



# Velocity News

Spring 2018

Member Spotlight

## South African Velocity Student Project

by Jan Rombouts

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Fourteen years ago, I wanted to start building a Velocity, but, I thought, "lets first start with building a car, if that doesn't work, properly don't start with an airplane." I built the car from scratch; a look-alike lotus 7; not a kit or from plans, just from a picture. Busy for almost 4 months, day and night. It is complete, certified, and roadworthy.



Unfortunately, after this I became so occupied with the activities at the campus that the whole idea of building a Velocity had to be placed on hold. Now, 14 years later I brought the plans

back to the front to accomplish this challenge with help from our students. Since the Information Technology (IT) faculty at my university are already doing projects for Lockheed Martin and Boeing, along with Penn State University in the USA and Catholic University Leuven in Belgium, I proposed an airplane to serve as a platform for testing these projects. I found out as a private pilot during the past 30 years that there is a lot to do to increase safety for General Aviation.

We built a 10-by-14-meter (32' x 45') hanger at the campus and started to search again for a Velocity project. We were looking for an incomplete project rather than building a Velocity from scratch (My time is slowly

### In this Issue

Member Spotlight: **Jan Rombouts**

License to Learn **Transition Training**

Our Builders **A Tale of Two Panels**

Phase II **Fly to AirVenture Oshkosh**

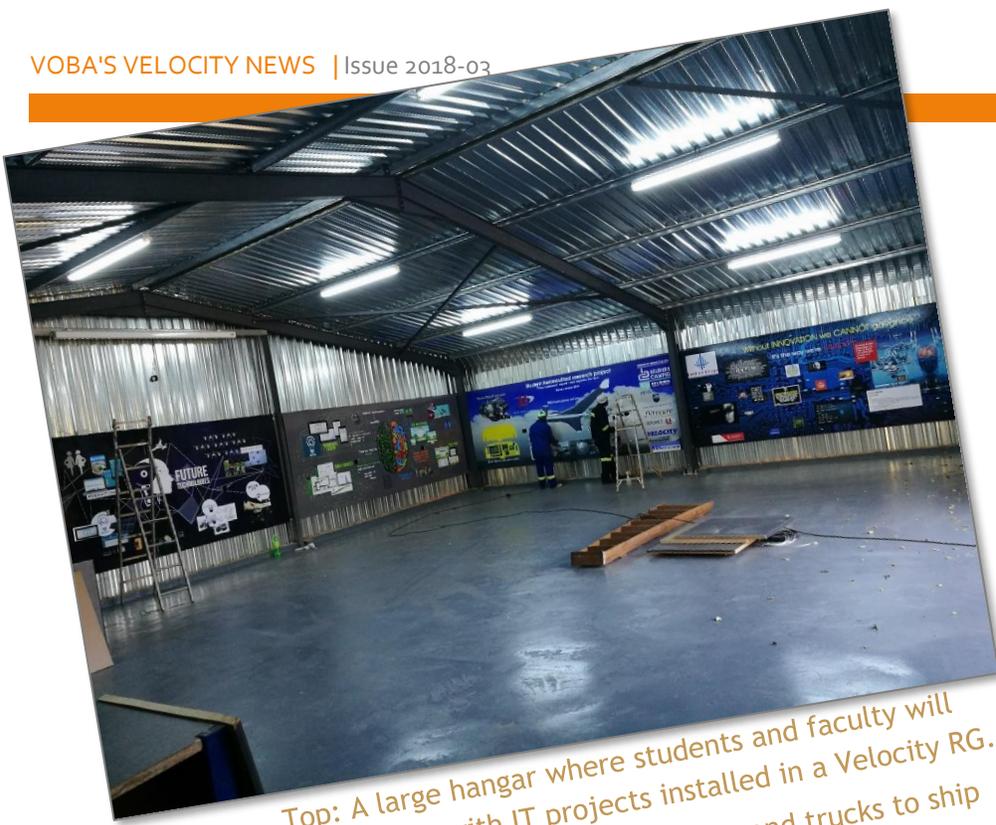
Our Builders **Keeping Nuts on Bolts**

Velocity Views **Twenty Years Ago**

FAA Data: **Aircraft Updates**

Velocity Owners and Builders Association

VOBA



Top: A large hangar where students and faculty will experiment with IT projects installed in a Velocity RG.  
Bottom: It took 3 months on boats and trucks to ship this project from Florida to South Africa.

running out with my 60 years to start building from zero).

