

# SERVICE MANUAL

## MULTI DECK 60 HOT WITH GLASS FRONT DOOR



**Multi Deck 60 Glass front door**

**- NOTICE -**

This manual is prepared for the use of trained Service Technicians and should not be used by those not properly qualified. If you have attended a training for this product, you may be qualified to perform all the procedures in this manual.

This manual is not intended to be all encompassing. If you have not attended a training for this product, you should read, in its entirety, the repair procedure you wish to perform to determine if you have the necessary tools, instruments and skills required to perform the procedure. Procedures for which you do not have the necessary tools, instruments and skills should be performed by a trained technician.

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## INDEX

<b>Index .....</b>	<b>3</b>
<b>General technical data.....</b>	<b>4</b>
Technical Data .....	4
<b>Removal and replacement of parts .....</b>	<b>5</b>
Panels bottom side .....	5
Cover plate on field wiring box.....	5
Illumination/tumble switch .....	6
Electronic ballast/Interference filter .....	6
Back panels.....	7
Thermostat (Danfoss) .....	7
Sensor Danfoss thermostat .....	8
Blower shelf heating .....	9
Heating element.....	10
Safety thermostat (reset).....	11
Relay .....	11
Replacing side glass .....	12
Replacing the glass door .....	14
<b>Electrical tests and service procedures.....</b>	<b>15</b>
Heating element test.....	15
Adjusting Danfoss EKC 102A thermostat .....	15
Control locations.....	18
<b>Troubleshooting .....</b>	<b>19</b>
Trouble shooting Multi Deck 60 with glass door.....	19
<b>Exploded views &amp; Partlists .....</b>	<b>21</b>
<b>Electrical diagrams .....</b>	<b>24</b>

## GENERAL TECHNICAL DATA

This manual covers the Multi Deck 60 Hot with glass front door .

All of the information, illustrations and specifications contained in this manual are based on the latest product information available at the time of printing.

### TECHNICAL DATA

Type	MD 60 Hot
Power (W)	3100
Fuses needed with power connection 230V, 1N ~ 50Hz ( 1 phase with zero )	1x 13 A
Standard plug from factory single pole	13 A
Net weight (kg)	250
Gross weight (kg)	325
Height (mm)	1912
Width (mm)	620
Depth (mm)	948

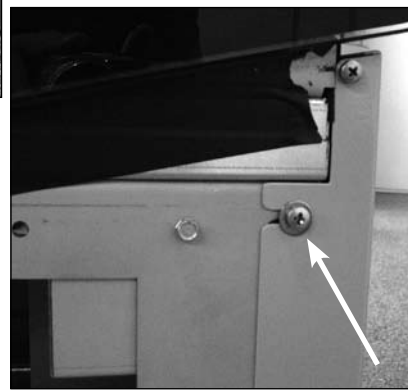
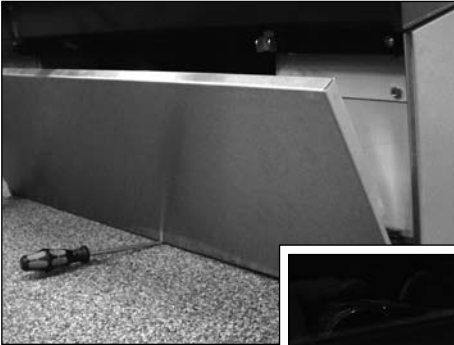
### Tools

- Standard set of tools.
- Metric wrenches, sockets and hex socket key wrenches.
- Multi-meter and AC current clamp meter.
- Insulation value tester (Megger)
- Temperature tester.

## REMOVAL AND REPLACEMENT OF PARTS

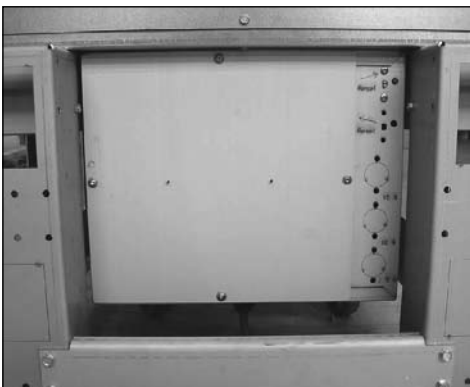
**WARNING:** Disconnect the electrical power to the machine at the main circuit box. Place a tag on the circuit box indicating the circuit is being serviced.

### PANELS BOTTOM SIDE



1. Remove panel on the front side by lifting it up with a screwdriver.
2. Slide the side panels backwards and remove these panels.
3. Loosen the screws from the back panel and lift this panel out.
4. Reverse the procedure to install.

