CONTENTS
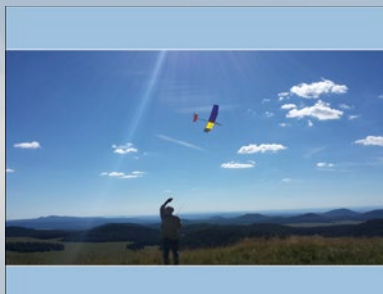
November 2014

Vol. 31, No. 11

Front cover: Dave Nutt flying his Petrel 2M, a Simon Nelson design (*Sailplane and Electric Modeler*, 2001), at Green's Peak near Greer Arizona on labor day weekend. Photo by Rocky Stone.

Back cover: Chris Adams' Fosa Lift flexes its muscles in Spring air at Devonport, Tasmania. Full ballast fun.
Fosa Lift from Baudis Models <http://www.baudismodel.com/models/k1596-actual/1423-fosa-lift.html>.

R/C Soaring Digest

November 2014

Volume 31 Number 11

R/C Soaring Digest (RCSD) is a reader-written monthly publication for the R/C sailplane enthusiast and has been published since January 1984. It is dedicated to sharing technical and educational information. All material contributed must be original and not infringe upon the copyrights of others. It is the policy of *RCSD* to provide accurate information. Please let us know of any error that significantly affects the meaning of a story. Because we encourage new ideas, the content of each article is the opinion of the author and may not necessarily reflect those of *RCSD*. We encourage anyone who wishes to obtain additional information to contact the author.

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RC Soaring Digest is published using Adobe InDesign CS6

In the Air

Joe Sampietro sent in the photo for the Contents page this month. "My friend Joseph Elzinga was testing out his new lens while some of us flew. He happened to catch this shot." Canon EOS 7D, ISO 100, f/8.

The October issue of *RCSD* featured Larry Dunn's well received review of the Taranis radio system. Those readers flying RC for half a century or more will probably be familiar with the rather primitive escapement mechanisms used before servos became commonplace. Jean-Marie Piednoir bridges the gap between those technologies with Taranis software to either mimic an archaic escapement system with servos or, if you have old escapements lying around, using the Taranis to control them. Who will put on the first "Rudder Only" (kick-up elevator at CD's discretion) RC soaring contest? Having two Ted Strader Nomads and a box of escapements in the basement makes that an intriguing possibility.

Mark Nankivil is an exceptional aviation photographer, and his images have appeared in a number of commercial venues, in addition to web site blogs and within the pages of *RCSD*. Mark recently sent a 32GB thumbdrive filled predominantly with photos taken over three days at the Vintage/Classic Sailplane Regatta hosted by the Wabash Valley Soaring Association. The stand-out for us in this collection was Matt Gonitzke's beautiful V-tailed Standard Austria SH-1 painted in white with metallic blue trim, and that 'ship is the subject of Mark's walk-around this month.

Time to build another sailplane!

OpenTx SC

Programming the FrSky Taranis and FlySky 9x transmitters to control or emulate escapements and magnetic actuators

Jean-Marie Piednoir, piednoir.jm2@gmail.com

Reference: <http://www.modelflying.co.uk/forums/postings.asp?th=98653>

They say that the new computer radios can do anything you can dream of.

Well, I found that my FrSky Taranis could be programmed to do single-channel, be it just emulation with servo or actual escapement or magnetic actuator pulse proportional.

It can emulate push-button operation of an existing proportional model via the trainer switch, while maintaining the proportional operation via the stick, should the need arise. Without any additional equipment the model can be flown as usual or bang-bang mode (one press for right, two presses for left), all by merely programming the transmitter.

With the addition of an RC switch (as designed in the UK by Phil Green, or other RC switches as long as they respond fast enough - many commercial switches are heavily filtered and are too slow), models equipped with a rubber escapement can be operated either via the trainer switch or by the aileron stick acting as a Beep Box, generating the pulses as required.

Think of it as the digital receiver plus the RC switch being a modern reliable replacement for the original 27 MHz relayless receiver.

If a suitable switcher is added to our relayless receiver replacement, then proportional pulse operation of a magnetic actuator equipped model is possible and has actually been successfully flown.

The limit to single-channel emulation by the Taranis appears to be true Galloping Ghost, proportional pulse rate change having not been found possible.

I have flown a Dave Platt Halftone and a Stu Richmond Buzz Bomb with rudder servo, a DeBolt mini-Champ with Elmic escapement and an Owen Kampen Whizard with Adams actuator, all controlled by the same Taranis transmitter.

Other transmitters using the OpenTx firmware can be programmed to accomplish the same thing, for example the FlySky 9x.

Details of the programming will be found on this forum in the "Radio Gear/FrSky" section.

Single-channel rules!

Reference: < http://www.rcsoaringdigest.com/OpenTx/OpenTx_SC-RCSD.zip>

In this folder, you'll find various examples of OpenTx programming for the FrSky

Taranis and the FlySky 9x transmitters, as well as how to wire a suitable RC switch.

Examples are given for OpenTx version r2940 and earlier, including FrSky Taranis v1.1.02, and for OpenTx version 2.0.x in the shape of .eepe files.

