

THE VOICE OF CONTROL LINE
AEROMODELLERS FROM
AROUND AUSTRALIA

Number 75



Produced by the Victorian Control Line Advisory Committee

March 2004
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**Copy Deadline for next issue is:
Wednesday 17th March 2004
PRODUCTION SPECIFICATIONS**

Please remember when submitting copy that if you have access to a PC, or suitable typewriter you can save me retyping by giving me your items pretyped, and please use a good black ribbon for best reproduction.

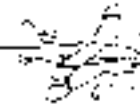
Best of all is to send it on a 3.5" disk as a Windows Write, Word for Windows, or as an ASCII TEXT FILE or use Email

Contest results should be tab delimited, ie use a single tab between each column of results, if submitted by disk. This makes formatting much easier on the editor.

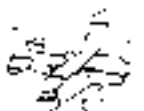
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COMING EVENTS



COMING EVENTS



CONTROL LINE CONTEST CALENDAR 2003/2004

MAR 7	Hand Launched Glider.	SMAC
MAR 7	C.L.A.G. Country Flying Days	Traralgon
MAR 14	FAI Team race, Goodyear, Simple Rat race.	CLAMF
MAR 28	Monty Tyrell Classic Stunt. Vintage "A" Team race, Classic "B" Team race,	KMAC
APR 4	FAI, Novice & Jnr Aerobatics,	
APR 4	C.L.A.G. Country Flying Days	Maffra
APR 4	Simple Combat.	SMAC
APR 10-12	VMAA CONTROL LINE STATE CHAMPIONSHIPS	
		CLAMF, KMAC, CLAMF.
APR 17-23	57 th AUSTRALIAN NATIONAL CHAMPIONSHIPS	BUSSELTON WA
APRIL 25	Classic Stunt,	KMAC
MAY 2	Vintage "A" Team race, Aust "A" Team race.	SMAC
MAY 2	C.L.A.G. Country Flying Days	Knox
MAY 16	FAI & Combined Speed, Triathlon (Artil Trophy), 1/2 A Team race.	CLAMF
MAY 23	FAI (Yeoman), Novice & Jnr Aerobatics, Simple Rat race, Classic Stunt.	KMAC
JUNE 6	Balloon Burst, Limbo.	SMAC
JUNE 6	C.L.A.G. Country Flying Days	Moe
JUNE 20	FAI Team race, Goodyear, 1/2 A Combat, FAI & Modified Combat.	CLAMF
JUNE 27	Vintage Stunt, Combined Speed, Classic Stunt, Vintage "A" Team race.	KMAC
JULY 4	Simple Rat race (whipping permitted).	SMAC
JULY 11	FAI & Combined Speed, Jnr 2.5cc Combat, Mini Goodyear, Jnr 2.5cc Rat race.	CLAMF
JULY 25	FAI (Stuntmasters), Novice & Jnr Aerobatics, Class 2 Team race, Classic "B" Team race.	KMAC
AUG 1	Simple Combat.	SMAC
AUG 8	FAI Team race, 2.5cc Rat race, 1/2 A Combat.	CLAMF

Events will be flown in order of printing. Events in **Bold type** will be flown over hard surface

CLAMF Frankston Flying Field, Wells Rd, Seaford (Melway 97J10), 10.30am start

Contact :- G. Wilson (03) 9786 8153,

Events conducted by CLAMF at the KMAC Field (Melway 72 K9) 10.00am start.

Contact :- H. Bailey (03) 9543 2259

KMAC Stud Rd . Knoxfield (opposite Caribbean Gardens) (Melway 72 K9) 10.00am start

Contact :- T. Matthews (03) 9560 0668.

SMAC Contact :- Reeve Marsh (03)9776 5949

WMAA Horsham. Contact :- V. Cresp (03) 5382 4065

BRCAC Bendigo-Newbridge Rd . Marong

Contact :- S. Power 03 54 424 925

CLAG Contact :- Graham Keene (03) 51924485

Details of venues can be found on web site www.clagonline.org.au/home.htm

NOTE - All SMAC events to be held at KMAC flying field.
All events at KMAC except Aerobatic events to be run by CLAMF, DAC & SMAC members

C.L.A.S. Contest Calendar 2004

DATE	CLUB	EVENT
6/7th Mar		"MDMAS (Mitchell Hill Fields, Muswellbrook") 2004 HUNTER VALLEY CHAMPIONSHIPS
14th Mar		KMFC JUNIORS DAY
14th Mar	Werrington	F2B Aerobatics and Classic Stunt
28th Mar	SSME	"Phantom, Vintage 1/2A, Vintage A, Bendix T/R"
4th Apr	KMFC	1.6cc Combat and Slow Combat
10-12th Apr	VMAA	VMAA C/L STATE CHAMPIONSHIPS
18th Apr	COMSOA	"F2B Aerobatics. Buy, Swap and Sell. "
17th-23rd Apr		"AUSTRALIAN NATIONALS, Busselton.
1st-3rd May		"ALC field, Chetynd St, Loganholme. QLD" QUEENSLAND C/L STATE CHAMPIONSHIPS
15th/16th May		MDMAS (Muswellbrook) VETERANS' GATHERING
30th May	SSME	F2B Aerobatics
12th-14th Jun		Venue to be confirmed N.S.W. STATE C/L CHAMPIONSHIPS
20th Jun	KMFC	Palmer / Aldrich Classic Stunt
27th Jun	KMFC	GALA COMBAT DAY
4th Jul	IMAC	F2B Aerobatics
11th Jul	KMFC	AGM. 2.5 Stunt, Simple Rat and Slow Combat
17th Jul	REMAC	Vintage Stunt (incorporating award for best All American)
24th Jul	SSME	"Vintage 1/2 A, Vint B, Goodyear T/R, Combined Speed"
25th Jul	SSME	Phantom, Vintage A, Bendix T/R
8th Aug	KMFC	F2B Aerobatics
29th Aug	SSME	Slow Combat (Bonus points for WW2 Style model).
12th Sept	KMFC	Classic Stunt, Vintage Stunt, Simple Rat, Slow Combat, SWAP MEET"
26th Sept.	SSME	F2B Aerobatics
9th October	REMAC	Vintage Stunt (including special award for best Fox powered model)
17th Oct	IMAC (Berkeley)	F2B Aerobatics
24th Oct	KMFC	JUNIORS DAY
7th Nov	SAT (Kelso Park)	F2B Aerobatics
14th Nov	KMFC	Vintage T/R, 1/2 A, A and B.
21st Nov	NACA at Gateshead	H.S. Classic Stunt & Cardinal Stunt. (I. Smith Ph:024975 2292)
28th Nov	KMFC	1.6 and Slow Combat

5th Dec Doonside (at Kelso Park)
 F2B Aerobatics
 12th Dec KMFC Christmas Party and Fun Fly

Doonside. At Kelso Park North.

"IMAC (Illawarra Model Flying Club)- Flying site @Hooka Ck Road, Berkeley. NSW"

"KMFC (Ku-ring-gai Model Flying Club)- St. Ives Showground, Mona Vale Rd, St. Ives. NSW"

"NACA (Northern Area Contest Aeromodellers)-Gateshead H.S., Pacific Hwy, Gateshead. NSW."

