

File SA13296
Project 4786420983

May 29, 2014

REPORT

On

HOUSEHOLD FREEZERS

NINGBO HICON INTERNATIONAL INDUSTRY CO. LTD.
Ningbo, Zhejiang, China

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DESCRIPTION

PRODUCT COVERED:

USL, CNL-Free standing type household freezer, Model BD-88-E, BD-40-E, HFU0100ACW, BD-136-E, BD-60-E, **BD-88B-E**.

GENERAL:

The model covered by this Report is intended for Free standing type in household use with a manual defrost. Manual defrosting is accomplished by mechanical temperature control or by electric control which powered by class 2 power supply.

The model employs Refrigerant R-600a (flammable refrigerant, classified as Class 3 "Higher Flammability" by ASHRAE34) and was evaluated following additional requirements of UL60335-2-24. The cooling system is considered a protected or unprotected cooling system.

TECHNICAL CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVE'S USE):

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Products designated USL have been investigated using **US requirements as noted in the Test Record**.

Products designated CNL have been investigated using **Canadian requirements as noted in the Test Record**.

RATINGS:

See MARKING.

CONSTRUCTION DETAILS:

Electrical Spacings - Unless otherwise noted in this Report, the spacings between uninsulated live parts of opposite polarity and between uninsulated live parts and dead-metal parts are not less than 1/8 in. through air, 1/4 in. oversurface, and 1/4 in. to the enclosure.

RATINGS:

See MARKING.

INSTRUCTIONS:

Each unit is provided with installation and operating instructions.

The instructions include the following wording regarding the use of extension cords: "CAUTION, DO NOT USE EXTENSION CORD".

The instructions shall include the following wording regarding child entrapment:

"DANGER: Risk of child entrapment. Before you throw away your old refrigerator or freezer:

Take off the doors

Leave the shelves in place so that children may not easily climb inside".

Note: It is necessary to have CAUTION, WARNING, and DANGER markings in both English and French.

Cord connected units only.

MODEL DIFFERENCE:

The corresponding alternate model is identical to the basic model except for the model designation.

Basic Model	Corresponding Alternate Model
BD-40-E	HFU0100ACW

CONSTRUCTION DETAILS:

Electrical Spacings - Unless otherwise noted in this Report, the spacings between uninsulated live parts of opposite polarity and between uninsulated live parts and dead-metal parts are not less than 1/8 in. through air, 1/4 in. oversurface, and 1/4 in. to the enclosure.

10 MARKING:

10-5 Nameplate Marking	Recognized (PGDQ2,8 or PGJI2, 8)				
Model	BD-88-E	BD-40-E	BD-136-E		
Material					
Manufacturer	Various				
Recognized Designation	Various				
Location	Back Side Panel				
Secured By	Adhesive				
Listee Name	Ningbo Hicon International Industry Co. Ltd.				
Refrigerant					
- Type	R600a	R600a	R600a		
- Amount	1.07 oz (30g)	0.85 oz (24g)	1.83 oz (52g)		
Design Pressure					
High Side, psig	250	250	300		
Low Side, psig	88	88	88		
Electrical Rating					
V	115	115	115		
A -	1.1	0.8	1.0		
Frequency, Hz	60	60	60		

10 MARKING:

10-5 Nameplate Marking Recognized (PGDQ2,8 or PGJI2, 8)
Model

Material	BD-60-E	BD-88B-E
Manufacturer	Various	
Recognized Designation	Various	
Location	Back Side Panel	
Secured By	Adhesive	
Listee Name	Ningbo Hicon International Industry Co. Ltd.	
Refrigerant		
- Type	R600a	R600a
- Amount	1.07 oz (30g)	33g
Electrical Rating		
V	115	115
A -	1.2	1.1
Frequency, Hz	60	60

10-2 Special Marking

Model	All (for units with a lock key only)
A. Type or Material	
Manufacturer	Various
Recognized Designation	Various
Location #1	Adjacent to key on a notice
Quote Marking	To Prevent A Child From Being Entrapped, Keep Out Of Reach Of Children And Not In The Vicinity Of Refrigerator. Quote provided in English and French.
Alternate location #1 and quote	
Location #1	Stamped on door key body
Quote Marking	WARNING: TO HELP PREVENT CHILD ENTRAPMENT KEEP KEY OUT OF REACH OF CHILDREN AND AWAY FROM CABINET.
Location #2	Over or adjacent to the key slot of the lock
Quote Marking	"See notes on the keys" or similar wording
B. Type or Material	
Manufacturer	Various
Recognized Designation	Various
Location	Nameplate or adjacent label
Quote Marking	"Free-Standing Installation only" (letters not less than 4.8 mm [3/16 in.] high.)

