



# ScaleNews

September 2023  
Issue 10

Official Newsletter for Free Flight and Control Line Scale flying in New Zealand  
produced by the Free Flight & Control Line Scale SIG



## In this issue

### Contest notice

#### • Morrinsville

2023 Indoor  
competition day

#### • Scale projects

PZL 11c

Twin Mustang

Currie Wot

Nesmith Cougar

Auster MkIII

Rearwin Speedster

Curtiss P-40

#### • Scale subject

Erco Ercoupe

#### • Ercoupe Model

KK Erco Ercoupe

#### • Australian News

Richmond Scale weekend

Queensland CLAB control  
line scale report

#### 2024 NZ Nationals notice

# Free flight indoor contest day Indoor Scale at Morrinsville

## Sunday October 8, 2023

- F4D Rubber Scale • F4F Peanut Scale
- Kit Scale • Memorial Scale, PLUS
- Hangar Rat • HL Glider • Modelair Hornet

Morrinsville Events Centre, 21 Ron Ladd Place, Morrinsville

Contact Stan Mauger 09 575 7971, stanm09c4@gmail.com for more information



Organised by the Auckland Model Aero Club Inc  
in conjunction with the Scale Free Flight & Control Line SIG



### FREE FLIGHT SCALE ON THE TABLE

*Eddie Mann brought his Guillows Mustang for the table at the August Auckland Model Aero Club monthly meeting.*

Photo: Brian Howell

A periodic publication with news of interest to free flight and control line scale modellers in New Zealand and beyond.

## Editorial

Once again, I am pleased to bring you varied articles and reports on free flight scale and control line scale activity from both here and across the Tasman. It is some months since the last issue so invariably, some articles have been held until I could put this issue together. Thank you for your patience if it is some time since you sent in contributions for this newsletter. It is gratifying to be including write-ups of models from both beginners and well experienced scale builders, which is another way for me to say that I welcome photos and reports on any scale activity regardless of how versed you may be in free flight and control line scale. As noted in previous editorials, it is great to receive news about Australian free flight and control line scale as well as local activity, to include in the newsletter. My thanks to all contributors for photographs and information to publish.

This issue is just in time to sound a reminder of two scale events. The Morrinsville indoor day is less than a month away and I can say that support and enthusiasm for this day has grown over the years since we first ran it. It is a great opportunity to keep in touch with flyers from across the North Island and beyond who fly indoor free flight scale as well as those who fly other indoor free flight classes. There have been some outstanding models flown there in these classes and as those who have made the trip to Morrinsville will concur, the venue is sufficiently large to offer the open spaces that indoor flyers typically dream about, particularly if they are wary of models flying into walls! Please refer to the notice opposite for further details.

It is not too soon to be thinking about models for the New Zealand Nationals if you are planning to attend, as we come to the lead up to this part of the year. Whilst the programme on page 28 is still provisional, a confirmed timetable will be out soon and the format from last year is not likely to be changed much.

One final plea, while Scale News attempts to report on free flight and control line scale news from across the country, there will be regular scale activities that we have yet to discover and cover. If you can contribute to more inclusiveness, please send in material to publish.

STAN MAUGER

Free Flight & Control Line Scale  
Special Interest Group  
of Model Flying New Zealand

### Committee

Stan Mauger (Chairman)  
Ricky Bould (Secretary)  
Brian Howell (Treasurer)  
Paul Evans  
Martin Evans

### Area Representatives

#### Whangarei

Daniel Walker

#### Fielding

Graham Lovejoy

#### Wellington

Antony Koerbin  
Chris Murphy

#### South Island

John Dowling

### Editor and

#### Newsletter Publisher

Stan Mauger  
96A St Heliers Bay Road  
St Heliers  
Auckland 1071  
New Zealand  
Phone +64 9 575 7971  
Email stanm09c4@gmail.com

The opinions expressed in this newsletter are not necessarily those of the editor or the Free Flight & Control Line Scale SIG or of Model Flying New Zealand.

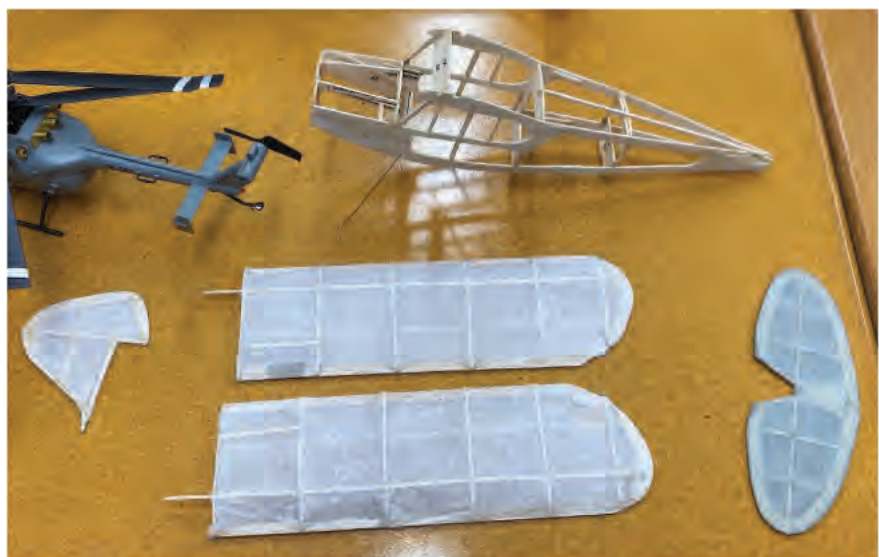
Photos are by authors unless otherwise credited

### COVER PHOTOGRAPHS

Ricky Bould with his CO<sub>2</sub> powered Hacker Piper Cub seen competing in scale events during the Flying Aces Day at Ferry Meadow, Peterborough, UK

Photo: Pete Fardell

Inset Photo: Bryan Lea



### FREE FLIGHT SCALE ON THE TABLE

AMAC junior, Henry Bishop's first scale model, a Guillows Piper Super Cruiser. Photo: Brian Howell

# Scale projects

## PZL 11c - Ricky Bould

This model was built from a Dumas kit and it had been partially built before being passed on to me. At 30" span, the model is of a good size for rubber scale and it has come in at just on 105g less rubber.

I have made a number of changes to make it a practical model. The nose area has infill right back to the cockpit and I have strengthened the struts and undercarriage area. The wing has also been strengthened and sheeted back to the first spar to create a D box.

The wheels have been replaced with foam ones, saving about 5g. Model covering is Dilly tissue which is stronger