"REMAC (Ryde Epping Model Aero Club)-Peter Board HS, Wicks Rd, North Ryde. NSW."

"SAT (Sydney Aeromodelling Team)-Kelso Park North, Henry Lawson dr. Panania. NSW>" "on Drive, Panania. NSW. "

"SSME (Sydney Society of Model Engineers)- Model Park, Luddenham Rd, Luddenham. NSW> "

"WMFC (Werrington)-Entrance to flying site @cnr. Landers & Walker Sts, Werrington. NSW."

"MDMAS (Muswellbrook District Model Aero Sports Inc.) Mitchell Hill Field, New England Hwy, Muswellbrook"

"COMSOA (City of Maitland Society of Aeromodellers) Raymond terrace Rd, Metford. NSW. "

QLD STATE CHAMPS 2004

The committee of Aeromodellers of Logan City Inc are pleased to advise that the Qld State Control line Champs for 2004 will be held at the ALC field over May 1,2,3 long weekend.

All FAI events will be offered but other events (MAAA/MAAQ) will be subject to the requirement for 5 entries before the event will be conducted. Entry forms will be sent out to all C/L clubs by Brian Burke who will again act as event co-ordinator and registrar. If necessary you can contact Brian on (07) 32001308.

CLASII CONTROL LINE EVENTS CALENDAR 2004

Information on club activities can be obtained from President Mark McDermott 07 32889263 or Secretary. John Taylor 07 33927679 email johndt@iprimus.com.au

Note!

Due to road construction commencing on the new Bridge adjacent to field, disruptions to flying field have already taken place, Therefore all Flying activity at Clasii field has been suspended probably till after Christmas. Fliers are advised not to come to our field again until further notice. New and improved fields and surrounds will be the positive outcome from this activity

John D. Taylor Secretary/Treasurer

57th NATIONALS

Those going to the Nationals in WA don't forget to have your entry in by the 12th March 2004.

Hearn's Trophy - KMAC

Jan 2004 (Author: Ken Dowell)

This Trophy is the oldest, in the sense of longest running, control line trophy in Australia. However, today it is suffering from the same general decline in support and attendance as control line in general. It was originally flown twice yearly, and from 1947 until 1961 was always at Surrey Park in Box Hill, Melbourne.

Despite a typo in the calendar, Sunday 25th was in the middle of a good weather spell. A slight southerly gave good direction - on the ground - but as those who competed discovered, it was a little changeable up high.

Perhaps wisely, Ken Taylor elected to sit and watch rather than risk his new MVVS 51 Shark which is yet to be trimmed out. Dave Nobes, with his relatively new OS40FP Livewire, took advantage of the good conditions for his first ever full F2B pattern contest. Mark Ellins left his familiar Manito at home and flew an ex-Grinham ST46 Jazzer II. PJ Rowland, fresh from his South Australian State Champs victory, is still hard at work at the building board on his new Vortex, so used his familiar green/yellow tiger-skin patterned Vortex now with the Stalker 61. Adam Kobelt had his ST46 Firecracker now sporting a 3-blader and using higher nitro content.

The day was marred initially by the lack of preparatory organisation - judges were not pre-arranged and, with no contest director present, the fliers stood around waiting for someone (yours truly) to turn up with some score sheets in their boot. Peter Rowland withdrew from flying and judged the five competitors.

With no prangs and no-one suffering major problems, the day proved to be a social day as well. After the official flights, Ken Taylor showed everyone just how tight a Fox 59-powered Vintage Go-Devil will turn. He also showed just how LOUD that Fox is with no muffler - the typical Fox bark!

Peter O'Keeffe arrived for a look-see on his Harley - but if the truth is known it was simply an excuse to take it out of the garage. The Mitchell brothers popped in for a quick hello. Frank McPherson had a quickie with his Magnum, then general chatter finished off a very pleasant day.

1. PJ Rowland Vortex/Stalker 61	916.0	1025.0	1941.0
2. Doug Grinham Reactive /Jett 60	871.0	889.0	897.5 1786.5
3. Mark Ellins Jazzer II /ST 46	861.0	844.0	857.5 1718.5
4. Adam Kobelt Firecracker /ST 46	789.0	811.0	841.0 1652.0
5. David Nobes Livewire /OS 40 FP	651.0	676.0	545.0 1327.0



Following my recent article on Australian Stunt, here are some of my other ideas and recommendations.

NOTE: .. BOM = Builder of Model Rule

AUSTRALIAN STUNT

The same pattern as F2B.

Judges and scoring as per 60/70's MAAA Rule Book.

Reasons? ..

The FAI and MAAA do little to assist members wanting to attend international events (uniform and entry fees).

F2B Rules and Regulations need only be flown at Nationals and State Championships (Judging, scoring etc) for competitors wishing to compete in those events. (at own expense)

AUSTRALIAN CLASSIC STUNT

Pattern as per 1962-64 MAAA Rule Book (As used at the 1993 Wagga Nationals, Canberra Championships, S.A. State Championships, and the Monty Tyrrell Memorial Trophy.)

Three judges, with their mandatory placement being Upwind, Crosswind, and Centre.

Appearance points awarded as part of score (See Rule Book).

BOM applies, but ARF's are permitted with NO appearance points awarded, except that modifications may earn partial points at the judge's discretion.

AUSTRALIAN VINTAGE STUNT

Reduce model year to 1952. Motors year as is, but NO rear exhaust or schneurle motors.

BOM applies, and appearance points awarded.

Minimum of two judges, with one in the centre (That's how it was in the 50's).

Note: Square loop should be to 60 degree height and 90 degrees (quarter lap) wide (1949-50 Rules book as published in Australian Model Hobbies).

AUSTRALIAN NOVICE STUNT

Any motor and model combination.

NO BOM RULE

Pattern as per Australian Vintage Stunt, but progressive.

Example: - Contestant nominates the number of manoeuvres he/she thinks are within their capability, in scoresheet order. Their total possible score for those chosen is noted. Their actual score total is then calculated as a percentage of the possible total. Choose 4 - possible is 40 — actual score totals 30, so their placing score is 75%. Another contestant chooses 8 manoeuvres, and scores 65 of a possible 80 - placing is 72%. Contestant can not nominate less manoeuvres in a later contest. After three contests, must add at least one extra manoeuvre as listed on score sheet.

This system applies for all fliers. This allows each

contestant to advance progressively while all are on an equal footing, as contest results are a percentage of manoeuvres attempted.

SUMMARY

Australian Rules and events should be made by competitors, not Administrators (FAI).

Vintage and Classic Team Race Rules were developed by the contestants, as should the respective Stunt Rules.

Some of the "New Breed" of Stunt flyers may not approve of the above. Why does the "New Boy" in every industry or sport think they know it all?

STUNT FLYERS - Speak up! - The numbers are dropping off.

1. The expense of F2B.
2. Older flyers and experienced flyers are dropping out (and dying).
3. We are losing our history - We were once on a level standard with the U.S. and far ahead of other countries (G.B. and Europe), and they are now telling us what to do, how to fly, and how to conduct ourselves.

Let's hear from Stunt flyers - old and new - letters via this newsletter.

