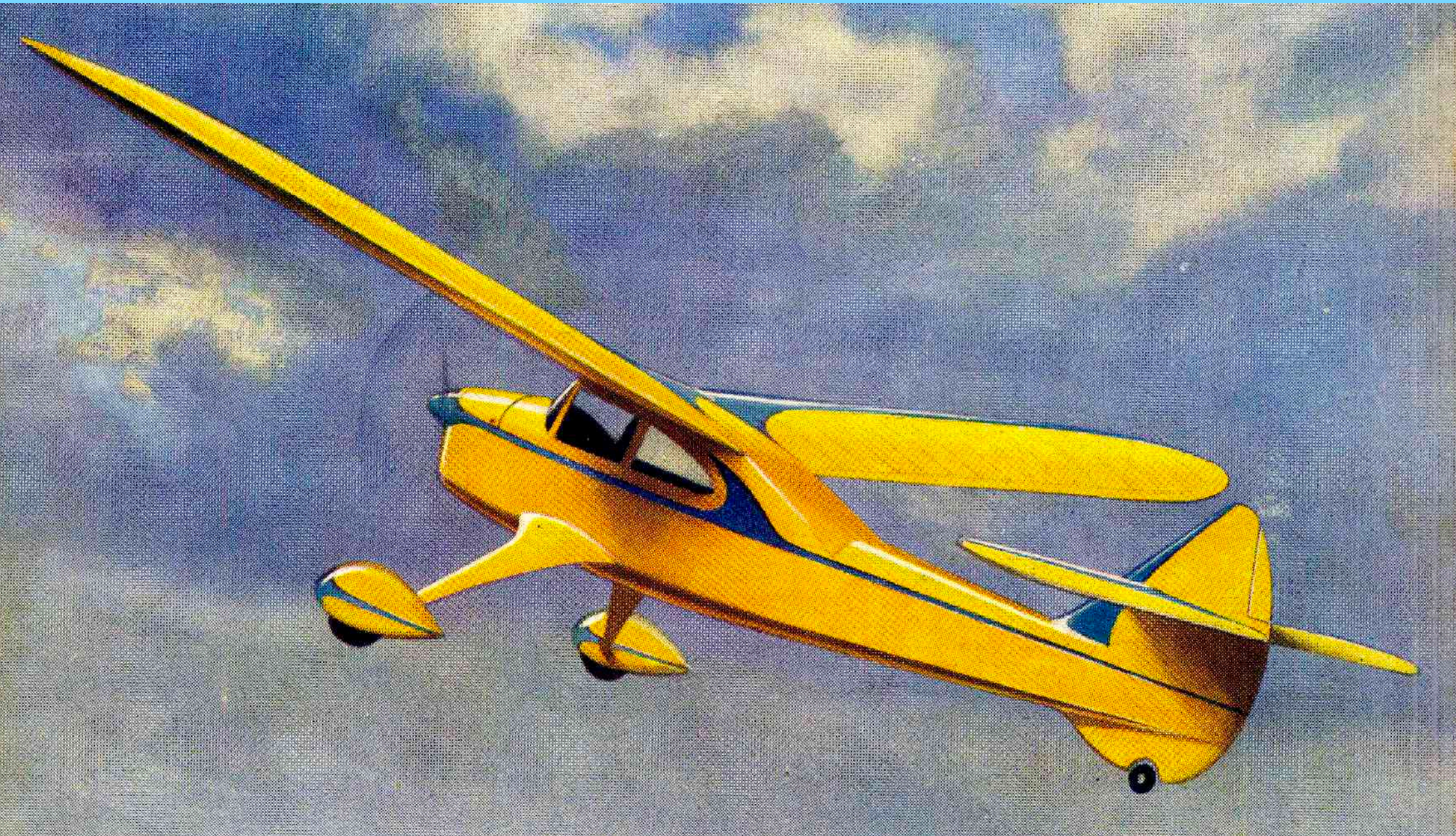


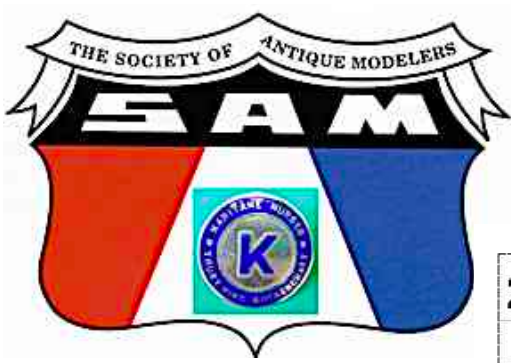
AVANZ



NEWS

Newsletter of the Vintage Special Interest Group of Model Flying New Zealand #180





COMMITTEE NOTICES



In this Issue

Committee Notices
 Future Events
 Past Events
 SIFFC
 Gary Burrows
 Angus Macdonald
Hummingbird
Nordic A2
 Sparkies
Mercurio 1943
The Kid 1941
 Old School building
Eros 1948
 Early references
 Readers' Models
 Model stand
 Real Vintage
 Frank Zaic
 1/2A Texaco Tuning
 MFHB Newsletter
 Cox Engines #2
 Leader Boards
 Free Flight Dreaming
 Cover Stories
 Real Vintage
 Miscellaneous

2021 NATIONALS PROGRAMME for VINTAGE

REGISTRATION Sun 3rd January 2021	DAY 1 Mon 4th January	DAY 2 Tue 5th January	DAY 3 Wed 6th January	DAY 4 Thur 7th Jan	DAY 5 Fri 8th January
	7am - Noon	7am - Noon			
VINTAGE	Vintage FF Power	Nostalgia FF Power			
	Vintage FF Rubber	Nostalgia FF Rubber			
FREE FLIGHT 7 am - 12 noon	Vintage FF Glider	Small FF Power			
	Vintage FF Precision	Classic FF Comb R/P/G			
	Vintage FF Catapult				
	1pm to 5pm	1pm to 5pm	9am to 5pm	9am to 5pm	9am to Noon
VINTAGE RC	Vintage Open Texaco	Vintage 1/2A Texaco	Classical 1/2E Texaco	Vintage 1/2E Texaco	Vintage A Texaco
Days 1-2 1pm - 5pm	Vintage Precision	Vintage IC Duration	Sport Cabin E Texaco	Vintage E Texaco	Classical IC Duration
Days 3-4 9am - 5pm	Classical Precision		Classical E Texaco	Vintage E Rubber Tex	
Day 5 9am - Noon			Classical E Duration	Vintage E Duration	3pm AGM and PRIZEGIVING

On the Cover: Eros, 1948 (see page 23)
NZ Logo: Karitane Nurses (see miscellaneous page)

Contributors to this Issue

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2021 NZ Radio Control Vintage Championships






Preliminary Schedule

February	20-21	Airsail at Pukekawa
March	6-7	Levin (concurrent with Gareth Newton)
March	20-21	Ngatea Blackfeet Fliers
April	10-11	Awatoto
April	17-18	Tuakau (to be confirmed by club)
May	9-10	Levin (concurrent with Bob Burling)

Non Vintage Championship Events 2020 / 2021

November	14-15	2020	Blackfeet 
January	3-8	2021	Nationals 
May	22-23	2021	Blackfeet
September	25-26	2021	Selby Memorial, Levin

NDC 2020

	November 2020	156	VINT	FF Vintage Glider Duration
	November 2020	157	VINT	FF Classic Glider Duration
	November 2020	158	VINT	RC Vintage E Rubber Texaco
	November 2020	159	VINT	RC Vintage 1/2E Texaco
	November 2020	160	VINT	RC Classical IC Duration

AVANZ News 2021 Contribution Deadlines:

JANUARY	25th	MARCH	25th	MAY	25th
JULY	25th	SEPT	25th	NOV	25th

2021 NZ Free Flight Vintage Championships

As detailed in Issue 179, the Free Flight component of the 2021 Vintage Championships is based on the 2021 NDC programme from Jan to June. The Champs offer two opportunities to fly each event. Those scheduled once only on the NDC programme are marked (x2) and these events can be flown twice in the month in which they appear on the programme. Results are sent to Wayne Cartwright for inclusion on the Leader Boards, and in the Vintage Championship. Each flier sends his NDC results to Allan Knox.

Month	Event	Event Name
	January	102 Vintage FF Precision
	January	103 FF Vintage Glider Duration (x2)
	January	104 FF Nostalgia Glider Duration (x2)
February	108	FF Vintage Power Duration
February	109	FF Nostalgia Power Duration
February	110	FF Nostalgia Rubber Duration
February	111	FF Classic Rubber Duration
March	115	FF Classic Glider Duration (x2)
March	116	FF Vintage Rubber Duration (x2)
April	120	FF Nostalgia 1/2A/ Min Replica (x2)
April	121	FF Classic Power Duration (x2)
May	125	FF Vintage Precision
May	126	FF Vintage Power Duration
May	127	FF Nostalgia Rubber Duration
June	130	Vintage FF Hand Launch Glider (x2)
June	131	Vintage FF Catapult Glider (x2)
June	132	FF Nostalgia Power Duration
June	133	FF Classic Rubber Duration

Airsail MAC RC Vintage and Classical Contest and Rally

CD's Report

The first Vintage event for the new season was held at Airsail on the weekend 19-20 September and as always a huge thank you to John Danks for the use of his field.

Saturday was a blow out with no flights recorded and only three hardy souls braving the near gale. Sunday was the pick of the days with light winds till mid-morning and freshening slightly as the day wore on. Six flew and recorded 31 scores. No broken models, apart from one pilot who lost control of his model when his transmitter aerial fell off but luckily a certain Honda Jazz broke the models fall. John replaced the aerial and Don continued to fly without problems.

Now that the first event is over we can look forward to Tuakau in October.

Tony and Dave

Vintage Precision		R1	R2	R3	Total
Don Mossop	Lanzo Bomber	200	188	190	578
Tony Gribble	Miss FX	185	194		379

Classical Precision

David Gush	Glow Worm	199	175	170	544
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Vintage E Duration

Don Mossop	Playboy	310	320	320	950
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Classical E Duration

David Gush	Glow Worm	300	300	300	900 *
Wayne Cartwright	Nig Nog	300	287	300	887

Vintage A Texaco

John Butcher	Miss FX	615	620		1235
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Vintage 1/2 A Texaco

Bernard Scott	Playboy Snr	500	490	500	1490
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Note:

* David Gush flew an additional flight in Classical E Duration of 6 min 11 seconds for a combined total of 1271 points. This was for the purpose of the Leader Board scores only as there was no tied score on the day nor was Classical E Duration an NDC event for the month of September.

What a difference a day makes. Tuakau on the Saturday while fine was a wee bit on the cool side and I for one was glad that my wife suggested I put a sweat shirt in the car.....just in case. It so happened that everyone was layering up. There was also a bit of a chilly wind present. Not enough to call a halt to any flying but the air passing over the field was anything but kind. The easiest way to describe it for those that weren't present would be like your plane tumbling around in a clothes dryer all day. Down low or up high it didn't matter. Not a lot of fun to tell the truth.

For all those that flew Saturday, well done. Especially to both John Ryan and Dave Little who came up from Rotorua and flew pretty much all day. Hate to say this guys but Sunday was the better day. And what a corker it turned out to be and totally restored my faith in flying Vintage after numerous cancellations due to not so nice weather over the last 12 months. Lots of sun and hardly a breeze to speak of. It was around late morning when the whole of the field reacted to the warmth of the sun and everyone was having a great time.

Those of note were both Don Mossop and John Butcher flying E Rubber Texaco on Sunday afternoon. Don flying his Stormont which enjoyed turning left but not so much to the right, which Don says he will investigate and fix the problem, his only flight was still a very creditable 27 minutes 12 seconds. John Butcher being one of the local lads obviously knew when the right time to fly was and went about demolishing the field with his two flights of 36 and 26 minutes respectively. It's at this point I wish to advise that myself, Tony Gribble and Wayne Cartwright all flew E Rubber on Saturday. Not complaining, just saying.....

