



ScaleNews

November 2022
Issue 8

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

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ABOVE: Stan Mauger's Fleet Canuck gaining height in the F4D Open Rubber class at the Morrinsville Indoor Day. See Report on p.6

Free flight indoor contest day Indoor Scale at Morrinsville

Sunday October 8, 2023

- F4D Rubber Scale • F4F Peanut Scale
- Kit Scale • Memorial Scale
- 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



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

Editorial

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
Mike Mulholland

Area Representatives

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.

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COVER PHOTOGRAPH

Graham Lovejoy's winning *Stahlwerk Reisler III* getting away for a great flight at the Morrinsville Indoor Day last October.
Photo: Ricky Bould

Putting this issue of Scale News together has been akin to arising from sleep. It is nearly a year since the last issue. It sounds almost passé to talk about the impacts of Covid, but that did affect support and organization of competition scale flying. Usually there would be a newsy report on the January Nationals and whilst several classes were flown, reports were not forthcoming. Covid also caused some discontinuity in going out and flying at Club fields although I am pleased to be able to include reports on some active scale flying at the Auckland Club's Karaka field and other clubs have undoubtedly seen some flying activity across outdoor free flight and control line scale classes and indoor scale, particularly now that restrictions have been lifted.

There have been a couple of positives lately. It was most heartening to see strong support for the recent Morrinsville Indoor day, where all scale classes attracted enough flyers to be official events. A further report on the day is on p.6

Secondly, Model Flying NZ are to be congratulated on running live totals on registrations for Nationals classes. In free flight and control line scale classes, numbers for our scale classes are the highest yet for this time of year, particularly in control line scale.

And talking of control line scale, it is pleasing to be able to include articles and photos of a number of models in this class in this issue. Thank you to local and Australian contributors who have made this possible. It is gratifying to see strong interest in this class by Australian flyers and also to see a class that for many years was poorly supported, coming alive again at our Nationals.

As always, a thank you to all who have sent contributions for this issue. It is great to receive news of such a cross-section of scale modelling. As I commented in the first issue, it is hoped that in some way this publication may bring together the interests of scale modellers, and help communication between free flight and control line scale enthusiasts at a regional level, as well as nationally.

With not much time to go until the Nationals, a run down of details of classes has been included on p. 20, a timely reminder to look out documentation where it is required! Best wishes for the festive season and good luck to those attending the Nationals.

STAN MAUGER

Rubber scale flying at Karaka

Karaka Sports Park is of a suitable size for rubber scale models that will fly within a moderate sized park. The accompanying photos are of models built by two of the more regular free flight rubber scale flyers at Karaka. Don Spray has recently had success with flying two ambitious rubber powered scale twin subjects, a Grumman Tigercat and a McDonnell XP67 Moonbat. Both of these models fly well and are great to watch in flight. Don has developed his own system to handle winding both motors, using leads of light cord to enable the propellor retaining pins to be released smoothly when preparing to launch the model. His Mustang flies well and is a regular at Karaka.

George Fay also flew several rubber powered scale models on the October flying day on which these photographs were taken. His Spitfire and PE2 twin were in need of more power but managed some low-level flying. His Folkerts Racer was going well and made good use of the field. Also well-trimmed, was his Corsair designed by Frank Scott and included in the Flying Models of WWII plan book. All other models were from his own plans

STAN MAUGER



UPPER: George Fay's Folkerts Racer and Corsair between flights. Photo: Ken Smith

ABOVE: His Spitfire making low level circuits of the park. Photo: Brendon Neilson

RIGHT: Winding the PE2 for a flight. Photo: Ken Smith



LEFT: Don's Tigercat looks impressive as it gets away for a great flight.

ABOVE Getting ready to wind the Tigercat. The propellor blades are attached with flexible weed trimmer cord.

Photos: Brendon Neilson

Morrinsville Indoor Day

Rating as the best attended Morrinsville indoor free flight day, this year's event brought together flyers from as far as Christchurch in the south and Whangarei in the north. The day has much going for it. The venue is a two court stadium with a high ceiling affording plenty of flying space and the now established day brings with it, an expectation of the opportunity to join in great flying and to meet up with like-minded flyers from across the country. As CD, I was grateful for all the support given, but most of all for the participation of all who flew in the many events and made the day a success.