### COVER PLATE ON FIELD WIRING BOX



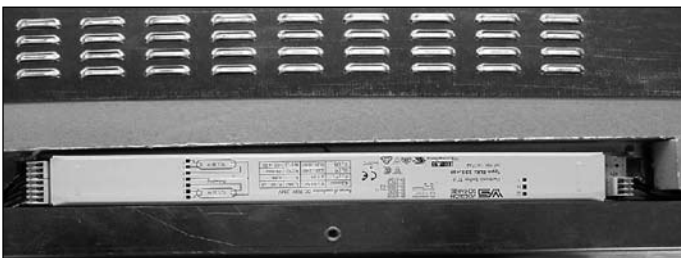
1. Remove all panels on the bottom side and the back panel on bottom side according prior procedures.
2. Remove the screws that secure the box and remove the cover plate.
3. Reverse procedure to install.

## ILLUMINATION/TUMBLE SWITCH

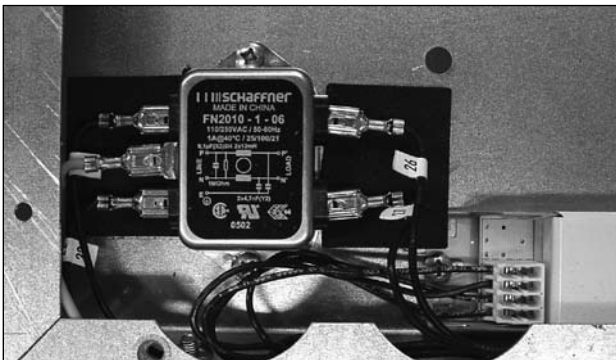


1. Remove the socket screws on the top side and turn light fixture towards yourself.
2. Replace lamp.
3. Remove wiring from switch and remove the switch by pushing the clamps on both sides.
4. Reverse the procedure to install.

## ELECTRONIC BALLAST/INTERFERENCE FILTER



1. Remove the screws on the top side and remove cover panel.
2. Remove the nuts on the ballast and remove the wiring.
- 2a. Remove the screws on the filter and remove this filter.
3. Reverse the procedure to install.



## BACK PANELS



1. Remove the screws that secure the back panel and remove this panel.
2. Remove the insulation.
3. Remove the screws that secure the cover panel and remove this panel.
4. Reverse the procedure to install.



## THERMOSTAT (DANFOSS)

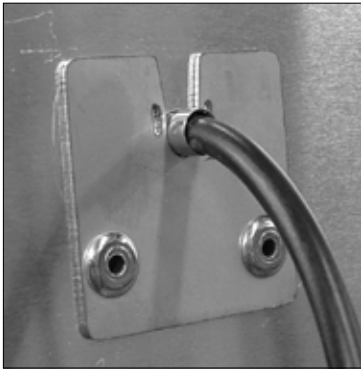


1. Remove the honeycomb profile.
2. Remove the socket screws that secure the fastening plate and remove the fastening plate.
3. Loosen the blocking clips on the sides of the thermostat and remove thermostat from housing.
4. Remove the wiring from the thermostat.
5. Reverse the procedure to install.

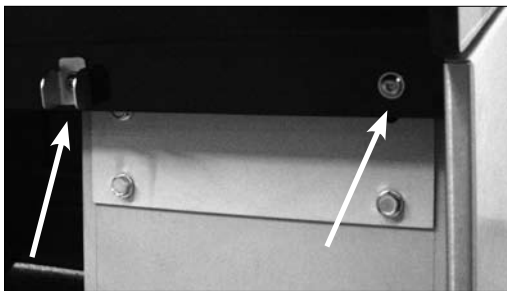


**Note:** When changing the thermostat, first always change parameter 07 to heating HE.

## SENSOR DANFOSS THERMOSTAT



1. Remove the thermostat according prior procedure.
2. Remove the back panels + insulation + cover panel.
3. Remove the panels on the bottom side.
4. Remove the holder with sensor (use a drill of 3.2 mm.)
5. Remove the screws on the front panel and remove this panel.
6. Lead sensor through the grommet and lead the sensor to the back side.
7. Reverse the procedure to install.

