

Technical Service Manual
Side by Side Combination Refrigerator
CE-BCD515WE-S
CB-BCD515WE-T



Table of Contents

Chapter I: Functions and Features

Chapter II: Technical Parameter

Chapter III: System Cycle Diagram

Chapter IV: Schematic Wiring Diagram

Chapter V: Plumbing Line Diagram

Chapter VI: Service Operation Guide of R600a Refrigerator

Chapter VII: Service Operation Guide of R134a Refrigerator

Chapter VIII: Fault Diagnosis and Service

Chapter IX: Product Breakdown Drawing and Detail List of Parts

Chapter I: Functions and Features

Midea Brand

- DC frequency inversion technique;
- Single system refrigeration mode;
- Automatic ice making;
- Mute design; noise value $\leq 47\text{dB}$;
- Intelligent defrosting is adopted as per actual frequency of usage and speed of frosting for better energy saving and reaching the European energy consumption Grade A+;
- Ice water options are available.

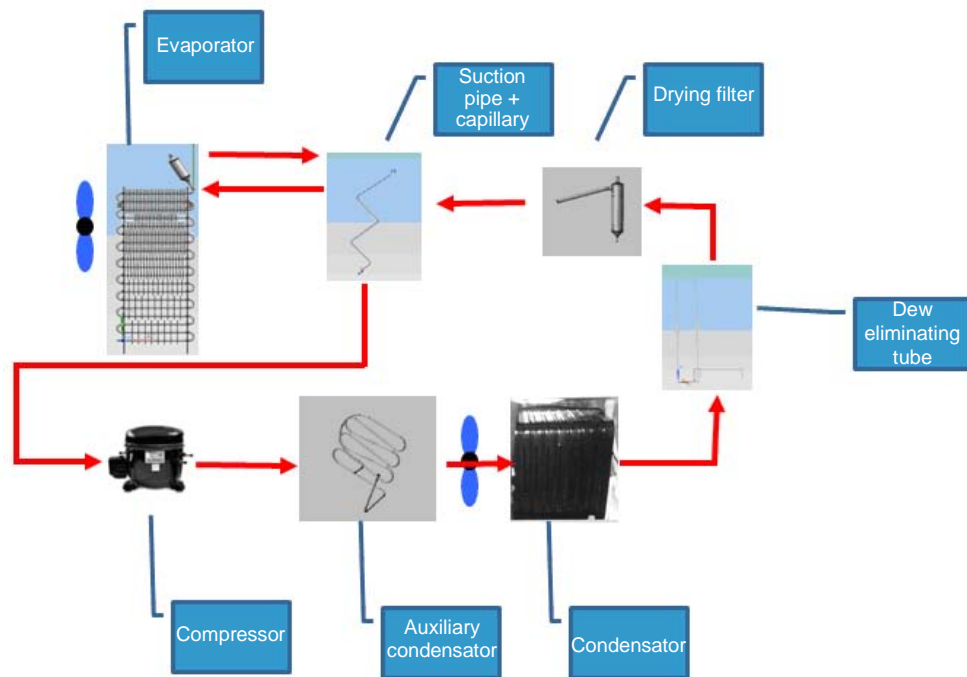
Chapter II: Technical Parameter

1. Specifications, models and main parameters of Midea brand

Series	Model	Effective /refrigeration (L)	Type of climate	Refrigerating capacity (kg/24h)	Net weight (kg)	Product dimensions (mm)	Power consumption (kW·h/24h)	Grade of energy consumption	Compressor	Temperature control	Refrigerant/Injected volume (g)
Single system refrigerator	CE-BCD515WE-S	515/175	ST	10	106	892*736*1757	1.175	A+	CHK099EV	Computer	R600a/75
	CB-BCD515WE-T	515/175	T	10	106	892*736*1757	1.56	A	C-BV175L4H	Computer	R134a/160

