

Introduction to the TM Refrigerator

Trail Manors come equipped with an undercounter refrigerator as a standard appliance. Like the one in your home, this is a real refrigerator, not an icebox or cooler. Although it is small compared to your home refrig, it has a freezer that will actually make ice, and keep ice cream and frozen foods solidly frozen.

The refrigerator in the TM has a capacity of 2.3 cubic feet. The manufacturer, Dometic, designates it as Model RM2333 or RM2353 (the model number may have changed), one of the Americana series. Dometic's web site

<http://www.dometicusa.com/products/refrigerators/americana/singledoor.htm>

is not particularly informative, but there is some information there.

Your home refrigerator uses a compressor to create the cold that chills your food. The mechanism in the TM refrig, as in most RV's, is different. It is a so-called absorption cooler, and has no moving parts. It uses heat to create cold! The theory behind this unlikely-sounding trick is beyond the scope of this write-up, but if you are curious about how it works, there is a lot of information on the web.

The TM refrigerator has three sources of heat built into it. The first is an LP gas (propane) burner. The second is an electrical heating element that operates from AC (shore) power. The third is a separate-but-similar heating element that operates from 12-volt battery power. The three heaters are completely independent – if one malfunctions, it has no effect on the other two.

You select any one of the three heat sources using a rotary switch on the front panel of the refrig. As a general rule, you use propane when you are boondocking (dry camping) without electrical hookups. You use AC when you are camped with hookups. And you use DC when you are driving down the road. (You can also use DC when you are camped with hookups, but it puts more strain on your electric converter, and doesn't cool as well, so why do it?) Do NOT use DC for more than a few minutes when you are parked without hookups. The DC heating element draws a lot of current, and will completely drain the TM battery in a very few hours. It will also drain your tow vehicle's battery if you don't have a battery isolator.

Lighting the gas burner is almost, but not quite, straightforward. See the tutorial titled Gas and Gas Appliances for some insight into how to do it more easily. The controls for lighting the gas burner are on the front panel, so you do it from inside the TM. It lights with a piezo-electric "snapper", so no matches or flames are needed.

You should seldom if ever need access to the back of the refrigerator, but if you do, remove the two access panels on the outside of the TM behind the refrig. One reason to get in here is if the gas burner just won't light, despite your best efforts. With a little effort, you can get access to the gas burner behind the lower panel. There is a species of tiny spider that is attracted to the smell of propane, and in periods of non-use, they

occasionally weave a web in the gas burner orifice, preventing it from lighting. You can clean out the web-stuff with compressed air or a Q-tip.

When the TM is set up, the heat from the refrigerator escapes through the top panel. But when the TM is closed, the heat is trapped in the compartment. TM has included a small fan to suck the hot air out of the compartment through a short length of dryer hose. You should turn on the fan whenever the TM is closed and the refrig is running (on any heat source). On hot days, it may also help to run this fan while the TM is open. The switch is on the control panel in front of the sink.

The fan is screwed to the floor at the bottom end of the hose. It pulls hot air down through the hose and shoots it out through a hole in the floor of the compartment. The fan should NOT blow air upward – if it does, either unscrew it from the floor and turn it over, or reverse the electrical connections.

Finally, behind the lower access panel, you will also see the AC plug and socket that bring AC power to the refrigerator. If the refrig won't work on AC, this is the place to confirm that AC power is being delivered to it.

Because the refrigerator is small, it is tempting to cram food in as tightly as possible. Try to avoid this temptation. Since the cold air can't circulate, cooling will be uneven. Warm spots and extra-cold spots will develop, so your milk may spoil while your lettuce freezes. Some users have found it worthwhile to set a small battery-powered fan on one of the shelves, to aid circulation. You can get one from Camping World and other RV supply places for less than \$15.

The AC element cools best. In preparation for a trip, it is often good to precool the refrig on AC the night before departure. Then load the refrig in the morning, switch to DC, close the TM, hook up your tow vehicle, and you are off!

Augmenting the refrigerator:

If you are a good planner/organizer, or if you expect to be camped near a grocery store, the TM refrigerator is adequate for several days. On the other hand, if you want more refrigerated space, there are two easy ways to augment the capacity. One is a simple cooler or ice chest. The advantage of a simple cooler is that it is inexpensive to buy, and can be moved back and forth from the TM to the tow vehicle. This lets you have cold sodas and sandwiches in the tow vehicle, without opening the TM. The disadvantage, of course, is that you must buy ice, and deal with the meltwater (or have some way to freeze plenty of blue ice packs).

The other way to augment your refrig is to get a thermoelectric (TE) cooler. Like an ice chest, the TE cooler can be moved back and forth from the tow vehicle to the TM. But instead of ice, it has a small built-in thermoelectric module that is powered by your TM or tow vehicle's cigarette lighter outlet. Buy one that comes with an AC adapter, so you can run it from shore power when available. Coleman makes a nice 44-quart TE cooler, which is often available at stores like WalMart for \$60 or so, including the AC adapter. Be aware, though, that TE coolers draw considerable current, and should be unplugged if your tow vehicle engine isn't running or you don't have an AC hookup.