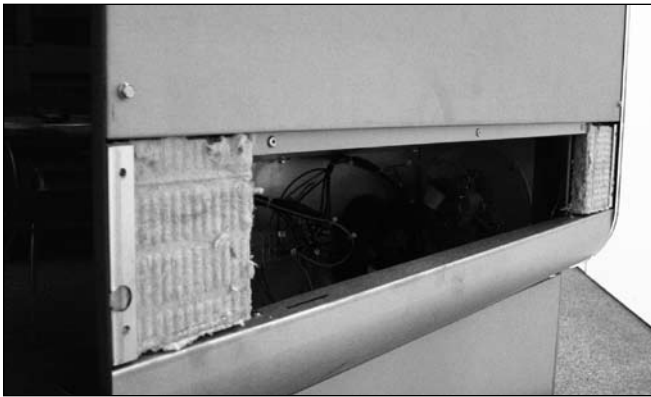


**Note:** See to it that the sensor is placed straight inside the chamber.

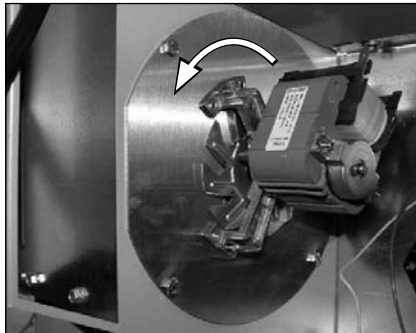
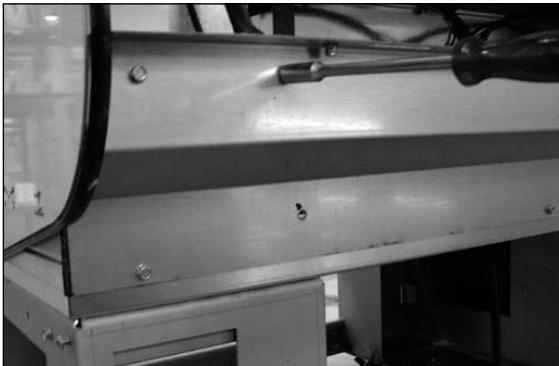




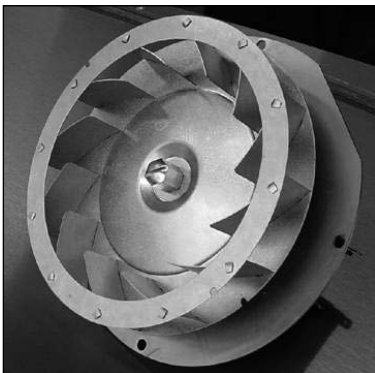
## BLOWER SHELF HEATING



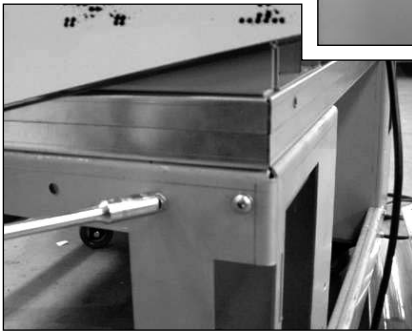
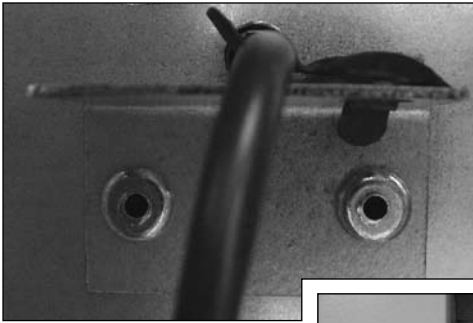
1. Remove the electric panel and all panels on the bottom side according prior procedures.
2. Remove the socket screws from the bended plate and fastening plate and remove these plates.
3. Remove the wiring from the blower.
4. Remove the bolts on the round mounting plate and remove the blower.
5. Remove the nut on the fan blade and remove fan blade. (Left handed threads).
6. Remove the screws that hold the blower and remove the blower from the round mounting plate.
7. Reverse the procedure to install.



Turning direction anti-clockwise



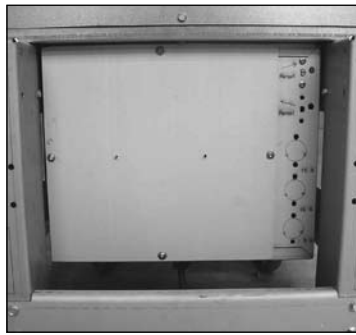
## HEATING ELEMENT



1. Remove the back panels, insulation, cover plate and the thermostat sensor according prior procedures.
2. Remove all the panels on the bottom side side + the back panel on bottom side according prior procedures.
3. Remove the bended plate and fastening plate on the back side according prior procedures.
4. Remove the small cover plate on the back side.
5. Remove the bolts that hold the cover tray on the element and remove the tray.
6. Remove the wiring on the heating element.
7. Remove the nut that secures the element and remove the element from the inside.
8. Reverse the procedure to install.