Note: The door lock device is optional.

10-2 Special Marking (Cont'd)

C. Type or Material

Manufacturer	Various
Recognized Designation	Various
Location	Unit Rear, above machine compartment
Quote Marking	

*1) **DANGER - Risk Of Fire Or Explosion. Flammable Refrigerant Used. Do Not Use Mechanical Devices To Defrost Refrigerator.** Do Not Puncture Refrigerant Tubing.



*2) **DANGER - Risk Of Fire Or Explosion. Flammable Refrigerant Used. To Be Repaired Only By Trained Service Personnel. Do Not Puncture Refrigerant Tubing.**

*3) **CAUTION - Risk Of Fire Or Explosion. Flammable Refrigerant Used. Consult Repair Manual/Owner's Guide Before Attempting To Service This Product. All Safety Precautions Must be Followed.**

*4) **CAUTION - Risk Of Fire Or Explosion. Dispose Of Property In Accordance With Federal Or Local Regulations. Flammable Refrigerant Used.**

5) **CAUTION - Risk Of Fire Or Explosion Due To Puncture Of Refrigerant Tubing; Follow Handling Instructions Carefully. Flammable Refrigerant Used.**

D. Type or Material

Location	A process tube on a compressor.
Quote Marking	

A process tube on a compressor shall be painted or colored red, Pantone® Matching System (PMS) No. 185. The Color mark shall extend at least 2.5 cm (1 inch) from the compressor.

10-2 Special Marking (Cont'd)

E. Type or Material

Manufacturer	Various
Recognized Designation	Various
Location	Shipping Carton
Quote Marking	

CAUTION - Risk Of Fire Or Explosion Due To Puncture Of Refrigerant Tubing;
Follow Handling Instructions Carefully. Flammable Refrigerant Used.

Comments	The markings shall be in letters no less than 6.4 mm high.
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F. Type or Material

Models	BD-60-E
Manufacturer	Various
Recognized Designation	Various
Location	Unit Rear
Quote Marking	

The type of flammable insulation blowing gas - CYCLOPENTANE.

Comments: The height of the letters used for the marking of the type of
flammable insulation blowing gas shall be at least 40 mm.

20 ENCLOSURES:

20-5 Ultimate Enclosure

Model	BD-88-E	BD-40-E
Approximate Physical Size (including door), H x W x D, mm.	805 x 515 x 550	500 x 445 x 465
Model	BD-136-E	BD-60-E
Approximate Physical Size (including door), H x W x D, mm.	1000x540x605	635x445x545
Model	BD-88B-E	
Approximate Physical Size (including door), H x W x D, mm.	805 x 515 x 540	

20-10 Unit Base

Model	All
Material	Galvanized Steel
Thickness, mm	0.8 Minimum
Corrosion Protection (Method)	Powder Painted or Galvanized Steel
Bonding for Grounding (Method)	Grounded by the power cord

20-15 Unit Sides/Top

Model	All
Material	Steel
Thickness	0.33 mm Minimum
Corrosion Protection (Method)	Painting or Pre-painting
Bonding for Grounding (Method)	Through screws to unit base

20-20 Unit Rear

Model	BD-88-E	BD-40-E	BD-136-E	BD-60-E
Material	Steel			
Thickness	0.25 mm Minimum			
Compressor Compartment Opening H x W, mm	205 x 440	190 x 375	206 x 480	190X380
Corrosion Protection (Method)	Painting or Pre-painting or Galvanized steel			
Bonding for Grounding (Method)	Incorporate with unit sides			
Model	BD-88B-E			
Material	Steel			
Thickness	0.25 mm Minimum			
Compressor Compartment Opening H x W, mm	190X450			
Corrosion Protection (Method)	Painting or Pre-painting or Galvanized steel			
Bonding for Grounding (Method)	Incorporate with unit sides			

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20-25 Machine Compartment Top

Model	All
Material	Steel
Thickness, mm.	Min. 0.2
Corrosion Protection (Method)	Galvanized or Paint Coating
Bonding for Grounding (Method)	Screw-connected with unit base.