In E Texaco both Dave Crook and Don Mossop were enjoying the Tuakau conditions with first round flights over the 20 minute mark. David Gush doing likewise in E Tomboy with Bernard Scott's Jumpin Bean in Classical 1/2 E Texaco recording high scores. Another notable standout was Peter Townsend with his Civi Boy which was almost out of sight after only 10 seconds from launching in E Duration. Incredible.

Thank you to the Tuakau MAC for hosting the event and to everyone who turned up and flew, I hope you enjoyed your day if not your weekend.

Next up is Blackfeet in November. Stay tuned. Dave.

		R1	R2	R3	Total
Vintage Precision					
John Ryan	Coronet 199	200	200		599
Don Mossop	Bomber 200	195	200		595
Dave Crook	Miss FX	200	180	200	580
Dave Little	Simplex 190	178	200		568
Classical Precision					
Don Mossop	Madcap 145	197	195		537
Vintage IC Duration					
John Ryan	Coronet	127	252	177	556
Dave Little	Simplex	123	91	133	347
Vintage E Duration					
Don Mossop	Playboy	276	320	320	916
Peter Townsend	Civi Boy	301	320	200	821
Classical E Duration					
Peter Townsend	Glow Worm	300	173	137	610
Vintage 1/2 A Texaco					
John Ryan	Coronet 430	500	353		1283
Dave Little	Simplex 191	116	218		525
Vintage 1/2 E Texaco					
Bernard Scott	Bombshell	893	1087		1980
Kyla Fisher	Kea	689	721		1410
Vintage E Texaco					
Dave Crook	Bomber	1701	834		2535
Don Mossop	MG-2	1382	778		2160
Vintage E Rubber Texaco					
John Butcher	Golly Wock	2190	1567		3757
David Gush	Golly Wock	905	1310		2215
Dave Crook	Toots	930	1132		2062
Wayne Cartwright	Lanzo Stick	1009	849		1858
Don Mossop	Stormont	1646			1646
Tony Gribble	Smith Mulvihill	840	621		1461

		R1	R2	Total
Classical 1/2 E Texaco				
Bernard Scott	Jumpin Bean	782	1164	1946
Dave Crook	Hot Dog	895	562	1457
Tony Gribble	1/2A Train	766	616	1382
Sports Cabin E Texaco (Best 2 of 3)				
David Gush	Tomboy	996	612	1608
John Butcher	Tomboy	993	374	1367
Tomboy - E (Best 2 of 3)				
David Gush	Tomboy	1463	1410	2873
Tomboy - IC (Best 2 of 3)				
Bernard Scott	Tomboy	148	293	441



Resisting the mighty pull of his Tomboy's motor, John advances the throttle with his teeth



CD Dave with *Hotdog* for Classical 1/2E and *Miss FX* for Precision



Vibrant *Civvy Boy* and *Gloworm* both by Peter Townsend



Packing? What packing??



Don lanches his *Stormont*, an E-Rubber Texaco floater

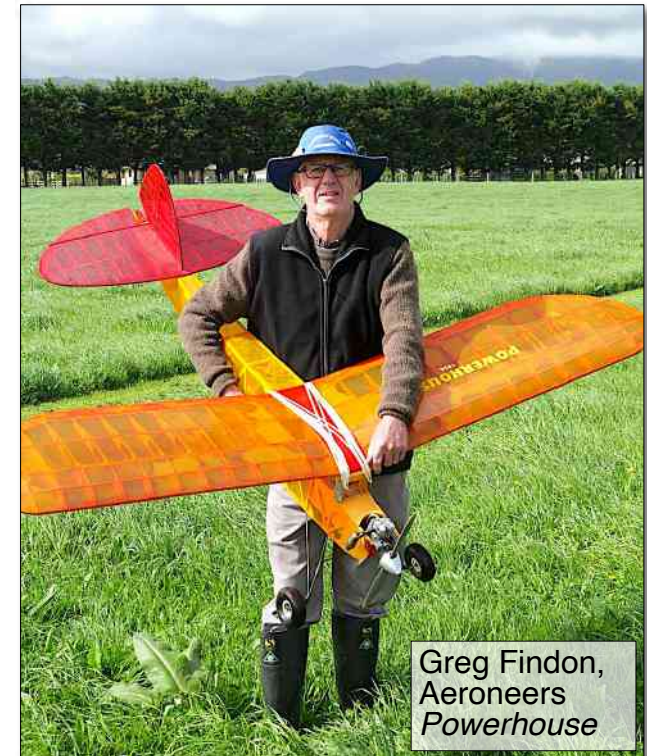
Considering the weather in the days before, and the dramatic storm that hit the country on the Sunday and Monday, Levin put on yet another example of its microclimate, enabling a full days flying for the John Selby event. While Saturday's weather wasn't perfect, starting a bit windier than forecast, it was quite flyable all day and, as predicted, the wind dropped throughout the afternoon with almost no wind and balmy warm conditions as we packed up. A lot of flying was done on the Saturday but with the dire weather forecast for Sunday, which did eventuate, the second day unfortunately had to be cancelled.

The low key format of these Levin events is proving popular with interest growing. Despite a few regulars not able to attend, there was still a very good turnout under the circumstances - 14 pilots flying Vintage models, 11 putting in scores, and three sport flying. Some who put in competition flights also brought along other vintage models and a lot of sport flying was done. There was a strong turnout from the Kapiti club with seven attendees and the other clubs represented included Ashurst, Wellington, Palmerston North Aeroneers, and Levin. It was great to have representation from the Palmerston North Aeroneers for the first time. The Aeroneers have a regular club vintage competition and we look forward to attendees Peter Vining and Greg Findon bringing along more Aeroneers colleagues to

the next Levin contest. Four from Hawkes Bay had planned to attend but the marginal weather window resulted in them flying locally on this occasion - we look forward to seeing them next time.

There was a wide range of models on display including a couple of Buzzard Bombshells, three Mercurys, Red Zephyr, Powerhouse, Junior 60, Tomboys both very large and small, Miss America, Mamselle, Playboy Senior, Lanzo Bomber, Lanzo Airborne and a Brooklyn Dodger.

Vintage Precision was the event that most were keen to fly. The spot as always made the difference to the scores in Precision and the moderate breeze in the morning made finding the spot both fun and elusive for many. Barry Hall from Wellington flew an electric 1940 Buzzard Bombshell originally built by John Ellison of Kapiti who was also flying on the day. Barry was the only person who managed to land on the spot for all three flights and he also made his flight times. Barry put in a near perfect fly-off flight only one second over and again landed on the spot - a worthy winner. Bryan Treloar (1936 Red Zephyr) and, Peter Vining (1939 Mercury) and John Miller (1940 Buzzard Bombshell) all flew well and were second to fourth respectively but each missed the spot on one of their landings. It was good to see the first four spots going to members of four different clubs.



Greg Findon,
Aeroneers
Powerhouse



Bryan Treloar,
Ashurst
Airborn

Bryan and Stew also put up some A Texaco flights. This class is about endurance and the goal is to get as long a motor run out of a tank made from a Humbrol paint tin to help you achieve the 10 minute max followed by a spot landing. Bryan's 1939 Lanzo Airborne was powered by an Oliver Tiger 2.5cc diesel which on a large prop and just ticking over is capable of runs for around 12 minutes making the 600 second flights easily achievable. Bryan made the time on all three flights and missed only one spot to achieve a very good score.

In both events Stew flew his 1942 Brooklyn Dodger which he acquired from John Selby's estate with John having previously acquired the model from its builder, Tony Taylor who sadly also left us recently. The day didn't start too well for Stew with the torque of the electric starter ripping off the entire nose of the model exposing a repair John must have made many years ago. Variable thrust-line might be fine for a Eurofighter but not so a vintage model so Stew made a field repair with 5 minute epoxy and was able to fly after lunch. By comparison with Bryan's diesel, in A Texaco, Stew was getting motor runs of about 6 1/2 minutes from the OS20 plain bearing motor for the two flights he recorded.

A big thanks to Ivan and Linda from Levin MAC for putting on a BBQ which added to the relaxed atmosphere of the day. Also special thanks to Ross Gray

from Ashurst who is getting into Vintage and took many wonderful photos, some of which are published here.

Vintage Precision

1.	Barry Hall	WMAC	799
2.	Bryan Treloar	Ashurst	585
3.	Peter Vining	PNA	582
4.	John Miller	Kapiti	576
5.	Greg Findon	PNA	574
6.	Terry Beaumont	Kapiti	571
7.	Wayne Elley	Kapiti	554
8.	Stew Cox	Levin	553
9.	Ian Crosland	Kapiti	522
10.	Stuart Hubbard	Ashurst	329
11.	John Ellison	Kapiti	140

Vintage A Texaco

1.	Bryan Treloar	Ashurst	1844
2.	Stew Cox	Levin	1138



John Ellison, Mam'selle



Wayne Elley, Kapiti Miss America





Barry Hall,
Wellington
Bombshell



Stu Hubbard,
Ashurst
Junior Sixty



Wayne Elley,
Kapiti
Miss America



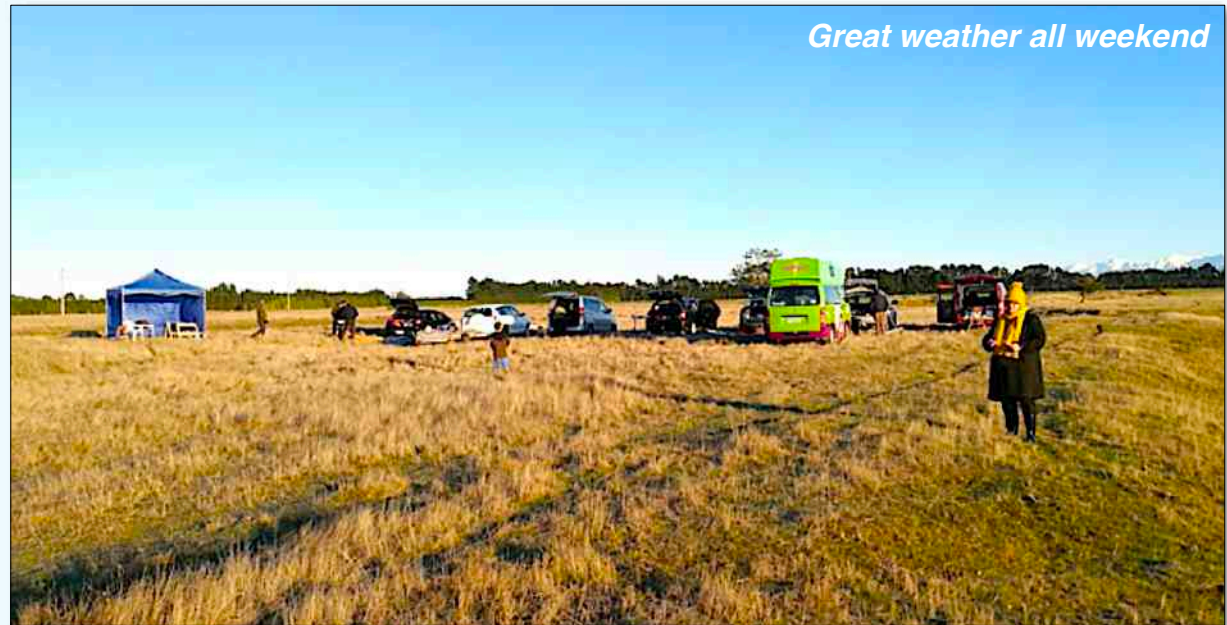
John Millar,
Kapiti
Bombshell

[While not strictly a Vintage event, the welcome revival of this Southern contest is worthy of note - and some Vintage designs were flown]

This was the first South Island champs held for several years and despite the risk that it may flop, my initial thought was that if we could get this contest off the ground it would encourage free flight modellers in the South to brush the cobwebs off their models and get flying again. Unfortunately, Covid restrictions and not knowing if the event could go ahead did not help. Even so, we had modellers from Balclutha and Dunedin, and from up North came three top guns, all of which demonstrated to me that the event could have a future.

