

Thermal Electronics Corp.

Service & Parts Manual



Rev.1 07

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The MilkMate 2005 cooler is one of a few truly environmentally friendly coolers in the food service industry today. The MilkMate 2005 uses a solid state module called a peltier module for cooling. A dc current is passed thru the module resulting in one side cooling while the other side heats up. The hot side of the module has a large heat sink and fan to expel the heat to ambient and the cold side is insulated causing that side to continually cool. The Peltier effect is considered a heat pump.

The MilkMate uses the room temperature as its temperature regulator. The unit is designed to maintain product at about 36-41 degrees with an ambient room temperature of 72-80 degrees. Ideal room temperature is 74-75 degrees. **The unit should run 24-7** and is designed this way.

Trouble shooting

1. MilkMate is freezing product

Product should be removed at the end of every day and stored in a proper fridge. If the product is left in the cooler it can either freeze or spoil over time .

2. Product is spoiling after 24 hours

Product is being left in cooler over night. It should be removed and place in a fridge for overnight storage until next day as per NSF sanitation regulations.

3. Product temperature is above safe zone

- Check to make sure room temperature has not increased over recommended room temperature. Add water in the bottom to increase cooling area
- Cooling fan may be obstructed or unit is not circulating air properly because of equipment or product obstructing air flow.
- Dust has accumulated on fins of heat sink inside the unit causing the unit to be reduced in efficiency.

Solutions:

- Reduce room temperature to required temperature.
- Remove dust buildup by blowing out fan and fins with compressed air.
- Remove equipment that is obstructing the air from circulating.
- Remove local heat source to another location away from proximity of MilkMate cooler.

MilkMate will not work at all

- Fan not working, unit not cooling or heating at all. Unit is completely dead.

Solution:

- Check primary fuse in fuse holder.

Replace with **(Slow Blow 2 amp [5 x20mm glass fuse])**

Problem:

Fan not working replace fan. Power still coming from ac side of rectifier (12-13V ac output) from rectifier or 12-13V dc from capacitor. MilkMate is not cooling or is working but temperature inside well is significantly higher than usual (**almost hot!**).

Solution:

The cooling chip is cooling but fan is dead and needs to be replaced!

Problem:

Fan is running but no cooling is occurring

Solution:

- Tec module is damaged needs to be replaced.
- Refer to page 5 for TEC replacement procedure.