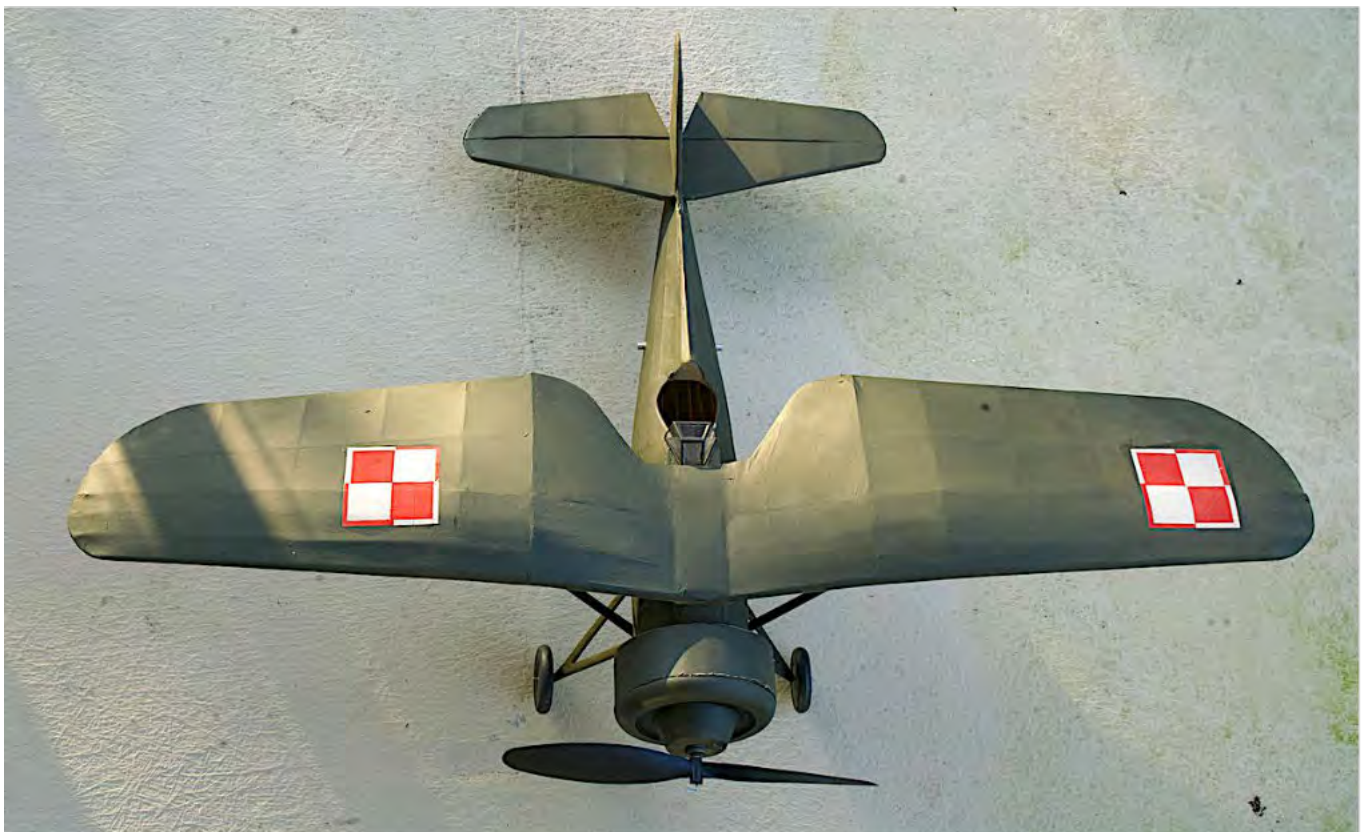
than traditional lightweight Japanese tissue and I have used a P30 prop. The whole of the radial cowl section comes off for winding and it incorporates a Gizmo-Geezer thrust button. The wing struts plug in and wings are held in place with magnets, both of these changes mean that the model is easier to transport and more crash-resistant. I have used airbrushing for both the final finish and also the tissue markings. Having painted the markings on tissue, they were then just cut out and applied. Now it's just a matter of waiting for some calm weather and the time to test it.

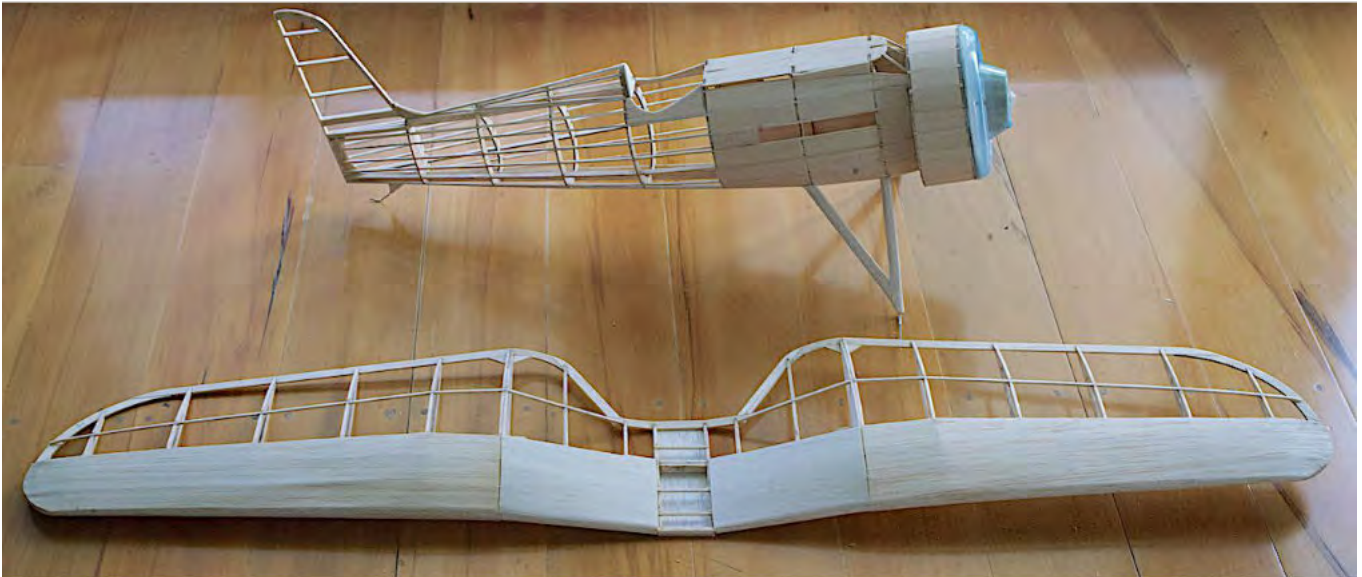
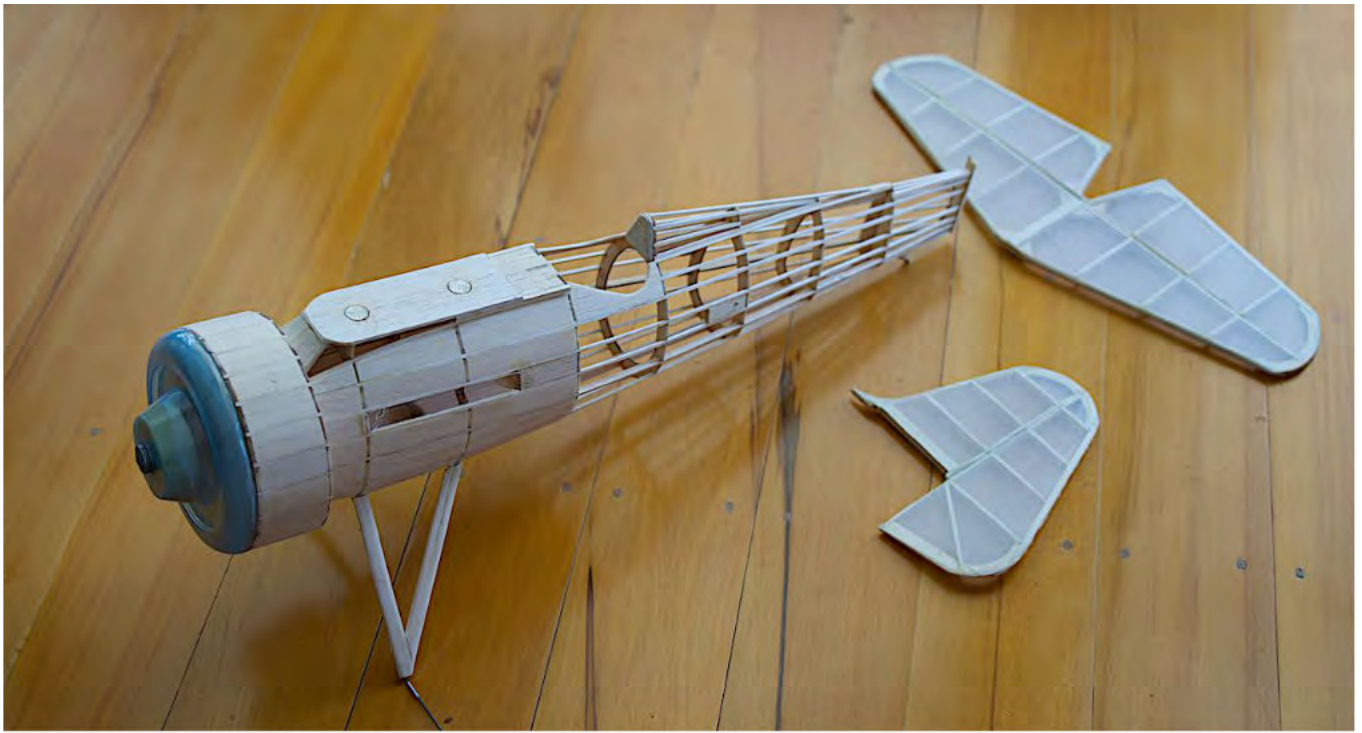
RICKY BOULD