I don't believe we could have dialled better weather. It was fantastic. At the start of the contest, the light breeze was coming straight off the Southern Alps and as it was a clear day, this provided a magnificent view. The wind direction was north / northwest meaning that we used the top south corner of the flying field.

With one exception, the classes we flew had two minute maxima which kept the models within the field. By lunch time the breeze had shifted so we moved to the adjacent corner of the field with conditions remaining just as good. Day two followed day one exactly. Flying the events over two days with competitors choosing either day or splitting times for the one class appeared to be a winner. Preparation for the contest was helped by the Free Flight Tech Committee and Bernard Scott. There were others and Dave Jackson of course - without these guys I know the event may have struggled.



Great weather all weekend



Chris Jackson winding for P-30

Julius Long and son William sorting out a *Simplex* for Precision



Things that caught my eye: I was proud of one modeller who had been loaned Lynn's Tomboy and started the Mills by herself for the first time, but on the third time she reached for the model via the propeller and out came the first aid kit. I haven't asked Lynn if he has put a notch on the transfer case of the Mills. Next were the impressive skills that Bernard showed with the handling of his power models, and very interesting was Craig King's tuition with Anthony on the finer details of circle towing with F1A.

Saturday night we went to the pub at Avonhead Mall and a good evening was had by all. The feedback I got about the meeting was that it was long overdue with comments that included the words relaxing, camaraderie, catching-up, and involved. All due not to those who revived this event but to those who made the effort to travel the country to be there and especially the club members who turned out in full.

When I got home my emails included an apology for illness from Bruce Weatherall and Gary Burrows - both now passed away, leaving one mighty large hole in the club. Finally, a big thank you to CMAC for the use of the field, for without this suitable location the contest would have proved difficult to hold.

Bill Long, CD

CLG / HLG / TLG		Kennedy Precision	
Paul Squires	316	Stewart Morse	303
Bernerd Scott	283	Lynn Rodway	299
Craig King	277	Julius Long	284
Allan Knox	253	Dave Jackson	252
Dave Jackson	244	Kay Long	220
Antony Groenwegh	241	Bernerd Scott	210
Connie Gray	199	John Beresford	205
Colleen King	187	Roy Gunner	197
Phil Corfield	173	Phil Corfield	150
Stewart Morse	165		
John Beresford	163	Mini Combined	
Lynn Rodway	151	Paul Squires	360
		Bernerd Scott	339
		Roy Gunner	238
		Lynn Rodway	228
P30		Open Combined	
Kay Long	325	Craig King	507
Craig King	324	Lynn Rodway	354
Paul Squires	318	Dave Jackson	349
Bill Long	316	Stewart Morse	276
Dave Jackson	297	Anthony Groenewegh	225
John Beresford	267		
Scott Bernerd	249	Kiwi Power	
Roy Gunner	200	Bernerd Scott.	303
Lynn Rodway	169		
Stewart Morse	163		

VALE GARY LANCE BURROWS

16 June 1939 - 12 August. 2020

It is with great sadness that we advise that our club member, Mr. Gary Lance Burrows has passed away at the age of 81.

He was a Life Member of both the Christchurch Model Aero Club (CMAC) and Model Flying New Zealand.

He had been a member of CMAC for approximately 60 years and obviously aviation was truly in his blood as his whole working life had been spent working as an aircraft engineer for NAC. and, after a company name change, until his retirement at Air New Zealand.

He was involved in his earlier days with playing hockey, and spent many hours fly fishing for trout

As a good organiser he was on the organising committee for the Trans Tasman RC events in the 1970's and from the proceeds of those events he designed and built the CIRRUS TROPHY that was competed for each June between the local model aero clubs.

During the 1970's that Gary was the producer of the SIN magazine - more formally known as the 'South Island News' with the late Paul Lagan as the Editor. The SIN magazine became known world wide but is no longer in print, the last issue being produced some 30 years ago.

Gary was at the time of his death both a CMAC committee member, and perhaps more importantly the editor of the monthly CMAC bulletin known as the TORQUE. The TORQUE was 'his baby' and he had over the years produced approximately 200 editions. He had indicated very recently that it was time for change.

Most Sunday mornings Gary would be at the local model flying site enjoying the flying sessions and more importantly the comradeship with his mates. Many don't know that Gary made regular visits to the older club members to check on their health and well-being. He was always concerned about everyone, and was the first to help those in need.

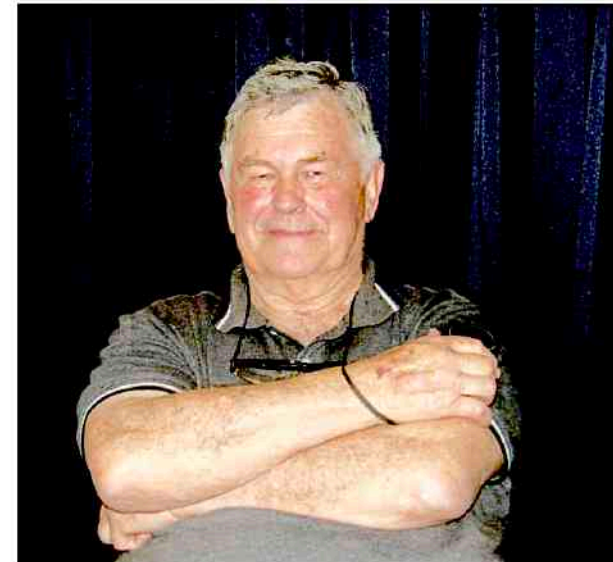
He will be missed.
Christchurch Model Aero Club.

Gary's advice on 1/2A Texaco is reproduced later in this issue.

Model Flying New Zealand



HALL of FAME



Gary Burrows

Inducted January 2019

National and International Competitor
Club and National newsletter editor for many years
Model designer and innovator

President

Secretary

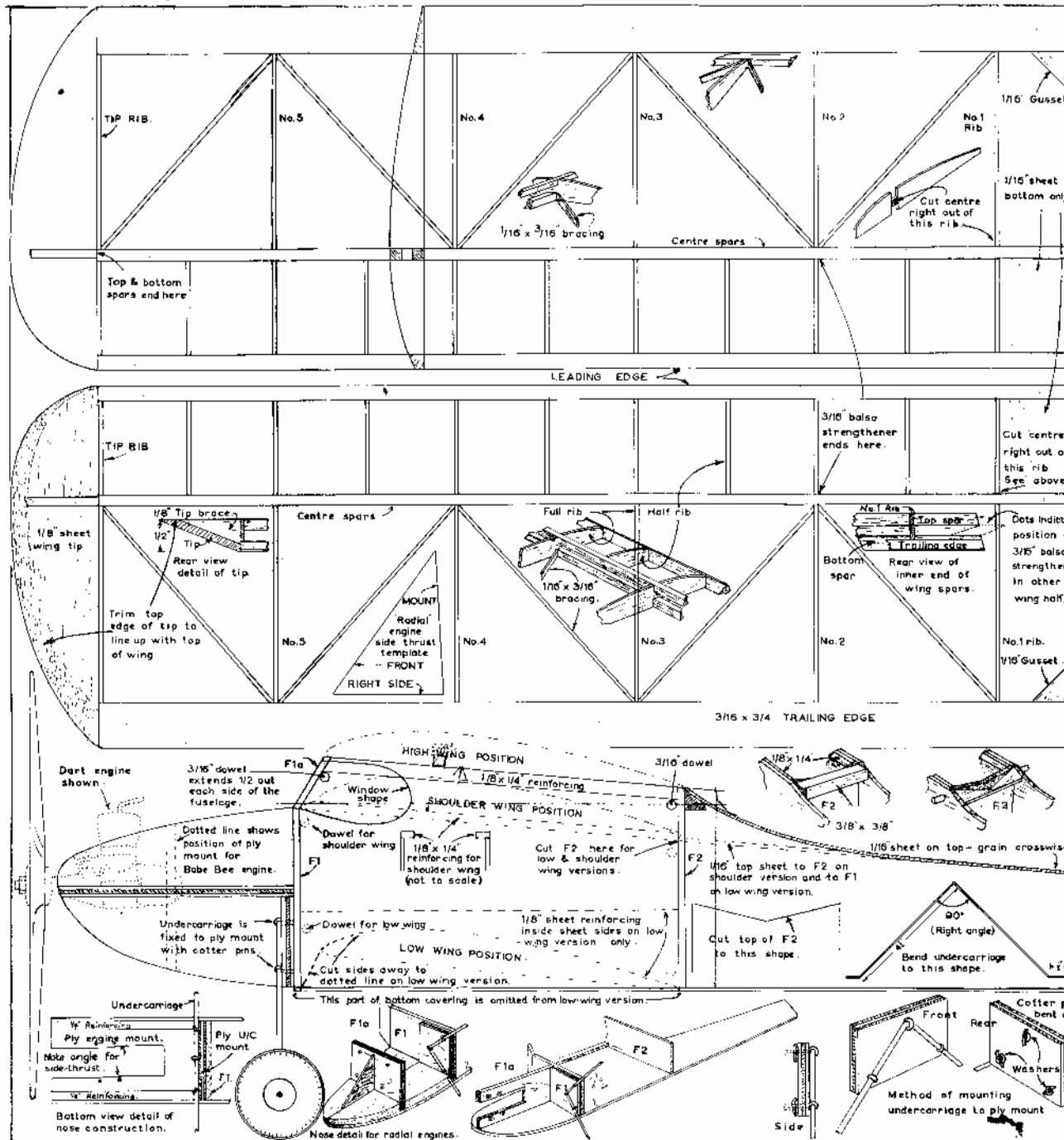
VALE ANGUS MACDONALD

Angus Macdonald joined the Auckland Model Aero Club in 1935, but judging by photographs in his old photo album had had already been building models for several years by then. He joined the Auckland Model Aero Club in January 1936. Angus has always taken more than his share of responsibility in club management. He was a Committee Man in 1942, Treasurer in 1944, Bulletin Editor in 1949, Committee Man again in 1955. Vice President 1956 - 1964, Secretary in 1964, President 1965 - 1968, Vice President 1969 - 1973, Vice President 1975 - 1984, Patron 1985 - 1986, and Patron again in 2003.

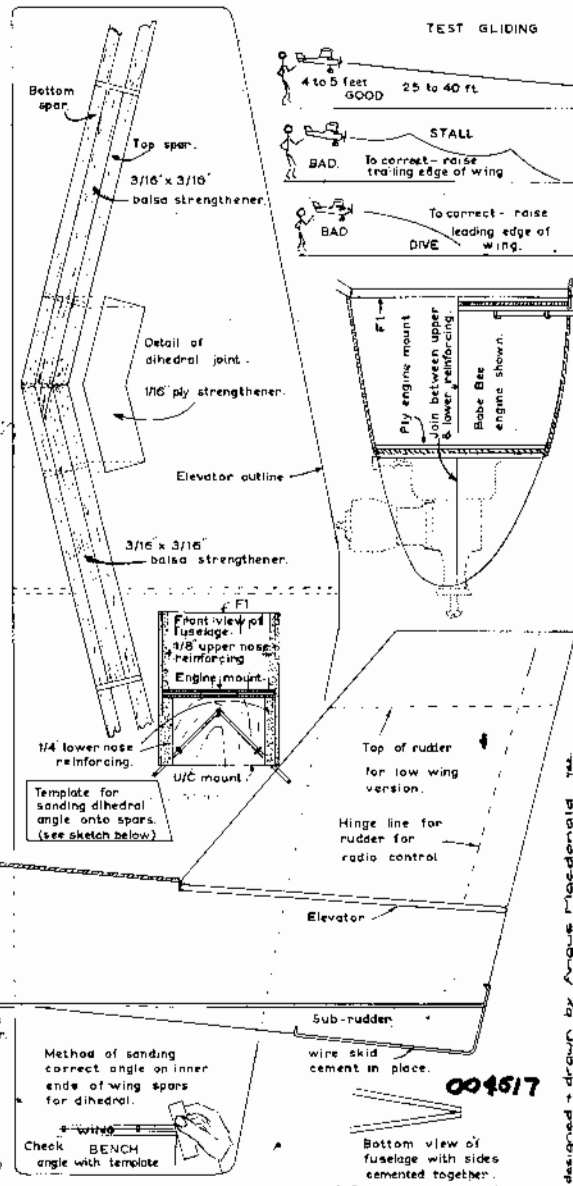
Angus represented New Zealand in F1A in 1965 and Wakefield in 1949, 1973 and 1989. He was Champion of Champions at the 1948 Nationals, and was also Rubber/Glider Champion in the same year. He was the designer of many models kitted by Modelair. In 1948 came the Buzz Bee, in 1950 the Gnat, (both control liners), and in 1950 and 1952, the Kea I and Kea II free flight kits respectively, After the death of his father in 1952, Angus took over the running of Modelair, and continued to design kits. In 1962 came the Humming Bird, (probably the most popular kit of all), the Seeker series of R/C gliders in 1968, followed in 1980 by the Bazooka R/C combat kit, and later the Lancer and Skinny B R/C kits.

