

DIY air compressor.

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Ever see the expensive "Designer series" air compressors at the art store ?
The super quiet ones with the matching "Designer Series" price tag.

This explains how to make a small, silent, compressor from an old refrigerator. Any type of refrigerator, dehumidifier, air conditioner, etc could be used. I used an old water cooler.

COMPRESSED AIR CAN BE VERY DANGEROUS!

MAY CAUSE INJURY, OR DEATH!

Make sure you understand what you are doing, and why.

This is only a guide. Proceed at own risk.

Guaranteed 5 feet or 5 seconds, which ever comes first.

You will need a compressor switch, WITH an unloading valve. An adjustable switch would be first choice. It will allow you to decide at what pressure the pump turns on an off. If you don't use a compressor switch, the pump won't shut off and something WILL BREAK. Also need a 1 way check valve, both are VERY important.

Look inside the refrigerator, the big black lump is the compressor. There are 3 Copper tubes coming out of the compressor. One is plugged, forget that one. The larger of the other 2 is the intake, it can be cut off where convenient. The smaller of the tubes is the pressure side. It probably steps up to approx. 1/4" diameter after about 6". You need to cut the 1/4" diameter tube, leaving approx 3/4", and install a T fitting. Compression fittings are available where ever they sell plumbing stuff. The second side of the T goes to the unloader switch, use a plastic tube the correct diameter. The check valve goes on the third side of the T. The check valve will allow air to flow one way, not the other. There should be an arrow on the valve. Install the check valve so that air can come out of the pump, and through the check valve, but can't go back in.

Once the system is pressurized, the pressure switch turns the pump off, and the unloader valve releases the pressure upstream of the check valve. If you don't do it this way, the compressor isn't powerful enough to restart until the pressure has dropped well below 20 psi. From the check valve, I run the air through the small radiator that came with the water cooler. If you don't have one, don't worry about it. It also came with a thermostatic switch that controls a fan. When the pump gets too warm, the fan draws air across the pump and blows through the radiator. Again, if you don't have one, don't worry about it.

Exiting the radiator the air goes through the compressor switch to the moisture trap and regulator. The moisture trap collects any oil and water vapor, the regulator controls the output pressure. I use a small moisture trap and regulator from Home Depot. The compressor switch turns the pump off at 120 psi and turns it on at 80 psi or lower. 110 volts from the wall goes to one side of the compressor switch, the 2 wires from the compressor go to the other side of the switch. And that's it.

A small tank wouldn't be a bad idea. I recently added a large moisture trap after the radiator to act as a small tank. A 150 psi pop off valve would be a very good safety feature. I think all the real compressors have them. Make sure your compressor switch has an unloader valve, it looks like an air fitting on the side of the small black switch box. And don't forget the check valve. Any industrial supplier that sells pneumatics should have check valves.

I don't know how long this type of compressor will last without lubrication. They use oil in the Freon to lube the pump. I don't know how critical this is. It may or may not be a problem.

When you drain the Freon make sure you flush the oil out of the system, or it will get in your paint. I used Brake Kleen. Green Peace hates me. If you are concerned about the environment, take your refrigerator to your local air conditioning guy, to have the Freon drained.

It might not last 100,000 miles but it is QUIET and will deliver more than enough pressure and volume for airbrushing, or cleaning small parts. And how hard is it to find an old refrigerator?