Chapter III: System Cycle Diagram

1. System cycle diagram:

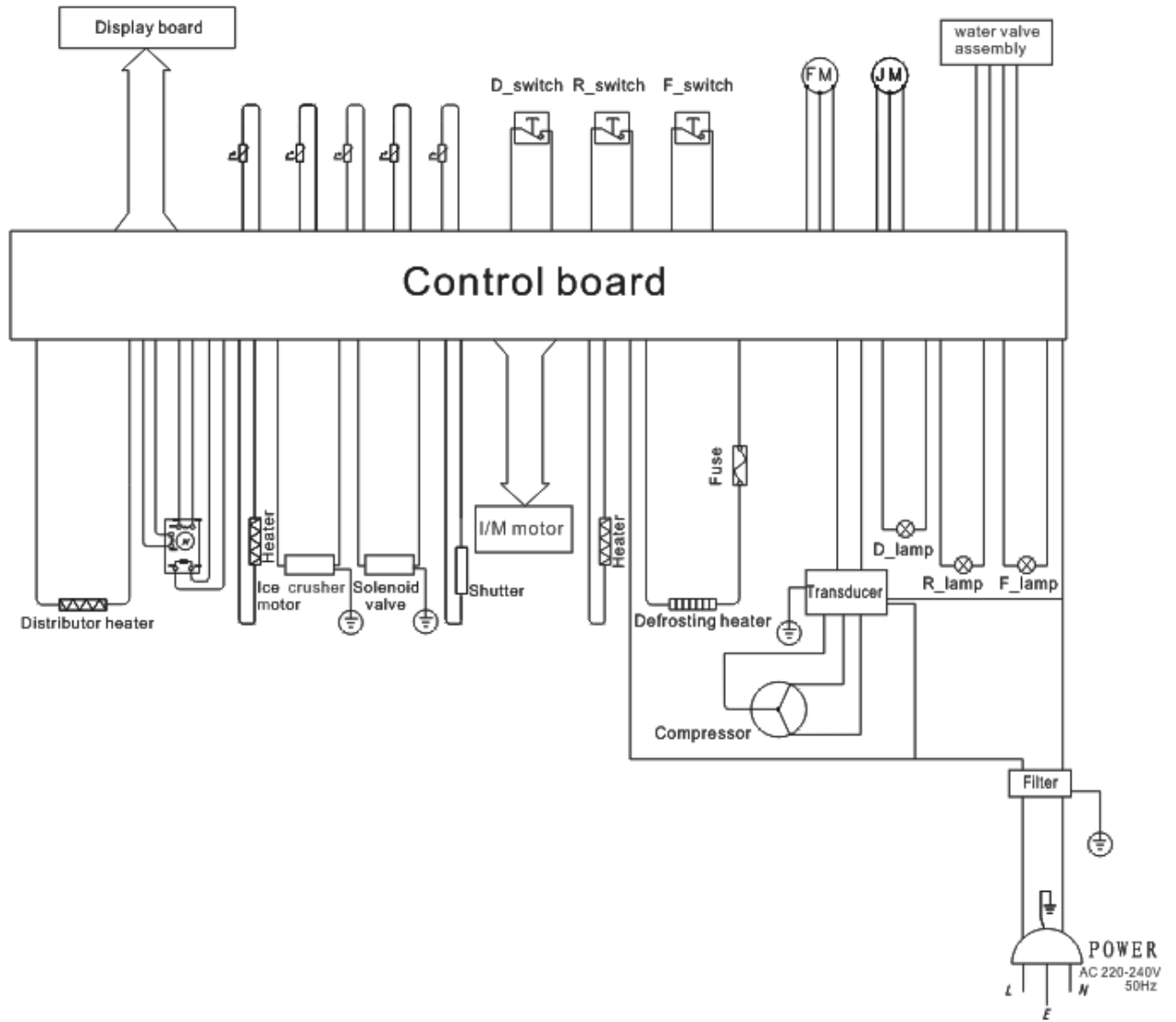


Applicable model: CE-BCD515WE-S and CB-BCD515WE-T (Economic Development Zone)