Our major concern was the building quality of an unfinished project. I came in contact with Travis Holland, a former employee from the Velocity factory, who was selling a fuselage and wings that were made for DeltaHawk engines USA in the nineties. They had been developing a diesel engine for

GA for several

years. Travis and Scott Swing assured us that it was extremely well made.

Originally DeltaHawk was planning to build two airplanes. They only completed one and the second one was stopped after the fuselage and wings were completed. We made a deal with Travis and the plane was sent to the velocity factory where Scott made some modifications (side sticks and toe brakes) before it was placed on transport to South Africa.

The fuselage and wings separated were still too big to go in a container. We had to buy a trailer to mount the fuselage and



## Student Involvement

Belgium Campus is a pioneering ITiversity in South Africa that helps to raise the bar through its graduates in the Information Computer Technology (ICT) industry. The world is looking to technology for the answers to some of the most fundamental issues and problems we face today, and you can be one of the many individuals who can lead the way in providing these answers.

Exposing our students to innovation projects, like creating flight safety features for a Velocity Aircraft, is a crucial aspect of our Belgium Campus offerings. This is either done during the Academic Leadership program, or as a specific project during their studies. It is here where students work with the community and the real business world and with local and international universities. Some of the collaborative projects Belgium Campus and its students are involved in are with RESNA, Boeing, Lockheed Martin, ArcelorMittal, Atlas Copco, City of Tshwane and Eddict to name a few.

wings on. The trailer had to be loaded on a roll-on/roll-off boat rather than a containership.

There is no direct line from Florida to South Africa. The shipment went first on a boat to Bremerhaven, Germany and from there to Durban, South Africa and then to us. The shipment took more than 3 months.

Within three months a brand new 6-cylinder anti clockwise lightweight ULPOWER 200 HP straight from the factory in Belgium had been installed. By the way, I had the opportunity to see the making of our engine at the factory in Ieper (Belgium). Scott from Velocity and the engineers from ULpower designed an engine mounting for us. The engine is fitted with a three-bladed Whirlwind prop with a Airmaster semi-automatic pitch control (New Zealand).

The avionics and glass cockpit are fitted, the brakes and hydraulic gears checked, and we are almost ready to fit the interior and paint. During this process we received excellent service from the Velocity factory for every detail that we asked.

Small anecdote about the glass cockpit, by doing our research



Top: The 6-cylinder ULpower engine mounted on the aircraft.  
 Bottom: The EFIS was sourced from MGL, an avionics company that was founded in South Africa.

