

Vacuum Toilet

By Jules Perrin

My wife and I like cruising, but one of the intriguing and exasperating things about a cruise is the vacuum toilet. A normal gravity toilet wouldn't work in the potentially unstable environment of a ship at sea, so air pressure is used to move our waste. This is the vacuum toilet.

Other methods are used in various marine applications such as that employed on older submarines. Here the person opens a foot operated flap valve in the bowl and flushes the deposit with a hose into the tank below. This tank is then emptied by air pressure. If the flap valve is negligently and unfortunately opened just as the engineers blow the tank with air, the tank contents are sprayed in to the room at great speed and force. Quite an attack on all your senses in a very confined space.

This would not be an ideal method of waste removal for a such a dignified fare paying audience as those on a cruise ship. Well some cruise ships anyway.

According to Google, the *average* human deposits half a kilogram of solid waste a day. Now if we have a cruise ship carrying 2000 guests and a 1000 crew the population of the ship generates approx 1500 kilograms of waste per day. This 1.5 tonnes of waste a day needs to be transported from various deposit locations round the ship to the treatment equipment.

The ship is fitted with kilometres of piping solely dedicated to this task. The piping weaves its way in and out of cabins, public and private areas with the final destination somewhere in the bowels of the ship. Good pun I think.

One of the exasperating part, of the human interface side of the vacuum toilet, is the shallowness and payload limitations of the bowl. Some time the deposit can be oversized or excessive in quantity, and as my wife and I say, the job needs to be done by 'instoolments'. This is advisable as encountering waste, when doing the paperwork, can be quite off putting.

On completion of the job, one press of the big button and the payload is launched into the system at a fantastic rate of knots. Another pun. Now I know there are people a lot smarter than me who can do the physics and calculate the actual launch speed. Suffice to say its fast.

Now it's all well and good for the payload to leave the bowl at a rapid rate of knots but that speed needs to be reduced somewhere in the ship. My childish imagination thinks there is a big plate of steel some where and this is where the fast-moving projectile meets the immovable object. I like to think of it as the "splat plate". There are probably better engineering terms for this marvellous piece of equipment, but I think mine conjures some pretty dramatic encounters. I'm just thankful I don't have to clean it.

Word of warning. Don't lean back on the toilet lid whilst sitting and contemplating as this action can press the flush button. The scream of astonishment from my wife when this happened was memorable to say the least. She spluttered later that the sudden rush of air between her thighs was an occasion to be avoided in the future.