*RIGHT: The removable cowl showing the Gizmo Geezer thrust button.*

*FAR RIGHT: The cowl in place on the fuselage.*

*BELOW: Offset markings intended to spare the pilot in battle on the full-size aircraft.*



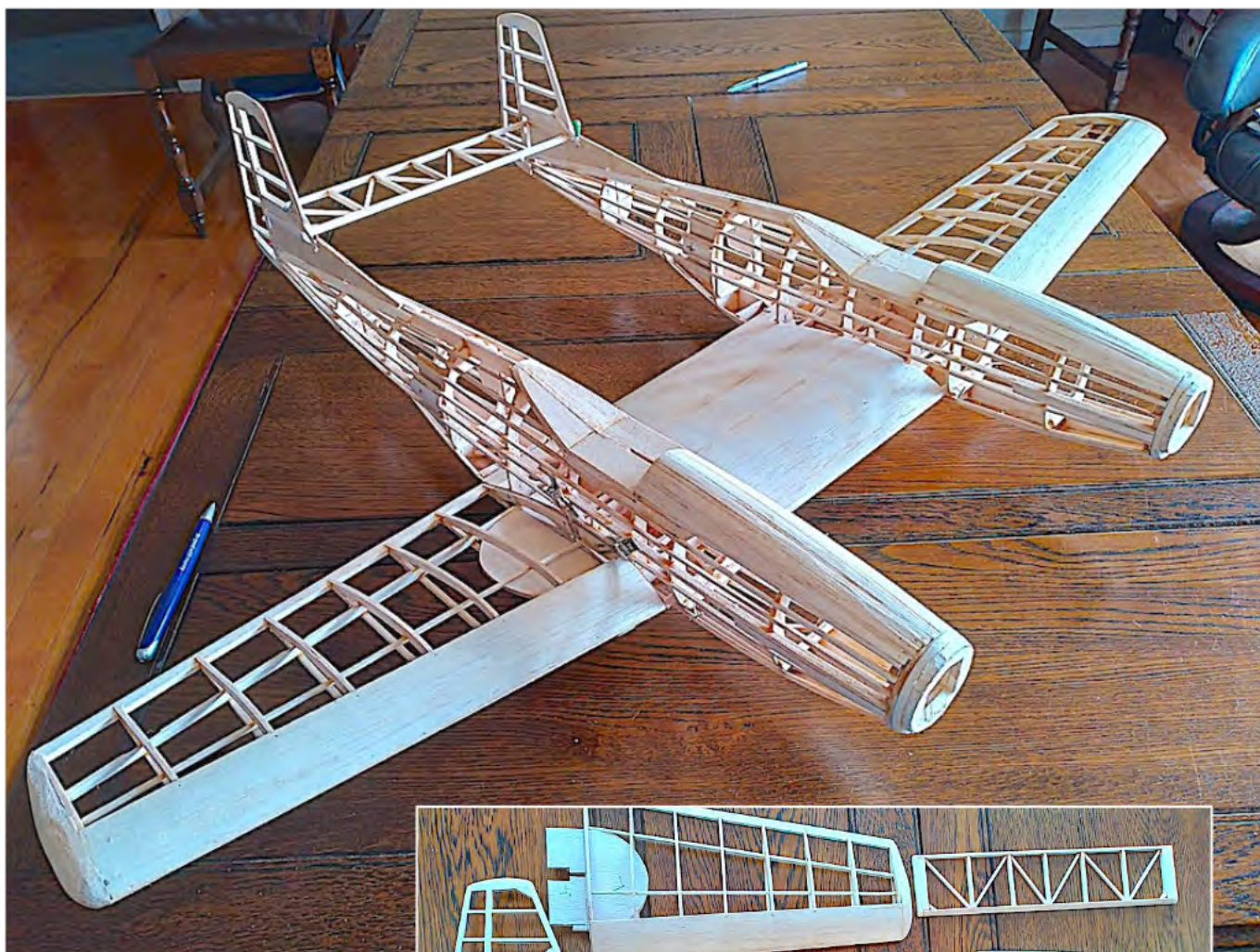


# North American P82 **Twin Mustang** - Don Spray

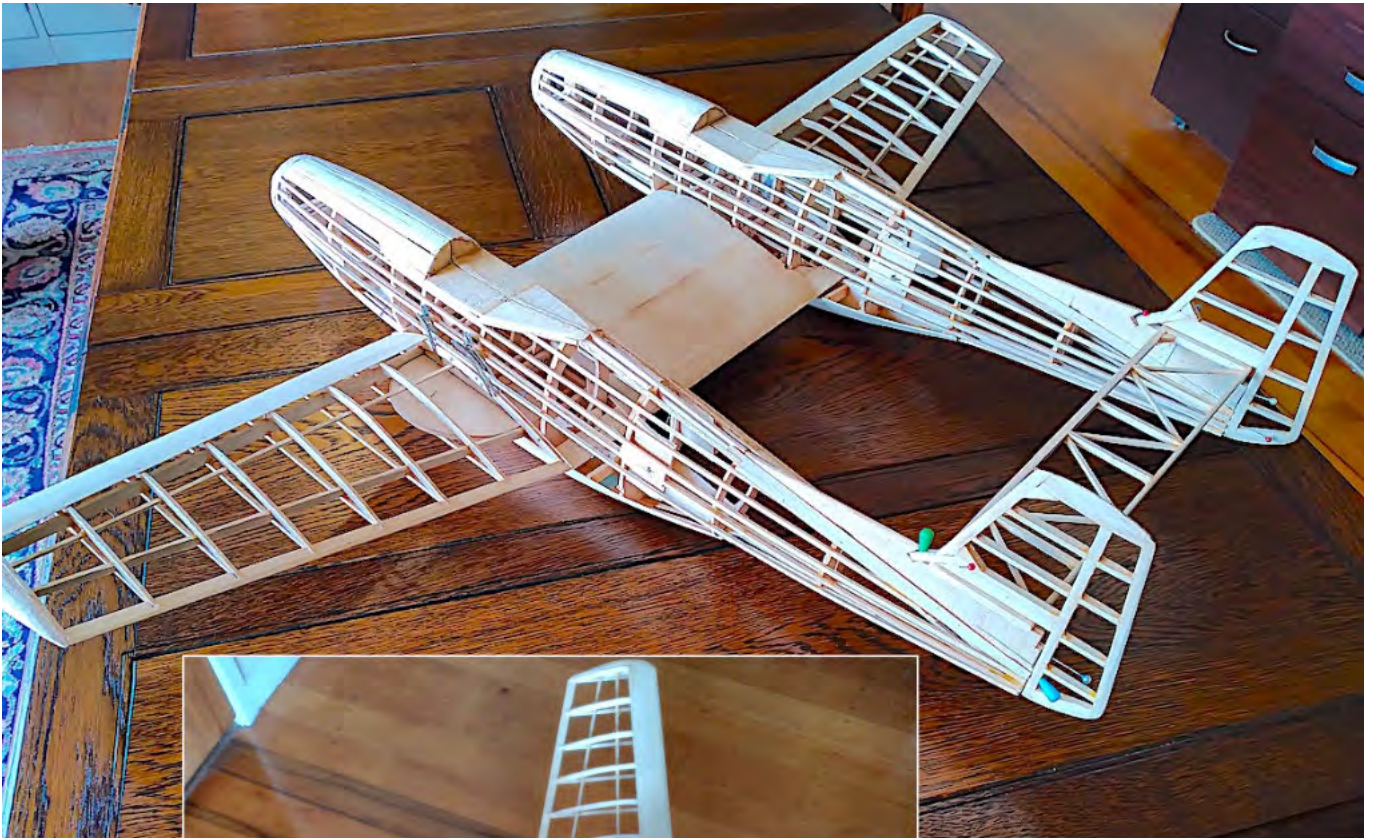
I had the plan enlarged from one in *Aircraft of the Fighting Powers*, Vol. VII, 1946. The model has a span of 940mm, or 38" approximately, and has all the attributes to make a good flying model. It has good wing area and outer panel dihedral. The excellent fuselage capacity allows for a large amount of rubber for the motors. In addition, its opposite rotation propellers should equate to a good flyer. My other two twins are a pleasure to fly, and are very stable with a realistic flight pattern as the opposing props seem to eliminate

any 'butterfly' skittishness. I have no doubt that any pair of my opposing props are nowhere near equal, as I just guess them during the Araldite process, however, the dominant or more efficient one dictates the model's turn during flight. So far so good. I must get on and finish it for Summer.

