



WESTERN AUSTRALIA



SAM 1993



SAM 84 Queensland

The Australian Thermaleer

Information, Competition Results and Articles for Australian SAM Chapters and Groups
Issue No.15 April-June 2023



SAM 600 Australia - Victorian Old Timers Association Inc.



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"The Thermaleer" is the official newsletter of SAM 600 of Australia, Victorian R/C Old Timers Association (SAM600) Inc.

SAM 600 PRESIDENT'S REPORT.
From Steven Gullock



Hi Peoples,

Well another comp cancelled on the 17th & 18th June at Cohuna because of strong wind forecast and boy were they right. You could hardly stand up on Saturday and Sunday was a little less but still strong. It's always nerve racking cancelling an event three days before and the person that does it is very brave.

So we have nothing to report on but it did give us the opportunity to get the 1300 m/a 3 s battery pack Texaco event rules on paper so we can show others and discuss any changes.

Most people seem to be happy with the concept of this event, with simple rules and no confusion.

Because of the cancellation of Cohuna where a meeting was scheduled on Sunday morning, instead, we had a meeting on the Saturday at McDonalds in Bendigo where we got most of our problems sorted out.

As for me I have had a very quiet time. Keep your peckers up fellas, the weather must get better. See you all soon and have some great flying.

Steven Gullock, President SAM600.

SAM 600 Contest Calendar 2023



SAM 600 AUSTRALIA
Victorian Old Timers Association Inc.
1/33 Manikato Drive
Drouin Vic 3818

Contests commence at 9am, unless otherwise stated.

The 2022 MAAA Rules apply

The CD for all SAM600 events will be nominated on the day of the event.
General Meeting ?

All 1/2A Texaco events will be Electric unless specified. (except State Champs & Nats)
Duration & Texaco events will have the electric equivalent (except State Champs & Nats)

September 9 th - 10 th	Cohuna Saturday: 1/2A Texaco, Duration, Burford. Sunday 8.30 am AGM Meeting, Texaco, '38 Antique.
October 7 th - 8 th	Echuca Tri-State Champs (SAM 600 Competition) Saturday: 1/2A Texaco, Duration, Burford. Sunday: Texaco, '38 Antique.
November 11 th - 12 th	Cohuna "Steve Jenkinson Memorial Trophy". Saturday: 1/2A Texaco, Duration, Burford. Sunday: Texaco, '38 Antique.
November 26 th	Ballarat 1/2A Texaco, Texaco, Duration.



SAM 600 CONTEST DIRECTOR'S REPORT.
From Kevin Fryer

Hello All,

I have very little to report about for the last 3 months as both Echuca in May and Cohuna in June were both canceled, Echuca half way through because the weather turned dreadful and Cohuna was called off on Wednesday because of a very bad forecast for the weekend.

Rumour has it that Peter van de Waterbeemd from NSW is very keen on Steve's 1300 m/a -3s battery pack Texaco comp and in fact has a model built for it now so when the weather lets us have a comp to trial the rules we may have other States running this comp and maybe it will become a National event, good on you Steve for inventing this class.

It was put forward by the Committee that the Champ of Champ trophies be split with the I/C trophy called the Stebbings Trophy and the Electric Trophy called the Brian Laughton Trophy,



It has been put to Brian for his approval but as yet he has not replied so watch this space.

I can't think of anything else to talk about so see you all at Cohuna in September.

Kevin Fryer, Contest Director, SAM 600

ECHUCA OLDTIMER May 20th- 21st 2023

Report from Kevin Fryer, SAM 600 Contest Director.

The weather forecast was very marginal but because the last Ballarat comp was called off because of total fire ban we decided to give it a go on the chance the weather bureau may be slightly wrong, they weren't !!!

Saturday dawned a little breezy so we decided to fly 1/2A Electric which was the right choice because the day got windier.

We ran it 2 out of 3 rounds because the wind may pick up and we could maybe get the small models out of the way before this happened, we had 4 entries and 3 qualified for the flyoff with Steve Gullock being the one to miss out because of an out landing on his second flight so he decided to give it a miss, the air for the flyoff was a bit dead with Pat Keely winning with a time only a little above the round maximum time with me just 9 seconds behind him in 2nd and Lynn Clifford 3rd, a good event but a shame there wasn't more entries.

Then it was lunch time and Cohuna and P&DARCS clubs may now have a competitor for the best food trophy. They had dim sim's, sausages in bread and they now have a cappuccino machine. We had marvellous lunches on both days.

Then with full tummies we resumed flying which is what we came up to Echuca to do although eating is catching up with flying particularly if its windy or wet.

Burford was next with the wind starting to pickup with only 3 entries. I didn't fly this event as my model got damaged in my trailer on the way up.

Steve Gullock reigned supreme with two perfect rounds, the only one to do so. Pat Keely came 2nd and Lynn Clifford 3rd. Then the wind really picked up and we called the rest of the day off.

Sunday dawned very windy as the bureau had predicted and a vote was taken, and it was unanimous, to cancel the rest of the day, but we all stayed for lunch and again it was terrific.

It was a shame but we cant beat the weather.

I would, on behalf of all SAM 600 members, like to thank Fred West and his Echuca club members for their very friendly welcome and their fantastic food. Thank you again and again and hope the weather is better later in the year.

Kevin Fryer,
Contest Director SAM600



Tegan Clifford
Photography

*Above: Pilots relaxing and flying from the pit area.
Below Left: Winners of 1/2A Electric L-R Lyn Clifford 3rd, Pat Keely 1st and Kevin Fryer 2nd.
Below Right: Burford Event winners L-R Pat Keely 2nd with Steve Gullock 1st. (3rd Place Lyn Clifford absent)*



Tegan Clifford
Photography



Tegan Clifford
Photography

Tegan Clifford
Photography

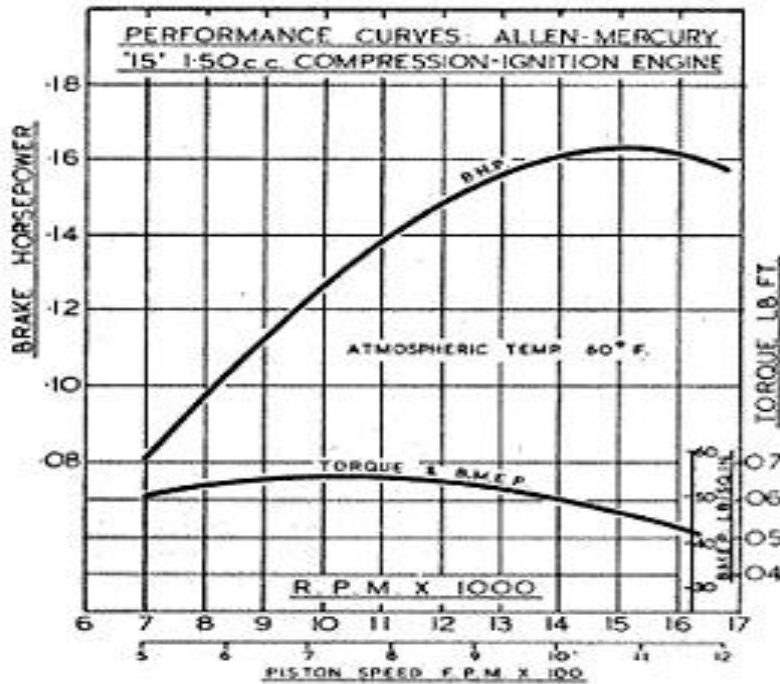


*Above:
Echuca Club Flying
Field. Plenty of wide
open space for flying.*

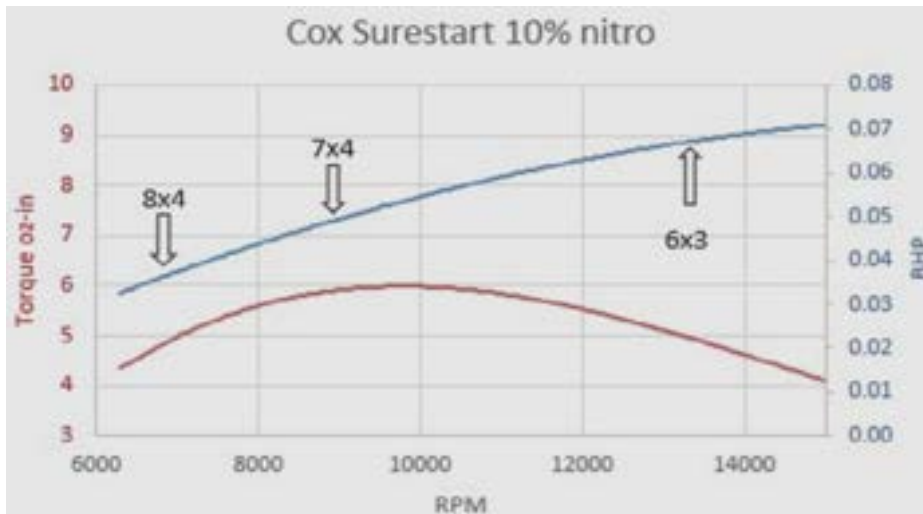


*Left:
Echuca Club pit area,
pit shelter and car
parking immediately
behind. A great club
field.*

Tegan Clifford
Photography

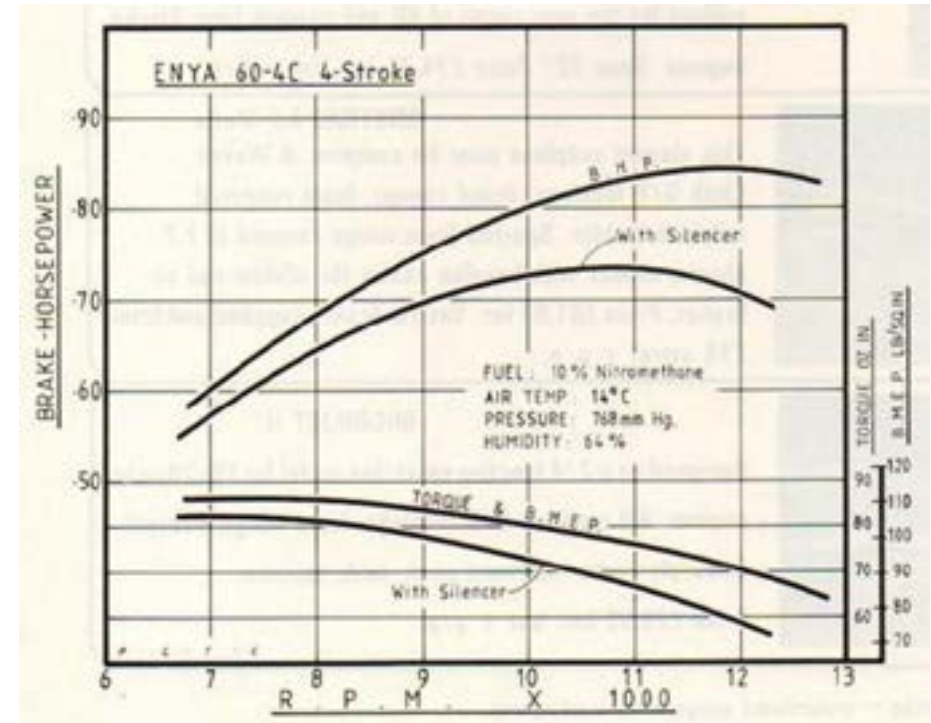


Team racers will choose a propeller that gives just enough fuel economy to minimise pit stops at as much horsepower as possible. In Texaco, the optimum use of fuel would be at maximum torque and to put the resulting horsepower to work in an appropriate model. Yet the temptation to go for longer run time at slower RPM remains. Let's look at the Cox 049 to illustrate that point. The following chart is largely true also of the Cox 049 engines used for Texaco.



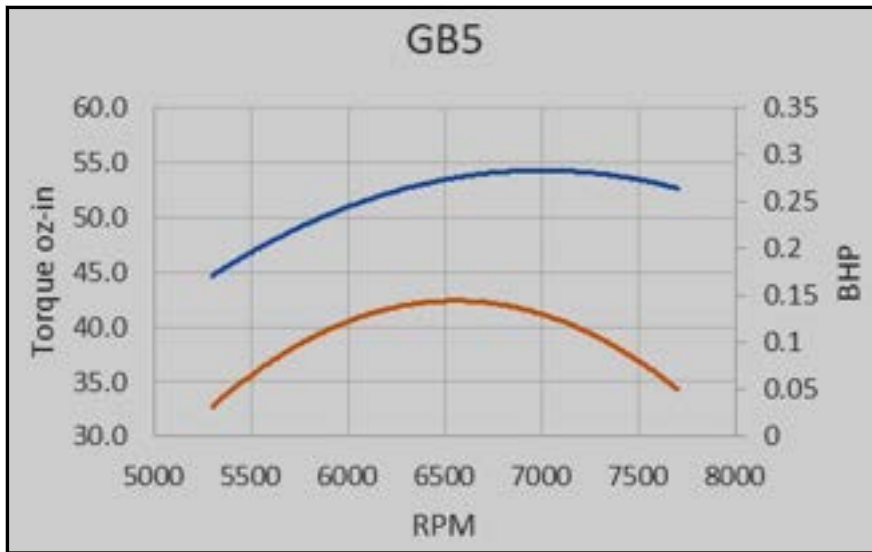
Arrows show the RPM with three propellers; Cox's black 6x3 would deliver maximum power, but at low torque. OK for a control lime plane flying level. 7x4 about as much as it will comfortably handle - perhaps in a large, heavy model flying more slowly. With 8x4 propeller, it's fine when set a little rich, to retard ignition timing and control heat, if the modest power output is acceptable. Go for fuel economy and much work with piston fits and head shims is required for it to tolerate an uncomfortable working situation. Some make it work in a lightly loaded model and very controlled climb, but the engine is not working efficiently.

Now look at the curves for an ENYA 60 4 cycle engine. It can be loaded quite reasonably down to 7000 RPM, only losing 30% of potential power output. A natural for Texaco work.



Diesels are another option, given the fuel's higher calorific value. Old style side-port engines are well renowned for fuel economy. We tested Rex Brown's Owen/Burford GB5, achieving these RPM values and plotting performance curves.

Propeller	RPM
APC 14x6	5300
APC 13x7	6200
APC 13x6	6400
APC 12x8	6300
APC 12x7	6600
Graupner 12.5 x 6	6600
APC 12x6	7100
APC 11x6	7700



The GB5 is pure old-school diesel. Torque comes only a little before the peak power point. Optimum performance occurs over a mere 500 RPM range. Stray much beyond that and you're over revving with lost power or lugging the engine with excess load and losing power. Which the engine was telling me with the 14x6 prop. Sagging revs and spewing black goo. Only partly cured by backing the compression lever off a lot, and quickly. With lighter loads, GB5 is quite at ease and a pleasure to operate. The torque curve makes it obvious, but the very nature of how the engine ran indicated that the 14x6 is OK only when run at an easy compression setting and a little rich on the needle. Not when screwed down for Texaco.

It would be far better to fit a more sensible propeller and reduce power (and fuel consumption) to a practical minimum with a throttle that restricts incoming air to the engine, to match the needs of the specific model aircraft. Rex has wisely fitted a Thunder Tiger throttle for that very purpose. Like the adjustable throttle cap at the end of the Brown Junior B intake tube. Nothing new in that.