The day's programme was Hangar Rat, Modelair Hornet and Hand Launched Glider in the morning and indoor scale events in the afternoon, followed by an informal prizegiving at the end of the day. Scale events included F4F Peanut Scale, F4D Open Rubber Scale, Kit Scale and Memorial Scale. The 2023 day will be October 8. Put it in your diary.

F4F Peanut Scale

Once again, well-built Lacey 10s entered by Paul Squires and Dave Jackson proved how competitive Laceys can be. Both were tightly grouped at the top of the leader-board. Also a firm favourite for Peanut, Fike Model Es were well in the running. It was great to see Jason Magill joining us with a Fike, that performed well. Ricky Bould was also happy with the performance of his Fike. It was refreshing to see other subjects outside the usual favourites, in the event. Alan Reed's Eastbourne Monoplane was nicely trimmed and made a good flight time.

He had also had also taken advantage of the scope for detailing that this subject offers. Graham Lovejoy's Lockheed Vega, a reduction of the Modelair plan, put in creditable times and Richard Fallas's Aeronca Defender, being a Walt Mooney design, has potential in this class. Two ambitious Peanut Scale subjects, an A.V. Roe Triplane and a Caudron Biplane were brought by Anthony Hope-Cross. The Caudron still needed trimming. The A.V. Roe Triplane was not flown in the event.

F4D Open Rubber Scale

Graham Lovejoy's Stahlwerk Reisler RIII is nicely detailed and put in a realistic flight to make first place. Stan Mauger's Fleet Canuck suffered from being under-powered in early flights and on the last flight collided with a curtain cable across the hall which disturbed its descent as well

as causing a little damage. Ricky Bould's Luscombe Sedan is a big model for indoor and was glad of the space of the hall to allow it to show its stable flying pattern.

Kit Scale

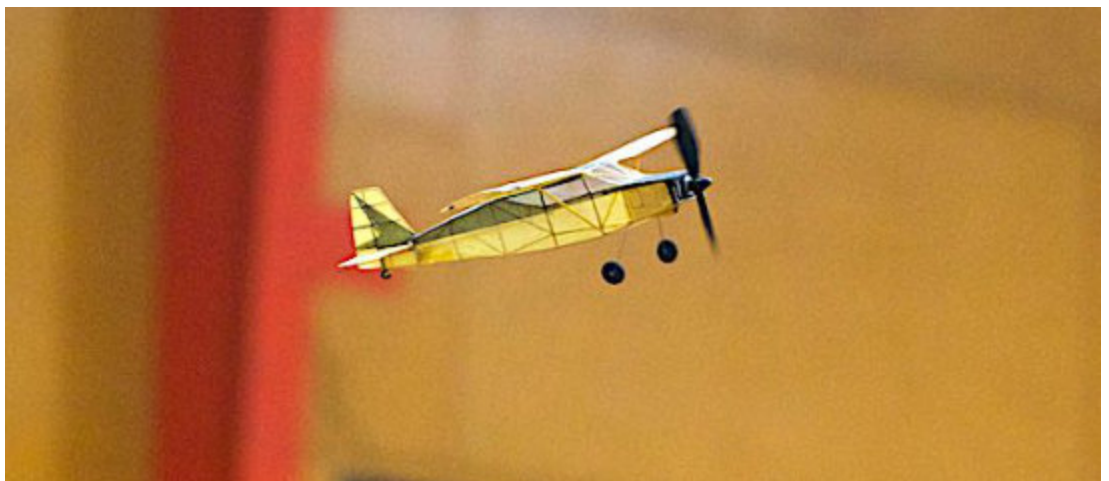
Mike Mulholland's Westland Lysander showed how the true potential of the sometimes-maligned Keil Kraft 3/6D kits of the fifties could be realized with careful balsa selection and care with model weight. This model was a real show-stopper, just as happy flown outdoors as in, and a definite audience-pleaser, putting him comfortably in the top spot. The next three flyers were closely grouped. Ricky Bould flew a Veron Comper Swift, a subject that he is now very at home with, to make second. Stan Mauger flew a Curtiss Owl, a subject that he was not at home with, having only done some park trimming with it prior to the day. With some CG adjustment he was rewarded with a charming flight and a sense of accomplishment in flying a subject that he had had doubts about being able to trim. His model was followed very closely by Graham Lovejoy's delightful Taylorcraft Floatplane which is a splendid flyer. Without documentation Martin Evans was unable to get the usual good static marks his model garners. Also compromised by lack of plan documentation, Richard Fallas's model would have been closer to the rest of the pack. It was refreshing to see a CO2 model entered in what is usually solely a rubber event.