Ken Taylor

AUS 1217



Dear Editor,

(On reading David Shacklefords comments "Control Line Modelers are nice folks" November issue) reminds me of an episode I had several years ago.

I took a Veco Thunderbird out, fitted with a Merco 35, open exhaust, (no mufflers needed where we fly). The guys out there had only seen fast revving 2.5's or similar.

It was a lazy autumn day with no breeze so I set the Merco rich, just wanted to fly very lazy. I richened it out over 3 runs to where it would just pull itself. Sounded beautiful like a big old kerosene tractor. I pulled the nose up ever so slowly, the motor speeded up just enough to pull a loop and settle back to idle as it descended, Beautiful, I did several low loops and eights that flight.

Next thing over comes a radio guy (running) he had just got a set of wings, gold or something, a degree for cooking motors I think? "What's up with that motor?" he yelled "its running like an airy goat". "My motor ud pull the shitter outa that thing", "all ya need do is wind it in a few turns ya know". What sort of motor is it anyway? (Merco I replied) EERGH never erd of one he exclaimed.

"Well we don't get our motors from the supermarkets

where you get yours I replied". We only buy quality motors and we expect them to run that way, yours would not even get a mention in a stunt circle. URGH, he went and turned to leave, when my helper who was his flying mate also, suddenly got amused and spoke up and said, you know I reckon you could even open that another click or so. The fellows face turned crimson, he realized he had put his foot in something like the cow leaves behind and off he went.

But then there is the better side, a bewildered R/C-er comes wandering over and asks what sort of governor control I had fitted to that motor. What do you mean I queried? Well he said when you climb it speeds up and as it goes over the top it slows back down, you must have balance weights or something on the throttle. After explaining that it was only a set needle valve, and it was how you set it as well as that being part of the motors design, he shook his head and said that's hard to believe.

I believe radio's are like poker machines, you pour heaps of money in, pull leavers, and get your fair share of jackpots.

Ray Morgan.



Control Line Aeromodellers of Gippsland Inc.

Meeting held at Traralgon on Sunday February 1st

Strong gusty wind prevailed all day and made flying interesting to say the least. A total of sixteen enthusiasts were set to tear up the sky, but instead were just as content to group together and let the BS flow.

We were joined by visitors Craig Hemsworth, Ben van Poppel, Andrew and Greg Beevor and Ron Savage.

Craig had engine problems with his ST .46 "Bumstreak", but once sorted gave an impressive display of high speed stunt flying. Not to be outdone John Goodge followed with his HP .40 "Brownpants 11" combat wing, with pacifier fuel tank, tongue muffler and seagull swallowing venturi. The turning ability of this model was awesome, I believe there is a Nelson .40 version to follow, named "Windypants". Can you see a theme emerging ???

Tethered car enthusiast Ron Savage had brought along two almost complete cars to show visitor Ben van Poppel. Both all-metal cars require extensive machining and are a credit to ron with excellent workmanship evident.

Ben van Poppel has had an interest in control line for some time and has recently purchased a Just Engines ASP .15 which he is running in. He also has a .15 size model under construction and hopes to be airborne shortly, no mean feat considering Ben is blind. Ben has flown a control line model previously and says his acute hearing assists him in

visualising the model's attitude. Club members look forward to helping Ben achieve his goal.

Frank McPherson was the only other member willing to tackle the elements, his Merco .40 powered "Magnum" seemed to have a bit more speed than usual in an attempt to keep good line tension; all ended safely.

Mr Good Vibes had no problem with the wind, his very fast "Shoestring" OS .35FP handling the job easily.

Overall an interesting and enjoyable day despite not much air time. Our next meeting is also at Traralgon on Sunday 7th March. A reminder that this is a noise sensitive site, so please if we want to continue flying here, full mufflers are required.

Graham Keene Sec./Treas CLAG Inc.

The following is a write-up by Ron Savage describing both cars and tethered car racing in general. Tether car racing is conducted by 2 groups, in NSW by the Sydney Society of Model Engineers at their property "Model Park" on Luddenham Rd Luddenham a outer western suburb on the last Sunday of the month except December.

In Qld by the Queensland Miniature Race Car Club (which I am a member) at their track in Kalinga Park Toombul (a northern Brisbane suburb) near the intersection of the Air-Train track to the airport and the main north rail line. They race on Saturdays.



Brisbane 17-01-04 - Mart Sepp's 5cc Class 4 STL engine - 291.0737 kph

The car classes are divided on engine size, eg, 10cc, 5cc, 3.5cc, 2.5cc, 1.5cc, these are then further divided into World Class cars classes 1-5 which are missile shaped cars and aren't much slower!! Older style cars from the 40's and 50's are B & C class depending on suspension. Australian built cars which are all Australian built including engine and the 3.5M class of which my hot rod style car is one. These have 3.5cc engines, no tuned pipes, spur gears and no suspension. These are an entry level car.

Most of the cars have been built by their owners as some body castings are available for B & C and 3.5m class cars, most of the world class cars are ex European cars, I am still in the process of obtaining a 5cc class IV car from Germany (2 years to date).

The cars are run singly on a 19.9M circular concrete track, which is dead flat and dead smooth.

Cars are attached to a centre pole via a steel cable, diameter depends on car class, when the cars are push started a horser in the centre holds the cable clear of the ground until there is sufficient tension on the cable, he can also whip the car around to bring up the speed like a speed model, once the car has reasonable speed he then stands on the platform until the run is finished then assists the cable on the slowing down until the car has stopped.

When the run starts the driver who pushed the car stands behind a protective wall next to the track and watches the speed of the car on a digital readout and also listens to the sound of the engine and if he is satisfied the car is at maximum speed he presses a button to start a 8 lap timer to get the average speed over 8 laps (500m), once this is obtained a light will light and the car will be stopped by the driver with a straw broom gently lowered onto the car to activate the fuel shutoff switch.



I have sent you a photograph (Above) of John Taylors electric "Machete" which was completed late last year. This is in response to Bob and James Armstrong's efforts in the Feb edition.

Power is (an old) Kyosho 360 Le Mans fuelled by an on board 1700 MAH 7.2v "Buggy Pack" Based on earlier efforts it should do most of the Sunday fliers manoeuvres on 35 to 40 foot lines.

Power through the lines inevitably runs foul of the law of diminishing returns, i.e. the "thicker" the lines the less the resistance, but the longer they are the greater the voltage drop and the likelihood that the model will not handle the weight of the lines.

Anyone wanting to have a chat on silent flight can drop me a line at 2-24 Appaloosa Court, Munruben, 4125; or call on 07 3200 1308.

*Regards,
Burkie*

REMAC – Bob Burrell Memorial Vintage Stunt Competition

24th January, 2004

REMAC held its annual Bob Burrell Memorial Vintage Stunt Competition on Saturday 24th January. This competition was held at their field located on the University grounds at North Ryde.

There were 11 competitors in total, including 4 control-line enthusiasts from the Werrington Aeromodelling Club.

Vintage Stunt is open to models designed prior to 1951 and a variety of vintage models (and engines) were on display. Examples of planes competing ranged from a Super Zilch, Hot Rock, Barnstormer and some early model Noblers.