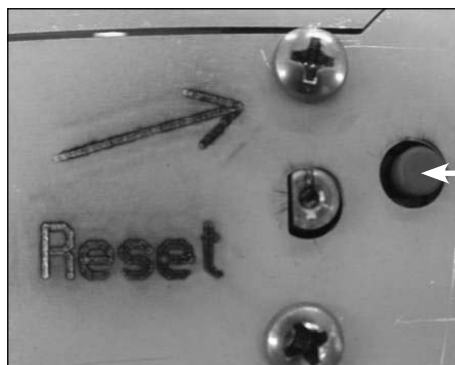


## SAFETY THERMOSTAT (RESET)

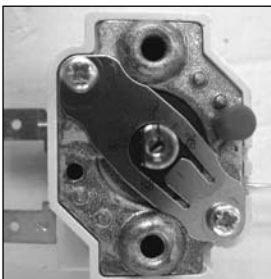


1. Remove the electric panel, back panels, insulation and cover plate, and the cover plate on the field wiring box according prior procedures.
2. Remove the clip on the sensor and remove the sensor.
3. Remove the wiring on the thermostat.
4. Remove the screws that secure the thermostat and remove the thermostat.
5. Reverse procedure to install.

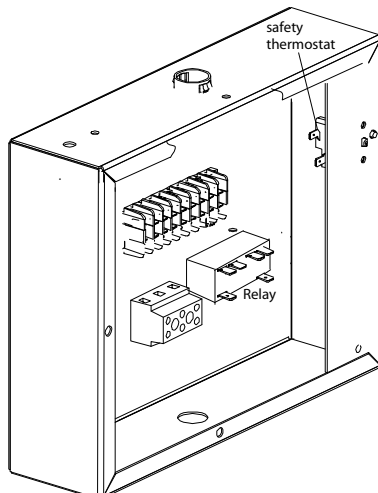
**Note:** Set the thermostat on 175°C.



Reset button



## RELAY



1. Remove all panels on the bottom side, the back panel on bottom side and the cover plate on the field wiring box according prior procedures.
2. Remove the wiring from the relay.
3. Remove the screws that secure the relay and remove the relay.
4. Reverse procedure to install.

## REPLACING SIDE GLASS

- **Remove all traces of glass and silicone past.**



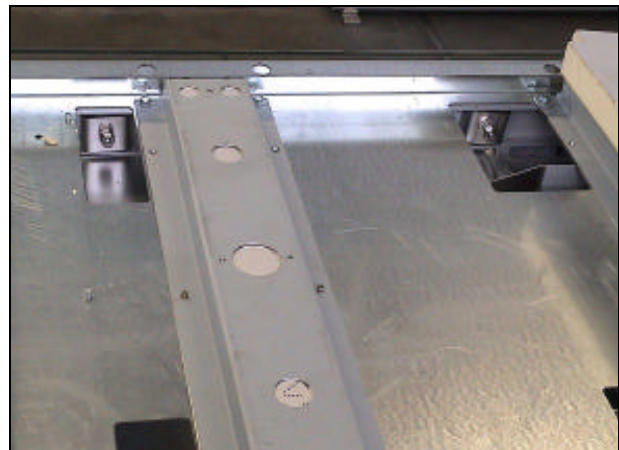
- Remove the product stopper from the bottom plate.
  - Take out the honeycomb profile and retainer.
  - Remove the bottom plate.
- The attachment brackets are visible.



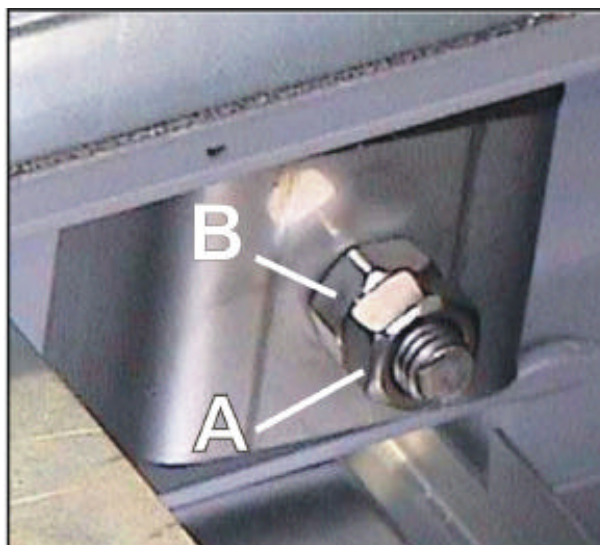
- Remove the six screws from the top plate.
- Remove the top plate.



- Remove the insulation plates.



The attachment brackets are visible.



