral conductor of network or water pipe or caliduct


 Do not keep flammable, explosive, volatile gas or liquid in case


 Before clean cabinet general power supply must be cut off, only no power confirmation can clean and clear cabinet


 Soft cloth dipped with neutral non-corrosiveness scour wipe cabinet and parts, then clean with dry cloth. Do not use acidic, alkaline or corrosive, poisonous scour to clean cabinet


 Take or put into foods softly, do not throw or chuck foods avoid to damage cabinet and accessory


 Cut off power please connect power again after 5 minutes avoid to damage electric parts in display case

 Periodic check evaporator defrost in case, if defrost not so clean please contact skilled staff to resolve

 For the sake of energy consumption please pull out night blind when market closing

 Pull out or close night blind slowly and softly till to night blind into position avoid to damage night blind and accessory

 Please arrange staff examine display case regulates , notice temperature transformation and record temperature digit; if find any problem please contact manufacturer or local service people without delay, settle trouble to guarantee usual use display case, avoid unnecessary loss for you.

 In using do not take out foods by wet hand or stand by case long time avoid frostbite person

## F. maintenance

### 1、 display case cabinet maintenance


frequency	parts	contents	remarkable issue
Everyday discover clean in time	appearance parts	1.Water soiled, besmirch wipe 2.Rust vestige clean	1.Clean with water, with neutral scour if necessary 2. Do not use corrosiveness solvent 3. Pay more attention to clean merchandise containing salt
	shelves and panels	1.Water soiled, besmirch wipe 2.Merchandise trifling, dunghill clear	every hole and corner should clean avoid bacterial multiply
	case cessory and food rack net	1.soiled,besmirch wipe 2.Partition net, price code clean	clean ice ,dunghill in net hole, crack
once/month	cabinet and all accessory	Water soiled, besmirch wipe	notice clean and clear outside and inside everywhere
	viewfinder	Water soiled, besmirch , dust wipe	use neutral scour notice glass edges and corners
	lighting	1.dust,besmirch wipe 2. moisture wipe	clean in time moisture in fluorescent lamp avoid electric short circuit burn
	launch exit, evaporator shelves, evaporator room	dunghill, sundries clean and clear	do not pour sundries into drainage pipeline avoid to block channel
	compressor room, refrigeration unit	refer to evaporator clean	notice must cut off power supply then operate
Once/3 months	cabinet place with draught back entry	1.Merchandise trifling, dunghill clear 2.Deposited merchandise clean 3.Drainage pipe exit block clean 4.Swash with clean water	remove relevant spare parts, such as guide glass, side glass, low shelves and so on. Pay attention to keen-edged steel edges and corners, bolt neb and so on, beware scratch
	Evaporator fan motor	appendiculate wipe and clear	Notice: prevent water into fan motor





	evaporate room	1.Merchandise trifling, dunghill clear 2.Deposited merchandise clean	Notice: keen edges and corners of steel ,ice and frost on evaporator couldn't knocked and root out by tools
	compressor room, compressor unit	1.Dust in compressor room clean 2.Condensor dust clean 3.Refrigeration system examination 4.Joint wire of electric parts examination	Notice: prevent water into electric components, avoid pipeline and electric wiring destory

## 2、refrigeration system maintenance


Condensor maintenance: condensor is main heat disperse components in refrigeration system, which heat disperse aluminium sheet easily cling dust, poor situation decline compressor cooling capacity temperature in cabinet rise;severity situation can burn compressor lead to magnitude loss


 Before clean chief power supply must be cut off,guarantee there is no power supply can operate start


 Swash condensor from up to down with water,swash uniformly to each wing of condensor

 When oil besmirch or dust badly,neutral scour or special aluminium besmirch scour should be added to swash

 Caution:prevent water into fan motor,compressor and such electric components


 Finish evaporator rinse,puff wash condensor with high pressure nitrogen or compressed air,puff out water and filth between wing