20-30 Unit Cabinet Base

Model	All
Material	Steel
Thickness, mm.	Min. 0.2
Corrosion Protection (Method)	Galvanized or Paint Coating
Bonding for Grounding (Method)	Incorporate with unit sides and Machine compartment top

20-35 Cabinet Liner

Model	All
Material	Polymeric, see Section 30 for details.
Bonding for Grounding (Method)	Not required

20-40 Unit Doors

Model	All	
Material	Steel with plastic frame	Tempered-glass with plastic frame
Thickness,	0.4 mm Minimum	3.0 mm Min.
Corrosion Protection (Method)	Painting or Pre-painting or Stainless	Inherent
Comments	Alternate material tempered-glass for the outside layer, its edge covered by plastic frame.	

20-45 Cabinet Door Liner

Model	All
Material	Polymeric, see Section 30 for details.
Bonding for Grounding (Method)	Not required

20-50 Door Latching Device

Model	All
Type	Gasket

+ - If polymeric, see Section 30 for details.

20-55 Control Enclosure

Model	BD-88-E, BD-136-E
Material +	Plastic, See Sec. 30
Thickness, mm +	2.5
Location	Inside Freezer
Method of Securement	Secured by screws
Components within	Thermostat

Model	BD-40-E, BD-60-E
Material +	Sheet metal with painting, or Polymeric, see Section 30 for details
Thickness, mm +	Min. 0.45 for sheet metal, min 2.5 for polymeric
Physical Size, L x W x H, mm	120 x 55 x 40
Location	Rear of unit, near compressor
Method of Securement	Screwed to unit cabinet by screws
Components within	Thermostat

Model	BD-88B-E
Material +	Plastic, See Sec. 30 for deatils
Thickness, mm +	2.0 min.
Location	Inside Freezer
Method of Securement	Screwed to unit cabinet by screws
Components within	Thermostat

+ - If polymeric, see Section 30 for details.

20-55 Control Enclosure (Cont'd)

Model	All models with Electric Control (powered by class 2 power supply) only
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a) Low-voltage Control PWB Enclosure

Location	Located at top of unit door frame, outside of cabinet, see Fig. 9 for details
Material	Polymeric, see Section 30 for details.
Physical Size, L x W x H, mm	Include Cover and bottom enclosure, two pieces construction. See Ill.10 for details
Method of Securement	Screwed to top door frame by 2 screws
Components Within	Electric control PWB and temperature display module, powered by class 2 power supply.

b) High-voltage PWB Box

Location	Located in machine compartment
Material	Polymeric, see Section 30 for details.
Physical Size, L x W x H, mm	See Ill. 11 for details
Method of Securement	Screwed to sheet metal by screws, in machine compartment, near compressor

30 NONMETALLIC COMPONENTS:

Door Liner (Vacuum Formed), Cabinet
Liner, Low-voltage Control PWB
Enclosure (electric control models
only)

Recognized (QMFZ2)

Manufacturer

Various

Material Designation

Various

Thickness, mm (minimum)

1.0

Flammability Classification
(minimum)

94HB

Thermostat Enclosure, High-voltage PWB
Box (Class 2 power supply)

Recognized (QMFZ2)

Manufacturer

LG CHEMICAL LTD

Material Designation

AF-312B

Thickness, mm (minimum)

2.0

Flammability Classification
(minimum)

94-5VA

Alternate, same as above except

Manufacturer

Chi Mei Corporation

Material Designation

PA-765 or PA-765A

Alternate, same as above except

Manufacturer

LG CHEM LTD (E67171)

Material Designation

AF365F

Thickness, mm (minimum)

2.0

**Flammability Classification
(minimum)**

5VA

30-5 Isolation from Ignition Sources

Model

All

All unit wiring is Recognized (AVLV2, AVLV8 or CSA Certified) and rated VW-1, FT-1 or Listed SJT (rated FT-1 or FT-2) power cord. All wiring is routed and secured within the machine compartment or the cabinet liner. All wire splices are totally insulated and there are no exposed live parts. There are no open coils or exposed high voltage parts.

