

# KENT STREET SENIOR HIGH SCHOOL

Aviation Newsletter September 2013



## Term 3, 2013

### Skywest Scholarships

Two previous winners of the Skywest scholarships have recently left Aviation and/or the school. Subsequently these two scholarships have been awarded to the two Year 8 students who achieved the top marks in Aviation for first semester 2013. Ryan Keswick and Korey Wise are now the proud recipients of a \$1000 Skywest scholarship.

### Next ASG Meeting

The ASG meets on the second Tuesday of each term for Terms 1, 2 and 3. The final meeting for the year is a social occasion, with BBQ and drinks supplied. We ask that parents bring a small salad plate. Meetings are held in the Aviation Centre and we encourage all parents and Aviation students to attend.

### ASG Meeting Notice – Important!

**The next ASG meeting will be a social occasion including a BBQ on Tuesday 10 December 2013 commencing at 6.30pm.**

### ASG Chairperson's Report

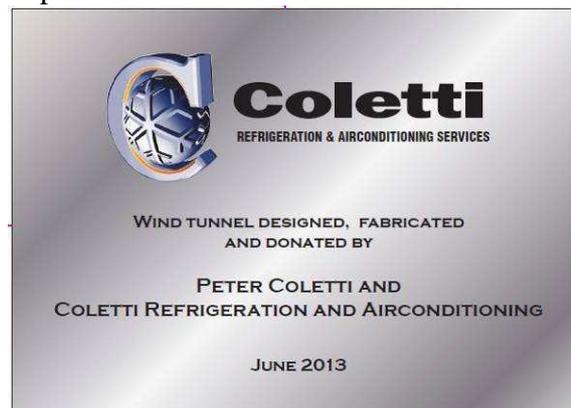
Thanks to everyone who attended the meeting on Tuesday 30 July. All aviation parents and students are welcome to attend. The Aviation Support Group is a sub-committee of the P&C, so once you sign up to the P&C you have the right to vote at meetings and help determine the allocation of ASG funds. The ASG meets once per term and we usually invite an ex Kent Street

student working in the aviation industry as guest speaker, to make a presentation about their career since Year 12 and to answer any questions from the audience. At the last meeting, ex Kent St student Damon Dickenson, who now works as an Aircraft Maintenance Engineer, gave an interesting presentation of his career in the aviation industry since leaving school. He spoke of his work on military aircraft and showed some examples of his metalwork. KB presented him with a bottle of wine featuring the new commemorative labels in thanks.



Thank you plaque for Mr Coletti

John McKenzie took the ASG to the workshop to show everyone the new wind tunnel which is an impressive piece of equipment. The ASG approved the design and purchase of two plaques. One plaque is to say "Thank You" to Peter Coletti and was presented to him by the Principal Mrs Kath Ward and the Aviation staff on Monday 23<sup>rd</sup> September.



Plaque fixed to the side of the wind tunnel

The other is attached to the side of the wind tunnel as a reminder to future students and parents of the generosity of Mr Coletti.

## Wind Tunnel

Last year, Jett Coletti, now a Year 9 Aviation student “volunteered” his father to build a wind tunnel for the school. Peter Coletti, who owns an industrial air conditioning business in Osborne Park, accepted the challenge and after a couple of meetings with Mr McKenzie to establish the requirements of the system, commenced work late 2012.

Due to the very hot summer, the wind tunnel got put on the “back burner” while Coletti Refrigeration and Air-conditioning coped with the summer rush. However, Peter never lost sight of the project and delivered it to the school on the morning of Tuesday 25 June.

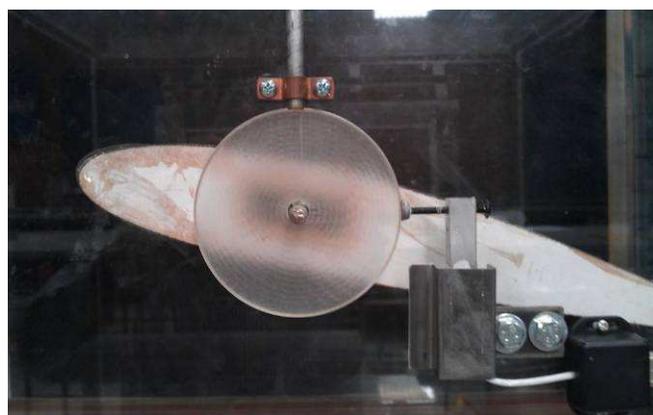


The tunnel is built of steel, with steel mesh baffles at both ends for safety. It is 5.2m long, has a 75cm diameter fan and the perspex working section incorporates a 45cm square cross-section. The 3-phase electric motor and the fan were surplus that Mr Coletti had at his factory. He has invested a great deal of effort in the design and fabrication of the wind tunnel, and has created an impressive device that has been very professionally built and operates exceptionally well. He has donated an enormous amount of his time, expertise and materials to Kent Street Senior High School at no cost whatsoever to the school. It is a tremendous effort and is very much appreciated by the Aviation faculty.