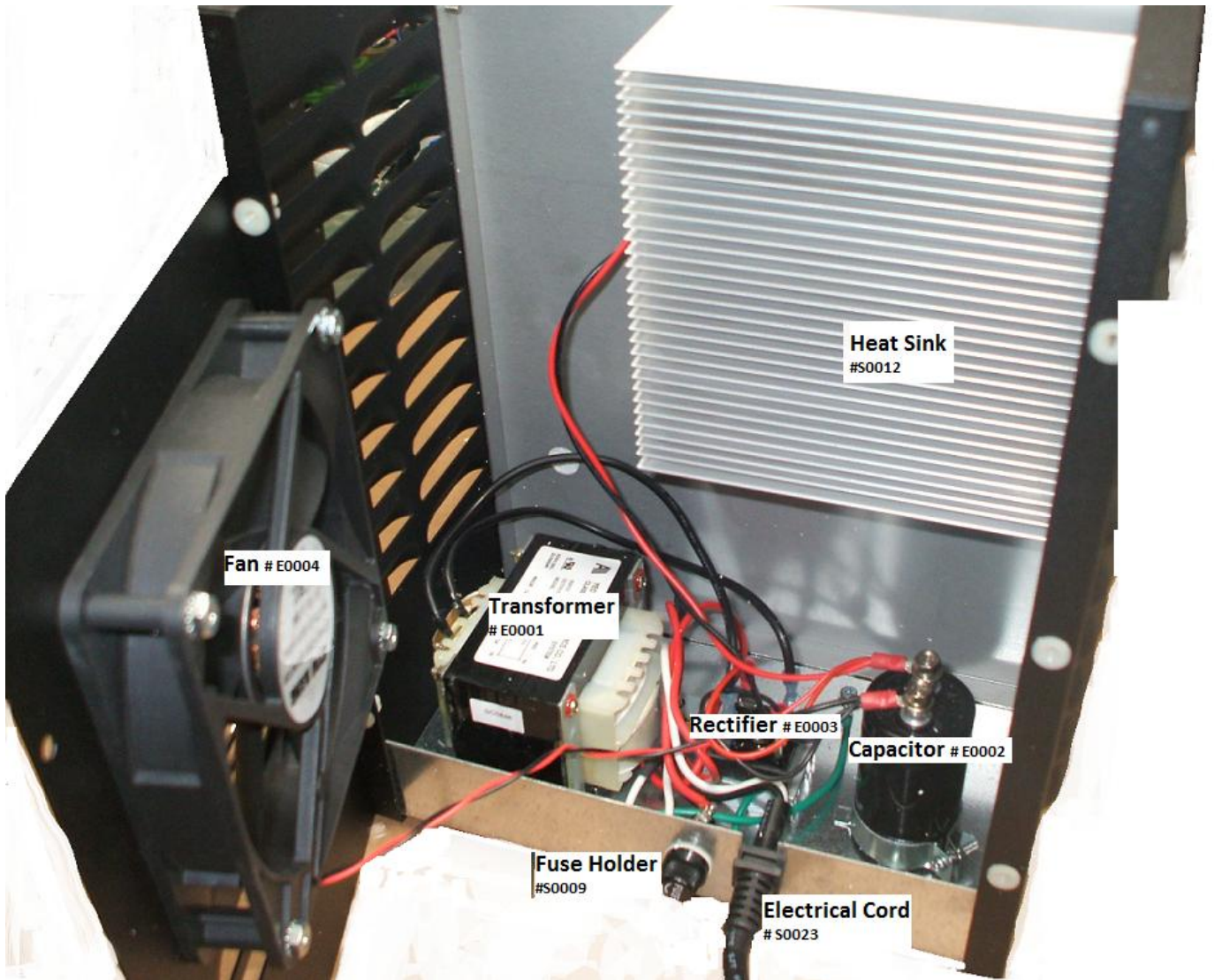
Procedure for replacing chip

Undo the four screws that hold down top plate cover. The white well is glued to the top so both come out together.

Remove back plate (6) screws. Two screws holding the aluminum cold L-plate inside the well removes them from inside the well. to release the heat sink. Follow procedure for replacing TEC Module on **page 5**. (Stubby handle Phillips #2)

Parts List MilkMate 2005 & 2G

Part#	Electrical Description	Spare Part Ratio	Distributor Cost
1. E0001	100VA Transformer	1:30	49.90
2. E0002	16V DC Capacitor	1:30	12.95
3. E0003	Full Bridge rectifier	1:3 0	12.10
4. E0004	12V DC 120mm Fan	1:10	23.50
5. E0005	Ht-4-6 Module	1:5	25.50
6. E0006	2 amp Slow Blow Glass fuse 5x20mm	1:5	1.50
7. S0007	Fan Guard	1:50	4.50
8. S0008	Fan Screws(Nuts)set 4	1:100	4.00
9. S0009	Fuse holder	1:25	4.30
10. S0010	Neoprene gasket (heat sink)	1:5	3.95
11. S0011	Extender Block	1:100	12.39
12. S0012	Heat Sink (Large)	1:100	85.90
13. S0013	Cold sink (L-Shape)	1:100	25.95
14. S0014	Cold sink Screws(2)	1:100	1.50
15. S0015	Extender Block Screws(2)	1:100	1.50
16. S0016	Thermometer	1:100	7.90
17. S0017	Base feet Adhesive	1:50	2.90
18. S0018	Thermal Grease	1:5	3.50
19. S0019	Insulation	1:1000	22.50
20. S0020	Body Screws and body	1:1000	199.00
21. S0021	Plastic Well Container	1:1000	28.90
22. S0022	Plastic well container(2000)	1:1000	38.90
23. S0023	Electrical cord SVT 3 conductors	1:1000	9.90
24. S0024	Plastic top	1:100	27.90
25. S0025	Plastic top cone(2000)	1:100	32.50
26. S0027	Fan 80mm (2G)	1:50	14.50
27. S0028	Power Board 115V/230V to 24V dc	1.25	169.00
28. S0029	HS-32Fin-127mm.EX	1:100	84.00
29. S0030	Power Board leads AC & DC	1:100	10.49



MILKMATE 2005 Component View



Exploded view of MilkMate

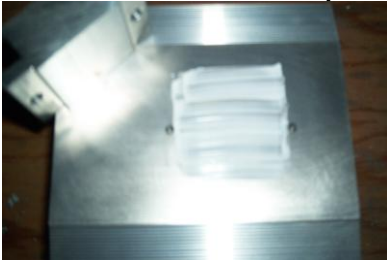


View of heat sink assembly

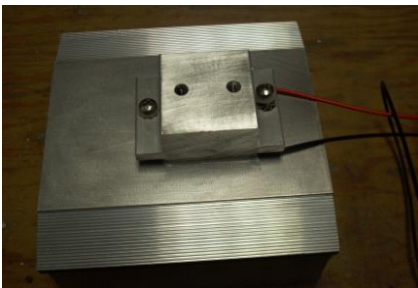
Procedure For Applying TEC



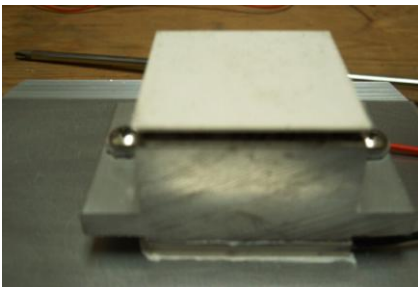
Surface must be properly cleaned. Flatness is paramount!!