After 2 flights each the scores were:

Placing	Flyer	Plane	Static	Flying	Total
1 st	Frank Battam	Hot Rock	95	142.5	237.5
2 nd	John Elias	Ringmaster	81	143.5	224.5
3 rd	John McIntyre	Meteor	70	147	217
	Don Keyssecker*	Corroboree	74	137	211
	John Goodwin	Super Zilch	89	118	207
	Dennis Percival	Ringmaster	67	129.5	196.5
	Max Haines*	Nobler	68	126	194
	Bob Ooman	Nobler	63	129.5	190.5
	Stephen Yeatman*	Nobler	65	119.5	184.5
	Peter Barclay	Jamison Special	98	75	173
	Len Horwood*	Barnstormer	91	69.5	160.5

* Werrington Aeromodelling Club Members

Len Horwood from Werrington provided the entertainment for the day with some "fancy footwork" in the middle of the circle, complete with a barrel roll (him, not the plane!!!)... He somehow made it out relatively unscathed with only a broken prop.

All in all, a fun day, with thanks to REMAC for the organization with friendly competition and lots of interesting discussion.

Stephen Yeatman

News from WA

By Charlie Stone VH 4706

TARMAC Notes for January and February

Thanks to the generosity of Jim Trevaskis, I was given a chance to fly the other TopFlite ARF control line model, the 'Flite Streak'. It was only the second flight of the model and consequently had not been fully trimmed and sorted out before he trusted it into my clumsy hands. It is very light and flies well with the OS .25FP fitted, although when I flew it, the tank needed a little adjustment to get an even run. It seemed a trifle touchy to me as the handle had very wide spacing and the controls are fairly high geared. It was quite controllable, but it turned very hard and it was easy to turn tighter than I intended. The model itself is beautifully finished and Jim tells me that he spent about six hours to get it ready for its first flight. My conclusion is that this is a very fast way to get into the air with an extremely aerobatic model.



Jim Trevaskis' freshly finished TopFlite ARF 'Flite Streak. This one is powered with an OS .25

There has been a lot of action and new models seen at the field this month and I have photos of several of them for you to see. Towards the end of January I saw several large radio models parked to one side while their owners discussed the near finished Control Line models they had brought along. Kim Ashton had the frame of his SIG Chipmunk with him and Bill Cornish had a mark 1 Thunderbird ready for covering as well. Thunderbirds seem to be much in evidence lately as I have it on good authority that another modeler who has been concentrating on R/C for some years is in the process of building one also. The most recently finished representative of Bob Palmers classic design is the round cowl version built by Phil Trueman. The colour scheme replicates the original and the gloss on this one beggars description. The motor is a George Aldrich prepared Veco .35 that has more than enough power for the job, and Phil tells me that the plane flies as well as it looks.



Thunderbird. The outstanding finish is in automotive acrylic with a two pack clearcoat over the top. As one of the bystanders said at it's first outing 'That paint job is going to be a hard act to follow' The finished weight is 42 and a bit ounces and the model is powered by an Aldrich prepared Veco .35 just like Bob Palmer's original.

The next of the new machinery unveiled this month is Dicky Morrow's awesome enlarged version of the Jack Sheeks Mosquito. It is complete with a homebuilt 3 line throttle control system. The power is supplied by two K&B .40 stunt engines that Dick has fitted with Enya Carburettors. The model has a hatch in the fuselage to cover all the mechanism of controls and throttle. There are enough carefully engineered bits in there to make a clock (actually he may have a clock in there too – I think that I saw a pendulum). Dick has named the plane 'Woodsie' as a tribute to local West Aussie aviation hero Jimmy Woods who owned the only privately owned De Havilland Mosquito to be based here in WA. He was also famous for operating an airline with the shortest scheduled route in the world, flying tourists from Perth to Rottnest Island (just off the coast) in war surplus Avro Ansons. It is said that he used to employ his passengers to wind up the manually operated retractable undercarriage (80 turns of a crank handle) and with the short flight duration, the exhausted winder was barely finished before it had to wound back down for the landing. As yet Dick's model is not fitted with a retractable undercart, but who knows, that could be his next project (a fourth line?).



Dick Morrow's enlarged version of the Jack Sheeks Mosquito stunter. This is named 'Woodsie' as a tribute to

local West Aussie aviation hero Jimmy Woods who owned the only privately owned De Havilland Mosquito to be based here in WA. This one is powered by two K&B .40 stunt engines fitted with Enya carburetors and has a home built 3 line throttle control system. It is a beautiful piece of work.

While we are on the subject of new models, Russell Christensen has flown his new KanDoo vintage stunter. The engine is a Taipan 2.5cc diesel that probably produces rather more power than the 2cc E.D. it was designed for. Certainly the models first take off was like a mighty bound into the atmosphere. I don't think that the wheels actually turned during the manoeuvre. Russell says that the KanDoo seemed quite sensitive (touchy) during it's first flight, but he managed loops and inverted flight despite the fearful turbulence that plagues our flying field when it is windy. It is bad enough for big models, let alone lightweight tiddlers like this one.



Russell Christensen's 29 inch span, Taipan powered 'KanDoo'. This is his version of the Pete Cock design that won the first United Kingdom 'Gold Trophy' in 1948.

It is sometimes useful to be reminded about the wide range of products that can be used for modeling purposes. The hard part is working out how they can be used to our advantage. So when I was sent a few handy hints from my friend and aviation plastics expert Charlie Urwin, I thought that they were well worth passing on.

Quite often you may want to manufacture a product or piece that is flexible or 'rubbery'. This could be used for a mould that can be flexed away from a casting, allowing it to be removed easily. Or you might want to produce a rubber look-a-like component. What materials do you use? There are 3 major types, latex rubber, silicone rubber and polyurethane elastomer.

Latex Rubber: If for instance you are reproducing a statue the procedure would be: Seal the statue with paint or shellac, then brush a wet coat of latex over it. The latex solution is like milk. When this turns brown as it dries, you brush on another coat, repeating the procedure with up to 10 or 12 coats. This will give you a mould thickness of approximately 2mm. Latex can be thickened, but this reduces its ability to flow and slows the cure dramatically.

Once completely dry, the mould requires a 'case' to support it when removed from the original, a two piece plaster case is ideal. To remove the mould from the model you roll it off carefully, making sure it is not caught around

any under cuts. Once set up in its support case it can be filled to reproduce the statue. Latex moulds are best used with cold casting materials like plaster of paris, concrete, or epoxies mixed with an inert filler so that they cure slowly and without getting too hot. The latex moulds can last for a long time if washed carefully after use and dusted lightly with talc. They should be hung up when stored and never rolled up as that will ruin them very quickly.

Silicone Rubber: This product is much more expensive than latex. It is a two pack material which comes in various grades of hardness and flexibility for different jobs. To make a mould, place the model you wish to reproduce (for example, an engine crankcase pattern to produce waxes for casting), into a box or container which is leak proof and pour the rubber around it. This can be a single or 2 piece mould. Silicone rubber reproduces detail extremely well and is self releasing to a large degree. Silicones can be very flexible and can be stretched and distorted dramatically to remove castings. Although this material does not always need to be coated with release agent, it may be helpful to use some.