The .eepe files for r2940 and v1.1.02 can be read and loaded to the transmitter with Companion9x: <http://www.open-tx. org/2014/01/10/companion9x-v152/>

The .eepe files for version 2.0.x can be read and loaded to the transmitter with OpenTxCompanion (v2.0.x):

<http://www.open-tx.org/2014/07/24/companion-2.0.8/>

The Taranis folder contains files Taranis_SC_2940.eepe, Taranis_SC_2-0-x.eepe and Taranis_2-0-x_Pulse.eepe.

- Taranis_SC_2940.eepe for original frSky software holds models:

1. BasicCompd it is an emulation of a simple compound escapement with the following functions: one press of the trainer switch SH gives right rudder on channel 1, two presses give left rudder, three presses give up elevator on channel 2. The Aileron and Elevator stick can also control the model during the initial trimming phase or in case of panic.

2. 3PCompound is like BasicCompd with the addition of three-position throttle with three presses of the trainer switch SH on channel 3.

3. Escapement is the simple actuation of a rubber escapement via an RC switch on channel 1. Pressing the trainer switch SH causes channel 1 to go from 1000µs to 2000µs. An RC switch on channel 1 is required to drive the escapement.

4. BasicBeep is the simplest Beep Box emulation. When the aileron stick is moved right, it does the same on channel 1 as pressing the trainer switch SH in Escapement above. When the aileron stick is moved left, it does the same as two presses. An RC switch on channel 1 is required to drive the escapement.
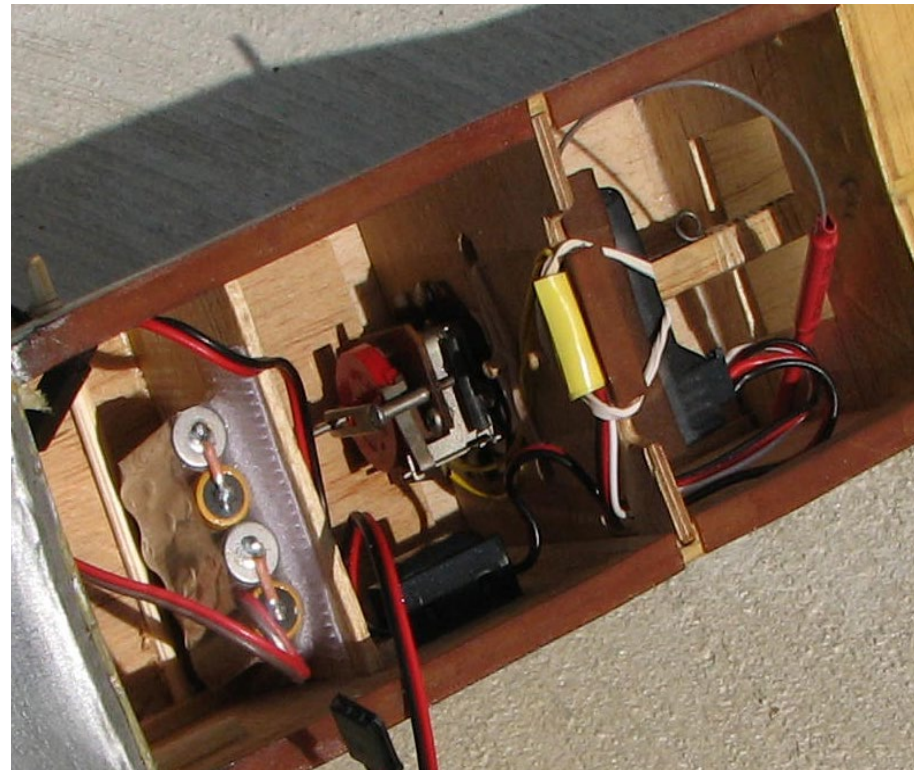

Escapement set-up in a Mini Champ.

5. BeepBoxQ does one press with aileron stick to the right, two presses with aileron stick to the left, three presses with elevator stick up, and quick blip with the trainer switch SH. An RC switch on channel 1 is required to drive the escapement.
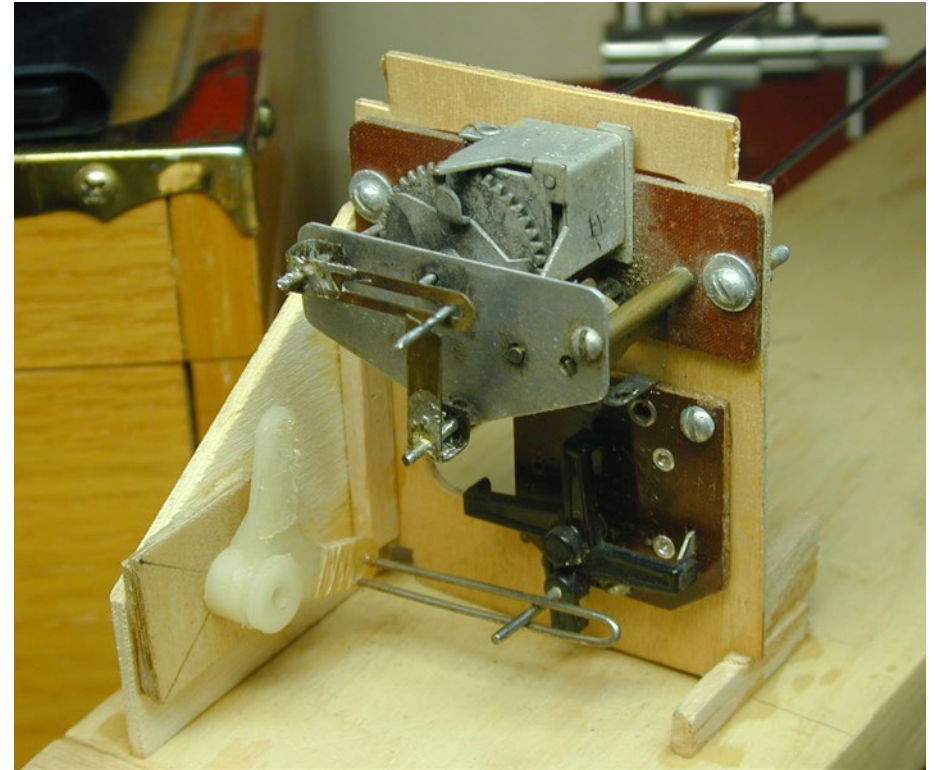
6. BeepBoxNoQ is like BeepBoxQ, but without quick-blip. The trainer switch SH merely acts like in Escapement above. An RC switch on channel 1 is required to drive the escapement.