40 REFRIGERATION SYSTEM:

40-5 Condenser

Model	BD-88-E	BD-40-E	BD-136-E
Manufacturer	Yuyao Handa Group Co. Ltd		
Alternate Manufacturer	Ningbo New Hicon Electrical Appliance Co., Ltd		
Corrosion Protection (Method)	Inherent		
Mounting (Method)	Adhered inside foam		
Bonding for Grounding (Method)	Through tubing to compressor		
Type of Construction	Continuous Tube		
Tubing Material	Steel		
Tubing OD, mm	4.0	4.0	4.0
Tubing Wall Thickness, mm	0.5	0.5	0.5
Total Tubing Length, mm	Approximately 8000	Approximately 8500	Approximately 19500
Return Bend OD, mm	N/A	N/A	N/A
Return Bend Thickness, mm	N/A	N/A	N/A

Model	BD-60-E	BD-88B-E
Manufacturer	Yuyao Handa Group Co. Ltd	
Alternate Manufacturer	Ningbo New Hicon Electrical Appliance Co., Ltd	
Corrosion Protection (Method)	Inherent	
Mounting (Method)	Adhered inside foam	
Bonding for Grounding (Method)	Through tubing to compressor	
Type of Construction	Continuous Tube	
Tubing Material	Steel	
Tubing OD, mm	4.0	4.0
Tubing Wall Thickness, mm	0.5	0.5
Total Tubing Length, mm	Approximately 11800	Approximately 12600
Return Bend OD, mm	N/A	N/A
Return Bend Thickness, mm	N/A	N/A

40-10 Evaporator

Model	BD-88-E
Manufacturer	Ningbo Zhengling Industry Co., Ltd
Alternate Manufacturer	Zhejiang Kangsheng Pipe Industry Stock Co.,Tld
Corrosion Protection (Method)	Inherent
Mounting (Method)	Adhered inside foam
Bonding for Grounding (Method)	Through tubing to compressor
Type of Construction	Wires on Continuous Tube
Tubing Material	Steel
Tubing OD, mm	8.0
Tubing Wall Thickness, mm	0.7
* Other Dimensions	See Ill.4 for details

Model	BD-40-E, BD-60-E	BD-88B-E
Manufacturer	Ningbo Zhengling Industry Co., Ltd	
Alternate Manufacturer	Changzhou Xinxing Refrigeration Device Factory	
Alternate Manufacturer	Ningbo New Hicon Electrical Appliance Co., Ltd	
Corrosion Protection (Method)	Inherent	
Mounting (Method)	Adhered inside foam	
Bonding for Grounding (Method)	Through tubing to compressor	
Type of Construction	Continuous Tube	Continuous Tube
Tubing Material	Aluminum	Aluminum
Tubing OD, mm	7.5	7.5
Tubing Wall Thickness, mm	0.75	0.75
Other Dimensions	See Ill.4A for details	See Ill.4C for details

Model	BD-136-E
Manufacturer	Ningbo Zhengling Industry Co., Ltd
Alternate Manufacturer	Changzhou Xinxing Refrigeration Device Factory
Alternate Manufacturer	Ningbo New Hicon Electrical Appliance Co., Ltd
Corrosion Protection (Method)	Inherent
Mounting (Method)	Adhered inside foam
Bonding for Grounding (Method)	Through tubing to compressor
Type of Construction	Continuous Tube
Tubing Material	Aluminum
Tubing OD, mm	8.0
Tubing Wall Thickness, mm	0.7
Other Dimensions	See Ill.4B for details

40-15 Pressure Relief

Model	All
Means Provided	Brazed Joint
Location	At compressor

40-20 Filter and Strainer

Model	All
Manufacturer	Various
Material	Copper
Length, mm	100
OD, mm	19
Wall Thickness, mm	0.5
Location	Rear, near compressor
Corrosion Protection (Method)	Inherent

40-20 Drier/Filter (Cont'd)**Alternate, same as above except:**

Model	All
Manufacturer	XINCHANG COUNTY KANGLIDE REFRIGERATION ACCESSORIES CO LTD (SA44249)
Marking (SMGT2, 8)	KLD-GLQ
Design pressure	362 psig

40-25 Interconnecting Tubing

Model	All
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Material	Copper
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Outside Diameter, in.	Minimum Wall Thickness, in.
1/4, 5/16, 3/8, 1/2	0.0245
5/8, 3/4	0.0315
7/8	0.0410