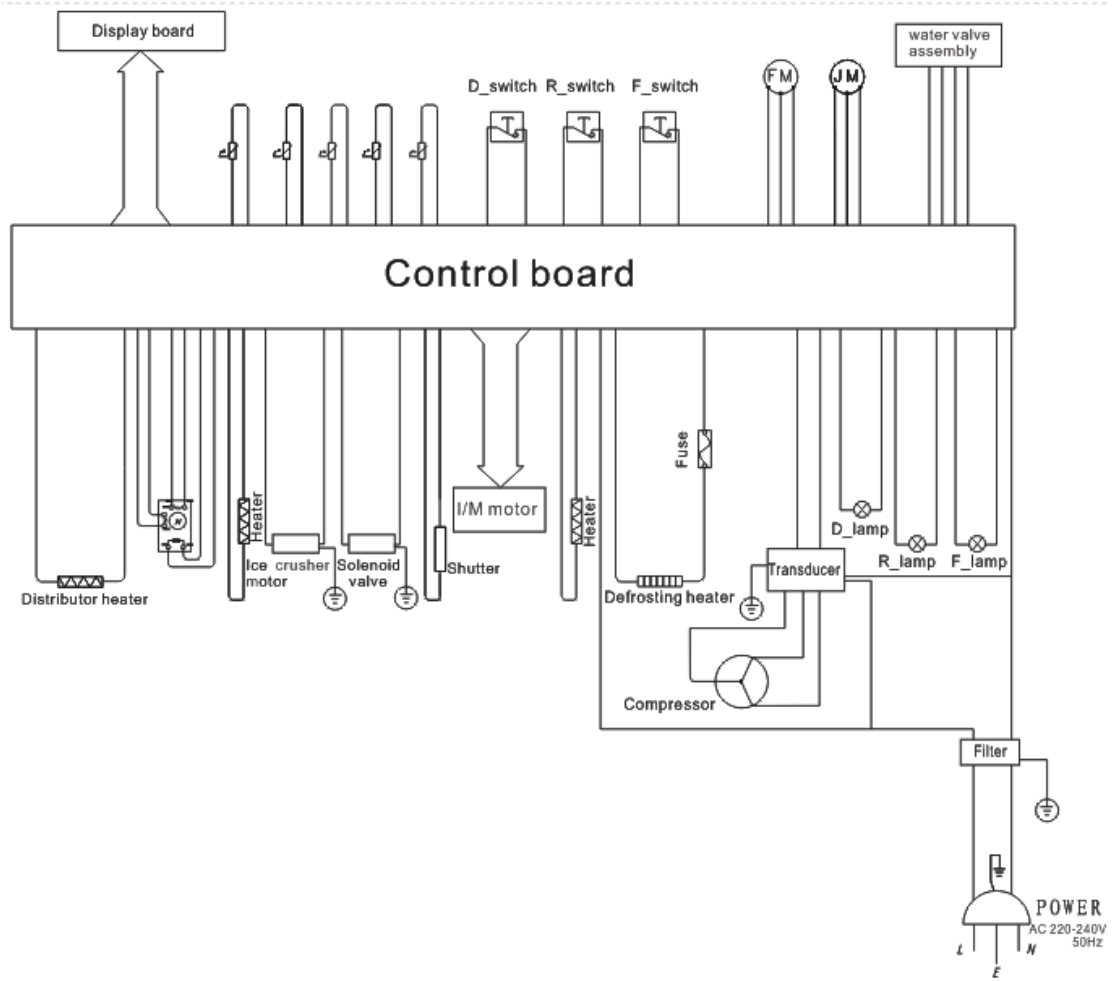
Chapter IV: Schematic Wiring Diagram

Schematic Wiring Diagram:

CE-BCD515WE-S:

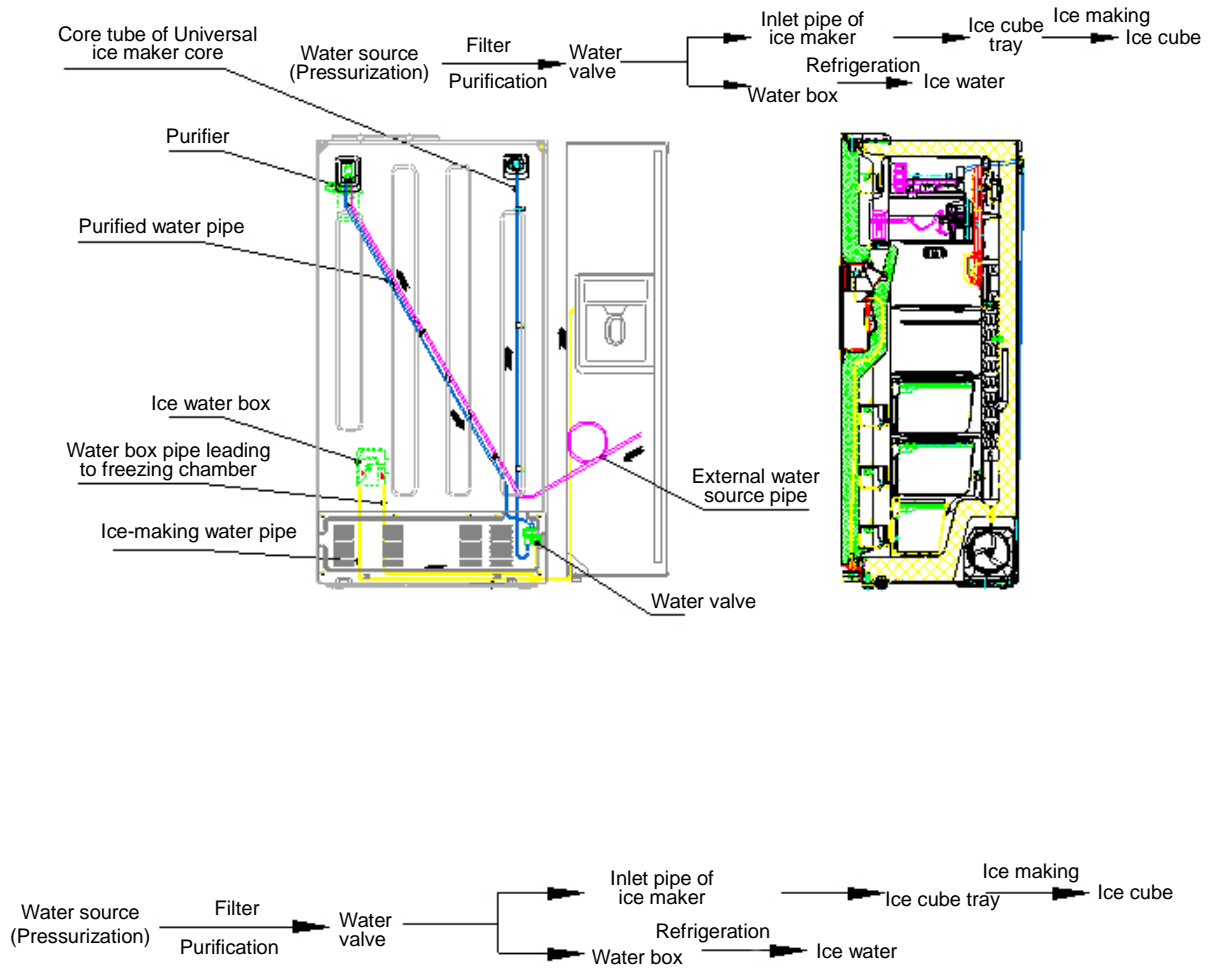


CB-BCD515WE-T:



Chapter V: Plumbing Line Diagram

Distribution Location of Water Pipes and Direction of Water Pipeline



Chapter VI: Service Operation Guide of R600a Refrigerator

1. Property of R600a refrigerant

Chinese name: isobutane

R600a, a high-performance new type hydrocarbon refrigerant, is from natural elements, does no harm to the ozonosphere, and is free from greenhouse effect, being green and environmentally friendly. It is featured by huge latent heat of evaporation, strong cooling capacity, good flowability, low feed pressure, low power consumption and slow rebounding speed of load temperature. And it is compatible with various compressor lubricant.

R600a refrigerant is featured by huge latent heat of evaporation, strong cooling capacity, good flowability, low feed pressure, low power consumption and slow rebounding speed of load temperature. And it is compatible with various compressor lubricant (note: A too large pressure value, abnormal noise of machines, and shortened life of compressor will occur when the refrigerating system is lack of R600a).

2. Service technology of R600a refrigerator

1. General requirements: whether leakage exists in the system, to avoid possibly produce static electricity, and sparkles therefrom, all equipment are required to be reliably grounded, all wirings fastened, and wrong connections are prohibited when pouring refrigerant.

2. Firstly check sources of ignition in the surrounding environment, and keep good ventilation;

3. Prepare special service equipment and accessories;

4. Check the security of service equipment and power supply;

5. Check whether the emptying pliers is leaked or loosened, and adjusted it to a proper position;

6. Lead the exhaust pipe to outdoors, jam the emptying pliers at the drying filter, start and stop after 5 minutes of running the compressor, vibrate it to discharge some isobutane having dissolved with lubricant, pause it for 3 minutes, and run it for 5 minutes by powering it on to minimize isobutene content in the piping system;

7. Power off, seal the vent hole of drying filter, jam the special emptying pliers at the low pressure pipe of compressor, pump down with R134a vacuum pump, and run it for 10 minutes;

8. Dismantle the compressor and the drying filter with a pipe cutter, and purge the pipe with nitrogen for at least 5 seconds;

9. Replace the R600a compressor and the drying filter, and weld all interfaces by gas welding;

10. Detect leakage by purging nitrogen, with a nitrogen pressure of not more than 0.8Mpa, and then by soapy water;

11. Release nitrogen, pump down for over 20 minutes, with the vacuum degree reaching the specified value;

12. To guarantee accuracy of pouring volume, weigh with an electronic weigher in pouring, and run the freezer by powering it on;

13. Avoid abnormal seals;

14. Detect leakage at seals with soapy water;

15. Run the freezer by powering it on, and test its performance.

3. Precautions

1. In case that any compressor is required to be replaced during after-sales service, pouring volume should be the specified value; and when that isn't required, pouring volume should be 90% of the specified value;

2. In principle, it is prohibited to open the refrigerating system for operation at the user's home on account of certain danger.

4. Service equipment and tools

1) R600a evacuation and filling machine

2) Electronic weigher

3) Emptying pliers

4) Sealing pliers

5. Applicable model

CE-BCD5151WE-S.

Chapter VII: Service Operation Guide of R134a Refrigerator

1. Property of R134a refrigerator

R134a, also called Tetrafluoroethane, belongs to HFCs. The molecular weight is 102, and the structure of molecular formula is CH_2FCF_3 . It is colorless and transparent fluid, free from turbidity and peculiar smell, non-toxic and nonflammable, with an ozone depletion potential of 0 (ODP: ozone depletion potential), a global warming potential of 1300 (GWP: global warming potential), and an ASHRAE safety level of A1.