- Taranis_SC_2-0-x.eepe for Taranis with firmware upgrade to version 2.0.x holds the following models :

1. 3PCompound as above
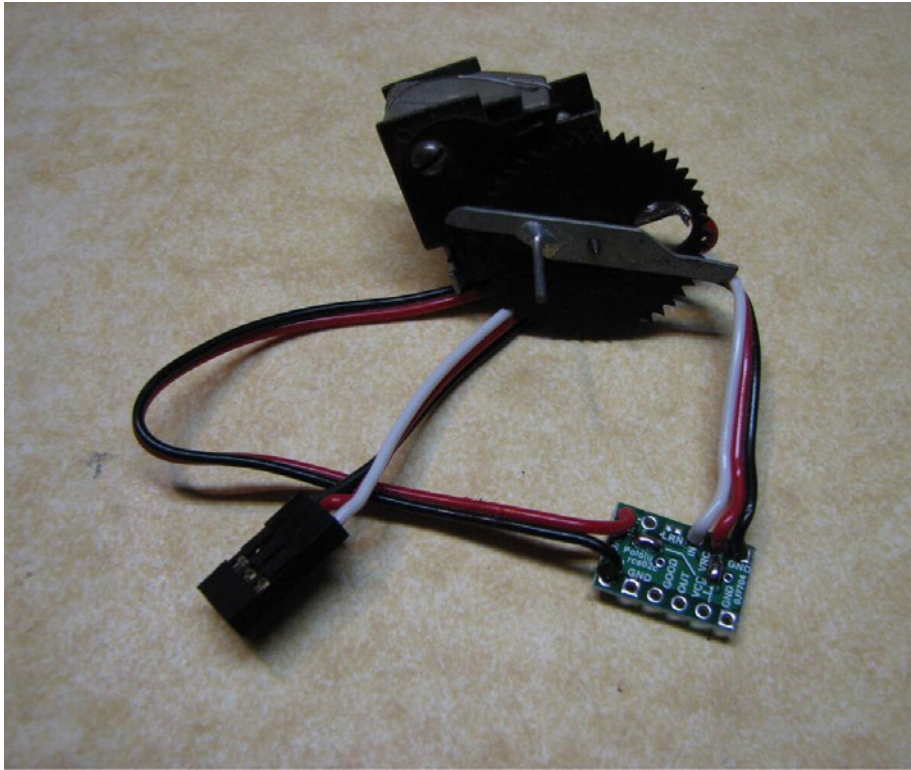
A 2-position 2-neutral (2P2N) escapement with the Pololu RC Switch.

Mock-up of compound escapement with kick-up elevator function and 2P2N escapement usually used for throttle.

2. 2P2N emulates a simple 2P2N escapement with channel one going alternately right and left upon each press of the trainer switch SH

3. Escapement as above. An RC switch on channel 1 is required.

4. BasicBeeper as above. An RC switch on channel 1 is required.

5. BeepBoxQ as above. An RC switch on channel 1 is required.

6. BeepBoxNoQ as above. An RC switch on channel 1 is required.

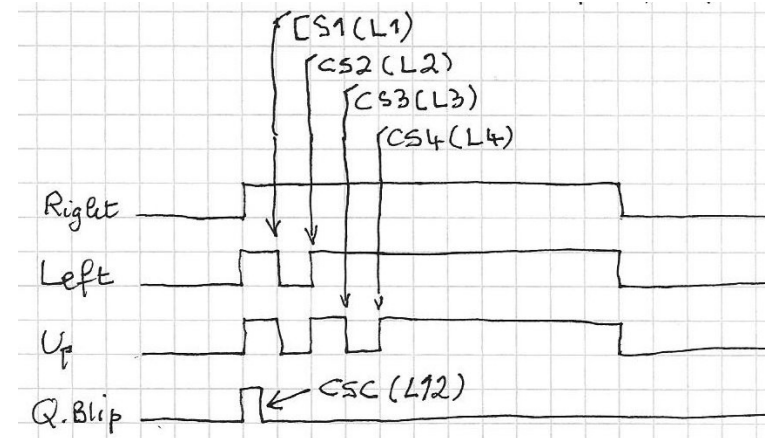7. Taranis_2-0-x_Pulse.eepe. For use with switch and pulse

actuator. It is testing the timing limits of the Taranis, and because of the various computing delays only yields a frequency of 3.3 Hz when theoretically it should be 5 Hz while non-linearities due to the same delays and general PPM latency have made it necessary to use a compensating curve on the aileron input. It is, however, perfectly okay in flight, but you my notice the tail wagging at higher speeds which actually adds to the charm.