DON SPRAY



*TOP AND RIGHT: Views of the model showing the construction of the plug in-knock-off wings and sheeted centre-section and unusually, two fuselages to build!*



*TOP AND LEFT:  
Views of the model showing  
good wing area and outer  
panel dihedral.*

## Currie Wot - Chris Murphy

This rubber scale model of the Currie Wot homebuilt was started about five years back after seeing the design by Lloyd Willis in an issue of his Flying Aces newsletter. At 19" span the model seemed an ideal subject for either indoor or outdoor free flight rubber scale, but there is still much to be done to complete it. It has been a straightforward model to build so far, but now come the more challenging aspects of completing the wing rigging, struts, and scale detailing. At 36.7g so far it does not seem to be too heavy, provided not too much additional weight is added through the final stages of building the model.

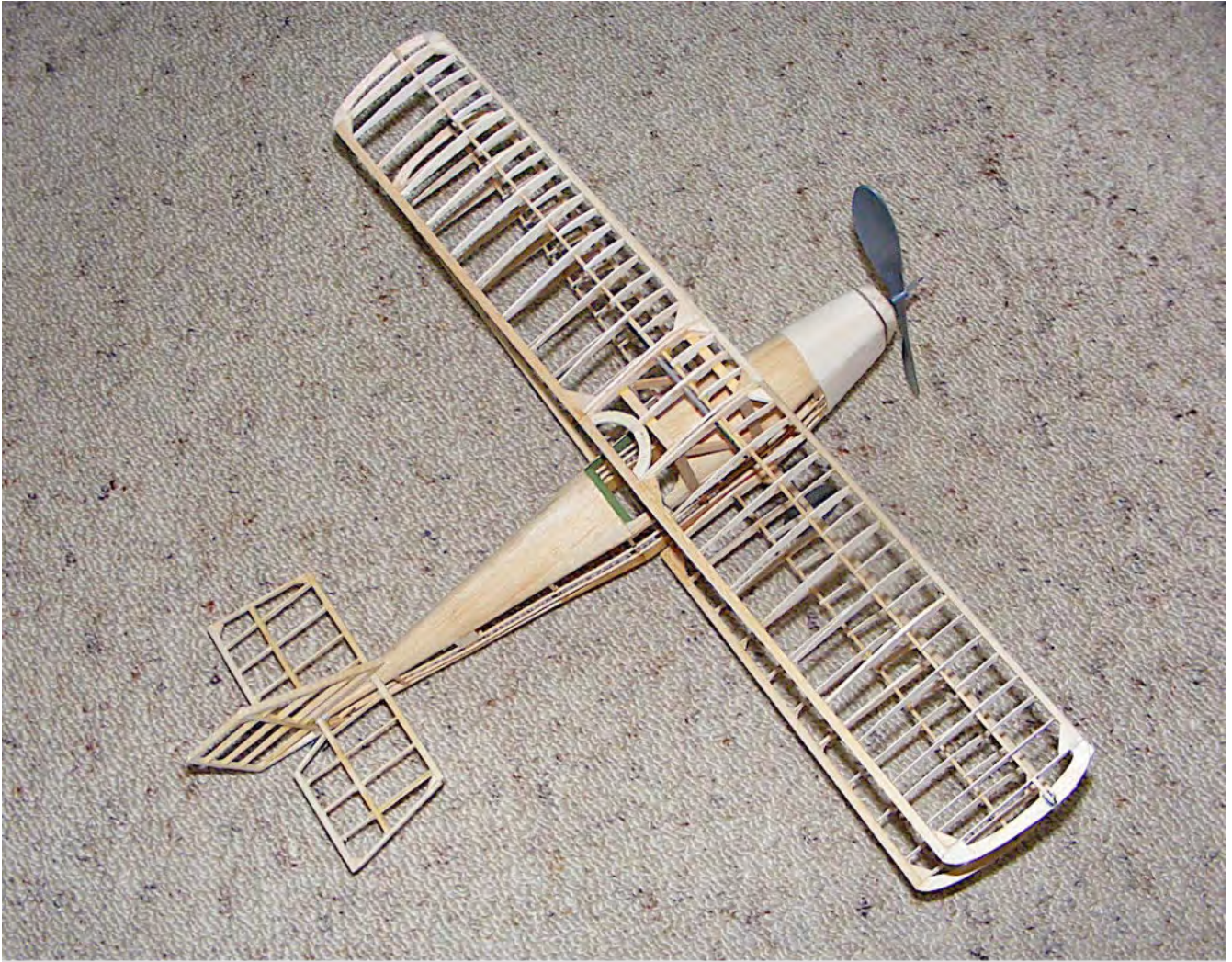
Fortunately I have good documentation with Aero Modeller 3-views and a range of photographs of ZK-CYB which will be the colour scheme for the model.

Finally, I will have to get on with trimming the model. I would welcome any wise counsel on this stage from anyone who has experience with building and trimming rubber powered biplanes.

CHRIS MURPHY







# Nesmith Cougar -Ken Smith

I stumbled across this kit at Peck Polymers while looking for something unrelated and it caught my eye. The kit had laser cut sheets with the rest 1/16th square sticks. I had previously a VMC Cessna 140 and that had a handbook of instructions. The Nesmith Cougar kit was obviously pitched at someone with experience as the instructions were very brief. As far as I can tell, the kit is complete with tissue, prop wire to form the undercarriage and decals.

This was back in early July 2023 and after locating magazine building notes for the Clarence Mather plan I have most of the fuselage framed up and I have started on the wing halves. The 1/16" square pieces all weigh 0.11gm +/- 0.01gm. I am taking my time trying to anticipate problems on how to approach the build.

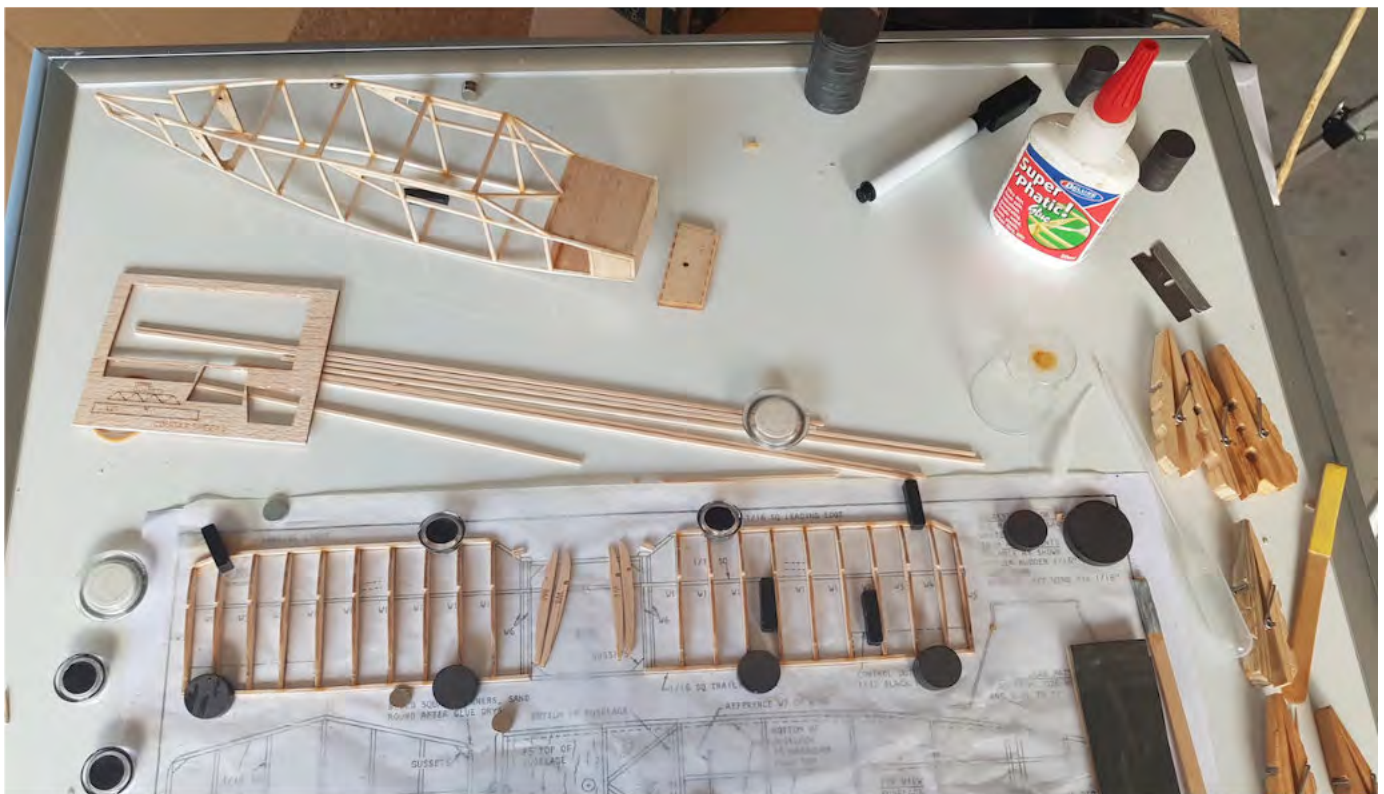
Keith Trillo always talked about magnetic boards and I never entertained them, having always used pins and cork boards, however, I saw the notice boards in the supermarket and decided to give them a go.