More recently, Angus had been a tireless worker for Auckland Soar, and has always been ready to adopt the latest air-frame technology, and develop it further. As a person, Angus has always been willing to provide help in a quiet and modest manner, be it in Club matters, or in assisting fellow modellers.





MODELAIR LTD.
 322-324 BROADWAY, NEWMARKET, CHRISTCHURCH
"MODELAIR" HUMMING BIRD
 W. D. ROUSE 62 NIVEN STREET, CHRISTCHURCH
 36 span FREE FLIGHT MODEL.
 FOR ENGINES UP TO .8cc (0.49")



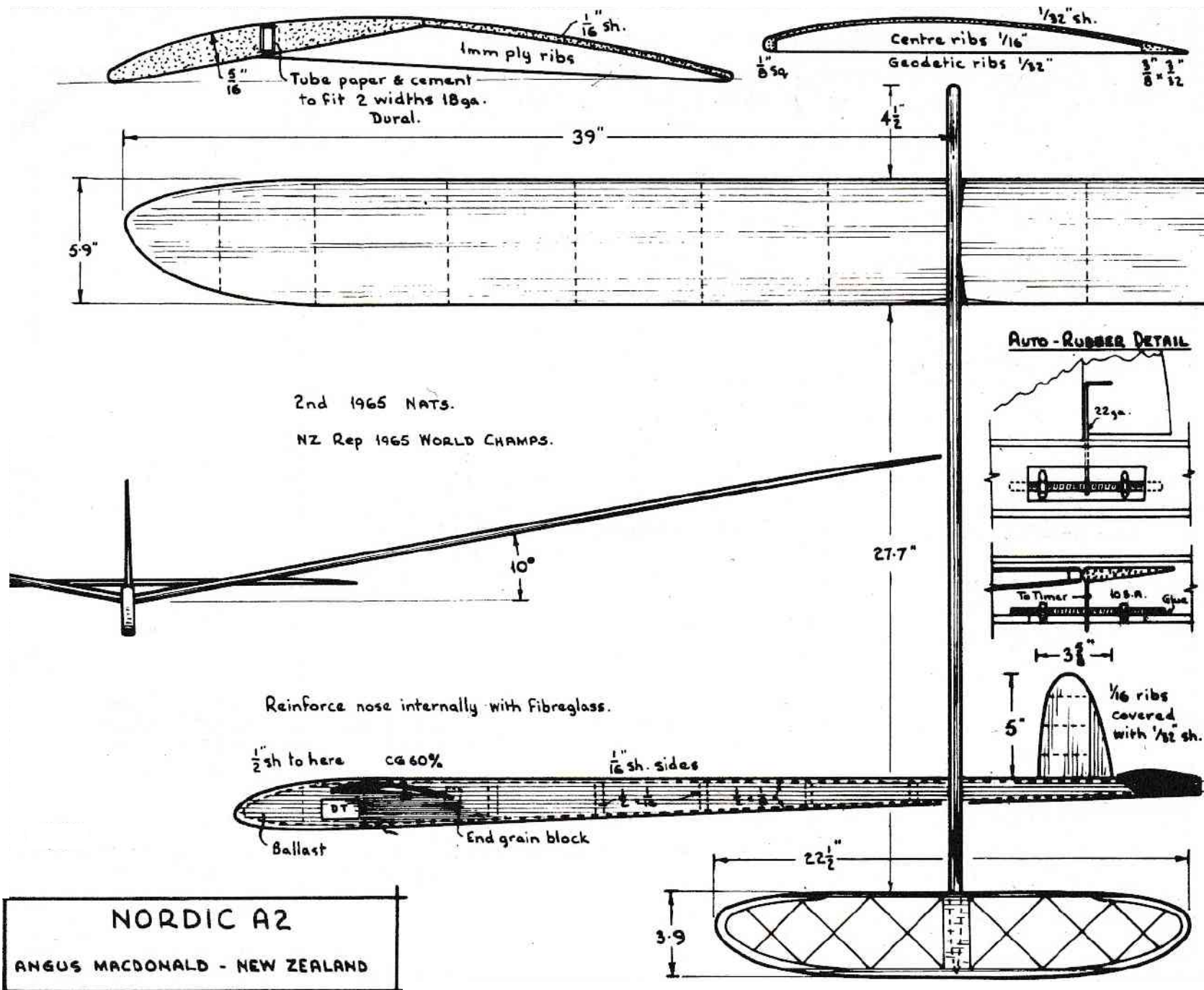
Angus's Hummingbird.

The NZ Tomboy?

Many tips are included on the plan to help beginners.

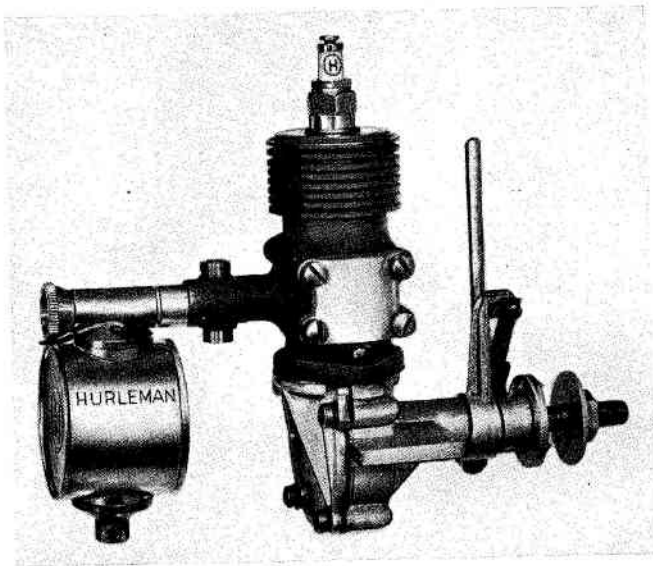
While high-wing Hummingbirds are commonly used in Aggregate events, the mid-wing and low-wing versions (the latter with modified rudder) are rarities.

Provision for an RC rudder is also on the plan.



Three more Vintage Spark Ignition Engines

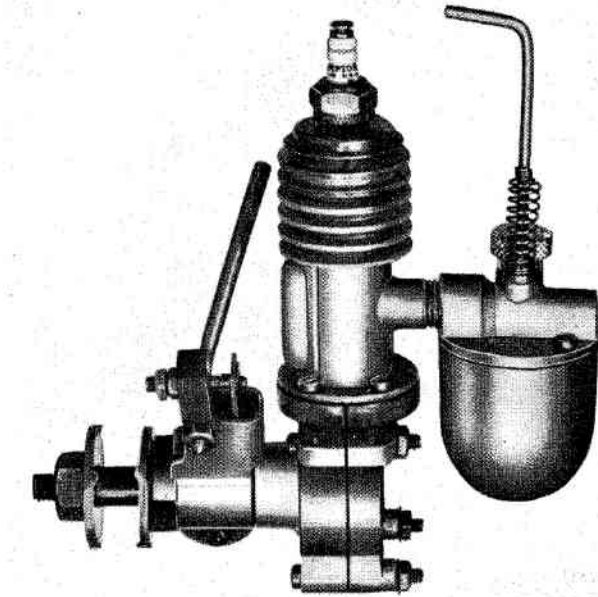
SKY CHIEF



SPECIFICATIONS

Horsepower	Displacement .526 Cu. In.
Bore $\frac{7}{8}$ "	Stroke $\frac{7}{8}$ "
No Piston Rings	Class C
Weight	List Price \$6.95

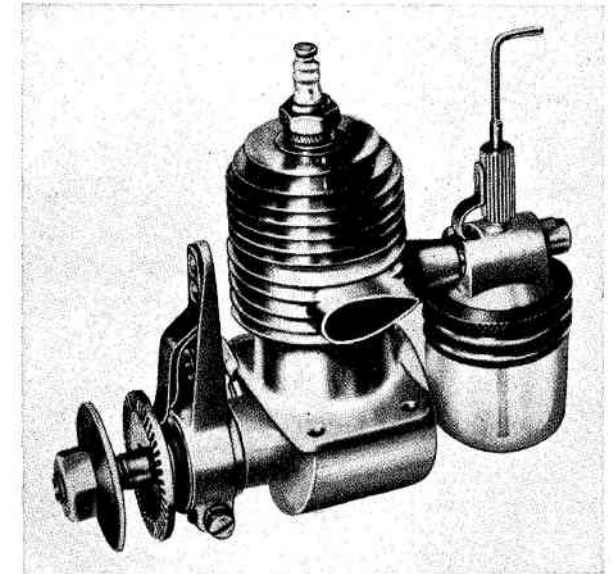
SYNCRO BEE



SPECIFICATIONS

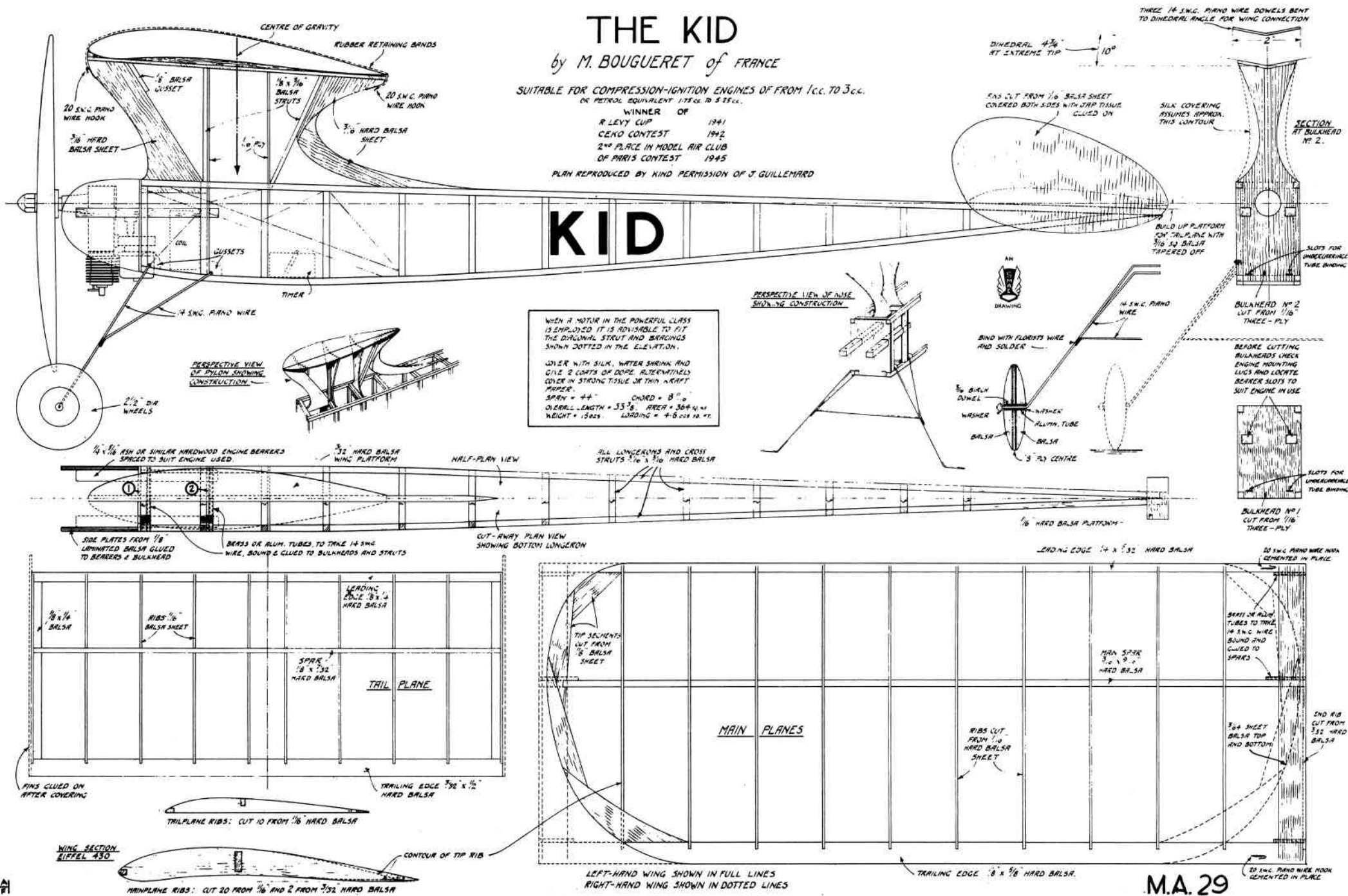
Horsepower— $\frac{1}{8}$	Displacement .122 Cu. In.
Bore $\frac{1}{2}$ "	Stroke $\frac{5}{8}$ "
No Piston Rings	Class A
Weight $3\frac{3}{4}$ Ozs.	List Price \$12.50