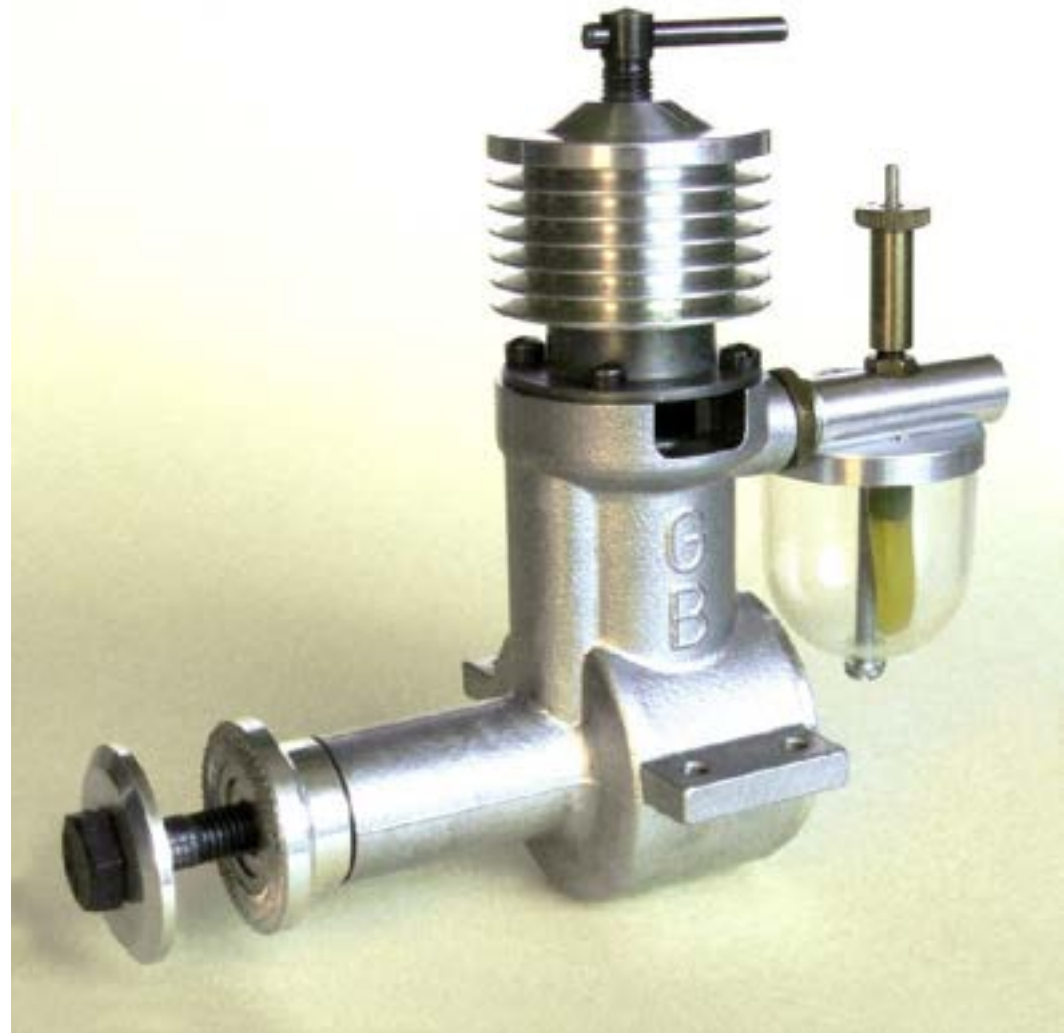
Finally, a word about diesel fuel. Reducing oil content will gain fuel economy, but adequate lubrication must be maintained. The other important ingredient is managing the quality of ignition with an additive such as amyl nitrate, or more recently, ethyl hexyl nitrate. It initiates the combustion process sooner in the cycle, which can result in more power from combustion at more optimum piston position. Too little and ignition is poor. Increasing compression for smooth running then only gives rise to harmful detonation. Any excess to requirements increases the likelihood of pre-ignition and can be tolerated to a degree by reduced compression setting after an extended warm up period.

Beyond that you get runaway heat build-up, the engine sags and the black goo is

embarrassing. The required amount depends on engine type and intended running speed.

David Owen's instructions for GB5 recommend fuel with 1.5 to 2% ignition improver. Terrific with his recommended 12x6 running in prop and OK with most of the given flight propellers. Our test fuel containing only .8% ignition improver ran smoothly (so evidently enough for the job) and would better avoid undesirable cooling off from low speed running with an R/C carburettor. It really does pay to tailor down ignition improver to just enough for the job.

MARIS DISLERS

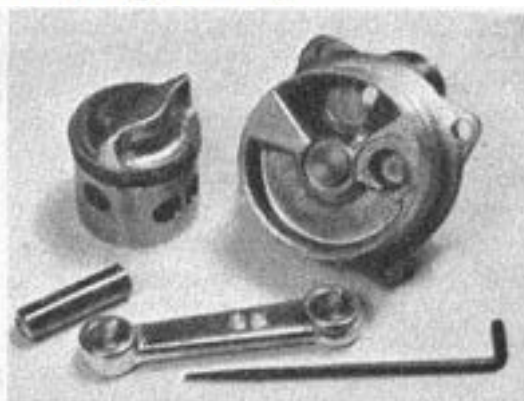
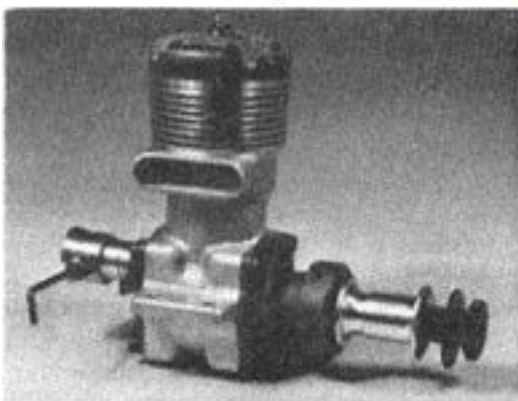


SCEPTRE FLIGHT

Model Engine Tests

McCoy 60 (1958)

(from Model Aircraft, August 1958)



The famous McCoy Red-Head 60, Series 20 racing engine, as recently re-introduced showing the component parts of this classic design. McCoy 60s have powered almost all the world's fastest reciprocating engine driven model aircraft.

The McCoy 60 Series 20 really deserves an article all to itself and, some six years ago, it did have—in the M.A. Engine Tests. It has

remained the most powerful engine ever featured in the test series, the particular example chosen reaching 1.52 b.h.p. at a little over 16,000 r.p.m. In C/L speed, the Series 20 has, of course, built up a reputation second to none and, for years, has been employed, almost to the exclusion of all other types, in the 10 c.c. class. Currently, top speeds

with Mac 60 powered speedsters are running very close to the 170 m.p.h. mark in the U.S. and there is little doubt that, under the less stringent F.A.I. regulations regarding lines for record attempts, these same models would get near to 180 m.p.h.

Recently put back into production after a lapse of some years, the current model is basically identical with the original Series 20 introduced more than nine years ago. Unlike the earlier models, which were supplied with a contact breaker assembly for spark ignition, the current model is for glow ignition only.

The general layout and constructional features of the present model are clearly illustrated in the accompanying photographs. The 60 is of classic racing two-stroke design, with twin ball-bearing mounted crankshaft, rotary disc induction, lightweight alloy high-domed deflector piston with two compression rings and the emphasis on rigid construction and an efficient breathing system.

Unlike the majority of today's production model engines, which employ pressure diecastings extensively, the Mac 60's castings are mainly sand-castings. These are machined, where appropriate, to a high standard of accuracy and finish. Metal-to-metal joints are used throughout; no gaskets being employed. The main casting, comprising crankcase and cylinder barrel, is fitted with a pressed-in cylinder liner having six squared exhaust ports in a 180 degree formation and four transfer inlet ports. (Multiple ports are, of course, necessary with piston ring engines in order to prevent rings being trapped and broken.) There

are also two $\frac{1}{4}$ in. dia. skirt transfer ports which register with similar ports in the piston skirt at the bottom of the stroke.

The piston itself is an aluminium casting and a fine example of piston design as applied to a model engine. Wall and crown thicknesses are held to a practical minimum to save weight and cooling and stiffening webs extend from the well proportioned gudgeon-pin bosses into the inside of the domed crown. The piston, complete with rings and $\frac{1}{4}$ in. dia. tubular steel fully-floating gudgeon-pin, weighs less than $\frac{1}{2}$ oz.

The hardened crankshaft runs in $\frac{1}{8}$ in. inner and $\frac{3}{16}$ in. outer ball journal bearings and has a machined-in crescent counterweight that balances almost the entire weight of the drop-forged alloy connecting-rod. The cylinder-head is contoured to match the piston crown and has the ignition plug inclined towards the transfer side. Induction is via a massive carburettor intake of approximately 0.420 in. choke diameter, which opens into a large 90 degree segment in the backplate and is timed by a light diecast alloy valve rotor mounted on a long, $\frac{1}{16}$ -in. shaft with provision for adjusting clearance.

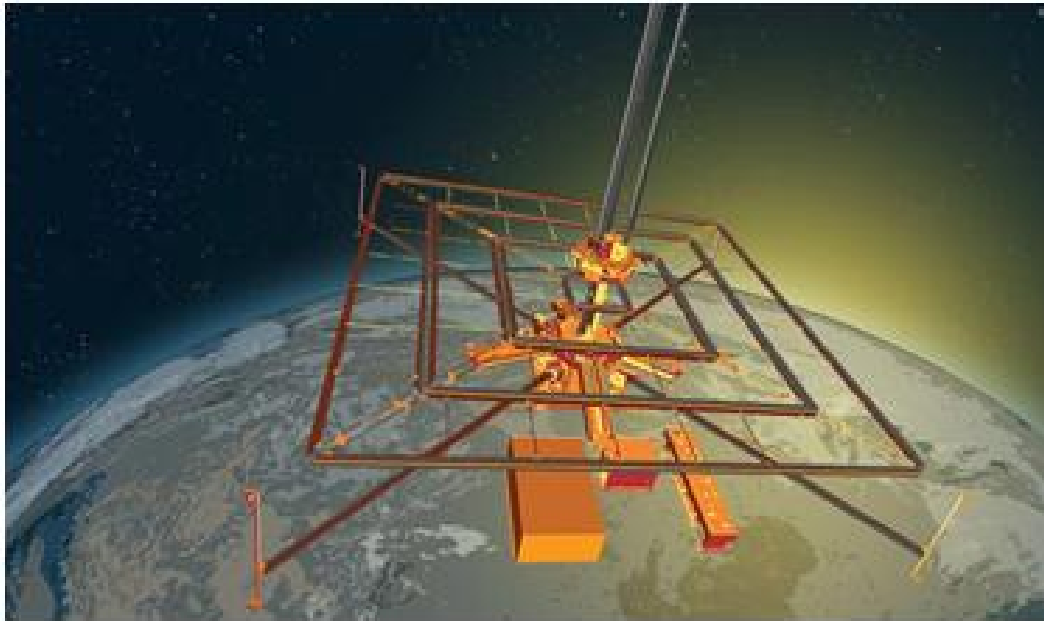
The McCoy 60 has a bore and stroke of 0.940 x 0.875 in., giving a swept volume of 0.6072 cu. in. or 9.95 c.c. It weighs 14 $\frac{1}{2}$ oz.



SCIENTISTS JUST SENT SPACE-BASED SOLAR POWER BACK TO EARTH.

Beam me down, Scotty!

CORY GUNTHER

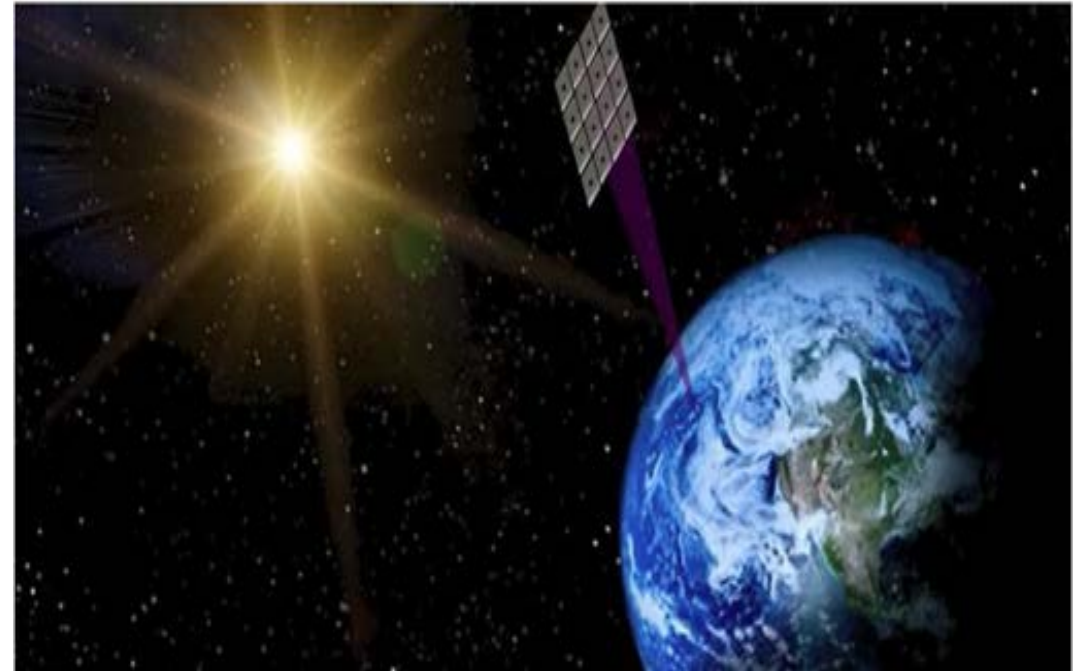


The California Institute of Technology (Caltech) says for the first time, it successfully beamed solar power wirelessly from space back down to Earth. The team recently completed its first major test after launching a space solar power prototype into orbit earlier this year.

Caltech's Space Solar Power Project launched the Space Solar Power Demonstrator (SSPD-1) into orbit with the goal of harvesting space solar power, then transmitting it back to us Earthlings. This week it successfully finished its first power transfer experiment using the Microwave Array for Power-transfer Low-orbit Experiment (MAPLE) prototype aboard the SSPD-1.

If that sounds wild, it's because it is. MAPLE captured solar power in space and shot it down to a receiver at Caltech's campus in Pasadena. The group outfitted a large receiver on the rooftop of its Gordan and Betty Moore Laboratory of Engineering for the job.

"Through the experiments we have run so far, we received confirmation that MAPLE can transmit power successfully to receivers in space. We have also been able to program the array to direct its energy toward Earth, which we detected here at Caltech. We had, of course, tested it on Earth, but now we know that it can survive the trip to space and operate there," said team lead Ali Hajimiri.



According to Caltech, the entire system was built using low-cost silicon technologies, and a massive array of flexible, lightweight microwave power transmitters did the rest. Those transmitters can beam the power to other desired locations, so long as there's a receiver ready to capture it.

It's still early in these tests, but the implications are enormous. For one, the sun has unlimited solar power as long as you can capture and distribute it. And two, imagine being able to draw power from space and then send it to remote regions that wouldn't otherwise have proper infrastructure or during natural disasters. Or even a solar-powered car.

It's a small step for space solar power, but an important one. Who knows, one day these receivers can gather all that solar power to charge our self-driving electric vehicles.

via [Gizmodo](#)

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FOR SALE



**DURATION
TIMES**

Duration Times is the official Bulletin of SAM 1788
SOCIETY of ANTIQUE MODELLERS of AUSTRALIA Inc.
 SAM 1788 EXECUTIVE 2022-2023

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SAM 1788 PRESIDENT'S REPORT.
 From Peter Scott.

The problems we have trying to convince old-timer modelers to travel miles to a venue and fly comps that we put on! We are all getting older and finding youth and enthusiasm is not easy. From what I've heard all states except, possibly, the far north Queenslanders, have this problem.

Now, we come to Tamworth. This has always been a great venue, great club and a great weekend. A problem neighbour who has the means to interfere with our models in flight seems to have caused problems this last weekend. We can no longer expect fliers to risk their models in this situation, but Tamworth is closer to Queensland and we hoped to get fliers from that State. Only Dave Paton came along, much as we love Dave and Karen, this is not encouraging enough to run a contest further north without a positive response from Queensland fliers.

We could possibly move this event to Orange or Cootamundra or even Parkes. Maybe even West Wyalong but we already have events there, and we don't get entries from Victorians so there's no point in going further south. Any venue we fly at must have a height clearance or can apply for one for an event; be prepared to have shelter, and possibly food on site. So, Coota or Orange?

Options ruled out are Muswellbrook, can't fly over the road; West Wyalong, we have comps there already, also no catering - but possible.

Anyhow, get on the phone to me and let me know what you'd like. A little feed-back, not a deafening silence, please.

Peter Scott,
 President,



SAM 1788 SECRETARY'S REPORT.
 From Peter (Condo) Smith.

Just a few items members need to be updated on, most may already know.

Membership renewals is upon us again. All Fees for year 2023-2024 are due 1st July 2023..

* SAM 1788 Membership.

SAM Membership remains unchanged at \$20 and is due 1 July 2023.