The 9x folder contains files 9x_SC_2940.eepe and 9x_SC_2-0-x.eepe for the FlySky 9x and other OpenTx compatible transmitters (list here : <http://www.open-tx.org/radios.html>)
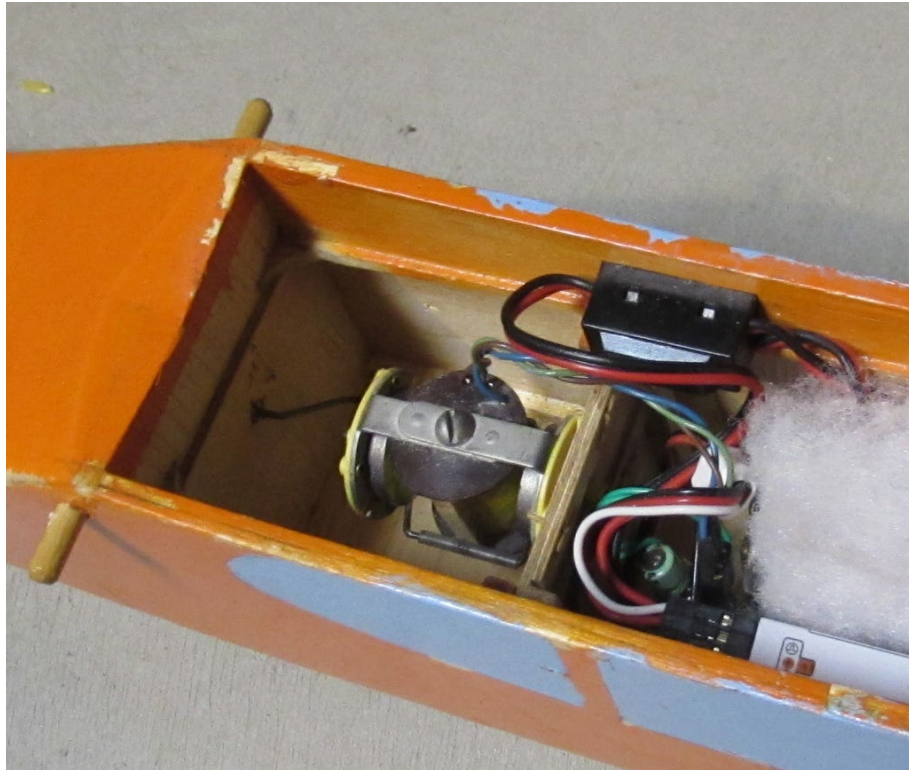
Magnetic actuator in the Whizard.

Switch identification for tuning Beep Box emulation.

- 9x_SC_2940.eepe for firmware up to r2940 holds the following models :

1. BasicCompd as above (Taranis_SC_2940)

2. Escapement as above, trainer switch TRN. An RC switch on channel 1 is required.

3. BasicBeep as above. An RC switch on channel 1 is required.

4. BeepBoxQ as above. An RC switch on channel 1 is required.

5. BeepBoxNoQ as above. An RC switch on channel 1 is required.

- 9x_SC_2-0-x.eepe for firmware upgrade to version 2.0.x holds the following models :

1. Compound as BasicCompd above.

2. Compound4P as 3PCompound above, but with 4-position throttle upon three presses

3. 2P2N as above.

4. Escapement as above, trainer switch TRN. An RC switch on channel 1 is required.

5. BasicBeep as above. An RC switch on channel 1 is required.

6. BeepBoxQ as above. An RC switch on channel 1 is required.

The timing of Beep Box emulations can be fine tuned by modifying the values in the Custom Switches (up to r2940) or Logical Switches (v2.0.0 and above). The included figure, above, identifies which switch relates to which timing.
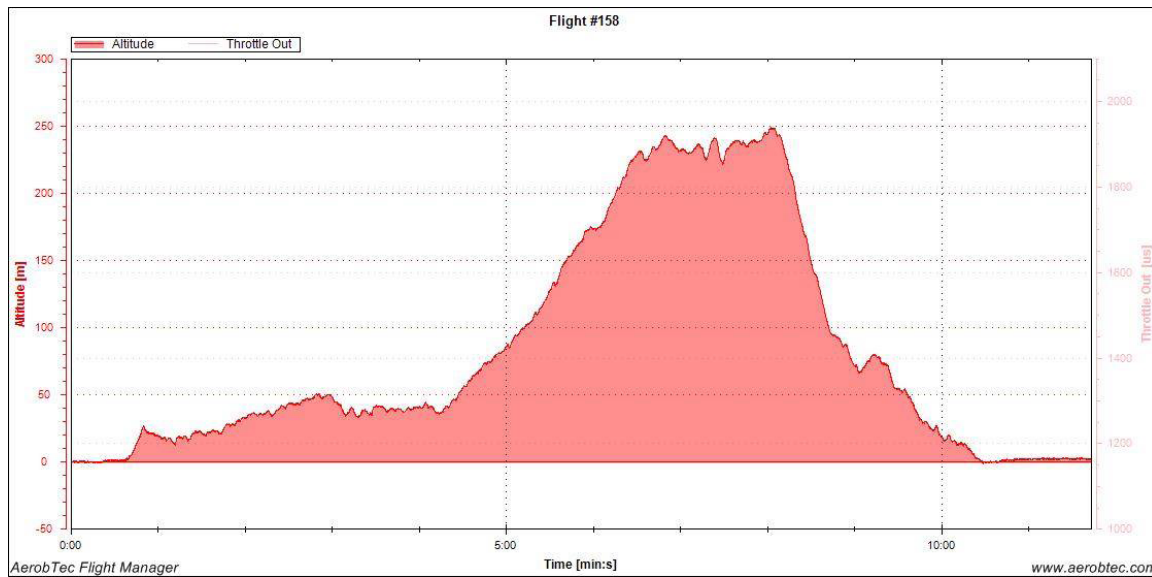
It will be my pleasure to answer any questions on any of the above. Just contact me <piednoir.jm2@gmail.com>.