Polyurethane Elastomer: This material is very versatile and quite a bit cheaper than silicone rubber. It is available in a wide range of grades and densities and is often used for black rubber look-a-likes such as Pedal rubber and floor mats for cars or do it yourself scale model tyres. It is also used for moulds to produce fancy concrete products. It gives good definition but not as fine as silicone.

For more information on these or other plastic resin products, you can call Charlie and the team at Fibreglass and Resin Sales of 111 Kew Street, Welshpool W.A. They have a range of all these products and are modeler friendly. They can advise on these products and their suitability for any job you may have. Data sheets for these products are also available.



Something that is always of interest to the racing fraternity is pictures of team racers. This is the latest creation from Bruno Butkevicius. This one is powered by a screaming Norvel .25

There is so much left that I would like to do. I plan to live forever (or die trying).

Charlie Stone
Email cestone@bigpond.com

VH4706



MVVS 2.5 DFS-R Diesel

Maris Dislers takes a look at a contender for the new F2F racing class

Introduction

The new F2F simple team race is interesting when it is time to choose a suitable engine. Pukka F2C engines are considerably dulled-down when uncowedled and using the required "hobby shop" propellers and are essentially wasted on F2F where outright performance is not essential. An old Nelson T/R engine is a good choice if you happen to have one, but people in Europe have been using the MVVS rear induction diesel as a cheap alternative. These have been difficult to find in recent times, so we chose its readily available front induction sibling for this test.

On the Test Bench

The MVVS 2.5 DFS-R has been around since the late 1970's. The test engine is the current model with 12mm crankshaft journal diameter and tall cylinder liner with integral contra-piston. MVVS engines had a reputation of patchy quality control, but thankfully this has been greatly improved in recent times. The fit and finish of parts in the test engine gave no reason for complaint.

Like all engines with cast iron pistons and steel cylinders, running in was an extended process covering one hour on the bench and a similar time in the air. The piston-cylinder fit now has a nice 2.5mm nip at the top and a rather narrow sealing band on the piston thanks to a generous bore taper and chamfer around the top of the skirt. Incidentally, the crankshaft, conrod bearings etc. still look like new with no sign of undue wear.

Starting is good and providing the piston and cylinder are not gummed up only a few preliminary chokes of the carburettor and a slightly richer mixture setting are required. When lightly loaded, hot restarts with the usual pit man's bash were easy, providing a choke had put fuel into the crankcase. A small exhaust prime and a couple of flicks would work just as well.

The MVVS is a quite happy on a ten inch diameter

propeller, but it really comes into its own at higher speeds. Test results show a peak power output of .45 BHP recorded at around 18,500 RPM and it would give close to this figure anywhere between 16,000 and 20,000 RPM. The table below shows our test figures and for F2F use, an APC 7x6 or 7x5 or would be a suitable starting point.

<u>Test Propeller</u>	<u>RPM</u>
APC 10x4	10500
Graupner 9x5	11000
Graupner 10x3	12100
APC 9x4	13100
Graupner 8x5	13800
APC 8x4	15600
APC 7x4	18400
APC 7x3	21300

Torque dropped quite steadily from 31 oz-in at 10,000 RPM to a still respectable 24 oz-in as peak power is produced. By comparison, one of these engines tested in Aero Modeller posted 0.56 BHP at 20,000 RPM and the corresponding torque curve has a completely different shape that rises to its maximum only 3,000 RPM before peak power is realised. Perhaps our example is still a bit on the tight side, but it suggests considerable performance variation between individual examples. The factory claims a significantly more ambitious 0.65 BHP, which we suspect might only be reached with the large pressure-fed carburettor.

A bit of tinkering

The MVVS can be arranged with the exhaust facing in any of four directions, simply by repositioning the upper crankcase/cylinder assembly. This causes a slight mismatch in transfer passages if used in the side exhaust arrangement, but our engine gave almost identical RPM readings no matter how the cylinder was positioned. If anything, it was a little more tolerant to overheating and warmed up more readily with side-exhaust compared with the rear exhaust configuration.

Losing a bit of its hefty 194g weight would be a good idea. The cylinder jacket was machined round, removing the "excess" fins and exhaust stub. Not worth it for a modest 5g weight saving. Let's face it, this engine is no lightweight and providing the nose of the model is kept sensibly short it can be tolerated.

Paul also made a different venturi allowing for a through-mounted spraybar. This is a personal preference, as it offers slightly better consistency than a peripheral-jet carburettor. We tried several different choke sizes and RPM on an APC 7x4 prop (which closely corresponds with the BHP peak speed) showed almost no variation in the range between 11.3 - 15.2mm², which is equivalent to an unobstructed bore diameter of 3.8 - 4.4mm.

Throughout the tests, vibration above 15,000 RPM was a bother. This might be tolerated in a good model, but at the least it can cause joints to crack and mixture settings were a bit dicey with some of the NVA assemblies tried, which would vibrate alarmingly. We suspected the heavy reciprocating parts and sure enough, the MVVS piston/conrod/gudgeon pin assembly tipped the scales at 10.68g (compared with the Rossi Mk 2's 7.81g assembly). The piston was lightened somewhat by thinning the skirt and cutting fore-aft notches, together with a little grinding away

of excess material around the gudgeon pin bosses. This dropped the piston weight from 7.37g to 6.7g. It would be possible to file the conrod down to an oval profile, thereby shedding another 0.2-0.3g, but this proved unnecessary. With the lightened piston, our MVVS ran much more smoothly and picked up a few hundred RPM, which corresponds to peak of almost exactly 0.5 BHP.

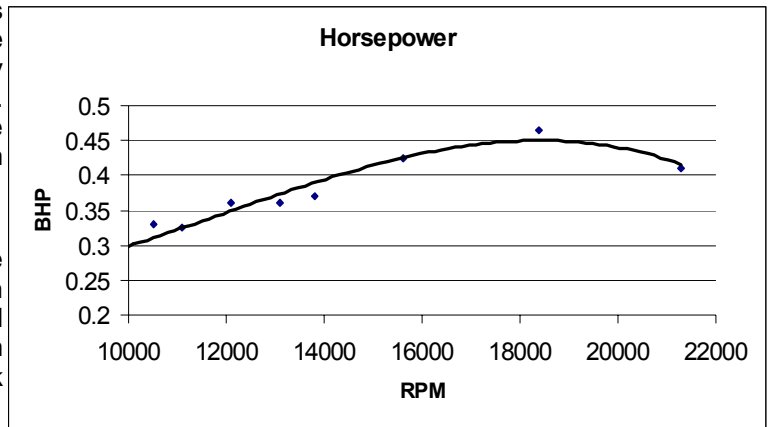
As regards fuel, we have been using 20% castor oil in the mix. This might be lowered a bit if fuel economy is an issue. The MVVS is rather fond of ignition improver and while 1.7% DII is OK, we found that 2.5% gives a much crisper note and makes it easier to home in on a peak setting. 2.0-2.2% is a likely range in actual flying.