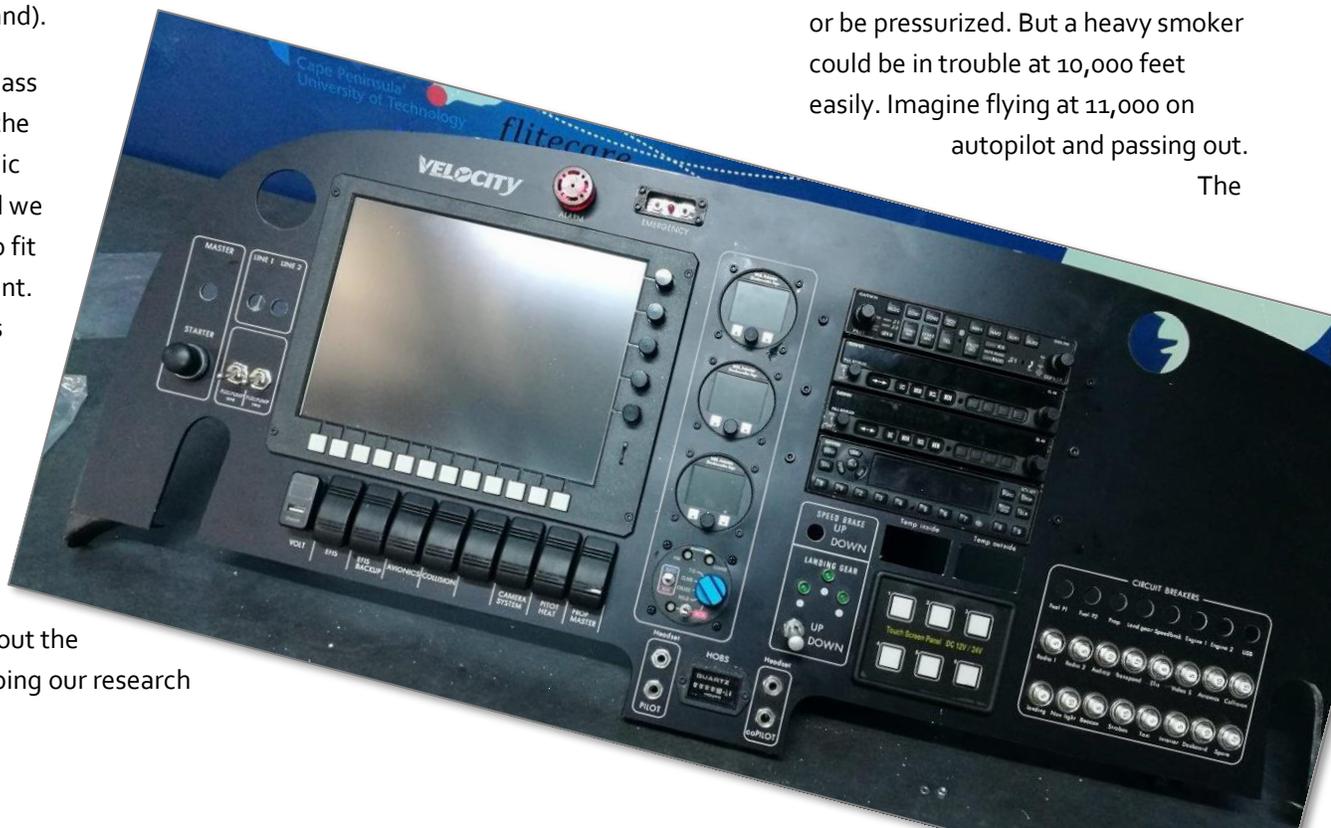
we found the MGL product line. Came in contact with MGL in the United States to find out that this product is developed and manufactured here in South Africa by us in Western Cape. I was feeling a little bit stupid after that conversation!