Please deposit the fee into our Bank Account, [BSB 032-527 Account No. 144170.](#)

Once your membership fee is deposited get in touch with our Treasurer Gail Scott, (qualmag@optusnet.com.au).

Please supply your Surname on bank deposit for ease of identification.

Please provide Name, Address, Telephone Number, Date of Birth, proof of payment, proof of MAAA/Club Membership and your email address.

* MAAA membership.

If you are wanting to affiliate through SAM,

We need all the following information for the new data base now in use by ANSW: Name, Address, Date of Birth, Telephone Number, Email Address, and Proof of Payment.

Please email to Secretary Gail Scott. (qualmag@optusnet.com.au).

Bank account [BSB 032-527. Account No. 144170.](#)

Please supply your Surname on bank deposit for ease of identification.

The cost structure,

Full Affiliation membership for the year 2023-2024

ANSW	Senior	\$50	Junior	\$ 0
MAAA	Senior	<u>\$90</u>	Junior	<u>\$45</u>
TOTAL	Senior	<u>\$140</u>	Junior	<u>\$45</u>

* Of Interest.

We have had notification from CASA that the Government has decided to pause the planned introduction of a registration and accreditation scheme for recreational drones (model aircraft) more than 250g which was due to commence on 1 July 2023.

The registration of all commercial drones (Remotely Piloted Aircraft) remains unchanged.

Condo. 20/6/2023





SAM 1788, Secretary

0423 452 879

peter_condo@yahoo.com.au

G'day All,

Well, the 41st Sam Champs held over Easter at West Wyalong were a mixed bag. The weather and conditions, Wednesday to Friday morning, were perfect and I enclose the results for the events completed during that period (Part 1). Then the bad weather arrived.

On Sunday it was decided that the rest of the 41st SAM Champs events, (Part Two) would be held on the weekend of July 21st-23rd, 2023 at the AB Field, West Wyalong. Please see the attached program/entry form flyer.

New entrants are welcome for the Part 2 events and should fill out the attached entry form.

Note: Anyone that paid entry for Easter 2023 is automatically entered for July 21/23 event.

Results for the following list of events already completed are also herewith for information.

All Control Line events.

*2cc.

Standard Duration.

Sam 1788 Electric Old Timer Glider.

Sports Cabin.

1/2A Texaco .

By time 1/2A Texaco came along on Friday the wind had started and got worse each day till Sunday when it was decided to abandon the Champs and re-schedule the for July.

As a result 1/2A Texaco ended up being a one-round fly-off to determine the winner.

Nostalgia was called off before all contestant had finished one round, so it will be held in July.

I have also enclosed an updated calendar to reflect the change to the regular comp in July and the remainder of 2023.

A report from SAM 1788 President Peter Scott covering Part 1 of the 41st Champs is also provided herewith.

Condo.

SAM1788 Competition Calendar for 2023

July 21 st -23 rd	West Wyalong Old Timer Event - AB Field, West Wyalong. SAM 1788 41st Championships - Part 2. <u>Events:</u> Friday: 1pm Nostalgia. Saturday: 8.30am Burford Event, Lunch, O. T. Duration. Sunday: 8.30am '38 Antique, Lunch, O. T. Texaco. 6pm BBQ and Presentation. <u>Contact Person:</u> Peter (Condo) Smith 0423 452 879
September 1 st -3 rd	Coota Cup - State Flying Field, Cootamundra. <u>Events:</u> Friday: 1pm SAM 1788 Electric Old Timer Glider. Saturday: Burford, '38 Antique, Duration. Sunday: 30min Cabin Scramble, 1/2A Texaco, Texaco. <u>Contact Person:</u> Peter (Condo) Smith 0423 452 879
October 13 th -15 th	West Wyalong Alternative Dates To be use as alternative if other events washed out.
November 11 th -12 th	Golden West Old Timer weekend - Parkes. <u>Events:</u> Saturday: Nostalgia, Burford, Duration. Sunday: 30min Cabin Scramble, 1/2A Texaco, Texaco. <u>Contact Person:</u> Peter (Condo) Smith 0423 452 879



41st SAM 1788 Champs - Part 1

West Wyalong, Easter 2023

Report from Peter Scott.

Photos from Gail Scott.

Calm, sunny weather for the first day. In fact the shelter was great as it became quite hot in the afternoon.

First up was control line, a great fun event on the purpose-built tarmac circle. It was interesting to watch Condo come back to terms with the speed of his Phantom with some close shaves on display! Thanks to Peter van de Waterbeemd for timing this event. New records for Condo and Jim Rae.

After lunch and processing, we flew 2cc Duration. Condo won this with a full house using his hard to start MVVS 2cc. Paul Farthing came second and Max Newcombe third. Max, all the way from South Australia, flew a Dixielander with a PAW 1.5. It proves that all sorts of models and motor stand a good chance in this class.

Next day started with Standard Duration. Much to my surprise we had a good turn-up, eight fliers, and no aggravation. I shared my flying with Peter van de Waterbeemd – much to the detriment of his model! Hands up all those who have done this. Four fliers made the fly-off. My fly-off ended when my model launched off wind and dug in a wing tip. Most frustrating! The other three flyers were down in just over a max, with Paul Farthing and Max Newcombe reaching exactly the same times. This called for a second, two-

way fly-off! Paul came first in this with Max second and both with quite short flights for a fly-off.

SAM electric glider was after lunch. It seems that the electrics on some of these models are a bit of a puzzle to some of us! I had trouble with the motor set-up in my Thunder King so went with the Dragon. Rex Brown, from S.A. won this event flying a Frog Prince; Paul Farthing second flying a Satyr and Condo third flying his Albatross.

Next morning the weather was on the change and the forecast poor, no rain but wind. The scramble first up with only five pilots. All results quite close, Peter van de Waterbeemd first, Paul Farthing second myself third.

We ran 1/2 A Texaco as a one round, fly-off as the wind was making things interesting for small models. Surprisingly five flew, with Paul Farthing's little RC1 proving again that it is not a bad design and easily coming out on top. I came second and Jim Rae's Big Old Plane third.

On to Nostalgia. The wind was awful by this time. Some flew one round but we decided to can the contest and fly it another time.

The AGM and free BBQ at the men's shed was a great success. We also presented annual trophies (the big ones) to the winners of the flown contests and cancelled the Sunday night Presentation Dinner as the forecast was for stronger winds the next day. We had little chance of flying the other events. Basil Healy gave a fifteen minute talk of SAM contests and the first one, he being one of the only survivors! This was a great venue, food was excellent and company first class. This will be a feature in future comps, at West Wyalong.

The second part of the SAMS Champs will continue at West Wyalong 21st to 23rd July and will include the Men's Shed BBQ and Presentations.

For next year, 2024, SAM 1788 will not only pay for the BBQ at the Men's Shed and AGM but also the Presentation Dinner on the Sunday as a way of giving back to the fliers some of our monies earned in the past.

Thanks to all who helped organise. The timers, etc., and of course, the fliers. Without you the show would not go on.

Peter Scott.



Left:
Line up of Control Line models - Phantoms and Champs.



Right:
Peter (Condo) Smith receiving the 2CC Perpetual Duration Trophy from SAM 1788 President Peter Scott.

Control Line Racing 2023 - 35 ft Lines, 12 Laps								
Keil Kraft Phantom								
Class 1. Record 54.32 mph Peter (Condo) Smith Side port Diesels up to Zoo	Name	Motor	R1	R2	R3	Fastest time	Place.	MPH
	Condo	Super Atom	33 seconds			33 seconds	1st	54.32 <i>New Record.</i>
	George Bishop	Super Atom	48.12 seconds	43.34 seconds	43.35 seconds	43.34 seconds	2nd	
Class 2 Record 59.56mph, Scott Peter. 30.19 sec. Any Plain bearing Australian/British diesel up to 1.5cc. Any Taigon/Burford produced before 31/12/1970.	Name	Motor	R1	R2	R3	Fastest Time	Place.	MPH
	Peter Scott	Taigon 1.5	36.50 seconds			36.50 seconds	3rd	
	Jim Rae	Taigon 1.5	33.53 seconds	33.59 seconds	29.53 seconds Youthful Pilot	29.53 seconds	1st	60.95 <i>New Record</i>
Peter Scott	Frog 140	32.87 seconds			32.87 seconds	2nd		
Keil Kraft Champ 2023								
Class 1 Record 47.02 mph, Jim Rae. 38.28 sec Any Australian or British engine or Replica thereof, up to 0.8cc including MP Jet .6cc (included for historic reasons) produced before 31/12/1970.	Name	Motor	R1	R2	R3	Fastest time	Place	MPH
	Jim Rae	MP Jet	39.43 seconds	38.84 seconds		38.84 seconds	1st	
	George Bishop	Mills .75	70.25			70.25	2nd	
Class 2 1cc Record 44.54 P Scott. 40.41 seconds Any Australian/British engine or replica thereof, up to 1.0cc produced Before 31/12/1970.	Name	Motor	R1	R2	R3	Fastest time	Place	MPH
	Condo	AM10	No flight recorded					
	Peter Scott	AM10	No flight recorded					NTP

2 CC Duration									
NAME	model	Motor	R1	R2	R3	R4	Sub Total	Fly Off	Place
Peter (Condo) Smith	Apache	MVVs2cc	300	300	300		900	130	1st
Paul Farthing	Jumping Bean	tyro	300	300	195	300	900	65	2nd
Max Newcombe	Dixielander	Paw 1.5cc	300	294	158	300	894		3rd
Peter Scott	Eureka	Jena 2cc	291	184	215	300	806		4th
Rex Brown	Jumping Bean	CX11D	0,1/0	243	213	300	756		5th
Peter Waterbeemd	Eliminator	MVVS2cc	215	300	0	0	515		6th
George Bishop	Little Diamond	Tyro	L/O	0	224	86	310		7th

Standard Duration											
Name	Model	Motor	R1	R2	R3	R4	Sub Total	Fly Off	Place	2nd Fly Off	Place
Paul Farthing	Bomber 85%	OS40H	360	304	360	360	1080	376	1st	365	1st
Max Newcombe	Playboy	OS40H	360	360	0	360	1080	376	1st	341	2nd
Peter (Condo) Smith	Playboy	Mag 36	360	360	360		1080	371	3rd		
Peter Scott	Stardust Spl	OS40H	360	360	286	360	1080	0	4th		
Rex Brown	RC1	OS40H	311	268	360	360	1031		5th		
Geoff Potter	Playboy	OS40H	360	218	238	360	958		6th		
George Bishop	Bomber 85%	OS40	353	272	193	295	920		7th		
Peter van de Waterbeemd	Bomber 85%	K&B40	256	L/o			256		8th		



Above Left: Hans van Leeuwen assists Paul Farthing preparing for Standard Duration. Above Right: Pete van de Waterbeemd prepares his Bamber for Standard Duration. Below Left: SAM 1788 Electric Old Timer Glider winners LtoR 3rd Peter (Condo) Smith, 1st Rex Brown and 2nd Paul Farthing. Below Right: Winners of ZCC Duration LtoR 2nd Paul Farthing, 1st Peter (Condo) Smith and 3rd Max Newcombe.



Above: Max Newcombe launching Rex Brown's glider. Note the green paddock! Right: Peter Scott presenting the Spirit of SAM Trophy to Jim Rae a very worthy recipient.



SAM 1788 ELECTRIC OLD TIMER GLIDER								
NAME	Model	R1	R2	R3	R4	Sub Total	Fly Off	Place
Rex Brown	Frog Prince	360	317	360	323	1143		1st
Paul Farthing	Satyr	345	347	302	291	994		2nd
Peter (Condo) Smith	Albatross	188	132	360	291	839		3rd
Peter Scott	Thunder King	360	173	158	294	812		4th
Peter Waterbeemd	DG42	127	243	210	171	624		5th
Jim Rae	Plaver	327				327		6th
George Bishop	Bafo	85				85		7th
Max Newcombe	Thunderking	0				0		8th
Robert Marshall	Frog Prince	10s L/O				0		8th
Basil Healy	Baffa							

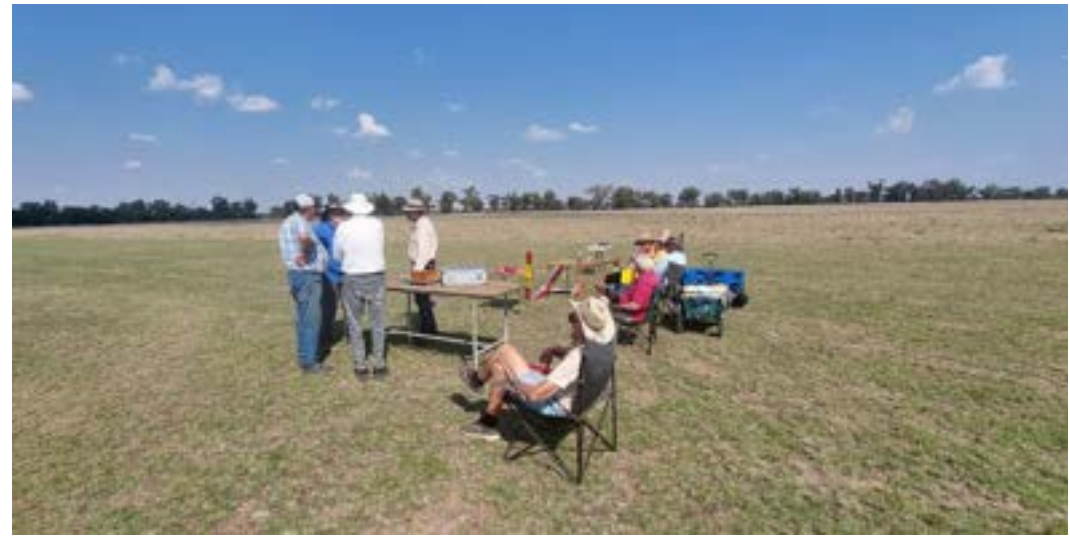
1/2 A Texaco.						
NAME	Model	R1	Sub Total	One Round Flyoff.	Total	Place
Paul Farthing	RC1	420	420	544		1st
Peter Scott	Little Diamond	180	180	351		2nd
Jim Rae	Big Old Plane	172		262		3rd
Max Newcombe	Stardust spl	0		75		4th
Peter van deWaterbeemd	Stardust Spl	34	34	L70		5th
Geoff Potter	Etthey			LO		5th
Rex Brown	Stardust Spl			L/O		7th
Peter (Condo) Smith	Little Diamond	420/L0			0	8th

R/C Cabin Scramble Results.		
Competitor	Place	Points.
Peter van de Waterbeemd	1st	1385
Paul Farthing	2nd	1240
Peter Scott	3rd	1222
Condo	4th	1220
George Bishop	5th	1073



Above: BBQ at the Men's Shed.

Left: Geoff Potter with his Standard Duration Playboy.



Above: Winners of the Old Timer 2cc Duration L-R Paul Farthing/Jumping Jack 2nd, Peter (Condo) Smith/Apache 1st. Absent Max Newcombe/Dixielander 3rd.
Above Right: R/C flying area at West Wyalong.
Below Left: Basil Healy speaking to the members about the early SAM contests and the very first one which he is the only remaining survivor at the Men's' Shed.
Below Centre: Geoff Potter with another Playboy.
Below Right: Winners of Standard Duration L-R Max Newcombe 2nd, Paul Farthing 1st and Peter (Condo) Smith 3rd.





SAM 1788, Secretary

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G'day All,

I Would like to remind members that the continuation of the Blown-Out SAM 1788 Easter Championships will recommence on the weekend of July 21st /23rd.

New entries are welcome up to 12am on Friday 21July at the field. All previous entries are still valid. Contact Condo for new entries please.

The only Old Timer comp since Easter in NSW was The New England Gas Champs event held on the weekend of June 17th-18th at Tamworth.

The weather was superb probably the best in recent memory. The Club goes above and beyond to make the event enjoyable. I have been going to Tamworth since around 1996, missing only two years.

There was apparent signal loss by four different modellers using different radio systems over the weekend, resulting in the damaging of a couple of models.

The big problem is if the model's land in the no go zone over the road to the tip, requires a call to the police to get assistance in retrieving the model.

Two my models went into fail safe (full up and full rudder) when signal was lost, one landed safely whilst the other was damaged and landed in no go zone.