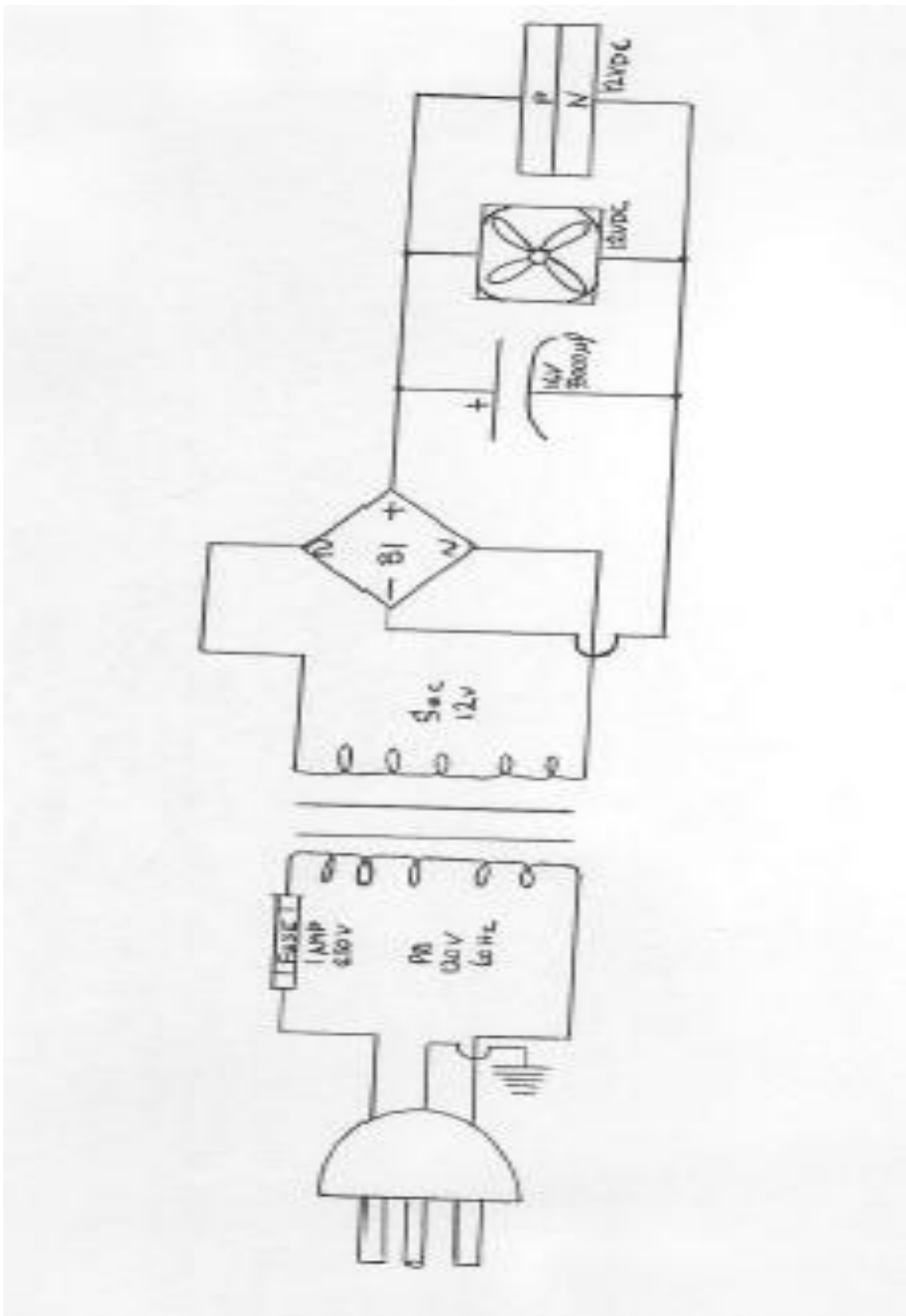
Thermal grease is applied to all interface surfaces of the heat sink and down face of the Aluminum block.



The TEC is then applied to the heat sink surface and the block is applied to the top of the TEC. Make sure **red wire is in top right hand corner on short side of heat sink**. There should be equal pressure to the TEC at this point. $\frac{1}{4}$ " turn back and forth until block is taunt not tight. No more than 8-10 foot pound per inch of torque is to be applied to each screw. **EVEN PRESSURE!!**



DO NOT OVER TIGHTEN!! OR THE TEC WILL BREAK. Once you see a small amount of grease ooze out from the side, which is a good indication that the TEC is tight enough. More grease should be applied to the top and attached back to the L-Plate.



Electrical Schematic Wiring Diagram