Josef Mazniak makes a special head for the MVVS that replaces the standard head and contra-piston. This gives the advantage of more precise push-pull compression adjustment and better heat dissipation. It certainly makes the engine less prone to overheating, but we could not convert this into a useful power gain. If anything, the Mazniak head was a touch slower on the tach, but might prove its worth in practical racing terms. Is it worth the extra cost? Probably not. The photo shows the engine with Mazniak head

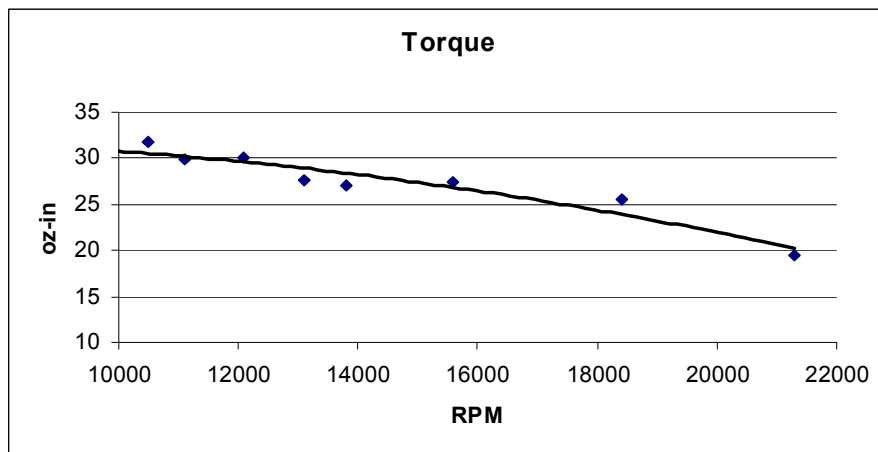
Conclusion

The MVVS 2.5cc diesel is a good engine with useful performance out of the box. It is robust, long lasting and straightforward to operate. Sensible lightening of the reciprocating parts is worth the effort. It won't match more sophisticated racing engines for outright performance, but is a lot cheaper to buy. Prices vary somewhat, and a search on the Internet indicated a USD65 - 96 range, suggesting that the price may have recently risen significantly. The Australian agent is Aeromodela at P.O. Box 1306 Mountain Gate, Victoria.

The reworked piston with thinner, notched skirt and one lightened gudgeon boss completed



The reworked piston with thinner, notched skirt and one lightened gudgeon boss completed.



News from the MAA Conference

58th NATIONALS

At this stage the Nationals will be held around the Sydney area with a date 08-13/07/2005.

59th NATIONALS

At this time Sth Australia have indicated they will be willing to hold the Nationals in 2006. Venue & date to be advised later.

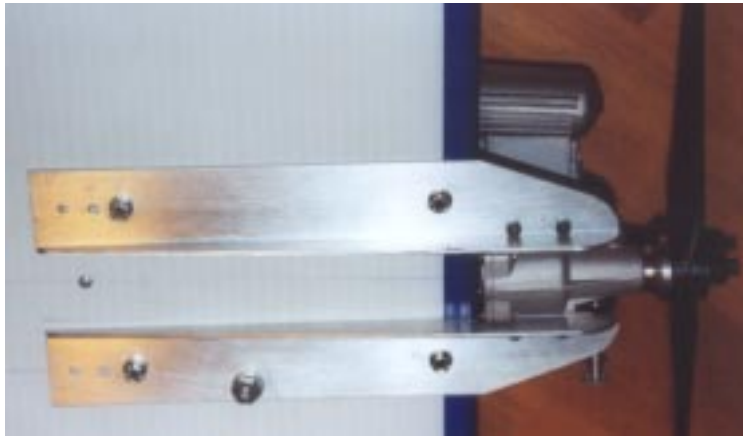
Coroplast Combat Clams

Part Two

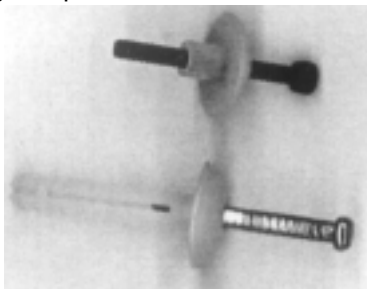
As mentioned in the last month's article on the "Coroplast Clams", I have built one according to Ed's specifications but found it could be improved to be more than a basic trainer. The changes I have made involve a little more work but the result is a tough, fuel proof, almost indestructible model that flies very well. Total building time is little more than a couple of hours and most of the resulting parts can be re-used when the plastic wing finally dies. In Australia the plastic material is known as "Coreflute" and is available from Sign Writers in 5mm and 4mm thickness, most are happy to sell off-cuts very cheaply. Another source is Real Estate agents signs, but a squadron of "FOR SALE's" might be hard to explain. The material is best cut using a steel straight edge and Stanley knife or similar firm blade.

Modifications to Ed's basic design to suit .15 size engines, (I use an OS .15FP), were as follows: Increase wing area, hinge elevator for freer movement and fine control, round leading edge to give better airfoil, engine/bellcrank mount from aluminium which makes model now totally fuelproof.

The aluminium engine mount requires some work, but will be re-useable when the wing dies; to date it has proved to be very durable. It is constructed from aluminium angle 25x12x1.6, engine mounting holes are tapped 4.40 and the 1/2 " socket head bolts are left in place. Aluminium plates 3.2mm are used under the engine, this not only strengthens the engine mount it also puts the thrust line in the centre of the wing, flying has also shown the model to be more stable.



Mounting of the wing to the engine mount is by 1/2" 4.40 socket head bolts through cut down nylon anchor bolts, available from any hardware shop. These prevent crushing of the wing and provide a neat fit for the 4.40 bolts.



The tank is attached with silicone roof and gutter sealant after first sanding the wing area and tank for good adhesion. I have also found it necessary to pin prick the top

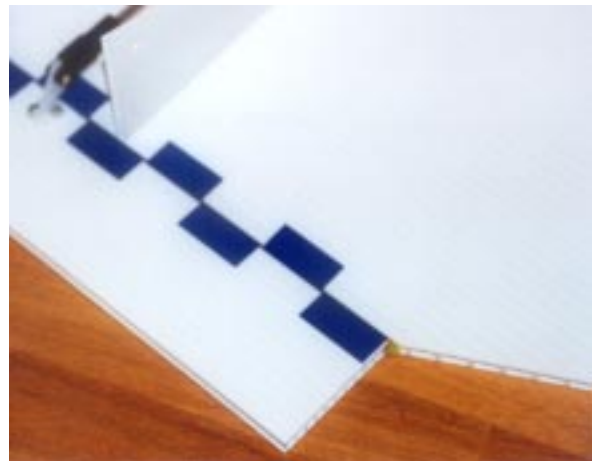
of the wing to allow the silicone to dry right through. If you have not used silicone for tank mounting previously, fear not, it sticks like the proverbial.



The wing leading edge is rounded using Sullivan "Gold-n-Rod" R/C type control rod. The red outer sheath is glued and taped to the leading edge. I use thin cyano after first sanding the glue contact areas and Norton outdoor masking tape which is totally fuel proof. The taping technique requires a little practice to avoid air bubbles but being removable is easily reapplied. To further strengthen the wing a 4mm hardwood dowel is pushed through the corrugation behind the leading edge. These dowels are available from Bunnings hardware stores.