Sunday morning seemed to be the most signal loss experienced by modellers. As a result, a meeting was called around lunch time and pilots voted to not Fly Texaco after lunch, which was a sad reflection as it was of NO FAULT of the club. There is historical evidence of a loose cannon causing drama nearby.

Cabin Scramble, what a fun little event, six fronted on Sunday morning. Everyone seems to make little mistakes under the pressure of the comp. Condo managed to blow a 3 min flight by rolling out (I do think I had a little help on that flight as when I retrieved the model the rudder and elevator locked over) however out is out.

Scottie removed the tail from his model, bad launch I am told. George Bishop is starting to get hang of it and put in 7 pretty good flights before a little hiccup.

Jim Rae was not having the best of weekend and managed to land out on first flight then had engine trouble resulting in only 4 good flights. Later that day Jim managed to have the engine of his 1/2A Texaco model fall out.

While all this going on Gary Whitten was quietly racking up 6 good flights, although looking at score sheet seems one found a bit short at 1m15 seconds.

So that left Farthing. I am pleased to say Paul quietly racked up 7 three-minute

flights to win. We all know Paul likes a good chat and during the Cabin Scramble was no exception.

Final results were.:

1st	Paul Farthing	7 flights	1260	4th	George Bishop	7 flights	868
2nd	Condo	8 flights	1173	5th	Peter Scott	5 flights	720
3rd	Garry Whitten	6 flights	933	6th	Jim Rae	5 flights	712

Thanks to those that came to the event. Special mention to Dave & Karen Paton who motored from QLD.

Thanks also to the Members of the Tamworth Club who hosted the event with grace and friendship.

Hope to see you all next year.
Peter (Condo) Smith. 20-6-23.



Above: Condo contemplates another flight.

Above Left: Condo's better half, May, enjoys the great weather for the competition at Tamworth whilst running the scoring for the events.

Left: Dave Paton assists Paul Farthing or is it Paul Farthing assisting Dave Paton? Basil Healy, in the background, keeps a close watch on activities.

NEW ENGLAND OLD TIMER GAS CHAMPS

Tamworth 17-18 June, 2023.

Report from Peter Scott.

Photos from Karen Paton, Gail Scott and Peter (Condo) Smith.

We experienced super weather all weekend, cold early on but I even removed my jumper in the afternoon!

We are trying to reduce the number of comps we fly in a day plus scramble. This reduces the stress factor on not only the contestants trying to get models ready but also on the organising side.

It was good to see Graham Mitchell turn up and help run events. Thanks Graham.

There was a good turn-up in all classes, very pleased with the '38 Antique entry. This, I think, needs to be flown more often. We cancelled Texaco on Sunday over interference concerns. Losing a 1/2A Texaco model is one thing but a Texaco model is another.

First up we ran Burford. The sky was blue but 'milky'. I had to cut the motor run at 20 seconds, or so, or not see the model. Jim Rae had a few moments when he lost sight of his model. George Bishop could see it so Jim passed control to him until it was back in Jim's sight. I found lift to be very 'patchy' but was not going to risk losing sight of the model. Condo's Dream Weaver went off the air in the second round and landed out and damaged. George was going really well with my old Jaded Maid until he forgot to switch on - instant kit! Though he still managed fourth place. Basil had his new model, a Foote Racer, powered by a side exhaust motor, looked really good. Bob Ash lost sight of his Eliminator but a local farmer brought it back later in the day, undamaged. Paul Farthing won this event in a fly-off with Jim Rae second and Dave Paton third.

We then had lunch, beef or chicken casserole with rice and bread and butter. Steak or sausage sandwiches were also on offer. The Tamworth club members and their wives really look after us well. Thank you to them all.

'38 Antique saw ten entries, all interesting models. I flew my Record Breaker powered by a Forster 99. I maxed the first round. Landed out (just) after a max in the second flight then dropped the third round by 5 seconds. So not bad. First place went to Condo's old favourite, the Standby with a Madewell 49 up front. Fully refurbished in bright Day-Glo orange it was easy to see. Second was Paul Farthing with a 5cc Burford powered Folly II and third was Dave Paton with a Schmaedic Stick. Dave's next problem is he dropped his transmitter and, on catching it, broke off the aerial!

Most of us went out to the Southgate Inn for tea that night. A good night out, food that was tasty and generous. I had to get a 'doggie bag'.

Sunday morning, we flew Cabin Scramble. I was doing ever so well with my Frog 100 powered Deacon, until I decided to do a low, tight turn, downwind, to get back to the field. The resultant stall broke the tail off as it nosedived into the

grass. Oh well! No other damage but we were out! Can't blame interference, only stupidity.

1/2A Texaco next up. This is when things started to go wrong. George landed in a tree; Dave Paton landed well out and had to be found, so I got the motor I loaned him back - good! Jim's model fell to pieces from old age, even super glue couldn't hold the motor mount on. Basil's new Atomiser went well. Condo's model landed out due to radio problems, so Vince Hagarty won the event and the Brian Potter Memorial Trophy. Paul, with his mini RC1 was second - not far behind - and third was Garry Whitten.

The fliers called it a day as only a few were happy about flying the Texaco models with the chance of interference. Top Gun was Paul Farthing, great job Paul. We made a donation to the Tamworth club, then after socialising, packed up.

An enjoyable weekend, we will return when the troublesome neighbour problem is sorted.

Many thanks to all who participated, to all who helped and organised. A good weekend in spite of a few problems.

Peter Scott.



Relaxing on Friday night at the field preparing for start of competition on Saturday Morning.
L to R: Garry Whitten, Paul Farthing, George Bishop and Dave Paton.

Gordon Burford Event											
Name	Model	Engine Run	R1	R2	R3	R4	Sub Total	Fly Off	Total	Place	
Paul Farthing	Ollie	40	300	300	300		900	802	1702	1	
Jim Roe	Amazoom	40	300	300	300		900	731	1631	2	
Dave Paton	Stardust Spl	40	300	300	300		900	414	1314	3	
George Bishop	Jaded Maid	40	300	283	299		882		882	4	
Garry Whitten	L/Diamond	40	300	300	240	264			864	5	
Peter Scott	Dream Weaver	40	L/O	300	226	247	773		773	6	
Basil Healy	Foot Racer	40	347	262	280		769		769	7	
Peter (Condo) Smith	Dream Weaver	40	300	(went to failsafe landed out)					300		8
Bob Ash	Eliminator	40	(Lost sight first flight)						0		9

'38 Antique											
Name	Model	Engine	Engine Run	R1	R2	R3	R4	Sub Total	Fly Off	Total	Place
Peter (Condo) Smith	Standby	Madewell 49	160	600	600	600		1800	1319	2559	1
Paul Farthing	Folly II	GB5 Diesel	123	600	600	516	600	1800	602	2402	2
Dave Paton	Schmedio Stick	ED Hunter Diesel	240	600	600	600		1800	Broken Aerial	1800	3
Peter Scott	Record Breaker	Forster 99	192	600	L/O	600	595	1795		1795	4
Jim Roe	Rambler	Forster 29	164	600	600	587	473	1787		1787	5
Garry Whitten	RC1	OK60	120	363	452	600	600	1652		1652	6
Basil Healy	Baby	Madewell 49	128	291	481	600	DNF	1372		1372	7
George Bishop	RC1	Orwick 64	96	229	L/O			229		229	8
Geoff Potter	Torpedo	GB5 Diesel	164	52	L/O			52		52	9

1/2A Texaco										
Name	Model	R1	R2	R3	R4	Sub Total	Fly Off	Total	Place	
Vince Hagerty	Bomber	420	420	420		1260	622	1882	1	
Paul Farthing	RC1	420	420	420		1260	616	1876	2	
Garry Whitten	Stardust Special	420	354	420	420	1260	438	1698	3	
Basil Healy	Atomiser	420	420	420				1260	4	
Peter Scott	L/Diamond	225	334	356				915	5	
George Bishop	L/Diamond	411	420	L/O				831	6	
Peter (Condo) Smith	L/Diamond	355	420	L/O		radio off-air during flight		775	7	
Dave Paton	Stardust Spl	74	40	L/O				40	8	
Jim Roe	Big Old Plane	engine fell off							0	9



Winners in the Gordon Burford Event LtoR: Jim Rae 2nd, Paul Farthing 1st and Dave Paton 3rd.
Below: Pit Area preparing for '38 Antique.





Above: Paul Farthing assisting Basil Healy and his Baby.
Right: Garry Whitten gets away with his RC1 assisted by Vince Hagarty.

Below: Line-up of '38 Antique Flyers.





Clockwise from top left:

1. Paul Farthing releases Basil Healy's (seated) Baby for a round of '38 Antique.
2. Winners of the '38 Antique LtoR: Paul Farthing/Folly II 2nd, Peter (Condo) Smith/Standby 1st and Dave Paton/Schmaedic Stick 3rd.
3. George Bishop with his 1/2A Texaco model Lil'Diamond.
4. George Bishop concentrating as Jim Rae launch George's Lil'Diamond.
5. Peter (Condo) Smith at work on his 1/2A model Lil'Diamond, Peter Scott is assisting.



Left: 1/2A Texaco Pit Line with Vince Hagarty in the foreground preparing his Lanzo Bomber, assisted by Garry Whitten (squatting with back to camera),

Bottom Left: Dave Paton (Queensland) prepping his 1/2A Texaco Stardust Special assisted by Geoff Potter.

Below: 1/2A Texaco Winners LtoR: Garry Whitten/ Stardust Special 3rd, Vince Hagarty/Lanzo Bomber 1st and Paul Farthing/RC-1 2nd.





Presentations by Peter Scott, President SAM 1788. Clockwise from top left:

1. Dave Paton, 3rd Burford and 3rd '38 Antique.
2. Jim Rae, 2nd Burford.
3. Paul Farthing, 1st Burford Event, 2nd '38 Antique and 1/2A Texaco.
- 4 and 5. Peter Scott addressing competitors and thanking helpers and chief scorekeeper May and Peter (Condo) Smith.





Further Presentations by Peter Scott:

Top Left: Vince Hagarty 1st in 1/2A Texaco.

Bottom Left: Garry Whitten 3rd 1/2A Texaco.

Left: Paul Farthing for Top Gun award.

Top Middle: Garry Whitten representing TARMAC presents Vince Hagarty with the Brian Potter Memorial Trophy for his win in the '38 Antique event.

Above: Vince Hagarty displays his Brian Potter Memorial Trophy after his win in 2023 at the New England Gas Champs.



Further Photos from the 2023 New England Gas Champs at Tamworth, NSW, hosted by TARMAC.





More photos from the New England Gas Champs at Tamworth 2023.



FROM JOHN FRENCH
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There is, unfortunately, a mis-caption on the bottom right hand of the pictures that you included with my own models.

I took the photo at Canowindra one year, but the handsome looking bloke holding the yellow MG-2 is not me!

Of course I noticed this straight away but my memory isn't what it was.

I have no idea now who this fellow is I'm sorry to say.

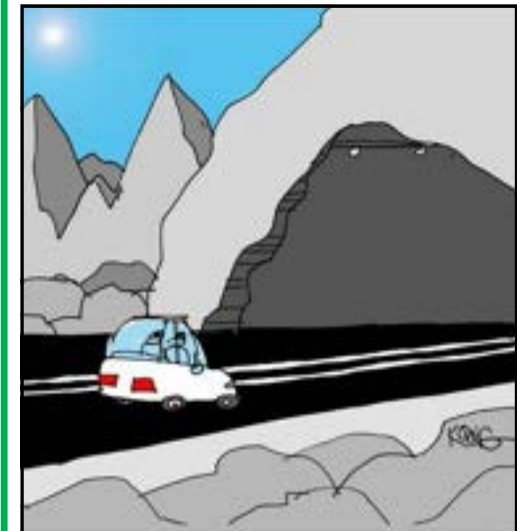
The only clue I have, and it's a very loose one indeed, (if it were a wheel, it would have come off years ago!) the era would have been after 1987 but before the mid 1990s. Yes, I think that wheel did fall off!

Of course, that is a very nice looking MG-2.

(The identity of this pilot was assumed by the editor actually and by the look of it the location was on the field near the farmhouse prior to the move to Paul Farthing's Bogwood farm - Editor.)



"I can't stay long. I'm homeschooling my grandparents on technology."



"Stop. I can never get a signal when we go through this tunnel. So, I'm going to climb over and I'll meet you on the other side."



The Ramblings of an Ancient Modeller

From Basil Healy

ELECTRIC GLIDERS GRRRR !!

I have been flying electric gliders for over 10 years, but never have I encountered such frustration in getting everything to work as it should. The gliders that I had been flying non-competitively were all modestly powered with outrunner motors fed by either Hobbyking or Turnigy Plush speed controllers which were all programmed with a plug-in card and everything worked as it should. I did burn out a motor and a speed controller once when I inadvertently fitted a propellor with a lot more pitch than I had been using. Otherwise the only other trouble was when old batteries caused the speed controller to shut down the motor due to low voltage. Fortunately, on each occasion when this happened there was enough power left in the batteries to power the servos during the glide back to the landing field. I scrapped the batteries whenever this happened.

Then S.A.M. introduced Electric Gliders. So I built one. I also acquired a near new Futaba T7 transmitter and a matching receiver. This rig caused me no end of frustration because the receiver would not operate a speed controller (I tried several !!) yet would quite happily operate a servo. Reverting to my old 36MHz Futaba rig I got everything to work. I then took the model out and test flew it. This got interesting because the rudder did not seem to have much effect and what little it did have did not induce any roll. Hmm, not enough dihedral. Maybe I miss-read the plan. Back in the workshop careful scrutiny of the A5 size drawing from which I drew the plan revealed that a 3 may have been an 8. 50 mm extra dihedral was obtained by bending the wing joiner rod. This necessitated fitting a wedge shaped packing piece between the two wing halves.

Back at the flying field test flying showed that the rudder produced both yaw and roll, but it was not a pretty manoeuvre to watch. The whole morning was spent trying to sort the glider out between attacks from the resident nesting magpie as described in a previous issue of TAT. The conclusion was that the Turnigy motor fitted was never going to get the glider to 200 metres height in 30 seconds. It needed a bigger motor. Knowing what current the Turnigy drew I realized that I needed one that drew about 50% more. So I looked up specifications for motors and speed controllers and there I became thoroughly confused. Motors are rated by the number of watts of power they consumed but are also limited by the number of amps current that they draw. I frequently found that a motor operating on 3 cells (11.1 volts nominal) would not be producing its rated wattage when drawing its maximum permissible current. This could only be achieved by using 4 cells (14.8 volts nominal). Who wants to carry a 4 cell battery around when everybody else is using 3



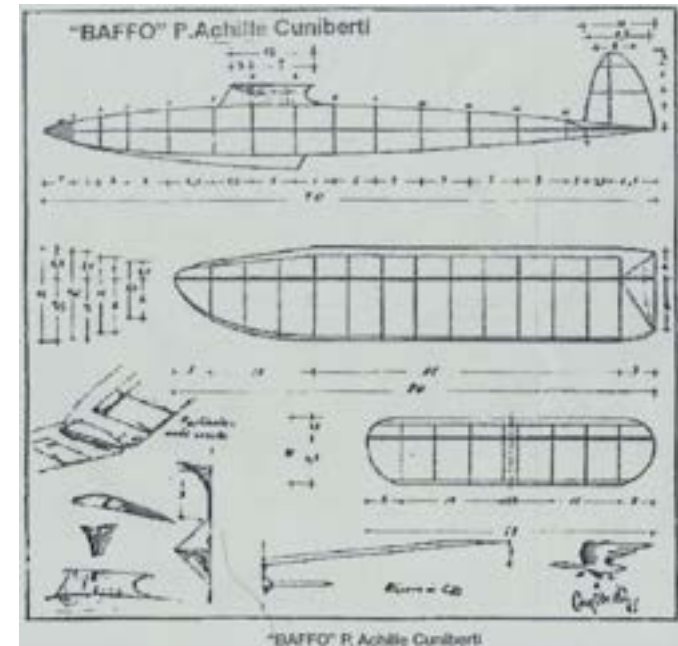
cells? To further complicate matters, the recommended propellor for most motors is given for 2 cells or 4 cells. Guessing what you need for 3 cells is a bit of a lottery, even further complicated by the availability of the folding propellor in the size that you want.