2. Service technology of R134a refrigerator

1. General requirements: whether leakage exists in the system, to avoid possibly produce static electricity, and sparkles therefrom, all equipment are required to be reliably grounded, all wirings fastened, and wrong connections are prohibited when pouring refrigerant.
2. Firstly check sources of ignition in the surrounding environment, and keep good ventilation;
3. Prepare special service equipment and accessories;
4. Check the security of service equipment and power supply;
5. Check whether the emptying pliers is leaked or loosened, and adjusted it to a proper position;
6. Lead the exhaust pipe to outdoors, jam the emptying pliers at the drying filter, start and stop after 5 minutes of running the compressor, vibrate it to discharge some isobutane having dissolved with lubricant, pause it for 3 minutes, and run it for 5 minutes by powering it on to minimize isobutene content in the piping system;
7. Power off, seal the vent hole of drying filter, jam the special emptying pliers at the low pressure pipe of compressor, pump down with R134a vacuum pump, and run it for 10 minutes;
8. Dismantle the compressor and the drying filter with a pipe cutter, and purge the pipe with nitrogen for at least 5 seconds;
9. Replace the R134a compressor and the drying filter, and weld all interfaces by gas welding;
10. Detect leakage by purging nitrogen, with a nitrogen pressure of not more than 0.8Mpa, and then by soapy water;
11. Release nitrogen, pump down for over 20 minutes, with the vacuum degree reaching the specified value;
12. To guarantee accuracy of pouring volume, weigh with an electronic weigher in pouring, and run the freezer by powering it on;
13. Avoid abnormal seals;
14. Detect leakage at seals with soapy water;
15. Run the freezer by powering it on, and test its performance.

3. Precautions

1. In case that any compressor is required to be replaced during after-sales service, pouring volume should be the specified value; and when that isn't required, pouring volume should be 90% of the specified value;
2. In principle, it is prohibited to open the refrigerating system for operation at the user's home on account of certain danger.

4. Service equipment and tools

- 1) R134a evacuation and filling machine
- 2) Electronic weigher
- 3) Emptying pliers
- 4) Sealing pliers

5. Applicable model

CB-BCD5151WE-T.

Chapter VIII: Fault Diagnosis and Service

8.1 Fault prompt and service guide

E appearing on the display screen indicates faults. Contents of faults are set below:

Fault code	Fault analysis
E1	Faults in temperature sensor in refrigerating chamber
E2	Faults in temperature sensor in freezing chamber
E3	Faults in freezing and defrosting temperature sensor
E8	Faults in environmental temperature sensor
E0	Faults in ice maker
EE	Faults in temperature sensor of ice maker

