

## Keeping Warm with a Refrigerator

By Bill Nevits

It all started last winter when I wanted to brew some beer. Brewing in the winter is easy the part. Sure it's a little cold in the garage but a few beers will take care of that. Fermenting is the hard part. I can't seem to find somewhere to ferment at even close to the right temperature. The first floor of my house has one of those day/night thermostats so it's warm and then cold a couple times a day. The upstairs suffers from the same problem and the basement is just too cold. All this leaves the problem of where do I ferment my brews that is 1) a constant temperature and 2) the right temperature for fermentation. That's when I thought of the refrigerator.

I've had this old refrigerator sitting in the basement doing nothing for a couple of years now. The fan squeals too much when its on and I'm too lazy to get someone to come and remove the freon so I can throw it away. Needless to say it's been just taking up space. While sitting around at a *wizards* club meeting one night and complaining about where to ferment my winter brews, my friend Dave suggested I put the old fridge to good use.

The idea was simple – I'd use the refrigerator in basement to warm the fermenting brew. The first problem was how to raise the temperature inside the refrigerator. This was solved by installing a light bulb socket and a 100-watt bulb. The second was how to keep the temperature constant. This was solved by installing an ordinary electric household thermostat and connecting it to the light bulb socket. I then drilled a hole in the side of the refrigerator, ran a power cord through the hole and attached a plug to the end of the cord. To round out the job, two other small additions were made. First, a small light on the outside of refrigerator is wired into the circuit so that you can tell when the light inside the refrigerator is on. Although this is clearly a useless addition, it answers the age-old question "Does the light stay on in the refrigerator when the door is closed?" The second and final addition was laying a piece of plywood on the bottom of the refrigerator to have a smooth surface for placing the fermenters and carboys. Using the warmer is as simple as plugging it in (and unplugging the refrigerator's own plug) and setting the thermostat.

So how well does it work? Obviously the thermostat isn't perfect but it does keep the temperature constant within a three or four degree range. This shouldn't be too much of a problem considering the time it takes for a large mass of liquid to change temperatures (remember it's the temperature of brew we are concerned about not the air around it). I will also admit the heat is not 100% constant throughout the refrigerator. I've put thermometers inside and found



the left and right sides to be a 3 or 4 degree difference at times. There's also much debate over whether the light is good for the fermenting beer or not. I use an opaque plastic bucket for primary fermentation and haven't noticed any change in the beer since I started using the warmer. During secondary fermentation I use a covered glass carboy that already blocks the light out so it's not a problem.

Another advantage of the refrigerator warmer is that it is easy to change temperatures. I can start fermentation at 75 degrees for the first 24 hours to really get the yeast going and then lower the temperature to the optimal range for any given yeast.

I can see three drawbacks to the refrigerator warmer. First, it doesn't serve much good as a refrigerator anymore. This is ok by me since it didn't work worth a damn in the first place. But I suppose you could leave it wired to be hot or cold! Second, it doesn't do much good in the summer when the room temperature is greater than our desired fermentation temperature. Third, it takes up space.

All in all, the refrigerator warmer has turned out to be a great addition to the home-brewery. It allows me to control and regulate fermentation temperatures all winter – a time when this used to be most difficult!

### Construction Hints

The first picture below is the complete setup ready for operation with each piece conveniently labeled.

The second picture below shows my original wiring diagram. I'm in computers not electronics so I have to give full credit to my brother Jeff. There are only two tricky parts in the wiring. The first trick is the hot wire

should go through the thermostat and end up in the hot side of the wall socket (that's the one with the bigger blade hole). Don't ask me why. It's electrical. The second trick is to make sure the indicator bulb is in parallel with the main light. I do know why this is important. Putting it in series would fry the bulb!

I hope these help.