*

40-30 Refrigerant Control

Model	BD-88-E, BD-88B-E	BD-40-E, BD-60-E	BD-136-E
Capillary Tube - No. Provided	1		
Material	Copper		
ID, mm	0.65	0.6	0.65
Wall Thickness, mm	0.60	0.6	0.60
Length, mm	1500- 3500	1500-2500	2500-3000

40-35 Refrigeration System Joints

Model	All
Method of Joining	Soldered

50 MOTOR - COMPRESSOR ASSEMBLY:

50-5 Compressor

Recognized (SLIS2)

Model

BD-88-E

Manufacturer

Huayi Compressor (jingzhou) Co Ltd

Designation

B43C5B

Electrical Rating

Volts

110~115 V

RLA (Not for Inspector Use)

0.78 A

LRA

3.95 A

Phase

1

Hz

60

Overload Protector

External, Recognized (YFZW2)

Manufacturer

HANG ZHOU STAR SHUAIER ELECTRIC
APPLIANCE CO., LTD

Designation

DRB178N61A1

Compressor Start Assist Device

Recognized (SDFY2)

Type

PTC

Manufacturer

Hang Zhou Star Shuaier Electric
Appliance Co., Ltd.

Designation

QP2-4R7

[x] Part of Recognized motor-compressor assembly.

50 MOTOR - COMPRESSOR ASSEMBLY:

50-5 Compressor

Recognized (SLIS2)

Model

BD-40-E

Manufacturer

NINGBO ANUODAN MACHINERY CO LTD

Designation

QD35Y11G

Electrical Rating

Volts

110~120 V

RLA (Not for Inspector Use)

0.68 A

LRA

3.4 A

Phase

1

Hz

60

Overload Protector

External, Recognized (YFZW2)

Manufacturer

ZHEJIANG WORLD-BU ELECTRONIC CO LTD
(E326516)

Designation

MP4PE174LL45-52

Compressor Start Assist Device

Recognized (SDFY2)

Type

PTC

Manufacturer

ZHEJIANG WORLD-BU ELECTRONIC CO LTD
(SA33369)

Designation

MS2-4.7L-01

[x] Part of Recognized motor-compressor assembly.

50 MOTOR - COMPRESSOR ASSEMBLY:

50-5 Compressor	Recognized (SLIS2,8)
Model	BD-136-E
Manufacturer	Zanussi Elettromeccanica Tianjin Compressor Co., Ltd
Designation	HDL125D
Electrical Rating	
Volts	115 V
RLA (Not for Inspector Use)	1.04 A
LRA	5.28 A
Phase	1
Cycle	60
Bonding for Grounding (Method)	No. 18 AWG green colored ground wire from compressor terminal block to unit base. Each end of the ground wire is secured with a closed eyelet and screw with nut. Eyelets on painted surfaces are provided with serrated-head washers to break the paint.
UL File	SA4882
Report Date	2013-11-29
Overload Protector	Recognized (YFZW2, 8), External
Manufacturer	GUANGZHOU SENBAO ELECTRICAL APPLIANCES CO., LTD
Designation	B80 120
Compressor Start Assist Device+	Recognized (SDFY2,8)
Type	PTC Type
Manufacturer	CHANGSHU TIANYIN ELECTROMECHANICAL CO., LTD
Designation	K115 or BQP2-4.7

[x] Part of Recognized motor-compressor assembly.

50 MOTOR - COMPRESSOR ASSEMBLY:

50-5 Compressor	Recognized (SLIS2,8)
Model	BD-88B-E
Manufacturer	JINGZHOU TIANKE REFRIGERATION CO LTD (SA34011)
Designation	TK48C5
Electrical Rating	
Volts	115 V
RLA (Not for Inspector Use)	1.32 A
LRA	5.2 A
Phase	1
Cycle	60
Bonding for Grounding (Method)	No. 18 AWG green colored ground wire from compressor terminal block to unit base. Each end of the ground wire is secured with a closed eyelet and screw with nut. Eyelets on painted surfaces are provided with serrated-head washers to break the paint.
Overload Protector	External, Recognized (YFZW2,8)
Manufacturer	GUANGZHOU SENBAO ELECTRICAL APPLIANCES CO LTD
Designation	BT52-125A61D3
Compressor Start Assist Device	Recognized (SDFY2,8)
Type	PTC
Manufacturer	GUANGZHOU SENBAO ELECTRICAL APPLIANCES CO LTD
Designation	QP2-4.7

[x] Part of Recognized motor-compressor assembly.