My only comment is that not all magnets are created equal and some jump up to meet the one in my hand. I think for any bigger model build I will revert to my old friend the building board.

The accompanying slip of paper in the box described some changes to the colour scheme with the box art being the guide. It is largely yellow with black top of the fuselage. To date I haven't found any information on the full size aircraft.

When growing up I was lucky that my father chose aero modelling as a shared interest for us, something I have rekindled in recent years. I am still a bit of a novice with indoor models but find plenty of help with trimming, from club members. If all goes well I may have this plane flying at the Morrinsville indoor meeting.

KEN SMITH.



*ABOVE AND RIGHT:  
Building progress  
showing magnets in  
lieu of pins, and notice  
board used as a  
building board.*

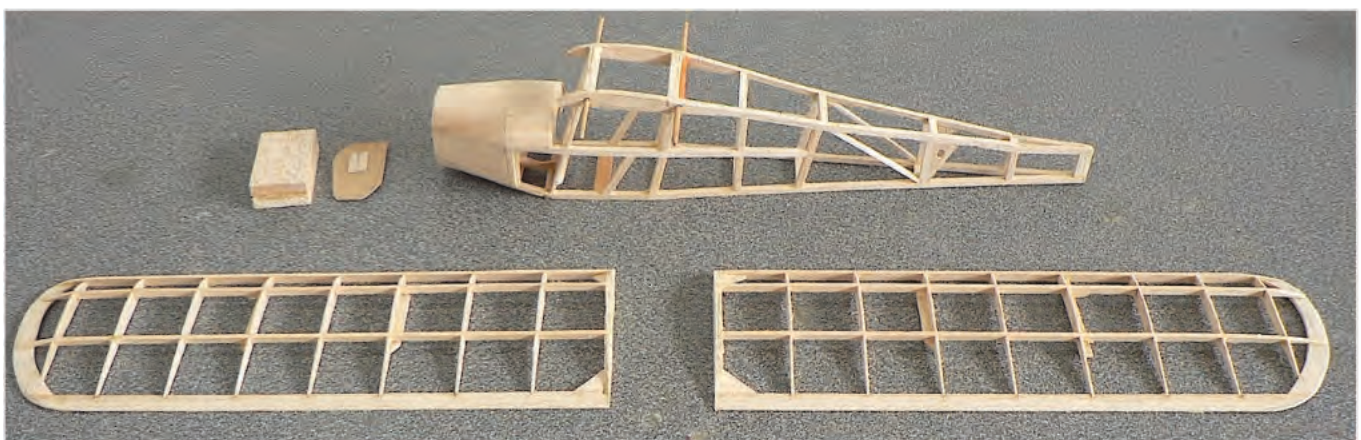


# Wipa Auster III - Stan Mauger

Having a fondness for Austers, I was delighted to be handed this kit by NSW Scale flyer Peter Jackson at a Richmond Scale day. This Auster MkIII kit was produced by the Czech firm Wipa, some years back. It is a straightforward model to build and although not laser-cut has gone together easily. Whilst 3mm longerons may seem excessive for a 21" model, the wood is light and the finished model should not be overweight. The model has been designed with flying qualities to the fore with an undercambered wing - not Auster-like at all, and a lengthened undercarriage to allow take-offs with a large diameter rubber model propellor. My model has been built with plug in wings so that it can be easily transported - to Richmond I hope! It makes up

into a nice kit scale subject. The RAF, RNZAF and RAAF have all painted up Austers in orange schemes for Antarctic service, but as far as I can tell, None of the aircraft was an early MkIII Auster. Still, in Kit Scale, the building plan and kit-box graphics are all that is needed for documentation, so I could hardly select any other scheme than the International Orange used on later Antarctic Austers and my T7c/C4 power scale models. If the design appeals, the kit plan can be found by going to AeroFred.com.

STAN MAUGER



TOP: Fuselage and wings show the simple construction of this model.

ABOVE: A knock-off undercarriage incorporating hooks for wing struts has been substituted. Markings are laser-printed and will be cut out and applied. Tail surfaces are coloured with pastel.

LEFT: The kit label showing two RAF colour schemes.

# John Macdonald - Rearwin Speedster

This stick and tissue model was built from a John Bell Design kit of the 1980s. It is  $\frac{3}{4}$ " to the foot scale and twenty four inch span. Kit wood was excellent being both light and easy to cut. Parts fitted beautifully, making it an enjoyable model to build. Cockpit formers were built up but remaining formers were straight from printwood supplied. The wing joining system is comprised of wire dowels enclosed in boxes in the cockpit and works well. One very welcome aspect of the kit was the pre-formed cockpit glazing that incorporated the contours of the front windscreen. The moulding was slightly deeper than required but only a little trimming was

needed to get it to fit properly. The kit also included self-adhesive lettering set up to peel away on a carrier base and as the photos show, this looks great on the model. The inclusion of spats also sets off the model nicely. The spinner keyed into a plastic disc, however, the small nose plug makes holding thrust settings difficult. Incorporating this permanently within a balsa nose plug would have made keeping trimming settings easier. With the lightweight Japanese tissue supplied, the model is still quite light and should make a nice flyer.

JOHN MACDONALD



ABOVE: The model enhanced with the addition of a spinner.



ABOVE: A view without the spinner showing the nose button fitted directly into the fixed noseblock.

RIGHT: The cockpit glazing showing the formed windscreen.



# Daniel Walker - Control Line P-40 Trainer

This little CL trainer model in the form of a profile P-40 was born out of an idea of Nathan's after the last Nationals, to get his friends flying control line. I used my slowly improving CAD skills to draw up the design and Avetek have laser cut the balsa and 3D printed hardware such as bellcrank, elevator horn and engine mount. We are planning a build session in the next school holidays to get a few in the air and maybe inspire the next generation to fly control line.

It is designed for the relatively common Cox Babe Bee and as such has been christened the 'Bee 40'.

I would like to take the opportunity to make a call out for any of these little motors no longer wanted and gathering dust out there, and am happy to pay a few dollars of course, but hope to keep the cost as low as possible for the young'uns. If you can help please give me a call on 021 450 338.

Interestingly, John Danks saw the prototype fly at the Shortest Day Slow Combat meet and has listed them on the Airsail website to add a little variety to the kits on offer.

DANIEL WALKER



# Erco Ercoupe

## Walk around

The Erco Ercoupe was designed to be an easily flown aircraft and touted to be incapable of spinning. Rudder pedals were eliminated and the aircraft was flown with a control wheel that linked rudder and aileron systems. Production in various forms began in 1937 and continued through a number of manufacturers after Erco ceased manufacturing it in 1946.

The first Ercoupe to arrive here was ZK-AQX flown by Harry Newton who for some years had the distinction of owning the only Ercoupe in New Zealand. The aircraft had the Belgian registration OO-EXC when purchased there in 1947. In it he made an ambitious journey from Belgium to New Zealand to fly it home. This aircraft later passed through a number of owners' hands and was out of the air for various periods. It was recently restored and is currently flying again.