Furthermore, (this bit really got to me) the suppliers of the propellers want to know what size hub piece to supply with the blades that I requested. This meant that my 13x5 prop could be anywhere between 12.5 and 13.5 inches in diameter. Hey, don't they know that if you move the blades further from the centre that it increases the pitch but also that the pitch is no longer constant throughout the length of the blade! When my new motor, speed controller and propellor arrived I set them up on a test stand with my ammeter connected and ran them up slowly opening the throttle. At about half stick travel on the transmitter the ammeter was reading maximum permissible current for the motor and it was only turning at about 5000 rpm. So much for their recommended prop size! Testing with some non-folding I.C. props ascertained that a 10x6 was nearer what was required. So I ordered one. Test flying revealed that the climb was better, but still not marvellous.

Then I fitted the combined timer and height limiter. Programming this device turned out to be a nightmare because I could not differentiate between the beeps from the speed controller and the height limiter. Also after fitting this unit I experienced problems with the speed controller losing its programming and the receiver requiring re-binding to the transmitter. This seemed to happen on a random basis despite my being careful to turn the transmitter on first and off last on every occasion.

At this point I sold off a number of my models, the electric glider among them. From now on I will only fly selected events and only whenever the weather is good. At West Wyalong last Easter I noticed that a number of flyers were experiencing similar problems to mine, which made me feel that I am not alone in this respect. Maybe somebody else should write an article for the next issue of TAT telling us all where we went wrong.

Basil Healy.





Official Journal of the WA Model Aero Club (Inc) and SAM 270 Western Australia



270 WESTERN AUSTRALIA

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SAM 270 WESTERN AUSTRALIA REPORT.

From Hans van Leeuwen.



Not much to report on the Old Timer front for WA. Firstly the weather has once again been against us and now our flying field has been cropped so we don't have a field to fly on once more.

We had a great trip to the East but as you are aware the 1788 Championships were blown out.

However, it was good to meet up with old mates, although even they were few.

We spent some time in Canberra and were grateful that David and Karen Paton chose to come to see us there as they could not attend the Championships for family reasons.

Anna and I, Grant Manwaring and Mary and Dave and Karen Paton had lunch together and we met with the Paton's a couple of times even though the weather was abysmal. Grant also took me to their flying field so I had some modeller contact in Canberra as well.

I've had a further issue with my GB 5 and have included a little article if you want to include that in the next TAT. It's hot off the press and if you want to edit it, feel free.

Safe flying,
 Hans van Leeuwen.
 SAM270

WAMAC CONTEST CALENDAR 2023				
	FF Events	OT Events		
5 Mar	Labour Day Long Weekend			
19 Mar		Standard Duration	State/Club	Beverley
26 Mar	Combined Open FF		Club	Beverley
02 Apr		1/2A Electric/2CC	Club	Beverley
09 Apr	Easter SAM 1788 Champs at West Wyalong NSW			
16 Apr	1/2A Power/E36		Club	Beverley
23 Apr		Texaco	State/Club	Beverley
30 Apr				
07 May	P30/Coupe		State/Club	Beverley
14 May	Mother's Day			
21 May		OT Duration	State/Club	Beverley
28 May	Slop/Nostalgia		State/Club	Beverley
4 Jun	Western Australia Day Long Weekend			
11 Jun		'38 Antique	State/Club	Beverley
18 Jun				
25 Jun	Open Power		State/Club	Beverley
02 Jul		Nostalgia	State/Club	Beverley
09 Jul				
16 Jul	Open Rubber		State	Beverley
23 Jul		1/2A Texaco	State/Club	Beverley
30 Jul				
06 Aug	F1Q/Open Electric		Club	Beverley
13 Aug		Burford	State/Club	Beverley
20 Aug				
27 Aug	Combined FAI		Club	Beverley
03 Sep	Father's Day			
10 Sep		Tomboy IC/Electric	Club	Beverley
17 Sep				
24 Sep	King's Birthday Long Weekend			
01 Oct		Old Timer Glider	Club	Beverley
08 Oct				
15 Oct				
22 Oct				
29 Oct				
05 Nov				

GB 5 Issue.
From Hans van Leeuwen.

I'm writing this article so that anyone who needs to dismantle a GB 5 is aware of a potential problem when removing the screw in back plate of these engines.

In the Australian Thermaleer #13 I described making an induction system for a GB 5 that I acquired.

I found that I needed to dismantle the engine for inspection and proceeded to do just that.

First port of call was the screw-in back plate. Standard procedure, use a power hacksaw blade held in the vice jaws and screw it out. The thing wasn't very tight and it undid quite reasonably for about 1 turn and then it got tight. During my long career as a motor mechanic and vehicle and machine restorer I've always been wary of aluminium galling and was quiet concerned when this seemed to happen with this engine. If I damaged the crankcase that would be the end of the road for its usefulness, as a replacement was unlikely. I couldn't even find any fuel system bits for it, let alone a crankcase.

I tried a little heat although I knew that the expansion rate of both the crankcase and the back plate were similar. I removed the cylinder but found that the gudgeon pin was quite tight in the piston and did not remove that at the time. I poured in some ATF and again warmed the crankcase to see if I could get some lube into the thread to perhaps help the situation, to no avail. I started to damage the slots in the back plate and that was a concern. I left the thing for a little while and stewed about the problem. There was an issue of holding the thing and also of working the back plate with minimum damage.

I made an engine holding fixture from a rough cast lump of aluminium that I was given a long time ago. I also made a tool for removing the back plate that was a



Left: Showing the engine holding fixture.

neat fit in the back plate recess and had the correct width driving tangs for the back plate slot.



Above: Showing the tool for unscrewing the back plate. Below: Gudgeon pin removal tool.



Above: Showing the back plate galling.

By then, I'd also made a gudgeon pin removal tool so I removed the piston from the con rod so that I could see the back plate to try to determine what was going on. It could have been a castor build up or whatever.

I could see the thread once the piston was removed but only at the top as the bottom is obviously hidden. What I could see didn't show any gum or obstruction.

I introduced some carburettor and throttle body cleaner into the crankcase and let it sit for about an hour. Then removed that and blew the remainder out with compressed air. Warmed the crankcase and filled it with ATF and gently worked it backwards and forwards gaining a little each time. It felt slightly gravelly at first, and then just became tight but I could move it slightly each time.

It took me around 3 hours to remove the back plate and when it was removed I could have a good look at what caused the grief. It had galled at the first couple of threads from the open end of the crankcase and at the end of the back plate near the run off groove.

I've concluded that the issue is caused by the width of the run-out groove of the back plate. It is far too wide and only leaves one thread in contact when the back plate is tightened if you calculate what goes on.

The pitch of the back plate thread is 0.8mm. The run-out groove is 2.25mm wide. By my calculation the run out groove occupies almost three threads. When you examine



Above: Showing the crankcase galling.

Below: Showing maximum 4 threads at the upper end of the crankcase.

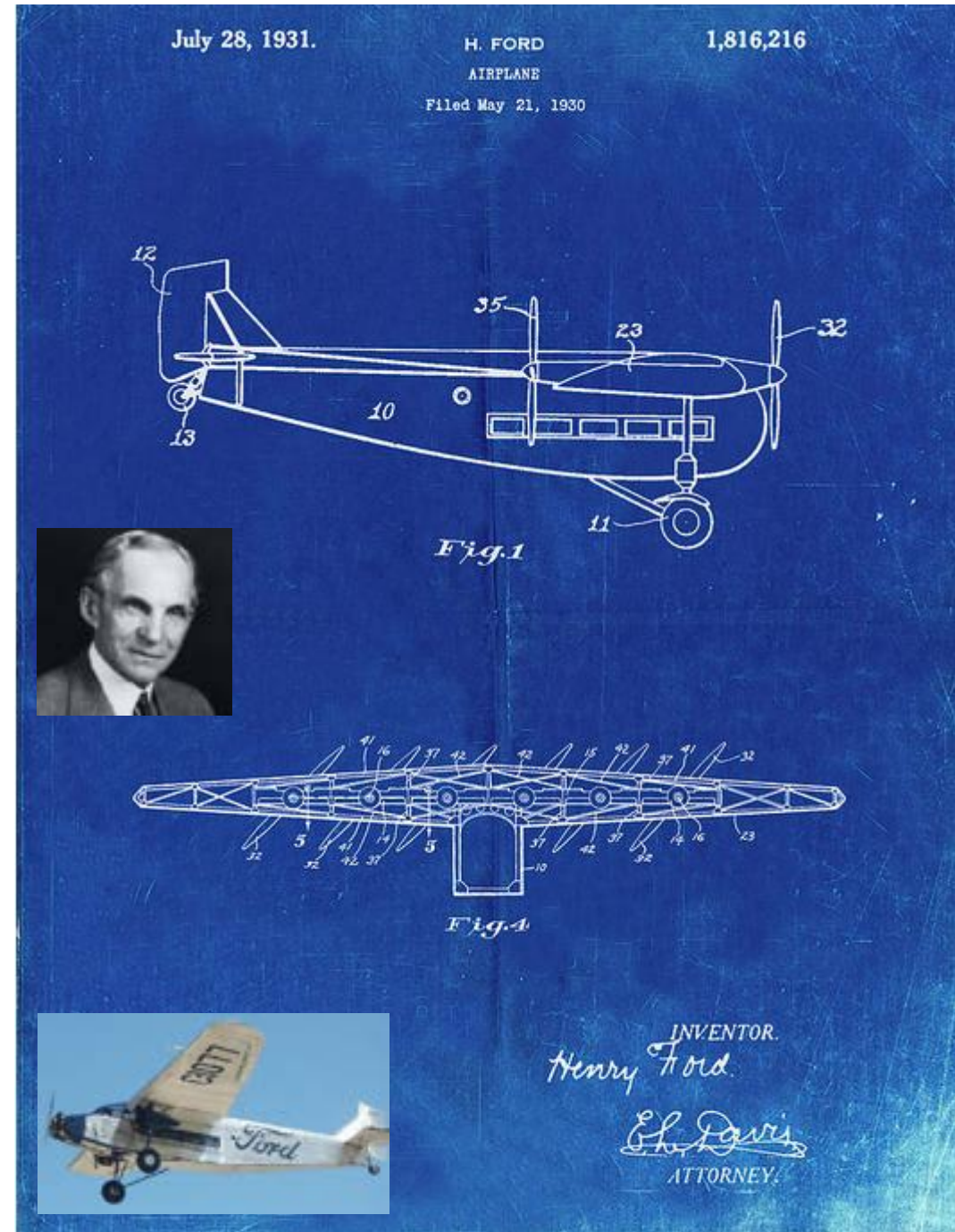


the inside of the crankcase there are at maximum 4 threads at the top where the crankcase is machined out to take the liner. When you subtract the width of the run-out groove and the number of threads it occupies you are left with maximum one thread to take the load of tightening at that point. My belief is that that one thread distorts and is the cause of the issue.

Fortunately, I can re-use both the crankcase and the back plate because with a little TLC I've been able to

clean the threads sufficiently to make them work again. I will assemble the back plate with a smear of anti-seize compound to perhaps prevent this from happening if the engine ever needs dismantling again.

Hans van Leeuwen
20 June 2023



Pp849-faded Blueprint Ford Tri-motor Airplane "the Tin Goose" Patent Poster

TURNING BACK THE CLOCK

During the visit of Joe Kovel at the SAM-75 meet, he informed me of his association with the "Cradle of Aviation" at Mitchell Field asking me if I could make some photo-prints for them.

Much to my surprise, the negatives he sent me were of GLASS, which luckily I had the capability to reproduce. These were still in pretty good condition, so I have taken the liberty of including two of them on this page.

Copies were also donated to the Museum on behalf of SAM SPEAKS and its members.



Joe Kovel preparing the original KG-1 for flight at Mitchell Field, Long Island. Charles H. Grant is the interested observer. This photograph was taken in 1932, and it's interesting to note the "formal" attire of these two.

A MAN OF FASHION Could best describe this photograph of a young Joe Kovel, fueling up his Brown Jr. for another flight with the reknown KG-1.

We don't know what previously had occupied that fuel bottle, but I'm sure it wasn't orange juice. A particularly "quaint" touch is the eyedropper used to fill that rather adequate fuel tank. How many of us started in a similar fashion; must have taken considerable time for a "fill-up".

I particularly like the "togs", but I know if I ever dressed like that to fly, my mama would've KILLED me.

I would like to thank both Joe and the museum for the opportunity to see and work with these marvelous old negatives, and would encourage you to take the time to visit this historic monument to aviation. You definitely won't be disappointed!



ON THE WORLD OF ELECTRIC FLYING: Comes this word from Bob Aberle, Editor of Flying Models magazine on the generally accepted Old Timer Rules that were recently voted on via the ballot appearing in SAM SPEAKS:

Currently popular LMR motor/prop choice .. Astro Cobalt FAI-05 geared, using a Zinger 12 x 10 thinned prop .. start up current draw, on a 7-cell-800 pack, is in the order of 30-32 Amps. .. motor run allotted time is 75 seconds.

Currently popular Electric Texaco motor is a 27-turn Trinity special winding using a Master Aircrew 3.5/1 gear box and either a REV-UP 11 x 6 EW or a Talpan 11 x 7. Current draw at start up is around 7 Amps. and usual total motor run time, on a 7-cell-800, is around 7-8 minutes.

.....
Still trying to improve over last years successes, Tom Hunt and I fed all of out Old Timer model/motor/prop/battery data to Bob Kress of Kress Jets Inc., 500 Ulater Landing Road, Saugerties, NY 12477 (tele: 914-336-8149 or FAX 914-336-5975).

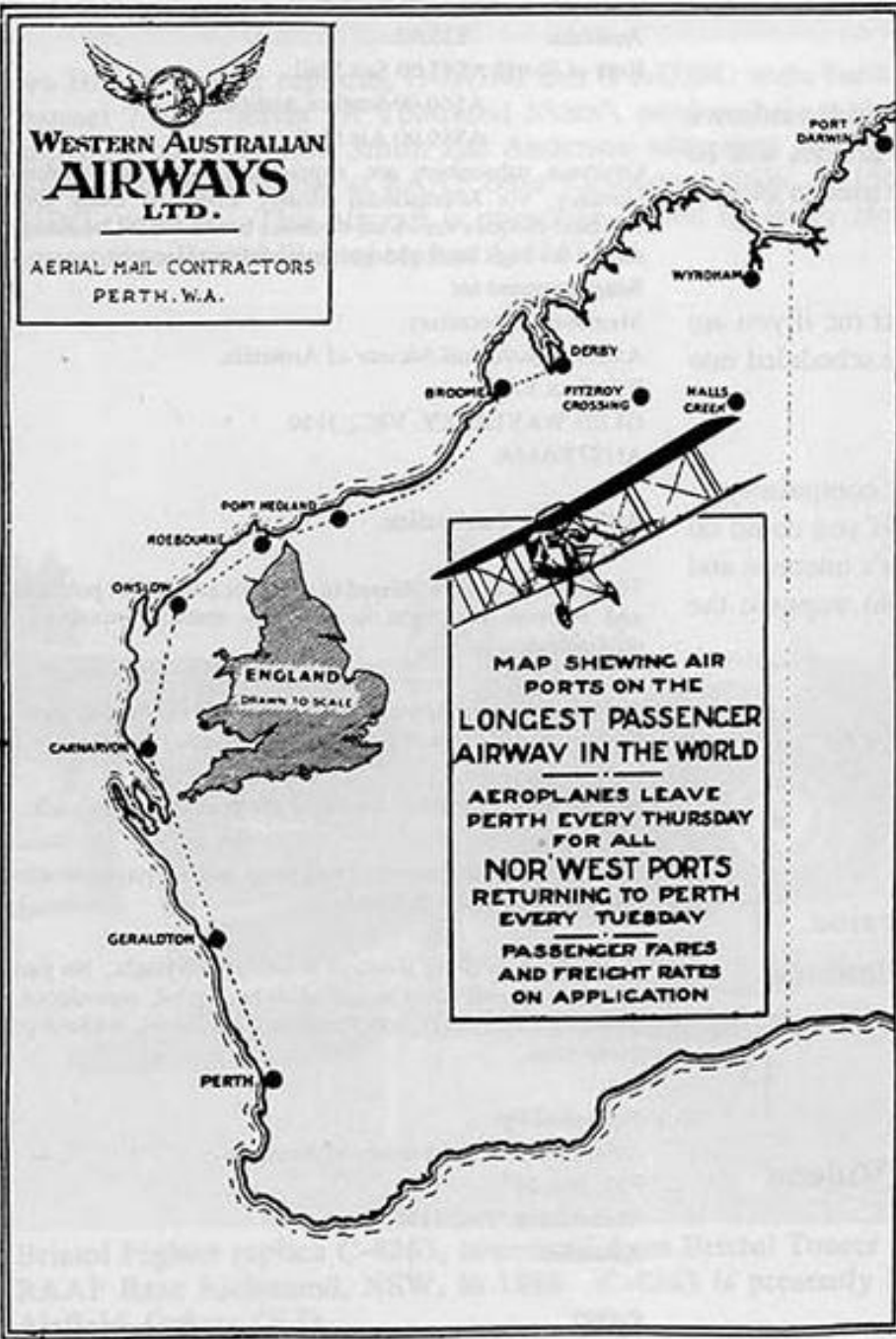
Bob has developed a new all-encompassing electric power computer analysis program (called ELECTRO FLIGHT DESIGN, ver. 1.0) which he is now selling for IBM or IBM compatible P/C's with WINDOWS. Knowing that we were looking for every possible improvement in performance, Bob came up with some startling suggestions. For the 1993 flying season Tom and I chose to go this route. The suggestions are as follows:

LMR ELECTRIC OLD-TIMER: Use a Trinity 17-turn Sapphire ferrite motor with a Master Aircrew 3.5 to 1 gear box and a Zinger 13 x 8 prop that has been considerably thinned-down on the rear side of the blade. Prop RPM at the start, with a 7-cell-800 pack, will be 4800 with a starting current of approx. 30-32 Amps. With a good strong SR SAM-800 7-cell pack, you can obtain the 90 second ferrite motor run time. In practice this has worked out perfectly for me. In the first two SAM contests entered this year, I took first place with my Lanso Electric Bomber with three max's each time. Weight of the Bomber for the LMR event is 36.8 ounces. The bottom line is that you can get higher in 90 seconds with this ferrite, than you can get in 75 second run time with a cobalt. In most fly-off rounds, you will get a 45 second motor run time, while the cobalt gets only 38 seconds. The extra 7 seconds will really give you the edge in a fly-off. Weight: 1.3 ounces less than a cobalt.