Note:

Ill. 18--IEC 60079-15 (for Group II A gases or the flammable refrigerant)
Certificate of compressor Overload Protector BT52-125A61D3

50-5 Compressor (Alternate)

Recognized (SLIS2)

Model

BD-60-E

Manufacturer

Huayi Compressor (jingzhou) Co Ltd

Designation

L48C5BL

Electrical Rating

Volts

110~120 V

RLA (Not for Inspector Use)

1.0 A

LRA

6.2 A

Phase

1

Cycle

60

Bonding for Grounding (Method)

No. 18 AWG green colored ground wire from compressor terminal block to unit base. Each end of the ground wire is secured with a closed eyelet and screw with nut. Eyelets on painted surfaces are provided with serrated-head washers to break the paint.

Overload Protector

External, Recognized (YFZW2)

Manufacturer

CHANGSHU TIANYIN ELECTROMECHANICAL CO LTD

Designation

ZHB66-125P4.7 S

Compressor Start Assist Device

Recognized

Type

Combination motor start and thermal protector devices

Manufacturer

CHANGSHU TIANYIN ELECTROMECHANICAL CO LTD

Designation

ZHB66-125P4.7 S

[x] Part of Recognized motor-compressor assembly.

70 ELECTRICAL COMPONENTS:

70-5 Temperature Controller Recognized (SDFY2, 8)

Model	All
Use (Loads Controlled)	Compressor
Manufacturer	Hefei Chaoyue Electrical Appliances Co., Ltd
Designation	WPF or WDF series (with or without suffix E or EX)
Rating, FLA/LRA/V ac	8.5/30.0/120
Location (Physical)	Lower right of unit
Mounting	Mounted to control enclosure by screws
Bonding for Grounding (Method)	Through screws to unit cabinet
Marked Switch Positions	N/A

Alternate, all others are same as above except:

A. Manufacturer	Foshan Tongbao Co., Ltd. / Foshan Tongbao Huatong Controller Co., Ltd.
Designation	WPF or WDF series (with or without suffix E)
Rating, FLA/LRA/V ac	6/36/125 or 4/24/250
B. Manufacturer	JIUJIANG HENGTAI AUTOCONTROL DEVICE CO LTD
Designation	WP or WDF series (with or without suffix EX)
C. Manufacturer	CHANGZHOU THERMOSTER ELECTRICAL APPLIANCE CO LTD
Designation	WPFE or WDFE series
Rating, FLA/LRA/V ac	8/36/125 or 6/24/250
D. Manufacturer	JIANGXI TONGDA ELECTRIC APPLIANCE CO LTD
Designation	WP or WD series (with or without suffix EX)
Rating, FLA/LRA/V ac	4/24/250
E. Manufacturer	JIUJIANG HENGTONG AUTOCONTROL DEVICE CO LTD
Designation	WP or WDF Series (with or without suffix EX)
Rating, FLA/LRA/V ac	6/36/125 or 4/24/250

F. Manufacturer

Hefei Shushi Industrial Trade Co., LTD

Designation

WP or WD series (with or without suffix
EX or E)

Rating, FLA/LRA/V ac

6/30/250**G. Manufacturer**

**Yuyao Mintong Electric Appliance Co.,
LTD (SA32356)****Designation**

**W-L series (with suffix by words with
letters and numeric digits)****Rating, FLA/V ac**

4/250

70-5 Temperature Controller (Electric Control PWB with class 2 power, manual defrost) - Optional See items 70-10 and 70-15 for details

70-10 Power Supply (Class 2) - Optional

All models with electric control (With Class 2 power supply)

Consist of below components:

Model designation	YB-HKJG-P-A0
Manufacturer	NINGBO HICON INTERNATIONAL INDUSTRY CO LTD
Location	Within Control Box
Electrical rating	Input: 115 V, 60 Hz, 100 mA; Output: 12 Vdc, 200 mA
Circuit Schematic	See ILL.12 for details
PWB Layout	See ILL.13 for details
Version No.	Version 1.0
Printed Wiring Board	R/C ZPMV2, rated minimum 130°C, V-0, size 97 mm x 60 mm x 1.6mm, suitable for direct support of live parts
Populated Components on PWB	
Current Fuse (FUSE)	R/C (JDYX2/8), XC ELECTRONICS (SHENZHEN) CORP LTD (E249609), Type 5F, Non-time delay, rated 250 Vac, 3.15 A. Any R/C (JDYX/7), cartridge enclosed, Non-time delay, rated 125/250 Vac, 3.15 A.
Varistor (MOV1)	Any R/C (VZCA2/8) or R/C (VZCA2) with CSA certified, rated 330 Vac, In - 2 kA, 85 °C
Across-the-Line Capacitors (EC0)	Any R/C (FOWX2, 8), rated 0.1 µF, Min. 250 Vac, Min. 85°C
Diode (D1, D2)	Type M7 (IN4007), Rated 1000 V, 1.0 A.
Inductor (L1)	Manufactured by FOSHAN SHUNDE WANXIN ELECTRONIC ELECTRICAL CO.,LTD, rated 1 mH, See ILL.14 for details.
IC (IC1)	Wuxi Chipown Microelectronics Co.,Ltd, Type PN8034
Y-Capacitor (CY1)	Any R/C (FOWX2/8), Type Y1, rated 102 pF, Min. 300 Vac, Min. 85°C
Electrolytic Capacitor (EC1, EC2)	Rated 4.7 µF, 450 V, 105 °C
Electrolytic Capacitor (EC3)	Rated 1nF, 1 KV, 105 °C
Electrolytic Capacitor (EC4)	Rated 330 µF, 25 V, 105 °C
Capacitor (C9)	Rated 102 pF, 200 V
Resistor (R1)	Rated 100 kΩ, 1/8 W
Resistor (R2)	Rated 22 Ω, 1/8 W
Diode (D3, D4)	Rated 1000 V, 1 A
Diode (D6)	Super Fast Recovery Rectifier, Rated 200 V, 2 A

Model designation	YB-HKJG-P-A0			
Populated Components on PWB				
Transformer (T1)	Type WX-E13087, manufactured by FOSHAN SHUNDE WANXIN ELECTRONIC CO.,LTD. See ILL.15 for details.			
	Consisted of the following - Not for Field Representative Use:			
	A. Core - Ferrite, E-E type, measured 13.2 by 12.8 by 5.9 mm.			
	B. Primary Windings (N1, N2, N4) - Any R/C (OBMW2), magnet copper wire, ANSI Type MW79-C, 155 °C			
	C. Secondary Windings (N3) - R/C (OBJT2), Triple Insulated Wire, SHENZHEN DARUN SCIENCE AND TECHNOLOGY CO LTD (E335841), Type DRTIW-B, 130 °C			
	Alternate - R/C (OBJT2), Triple Insulated Wire, HUIZHOU HUAYING ELECTRONIC TECHNOLOGY CO LTD (E470559),Type MIW-B, 130 °C			
	D. Bobbin - R/C (QMFZ2), CHANG CHUN PLASTICS CO LTD (E59481), PMC, Type T375J or T375HF, black, Rated V-0, 150°C, min. 0.5 mm thick.			
	E. Insulation Tape - R/C (OANZ2), CHANG SHU LIANG YI TAPE INDUSTRY CO LTD (E246820), PET film, Type LY-XX*, Rated 130°C, min. 0.023 mm thick.			
	Alternate - R/C (OANZ2), SHENZHEN XINHUAHUI ADHESIVE TECHNOLOGY CO LTD (E328315), PET film, Type HMT803, Rated 130°C, min. 0.023 mm thick.			
Transformer (T1)	F. Tubing (lead out of secondary pin 6&7)- R/C (YDPU2), CHANGYUAN ELECTRONICS GROUP CO LTD (E180908), Type CB-TT-L, rated 150 V, 200°C			
	Alternate - R/C (YDPU2), DONGGUAN CITY CHANGJIE METALS & PLASTIC PRODUCTS CO LTD (E338209), Type CJ-TT-L, rated 150 V, 200°C			
	Alternate - R/C (YDPU2), DONGGUAN LING FREE HARDWARE PLASTICS PRODUCT CO LTD (E352366), Type LING FREE PTFE TUBE (150V), rated 150 V, 200°C			
	G. Transformer insulation provided as follows:			
	Location	Material	Layers	Total Thickness (mm)
	N4 to outer-wrap	Insulation Tape	3	0.069
	N4 to N3	Insulation Tape	2	0.046
	N3 to N2	Insulation Tape	2	0.046
	N2 to N1	Insulation Tape	2	0.046
N1 to Core	Bobbin	-	0.5	

70-15 Display and control PWB (Class 2) - Optional

All models with electric control (With Class 2 power supply)

Consist of components shown in Fig.12.