10 MINUTES FROM 14 METERS

George Skargiotis via FaceBook

Today (October 12, 2014) with Pike Perfection...

From a height of 28 m to 14 m and from there to 10 minutes!

Total trace length: 703,1 sec.
Sample time: 0,1 sec.
Max altitude: 248,29 m

Photo courtesy of Anna Koukoutsi

Tom's Tips

Incidence meter trick

Tom Broeski, T&G Innovations LLC, tom@adesigner.com

This one's from Chuck Pinnell <http://www.pinnellcustomleather.com> for those of us who use the Angle Pro or similar incidence meters.

I was in Chuck's shop the other day helping set up one of his planes and he pulled out the trusted Angle Pro incidence meter. The only difference was that he didn't fuss with trying to get the screws locked to get the thing to stay in place. He just pulled it apart a bit and put it right on the wing and then another on the tail.

Here's his secret......

"Who'd-a-thunk" something as simple as a rubber band would make incidence measuring so much easier.......

FIFTH VINTAGE MODEL GLIDER MEETING

ANNICO, CREMONA, ITALY

Vincenzo Pedrielli, vincenzopedrielli@gmail.com

The Vintage Model Glider Meeting, organized by the "Gruppo Aeromodellistico Cremonese (GAC)," took place on September 21st 2014 in the airfield of Annicco (Cremona), reaching its fifth edition.

Another success attributed to Marco Pattoni and his team. Cremona is conferred the title of "Vintage Glider Models." In fact, these meetings are exclusively reserved to vintage scale models that reproduce wood and fabric, or tubes and fabric sailplanes, taken from the history of the gliding world.

This year, the models were reproducing gliders from various countries, from Germany to Poland, from Japan to the USA, from Switzerland to Austria and finally from Italy.

The nicely built *GP1*, designed by Ugo Abate, the *Gheppio* from the pencil of Gianfranco Rotondi, and the *Albanella* of Vittorio Bonomi, were waving the Italian flag. Evidently the book "Italian Vintage Sailplanes," has opened a new way for building scale models reproducing Italian gliders.

The attendance of this fifth edition marked a significant increase in the number of models and pilots, on the order of 30% over the previous year. Fifty were the models registered for the event, and over 100 persons, keen on gliding and model building, were also present on the field.

A BBQ meal, properly prepared by the active club member Pietro Castelvecchio, was served on the field to about 100

persons, watered with good red wine, which gave the opportunity to stay a bit longer at the table and chat. About what? Model building techniques, future projects and more.

The merit of these meetings is not just to fly, but above all to get together and share a common passion for vintage model sailplanes.

It was a splendid edition with great weather and excellent thermals. After an initial slight haze, the sun came to shine, giving pilots the ideal conditions for flight. Waiting times for towing was more than acceptable, thanks to ten aero tow models in operation.

All too good to be true!

To turn off the enthusiasm of some, a few incidents occurred during the meeting.

Thanks perhaps to the strong thermals, many models were flown simultaneously.

It took only a moment of distraction for a beautiful *Bowlus Baby Albatross* to disappear from the sight of its pilot.

 Another similar case was that of a *Schleicher Ka8* in scale 1: 2,5.

A *Sperber Junior*, which lost a wing in flight, went into a spin, ending up in a nearby field.

To complete the unlucky series, a mid-air collision between a towing plane,

modified *Bidule*, returning from towing, crashing against a *Schleicher Ka6*.

A bad day for the Schleichers.

The good news came a couple of days later when all lost models were found near the airfield.

I have reported these accidents for the record, but they did not affect the success of the event.

I'd like to conclude with a warm round of applause for Marco Pattoni and his team and a strong "see you next year," always in Annicco, at the 6th Vintage Glider Model Meeting.

Above left: One third scale Bowlus Baby Albatross.

Above: Author Vincenzo Pedrielliand Pippo Bartolotta with GP1.

Left: Hanna Reitsch Sperber Junior.

Musger M19b.

Moswey III.

Zlin 24 Krajanek.

The Gheppio designed by G.Rofondi.

Stefano Corno and Alberto Restelli with their Slingsby T21 Sedelberg.

Schleicher Ka8 in 1:2,5 scale.

The Slingsby T21 Sedelberg of Stefano Corno and Alberto Restelli.

SZD Foka 4

SZD Bocian

The detailed cockpit of the Bowlus Baby Albatross.

Blanik.

Minimoa.

Grunau Baby II.

Detailed cockpit of the ASK 13.

Orlick II.

Orlick on tow.

Explorer lost...

...and found

Don Stewart, deserthawk2@charter.net

This year's NWSS (Northwest Soaring Society) Thermal Duration tournament in Eltopia Washington (September 13 & 14) was met with particularly good weather.