Peter Coletti also spent a lot of time investigating various sensing devices, eventually using the pressure sensors and digital readouts from a pair of kitchen scales to display Lift and Drag. He found a smoke generator on Ebay to show the streamlines of the airflow around aerofoils, and a digital airspeed indicator. The air reaches a speed of about 75 – 80 km/h through the tunnel, and the sensing devices work very well, though perhaps not quite to NASA standard!

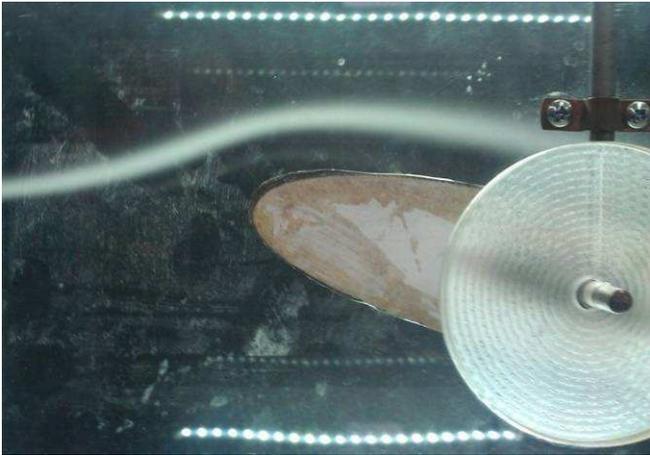
We intend using the wind tunnel to study lift and drag on various aerofoil shapes, particularly in Year 8 Mechanics of Flight and in Year 9 Physics of Flight. We will be using the smoke generator to help students gain an understanding of the flow of air around an aerofoil and the behaviour of the airflow in an aerodynamic stall. It will also be used to reinforce these aspects to Year 11 students in their Aerodynamics module.

Once the wind tunnel activities for the students have been designed and properly integrated into our curriculum, we may be able to look at some enhancements. For example, a more efficient fan blade may increase the airspeed, improved sensors may give more accurate measurements of lift and drag and a series of pressure sensors may be used to display pressure distribution and pressure changes around a wing. However, these improvements could be quite expensive. For the moment, the wind tunnel is a wonderful opportunity to enhance our students' understanding of aerodynamics and should be of great benefit to Kent Street Aviation students for many years to come.



One of Tim Spittle's aerofoils mounted in the wind tunnel

Tim Spittle, a design and technology teacher at Kent Street, has kindly constructed several aerofoils for the wind tunnel. We now have a high-lift aerofoil, a flat-bottomed aerofoil, and a symmetrical aerofoil to investigate lift and airflow. We also have a cylinder, flat plate, and teardrop streamlined shape to investigate drag.



Wind Tunnel with a smoke trail showing the airflow over the leading edge of an aerofoil.

### Air Experience Flights

As Winter ends and we move into Spring and then Summer, we look to take advantage of the improving weather and encourage students to participate in the Air Experience Flights offered to students. The flights are an invaluable addition to a student's understanding of the material presented in the classroom and are much cheaper than anything available commercially.

### NEW ITINERARY FOR USA 2014 TRIP

Since the excursion to USA in 2014 was first proposed there have been a few minor changes to the itinerary. The changes include an earlier departure from Perth to reduce waiting time at Hong Kong, which will then give us an additional night in New York.

I would like to take this opportunity to remind people to stay up to date with progress payments to enable all bookings to be made on schedule.

### Year 7, 2015

Planning is already underway in Aviation for the commencement of the first Year 7 High School intake in 2015. At this stage it is intended that the Year 7s will undertake 4 hours of Aviation per week, which is the equivalent of all other year levels. Kevin Bennett and John McKenzie are working on developing the following 4 modules for the Year 7 Course:

- **Aviation Careers**
- **The Cutting Edge of Aviation**
- **Space**
- **Practical Activities in Aviation**

### **Workshop Activities**

As the end of term approaches, the Year 9 balsa models are taking shape in the workshop. Pictured is Ethan Richard's "Sandpiper" model, showing the internal



structure of the ribs and spars in the wing, which will then be covered in doped fabric. The Year 8s are also working on model aircraft as part of their "Structure of the Aircraft" unit. Their models are 1/72 scale plastic model kits. They have chosen a wide range of model aircraft to construct, from biplanes to the latest jet fighters.

The Year 8s are also working on airport dioramas as part of their "Aircraft and its Environment" unit. These various hands on activities are designed to help students become familiar with some of the concepts covered in class. For example, the airport dioramas help them learn about runway alignment and numbering, runway and taxiway markings, holding points, airport infrastructure and so on.



### **The Year 12 Aviation Class of 2013**

The Aviation community at Kent Street Senior High School would like to wish our graduating Year 12 Aviation students all the best for their future endeavours. We hope they achieve their goals and in time, become leaders in their areas of expertise.

#### **Kevin Bennett and John McKenzie**

##### **Kevin Bennett**

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