

Mon, 07 Jul 1997

Dometic 182B fire alert

First let me admit that my experience may have been a fluke. You may recall that I previously described a situation that rendered my fridge partially inoperative. I was pre-cooling it on propane, parked the car in front of the house, came out 10 minutes later and opened the sliding door, and was greeted by a rush of smoky air (like someone had smoked a cigarette or two inside with the windows shut).

Anyway, the 8A fuse (behind the driver's seat) was blown and the circuit was shorted. In reviewing the Bentley manual's wiring diagram, I surmised that the fan motor had shorted out. In order to run the fridge on 12V and 110V, I pulled the one wire from the three-prong plug (though of course I would be running without the fan, and wouldn't have the propane ignitor).

Well, I pulled the fridge this weekend and here's what I found:

The fan had caught fire! The motor was there, but the fan blade assembly (and all other plastic pieces of the motor) was gone.

The wires were melted off and fused together.

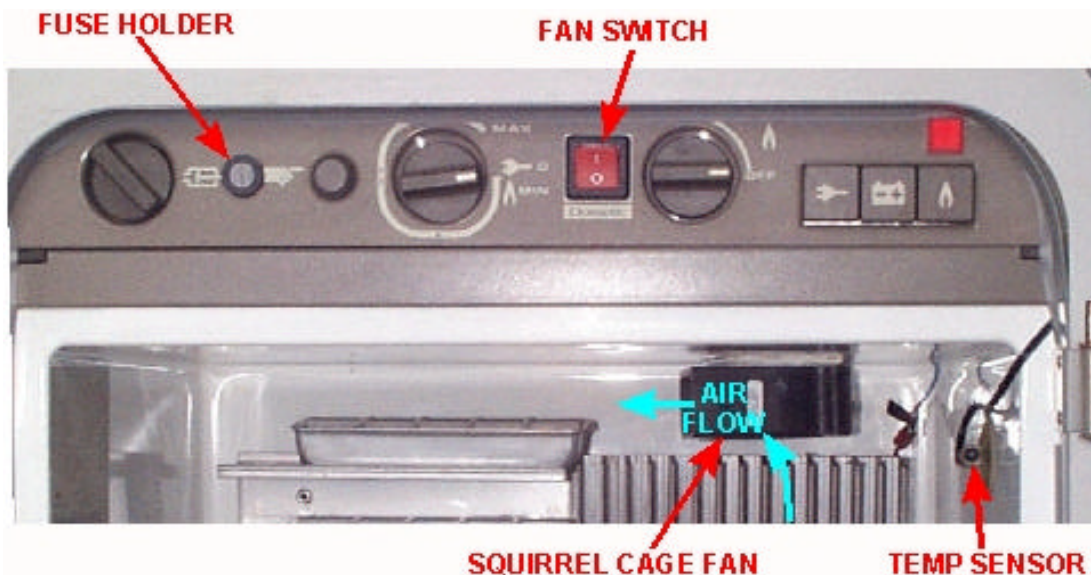
BUT IT GETS WORSE!!

There's a 2" high portion of the wall paneling that "frames" the backside of the opening; a 3" wide section of this was burned down to the floor (probably as a result of the burning, melted plastic of the fan blades dripping down on it).

Why the whole vehicle did not go up in smoke, I don't know!

THE FIX

I was never too happy with the fan motor circuit having power all the time, even when the fridge was not operating. It gets hot enough here in New Mexico to kick the fan on when the car is sitting in the parking lot, and since there didn't seem to be an "automatic" way, I decided to install a switch. And while I'm at it, a secondary fuse for the fan motor (with a lower rating, to be sure).



I had already purchased one muffin fan (cigarette pack size in Derek Drew's "fridge manual") to add to the back. I returned to Radio Shack and bought another one, part # 273-243 (to make it two), plus:

1. The small fan (273-240) to install inside the fridge
2. A low profile DPDT rocker switch (275-695 - mounts in a 5/8" hole)

3. A low profile panel mount fuse holder (270-368)
4. 5A slo-blow fuses (though I think I'm gonna go back and get some even lower-rated ones - say 3-amp)
5. Nylon wire ties.

I also picked up (elsewhere) a sheet of aluminum, 14 gauge automotive wire, some clear silicon, and shrink tubing.

Examining the "control" panel atop the fridge, I found that there was space for the rocker switch right where the Dometic logo is, and that the fuse holder could be installed between the pump and the thermocouple hold-down button. I drilled the two appropriately-sized holes using wood-boring "spade" bits at low speed in an electric drill (this is THE way to drill plastic; twist drills don't cut perfectly round holes).

After determining the proper orientation for the fans, I tie wrapped them together through their mounting holes, and then tie wrapped them to the bottom of the lower set of "fins." (Note that almost four years have passed and these seem to be holding fine)

I connected the wire pairs from the fans and after slipping shrink tubing on the wires, soldered the BLUE fan wires to the fridge's BLUE ground wire, and the RED fan wires to the fridge's YELLOW wire which comes from the thermo switch. Slid the shrink tubing over the solder joints and shrank it.

I opened up the cover over the terminal block and found the yellow wire that goes to the thermo switch and removed it. I then installed:

1. A new wire from the terminal block to the "in" side of the fuse
2. A wire from the "out" side of the fuse to the two center terminals on the rocker switch
3. A wire from one of the "on" terminals of the rocker switch back to the yellow wire that leads to the thermo switch (again insulated with shrink wrap)

I made sure to run the wires along with others, wire-tying them as needed and keeping them away from moving parts. I now have a fused and switched circuit to control the fans. I also installed the small fan inside the fridge with silicon, drilled a small hole in the top for the wires to pass through, grounded the BLUE wire at one of the grounding terminals, and extended the RED wire to run to the second available "on" terminal on the rocker switch. Now the switch will also control the inside fan.

I squeezed silicon all around the hole where the wires go to the inside fan to seal the hole and protect the wires. I also reinstalled the terminal cover.

Before I reinstall the fridge, I'm gonna line the rear "floor" and lower back wall of the opening with some of the aluminum sheet.

Hopefully all of this work will make the fridge safer to use (and leave unattended for 10 minutes!) in the future. I think I'm gonna install a smoke detector, too!

(Check back later for pictures and a wiring diagram)