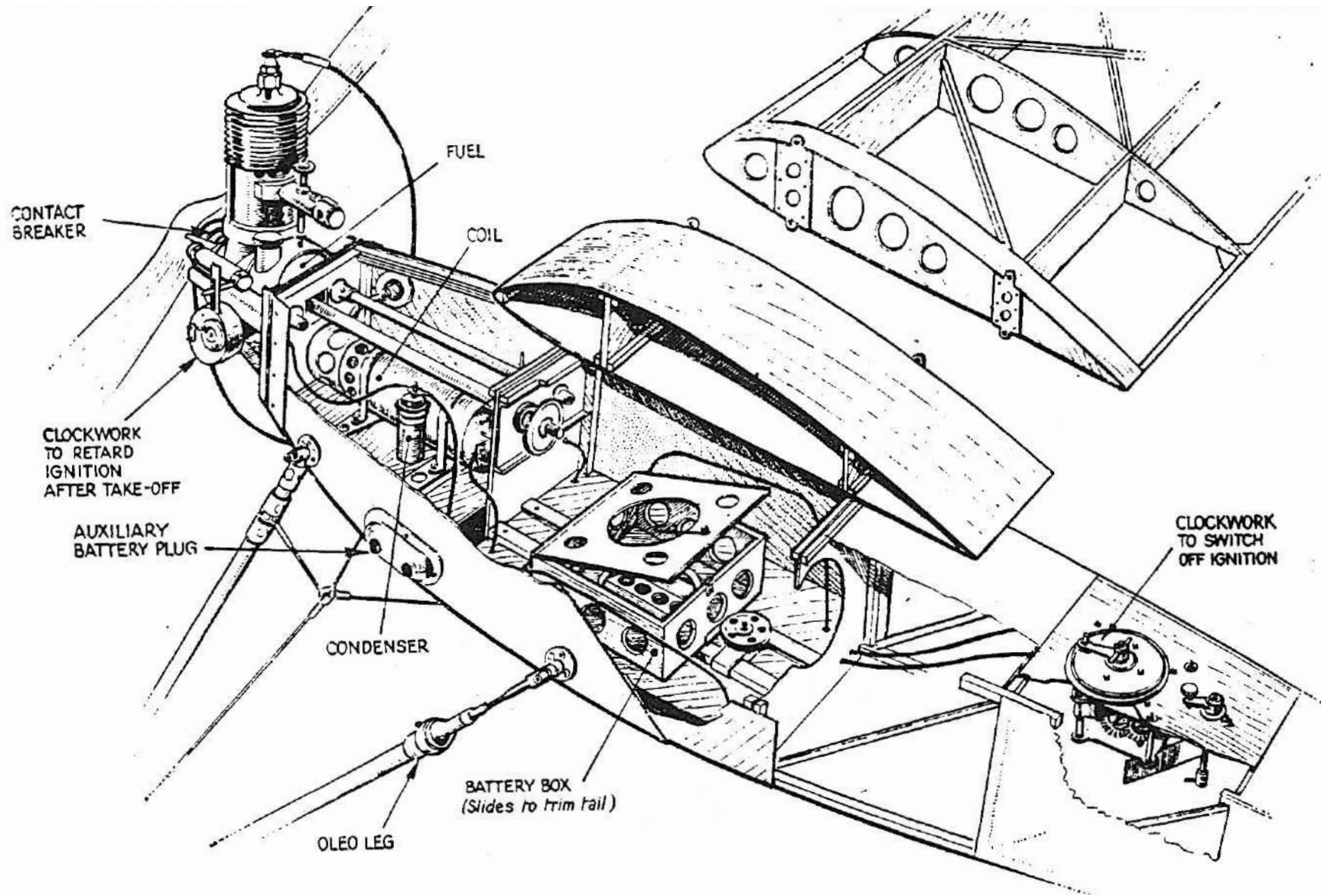
BROWNIE - E



SPECIFICATIONS

Horsepower— $\frac{1}{7}$	Displacement .29 Cu. In.
Bore .770"	Stroke $\frac{5}{8}$ "
Piston Rings	Class B
Weight $6\frac{1}{2}$ Ozs.	List Price, \$7.50

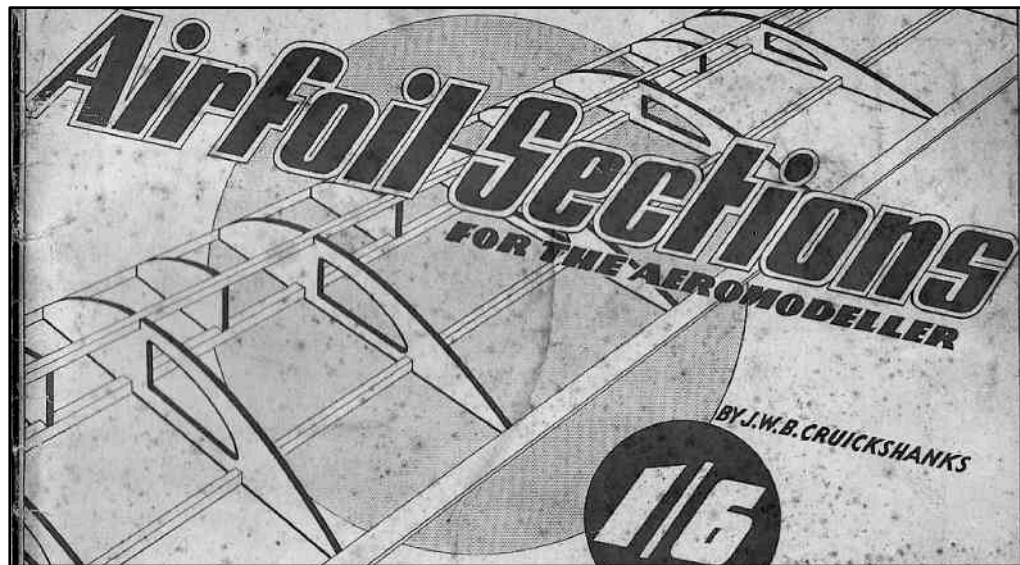




'Flight' artist's drawing of R J Trevithick's 1936 Brown Junior-powered model showing its principal features. The re-worked engine did 4700 rpm driving a 14 inch diameter by 10 inch pitch propeller, and was offset 7 1/2 degrees to the right to counteract the torque. Note the small clockwork unit with barrel-operating linkage that retarded the engine ignition once airborne. Birch and spruce were the main materials used in the construction with balsa ribs. The forward fuselage was covered in sheet aluminium to facilitate cleaning, remainder silk covered. The rear undercarriage leg was a 3/8 inch diameter dural tube containing a piston

EARLY AEROMODELLING REFERENCE BOOKS

Starchy language and imperious style often make early aeromodelling books heavy and sometimes amusing reading for today's less serious aeromodeller, yet they contain much from which we can learn. At the very least, they illuminate the world of those truly Vintage Aeromodellers - the ones who were building Vintage models when they were not Vintage at all. First up, an innocuous little publication presenting thirty-seven airfoils considered by the author to be useful to aeromodellers. Early in the book the author demonstrates that he really knows what's important in aeromodelling by juggling numbers and letters across equations. Although (I am guessing) the average modeller would have rarely used such an academic approach, or even understood the mathematical argle-bargle, the graphed sections that followed would have been of great help in an era before computer generated airfoils.



5

AIRFOIL SECTIONS

Thus at this point $L=W$ (the weight of the aircraft), and so for any given aircraft the stalling speed can be found.

i.e. $WL = W = C_L \max. \frac{\rho}{2} SV^2$

$$\therefore V^2 = \frac{W}{S \times C_L \max. \times \frac{\rho}{2}}$$

$$\therefore V = \sqrt{\frac{W}{S \times C_L \max. \times 0.01189}}$$

where V is in ft. per second

$$\text{and } V = 19.77 \sqrt{\frac{W}{S \times C_L \max.}}$$

where V is in m.p.h.

We have seen that the lift increases with the angle of attack, but the drag also increases, and increases much more rapidly than the lift, and has no critical point within the useful range. The most efficient angle of attack is given by the maximum $\frac{L}{D}$ ratio, that is the angle at which the value of $\frac{C_L}{C_D}$ is greatest and greater lift is obtained in proportion to drag.

The point at which the forces of lift and drag act is known as the centre of pressure, or C.P., and unfortunately this point also varies with angle of attack. At the angle of zero lift, that is, the angle at which $C_L=0$, the centre of pressure is presumed to be at the trailing edge, and as the angle of attack is increased it moves forward up to the stalling angle, and then proceeds to move backwards very rapidly.

For reasons of stability an airfoil with very little centre of pressure movement is advantageous. Some airfoils have been designed with a fixed centre of pressure or very little centre of pressure movement, e.g. R.A.F. 33.

From the foregoing it will be seen that the following are the main points to be looked for in the selection of airfoil sections. For a slow-flying aircraft, where C_D is not so important, a high C_L maximum is most important. For fast aircraft a low value of the minimum value of C_D is the most important part.

When a high rate of climb is desired, the value of L/D maximum is most important, and when stability is the first consideration C.P. movement is the most important consideration. It is obvious that all these qualities cannot be incorporated in any one airfoil section, and so aeromodellers must select the one which best suits their purpose and which has as many of these good points as possible.

AIRFOIL SECTIONS 23

N.A.C.A. 6409

Station	0	1.25	2.5	5	7.5	10	15	20	30	40	50	60	70	80	90	95	100
Upper surface	0	2.06	2.96	4.30	5.42	6.31	7.78	8.88	10.13	10.35	9.81	8.78	7.28	5.34	2.95	—	0
Lower surface	0	-.88	-1.11	-1.18	-1.08	-.88	-.36	+ .17	1.12	1.65	1.86	1.92	1.76	1.36	.74	—	0

N.A.C.A. 6409

This is another of the series of 78 related airfoils of the N.A.C.A. It has a maximum camber of 6 per cent of the chord at 40 per cent of the chord from the leading edge, and the thickness to chord ratio is 9 per cent. This camber of the centre line is rather larger than is generally met with in practice, but should prove quite useful for model work, although high cambers generally have the effect of causing large centre of pressure movement. From the N.A.C.A. report 460 C_L maximum is given as 1.80, which value, when corrected for model work, gives a value of 1.33. The angle of zero lift is -5.9 degrees, and the minimum value of C_D for aspect ratio of 6 is .0100. L/D maximum is 21.6, and occurs at C_L .42.

