

REFRIGERATOR MANUFACTURER  
**Turbo air**

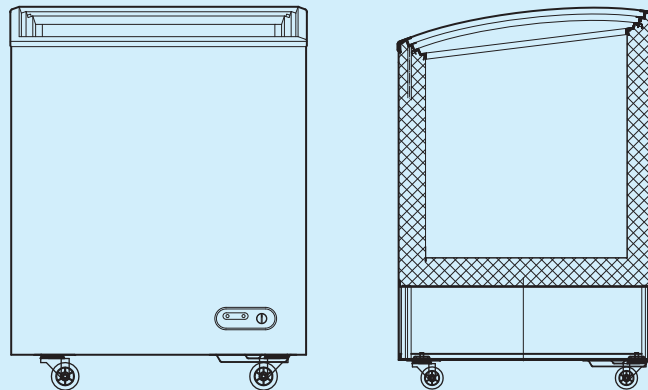
*Turbo Air Speed up the Pace of Innovation*

**CAUTION!**  
PLEASE KEEP POWER  
SWITCH ON BEFORE  
OPERATING THIS EQUIPMENT

# Commercial Ice Cream Freezers Service Manual

Please read this manual completely before attempting to install or operate this equipment!

TSD-27CF



[www.turboairinc.com](http://www.turboairinc.com)

Specification: Subject to change without notice.

SPECIFICATION	TSD-27CF
Classification	Direct Cool, Manual Defrost, Tropical
Power Source	115VAC, 60 Hz.
Volume	138 Liters (4.9 cu.ft)
Rated Current	2.0 Amp.
Rated Power Input	135 Watts
Power Consumption	1.30 kW·h/24h
High side /Low side pressure	155psig/-2.22psig
Refrigerant	HFC-134a (Tetrafluoroethane) CF <sub>3</sub> CH <sub>2</sub> F 115gm
Overall Dimension	695(W) x595(D) x 910(H) mm
Net Weight/Gross Weight	45 Kg./50 Kg.

**PRODUCT SPECIFICATION**

Model		TSD-27CF
Classification		Sliding glass Door, Direct Cool, Tropical
Color/Door		White/ with Door Lock Sliding Glass
Body Finish		Baked Acrylic Powder Coat
Temperature Control		Thermostat
Defrost System		Manual Defrost
Drain		Manual Drain
Evaporator		Tube Type
Condenser		Tube Type
Insulation	Cabinet	Rigid Polyurethane Foam (Blowing Agent CP) Rigid Polyurethane Foam
	Freezer Door	
Refrigerant		HFC-134a (Tetrafluoroethane) CF <sub>3</sub> CH <sub>2</sub> F
Refrigerant Charge (gm.)		115 gm
Door Lamp		None
Fan Motor		None
Compressor		KONOR GQY50AD 135 Watts
Compressor Oil		290 ml.POE Polyol Ester (Synthetic)
PTC Starter		8115PTH7M4R7MC1 (3.8Ω ~ 5.6Ω, Max current 18A/180V)
Overload Protector		11650X011 signT0296/74/T0296/05,B94-130-74,4TM762PBFZZ-51(6.3);Cut temperature:115-125 °C ;Close temperature:70-52 °C ;Overload current : 27A;UTC(Min action current):3.36A/70°C
Dryer (Desiccant)		15 gm.
Overall Dimension (W x D x H mm.)		695(W) x595(D) x 910(H) mm
Packing Dimension (W x D x H mm.)		765 (W) x 680 (D) x 970(H) mm
Net Weight (kg.)		45kg.
Gross Weight (kg.)		50 kg.