One other Ercoupe, was imported by Matt Newton in 1994 and registered as ZK-EXC as a link back to his father's aircraft. He found it in USA as N94700 and brought it back to New Zealand. The photographs in the accompanying walk-around were taken in 2010 at the Classic Flyers' Museum in Tauranga when I found it on display there. After years of wondering about details of the aircraft, getting close ups was great, enabling me to confirm questions of the aircraft's construction and contours. As usual I was able to take plenty of photographs to capture details for documentation purposes. As always, if you have an interest in this aircraft for building a scale model and would like other views that are not included here, please get in touch.

STAN MAUGER

### Plans

Deeley, D. (1957, April). *Aeromodeller*, Plan FSP 654  
Mountjoy. (1947, Sept). *Model Airplane News*,  
Hatfull, A. (1952). Keil Kraft Flying Scale Series 20" Rubber model  
can be downloaded from: [www.outerzone.co.uk](http://www.outerzone.co.uk)  
[http://www.hippoketaeronautics.com/hpa\\_plans](http://www.hippoketaeronautics.com/hpa_plans)

NOTE: Outerzone has another dozen or so plans listed and HipPocket and AeroFred are also worth a visit.

### Documentation and 3 views

Goyer, N. (1990, June). Building an Ercoupe. Vol 16 No 6 Canoga Park, CA. Scale RC Modeler.

Moore, R. (1950, May). *The Erco 415c Ercoupe*. Aeromodeller.

### Publications

Orphan, G. (1994, Oct-Dec.). *The family 'coupe*. Vol 1 No3. Blenheim, NZ: Classic Wings Downunder.

Woodhouse, M. (1995, May). *The Ercoupe - a family pet*. Otaki, NZ: New Zealand Wings.



RIGHT: A cockpit view of the Ercoupe reveals an absence of rudder pedals.



ABOVE: Several views of the Ercoupe that show the marked dihedral it has.







# Erco Ercoupe - Keil Kraft Kit Scale

For many modellers in this country, published model designs introduced us to the Erco Ercoupe, rather than any access to the full-size aircraft. Don Deeley's control-line stunt model was published by Aero Modeller in 1957 and I have recollections of it being flown by a control line flyer in the Timaru MAC in the 1950s. Others were undoubtedly built elsewhere in the country. This was the age of a boom in control line flying. More recently, thanks to the John Pond library, it became possible to obtain plans for the 1947 Mountjoy control line Ercoupe from Model Airplane News, a much better plan for control line scale.

Perhaps the best known flying scale Ercoupe rubber design for us here, was from the Keil Kraft 3/6D series, dating back to 1952. It is likely that a number were made by beginners hopeful of creating a nice flying scale model of this subject. However, the inefficient plastic

propeller and lack of adequate kit rubber spelt doom for those unable to find assistance to improve on these two aspects of the design. More recently VMC have created a laser cut re-issue of the Keil Kraft design using the original plan but with better balsa as well as a proper flying propeller and suitable rubber, both of which serve to overcome these weaknesses in the original kit.

With both plenty of wing area and dihedral the design should fly well, Mike Fairgray is building a larger version from the original Keil Kraft design and this is reported on the next page.

STAN MAUGER



*ABOVE: John Dowling with his Keil Kraft Ercoupe seen at an autumn scale day at Patetonga a decade or so ago.*

*LEFT: This view of the model shows the generous tail area and more than adequate dihedral in the Hatfull design. .*

# Mike Fairgray - Enlarged Keil Kraft Ercoupe

## The plan

When the plan was downloaded from Outerzone it was increased by 15% making the wingspan 23 inches. The plan was printed and sized by my local copy and print shop and came with a supplementary parts page. The parts were resized using my printer to get them just fitting on an A4 page. They were cut out and stuck down on the balsa using a glue stick.

## The Wing

After cutting out all the parts, building commenced on the wings. Wing ribs were cut out using the sandwich method. The trailing edge was notched to accommodate the ribs and to give them more strength at that point. The wings are straightforward, the only tricky part being the wing tip which is curved up at the midpoint to meet the raised leading edge.

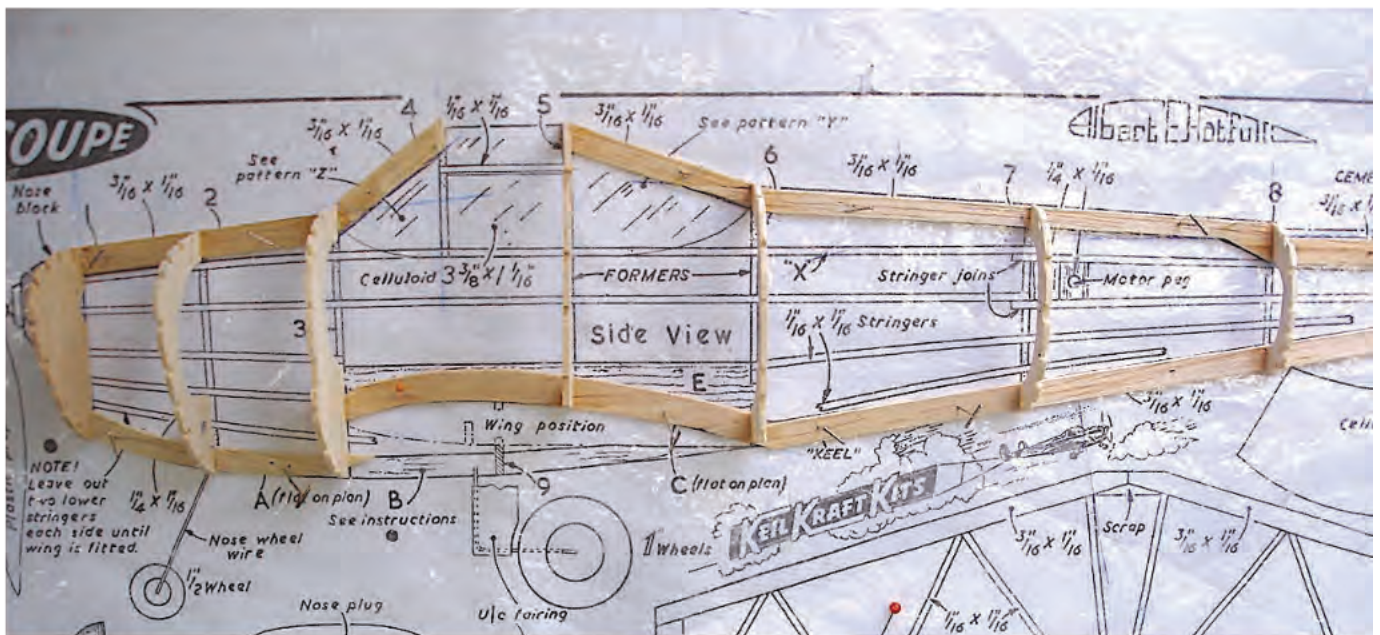
## On to the tail

This was straightforward, being made up of strip balsa. The twin fins were shown as built up on the plan, however, I decided to cut these from balsa. Holes will be made in the fins to lighten them.

## Next the Fuselage Part 1

Formers were cut out using the outlines previously stuck down on the balsa sheet using a glue stick. Notches for the stringers were cut and finished to the correct width using a file of the correct thickness. Next, formers were cemented in the correct position on the outline. The glue used was Selleys exterior PVA which is waterproof, quick setting, fills small gaps and is strong. It is necessary to wipe excess off before it sets.

MIKE FAIRGRAY



UPPER: The Keil Kraft use of a keel is evident in the fuselage construction.

ABOVE: The twin fins showing substitution of sheet construction

## Richmond Scale Rally June 30, July 1-2, 2023

New Zealand Free flight scale flyers have greatly enjoyed taking part in Richmond scale competitions and rallies since the inception of the Trans-Tasman Challenge for the Hope-Cross Trophy in 2005. Sadly, the era of Covid prevented us from attending for several years and some of the 'regulars' were unable to make this year's event at short notice. Still, there is every indication of a contingent from here making it next year. If you have an interest in Free flight scale flying please consider joining us. Over now to Phil Warren - Ed.