ELECTRIC TEXACO: The real surprise here is the choice of a Graupner Speed 400 motor (surprisingly light weight) and a Graupner 6 to 1 gear box swinger a Zinger 14 x 8 thinned prop. This prop turns only 2500 RPM @ 4.6 Amps. at the start using a fully-charged 7 cell-800 battery pack. Motor runs of up to 12 minutes plus are easy with this combination. Tom Hunt's KERSWAP @ 39 ounces and my own Lanso BOMBER @ 35 ounces, both easily obtained two 15 minute max's at the recent SAM-75 contest. Both of us had several minutes of run time remaining after the 15 minute period was up. Despite the low RPM's, Tom and I were able to ROG our models (off low-cut grass) in about 50 feet. Altitudes of 500-600 feet are usual after an initial 3-4 minute motor run. The key point of this combination is that it will easily get you the two max's so that you can be assured of getting into the fly-off round, at which point you will have enough reserve to get into the 20-30 minute flight times. Weight: 4.4 ounces LESS than a cobalt (I had to ballast my BOMBER back up to the 35 ounce minimum weight!)

Bob Kress, of Kress Jets, Inc., has agreed to make available both of these motor systems(motors and gear boxes) all set-up, timed and ready to run for very attractive prices. Contact him for details and delivery dates.

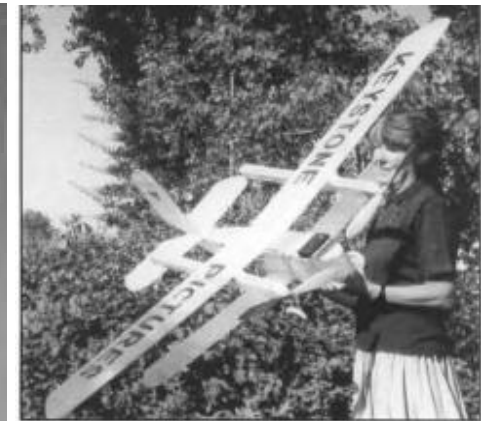
Ed. Note: It took a coin-toss to determine the winner between Bob and Tom: Bob LOST!



1925 WAA map after Perth became the southern terminus



A beautiful repro of the 1937 Mike Roll gas job. Ship placed 4th at 1937 NATS with 49 mins. O.O.S. Plans from Frank Zaic '38 year book.



An unusual rubber camera plane from a 1935 M.A.N., with twin contra props and camera. Hilda Baker is holding for builder, David Baker, England



Johnny Carson Once Made A Joke On The Tonight Show That Led To A Shortage Of?

Light Bulbs

Toilet Paper

Coca-Cola

Birth Control

Over →

**ANSWER:
Toilet Paper**



In 1973, a peculiar set of circumstances led to a nationwide shortage of toilet paper in the United States that lasted for weeks and even caused toilet paper companies and stores to ration their reserves.

Was it related to an energy crisis, a blight destroying America's forest lands and paper industry, or even war rationing? It was none of the above that drove the shortage, but a comedy of errors topped off by a joke made by a legitimate comedian instead.

In early December of that year, a Wisconsin congressman, Harold V. Froehlich, released a press statement talking about paper pulp shortages (a problem brought to his attention by his constituents).

Although the shortage was not an immediate threat to the toilet paper industry, Froehlich mentioned in the press release, perhaps in a bid to get people outside the paper industry to care about the matter, that America might be facing a toilet paper shortage if the lack of adequate paper pulp supplies wasn't taken care of.

The Tonight Show staff saw the press release and the spectre of a toilet paper shortage was incorporated into a brief Tonight Show joke.

A few days after the press release, Carson quipped, "You know, we've got all sorts of shortages these days. But have you heard the latest? I'm not kidding. I saw it in the paper. There's a shortage of toilet paper."

Given the national climate at the time and the real shortages that many consumers faced, the joke wasn't received as such, but was instead taken quite literally at face value. Consumers panicked and there was a national run on toilet paper. In the coming days, worried consumers cleared the shelves of stores coast-to-coast so rapidly that they outpaced toilet paper production schedules and the companies themselves were left rationing their stock.

A few weeks after the joke had gotten out of hand, Carson apologized on air for the panic the quip had caused and, since then, the incident has been used to demonstrate how quickly a rumour can start and escalate out of control.



Joby Aviation's First Electric Air Taxi Rolls Off Production Lines
By Cory Gunther



Joby Aviation, the California-based eVTOL (electric vertical take-off and landing) manufacturer, just rolled its first electric air taxi off production lines. More importantly, the consumer-ready craft could soon carry passengers.

According to its latest press release, Joby Aviation didn't just complete an official production line model, but it has already been cleared by the FAA (Federal Aviation Authority) to start test flights on production models.

The company received one of several flight certifications in May of 2022, then passed the second stage of an even more crucial "Type Certification" in February of this year. All of those steps are working toward one goal: an official production prototype that can take to the sky.

A joint statement from Joby Aviation and Toyota, one of its strategic partners and investors, said this is one of the first production-ready eVTOL crafts to receive certifications to fly. More importantly, the aircraft is expected to become the "first-ever eVTOL aircraft to be delivered to a customer."

Joby went on to say, "The aircraft will now undergo initial flight testing before being delivered to Edwards Air Force Base, California, where it will be used to demonstrate a range of potential logistics use cases."

If everything goes according to plan, Joby Aviation hopes to start shipping multiple electric planes to customers sometime next year, then launch a full-scale electric air taxi service for paying customers by 2025.

Joby's all-electric aircraft has six adjustable rotors to take off upwards like a helicopter, then each one rotates forward and allows it to fly like a traditional aircraft. The electric plane reportedly reaches top speeds of 200 mph, can travel 150 miles per charge, and carry roughly four passengers.

This Beechcraft Airliner Fell Victim to WWII Surplus Aircraft

This twin quad airliner just couldn't compete.

by Robert Guttman_ 5/10/2023



Although an innovative design, the Twin Quad never advanced beyond the prototype stage.

When World War II ended, many aircraft manufacturers anticipated an increased demand for new commercial airliners. The Beech Aircraft Company of Wichita, Kansas, was no exception. Walter Beech, the company's co-founder and president, had been producing outstanding aircraft since 1925 when he, along with Lloyd Stearman and Clyde Cessna, founded the Travel Air Manufacturing Company. Travel Air proved so successful that the Curtiss-Wright Corporation merged with it in 1930. Relegated to a desk job, Beech resigned two years later to start his own company with his wife, Olive Ann. In the years before WWII, it produced two outstanding Beechcraft airplanes, the Model 17 Staggerwing cabin biplane and a small twin-engine airliner, the Model 18. During the war the company produced thousands of light transports and trainers.

With the war over, Beech turned his attention toward two new projects. One was a small single-engine cabin monoplane to succeed the pre-war Staggerwing; the other a 14- to 20-seat airliner, larger than the pre-war Model 18, that would be suitable for short-haul feeder services. The result of that dual effort ended up 50 percent successful. The

small cabin monoplane became the famous V-tailed Beechcraft Model 35 Bonanza, one of the most popular general aviation craft of all time. On the other hand, the prospective airliner, known as the Model 34 Twin Quad, never advanced beyond a single prototype.

Like the Bonanza, the Model 34 sported the distinctive Beechcraft V-tail configuration. It also featured a strengthened fuselage underside that included integral landing skids to protect the occupants in case of a forced landing. The Model 34 was originally built for 14 passengers in coach seats, but the cabin interior was later redesigned to hold 20, with the option of folding up the seats to accommodate cargo that could be loaded via a hatch behind the pilot's compartment. The new airplane's most unique feature, however, was the arrangement of its power plants.

Although the Model 34 looked like a conventional twin-engine, high-winged monoplane, it actually had four engines. Two 380-hp Lycoming GSO-580 air-cooled flat-8 piston engines were buried sideways within the leading edge of each wing, facing each other. A system of clutches and bevel gears linked their drive shafts to a single tractor pro-

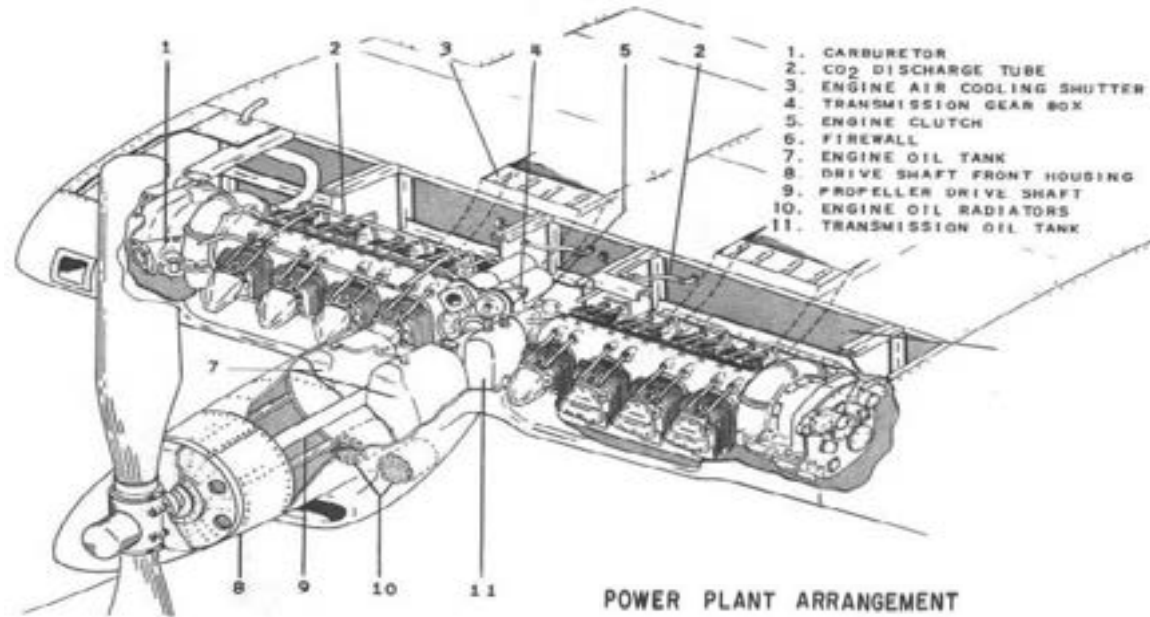
PELLER—hence the “GSO” designator, which stood for geared, supercharged and opposed. The system was designed so that in the event of an engine failure the dead engine could automatically de-clutch and the other engine could keep powering the propeller. Because of the airplane's unusual power system, Beechcraft painted “Twin Quad” on the nose.



The man behind the airplane was Walter Beech, shown here in 1925. Beech had started his own airplane business in 1932 after a stint at the Travel Air Manufacturing Company. (HistoryNet Archives)

The Beechcraft Model 34 had a wingspan of 70 feet and was 53 feet long and 17 feet high. With a gross weight of 19,500 pounds, it had a maximum speed of 230 mph, a range of 1,450 miles and a ceiling of 23,000 feet.

Beechcraft's chief test pilot, Vern L. Carstens, flew the Twin Quad's first and totally uneventful flight on October 1, 1947. Carstens summed up his impression by declaring, “We have another outstanding Beechcraft.” The prototype went on to accumulate more than 200 hours of flight time by the time disaster struck on January 17, 1949. The airplane experienced an electrical fire in flight, a situation exacerbated when a crewman cut off an emergency master switch while



The Twin Quad's nickname was derived from the two linked 380-hp Lycoming engines that made up each of the airplane's dual powerplants. The idea was that if one of the engines in the pair quit, the other one could de-clutch and continue running. (HistoryNet Archives)



While Beech's Model 34 was not a success, the Model 35 Bonanza certainly was. One thing the Bonanza had in common with the Twin Quad was the distinctive V tail. The airplane is still in production (and also



The Model 35 included a strengthened belly, which proved its worth when a fire led to a crash of the prototype on January 17, 1949. The co-pilot was killed and the pilot injured. (HistoryNet Archives)

fighting the blaze. The resulting wheels-up landing killed the co-pilot and injured the pilot and the two engineer-observers who were onboard. The incident did prove the value of the aircraft's reinforced belly, but otherwise everything went wrong for the Twin Quad after that. The U.S. Civil Aeronautics Board delayed licensing, but even worse was the fact that the feeder airliner business, which didn't require cutting-edge performance like intercontinental airliners did, had little need for a new, innovative air transport when there were so many war-surplus Douglas DC-3s, C-47s and Beech 18s available at rock-bottom prices. Consequently, Beechcraft never completed the two other Twin Quads under construction (one of which was just for ground testing) and cancelled the whole project. Walter Beech died on November 29, 1950, but his wife continued to run the company. It is a shame that the Model 34 has been all but forgotten. It was a unique and intriguing design that deserves to be better remembered, even if it proved to be the wrong innovation at the wrong time.



Vintage 1950's Veron Deacon 52in Span Free Flight Model Kit
Current Bid £29.00 (4 Bids)
eBay item number: 256101857796



Efficient because of excellent streamlining



The finished plane is extremely realistic

Building the T-D Coupe

A Sleek Gas Job That Is Simple To Build and Noted for Consistent Flights

By THEODORE DYKZEUL

https://outerzone.co.uk/plan_details.asp?ID=1812



The structure is simple but strong



The uncovered frame showing the mounting of the Baby Cyclone motor with which it is powered

UNDOUBTEDLY many of you have been looking for drawings of a gas model that will fly beautifully, is easily built, can be carried to and from the airport conveniently, and last but not least, does not cost a fortune to build.

As for performance, this model flies at a fair rate of speed, climbs at about a 30° angle and has a glide of about 15 to 1. It is also built easily enough so that an experienced builder of rubber-powered models will have no trouble with the construction. The wing is removable, so that the model can be carried in the back seat of a sedan. Since Airwheels and silk were used, the cost was about \$7.00, less motor. Using wood wheels and bamboo paper, the price can be cut in half.