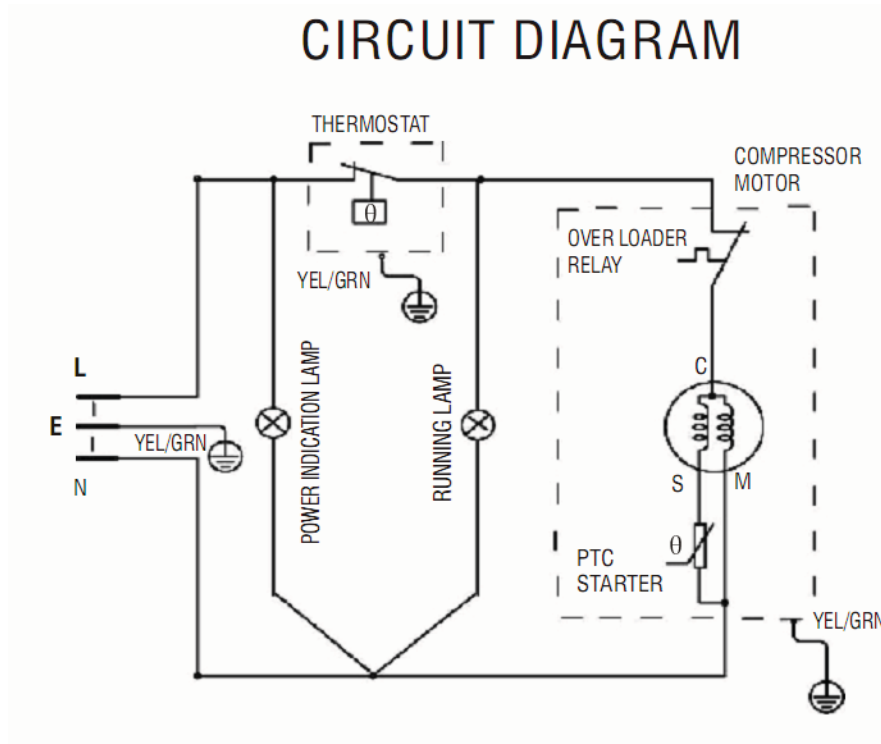
**CHARACTERISTIC**

Operating Temperature (°C)			
Temperature Control	Model		
	Dial Position		
	WARM	1	-10.0°C ± 2 °C
	NORMAL	4	-15.0°C ± 2 °C
	COLD	7	-20.0°C ± 2 °C

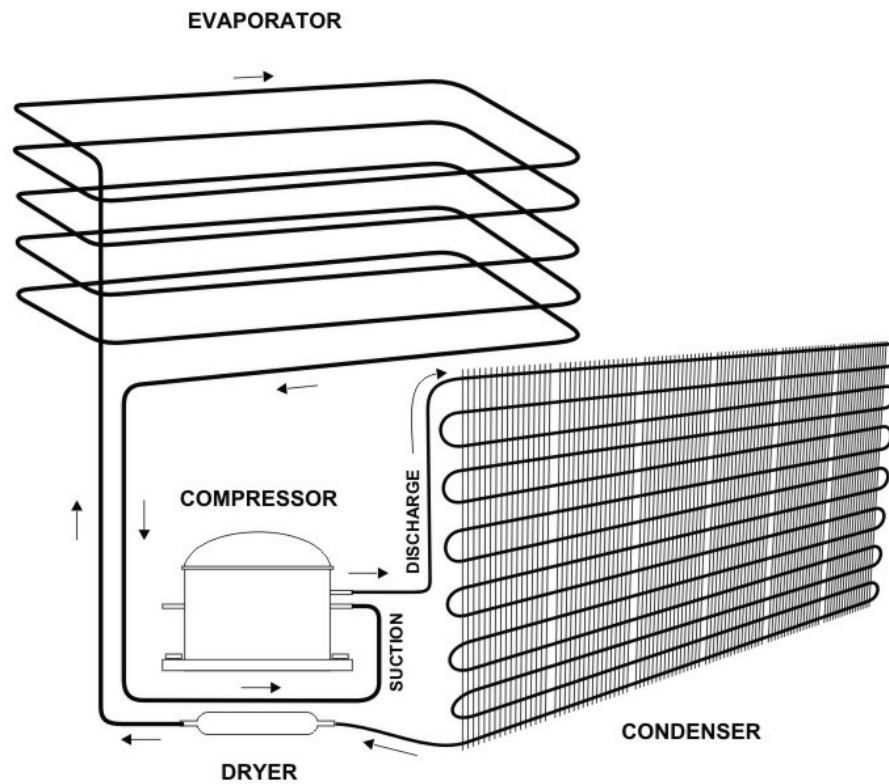
ELEC. CIRCUIT:

TSD-27CF

# CIRCUIT DIAGRAM



COOLING SYSTEM  
TSD-27CF



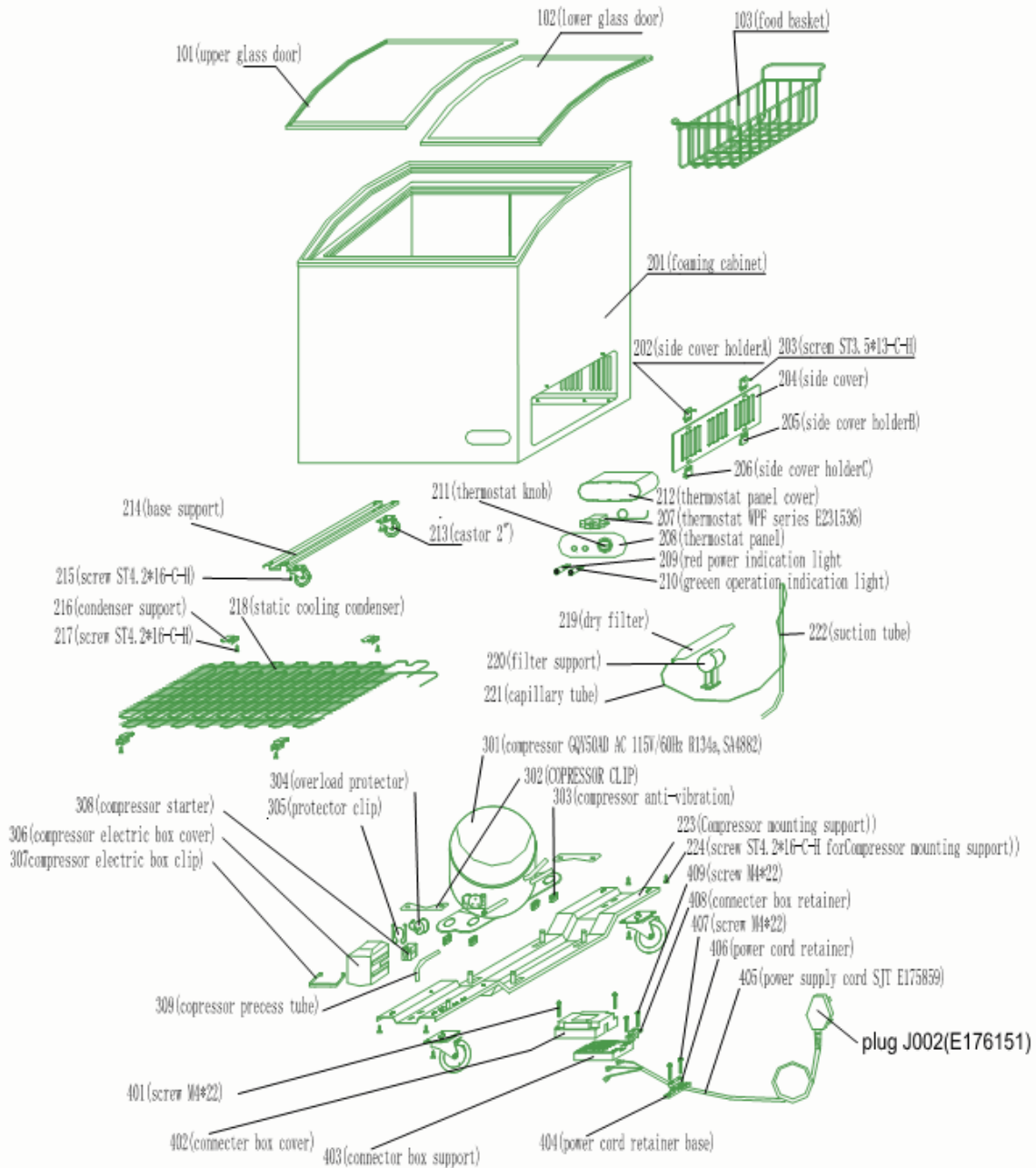
**PARTS LIST of TSD-27CF**

S/N	Part name	qty
101	Upper glass door	1
102	Lower glass door	1
103	Food basket	2
201	Foaming body	1
202	Side cover holder A	2
203	Screw ST3.5X13-C-H	2
204	Side cover	1
205	Side cover holder B	1
206	Side cover holder C	1
207	thermostat	1
208	Thermostat panel	1
209	Red indicator light	1
210	Green indicator light	1
211	Thermostat knob	1
212	Thermostat panelcover	
213	Castor 2"	4
214	Base support	1
215	Screw ST4.2x16-C-H	4
216	Condenser support	4
217	Screw ST4.2x16-C-H	2
218	Condenser	1
219	Dryer filter	1
220	Dryer filter support	1
221	Cappillary tube	1
222	suction tube	1
223	Compressor support	1
301	CompressorGQY50AD	1
302	Compressor clip	2
303	Compressor anti-vibration gasket	4
304	Over load protector	1




305	Protector clip	1
306	Compressor electric box cover	1
307	Compressor electric box clip	1
308	PTC starter	1
309	Compressor process tube	1
401	Screw M4x22	2
402	Connector box cover	1
403	Connector box support	1
404	Power cord retainer base	1
405	Power cord	1
406	Power cord retainer	1
407	Screw M4x20	2
408	Connector box retainer	1
409	Screw M4x20	2