A wonderful weekend of weather welcomed the contestants. A chilly start warming up to nineteen or twenty degrees and almost nil wind. We welcomed two new judges for Friday's static side of competition, Ed Mahoney and Aaron Booth. They both did an excellent job and Ed brought us into the digital age by converting the judging forms to his computer with instant scores, saving use of calculators for k factors. Friday was also trimming time to get models ready for Saturday's flying judging.

### RESULTS

#### FAI F4A Power Scale

	Subject	Static	Flying	Total
1.	M. Dislers Luton Minor	948.8	611.2	1560
2.	R. Summersby ABC Robin	887.7	556	1443.7
3.	R. Summersby Lavochkin La15	477	480	957
4.	M. Dislers Eastbourne Mono	956.3	-	956.3

#### Reg Jude Trophy - Rubber Scale

1.	P. Warren Peyret Taupin	930.9	613.7	1544.6
	P. Warren Bellanca Aircruiser	945.6	441	1386.6
3.	P. Warren Payen PA22	932.4	447.6	1380
2.	R. Summersby Focke Wulf FW152	881	465	1346

Twenty one models graced the field on Saturday. Rubber scale and F4A were down on entries with only four models in each category. Kit scale had thirteen entries. Flying judges Walter Bolliger and Reg Towell were kept busy all day. I think only two models needed some repairs when flying finished, they were Terry Bond's Gee Bee and Maris Disler's beautiful Eastbourne Monoplane. A lot of flyers would have had higher placings if they had all documentation with them, it is important. A lot of kit scale flyers did not supply plans, but they still had fun flying in the great conditions. See results below.

The New Zealanders sent us a message wishing the usual great weather and wonderful flights over the weekend and are resolving to be at Richmond in 2024. In the meantime, get some scale models built for next year particularly F4A and rubber and don't forget documentation.

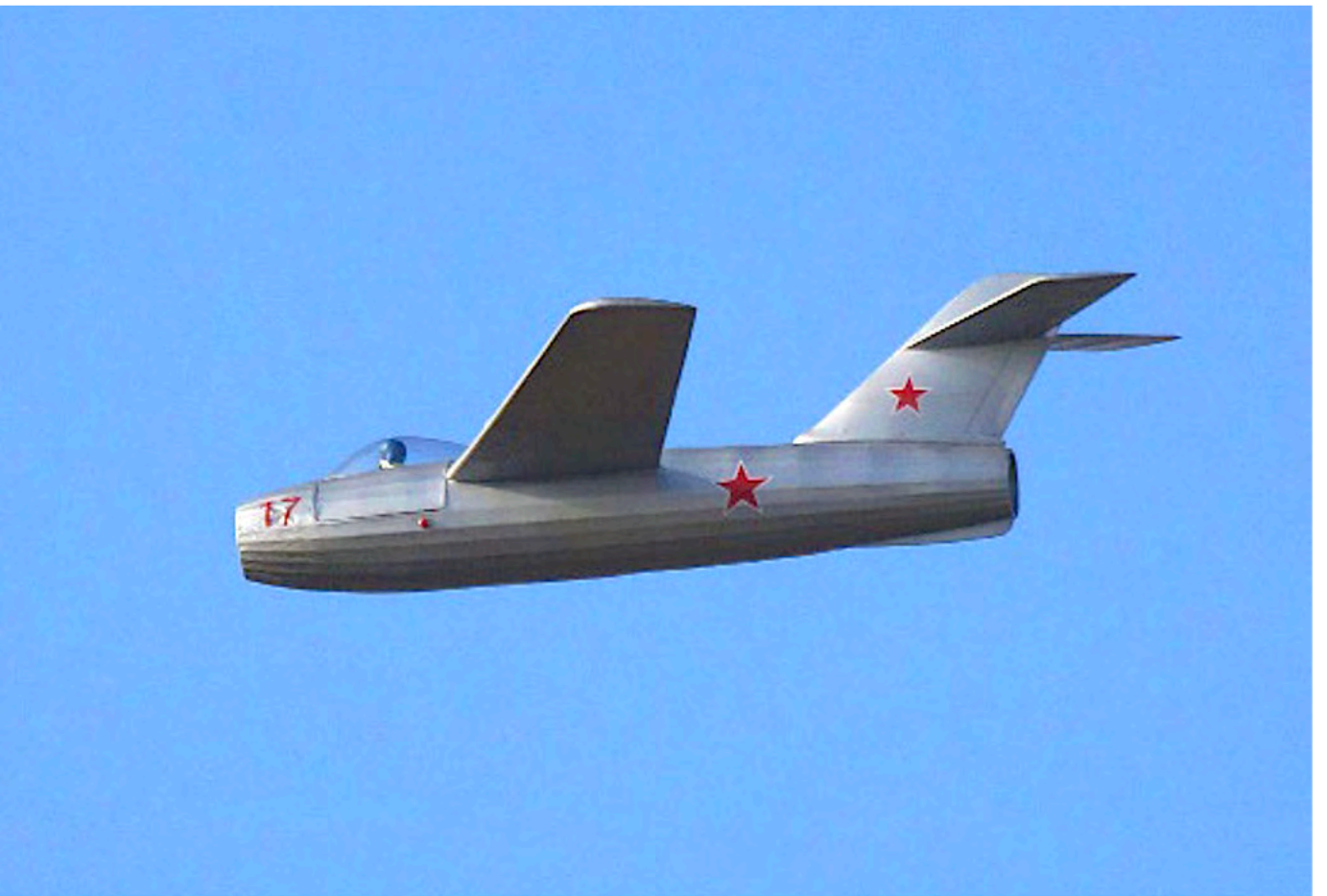
PHIL WARREN

#### Kit Scale

	Subject	Static	Flying	Total
1.	P. Warren Taylor Cub	98	55	153
2.	M. Dislers Cessna Bird Dog	100	45	145
3.	P. Norrie Rearwin Speedster	90	53.5	143.5
	P. Warren Fokker D VII	92	42	134
	A. Booth Tiger Moth	85	41	126
	R. Summersby SE5A	90	35	125
	T. Bond P38	60	41	101
	R. Summersby Westland Widgeon	85	14	99
	T. Bond Jodel	46	51	97
	K. Murray Taylorcraft	46	48.5	94.5
	M. Dislers Thomas Morse	52	-	52
	S. Bojec Nieuport 27	41	-	41
	T. Bond Gee Bee	36	-	36



ABOVE: Maris Disler's Luton Minor placed first in F4A Power Scale, and proved what a great flying subject this is..



*TOP: Roy Summersby's ABC Robin looking great on the glide, was second in F4A Power scale.*

*ABOVE: Roy showed that ducted fan subjects can fly well. The model made third in F4A,*

Photos: Angie Mahony



*TOP LEFT: Phil Warren's Fokker D7 flown in Kit Scale.*

*TOP RIGHT: Peter Norrie made third place in Kit scale with his Rearwin Speedster.*

*ABOVE: Roy Summersby's Focke Wulf TA152 looked impressive in Rubber Scale.*

*RIGHT: Phil Warren's unusual Payen PA22 placed third in Rubber Scale.*



# CLAB Annual Scale Gathering

## June 25, Willawong, Queensland

*Thanks once again to Malcolm Campbell for sending this report of the CLAB scale flying and a range of excellent photos, - Ed.*

Control Line Aeromodellers of Brisbane (CLAB) had their annual Scale gathering on Sunday 25 June 2023. A record thirty seven models were on display on a perfect winter's day. It was windless with not a cloud in the sky. Many were happy to simply display their models but a handful took to the sky to entertain the thirty spectators that lined the three circles.

There was a good roll-up of WWII models and the photos show the variety that were on display. John Lewis's brand-new Spitfire XIV was the standout model and it didn't disappoint in the air either. He said after the flight that the model felt very well behaved although it was running a bit lean, preventing him from doing too many aerobatics. The model has a nice thick stunt wing section and we were all looking forward to a good display. At the other end of the spectrum, a small plastic Cox 049 scale biplane flew on short twenty-foot lines. And there were four large warbirds each with Irvine 40 glow motors.