Memorial Scale

Whilst only three models were entered in this event, this was the first time that this class had been flown as an indoor event. And what a success it was! Alec Fuller had a Nesmith Cougar built by D. Baunton flying superbly to gain a good score, in first place. Wayne Lightfoot had a Curtiss Robin built by Brian Crocker, doing good circuits of the hall and looking great in the process. Stan Mauger had a captive audience when he flew Angus Macdonald's Nesmith Cougar, a forty-two year old model that had been entered in practically every Nationals Peanut Scale event over the years as well as being a regular at Morrinsville.

STAN MAUGER

RIGHT: Angus Macdonald's forty-two year old Nesmith Cougar, flown in the Memorial Scale event by Stan Mauger, was a fitting memory of Angus who had attended every previous Morrinsville Day.
Photo: Ricky Bould



Results

F4D Indoor Rubber Scale

	Static	Flying	Total	
1. G. Lovejoy	752	580	1332	Stahlwerk Resider RIII
2. S. Mauger	759	486	1245	Fleet Canuck
2. R. Bould	694	527	1221	Luscombe Sedan

F4F Peanut Scale

	Static	Flying	Ranking	
1. P. Squires	38.5	56	1/3	Lacey M10
2. D. Jackson	36.5	57	3/2	LaceyM10
3. J. Magill	31	58	5/1	Fike E
4. A. Reed	37	27	2/6	Eastbourne Monoplane
5. G. Lovejoy	31	52	5/4*	Lockheed Vega
6. R. Bould	35.5	45	4/5*	Fike E
7. R. Fallas	14	10	7/7	Aeronca Defender

(*Flying decides tie-breaker)

Kit Scale

	Static	Flying	Total	
1. M. Mulholland	75	58	133	KK Westland Lysander
2. R. Bould	63	43	106	Veron Comper Swift
3. S. Mauger	63	42	105	Skyleada Curtiss Owl
4. G. Lovejoy	58	45	103	Comet Taylorcraft Seaplane
5. M. Evans	8	42	50	Tem Porterfield Collegiate
6. R. Fallas	7	23	30	Aerographics Eastbourne Monoplane

Memorial Scale

	Score (on flying)	Subject	Builder
1. A. Fuller	43	Nesmith Cougar	D. Baunton
2. W. Lightfoot	38	Curtiss Robin	B. Crocker
3. S. Mauger	30	Nesmith Cougar	A. Macdonald



ABOVE: Two ambitious Peanut Scale subjects, an A.V. Roe Triplane and a Caudron Biplane were brought by Anthony Hope-Cross. The Caudron still needed trimming. The A.V. Roe Triplane was not flown in the event. Photo: Ken Smith

DH Fox Moth

The Fox Moth provides a pleasant alternative to the much loved, but frequently modelled De Havilland Tiger Moth. ZK-APT was one of the Canadian built aircraft that had a bubble canopy and a more powerful Gipsy Major IC engine, as well as a tailwheel and other minor changes. Flown first as an aero club aircraft, it also performed many freight and transport roles over a number of years but was rebuilt after accidents over this time until being deemed un-airworthy in 1961. Stan Smith acquired the remains for a total rebuild in 1963, completing an outstanding restoration in 2009. Its presence at airshows makes it an accessible Fox Moth for any scale enthusiast to enjoy and to see for scale documentation purposes.

Colin Smith of Croydon Aircraft Company has also completed a number of Fox Moth restorations to an impeccable world class standard, including ZK-ADI and just recently ZK-AQB.

Fox Moths have been widely photographed and images can be found on the Internet. They have also been well covered by the aviation press so finding documentation for your chosen aircraft should not present problems.

STAN MAUGER

Plans

Barton, B. (1957, April). *Aeromodeller*, Plan FSP 654
Hope-Cross, D. (1983, March). *Aeromodeller*, Plan FSP 1455
Rees, D. (1997). 30" Rubber model can be downloaded from:
www.outerzone.co.uk
http://www.hippocketaeronautics.com/hpa_plans

Documentation and 3 views

Cooksley, P. *Prototype Parade – DH 83 Fox Moth*. Radio Control Scale Aircraft December 1993. Excellent drawings and a good account of the development of the aircraft.
Jackson, A.J. (1959). *British civil aircraft 1919-59*, Vol.1 p.327.