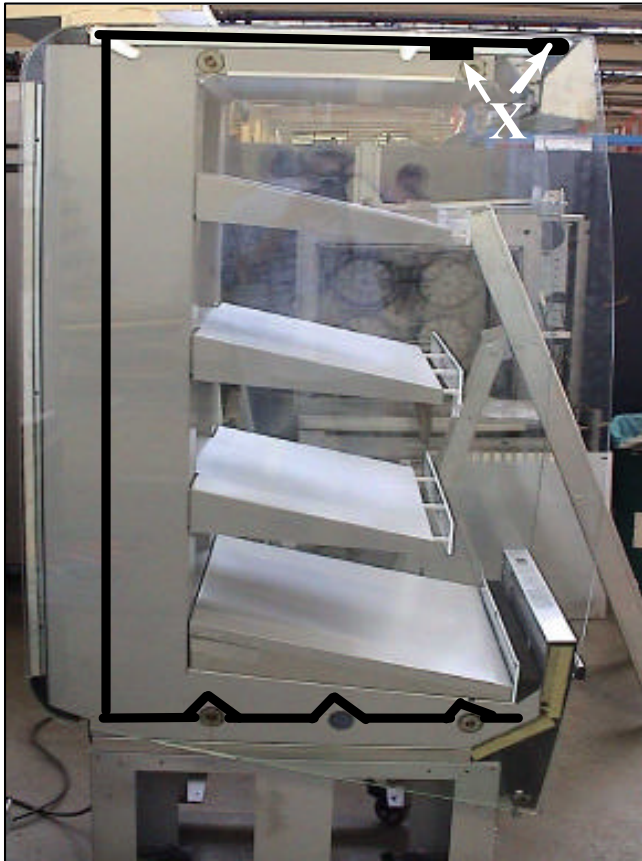
Remove the old notches that were glued to the glass by taking them from the attachment brackets.

Use two spanners to proceed as follows:

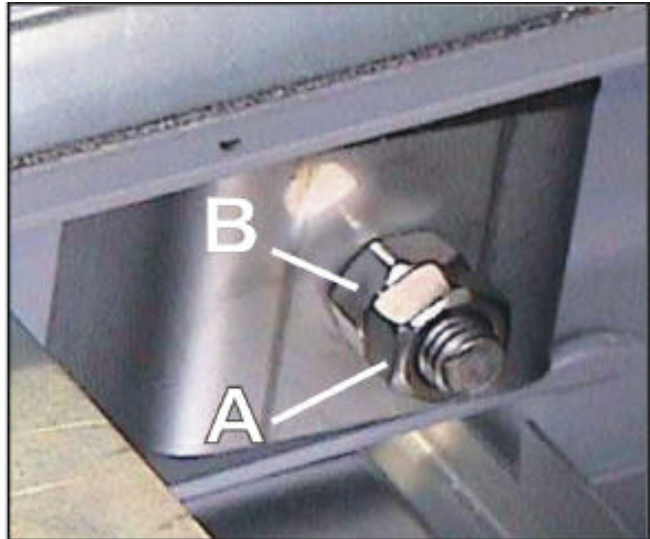
- Hold nut B with one spanner.
- Detach nut A with the other spanner.
- Remove the brackets and the old notches.



## Putting the new glass in place

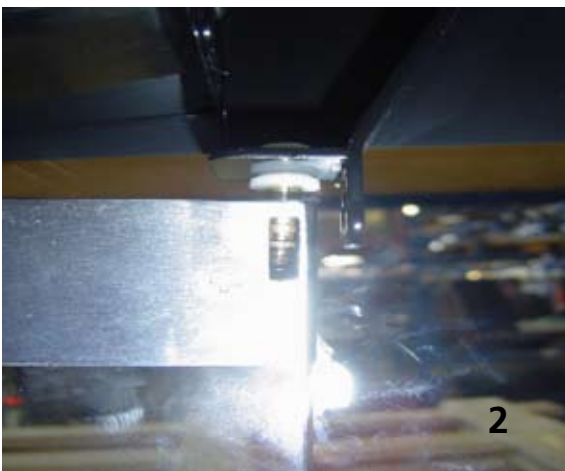


- Attach all nuts B by hand.
- Hold nut B in position using a spanner.
- Tighten nut A firmly using a spanner.



- Thoroughly clean the side and remove any traces of fat.
- Glue 2 piece of foam of 1/8". (X) on the top side.
- Apply silicone paste following the pattern as shown in above picture.
- Position the notches which are glued to the glass in the holes.
- Put the brackets on the threaded studs.
- Put the insulation plates in the top !
- Apply the top plate.
- Put the screws in the top plate
- Put the bottom plate in the unit.
- Position the honey comb profile with the retainer in the opening.
- Place the product stopper in the channel in the bottom plate.