Winds were 5-8 mph from the north and temperatures in the low 80s. Launching into the north was exceptionally nice because it meant not having to launch into the sun for the entire contest.

The sod field we were competing at was at least 800 yards in diameter. These fields are a wonderful place to fly as long as you land on them as well.

Things were going along great until Sunday afternoon. Dave Kalamen of the Seattle area was flying his Explorer; he reached a little too far for that round saving thermal.

Adjacent to the sod field, was a 200-acre field of seven foot high corn. See the title page photo. The corn field in the foreground is adjacent to the sod field, complete with airplane crushing circle pivot irrigation.

You guessed it; he dropped it right in the middle of that corn field.

OOOPS.

The question was – how to get the Explorer back? It was impossible to spot the plane from the edge of the corn field. Entering the corn from the access road was next to impossible; the rows of corn paralleled the road and were very dense. No amount of line-of-sight directions was going to get Dave to his airplane.

Enter our hero, Jason Hood of Eugene Oregon with his GoPro Hero 3+ Silver Edition camera on his USA Eagle 3.6 RES.

He was already set up; he only needed to make a few adjustments on the GoPro just prior to the search. See Photo 2 and note the steely eyes and steady hand.

He gets a little help for the mission; Jim Frahm of the Spokane Inland Empire Quiet Flyers hooks Jason up for the launch. See Photo 3. Note Jim's need for a new hat.

4

5

6a

Photo 4 shows Jason preparing to launch. Ready for launch and he's off.

Photo 5 shows the launch from the Eagles' point of view. Notice the red tow strap attached to the Eagle. The dreaded corn field can be seen off to the right.
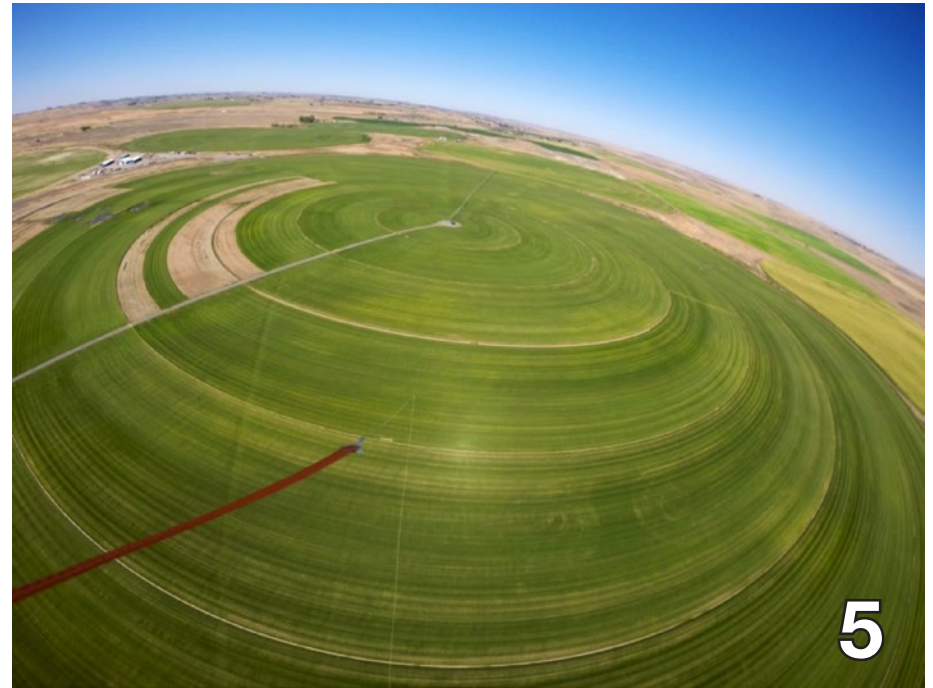
Figure 6. Honing in on the lost Explorer

The search begins. The Eagle starts honing in on the lost Explorer. Can you spot the Explorer in Photo 6a? Look carefully.

Still can't see it? The right half of Photo 6a is reproduced, slightly larger, on the next page, Photo 6b, with Dave's Explorer circled in red.

Let's take a closer look at that airplane eating corn field in Photo 7. Jason's GoPro camera does it!

Two flight attempts and 342 pictures later, there is Dave's Explorer. Jason set the GoPro to take one picture every two seconds.