Publications

Waugh, R. (2009). *From Hoki to Haast: New Zealand's first airline*. Invercargill, NZ:Kynaston Charitable Trust in conjunction with Craig Printing
King, J. (October, 1980) Fox Moth aerial workhorse. Fielding, NZ:NZ Wings
Lockstone, B. (December 2017)The De Havilland Fox Moth. Aviation News. www.aviationnews.co.nz





ABOVE: ZK-APT on display at an Ardmore open Day 2016.

DH Fox Moth - Free Flight Scale

David Hope-Cross had a fondness for De Havilland light aircraft as scale subjects for both free flight and radio control. He also preferred to model New Zealand aircraft.

The De Havilland 83 Fox Moth fitted both of these priorities and David built a number of this subject. His first free flight scale Fox Moth was built in the 1970s from the APS Bernard Barton Aeromodeller plan of the late fifties and probably powered by the popular Mills .75 diesel. He subsequently designed a larger version of the subject for his favourite larger diesel, a Taifun Hurricane. Both of these earlier models were finished in the colour scheme of Air Travel's famous Fox Moth ZK-AEK, which was previously part of the King's Flight and referred to as the 'royal fox'. The larger AEK model won many contests throughout the 70s and 80s but the inclusion of an opening door compromised the fuselage structure so a new model was built, and finished as ZK-ADI. His plan for this model was published by Aeromodeller and accompanying it was a brief history of AEK's time with Air

Travel and its crash on Franz Joseph Glacier. This plan was for a Fox Moth of 45.5" wingspan and powered initially by a Taifun Hurricane, but a PAW 1.5 was later selected to replace it. The model was expertly flown and won a number of New Zealand Nationals in the 1990s and beyond. In Australia it won the free flight scale class in both the 1998 NSW State Champs at Richmond and the first F4A Trans Tasman Challenge in 2005, whilst in England it was placed third at the 1999 Woodvale Scale Rally. All of which is testament to the suitability of this subject for power scale events. However, if you decide to build from this plan, check the wing tip and tail surface outlines against the three views that you use. Some simplification of outlines must have crept in at the plan draughting stage in the Aeromodeller draughting office as some differences are apparent!

STAN MAUGER



UPPER: David Hope-Cross's free flight scale Fox Moths in two sizes at the New Zealand Nationals in the 1970s. The more recent design is of about 45" span and the other beyond is the earlier 30" span model. Photo source unknown.

ABOVE: ZK-ADI restored by Croydon Aircraft Company. Wheel pants have been fitted. ZK-ADI was the first commercial airliner in New Zealand, serving with Air Travel New Zealand. Photo: Bernard Spragg



ABOVE: The Fox Moth in the company of other free flight scale models in the NSW run 2005 Australian Nationals.

LEFT: David (right) chatting to Ivor Stowe at the first Trans-Tasman F4A Free Flight Scale Power Challenge at Richmond, held in the 2005 Australian Nationals. Photos: Ricky Bould

Scale projects

Daniel Walker's B-17

This is one of those on again, off again projects which I was determined to finish before the end of the year. It is a Guillows B17 kit I brought back from Aussie many moons ago. Bought on a whim, it was a cool project but one I was never sure where it would fit in my priority build list. That was until I found myself laid up with a broken leg needing something to pass the next six plus weeks on the couch. Great progress was made until work once again started to take up most of my spare time. Momentum built when it was time to have the pin removed (leg) but again slowed when I had recovered from this.

The kit is marketed more as a display model but does give instructions and hardware for a control line version powered by two Cox .049 engines with the other two props free wheeling. Wouldn't it be cool though to have four .049's all running at once like we used to kid about

in our early days? Certainly over the years I have accumulated enough of these diminutive little engines to consider this idea. With the recommended two mounted I discovered I would need nose weight to achieve the correct C of G, with a ridiculous four it was perfect. Decision made.

I can't see myself regularly flying this thing and if it survives its first flight I believe it will still predominantly be a display model to hero the good ol' Baby Bee. But before it hangs in the rafters I intend to fly it in control-line scale at the Nats in January. Wish me luck.

DANIEL WALKER.



ABOVE: The potential of the kit has been achieved in the completed model.