 Caution: do not puff to the direction of fan motor,compressor


 Check condensor fan motor,compressor and such electric components,all components in good condition can power supply and start machine


### compressor and electric implement maintenance


 Check compressor bottom foundation is fixed or not,lessen crowded or shift


 Check compressor or unit oil mirror,oil level should between 1/2 ~ 2/3 on oil mirror (shut down condition), between 1/4 ~ 2/3 (running condition)


 Check system pressure controller,temperature thermostat,defrost controller,oil pressure controller,cooling spray system and three way cock,close cock and such components condition

 Check lighting components,temperature display instrument,electromagnetic valve,heater elements working condition


 Check electric wiring fasten or not,every joint point insulation and airproof


 Check power supply each phase voltage, phase sequence meet to demand, relevant phase voltage imbalance  $\leq 3\%$ , compressor, condenser fan motor supply phase voltage and phase sequence right

 Observe if unconventionality noise or phenomena when system working

 caution: power supply must be cut off when check electric components, or check by authorized staff

### drainpipe maintenance

 Check cabinet inside and outside drain situation, guarantee outfall no ice or dirty block

 Check drainpipe, guarantee drainpipe slope lead to ground leak, gradient 1/50 ~ 1/200

 Check drainpipe leakage, disrepair

## G、Trouble, settlement

### Usual trouble reason and settlement

trouble	possible trouble parts	reason	settlement
compressor no start	power supply	<ol style="list-style-type: none"> <li>1. switch off</li> <li>2. fuse off</li> <li>3. voltage too lower</li> </ol>	<ol style="list-style-type: none"> <li>1. turn on switch</li> <li>2. check and renew fuse</li> <li>3. check power supply and wiring pathway</li> </ol>
	electric component	circuit disconnection or touch badness	Check circuit, connect well
	controller component or protector	<ol style="list-style-type: none"> <li>1. thermostat work but electricity off</li> <li>2. high pressure work no well</li> <li>3. low pressure work no well</li> <li>4. electromagnetic valve close</li> <li>5. start relay no work</li> <li>6. operator relay work no well</li> <li>7. over loading protector disconnection</li> </ol>	<ol style="list-style-type: none"> <li>1. wait for thermostat work</li> <li>2. wait for action point close, pressure recovery then turn on start button</li> <li>3. wait for action point close, pressure recovery</li> <li>4. check electromagnetic valve if damaged then renew</li> <li>5. check ,repair or renew</li> <li>6. check ,repair or renew</li> <li>7. wait for work, or check or repair or renew</li> </ol>
	refrigerant	refrigerant leakage	Check and block leakage, repair then fill in refrigerant

	compressor	1. compressor inner mechanism trouble 2. compressor inner motor burn	1. repair and renew 2. check out reason and renew	
Start then soon stop,protect or work	power supply	fuse broken	check capacity and renew	
	over load protector	1. over load protector setting value too low 2. electricity exceed 3. voltage too low or three phases imbalance 4. condensation no well or condensation pressure too high 5. evaporate pressure too high	1. modify setting value 2. check reason and modify 3. check reason and modify 4. check reason and modify 5. check reason and modify	
	safety protector	high pressure switch work	1. mix air in system 2. condensor dirty block or environmental temperature too high 3. refrigerant exceed 4. setting value too high	1. eliminatel no refrigeration gas 2. clean condensor or reinforce ventilation 3. reduce refrigerant filling quantity 4. modify setting value
		low pressure switch work	5. refrigerant leakage or filling less quantity 6. expand valve start no well 7. setting value too high	1. repair leakage point,add refrigerant filling 2. adjust start degree or renew 3. modify setting value
	thermostat	thermostat setting improper	modify setting value	

