

Wingtips

July 2019

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Oakes



Photos are from the Outback Challenge – see page 2.



Curfew Finishes Soon

The kangaroo cull will be finished in 11 days' time. From 9am on Friday 26 July we may use the field from dawn to dusk

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Wingtips is the Belconnen Model Aero Club newsletter, this issue published 15 July 2019

Canberra UAV's Attempt at Outback Challenge



from Jack Pittar



[Members not familiar with the history of Outback Challenge should refer to the October 2018 issue of Wingtips. Most old Wingtips are available at the club website: www.bmac.org.au/ under "Links and Other Information. Ed.]



See the link below for a compendium of different videos made by James Owens, a member of our team, during our recent attempt on the Outback Challenge.

Our 14kg VTOL Pilatus Porter navigates autonomously to recognise Outback Joe at a remote location, while avoiding static no-fly zones which were detailed before the flight, and avoiding virtual dynamic obstacles, such as eagles and other aircraft, which were fed to our ground station during the flight.

When Outback Joe is located the aircraft lands vertically and switches off while a vial of "blood" is placed on board. It then takes off and flies back along the 17km course autonomously while avoiding even more obstacles that the organisers devilishly place in the path.



You will also see the Kracken, the radio relay aircraft, autonomously take flight during the event.

As you will see, we had problems. On the first takeoff, the engine would not transition above idle. During the event, the comms cable between the flight computer and the video computer failed, so the mission was not completed.

However, we did win the prize for best attempt for avoidance of dynamic obstacles. Be warned, the video is 28 minutes long.

<https://youtu.be/Lb1qlhfdZQ>



Right, Allan Lloyd's Hobby-King Super Kinetic. He reports that it's fast, manoeuvrable and cheap to replace if crashed (which hasn't happened yet).



Left, Brian Martyn's E-Flite Delta Ray One can be hand launched using safe mode, which is where the stabiliser takes care of the risky first few seconds of flight. After reaching speed, Brian can switch to Intermediate or Experienced mode. The model is unfussed by wind and can be transported fully assembled for a quick flight.



Club President Graham Parkins reports about a program to help disabled children.

Lids 4 Kids

There is a local program called Lids 4 Kids, in which a volunteer group collects plastic bottle caps (off milk bottles etc) and are recycling them using a 3D printer to make artificial limbs for disadvantaged kids. [Google Lids 4 Kids and, for details of the process, <https://envision.org.au/>. Ed.]

The inside seal of the cap needs to be taken out and if the triangular recycle symbol has a number 2 or 4 in it (arrowed at right), the cap is suitable. I will organise for a bucket in the clubhouse to collect the caps and when full, have them taken to the collection point.



If all members can start saving their caps and dropping them off when they come flying we should build up a good supply fairly quickly.

Seen At the Field, continued

Right and below, Michael Leys' Wot Trainer, an English design by Chris Foss. Michael says that it's not as stable in roll as you'd think a trainer would be. He used a spare Turnigy G46 motor and a 4S lipo battery ... and there's no shortage of power.



2019 Southern Region Electric Glider Competition

Report and results of the rescheduled 2nd round held on
16 June 2019

by Geoff Malone

I arrived at the Phoenix Model Aero Club in Cooma at about 8:45am to a blanket of thick fog with a visibility of about 10 metres and temperature of 0 degrees. As I approached the club house I was relieved to see that the President of the club Rick Harris and a number of his members had the fire well and truly stoked up, as it would be the mainstay for us all to gather around for the next two and a half hours.

As more competitors arrived we continued to monitor the fog level with a couple of test flights momentarily vanishing at about 60 feet. Bit scary! We finally attracted a field of 11 intrepid flyers. Four in up to 4M class, and seven in under 2.6M class flying a large arrange of differing models. Finally, at about 11:15, the fog cleared to a magnificent blue sky day with little or no wind.

A pilots briefing was carried out by Rick Harris and me (CDs for the day) and flying commenced immediately. Conditions were cold and lift was very hard to find except for some small bubbles. We completed four rounds before our lunch break. On tallying up all the scores there were only 2 flyers who could make the 30 minute maximum on the fifth flight as required of the competition.

We completed the fifth round after a lunch that involved the sharing of a Cole's special traditional fruitcake of a kind normally made by Grant Manwaring.

Although we marked out a very generous landing area there were still many out landings and on the day a number of test flights ended seriously badly, including the demolition of my 4m Pulsar due to elevator flutter on a high speed attempted take off. Robbie Blackadder also managed to put in his beautifully build and covered brand new 3m built up Hoellein Inside. Roger Melton, when showing off,

attempted an outside loop which resulted in the canopy coming off and the unsecured lipo battery falling out, causing the model to spiral out of control to the ground.