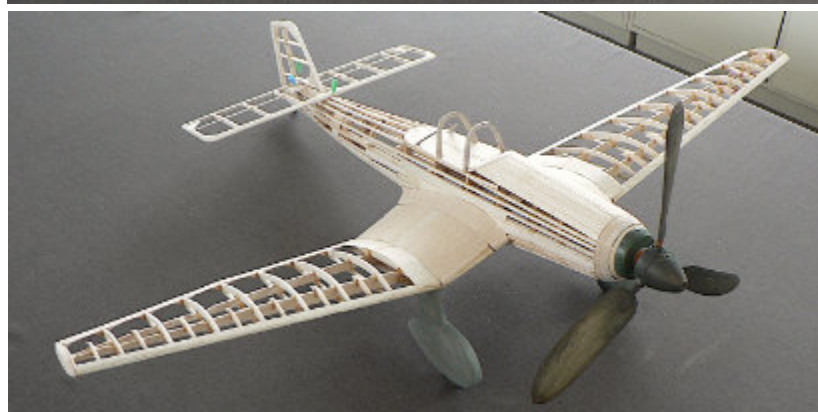
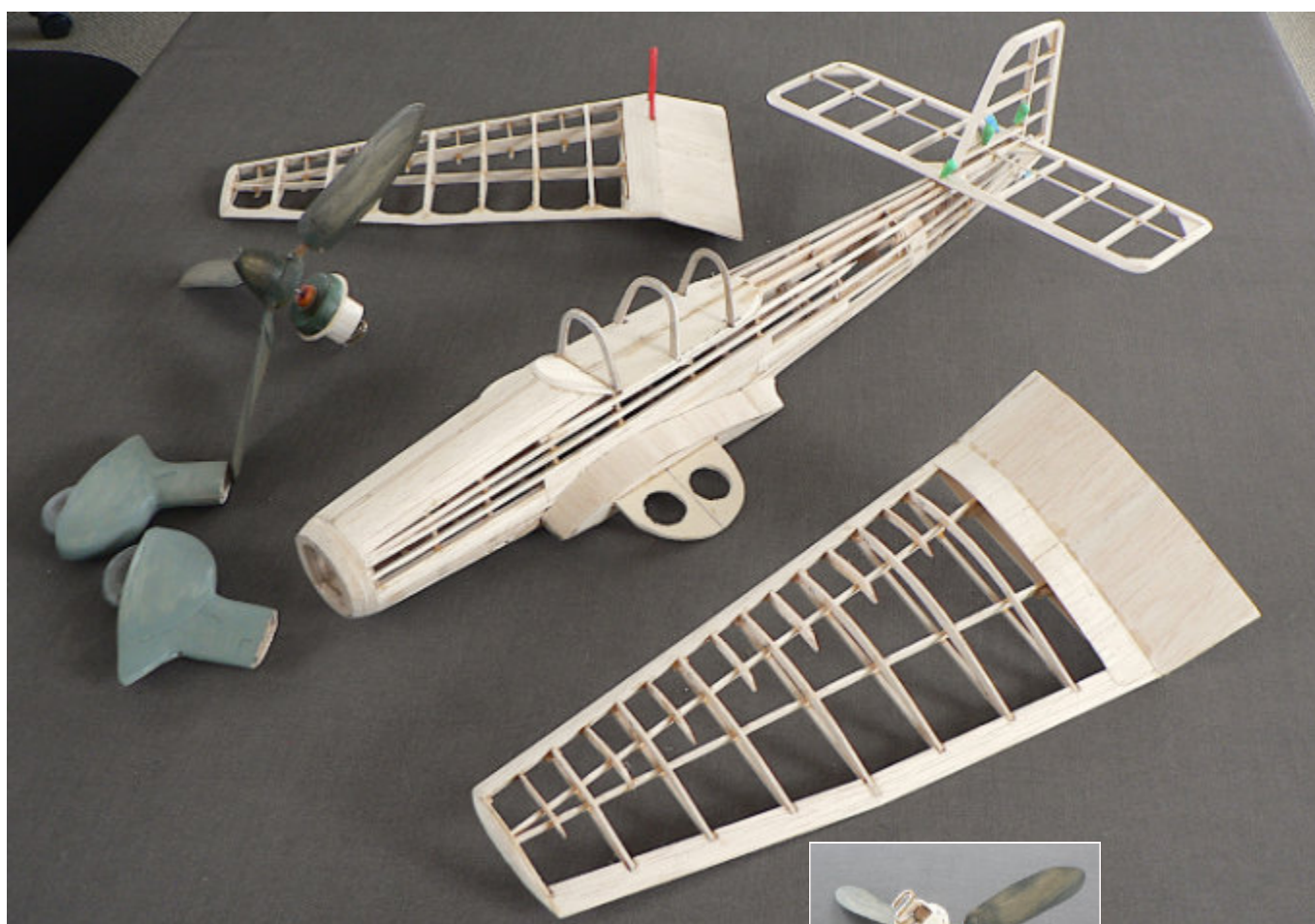
RIGHT: Its uncovered state shows the amount of structure in this Guillows design.