	compressor over hot	<ol style="list-style-type: none"> <li>1. voltage too high or low</li> <li>2. three phase voltage phase shortage</li> <li>3. refrigerant not enough, motor cooling no well</li> <li>4. pressure output over high</li> <li>5. inhalational gas temperature too high</li> <li>6. mix no refrigeration gas</li> <li>7. compressor cooling capacity shortage</li> </ol>	<ol style="list-style-type: none"> <li>1. check power supply, guarantee within rated voltage <math>\pm 10\%</math></li> <li>2. check switch touch point and fuse</li> <li>3. fill refrigerant</li> <li>4. check condensation, ventilation</li> <li>5. adjust expand valve or buildup inhalation pipe heat prevervation</li> <li>6. eliminate no refrigeration gas</li> <li>7. reinforce ventilation, debase environment temperature</li> </ol>
unconventional sound in running	liquid condensation	<ol style="list-style-type: none"> <li>1. stop running, liquid refrigerant keep in crooked axis cabinet, start then lubricant oil and liquid refrigerant condensed</li> <li>2. refrigerant filling too much</li> <li>3. expand valve open exceed, liquid flow backwards</li> </ol>	<ol style="list-style-type: none"> <li>1. augment oil tunk, reduce liquid refrigerant flow to compressor, when long time stop machine please run crooked axis cabinet heat element</li> <li>2. reduce refrigerant</li> <li>3. adjust expand valve opening degree</li> </ol>
	refrigeration pipeline	pipeline tremble	fasten pipeline
	unit foundation	installtion bolt lossen and tremble	fasten bolt, renew shakeness structure
	compressor	<ol style="list-style-type: none"> <li>1. motor magnetic noise</li> <li>2. link, bearing abrasion</li> <li>3. mix with impurity</li> <li>4. inspiration, exhaust valve disrepair.</li> </ol>	<ol style="list-style-type: none"> <li>1. check reason and renew</li> <li>2. check reason and renew</li> <li>3. check reason and renew</li> <li>4. check reason and renew</li> </ol>
refrigeration efficiency no well	exhaust pressure too high	<ol style="list-style-type: none"> <li>1. mix no refrigeration gas</li> <li>2. refrigerant filling too much</li> <li>3. condensor dirty block</li> <li>4. sun-light directly</li> <li>5. compressor ventilation no well</li> </ol>	<ol style="list-style-type: none"> <li>1. eliminate no refrigeration gas</li> <li>2. reduce refrigerant filling</li> <li>3. clean condensor, boost up ventilation</li> <li>4. avoid sun-light directly</li> <li>5. boost up ventilation, avoid air recycle</li> </ol>

	exhaust pressure too low	<ol style="list-style-type: none"> <li>1. refrigerant not enough</li> <li>2. environment temperature too low</li> <li>3. expand valve opening exceed</li> <li>4. compressor condensation capacity letdown</li> </ol>	<ol style="list-style-type: none"> <li>1. add refrigerant filling</li> <li>2. reduce condensor ventilation</li> <li>3. adjust expand valve opening degree</li> <li>4. check compressor inspiration and exhaust valve leakage</li> </ol>
	inspiration pressure too high	<ol style="list-style-type: none"> <li>1. load exceed</li> <li>2. expand valve opening degree exceed</li> <li>3. compressor compress capacity letdown</li> </ol>	<ol style="list-style-type: none"> <li>1. check load capacity and adjust</li> <li>2. check thermostat connection; adjust expand valve opening</li> <li>3. check inspiration and exhaust valve of compressor leakage</li> </ol>
	inspiration pressure too low	<ol style="list-style-type: none"> <li>1. load capacity lessen</li> <li>2. evaporator frost too much</li> <li>3. expand valve block or adjust no well</li> <li>4. pipeline leakage or draught back pipe block</li> </ol>	<ol style="list-style-type: none"> <li>1. check load capacity and adjust</li> <li>2. defrost</li> <li>3. check, adjust or renew</li> <li>4. check, repair filter or blocked or leakage parts</li> </ol>