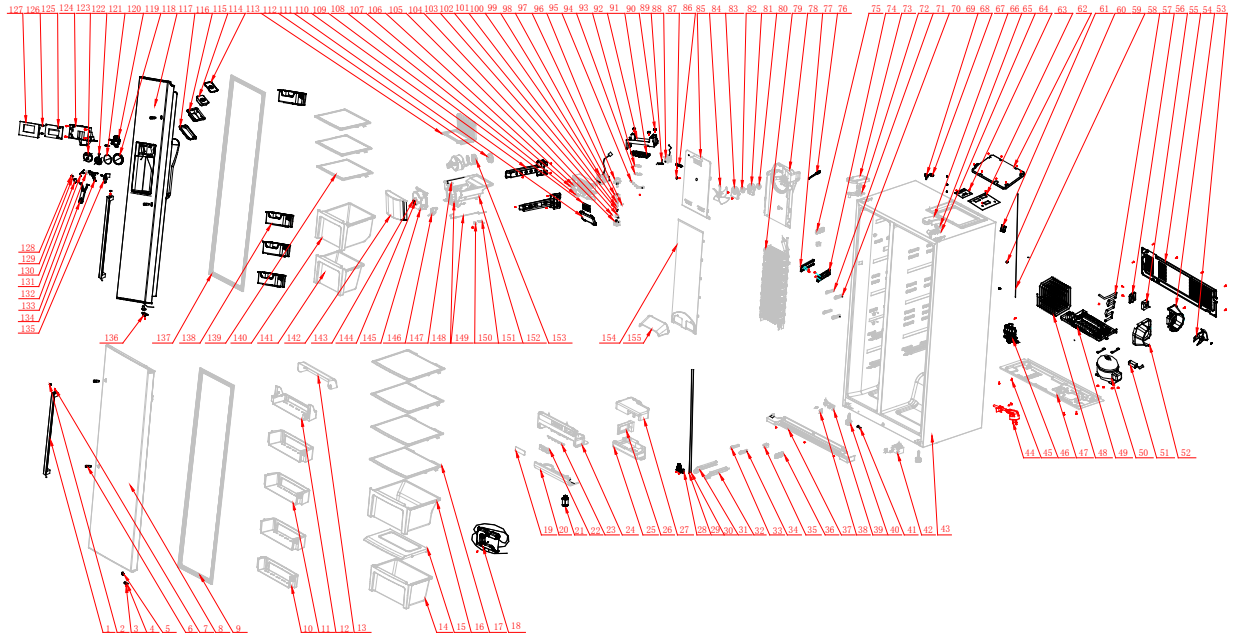
8.2 Table 1 Service schedule

Fault symptom	Possible reasons	Servicing method
The display screen does not work and the illuminating lamp is off.	Whether the power supply is gotten through, the plug is plugged well, and the plug-in units of power supply are well connected	Get through the power supply; plug the plug or plug-in units of power supply well.
	The fuse (wire fuse) on the master control board is burned out.	Replace the fuse.
	The power-supply plug connector on the master control board is not connected well.	Plug the plug connector well.
The display screen does not work but the illuminating lamp is on.	The plug connector on the signal line bundles connecting the display panel and master control board are not connected well.	Plug the plug connector well.
	There are broken lines in the signal connecting wire bundles.	The two wires in the middle of the four wires of the signal line bundle are earthing wires, each of which can be used to replace a broken cable.
	The display control panel is broken.	Maintain or replace.
The display screen works properly, but the compressor does not work.	The plug-in units of the compressor are not connected well.	Plug the plug connector well.
	The master control board is broken.	Maintain or replace.
	Two machines of the compressor are broken.	Maintain or replace.
	The compressor is broken.	Maintain or replace.
The refrigerating chamber does not refrigerate.	The electronic control board is broken.	Maintain or replace.
	The refrigerating air door can not be opened.	Maintain or replace.

The freezing chamber does not refrigerate.	The fan blades of the fan electromotor in the freezing chamber fall off.	Reinstall and fix the fan blades.
	The fan electromotor in the freezing chamber do not rotate.	Check or replace the plug connector.
Temperature control chamber does not refrigerate.	Motor-driven air door breaks down	Maintain or replace.
	The air return passage is blocked.	Clean up the air return passage.
The freezing chamber frosts seriously.	The plug connector on the defrosting loops drop off.	Plug the plug connector well.
	The defrosting heater or the defrosting sensor is broken.	Replace.
The compressor powers down after working a while.	The fan blades of the condensation fan electromotor drop off.	Reinstall and fix the fan blades.
	The fan blades of the condensation fan electromotor do not run.	Check or replace the plug connector.
	The refrigerating system breaks down.	Carry out troubleshooting according to the above indications for the system devices.
The compressor does not work.	Check whether the connection of the compressor wire branches is normal.	Reconnect.
	Check whether the frequency inversion plate works (The lamp is always on when the compressor is open. If the lamp flashes, there are faults.)	Replace the frequency inversion plate.
The keys don't work property.	The assembly of the keys (springs) are incorrect.	Reinstall and adjust the position.
	The touch capacity is broken.	Maintain or replace.
	The display control board is broken.	Maintain or replace.
The ice maker does not make ice.	Whether the ice making box is at the level position.	Power on again, and the ice box can calibrate itself automatically.
	After the box is full of ice, the ice is not turned, and the temperature in the freezing chamber is not proper.	Check whether the refrigeration of the freezing chamber is normal.
	The switch of the ice maker is not turned on.	Turn on the ICE ON on the Display control board.
	The master control board is broken.	Maintain or replace.
Ice cannot be discharged.	The ice is not discharged after the switch of the distributor is turned on.	Maintain or replace the ice-n discharging motor.
	Whether the wire bundles are loose or dropped off.	Reconnect the wire bundles.
	The master control board is broken.	Maintain or replace.
	The ice discharging port is closed.	Check the wire bundles or replace the door opening motor.

Chapter IX: Product Breakdown Drawing and Detail List of Parts

The Product Breakdown Drawing:



The Detail List of Parts:

15	M9D9-118	Lower drawer cover plate in refrigerating chamber	1	PP				
14	M9D9-117	Lower drawer in refrigerating chamber	1	GPPS				
13	M9D9-112	Cover of the reversible pallet	1	GPPS				
12	M9D9-113	Base of the reversible pallet	1	HIPS				
11	M9D9-114	Major tray of the refrigeration door	3	HIPS				
10	M9D9-115	Minor tray of the refrigeration door	1	HIPS				
9	MA00-3B0	Seal component of the refrigeration door	1	Component				
8	M9D9-301	Door assembly of the refrigeration door	1	Component				
7	MA00-378	Spacing bolt	2	15 steel				
6	M924-360	Fixing bolt for handle	4	40# medium carbon steel				
5	MA00-354	Upper door closer	1	POM				
4	MA00-355A	Door limited block	1	T2.5 cold rolled steel sheet				
3	4280	Cruciform slot screw M5X17.5	2	10#				
2	M924-358	Screw nail capping with handle stand	2	ABS				
1	M9C3-106	Handle of refrigerating chamber	2	Component				
SN	Code name	Name	No.	Material	Single Weight (g)	Total	Remark	
Midea Refrigeration Division								
Details of the assembly drawing for the CE-BCD515WE-S								