The same Sullivan control rod material is used to hinge the elevator. 25mm lengths are alternately glued and taped to the wing trailing edge and elevator leading edge. Norton outdoor masking tape is again wrapped over the tubes and the resulting "tapes" are trimmed using a steel ruler and very sharp blade. The "Gold-n-Rod" yellow pushrod is used as the hinge pin.

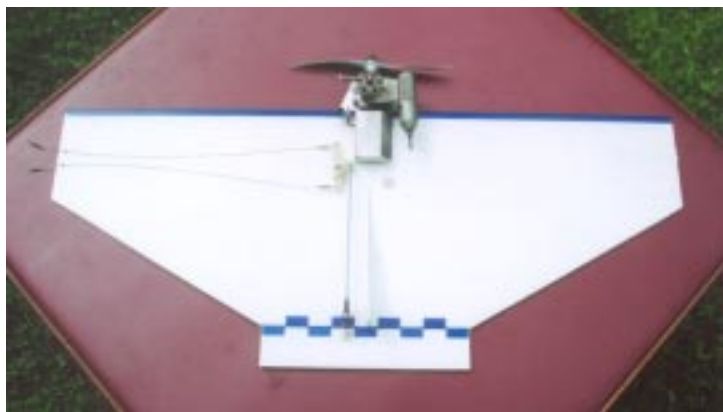
Note: the depth of Coreflute material locating the hinge tubes will determine the elevator throw, after gluing the tubes insert the pin and check for throw, 30 degrees both ways is correct. If required, again use a steel ruler and sharp blade to trim material to achieve the correct throw. A dressmakers pin is pushed through one outer edge of the hinge pin to hold in place.



The control system uses a Brodak 2" bellcrank with ball link coupling and 4.40 threaded rod, nylon clevis and small control horn. Lead-out guides are small split pins. Tip weight is lengths of 3/16" threaded rod.

I feel this material, "Coreflute" offers great scope for use in our hobby/sport; it is cheap, fuel proof, tough and light

enough for our use. So, if I have aroused your interest get thinking and let me know the result.



graham.keene@txu.com.au

....and some thought model aircraft flying was dangerous!

Seven dead at kite-flying festival
From correspondents in Lahore
February 16, 2004

SEVEN people were killed and more than 100 injured in Pakistan during the annual kite flying festival marking the arrival of spring, officials said today.

An 18-month-old girl's throat was cut by a stray kite string while she was travelling with her parents on a motorbike, witnesses said, adding that she died on the spot.

Three people were electrocuted when metal wires they were using to fly or catch stray kites fell on live electric lines, and two people fell from roofs, hospital officials said.

A 12-year-old boy died while trying to catch a stray kite when he was hit by a car on a main road, police said.

More than 100 people had been reported injured since last night in various kite-related accidents, medical workers said.

Officials at Lahore's Mayo Hospital said 42 children and 60 adults had been treated for injuries.

"One child was injured by a stray bullet," deputy medical superintendent Dr Saqib Shafi told AFP.

Though firing guns is banned, people celebrate the spring festival by firing into the air, often causing casualties.

Relatives of people killed or injured in kite flying accidents held a demonstration in Lahore last year urging the government to maintain its ban on selling and flying kites.

More than 20 people have been killed in kite flying accidents in Lahore since last year's spring festival.

Casualties and frequent power outages caused by metal wires falling over power lines forced the government to ban the sale of kites and metal wire, but those restrictions were lifted this month to celebrate the festival, officials said.

Agence France-Presse

Air Commodore W.H. "Bull" Garing CBE, DFC, DSC (USA)

Air Commodore William Henry Garing aged 93, died on New Years Day 2004

"Bull" Garing spent 34 years in the RAAF and during 1947 was the commanding officer at Pearce. He had a full and busy life.

While in WA he found time to indulge in some Aeromodelling and threw his weight behind the aeromodelling units of the ATC and likewise promoted and assisted in the forming the Western Australian Model Aeronautical Association which later changed its name to Aeromodellers Western Australia Inc.

I was privileged to have spoken to him on three separate occasions. Two of these were in 1947 when I was a youngster of 14. I remember him well at the local Model Aircraft exhibition of 1947 and I was also present at Maylands airfield when Len Armour won and was presented with the "Bull" Garing Sailplane trophy.

I last met and spoke with "Bull" Garing in 1965 soon after he had left the RAAF and joined Rothmans. He was then very interested to learn of the progress of the association and was more than gratified to learn that the Sailplane Trophy he donated in 1947 was being competed for on an annual basis.

Theo Merrifield

If you want to check further a "Google" search under "Bull" Garing" will bring up a wealth of information, including one or two good photographs.

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<http://www.vicstunt.com/>

<http://www.dkd.net/clmodels/>

CONTEST RESULTS

SMAC Results 1st February 2004

Although Simple Rat Race and Simple Goodyear were both scheduled for the day a rather light turnout resulted in only Simple Rat being run, with Hallowell/Baddock having no Simple Rat model so they flew their Simple Goodyear.

Place	Team	Round 1	Round 2	Final
1st	Wilson/Ellins	102 laps	-	207 laps
2nd	Hunting/Hunting	98 laps	-	197 laps
3rd	Ray/Ray	95 laps	94 laps	180 laps
4th	Hallowell/Baddock	86 laps	87 laps	

KMAC - 25/01/2004

Vintage "A" Team Race

	rd 1	rd 2	final
1. J.Hallowell/K.Baddock	3:44.53	dns	7:28.10
2. G.Wilson/M.Ellins	3:54.97	dns	8:12.66
3. H.Bailey/P.Roberts	4:22.25	4:12.56	8:39.44
4. C.Ray/J.Ray	4:20.66	4:21.37	
5. H.Bailey/K.Hunting	4:45.91	5:19.75	

Classic "B" Team race

	rd 1	rd 2
1. C.Ray/J.Ray	3:17.53	3:09.72
2. J.Hallowell/K.Baddock	3:15.84	3:13.87
3. G.Wilson/M.Ellins	3:27.41	3:15.25
4. H.Bailey/P.Roberts	3:37.16	3:30.15

Combined Speed at Frankston 15/2/04

Entrant	Class	Flight 1	Flight 2	Flight 3
1. N Wake	5	15.25	14.99	15.18
2. N Wake	2	15.83	-	-
3. V Marquette	Vin Proto	48.5	49.97	47.49

Midge Speed

1. J Hunting	11.13	10.83	N.T.
2. K Hunting	11.89	11.06	11.20
3. M Wilson	13.00	12.16	11.89

MINI GOODYEAR at Frankston 15/02/04

	rd 1	final	Engine
1. C.Ray/J.Ray	4:06.31	8:36.21	CS 11
2. H.Bailey/P.Roberts	4:52.85	10:01.03	OS CZ11P
3. M.Wilson/M.Ellins	4:48.25	dnf 142	OS CZ11P
4. J.Hunting/K.Hunting	5:08.12	w/d from rd 2	?

The 50th Hunter Valley Championships (2004) will be held at the Mitchell Hill Field, Muswellbrook on the weekend of March 6th and 7th.

The HVC is the oldest continuing regional annual championship in Australia that still incorporates all three Aero-modelling disciplines R/C, C/L, F/F

For details see:

<http://www.angelfire.com/journal2/randall/HVC2003/> for Events, Entry fees and Accommodation details.