This airfoil is fully reported on in N.A.C.A. report 460.

AIRFOIL SECTIONS

46

MARQUARDT S-2

Station	0	1.25	2.5	5	7.5	10	15	20	30	40	50	60	70	80	90	95	100
Upper surface	0.00	—	—	2.35	—	4.40	—	6.70	7.80	8.30	7.90	6.90	5.60	3.90	2.00	—	0.00
Lower surface	0.00	—	—	-1.50	—	-1.00	—	+1.50	3.50	4.50	4.50	3.90	2.60	.90	-1.00	—	0.00

MARQUARDT S-2

This airfoil seems very well adapted to model use, and seems to resemble some of the earlier R.A.F. sections. Unfortunately I have been unable to obtain information regarding the coefficients, but should imagine that owing to the profile the performance of slow-flying models equipped with this airfoil should be of the highest.

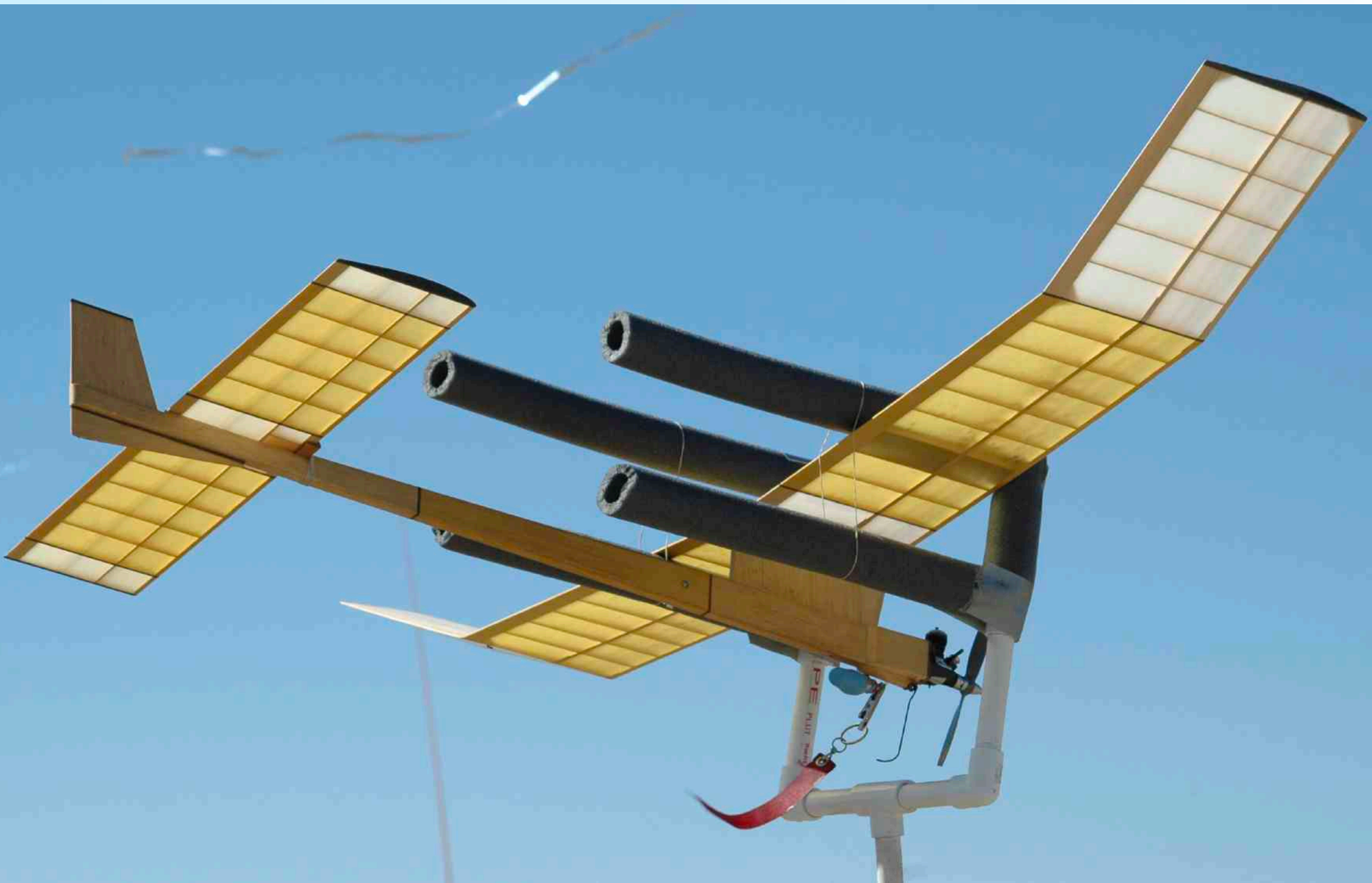


At last, a few calm days, so I made the 75 km trip to the field early to test the *Gollywock*. What a thrill. After a couple of minor adjustments to nose block trim and only about 500 turns, it climbed away in a perfect pattern, couldn't have been happier. Virtually flew "straight off the board". Had three more flights with increasing turns until the wind picked up. Thankful for the RDT as it landed outside the field twice but luckily not into trees. Can't believe how well everything worked. Thanks Bernard for your help and advice, I am now keen to have a go at a P30. Also tested the *Witch Hawk*, which still has some more adjustments to make, but we'll get there. I was at the field by myself so photos from my phone are not the best.

Cheers, John Urry
Balgal Beach, Queensland



MODEL STAND from plumbing supplies and pipe insulation - works for RC, too



The Aug 1951 *Aeromodeller* editorial page omitted the customary "Cover Photograph" description.

Aeromodeller staff must have assumed that the man and his model would be instantly recognised.

Bob Copland with one of his Wakefields ... but which one?



Frank Zaic was tireless in his documentation of model aircraft designs, many of which have been published only in his Yearbooks. Although the resulting catalogue of plans was Zaic's crowning achievement, he was also a meticulous researcher in the field of model aeronautics, using practical techniques and experiments to demonstrate his findings at a time when much of the model aeronautical "research" appearing in magazines was more surmise and fancy than fact.

He was an astute observer of human nature, sprinkling his books with gems such as this one from the foreword of the 1953 YB :

"In a sense, we are in a peculiar position. Our models are not toys, nor are they full size aircraft. Yet, they give us enough trouble to make us think that they are a worthwhile effort for other keen minds. And with the overall model air-plane activities being classified on toy or juvenile level, it is a problem how to attract new members to our circle."

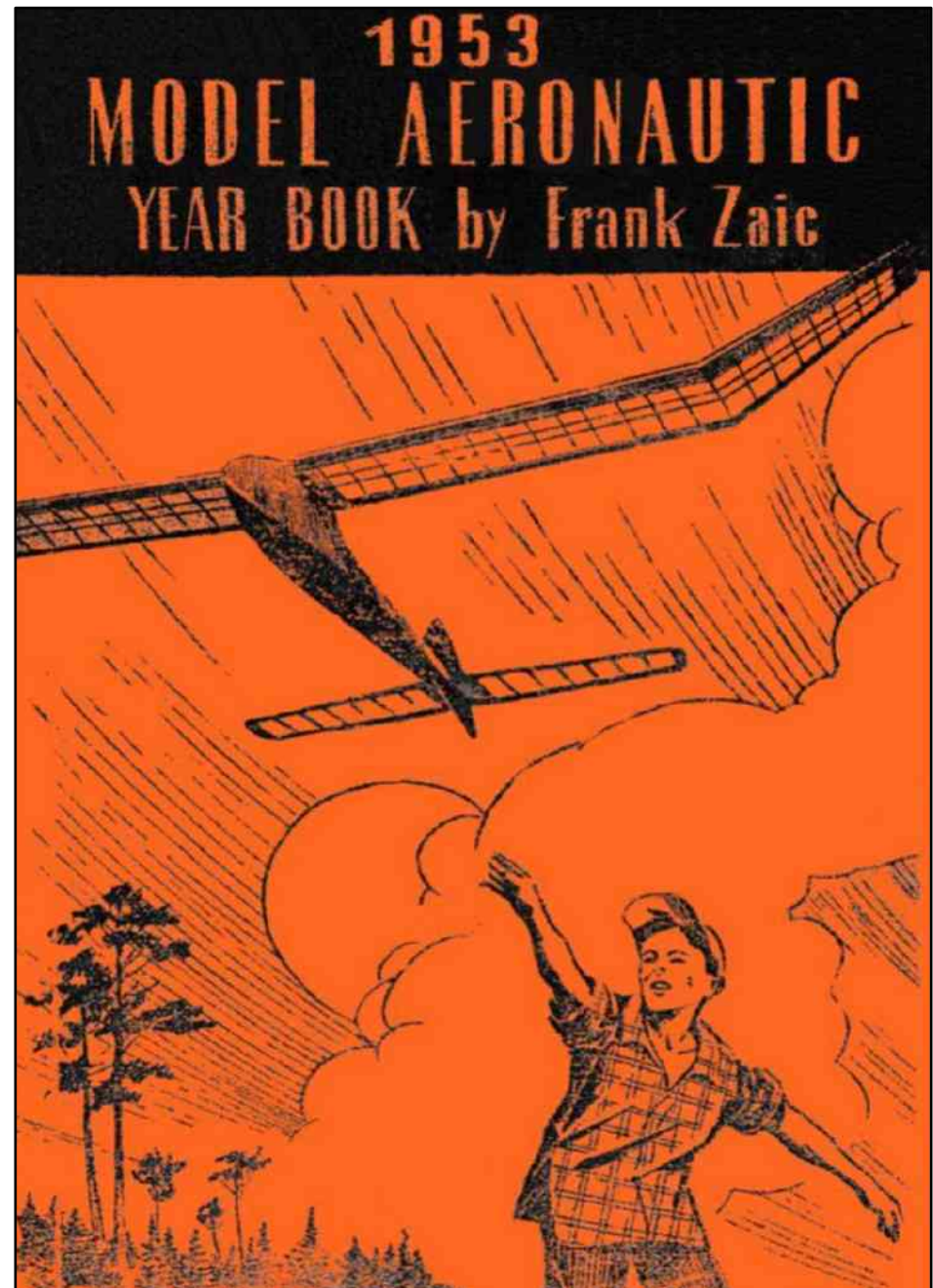
It was intended to include extracts from the excellent Zaic biography written for the AMA's History Project, but to my surprise and disappointment, the AMA Archivist and Historian refused permission to reprint.

Surprise because the dissemination of aeromodelling information would seem to be a primary purpose of the History Project's archive. Disappointment because the refusal was in stark contrast to Zaic's motivation in his aeromodelling activities - the generous sharing of knowledge for benefit the aeromodelling community.

Fortunately for aeromodelling, all of Zaic's output is still readily available. Featured In this issue of AVANZ News are extracts from the 1953 Yearbook. Subsequent issues will include selected nuggets from the Zaic mine.

No question ... Frank would approve.

Editor





1/2A Texaco and the Cox Babe Bee

or

How frustrating can a competition class be?

My thoughts in giving myself a fighting chance in making the eight minute target time a real possibility. In no particular order (as they say before announcing a winner) here is what to aim for to be successful at this class.

- Get as long as possible motor run from your Babe Bee consistent with adequate power to climb the model depending on the conditions
- Choose a model that can be built down to the 8 oz per square foot wing loading in accordance with the rules
- The model ideally should be about 16 / 17oz, although Allan Knox tells me his Skipper is 22oz in accordance with the rules. Remember that the motor is not producing the same power as it would be at 20,000rpm. Some motors may be better than others
- The model should be as clean aerodynamically as possible. Allan Knox's Skipper 1948 is a good example
- The design should have a "Clark Y" section (better for penetration / speed) though in certain conditions most sections will be ok.
- The older the design is the better chance you have of winning, providing you max out of course.