38	Z196X01X-4280	Cruciform slot screw M5X16	9	10#			
37	MAG0-102	Decoration cover for the under beam	1	Modified PP			
36	643205	Temperature sensing box cover	1	ABS			
35	2027	Normally closed switch	1	Component			
34	M9D9-105	Stop block for drawer (right)	1	ABS			
33	M9D9-104	Stop block for drawer (left)	1	ABS			
32	M9D9-103	Guide rail for drawer (right)	3	ABS			
31	M9D9-102	Guide rail for drawer (left)	3	ABS			
30	501152810015	Hose	1	HDPE			
29	501152810016	Hose	1	HDPE			
28	502417010005	Head of filter	1	Component			
27	M9D9-602	Upper air duct of the refrigerating chamber	1	EPS			
26	M9D9-507	Electric air door	1	Component			
25	M9D9-603	Lower air duct in the refrigerating chamber	1	EPS			
24	M9D9-604	Air way cover in the freezing chamber	1	HIPS			
23	M9D9-506	LED lamp component in the freezing chamber (LED)	1	Component			
22	M9D9-101	Base of the display and control board	1	ABS			
21	502417010002	Filter component	1	Component			
20	M9D9-110	Lamp shade in the refrigerating chamber	1	GPPS			
19	50200501000B	Decoration sticker	1	PET			
18	MAOC-114	Water tank	1	PE			
17	M9D9-109	Glass shelf component in the refrigerating chamber	4	Component			
16	M9D9-116	Upper drawer in the refrigerating chamber	1	GPPS			

57	MA00-1B9	Back cover of fan	2	PP			
56	MA00-517	Fan electromotor of condensator	1	Component			
55	MA00-1A7	Back cover	1	Hot galvanizing plate, t 0.5			
54	MA00-1C1	Condensation fan housing – right	1	PP			
53	MA00-1C2	Condensation fan blade	1	ABS			
52	MA00-1C0	Condensation fan housing – left	1	PP			
51	M991-506	Power filter	1	Component			
50	YSJ-1070	Compressor component	1	Component			
49	MA00-1B8	Evaporating pan	1	PP			
48	MA00-451	Condensator component	1	Component			
47	M9D9-1A0	Compressor bottom board component	20	Galvanized steel sheet, t 1.2			
46	MA0C-518	Inlet valve	1	Component			
45	1990	Cruciform slot flat round head tapping screw ST4.2×13	47	Galvanized and passivated			
44	DYX-1006	Power cord	1	Component			
43	50370501134C	Cabinet assembly	1	Component			
42	MA00-1E8	Lower right hinge component	1	Component			
41	50115281001B	Quick switching joint	1	component			
40	MA00-137	Leveling leg component	2	Component			
39	MA00-1A0A	Lower left hinge component	1	Cold rolled sheet surface coated with white zinc			

80	M7C7-615	cushion pad behind fan	1	NR			
79	M9D9-402	Evaporator	1	Component			
78	M9D9-605	Base of the upper air duct in the freezing chamber	1	PP			
77	MA00-112	Left guide rail of ice cube tray	1	ABS			
76	502415010005	Heater	1	Component			
75	643205	Temperature sensing box cover	1	ABS			
74	MA00-113	Right guide rail of ice cube tray	1	ABS			
73	MAG0-120	Left hinge hood	1	PP			
72	MA00-1B3	Left top hinge component	1	Cold rolled steel sheet			
71	M9D9-104	Stop block for drawer (left)	3	ABS			
70	M9D9-105	Stop block for drawer (right)	3	ABS			
69	MA0C-108	Inlet pipe joint	1	Silicon rubber			
68	MA0C-109	Joint cap of inlet pipe	1	Galvanized sheet			
67	MAG0-121	Right hinge hood	1	PP			
66	4280	Cruciform slot screw M5X16	6	10#			
65	MA00-1D0	Right top hinge component	1	Cold rolled steel sheet			
64	Z196X01X-4280	Cruciform slot screw M5X16	4	10#			
63	NAG5-502	Master control board	1	Component			
62	MA00-1D3	Master control board cover	1	PP			
61	MA0C-112	Water pipe protective cover	1	ABS			
60	MA0C-113	Water pipe clamp	12	PA6			
59	501152810017	Hose	1	HDPE			
58	501751510003	Assistant condensator	1	Galvanized steel pipe			

98	NAG5-1D5	PE sponge	1	PE sponge			
97	MA0C-112	Hook fixing pin 2 for the Solenoid valve	1	302			
96	NAG5-515	Ice selecting Solenoid valve	1	Component			
95	NAG5-1D9	Ice exploring bar	1	PP			
94	NAG5-1E2	Temperature sensor cover	1	PP			
93	NAG5-1E1	Heat preservation foam for sensor	1	EPS			
92	NAG5-1D8	Support of ice maker	1	ABS			
91	NAG5-1E0	Torsional ice cube tray	1	PP			
90	M7G7-642	Close button of ice maker	3	HIPS			
89	NAG6-545	Temperature sensor of ice maker	1	Component			
88	NAG5-521	Ice making motor	1	Component			
87	MA00-140	End cap	1	PS			
86	501152810004	Terminal block box	1	PP			
85	NAG5-606	Upper air duct cover on the freezing chamber	1	PS			
84	M9D9-120	Freezing fan	1	ABS			
83	MA00-610A	Motor box cover	1	PP			
82	M7G7-614	Front cushion pad of fan	1	NR			
81	M9D9-505	Fan electromotor in freezing chamber	1	component			

