

In New Zealand there are two things that are the essence of being a 'good Kiwi bloke'. These are of course playing rugby and having a shed.

Not being built for playing rugby I have had to go with the shed. I may not know a rugby hoop from a cricket stick but I know my shed like the head of my hammer. A shed is a place where a kiwi bloke spends much of his time alone surrounded by his tools, current and past half finished projects and the collection of parts and material usually referred to by others (typically wives/girlfriends) as 'that pile of junk'.

Here is a picture of my shed.

My shed is in fact really a garage as I live in suburbia but for the purposes of this story a shed it will be. Luckily I don't own a car. If I ever do get a car it will be something to tinker with and be small, old and British. Just like my mum.

Here you see my shed just before I started working on something important and it became messy.

As has been mentioned many long and productive hours are spent in the shed by kiwi blokes. Many fine inventions such as the hydraulic sheep potter and the double headed golf club have been produced as the result of much blood, sweat and beers. And herein lies the dilemma.

Beer.

A session in the shed is typically an all day affair. Starting very early in the morning and going through until late at night when the light fades to the point that you can't see and hit your thumb with a hammer a bloke will not leave his shed for anything (Hint: Empty paint cans can be very useful here). All supplies must be taken in at the start of the shed session. And the most essential of these supplies is beer.

But how to keep the beer cold?

To illustrate the problem here is a typical scene inside the shed. This beer has been sitting on the bench for some time and as you can see it is at 14 deg C, not a temperature suitable for consumption!

A closer inspection of the can shows how it quite clearly states 'SERVE EXTRA COLD'. It is interesting to note that here is one of few times a bloke will actually read the instructions for anything. Ever.

Now this presented me with a problem. How do I keep my beer in the shed all day yet have it cold and ready to drink at a moments notice?



My first solution to this problem was ice. Here is a picture of some of the early experiments.

Unfortunately that small quantity of ice would not keep multiple beers cold during the course of a day in the shed. And no, you cannot, not under any circumstances, put ice into the beer. No!

It was obvious I had to come up with a better solution to the problem.

I knew from some long forgotten physics lecture that when a liquid expands into a gas it will draw heat from its surroundings. And I happened to have a source of a suitable liquid right in my shed in the form of a LPG cylinder (liquid petroleum gas). Obviously it would not do to evaporate vast quantities of a flammable gas into the closed confines of my garage. That would probably be dangerous. What I needed was a way to remove the dangerous gas. The solution was obvious. The gas is flammable so why not burn it. Burning the gas with a normal burner would not use up the gas fast enough to give me any serious cooling. What I needed was a way to use up a lot of fuel very, very quickly.

What I needed was a jet engine!

As everyone knows jet engines use a lot of fuel. And a smallish one running in my shed would use up enough fuel from my gas bottle to sufficiently cool my beer.

I went to work. A jet engine in its simplest form consists of a **COMBUSTOR** where fuel is burnt to heat air, a **TURBINE** extracting energy from the heated air and a **COMPRESSOR** which is turned by the turbine to provide air to the combustor. I knew that a common turbocharger from a car engine has two of these three things, the compressor and the turbine. All I needed to add was the third, the combustor. After much investigating and designing and building and doggy welding I built my engine.

Here it is after an early test run.

You can see the cooling effect on the gas tank by the layer of ice that forms on it.

All that was necessary now was to place the tank in a container holding a quantity of water and add the cans of beer and fire this baby up!



The more observant of you may notice the air hose joining the compressor to the combustor was replaced with a PVC pipe. This was a very, very bad idea as PVC gets soft when it gets hot and it tends to part company with the engine at the most inopportune moments!

And now the results.

The experiment was a complete success (apart from that PVC thing). Here is the LPG tank in water before an engine run with the beer at 11 deg C. The rubber cord over the tank is to stop it bobbing about in the water (as the beer cans do).



And here is the final result after running the engine for about 5 minutes. The engine itself will run at up to 100000 rpm with exhaust temperatures of around 500 C and noise levels in excess of 125 dBA. The beer is successfully chilled to a nice cool 2 deg C.

Which is a very good thing because a cold beer is just what you need when you're standing in shed with a jet engine running in the middle of it heating things up!



COMING SOON - Kerosene fuelled afterburner/sausage sizzler!