How do you go about this task?

- Use a 9 x 4.5 APC electric prop for flywheel effect because our motor will be running at low revs
- Have a selection of very clean filtered fuel mixes available e.g. 7% nitro / 7% oil. Synthetic is preferred. Brian Winch recommends Cool Power which is a castor/synthetic mix and expensive. 10% nitro 5% oil etc ... Why? you might ask.

This is because the weather conditions make a big difference to the engine performance and you need to match the fuel to the conditions

- Have a rev counter available to ensure that your engine is delivering the RPM you are aiming for - 4600 to 5400 rpm depending on the fuel mix you are using the revs will be at one end of the range or the other. Remember fuel consumption is governed by rpm
- Pick an engine that has 2 slits either side as exhaust ports
- Get a Cox silencer
- Remove the spring starter if fitted as this can slow the revs if it hits the prop
- Pull the engine apart and clean thoroughly
- Check and tighten the con rod to piston ball joint with the Cox tool for the job if slop is noted
- Check the reed valve for what type you have fitted and ensure that it is not damaged particularly where it seats. Mylar ones are good
- Replace the venturi / tank seal as this is a potential for a leak
- Put in a fuel pickup that goes to the bottom of the tank . I use KS aluminum tube .062 dia and carefully drill the back plate hole .062 dia, where the original plastic hose pick up went, and fit the KS tube using Loctite to hold it in position. This is a very delicate task to ensure that it ok as there are many pitfalls such as swarf staying in the drilled hole, Loctite actually blocking the hole, not enough material in the back plate to take a .062dia drill without removing the pickup tit altogether. Bend the tube before actually Loctiting it in position so that it goes round the venturi to the bottom of the tank.



ASSEMBLY OF ENGINE

- Assemble the engine ensuring that you have 3 copper shims under the glow head.
- Make sure that when fitting the tank that the muffler is not holding the tank to crankcase joint apart (we don't want a air leak here)
- Make sure that the gasket between the tank to crankcase is a good one
- Fit silicone fuel tube over the needle valve to make sure that there is a minimum of leaks

RUNNING OF ENGINE

- Fill tank with fuel until it overflows THEN block off the overflow and carry on filling until fuel flows out the venturi inlet, this makes sure that the needle valve passage is not blocked with castor (if that is what you decided to use) and ensures that the tank is full.
- Close off the muffler metal slide all the way so that the exhaust only comes out the 1/8th hole. Initial starts may need a bit more opening of the slide until the motor warms up, then for economy close it right off. Priming is done with a squirt up the 1/8th hole.
- Apply the glow plug lead and proceed to flick. The motor will feel like it doesn't have much compression but it is enough provided the head

has sealed properly.

- Once you have the motor started and keep it running, check the RPM and depending on the fuel mix you have used it should be between 4,500 and 5,400.
- The motor RPM will vary up and down about 3/400 RPM this is normal
- While the motor is running slowly top up the tank until it overflows then start the stop watch and see how long it takes to run the tank dry (6 plus minutes should be the norm

this depends on the fuel mix you used)

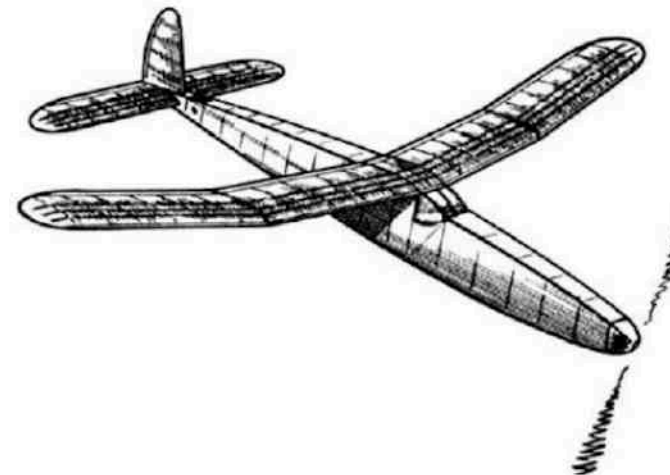
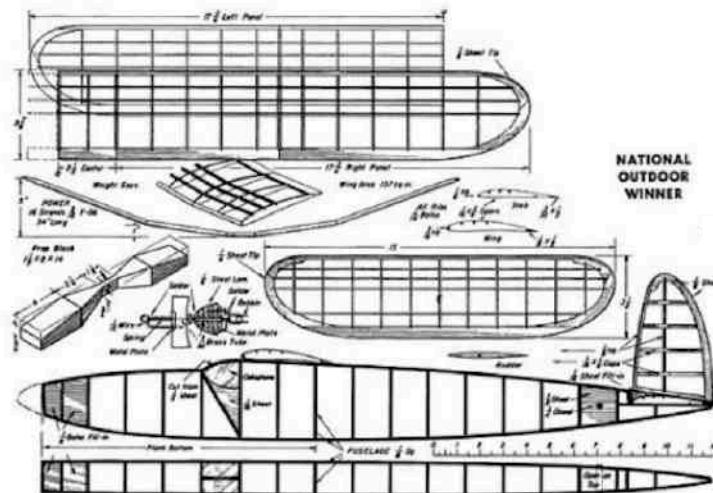
- After it has stopped check tighten the glow head as they have a bad habit of loosening.
- In getting ready for a competition flight make sure that that the motor has warmed up then fill the tank while the engine is running just prior to launching the model. Remember to switch the radio on as a 6 – 7minute motor run will go a long way with a properly trimmed free flight model.

Have fun chaps. Don't call me - I'm at the funny farm producing another edition of Torque!



Barry Price, having finished and successfully flown his Falcon, seen here cuddling up to Joe Connolly's Twin Lizzie, is hoping to dodge another set of withdrawal symptoms and is frantically searching for another build. What do you think of this... he asks last Sunday ???

A nice looking vintage rubber model which he is keen to apply his new found light building skills to. It looks like a nice challenge .



Tony Ives continues to make good progress on his double Gollywock build



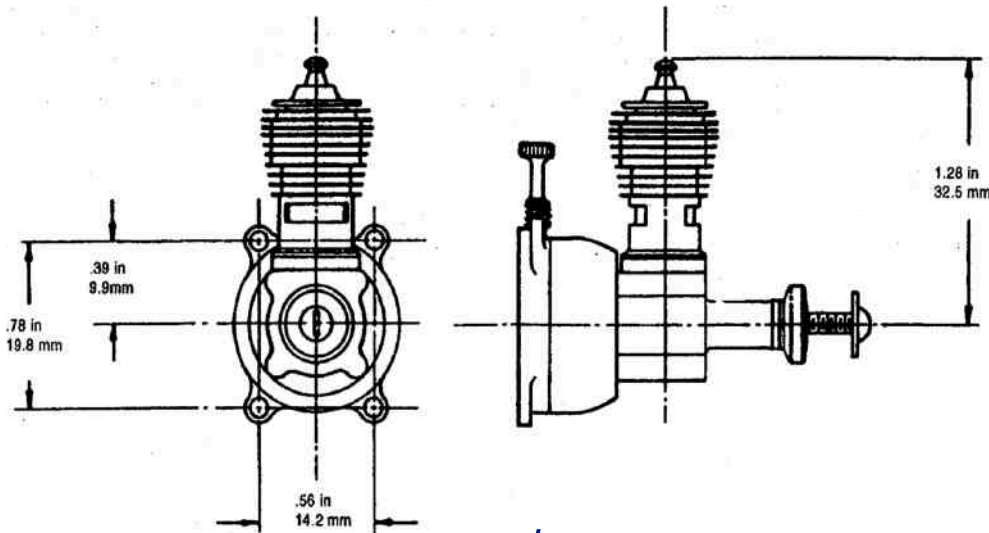
After the successful launch of the 1956 *Babe Bee* .049 engine, Cox produced an .020 version of similar design a year later. With an even more catchy name than its big brother, the *Pee Wee* was widely praised by reviewers for both its looks and performance. *The Pee Wee is not merely a beautiful ornament, it is a real performer* said one reviewer, anticipating that the *Pee Wee* would be collected as well as flown.

The power output of the *Pee Wee* is remarkable, and even more remarkable has been the consistency of power figures quoted in reviews over the years. *Model Aircraft*, December 1958, measured output at 110 hp per litre; Peter Chinn's review in *Aeromodeller* March 1976 claims 107 hp per litre; while *Flying Models* of July 1958 records 1.85 hp per cubic inch which converts to 112 hp per litre - an average of 109.6 hp per litre.

To put that into perspective, Honda's lively two litre engine in the 2020 Civic EX Salon produces 69 hp per litre.

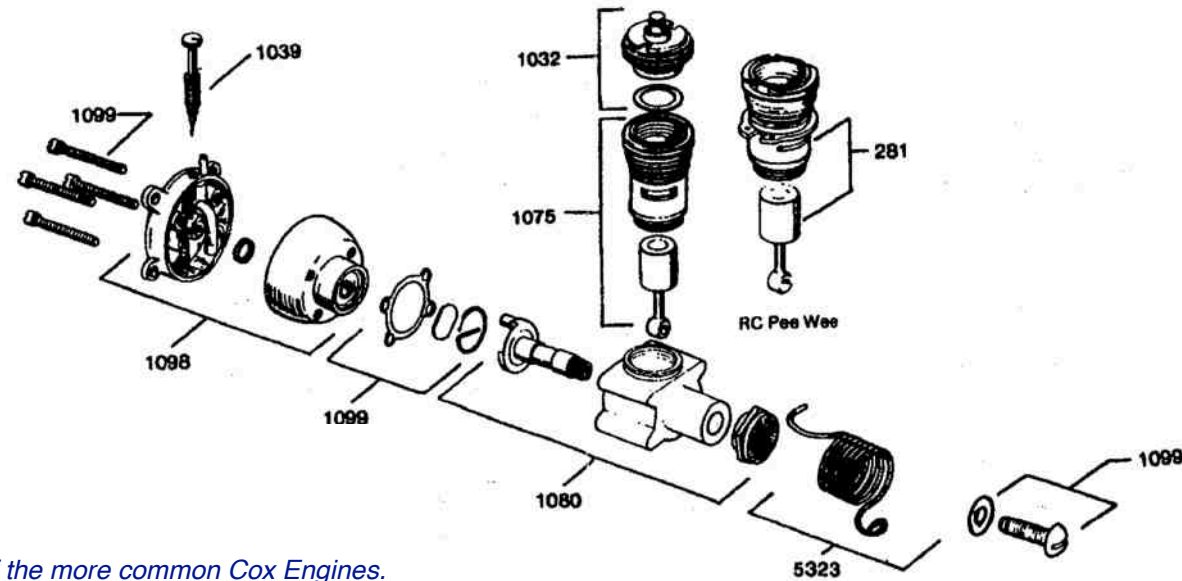
In the USA, the *Pee Wee*'s power was put to use in the Cargo event where the aim was to make flights of over 40 seconds carrying the greatest weight of "cargo". Contest reports from the 1960's show the *Pee Wee* providing the muscle in these weight-lifting feats. Today, the *Pee Wee* remains a good choice for scale or small sport designs.

Packaging of the *Pee Wee* was in blister packs with perforations between each engine - the retailer tore off the engine(s) as required. The *Pee Wee* on the right has its original retail price marked on the packaging. When noticed on ebay, the bid was up to \$271 (\$NZ408). Returning a 3871% profit, this *Pee Wee* has been a good investment !