Don Spray's Junkers Ju87 Stuka

While browsing for an interesting type of plane for a winter build, I came upon the Stuka. The plan (reduced) is from the APS series and probably dates back to the 1950s or '60s. It had a span of 250mm so a 300% enlargement at the copy centre gave me a 30in span model, a good size for rubber power. While I have deleted all the heavy ply formers, bulkheads etc. and just used the overall outline, it has still come out reasonably heavy so I have decided not to worry about the weight – it will fly. The wings attach via tongue and box and the undercarriage spats just spring slide up on 2mm flexible line trimmer which is Araldited into the wing root. There was some tricky strengthening around the wing root centre section as it was not

possible to carry a spar straight through the fuselage. I have borrowed the nose block assembly from my Yak 9, 230mm diameter, 3-blade, flexible prop, as per Ivan Taylor. It is a perfect fit and I envisage the motor being about 8 strands of 3/16" x 650mm long. There is still lots to do including tissue covering, finishing off the cockpit, pilot and gunner and of course, paint and markings. It will sport full length wing flaps and should prove to be an interesting trimming subject.

DON SPRAY



TOP: The Stuka dis-assembled to show construction.

LEFT: Construction well under way. Now comes covering and detailing.

INSET: Detail of prop spindle and flexible prop mounting..

A pair of control-line DC-3s

Some of you may recall the Aeromodeller control line DC3 which was donated via George Schneider in the hope it might be tweaked and flown. The model now has a new undercarriage as the old rubber wheels went octagonal and I have reconditioned the motors. They are 1966 Taipan 1.5s and are a neat pair. A good clean and polish and reassembly with bespoke laser cut gaskets and they really are good as new. The last two things to do are to add a lead-out guide (clear

giveaway it's never been flown!) and attend to tanks. One has feed pipe exiting the firewall on inboard side! I hope it's just a plumbing job. The maiden flight should be soonish especially if we hold a scale event. I will attempt again to contact the builder and invite him along.

RICHARD FALLAS



Having talked to Richard about DC3 twin control liners, I could not resist adding the photo below. The model was 48" span about the same size as the model above, and built from a plan from Air Trails Hobbies Walter Musciano drawings, using dividers to scale it up. All that labour was worth it by the way. It was my first twin and it was so stable it almost flew itself and had its first contest outing at Kaiapoi where it was entered in the South Island Champs control line scale event. For power, it started off with a strange mixture of a Webra 1.5

Record diesel and K&B .15 glow. In the late fifties when it was built, pocket money did not stretch to a great selection of engines to chose from, but I do not recall ever mixing up glow and diesel fuel. Eventually I acquired a new Max OS.15 to replace the tired K&B 15. Sadly the model went off to the local model shop when I went off to university (parent pressure) and I have regretted it ever since.

STAN MAUGER

UPPER: The APS control line DC3 in NAC airline colour scheme with replaced wheels but still awaiting cowls and restored Taipan 1.5cc diesel engines.

RIGHT: The DC3 is an excellent control line twin, as this model from the Walter Musciano plan proved it to be.



John Macdonald's **Bearcat & Chipmunk**

The Grumman Bearcat is one from a number of Berkeley control line kits that I have. Others include their B-17 and B-25 Mitchell and I am part way through building their Aero Commander. The 26" Bearcat is powered by a Veco .19 and was built straight from the kit using kit parts. Interestingly, the planking strip supplied in the kit is both notched and curved in cross section, making construction much easier. The model just needs markings to complete it. My DH Chipmunk is built from the Keil Kraft design by Albert Hatful using kit wood. It was a nostalgic non-flying model project.

JOHN MACDONALD



ABOVE: The control line Berkeley Grumman Bearcat built for a Veco .19 glow engine.