We wrapped up at about 3pm with a big thank-you to the Phoenix Model Aero Club members for the use of their facilities and for the hospitality to all of the competitors on the day. The final results were:

Under 2.6M class: 1st Doug McDonald (seen at left being presented with his trophy by Rick Harris, President of the Phoenix Model Aero Club, 2nd – Greg Hayden, 3rd – Rick Harris.

Up to 4M class: 1st – Peter Campbell, 2nd - Terry Lovett, 3rd – Geoff Malone.

Peter Campbell (below)

showed great skill, as his flights ended within 9 seconds of the 30min target time.

A great day out flying and a great competition. The last two rounds are yet to be programmed on the 2019 calendar but notices will be sent out when dates are confirmed.

Safe and good flying.

Geoffrey



WHAT COULD GO WRONG?

(Plenty, as we all know!) During the harsh winter months Wingtips will feature articles that may help less-

experienced members avoid a crash. This one deals with crash-avoiding items that cost less than \$2 each. *

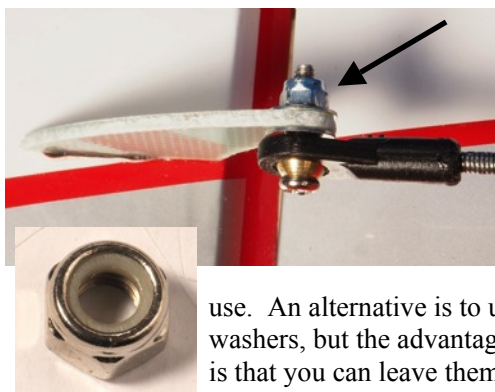
Thread Locker (\$1.65).



This kind of servo arm connector will need a touch of thread locker to be 100% certain that the screw, and the knurled nut at the back don't loosen with vibration. I'd suggest medium strength thread locker because

you'll eventually want to loosen the screw and nut.

Nyloc nuts (prices range from \$6.72 for 50 (2mm) to \$2.80 for 10 (4mm))



Because of the nylon insert, Nyloc nuts can't unscrew when there's vibration, but they're convenient to

use. An alternative is to use spring washers, but the advantage with Nylocs is that you can leave them slightly loose if the application calls for it.

Wheel collars (\$2.15 for 10)



If a wheel comes off in flight, your landing will be spectacularly bad – probably tearing the undercarriage from the fuselage when the axle hits the ground. Most wheels are held on with a wheel collar that's fitted with a

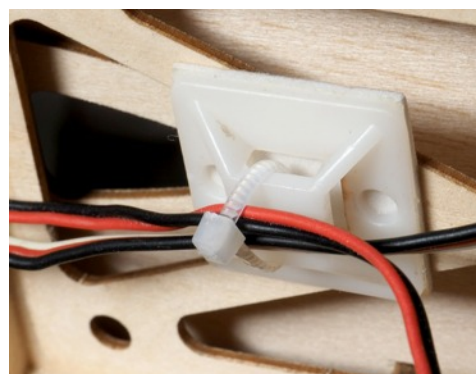
grub screw. It's best to file a flat on the axle to give the grub screw something to hold on to. Even then, a dab of epoxy (or similar) on the exposed axle would be wise.

Servo lead extensions (\$3.10 for 5)

For most models



and control surfaces, the servo lead (that is, the one that comes with the servo) itself won't be long enough. Hence a variety of extensions are available and, for those of us who use JR-type leads, the extensions with a hook are safer, as a pull won't disconnect them. Or (left) Futaba/JR Connector Retention Clips, 5 for \$2.95



Cable ties (\$1.71 for 100) and cable tie anchors (\$1.05 for 10)

Let's say you pull a servo lead slightly away from the receiver as you're preparing for a flight, perhaps

when fitting the wings. You may well not notice, and, if the connection is still good enough, the control surface will function. In the air, however, inverted flight or even just vibration may be enough to finish removing the cable from the receiver. Solution: keep your servo cables running neatly along the inner surface of the fuselage with cable ties and self-adhesive cable tie anchors.

Even if you only assemble the occasional ARF, it may be worth spending a few dollars on the hardware mentioned here. For what it's worth, I have a set of those spare parts cabinets (\$30 from Jaycar) with all of the above, plus hex screws of various sizes, nuts, washers, blind nuts, self-tapping screws, clevises, etc. If nothing else, it saves hours of searching for that rebellious part that leaps off your workbench and hides on the floor!

* I'm using HobbyKing's price list for my own convenience, but plenty of other suppliers have these items.

For next month, Wingtips would like experienced members to suggest more equipment or techniques that could help the club's newcomers. One suggestion was, for those who use separate receiver batteries, a tester that puts a load on the battery to confirm that it will last the flight. Who can tell me about them?

Brian Oakes