Andrew O'Grady flew two twin-engined profile models, a Westland Whirlwind and a Grumman Tigercat, and both looked great in the air. Van Richards-Smith's Yak 7 was aerobatic, performing outside loops and figure eights with ease. John Clark and Greg Corone both flew Messerschmidt ME 109s. Greg also had three little Cox-powered plastic scale biplanes and one of them kept the crowd amused as he struggled to get it airborne on the short grass.

The morning display ended with a sit-down BBQ lunch in the shade. Those with more fuel in the tank put up a few flights to keep us amused during lunch. Club secretary Brian Cochrane did all the catering and cooked for everyone. He was also the chief organizer of the event, so doing an amazing job. We believe this event will continue to gain in status with some already planning their models for next year.

MALCOLM CAMPBELL



*TOP: There was a good roll-up of various scale models as seen here on the circle.*

*RIGHT: Andrew O'Grady's Fieseler Storch Fi-156 was for a 9cc engine and at 60 inch span is a large model.*



TOP AND ABOVE: Andrew O'Grady's Grumman Tigercat F-7F with two ASP 15s.

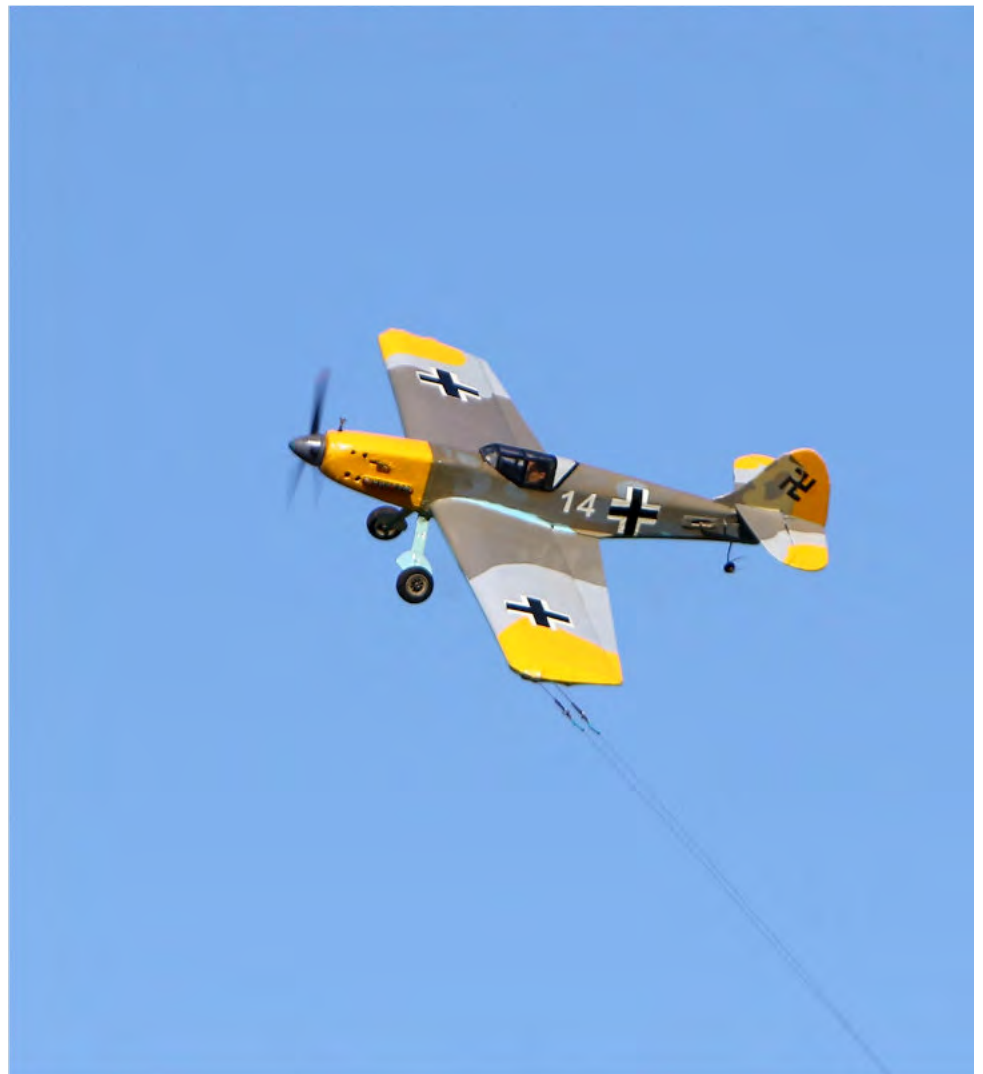




*INSET: Greg Corone's little Cox-powered plastic scale biplane.*

*ABOVE: Van Richard-Smith's Yak 7 with OS 25, is about 45 inch span.*

*RIGHT: Danny Hindle's NA Trojan T-28.*



TWO Me109s  
ABOVE: Greg Corone's  
Messerschmitt Me109 profile  
model gliding in.  
RIGHT: John Clark's  
Messerschmitt Me109 with a  
built up fuselage.



TOP: John Lewis's Spitfire XIV, 46 inch span with an OS LA 25.  
ABOVE AND LEFT: Andrew O'Grady's Westland Whirlwind with two MK17 1.5 cc diesels.

# Provisional NZ Nationals Programme 2024

## Free Flight & Control Line Scale

Registration			
Day 1	FAI F4A Free Flight Power Scale	RC1 RC field	6.30 - 9.00am
	Outdoor Kit Scale	RC1 RC Field	6.30 - 9.00am
Day 2	CO2 Electric Scale	FF Free flight field	6.30 - 8.30am
	Outdoor Rubber Scale	FF Free flight field	6.30 - 8.30am
	Memorial Scale	FF Free flight field	6.30 - 8.30am
	F4B Control Line Scale	CL Circle	9.30 - 12.30pm
Day 3	Control Line Sport Scale	Grass	9.30 - 12.30pm
	(Indoor) Peanut Scale	Hall	6.30 - 10.00pm
	Indoor Kit Scale	Hall	6.30 - 10.00pm
	Indoor Rubber Scale	Hall	6.30 - 10.00pm

## Free Flight & Control Line Scale Events

### Sport Control line scale

A no documentation class open to any control line model of scale or semi-scale design including semi-scale aerobatic models, profile scale models or full fuselage more realistic designs

### F4B Control line scale

Flown to FAI F4B rules. Models are judged for static and flying points. Documentation is required..

### FAI F4A Free flight power scale

Free flight power scale is flown to FAI F4A rules. Power can be either i.c. engine or larger than low power class electric motor (refer to rules for motor power limits on our link on the MFNZ website or contact the SIG). Models reflecting varying levels of experience and expertise are typically entered so if you are interested in this class and have a free flight scale model to fly, join us.

### Outdoor CO2 Electric scale

This includes CO2, small electric, and Jetex. It is flown to FAI F4E rules. The class was created to allow low powered free flight scale models to be flown with other models of similar size and power source.

### Outdoor Rubber scale

This is flown to FAI F4D rules, with no flying mark for landing. Like other FAI F4 classes, emphasis is on flight quality rather than flight duration.

### Outdoor Kit Scale

This is flown to the SIG rules available under *Rules* on the Free Flight & Control line Scale link on the MFNZ website. The objective is to encourage simple stick and tissue models 'built to the kit plan' rather than the elaborate highly decorated and finished models of some other scale classes.

### Indoor Peanut scale

Flown to FAI F4F rules, it has a totally different scoring system from other F4 rules. Knowing the static scoring criteria assists in doing well in static. Unlike other scale classes, flying and static scores are ranked to find placings.

### Indoor Rubber scale

Indoor rubber scale is flown to the same F4D rules as outdoor free flight scale rubber but includes a flying mark for landing as good landings are much easier on a hall floor!

### Indoor Kit Scale

This event uses the same scoring as Outdoor Kit Scale.

### Memorial Scale

This official class was introduced in Scale News 2. Already it has brought out some of the gifted or inherited scale models many of us have in our care. It is flown concurrently with other Day 2 events on the Free Flight field.

### Documentation

Three views and photographs of the full-size aircraft modelled are needed as documentation for all free flight scale and control line scale classes except Kit Scale, Control Line Sport Scale and Memorial Scale.

The kit plan and a photograph of the aircraft modelled or box art are needed for Kit Scale.

Control line Sport Scale and Memorial Scale are judged on flying only so do not require any documentation.