## REPLACING THE GLASS DOOR



1. Open the door and press the spring of the hinge pin down with a screw driver (picture 1+2). Move the door a bit towards yourself until the pin comes out of the hole. Hold the door to prevent it from falling.
2. Tilt the door out of the bottom hinge and remove the door.
3. Place the new door with the hinge profile on the bottom side into the bearing. See to it that the nylon ring and bearing are placed in the hinge hole. (pict. 3)
4. Move the door towards the upper bracket, push the pin down and see that the pin slides in the nylon bearing until it is secured.
5. Glue the bumpers on the outside of the hinges to prevent that the door can damage the side glass panel. (pict. 4)
6. Test if the door is fitted in the right way, that it shuts OK and that the bumpers are in the right place.

## ELECTRICAL TESTS AND SERVICE PROCEDURES

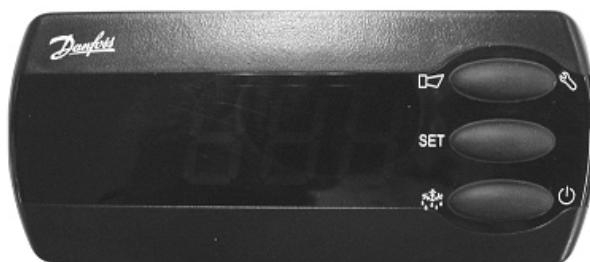
**WARNING:** Disconnect the electrical power to the machine at the main circuit box. Place a tag on the circuit box indicating the circuit is being serviced.

### HEATING ELEMENT TEST

**Note:** When testing the resistance of the element remove the wiring.

Type	Wattage/Voltage	Resistance $\Omega$ -5% + 10%	Current A
MD 60 with glass door	1400 / 240	41.2	5.8

### ADJUSTING DANFOSS EKC 102A THERMOSTAT



**Note:** In order to adjust the thermostat, first remove the thermostat according prior procedure.

#### Changing set point

1. Press the middle button until the temperature value is shown.
2. Change value with upper or lower button.
3. Press the middle button to confirm.

#### Setting internal parameters

1. Press the upper button for 3 seconds. In display the first parameter appears (ro1).
2. Press the middle button to read out value.
3. Change value with upper or lower button.
4. Press the middle button to confirm.
5. Press the lower button for the next parameter. Follow instructions 2 to 4.

When no key is pressed after last confirmation, system goes back to normal operation mode after 20 seconds.

## Replacing of thermostat

When you install a new thermostat, then always change parameter r05 first to 0 (°C) and change parameter o07 to HE. Otherwise some other parameters cannot be changed to the desired value. Otherwise some other parameters cannot be changed to the desired value. You can run through the parameters with the up or down keys, once you are inside the parameter settings.

## Options

1. Return to factory settings. Turn the power off. Press and hold the upper and lower button and switch the power on at the same time.
2. Actual temperature of sensor 1 (Thermostat). Press up key shortly 2 times.

## Error codes on display

E1: Fault in controller.

E29: Cabinet sensor broken or wiring problem sensor.

	Parameters Danfoss EKC 102A thermostat		MD 60
	Setpoint	°C	85
r01	Differential	°C	1
r02	Higher setpoint limit	°C	99
r03	Lower setpoint limit	°C	0
r04	Off-set temperature indication	°C	-5
r05	Temperature unit (°C / °F)	°C	°C
r09	Correction of signal from air output	°C	0
r12	Start / stop of temperature control		1
c01	Minimum "ON" time compressor	min	0
c02	Minimum "OFF" time compressor	min	0
c30	Reversed function of relay contact		OFF
d01	Defrost method (0=none)		0
d02	Defrost end temperature	°C	6
d03	Defrost interval	hour	8
d04	Maximum defrost time	min	45
d05	"ON" delay after defrost	min	0
d10	Defrost sensor (0=time, 1=air)		0
d13	Defrost at start up		no
o01	Output delay after start up	sec	0



			MD 60-
o05	Access code all settings		0
o06	Sensor type		ptc
o07	Warm (HE) / cold (rE)		HE
o15	Step value display (yes = 0.5°C / no = 1°C)		no
o65	Store parameters under number		0
o66	Restore parameters as stored		0
o67	Store current parameter as factory default		OFF
u58	Status relay 1		-