Sat 6th March

R/C Sailplane Open, 2 Metre, RES & Vintage.

C/L Vintage 1/2A Team Race, Vintage A Team Race, Classic B Team Race, Classic Stunt. FAI Combat.

F/F 8pm Night Scramble.
Hot dinner served at 7pm

Sun 7th March

R/C Texaco, Duration.

F/F HLG and Catapult Glider.

C/L Combined Speed, Junior Simple Rat, 2.5cc Slow Combat, Aerobatics

Inquiries to : Grant Potter, 21 Kingdon Street, Scone NSW 2337.

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Senior \$10 per event (Maximum payable \$40)

Team events-\$10 per senior person, \$5 per junior person

Newsletter Editor

Harry Bailey.

37 Thompson Street.

Clayton.

VICTORIA. 3168.

Telephone (03) 9543 2259.



Monty Tyrell Memorial Classic Stunt

The annual Monty Tyrell Memorial Classic Stunt is on again.
 Make a note to be at the KMAC field
 (Melway 72 K9) on
Sunday March 28th. 10am Start

*Meet old friends.

Refreshments Available

This perpetual event run each year in memory of Monty Tyrrell, a great aeromodeller and member of KMAC, will be flown to the 1962/64, Rules.

Basic Rules:-

- *Model must be pre Dec. 31st. 1965 design. (No modifications & proof may be asked for)
- *Any motor up to 10cc may be used. (Must have efficient muffler Fitted)
- *Pattern in Australian Rules 1962-64 Rules Book. (Less triangles)
- *Total flight time 7 min. including start and landing.
- *To be flown over best two out of three rounds. (Time Permitting)

MONTY TYRRELL CLASSIC STUNT PATTERN

- *DEPARTURE (Within 1 minute)
- *TAKE OFF (Smooth Assent to 2m)
- *HORIZONTAL FLIGHT (2 laps at 2m)
- *DOUBLE WING OVER (Reverse wingover)
- *5 CONSECUTIVE INSIDE LOOPS
 Tops 45 degrees max.
 Bottoms 1.5m to 2m.
 2 laps at 2m.
- *INVERTED FLIGHT
- *5 CONSECUTIVE OUTSIDE LOOPS
 Tops 45 degrees max.
 Bottoms 1.5M to 2 M.
 2 laps at 2m.
- *3 CONSECUTIVE HORIZONTAL (FAI) EIGHTS
 Tops 45 degrees max.
 Model vertical at centre
- *3 CONSECUTIVE VERTICAL (FAI) EIGHTS
 Top 90 degrees max.
 Model horizontal at centre
- *3 CONSECUTIVE OVERHEAD (FAI) EIGHTS
 Model must not come below 45 degrees
 throughout the manoeuvre
- *FOUR LEAF CLOVER 4 equal sized loops
- *LANDING smooth descent from 2m high

Contest Director Ken Taylor

For Sale

ENYA 09 - III (bench run only) \$40
 OS 29 Twinstack - early 50's vintage VG cond. \$75
 OS Max III 35 - 1967 vintage New un-run \$140
 ENYA 35 Model III - B 5224 (round venturi)
 bench run. with spare venturis & HC head \$70
 ENYA 40 Model 6002 R/C Near New \$75
 All prices plus postage.
 Please phone BOB ALLAN on (03) 5145 5548
 or email at bobshirl@bigpond.com

1 x Super Tigre ST 60, run in only. As new. \$200
 1 x Super Tigre ST 60, used, in excellent condition, including spare ring. \$150
 1 x Double Star Lite 60, used, in excellent condition. \$150
 1 x Stalker Pro 60 Side Exhaust 2/4, used in excellent condition. \$150

Paul Allen, Home, 02 65724436
 e-mail: nathan.allen@hunterlink.net.au

I have recently purchased 250g of Ferrocene (98%) (Diesel Ignition Improver) from Sigma Chemicals. Yes it was much cheaper per gram than buying the 50 grams I had intended to purchase, but as it is used at the rate of 0.3 – 0.5 grams/litre it is enough to make up between 500 and 800L of fuel!!!! I am keen to know if anyone else would be interested in using the stuff. I am happy to sell it at cost, which would be \$0.40/gram.
 It's a very effective replacement for Tetra Ethyl Lead (TEL), there is no disadvantage to adding too much. ie It does not cause the engine to overheat, (other than throwing money away) and it is nowhere near as toxic.

I'm happy to weigh out 10g+ quantities if anyone is interested
 Lance Smith Tel Bus 03 97904109
 Home 03 9708 8315

email: smithlw@optushome.com.au

Super Tigre ST46 ex-Doug Harlow, excellent performance, complete with competition muffler, ready to go. \$150.
 Triathlon competition plane 36 inch (suit PAW 2.5) good \$25,
 Burke Mako Sport 46 inch stunter with excellent OS20 and muffler (flies good) \$100,
 Grinham-built 36 inch sport plane with Webra 19 and muffler (all excellent) \$100,
 Vintage Flite Streak 42 inch with new PAW 2.5TBR and muffler (with vintage docs/plans), \$125
 Vintage Ringmaster 42 inch for PAW 2.5 good \$25,
 Taylor-built Vintage Chief 54 inch with Fox 35 and muffler (all excellent) with vintage docs/plans (3rd in State Vintage) \$250,
 Taylor-built All-Australian Mk2 with OSFP40 (MRS) with Vintage doc/plans, 4th in Nats Vintage \$230,
 Also night scrambler Tomboy with Mills 75 specially built to pack away in transport box (superb) \$195.

Derek AH 03 9889 1149.

Something has to go, my models or my boat. I'm keeping the boat.

OS Max S35 c/w OS-703 Muffler, original box & doc's. Refurbished, not run since.
 OS Max III – 35 c/w OS-703 muffler.
 OS Max III - 15, cracked exhaust port, runs well, mounted in solid wing trainer (tired).
 Enya 40BB Model 6002 and muffler N.I.B.
 Enya 19 – V Model XXXX and muffler, mounted in scratch built KeilKraft Spectre, have copy of original plans. Runs and flies perfectly.
 2 x Enya 15 – IV Model 3304, mounted in built up wing profile body aerobatic trainers, both run and fly well.
 SIG Super Chipmunk kit, circa late 70's, complete in box including laminated plans and original decals.

Complete flying kit, lines, handles, spare plugs, plug spanner, battery & leads, ni-cad plug starter c/w car charger, spare props (x25) and flying box.

Plans, magazines, wheels bits & pieces. \$800 the lot or will separate.

Phone or e-mail for photo's.
 Rob MacArthur
 Phone: 03 9754 3618
 Mobile: 0409 191 263
 e-mail: rmacarthur@bigpond.com



Georgiadis Multi Function Valves, any condition.

Please contact Paul Cameron at LPACAM@bigpond.com
 or phone 0408 367 080.

Pilot or pitman to assist at Busselton Nationals in Goodyear T/R, Vin "A" T/R. and Classic "B" T/R.

Harry Bailey. Tel A/H (03) 9543 2259 or email acln@ozemail.com.au

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- "Ol Blue" - 2cc Mini Goodyear - pre cut wood, hardware, wheel, shutoff, plans etc. **\$69 .00**

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