The model has a wingspan of 64 inches and an overall length of 47 inches. Ready to fly, its weight without cowling is exactly three pounds. The original model has now made 82

flights with absolutely no repairs outside of a few broken propellers and patches on the silk. It is practically crashproof having hit an office at an airport, a windbreak of trees, a concrete watering trough and a barbed wire fence. The pictures of the completed model were taken after the 46th flight.

General Instructions

Before beginning construction, study the drawings carefully and read the entire article.

The wing, tail, and fuselage will have to be drawn out full scale. Use either a pair of dividers or follow the dimensions on the drawing. If a more accurate pattern of the wing tips and curved sections of the tail is desired, lay out 1/4" squares on the drawings and 1" squares on your full-scale drawings.

This plane is designed for and was flown by a Baby Cyclone. This motor is perfectly satisfactory, although other motors may be used with a change of the motor mount.

Take your time and be sure every piece is perfect before proceeding to the next. Be especially careful that the wing and tail surfaces do not become warped.

Use plenty of cement. Go over every joint at least once or twice until you are sure of a perfect cement joint. All balsa used should be of a hard grade unless otherwise stated. Use only spruce where specified on the fuselage unless you wish to pick up pieces if the first test flights do not prove entirely successful or if a solid object looms up.

Last, but not least, use only high-grade materials. Poor or cheap material never has and never will make a championship model.

Tail Surfaces

Begin by building the stabilizer. The material for the ribs is 3/32" x 3/8" strip balsa. Cut the pieces to correct lengths and then punch out each with a 1/4" hole and assemble on the dowel. This is now placed over the drawing. It will be necessary to elevate the leading edge 1/16" and the trailing edge 3/32". Put these in place as well as the center rib which is made of 1/4" x 3/8" balsa. Pin or weight down the entire assembly and cement. Fill in the center section with 1/16" sheet balsa as shown and add the piece, streamlining the top of the fuselage into the tail assembly. The tips can be added now or after the cement has dried and the stabilizer taken from the drawing.

The rudder is built in the same manner as the stabilizer with the exception that 3/16" doweling is used instead of 1/4". Cut the curved outline before beginning assembly.

Leave the rudder and stabilizer dry over night. Now trim both to a streamline shape with a razor blade and finish them with a sandpaper block 00 fine sandpaper.

Make the wire fittings as shown in the detail. Cement one on each half of the top side of the stabilizer and one on each side of the rudder. Be sure to bind with thread. Drill a 1/8" hole in the leading edge of the rudder and mount a 4-40 nut firmly on each side. This will be used for adjustment.

Wing

Make the entire set of wing ribs. The sizes and number of each are noted on the drawing. Begin by building one half of the wing, laying the bottom front spar, the bottom rear spar, and the trailing edge in place. Now cement the ribs in place. The top front spar, top rear spar, false ribs and leading edge are now cemented in place. The spars are brought straight out and are not curved on the ends. No special rib pattern is given for the second wing rib from the end as the entire wing tip will be shaped later. Cement 3/64" sheet balsa on the back of the front spar and on the front of the rear spar as shown on the drawing, thus making a single spar of each. Fill in the remaining space on the front spar near the tip with 1/4" sheet balsa, and on the rear spar with 3/16" sheet balsa. Do not forget the 1/8" sheet balsa fillets at the trailing edge.

After the wing panel is entirely dry, take the wing off the drawing and assemble the wing tip. Cement the wing tip in

its proper place. Fill in the remaining portion directly above and below the leading edge with 3/16" or 1/4" medium balsa. Also build up the wing tip using the same size wood so that it might be shaped easily.

The leading and trailing edges are now roughly shaped as far as the center rib. Also shape the wing tip, and then with the aid of a sandpaper block, finish the entire portion.

Build the other half of the wing in the same manner. The center section details for joining the two halves are shown on the drawing. Cement 1/16" sheet balsa on the back of the front spar joint and wrapped with thread. Sheet balsa is also cemented on the front of the rear spar joint and wrapped. Fill in the bottom of the center section with 3/32" sheet balsa. Wrap a piece of 32 gauge aluminum, 3/8" x 3-1/4", around the trailing edge to prevent damage.

The dihedral should prove enough, although more can be used if desired.

Landing Gear

Bend both pieces of the landing gear of 1/8" piano wire as shown in detail No. 2. Wrap the joint of the two pieces with small copper wire and solder firmly.

Next make the fittings, noticing that allowance must be made for the curve in each. Drill out 1/16" and then solder them to the landing gear.

The wheels should be about 3-1/4" in diameter, preferably Airwheels.

Fuselage

Unless otherwise noted, all the longerons, vertical and horizontal pieces, wing rest (or top of cabin) and the cross bracing forward of former No. 4, are 3/16" square spruce. The remaining cross bracing is 3/16" square balsa. Do NOT use balsa where spruce is mentioned, as strength is considered more important than weight. Since 1/2" wire nails are used to hold the spruce in addition to the cement joint, it will be necessary to drill each longeron with a drill made of a piece of No. 12 piano wire to prevent splitting.

The two sides are made in the conventional manner. After they are dry, add all the horizontal pieces, thus giving a box-like fuselage. Note that the 3/16" x 1/2" pieces at the very front are set back 1/16" to form a mount for the motor plate. Before going further, it will be necessary to attach the landing gear and the rudder attachment plate. These are held in place with 3/8" No. 0 wood screws and cement.

Make the top of the cabin, nailing each joint. Now cement and nail spruce formers to T, 3T and 4T, in place. Cement and nail the top of cabin to this. Cut and cement the remaining formers in place and cement on the stringers. Fill in between formers 1T and W. The vee brace at the windshield is made of 1/8" square spruce. The outline of the rear window is made of 1/8" sheet soft balsa. Fill in between the bottom longeron and the first stringer for better appearance, if desired. Cement and bind with thread, a 1/4" dia. x 2-1/4" aluminum tubing at the rear of the fuselage as a rudder mount. Cement a small block at former 8T to hold down the leading edge of the

stabilizer. Fill in the section past SB with sheet balsa and spruce as shown.

See Detail No. 4 for the tail wheel. Note that the entire fork is one piece of piano wire and is bound on the bottom of the fuselage. It will be necessary to slit the aluminum tubing part way so that the wire may be bent back. The fork is in no way attached to the tubing. Loop the ends of the wire fork to form a hole for the axle.

The wheel is 1-1/4" in diameter and can be made from a sponge rubber ball.

The battery and coil mount is shown in detail No. 3. This is only suggested and may be altered to suit your own particular desire. It is made entirely of 3/16" medium hard balsa. Since the batteries are held in place by rubber bands, cement three hooks made of No. 12 piano wire to each side of the box. Two hooks will be needed for the coil (one will be on the spruce brace on the bottom of the fuselage). Cement all hooks firmly and wrap with thread. Now cement the box in the bottom of the fuselage.

Cowling

Since your motor is air-cooled, the cowling should be used for scale purposes and not for flying. The cowling can be made either of aluminum or balsa wood. The spark plug and needle valve will protrude and the exhaust manifold should be removed. The cowling can be held in place by using dress-snaps.

Motor Mount

The motor mount for the Baby Cyclone is shown in detail No. 1. Although not entirely necessary, it should be made so that the motor will pull 1/2 degree down and to the right. The rear plate is made of 1/16" aluminum and can be reinforced by bolting angle aluminum on the back. DO NOT use heavier aluminum for the mount itself. It is much easier to straighten or replace a few aluminum pieces than it is to repair a fuselage or buy new parts for the motor. Bend and drill all pieces as shown. It will be necessary to file the horizontal pieces in order to fit the crankcase of the motor. Use 4-40 brass bolts and lockwashers to assemble the motor mount. Note the position of the tank and condenser. The mount for these should be cut from the wood mount the motor was on when it reached you. Attach the motor mount to the horizontal spruce pieces by using 3/8" No. 0 wood screws.

Using either clips or soldered joints, put in your medium-sized batteries, coil, external switch, external booster

connections, and wire your entire job. Keep the spark wire away from the motor mount. An automatic timer can be used to open your switch if desired. You may have a little trouble at first reaching or replacing the batteries and coil when your model is covered, but this should not prove difficult.

Covering

See that the wings and tail are perfectly true and not warped in the slightest. If they are, either straighten or rebuild. Using a good grade of silk with thinned out cement as an adhesive, cover the tail first, then the wings and then the fuselage. Tighten the silk by spraying with water and then hold near a fire to dry.

Dope the entire model with two coats of clear dope, and finish up with two or more coats of colored dope or lacquer. Although the color scheme on the original model was metallic (half silver and black) and yellow, any suitable color scheme may be used.

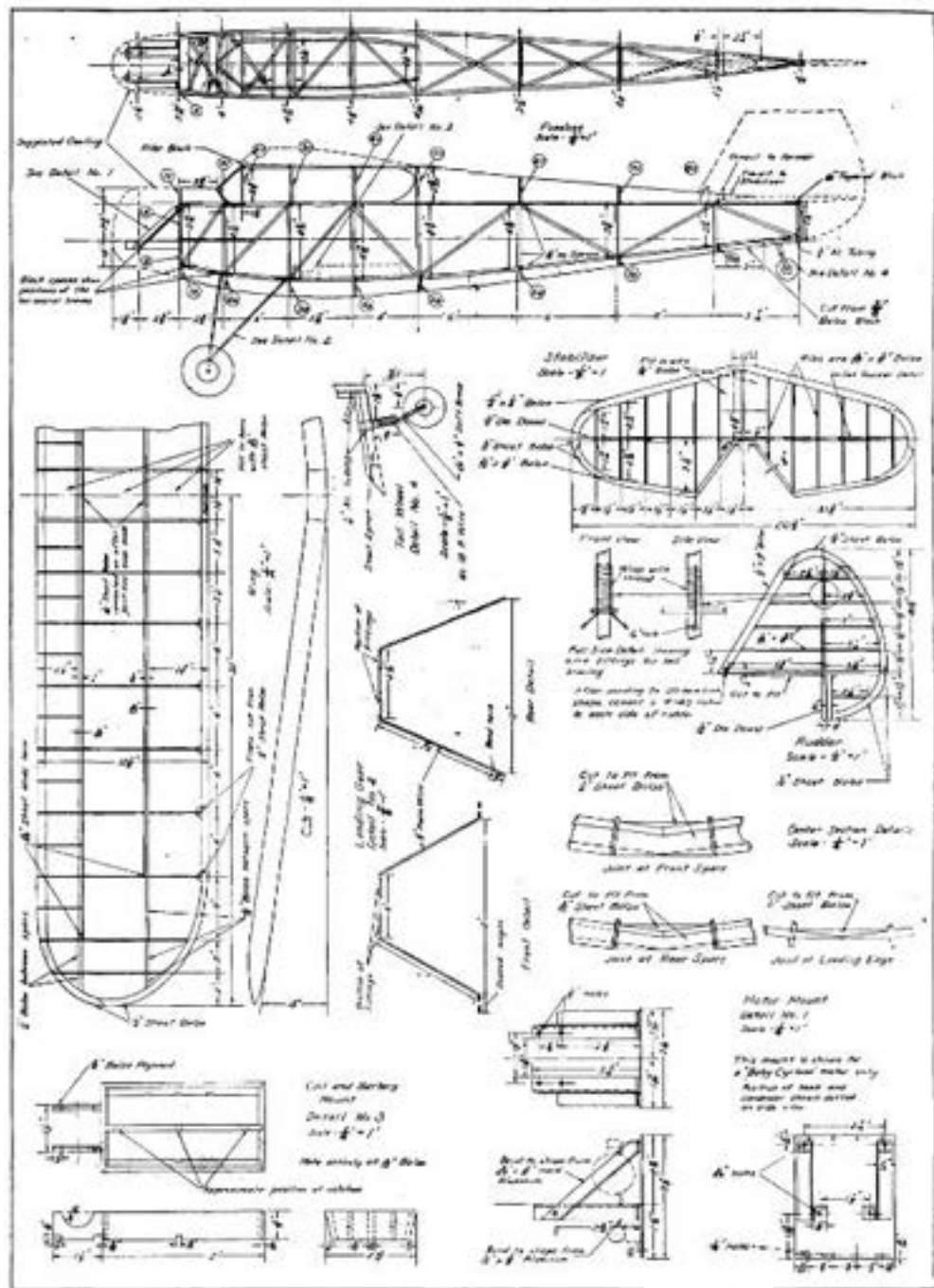
Assembly

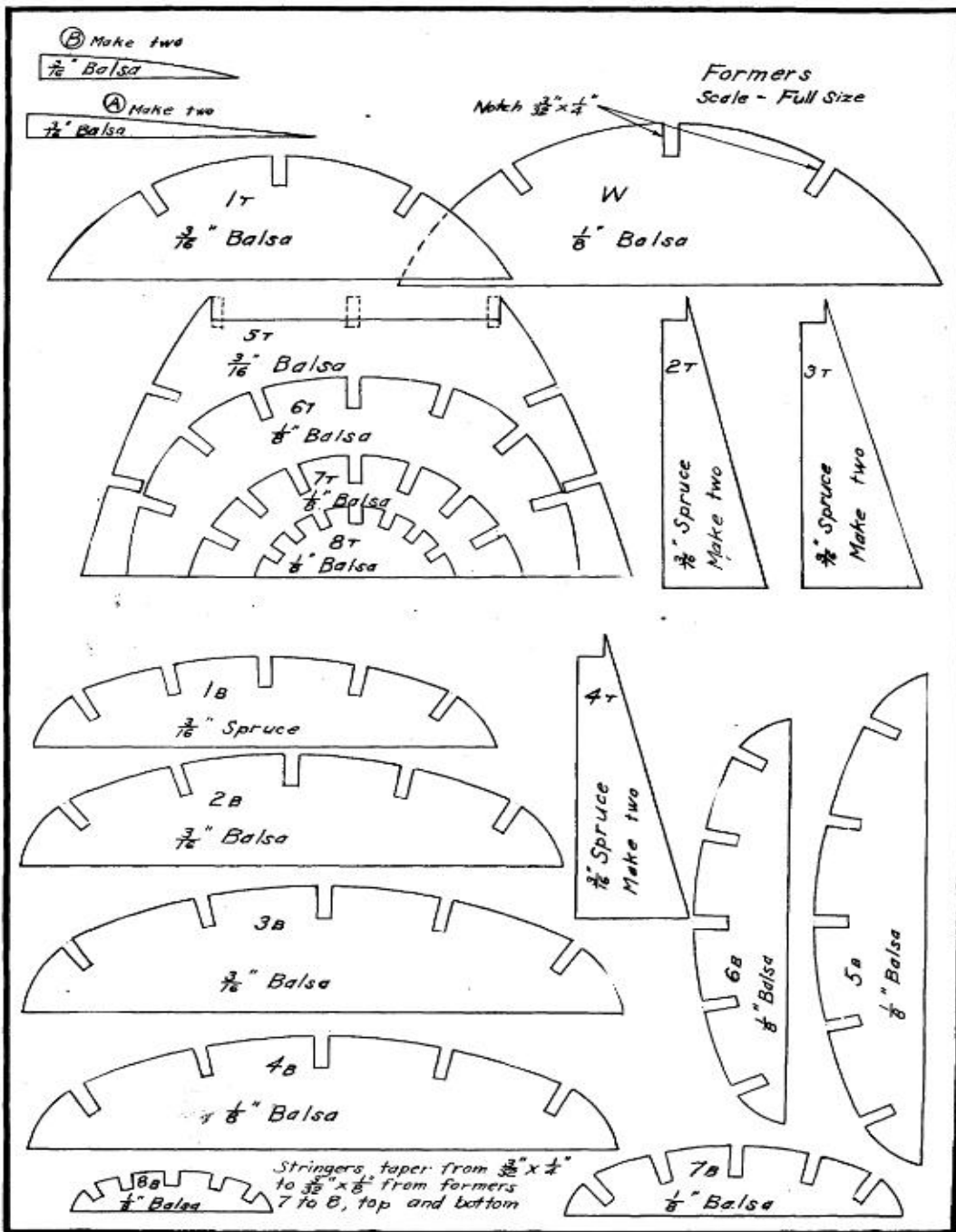
Place the stabilizer on the rear of the fuselage and slide the rudder into the tubing. Attach the front of the rudder to the adjustment plate with a long 4-40 bolt. Use a nut and a lockwasher for adjustment. Use a few drops of cement on the tail assembly to prevent vibration. The tail braces are made of 3/16" aluminum tubing and are held in place with cotter keys of aluminum wire. The wing is held in place with a 10 foot piece of 1/8" FRESH rubber. Use a pine or spruce propeller with a diameter of about 13-1/4" and a pitch of 8-1/2".