121	MA0C-355	Spongy cushion	1	PE sponge			
120	NAG5-517	Door opening motor	1	Component			
119	MA0C-354	Ice discharging valve cover	1	Silicon rubber			
118	5037001145DX	Component of door of freezing chamber	1	Component			
117	MA0C-358	Decorative cap of ice inlet	1	ABS			
116	501152810002	Sealed bottom box	1	ABS			
115	50220201001A	Foam seal	1	EPS			
114	501152810001	Seal cover	1	ABS			
113	NAG5-1C7	Outer cover B of ice storage box	1	ABS			
112	NAG5-1C2	Agitating vane for ice-discharging screw rod	1	POM			
111	M9D9-119	LED lamp screen		PS			
110	NAG5-1C9	Guide rail of ice discharging box	2	ABS			
109	M9D9-506	LED lamp component of freezing chamber	1	Component			
108	QB024-002	Cruciform slot truss head tapping screw ST3.5X9.5	2	Q215			
107	NAG5-1E5	Driving handle of ice-discharging screw rod	1	UNS S304 stainless steel plate			
106	NAG5-1C8	Cover of ice-crashing motor	1	ABS (flame retarding)			
105	NAG5-1D0	Guide frame of solenoid valve	1	POM			
104	NAG5-1D2	Hook fixing pin of solenoid valve 1	1	302			
103	NAG5-1D1	Solenoid valve hook A	1	POM			
102	NAG5-1D3	Solenoid valve hook B	1	POM			
101	NAG5-1D4	Solenoid valve hook C	1	POM			
100	NAG5-1D6	Spring of solenoid valve	1	302 stainless steel			
99	NAG5-516	Ice crashing motor	1	Component			

140	M9D9-123	Upper drawer in freezing chamber	1	GPPS			
139	M9D9-124	Lower glass shelf component in freezing chamber	3	Component			
138	501152810019	Bottle box in freezing chamber	4	HIPS			
137	MA00-359	Door seal component in freezing chamber	1	Component			
136	MA00-355	Limiting stopper	1	Hot-rolled pickling steel plate			
135	NAG6-521	Distributor lighting	1	Component			
134	50115281000A	Valve oscillating bar	1	POM			
133	50115281000B	Distributor plate	1	PC+ABS			
132	MA0C-359	Valve pressing plate	1	Stainless steel			
131	502502310001	Torsional spring	1	1Cr18ni9Ti			
130	NAG5-514	Inching switch	1	Component			
129		Gasket	1				
128	502500300065	Cruciform slot sunk screw ST3.5X9.5	3	Q235 galvanization			
127	501152810006	Display control panel	1	ABS			
126	211122	Cruciform slot pan head tapping screw ST3.5X6.5	4	Q235 galvanization			
125	NAG5-503	Display control panel	1	Component			
124	501152810007	Ice-discharging cover	1	ABS			
123	MA0C-356	Valve pressing block	1	ABS			
122	NAG6-529	Ice-discharging port heater	1	Component			

155	M9D9-607	Lower air duct cover in freezing chamber	1	HIPS			
154	M9D9-608	Return air cover	1	PS			
153	502419010001	Ice discharging screw rod component	1	Component			
152	NAG5-1A4	Ice storage box	1	ABS			
151	NAG5-1C4	Ice selecting rod spring	1	302 stainless steel wire			
150	MA0C-356	Valve pressing block	1	ABS			
149	NAG5-1C3	Ice selecting rod	1	304 stainless steel wire			
148	502500100007	Cruciform slot pan head tapping screw ST4X20	1	Q215			
147	2601	Cruciform slot pan head tapping screw ST4.2X19	1	Stainless steel			
146	NAG5-1A8	Ice selecting door	1	POM			
145	NAG5-1A9	Ice crashing knife cover	1	ABS			
144	NAG5-1B6	Gasket	1	S302 stainless steel			
143	NAG5-1B5	Fixed snap ring	1	UNS S304 stainless steel plate			
142	NAG5-1C6	Outer cover of ice storage box A	1	ABS			
141	M9D9-125	Lower drawer of freezing chamber	1	GPPS			

The detail list is compiled according to Midea brand's CE-BCD515WE-S/CB-BCD515WE-T product, and other products are slightly different in these aspects. See the schematic wiring diagram in Chapter 4 for some electrical parts.