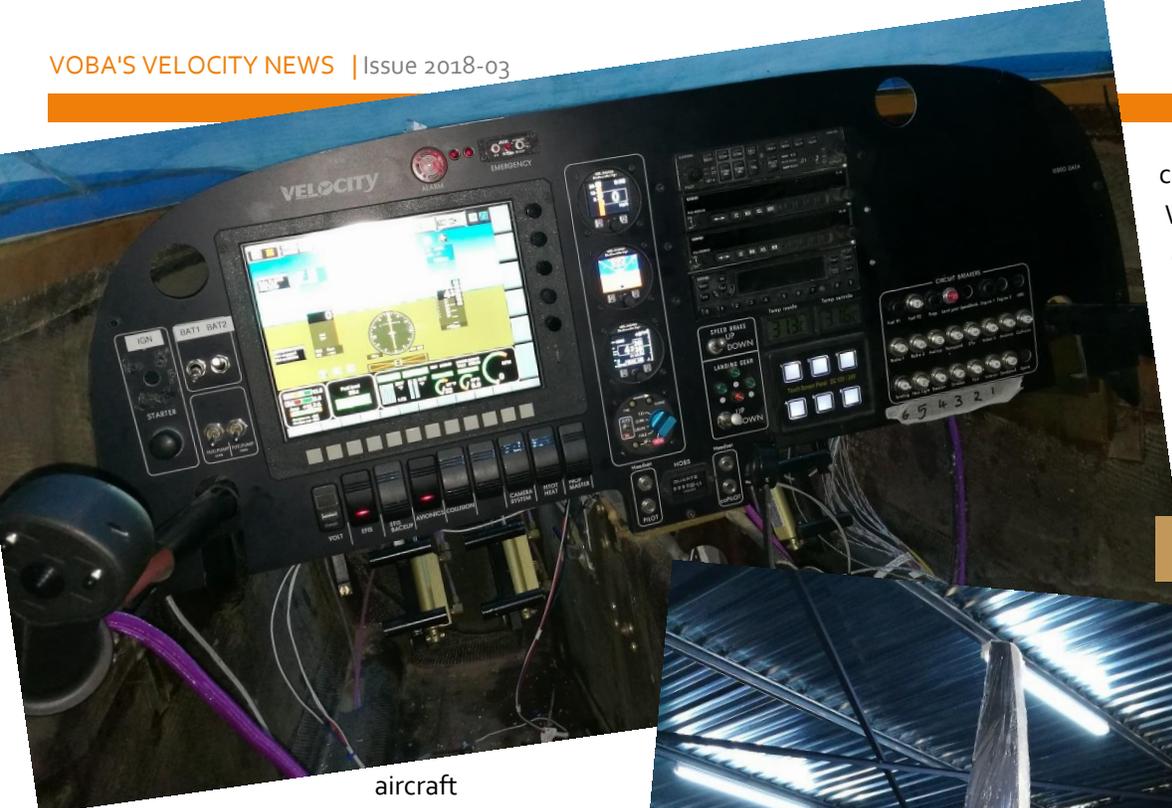
We opted for the MGL glass panel because it has an open source system since we have IT experts at the University, we can do further development.

We are almost ready for our IT students to start with their projects. For example, one of their projects could save lives. Flying above 12,000 feet, supplemental oxygen is required or be pressurized. But a heavy smoker could be in trouble at 10,000 feet easily. Imagine flying at 11,000 on

autopilot and passing out.

The





can be created and developed. We already have a list of 8 different projects to reduce the workload in the cockpit providing immediate benefits to improve the safety of flying.



aircraft would probably continue to fly at that altitude until it runs out of fuel and crashes. We are developing a sensor and software that will monitor the pilot. When the system finds that the pilot is not reacting normally, it will bring the plane with the autopilot to a safer altitude and probably save lives (and planes).

We are developing a fully text-to-voice speech checklist for an Iphone or Android cell phone, connected to your audio-panel. The audio check list would go from item to item with a click on the stick or yoke, Allowing the pilot keep concentrating on flying the plane in place of being distracted while reading from a classic checklist? It can even remind the pilot to automatically perform tasks—at intervals programmed by the pilot—such as change the fuel tank selector every 20 minutes.

Our students love these kinds of challenges. Much more can be done in an experimental aircraft to improve the safety of general aviation. These are just two of the many things that



Jan Rombouts is Belgian national who has lived in South Africa, where, 20 years ago, he was involved in starting a new private university near Pretoria. Today, Jan is the Chairman of the Belgium Campus, South Africa's most advanced ITiversity dedicated solely to the study of Information Technology ([www.belgiumcapus.ac.za](http://www.belgiumcapus.ac.za)). Jan holds has held a PPL license for more than 30 years. He is married with seven children.