Exploded View of TSD-27CF

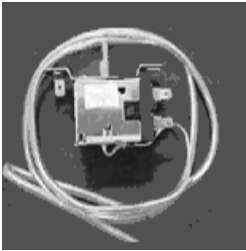


# BOM of TSD-27CF icecream freezer



**CHARACTERISTIC**

Parts Name	Picture	Check Method and Criterion		
Compressor Model :TSD-27CF		Measure the resistance with a tester. (Ambient temperature : Room temperature 25 °c)		
		Model		
		KONOR GQY50AD 135 WATTS	Normal	Main Wiring 7 ~ 8Ω (Approx.)S
		Abnormal	Open( ∞ Ω) or Short Circuited ( 0 Ω)	
PTC Starter Model : TSD-27CF		Measure the resistance with a tester. (Ambient temperature : Room temperature 25 °c)		
		Model	8115PTH7M4R7MC1	
		Normal	(3.8Ω ~ 5.6Ω, Max current 18A/180V)	
		Abnormal	Open( ∞ Ω) or Short Circuited ( 0 Ω)	
Overload Protector Model : TSD-27CF		Measure the resistance with a tester. (Ambient temperature : Room temperature 25 °c)		
		Model	T0296/74/T0296/05,B94-130-74,4TM762PBFZZ-51(6.3)	
		Normal	Less than 1 Ω (Approx.) Cut temperature:115-125 °C ;Close temperature:70-52 °C;Overload current: 27A;UTC(Min action current):3.36A/70 °C	
		Abnormal	Open( ∞ Ω)	

**TROUBLE SHOOTING**

Thermostat		<p><b>Repair Procedure</b></p> <ol style="list-style-type: none"> <li>1. Set Thermo Knob to OFF position, pull &amp; straightened feeler bulb</li> <li>2. Remove Thermostat cover and pull out Thermostat from Thermo Box</li> <li>3. Short the thermostat terminal and check, if compressor runs.</li> <li>4. Replace thermostat</li> <li>5. After replacing Thermostat, reverse steps above.</li> </ol>
PTC Starter		<p><b>Repair Procedure</b></p> <ol style="list-style-type: none"> <li>1. Release Relay Cover Fixing Clip.</li> <li>2. Remove Relay Cover.</li> <li>3. Remove PTC Starter</li> <li>4. Pull out PTC Starter, check if open and compare value of resistance with given value, if not</li> <li>5. Hold receptacle terminal then pull electrical wire from PTC Starter.</li> <li>6. Replaces PTC Starter (change overload protector together), reverse the steps above.</li> </ol>
Overload Protector		<p><b>Repair Procedure</b></p> <ol style="list-style-type: none"> <li>1. Check for continuity on overload protector, if open</li> <li>2. Pull out Overload Protector.</li> <li>3. Hold receptacle terminal then pull electrical wire from Overload Protector.</li> <li>4. Replace overload protector.</li> </ol>

Cause	Check Point	Correction
Compressor	Check coils resistances	<b>Repair Procedure</b> 1. Replace compressor if measured resistances differ from given standard 2. Abnormal noise
Not cooling	Check thermostat setting	<b>Repair Procedure</b> 1. Operate unit for 10 minutes with thermostat set at maximum
Insufficient cooling	Check gasket gap	<b>Repair Procedure</b> 1. Check if gap can be resolved by adjustment of door hinges fixing screws. 2. Defrost if accumulation of frost is more than 10mm.
Malfunction due to leaks or clogged system	Charged (purge) with nitrogen into the refrigeration system & check for leaks on welds or clogs	<b>Repair Procedure</b> 1. Check for clog or leak in the cooling system. 2. Repair or replace the clogged or leak section. 3. Evacuate and change filter dryer. 4. Purge with nitrogen to clean and check for leaks 5. Recharge refrigerant, test run and seal system

TROUBLE	INSPECTION	CAUSES	REMEDY
No Power	Check electric power supply voltage	Open circuit breaker or fuse	Fix or replace
		Open Fuse	Replace
	Check electrical circuit	Worn out or defective A/C cord	Replace
No Light	Check lamp	Open	Replace
	Check lamps socket	Corroded	Replace
Low Cooling	Check for thermo setting Check leaks	Setting too low	Set thermostat higher
		Deform or warp door gasket.	Adjust door hinges fixing screws
		Poor weld on joints	Repair, purge with nitrogen re-charge refrigerant and test run.
		Over storage or load or heavy frost accumulation	Reduce or re-arrange load or defrost unit
Defective Cooling System	Check Thermostat	Check if compressor runs by shortening thermostat	Replace thermostat if compressor runs.
	Check PTC starter resistance against given value	Open, no resistance or differ from given value	Replace PTC starter.
	Check Overload Protector	Check for continuity	Replace if open.
	Check for leaks	Leaks or poor welds on joints	Repair, re-weld, purge, evacuate and recharge refrigerant
	Check Compressor resistance against given specification	Defective	Replace, weld, purge, check for leaks and re-charge refrigerant, test run and seal system
	Check Pipe System	Clogged Pipe System or oil choke	1. Evacuate then Purge with nitrogen to remove clogs 2. Repair or replace clogged section, evacuate, purge, check leak and re-charge refrigerant. Test Run and seal system