6b

7
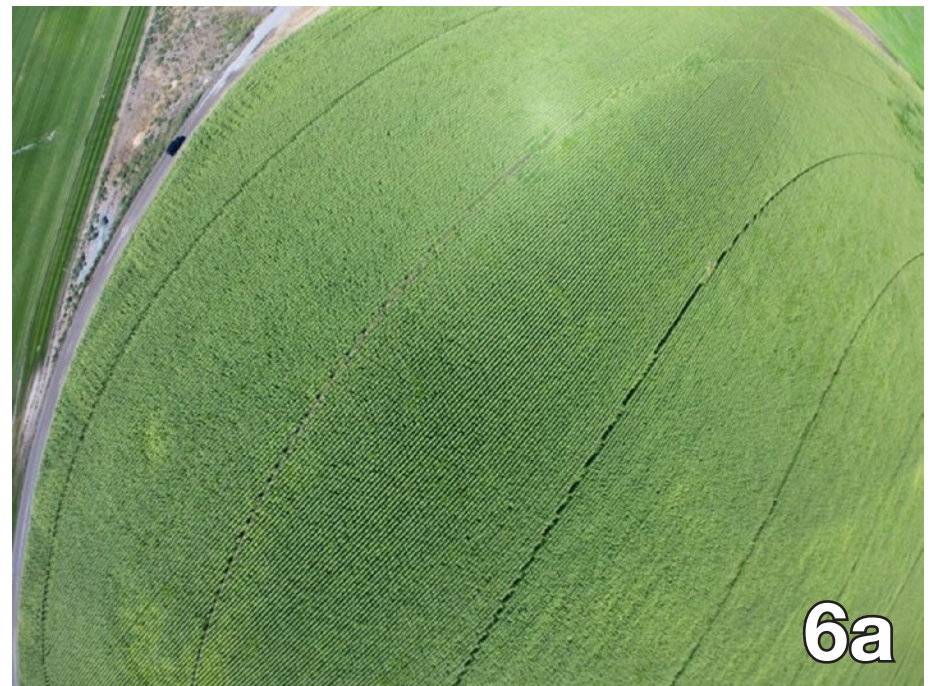
Back in the pits it took Jason a mere 15 minutes to spot the Explorer and guide Dave to it via cell phone.

Luckily a service road on the back side of the corn field allowed Dave to get close enough to walk in and retrieve his plane.

This was such a great save because the Explorer would never have survived an overnight pass of the circle pivot.

The airplane made it back without a scratch.

Thanks much to Jason and all others involved with this great technological feat. This search and retrieve demonstrates how the GoPro camera can be used for much more than selfies from 800 feet up.

Walk-around

Standard Austria SH1 #76 N12052
restored and owned by Matt Gonitzke

Mark Nankivil, nankivil@charter.net

One of my favorite trips of the year is to attend the annual Vintage/Classic Sailplane Regatta hosted by the Wabash Valley Soaring Association(WVSA) at their home field at Lawrenceville-Vincennes Airport in Southern Illinois. This year also celebrated the 40th anniversary of the Vintage Sailplane Association (VSA) - read more about this fine organization on their website at <http://www.vintagesailplane.org>.

My son, Jack, and I arrived on Thursday afternoon and were treated to vintage sailplanes in the air and on the ramp. I was excited to see Matt Gonitzke's beautiful V-tailed Austria SH-1 (N12052) on the ramp, as the Greater St. Louis Air and Space Museum has one on display. Matt did a splendid job restoring this all wood sailplane with the looks of a modern 'glass ship and it looked even better in the air.

The Standard Austria was developed by the Austrial Aero Club in 1959. It won the OSTIV award for best Standard Class design entered in the World Championships held at Koln-Butzwelerhof, Germany, in 1960.

Production licensing was transferred to Schempp-Hirth in Germany after 14 were built in Austria. 30 Standard Austrias were produced, along with five Austria SH models.

Standard Austrias held several world records: 737 km / 458 miles, goal-and-return 698 km / 434 miles.

In 1964 the wing airfoil was changed from the NACA 65(2)-415 to the Eppler 266 in an effort to improve low speed performance.

The SH1 model was equipped with a retractable main wheel which improved the aerodynamics and provided greater ground clearance.

The Standard Austria has an all-moving A retractable gear was optional (making it a SH-I), giving much improved ground clearance.

The Standard Austria has an all-moving V-tail with 45 degrees dihedral and upper and lower airbrakes.
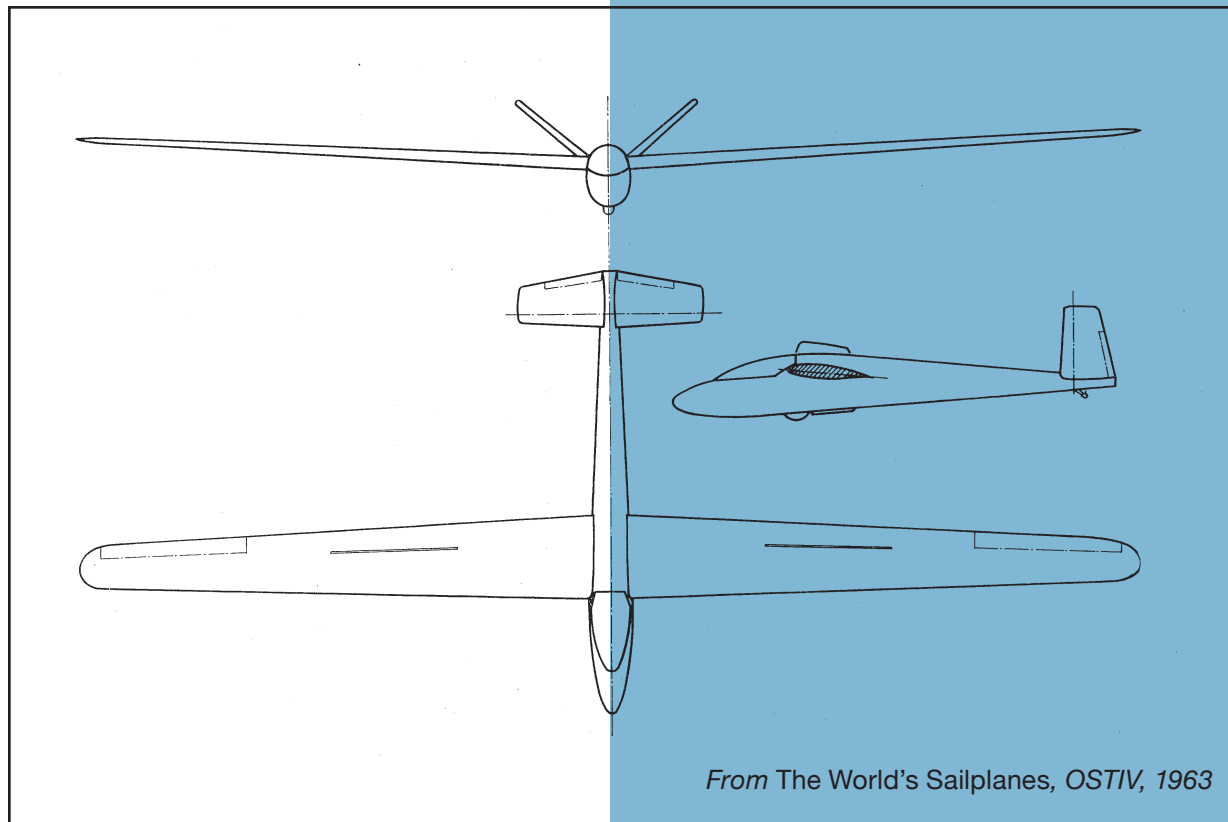
From The World's Sailplanes*, OSTIV, 1963*