*

This series will briefly describe some of the more common Cox Engines. (This is #2 as the Babe Bee was featured in the Texaco article of AVANZ News 178)





Some Babe Bees do not have a flat on the top cylinder fin so the cylinder is unable to be restrained with a Cox spanner when the glow head is removed. As the glow head is removed, sometimes the whole cylinder / glow head combination unscrews. Judging from vice-grip marks on many engines, this was the tool of choice for separating the head and cylinder, damaging the fins in the process. After damaging a few myself, I decided to grind the missing flats onto the cylinder. Getting the sides of the flats diametrically opposed and parallel was solved by first jamming the cylinder on to a slightly tapered 3/8" maple engine bearer. Thus secured, the cylinder can be held and one face ground using a disc sanding table. Rolling the engine bearer 180 degrees positions the cylinder for a perfectly parallel second flat. A Cox head spanner is used to check that the flats are cut to the same depth as on other Babe Bees. I use a 6" adjustable spanner for cylinder restraint or removal as it bears on several fins rather than a single fin and is less likely to slip or cause damage. *Bernard Scott*



RC Top 10 Leader Boards 2020

The purpose of the Vintage SIG Leader Boards is to increase enjoyment of competition flying by showing fliers how well they are doing relative to others. Scores are posted from the results of contests, NDC, and independently-timed flying. The top 10 scores are updated throughout the year, just prior to each issue of AVANZ News. The Leader Boards run for each calendar year, after which they are cleared and started afresh. However, the record for each class is maintained over time, and shown in blue italics with the year in which it was set.

New scores posted in this update are shown in red. The new postings are from events at Pukekawa, Tuakau, Levin, and Christchurch. Among many very good scores, the highlights are the Vintage Precision scores by Barrie Russell and Brett Robinson. Both went to a second flyoff, with Barrie maxing that as well and Brett missing by just one second.

Please email me if you spot any errors or omissions.

Wayne Cartwright
rwcartwright4@gmail.com

Standings at 22 October

Precision Classes

Vintage Precision

Record: B Russell (2020) 600 + 200 + 200

1.	B Russell	600 + 200 + 200
2.	B Robinson	600 + 200 + 199
3.	S McCurrie	600 + 200
4.	B Treloar	600 + 199
5.	B Hall	600 + 199
6.	A Knox	600 + 198
7.	D Crook	600 + 198
8.	D Mossop	600 + 197
9.	T Gribble	600 + 196
10.	J Bradbury	600 + 196

Classical Precision

Record: B Harris (2016) 598

1.	G Fulton	596
2.	D Mossop	585
3.	B Russell	571
4.	D Gush	544
5.	J Butcher	533
6.	T Gribble	527

Duration Classes

Vintage IC Duration

Record: S. Cox (2019) 780 + 500 + 391

1.	A Knox	780 + 361
2.	S Grant	770
3.	B Treloar	764
4.	B Scott	741
5.	T Beaumont	685
6.	S McCurrie	671
7.	D Gush	639

8.	W Elley	635
9.	T Beaumont	556
10.	J Ryan	556

Vintage E Duration

Record: B Harris (2018) 960 + 600

1.	S Nicholas	960 + 330
2.	B Russell	960 + 318
3.	D Mossop	960
4.	J Shorer	944
5.	B Robinson	938
6.	G Fulton	897
7.	A Knox	855
8.	P Townsend	821
9.	S Hubbard	819
10.	R Nimmo	810

Classical IC Duration

Record: D Thornley (2017) 900 + 600

1.	B Scott	945
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Classical E Duration

Record: W Cartwright (2018) and B Russell (2019) 900 + 600

1.	D Gush	900 + 371
2.	B Russell	900 + 352
3.	W Cartwright	887
4.	P Townsend	879
5.	B Robinson	851
6.	P Townsend	760
7.	S Nicholas	745
8.	J Butcher	114

Texaco Classes

Vintage 1/2A Texaco

Record: A Knox (2018) 1500 + 1833

1.	A Knox	1971
2.	J Butcher	1498
3.	B Scott	1490
4.	J Ryan	1283
5.	W Cartwright	1182
6.	D Little	525

Vintage A Texaco

Record: A Knox (2018) 1860 + 1870

1.	B Scott	1860
2.	B Treloar	1852
3.	S Cox	1848
4.	A Knox	1568
5.	I Munro	1502
6.	B Russell	1428
7.	J Butcher	1235

Vintage Open Texaco

Record: B Treloar (2018) 1840 + 1703

1.	B Treloar	1840 + 782
2.	B Scott	1840
3.	S Cox	1830
4.	T Glogau	1750
5.	A Knox	1657
6.	I Munro	1529
7.	B Russell	1264
8.	J Butcher	1045
9.	T Beaumont	917

Vintage 1/2E Texaco

Record: P Townsend (2020) 3689

1.	P Townsend	3689
2.	W Cartwright	2138
3.	B Scott	1980
4.	B Russell	1663
5.	K Fisher	1597

6.	A Knox	1280
7.	T Gribble	636

Classical 1/2E Texaco

Record: D Crook (2020) 2774

1.	D Crook	2774
2.	P Townsend	2310
3.	B Scott	1946
4.	T Gribble	1789
5.	W Cartwright	1339

Vintage E Texaco

Record: A Knox (2020) 3000

1.	A Knox	3000
2.	D Crook	2535
3.	W Cartwright	2337
4.	D Mossop	2160
5.	K Fisher	1965
6.	B Russell	1507
7.	G Fulton	1322
8.	D Baunton	1099
9.	T Gribble	700

Classical E Texaco

Record: W Cartwright(2020) 2366

1.	W Cartwright	2366
2.	D Gush	2186
3.	P Townsend	2106
4.	J Butcher	1674
5.	K Fisher	1616
6.	T Gribble	1477
7.	B Russell	1418
8.	G Fulton	867

Vintage E Rubber Texaco

Record: B Russell (2019): 5685

1.	P Townsend	4744
2.	K Fisher	4712
3.	D Gush	4272
4.	D Mossop	3900

5.	J Butcher	3757
6.	W Cartwright	3555
7.	D Crook	3337
8.	B Russell	2702
9.	D Baunton	2832
10.	A Knox	2052

Sport Cabin Texaco IC

Record: S McCurrie (2020) 1122

1.	S McCurrie	1122
2.	A Knox	927
3.	B Scott	633

Sport Cabin Texaco E

Record: K Trillo (2019) 4457

1.	P Townsend	2996
2.	J Butcher	2777
3.	K Fisher	2636
4.	D Gush	2042
5.	T Gribble	1819
6.	K Trillo	1705
7.	G Fulton	958
8.	B Russell	696
9.	D Crook	552

Vintage and Classical Scale Texaco

Record: A Knox (2020) 1680 + 786

1.	A Knox	2466
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Tomboy IC

Record: R Anderson (2015) 1432

1.	B Scott	441
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Tomboy E

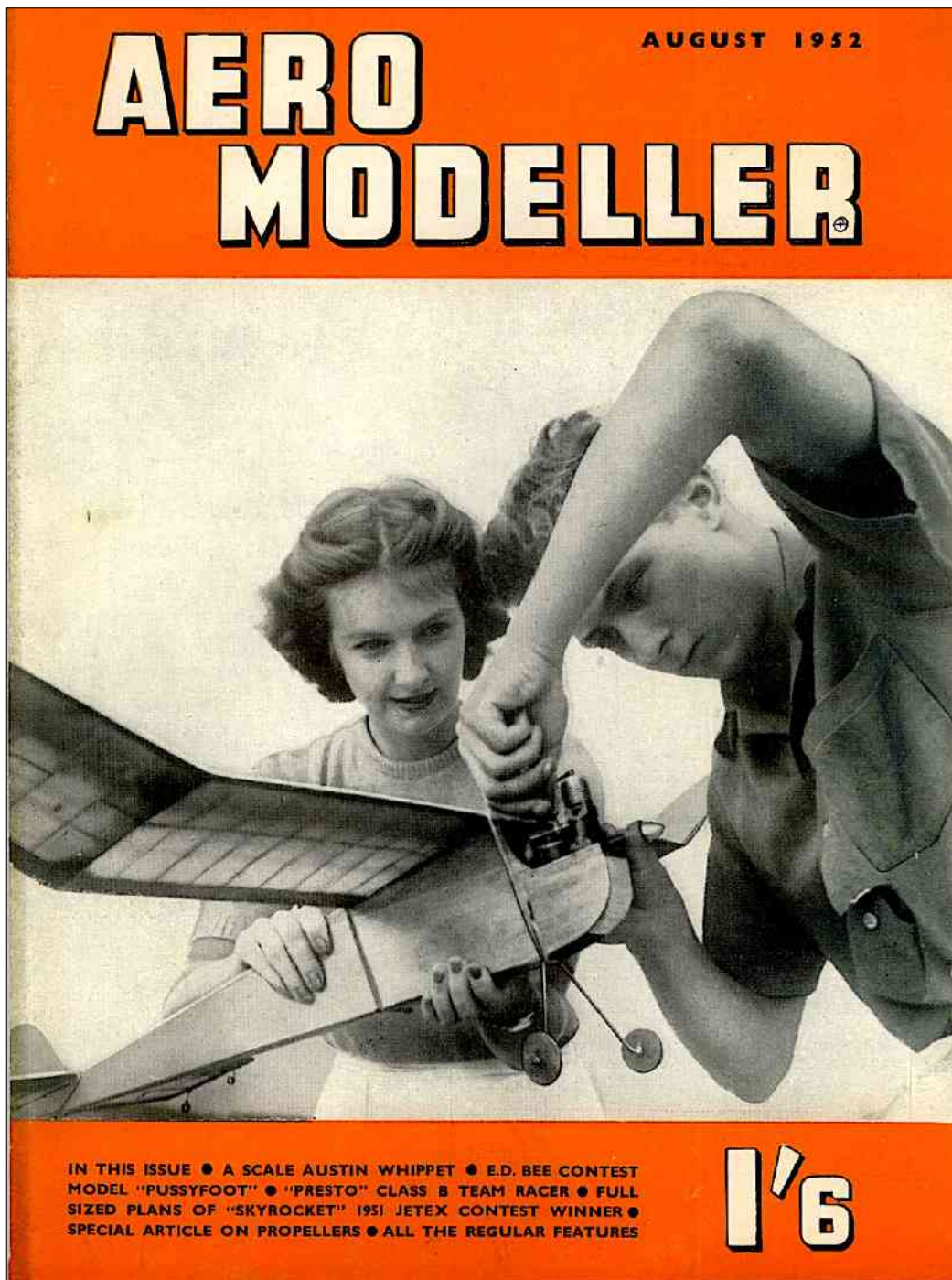
Record: P Townsend (2020) 3368

1.	P Townsend	3368
2.	D Gush	2873
3.	J Butcher	1927
4.	K Trillo	1200

FREE FLIGHT DREAMING

Gary Odgers
150% *Dixielander*
Photo: Malcolm Campbell







Nationals preparations are underway with very effort being made to ensure fliers are comfortable on the field ...



... and are well nourished.



NZ ICON #180 KARITANE NURSES

The Karitane movement, like the Plunket Society, was founded by health reformer Frederic Truby King. His first training institution and children's hospital was set up at Karitane, near Dunedin, in the early 1900s. By 1912 there were sixty Karitane homes for babies across the country. Trainees spent at least one year learning about newborn and baby care and caring for new mothers before undertaking four to six months on a practical placement with families in the community.

Training ceased in 1978 and the last Karitane home closed in 1980. In 2019, there were fifteen known Karitane nurses still working in the field.

King's strong eugenic beliefs helped set the public health agenda in the 1920s. He urged New Zealanders to do all they could to breed an 'Imperial race' and condemned birth control and abortion as instruments of 'race suicide'.

Truby King was a member of the 1924–25 Committee of Inquiry into Mental Defectives and Sexual Offenders, whose report concluded that the 'unchecked multiplication of the feeble-minded and epileptic' was causing 'the serious deterioration of the race and was a most serious menace to the future welfare and happiness of the Dominion'.

Among Mr King's other beliefs was that the education of girls, in anything other than domestic skills, used up their energy and could make them unable to breed or breastfeed.

From his observations of patients as Superintendent of Seacliff Asylum near Dunedin he concluded that mental degeneration was caused by poor mothering. If women could be taught the 'science' of mothering, the racial decline of the Empire could be arrested and NZ women would breed soldiers fit to serve the Empire.

Right: Karitane nurses with babies outside the Karitane Hospital, Wanganui, in 1929, although the nurse at lower left appears to have misplaced hers.