Test Flying

Balance the model at a point slightly behind the front spar of the wing. Set the rudder in neutral position. Take it out to the nearest airport and put between 1 and 2 eyedroppers of gasoline in the tank. Start the motor, adjust, and let the model take off into the wind, if any. Notice every action the model makes.

A few test flights should suffice in finding the correct balance. If the directions and plans have been carefully followed, You will be rewarded by not only a nice-looking model, but a beautiful, fast flier.





Also shape the wing tip, and then with the aid of a sandpaper block, finish the entire portion.

Build the other half of the wing in the same manner. The center section details for joining the two halves are shown on the drawing. Cement 1/16" sheet balsa on the back of the front spar joint and wrap with thread. Sheet balsa is also cemented on the front of the rear spar joint and wrapped. Fill in the bottom of the center section with 3/32" sheet balsa. Wrap a piece of 32 gauge aluminum, 3/4" x 3 1/4", around the trailing edge to prevent damage. The dihedral should prove enough, although more can be used if desired.

Landing Gear

Bend both pieces of the landing gear of 3/16" piano wire as shown in detail No. 2. Wrap the joint of the two pieces with small copper wire and solder firmly.

Next make the fittings, noticing that allowance must be made for the curve in each. Drill out 1/16" and then solder them to the landing gear.

The wheels should be about 3/4" in diameter, preferably Airwheels.

Fuselage

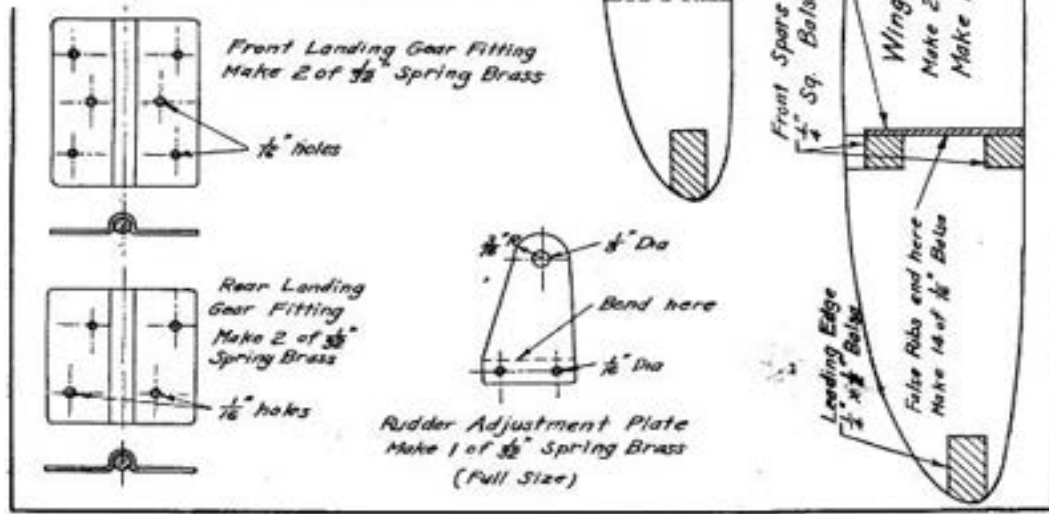
Unless otherwise noted, all the longrons, vertical and horizontal pieces, wing root (or top of cabin) and the cross bracing forward of former No. 4, are 3/16" square spruce. The remaining cross bracing is 3/16" square balsa. Do NOT use balsa where spruce is mentioned, as strength is considered more important than weight. Since 3/16" wire nails are used to hold the spruce in addition to the cement joint, it will be necessary to drill each longron with a drill made of a piece of No. 12 piano wire to prevent splitting.

The two sides are made in the conventional manner. After they are dry, add all the horizontal pieces, this giving a box-like fuselage. Note that the 3/16" x 1/4" piece at the very front are set back 1/16" to firm a mount for the motor plate. Before

going further, it will be necessary to attach the landing gear and the rudder attachment plate. These are held in place with 3/16" No. 0 wood screws and cement.

Make the top of the cabin, nailing each joint. Now cement and nail spruce formers to T, JT and 4T, in place. Cement and nail the top of cabin to this. Cut and cement the remaining formers in place and cement on the stringers. Fill in between formers 1T and W. The vee brace at the windshield is made of 3/16" square spruce. The outline of the rear window is made of 3/16" sheet soft balsa. Fill in between the bottom longeron and the first stringer for better appearance, if desired. Cement and bind with thread, a 3/16" dia. x 2 1/4" aluminum tubing at the rear of the fuselage as a rudder mount. Cement a small block at former 8T to hold down the leading edge of the stabilizer. Fill in the section past 8B with sheet balsa and spruce as shown.

See Detail No. 4 for the tail wheel. Note that the entire fork is one piece of piano wire and is bound on the bottom of the fuselage. It will be necessary to slit the aluminum tubing part way so that the wire may be bent back. The fork is in no way (Continued on page 32)



OLD ENGINE ANALYSIS

by Charlie Bruce



J.D. Bunch, one of the most prolific of the early model engine designers, began producing engines in 1936. Though the early Bunches displaced 0.40 cu. in., most of his engines were of 0.45 cu.in. size and similar construction. That is, a cast aluminum crankcase, steel cylinder with brazed sheet metal port covers and a steel piston with rings. The early Mighty Midget, Gwin Aero and Warrior had removable aluminum heads. This gave way to a brazed-on steel head in later models, and the Tiger Aero. Then the removable head returned in the post-war Air-O-Mighty Midget and Contestor engines. Except for the Contestor D60R (to be covered in Analysis #9) all the Bunches are side port (3 port) induction.

The early engines were produced in low quantities and the castings were fragile, so the survivors are in demand as collector's items. The best runners (Tiger and Air-O-Midget) were produced in much larger numbers and now show up for sale at many Collectors and Swap Meets. In addition to the originals, we have the fine Wahl Bunch engines currently being made by Herb Wahl. His engines follow the layout of the Tiger Aero, but use the Hurleman-style lapped cast piston without the rings. An improved open Bunch-type timer is used on the MK-1 while the MK-2 uses an Ohlsson-type enclosed timer.

This analysis will cover the Tiger Aero, Air-O-Mighty Midget and Wahl Bunch but much of the information given will apply to the early Bunch engines because of the similarity of construction.

DISASSEMBLY: The Bunch engines are threaded together and require special tools for the non-destructive disassembly and re-assembly.

TIMER:TIGER-AERO: Remove the prop nut and washer and slide the cam off forward. Watch out for the short, loose 3/32" dia. pin which drives the cam. Remove the pin and don't lose it! The timer is held in place by the friction of a thin steel Marcel spring, and slips off forward. The pinch screw only clamps the fixed point in place on the fiber eccentric bushing. It does NOT hold the timer on!

TIMER:AIR-O-MIGHTY MIDGET: Remove the prop nut, washer and prop drive washer. These are OAR 23 parts if you need new ones. Actually a Fox 35 drive washer will fit quite well in a pinch. Two short 3-48 screws hold the timer proper onto the adjusting eccentric and timer arm. Once these screws are removed, the timer will slip off forward. The remaining parts; adjusting eccentric, timer arm and ratchet pawls with springs are retained by a smooth and very stiff spring lock ring which fits into a groove in the crankcase casting. It is HELL to remove; so leave it in place unless the ratchet pawls are missing or gummed up so they won't work. I use two specially-sharpened jeweler's screwdrivers and a lot of words to pry the ring out of its groove. The parts are easy to remove forward, once the ring is out. There are 2 pointed ratchet pawls, each backed by a tiny coil spring in holes in the front of the case. If these are gummed to immobility, they may loosen up by a LONG solvent soak or the application of heat.

TIMER: WAHL BUNCH: Herb's Mark I engine has been improved quite a bit over the original in that the cam/prop drive is a tight fit onto a square crankshaft stub, eliminating the cam drive pin and the hole through the crankshaft. The timer is retained by a clamp screw, without the Marcel spring. This timer is an excellent replacement for the Tiger Aero timer. The Mark II engine has an enclosed OAR type timer which is retained to the advance arm by two short 4-40 screws. The cam is ground into the crankshaft like the OAR engines.

FUEL TANK: Engines may have either a plastic tank suspended from the intake tube by the needle valve body and a 4-40 screw, or an aluminum tank mounted to the back plate with a long 4-40 threaded spindle and a special nut.

Remove the clamp-on exhaust stack from the Air-O before attempting cylinder removal. I'm tempted to say, "Throw out the exhaust stack", however, it does keep some oil off your airplane. The problem is that the clamp screw can be tightened enough to dent the cylinder very easily, wrecking the piston, rings, etc..

CYLINDER REMOVAL: First, be CERTAIN that the piston will move easily in the cylinder before attempting to unscrew the cylinder. If it is frozen up, you will twist the con rod and ruin it. On the Air-O engine be sure the piston is well down in the cylinder, as the baffle can engage the slot in the head resulting in a "pretzeled" con rod. Bolt the case to a hard wood board, using all four mounting holes. The back plate must be installed, but it can be finger-tight. This will keep the case from distorting as you unscrew the cylinder. All engines take a split "wood wrench" with a 1-7/16" dia. hole to hold the cylinder. The Air-O engine head MUST be in place. The case may have to be heated to break loose the gum of ages. Save the copper ring gasket(s). These determine the final position of the cylinder.

BACKPLATE REMOVAL: There are 3 different (at LEAST) recesses in the screwed-in backplate. The aluminum, tank backplate and Wahl Tiger backplates can be turned by a tool made from a 7/16" size 3/8" drive socket with 2 appropriate flats ground into the sides so that it will fit into the backplate recess. The Tiger Aero backplate has a larger recess. I've found a 17mm size 3/8" drive socket to be the correct diameter. Again, the two flats are ground into the socket to fit into the recess. The sockets are turned by a standard 3/8" square drive handle while the case is bolted to the wood block. A single thin copper ring gasket is used. Save it for re-use.

HEAD REMOVAL: Only the Air-O head can be removed. There are six 5-40 screws and a 0.004" thick soft aluminum gasket. Be careful and try to save this gasket for re-use; it's very delicate and hard to duplicate.

INTERNALS: With cylinder and backplate removed, the piston/rod assembly and crankshaft slip out easily. There are no loose washers, pads, etc. The Bunch Tiger piston/pin/rod assembly brazed together. The Air-O engine has a floating piston pin, but the end pads are brazed in place. The Wahl Bunches use the Hurleman-type piston with the pin held in place with a clip or cotter key, and should not be further disassembled.

RE-ASSEMBLY: As usual, the re-assembly of the engine is essentially a reversal of disassembly. Note that the bottom ends of the con rods are not symmetrical. The wider side faces to the rear of the engine. Be sure the wide side of the piston baffle cut faces the exhaust. Bunch and Air-O cylinders have a bevel cut at the bottom of the cylinder bore which makes insertion of the piston with rings fairly easy. Be sure your cylinder gaskets are in place before installing the piston. The backplate should be installed and the head placed on the Air-O before tightening the cylinder. Air-O and Bunch cylinder to case threads are 32 TPI, which gives 0.031" advance per turn. The Wahl engine has 28 TPI, giving 0.0357" advance per turn (same as the Brown). A detailed procedure for determining proper gasket thickness to align the cylinder is given in my Old Engine Analysis # 6, Brown Jr.

FUEL TANK INSTALLATION: Note that on the Bunch and Wahl engines with the plastic tank ("Tea Cup"), the needle valve has a key cut into the body flange. This key fits into a slot in the tank top. Be sure the fuel jet hole faces forward toward the engine when installing the needle valve assembly.

TIMER INSTALLATION: Bunch engines --- The timer slips onto the front of the crankcase over the Marcel friction spring. This can be difficult, but if you insert the spring about 1/3 of its length into the timer bracket, then push the whole assembly in place, it usually works. Use plenty of oil!!!

Since the Bunch is a side port engine, it will run either way, depending on the spark timing. To install the cam for normal counter-clockwise rotation

... observe the center punch mark on the crankshaft directly over the hole for the cam drive pin. Insert the cam drive pin and slip the cam in place with the cam cut directly over the center punch mark. The Tiger can be made to run clockwise by installing the cam in reverse position, but the spark cannot be retarded.

WAHL MARK I: Timer is an easy slip fit with moving friction set by the pinch screw. Point gap adjustment on both Bunch and Wahl engines is accomplished by loosening the fixed point clamp screw and rotating the eccentric bushing. Point gap should be 0.006 to 0.010".

WAHL MARK II: This is the O&R style timer which goes on just like an Ohlsson. Two 4-40 screws hold the timer to the adjusting handle which fits into a slot in the front of the crankcase. Point adjustment is cut and try, using different thicknesses of insulating washers under the fixed point. The gap should be 0.006 to 0.010".

AIR-O-MIGHTY MIDGET: If you have completely disassembled the timer, start by placing the tiny coil springs and ratchet pawls in the 2 holes in the crankcase front. Oil them well. Slide the timer arm onto the crankcase with the serrations toward the rear. Note that the slotted aluminum adjusting eccentric is not symmetrical.. The larger diameter, higher projection goes toward the rear and fits into the timer arm. The other projection fits into the back of the timer, but not yet. Spread the snap ring and slide it over the crankcase projection. Compress the ratchet pawl springs by forcing the eccentric and timer arm to the rear, and slide the snap ring into its locking groove. Be sure it's in place all around and that the eccentric ring turns. It should be snug, but movable, and the timer arm should ratchet nicely if everything is OK. Now turn the eccentric ring so that the timer mounting screw holes are accessible and install the timer (with points in place) using two 3-48 screws. Be sure the screws are long enough to fully engage the threads in the timer arm, but do not extend through it and bind against the crankcase. Point adjustment is made by slightly loosening the two mounting screws and moving the eccentric ring right or left using the point of a small screwdriver in the notch in the eccentric ring, while holding the timer arm stationary. Sounds harder than it is, and it does provide a precise method for adjustment. Point clearance should be 0.006 to 0.010.

Special Note On The Air-O Exhaust Stack: When replacing the clamp-on exhaust, be SURE the clamp screw is not so tight that it dents the cylinder. Tighten only enough to keep the stack from falling off and use a second nut to lock the first nut in place.

All the subject engines use the 3/8" spark plug; Champion V, V-1 or equivalent. Plug gap should be 0.012 to 0.015".

PARTS: Merco 49 rings (if you can find 'em) can be used with some fitting in Bunch and Air-O engines. Herb Wahl's plastic fuel tanks, tank tops, needle valves and open timer assemblies will fit on Bunch Tiger engines. Herb Wahl, Box 61, Forksville, PA 18616, Fred Collins, 29 Stewart Ave.,Pittsburgh,PA 15227 make aluminum tanks for Air-O engines. These will also fit the Bunch Tiger with the proper backplate. Fred also has Bunch needle valves. Air Accessories, 3600 Pittman Rd.,Independence, MO 64052 makes Bunch plastic "Tea Cup" tanks. I know of no supply of parts for the Air-O engines, although obviously the Bunch fuel tank and needle valve can be used. I have an idea that one of Vic Didelot's repro O&R timers can be adapted to the Air-O engines without much trouble. Watch this column for further information.

TEST RUNS: All on 3/1 gas and oil

Bunch Tiger	12-6 Rev-Up	7800 rpm
Air-O-Mighty Midget	12-6 Rev-Up	8000 rpm

Helpful Hint: This issue's helpful hint comes from me! If you want to spend a delightful evening or two reading all about our great hobby, get a copy of Dave Thornburg's book: Do You Speak Model Airplane? I highly recommend it. From: Pony X Press, 5 Monticello Drive, Albuquerque, New Mexico, 87125, \$ 19.95 post paid.



Bunch Tiger Aero .45 Ignition Model Airplane Engine



THE LAST PAGE



Graveyard for 379 Convair B-36 Peacemaker Bombers at Davis-Monthan AFB, Tucson, Arizona. (USAF) for scrapping. Only five B-36 remain.