Note: Located in Class 2 Power supply circuit.

80 INTERNAL WIRING:

80-5 - Types

All wiring is minimum No. 18 AWG(+) Recognized (AVLV2,8) or CSA certified appliance wiring material rated VW-1 and FT-1 or Listed cords. Wiring is rated minimum 300V, 90C with 0.8mm thick insulation. Wiring which is color-coded green or green with one or more yellow stripes is employed on grounding conductors only.

80-10 - Wiring Methods

All wiring is installed and positively routed in such a manner that it is not subject to mechanical damage due to contact with sharp edges, abrasive surfaces, vibrating or moving parts. Exposed lengths of ripped parallel conductors do not exceed 3 in.

Wiring which is completely enclosed within steel conduit, metal raceways, metallic tubing, cabinet walls, or other separate electrical enclosures employs 2/64 in. thick (minimum) electrical insulation unless specified differently in this Report.

Wiring which is not completely enclosed as specified above employs 4/64 in. thick (minimum) electrical insulation unless specified differently in this Report.

Cords or appliance wiring material employed in the refrigerated compartment has 4/64 in. thick (minimum) electrical insulation and is located or protected so as not to be subjected to contact by product containers, removable shelves, and the like.

Green or green with yellow stripe wire may be employed only as grounding conductors. Splices are not employed in grounding conductors unless otherwise noted in the Report.

Holes for the passage of wires or cords through walls, panels or barriers have smooth, rounded surfaces or are provided with smoothly rounded bushings.

All splices are mechanically secured to a fixed member or located in a separate enclosure.

Unless otherwise noted all wires terminate in quick-connect or eyelet type materials.

Wiring is connected in such a way as to ensure proper polarity will be maintained throughout unit, cord, and attachment plug.

80-10 Wiring Methods (Cont'd)

Model

All

Wiring is employed as follows:

No. From Previous Page	Specify the electrical components connected to the wiring described		Specify all details of wire routing including locations and types of clamps, means of isolating from combustible materials, Recognized splice and wire connecting lead terminations, etc.
Key No.	From	To	Details
1	Compressor terminal box	Thermostat	Wiring is rated VW-1 and routed away from sharp edges

90 SUPPLY CONNECTIONS:

90-5 Cord Connected Unit

Model	All
Power Supply Cord Set	Listed
Type	SE, SO, SOO, ST, STO, STOO, SJ, SJE, SJO, SJOO, SJT, SJTO, SJTOO, SP-3, SPE-3, SPT-3
Size, AWG	18
Attachment Plug Rating, V, A	125V, 15A
Strain Relief Means	Supply cord is pressed between a two-piece plastic clamp that is secured to the cabinet base by two screws. Or supply cord is clamped between a two-piece circular plastic bushing which is clipped to unit rear.
Cord Length, ft	5 Minimum, 10 Maximum
Grounding Conductor Color	Green With or Without Yellow Stripes
Securement of Grounding Conductor	
Location	Unit base
Means	Screw

Note: Power cord inlet at the side of compressor machine room: Supply cord is pressed between a two-piece plastic clamp that is secured to the cabinet base by two screws inside only.

And power cord inlet at the unit back: Supply cord is pressed between a two-piece plastic clamp that is secured to the cabinet base by two screws inside; And at the point that power cord comes out, the cord is clamped between a two-piece circular plastic bushing which is clipped to the unit rear sheet metal.

100 SHELVING AND DRAWERS:

100-5 Shelves

Model	BD-40-E
Location	Interior
Material	Steel
Wire Rod Shelf	
Thickness/No. Shelf Wires	3.5 mm Minimum/8
Thickness/No. Stiffener Wires	5.5 mm Minimum/1
No. of Shelves	1
Method of Restraint	By frame structure
Model	BD-88B-E
Location	Interior
Material	Glass
Thickness	4 mm
No. of Shelves	1 and half
Method of Restraint	By frame structure

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