RIGHT: The DH Chipmunk is a non-flying subject built from a Keil Kraft Flying Scale Series kit.

Phil Warren's Payen & Bellanca

The tandem winged Payen PA22 was a concept for a racing plane but was never fully developed. Building the model was a challenge as I could not find any plans, only a 3 view. I chose a size that suited me and printed the 3 view as a basis for my own building plan. The wings were built first, but I had to guess at the rib profile. The fuselage was built around the wings in an attempt to make it strong enough to support the wings and the long undercarriage. Flying was tricky as the model was underpowered at first with lots of dutch roll, and needing to fly fast, so I had to increase the rubber. After this it was still rolling so I added a fin extension just as when the aircraft was under German flight testing, as is visible in some old photos. I am happy with the way it flies now, but it doesn't like strong winds, however.

The Bellanca P-300 Aircruiser was an efficient single engine freighter that gave great service in Canada. The flying W as the full-size aircraft is known, was the last in a long line of single engine transport aircraft made by Bellanca.

My model is rubber powered and was built from a plan from Outerzone. It was a straightforward build, with wings glued to fuselage, which I dislike. The only coloured photo of it that I could find showed an aircraft that had no wheel pants, so mine does not either. The model was found to need a lot of downthrust and a little nose weight as well. It also needed some trim tabs to fly level, but is flying well now.

PHIL WARREN



*ABOVE:
The Bellanca
Aircruiser has now
been trimmed and
is flying well.*

*LEFT: The rubber
powered Payen
PA22 has proved to
be best flown in
calm conditions.*

Brisbane Control Line Scale

I was pleased to receive the photos and information on these projects (plus others that I will include in the next Scale News) by Control Line Aeroplanes of Brisbane (CLAB) flyers, via Malcom Campbell - Ed.

Danny Hindle's Beech and Cessna

The control line Beechcraft 18 (or C45) is from a kit and is 54 inch span. It has a foam core wing and is 1/10th scale. Recommended motors range from twin .15s to twin .35s. I put two OS 20 FPs with tongue mufflers in mine. It flies well on one engine, just a little bit slower. I have built two of these, one in bright yellow and the second in US Navy white with red trim.

My Cessna 180 is a Sterling kit model, intended for free flight, control line or two channel radio control. The model is 45 inch span and, with an Enya .15 up front, has more than enough power for a good flight.

DANNY HINDLE



UPPER: The first control line Beechcraft 18.

CENTRE: The next model in US Navy scheme seen flying at the Control Line Model Aeromodellers of Brisbane (CLAB) field.

RIGHT: Another view of the Beechcraft, awaiting engine installation.





UPPER: An Enya .15 providing adequate power for the Cessna 180 control line model..

LEFT: The control line option of the Sterling kit design showing a built up wing.

ABOVE: A good view of the Cessna bellcrank and tank installation.

Andrew O'Grady's Ca-25n Skyfox Gazelle

My control line Skyfox Ca-25N Gazelle is a large model at 1900mm wingspan and weighs 3.4kg. It is powered by an O.S FS-52 and was built back in 2001. I used to fly the full size version of the Gazelle and it's the aircraft that I did my cross country endorsement in.

ANDREW O'GRADY



UPPER: The clear side panel provides a view of the cockpit internal detail.

CENTRE: The Gazelle is a pristine model with neat engine and exhaust cowling.

RIGHT: This centre section view shows detailed cockpit, Wing flaps and sprung wing attachment.



Nationals Programme 2023

Free Flight & Control Line Scale

January 1	Sunday	Registration		
January 2	Monday	FAI F4A Free Flight Power Scale Kit Scale	RC1 RC field RC1 RC Field	6.30 - 9.00am 6.30 - 9.00am
January 3	Tuesday	CO2 Electric Scale Outdoor Rubber Scale Memorial Scale F4B Control Line Scale	FF Free flight field FF Free flight field FF Free flight field CL Circle	6.30 - 8.30am 6.30 - 8.30am 6.30 - 8.30am 9.30- 12.30pm
January 4	Wednesday	Sport Control line Scale Peanut Scale Indoor Kit Scale Indoor Rubber Scale	Grass Hall Hall Hall	9.30 - 12.30pm 6.30 - 10.00pm 6.30 - 10.00pm 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 (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 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 are needed for Kit Scale.

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