Specifications

Span:	15.0m / 49.2 ft
Area:	13.56 sq m / 146 sq ft
Airfoil:	Eppler 266
Empty weight:	243 kg / 535 lbs
Payload:	107 kg / 237 lbs
Gross weight:	350 kg / 772 lbs
Wing loading:	25.81 kg/sq m / 5.3 lbs/sq ft
Structure:	Wood, fiberglass nose
L/D max:	34 @ 90 kph / 49 kt / 56 mph
Min sink:	0.66 m/s / 2.15 fps / 1.27 kt
Country of origin:	Austria
Designer:	Rudiger Kunz

- Standard Austria - Initial version; prototype flown in July 1959; production by the Austrian Aero-Club / sn 001-014

- Standard Austria S - production by Schempp-Hirth / sn 015-044

- Standard Austria SH - modified wing profile / sn 045-049

- Standard Austria SH1 - Retractable wheel / sn 050-081

Original airfoil NACA 65(2)-415, changed to Eppler 266 in 1964.

Matt Gonitzke bought this Schempp-Hirth SH1 Standard Austria from Steve Leonard in March 2012 and spent more than 550 hours restoring it during 2012 and 2013. See the *Bungee Cord,* Winter 2013, pp. 12-15, for the full story.

For those wishing to model this glider, it should be noted the colors applied during restoration are Stewart System EkoPoly Premium Randolph White and Stewart System EkoPoly Premium Sea Blue Metallic.

The N-numbers on the side of the fuselage are 12" tall.

FRONT ◄

FRONT ►

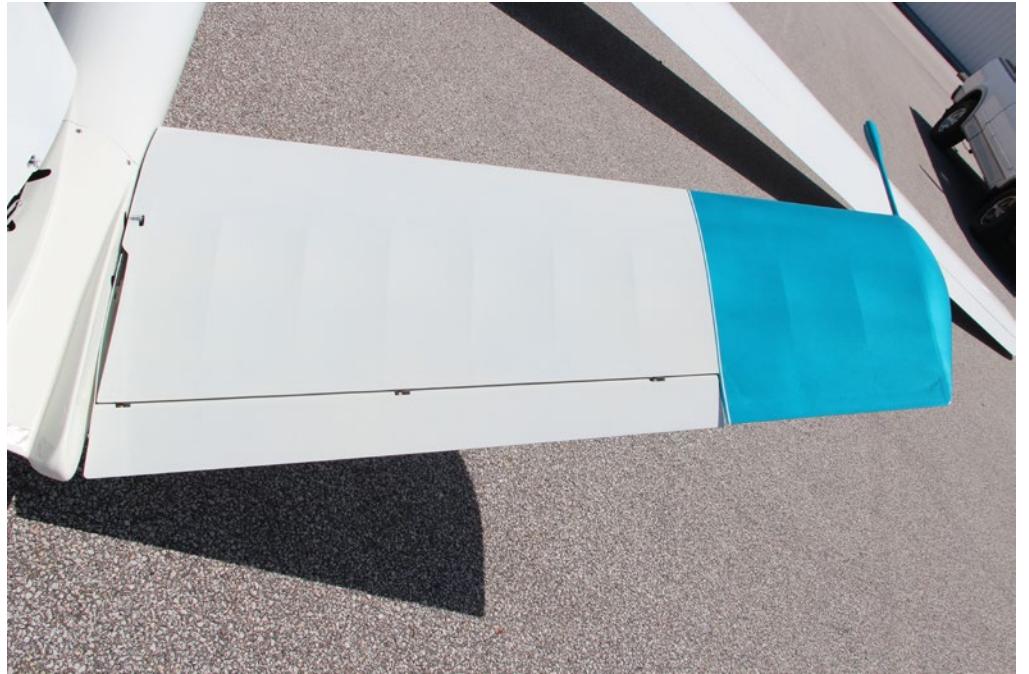Chris Adams' Fosa Lift flexes its muscles in Spring air at Devonport, Tasmania. Full ballast fun.
Fosa Lift from Baudis Models <http://www.baudismodel.com/models/k1596-actual/1423-fosa-lift.html>.