## CONTROL LOCATIONS



light switch



heating switch



thermostat EKC 102A

## TROUBLESHOOTING

### TROUBLE SHOOTING MULTI DECK 60 WITH GLASS DOOR

Symptom	Possible causes
No power to cabinet controls.	<ol style="list-style-type: none"> <li>1. Main breaker open.</li> <li>2. Wiring loose.</li> </ol>
Main fuse or breaker blows.	<ol style="list-style-type: none"> <li>1. Wiring incorrectly.</li> <li>2. Heating element shorted.</li> <li>3. Wiring shorted.</li> </ol>
Illumination does not work.	<ol style="list-style-type: none"> <li>1. Lamp malfunction.</li> <li>2. Tumble switch malfunction.</li> <li>3. Electronic ballast malfunction.</li> <li>4. Wiring loose.</li> </ol>
No heating.	<ol style="list-style-type: none"> <li>1. Wiring loose.</li> <li>2. Heating element malfunction.</li> <li>3. Relay K1 malfunction.</li> <li>4. Security thermostat tripped.</li> <li>5. Wiring loose.</li> <li>6. Thermostat malfunction.</li> <li>7. Sensor wiring loose.</li> </ol>
Security thermostat tripped.	<ol style="list-style-type: none"> <li>1. Blower for heating malfunction.</li> <li>2. Setting of thermostat.</li> <li>3. Thermostat malfunction.</li> </ol>
No indication on electronic thermostat.	<ol style="list-style-type: none"> <li>1. Electronic thermostat malfunction.</li> <li>2. Wiring loose.</li> </ol>
Blower motor does not run.	<ol style="list-style-type: none"> <li>1. Wiring loose.</li> <li>2. Motor inoperative.</li> </ol>

This is an analytic description for servicing and repairing all major parts of the Multi Deck 60.

1. Symptoms.

2. Possible causes.

3. Solving of the problem: checking/action.

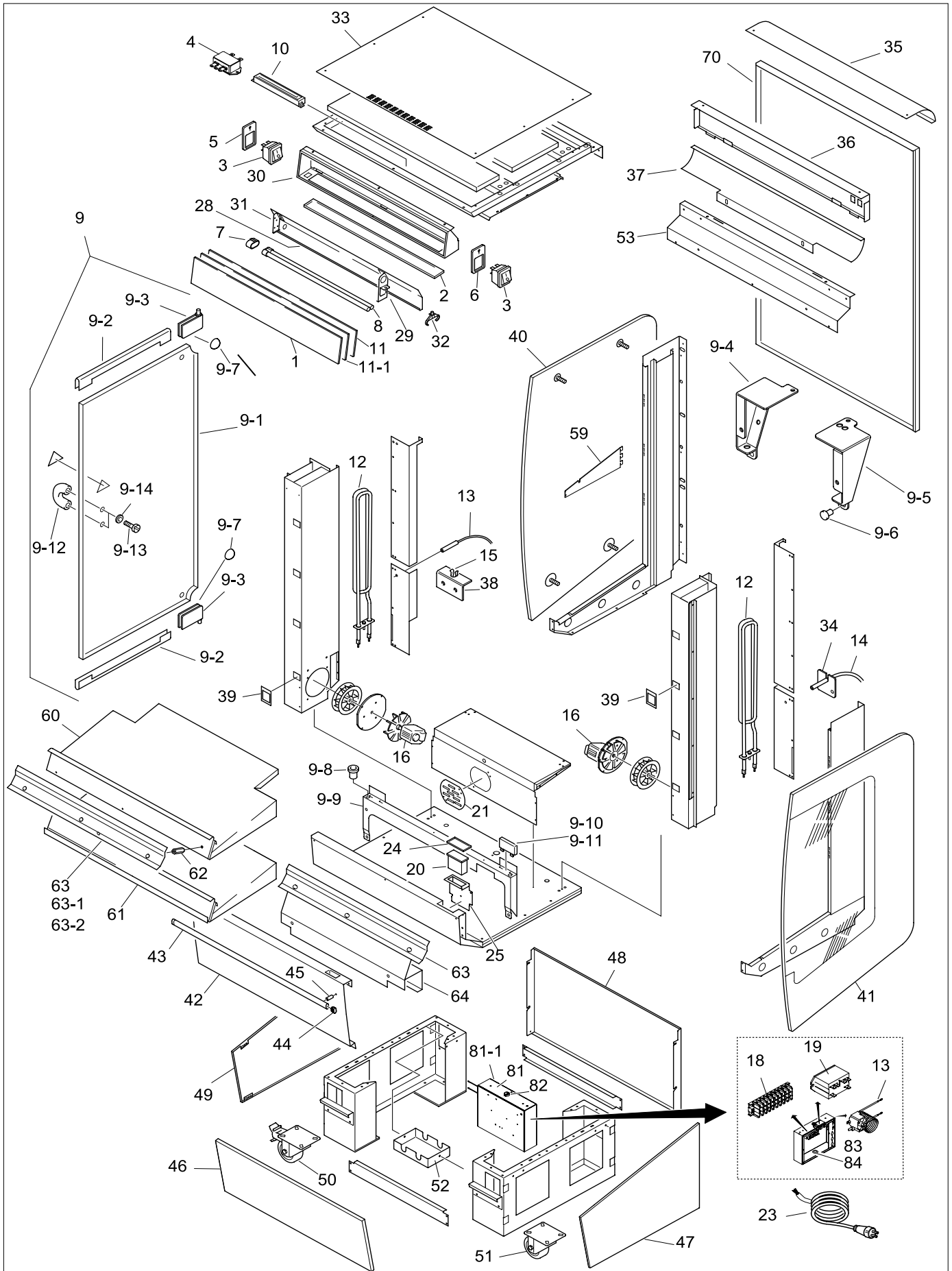
4. Replacing of parts and testing:

a. Replacing is described in this service manual.

b. For testing see control locations on page 18 of this manual.

Description of part	Symptoms	Possible causes	Solving: checking / action
Relay K1	Relay does not come in.	Wiring	Check the wiring
		Coil malfunction	Check resistance of coil. This should be $\pm 7.0K\Omega$
		Contact burned	Check the contacts
Heating element	The cabinet is not reaching the adjusted temperature	Wiring	Check the wiring
		Element malfunction	Check the power on the element
Tumble switch	Light or heating does not switch on	Wiring	Check the wiring
		Contact burned	Check the voltage on "in"- and "output".
Electronic ballast	Light does not switch on	Wiring	Check the wiring
		Ballast malfunction	Replace ballast
PL lamp	Light does not switch on	Wiring	Check the wiring
		Lamp broken	Replace lamp(s)
Security thermostat	The cabinet is not reaching the adjusted temperature	Wiring	Check the wiring
		Security thermostat switched off	Reset thermostat
		Security thermostat malfunction	Replace thermostat
Electronic thermostat	Display does not light up	Wiring	Check the wiring
	The cabinet is not reaching the adjusted temperature or does not heat up at all	Loose sensor	Check sensor
		Thermostat malfunction	Replace thermostat
PTC 1000 sensor	The cabinet is not reaching the adjusted temperature or does not heat up at all	Broken sensor	Replace sensor
		Loose sensor	Check wiring
	The cabinet becomes too hot	Broken sensor	Replace sensor
		Sensor shorted	Check wiring
Blower(s) on heaters	Security thermostat switched off	Wiring	Check wiring
			Check voltage on blower
		Blower malfunction	Check for blockage
			Replace blower

# EXPLODED VIEWS & PARTLISTS



Multi Deck 60 UK Hot Assembly Drawing

ITEM	PART NO	QTY	DESCRIPTION
1	9222012	1	Protection plate dia, transparent
2	9222011	1	Protection plate, illumination inside
3	9181008	2	Switch, tumble
4	9221013	1	Interference filter
5	9181071	1	Sticker, light
6	9181072	1	Sticker, heat
7	9082897	1	Lamp holder
8	9160019	1	Lamp, PLL 55 W
9	9220084	1	Front door, ass.
9-1	9222146	1	Glass
9-2	9224149	2	Protection profile
9-3	9221024	1 set	Hinges incl. plastic bearings
9-4	9224152	1	Mounting bracket, left
9-5	9224153	1	Mounting bracket, right
9-6	9086207	1	Bumper
9-7	6802032	2	Bumper, hinge side (40 pieces)
9-8	3701242	1	Nylon ring 3 mm
9-9	9224150	1	Support, door
9-10	9224151	1	Holder, magnet
9-11	9070141	1	Magnet 50x19x6 mm
9-12	8065038	1	Door handle
9-13	0141107	2	Screw M4x12
9-14	0142129	2	Rivet M4 ss
10	9221015	1	Ballast, 1x 55 W
11	9222013	1	Protection plate, dia, opal
11-1	9223010	1	Diastrip
12	9222047	2	Heating element, 1400 W
13	3500037	1	Thermostat with reset, 100-320 °C
14	9221011	1	Temperature sensor
15	9073181	1	Cable clamp
16	9221000	2	Blower
18	8033659	1	Connecting block, 9-pol.
19	3500187	1	Relay
20	9221009	1	Thermostat, Danfoss
21	9225419	1	Cover plate
23	3501008	1	Connecting cable with plug
24	9222015	1	Protection plate, thermostat
25	9224089	1	Bracket, thermostat
28	9225083	1	Mounting plate, lamp brackets
29	9224113	1	Bracket for support lamp
30	9225086	1	Light box
31	9224067	1	Bracket, lampholder
32	9222210	1	Support, lamp PLL
33	9225087	1	Top plate
34	9224121	1	Sensor holder
35	9225070	1	Top plate, bended

[illegible]

## ELECTRICAL DIAGRAMS

