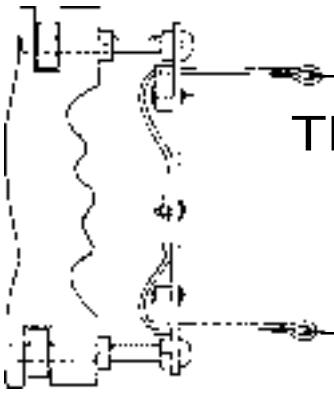

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THE VOICE OF CONTROL LINE AEROMODELLERS FROM AROUND AUSTRALIA

Number 39

AUSTRALIAN CONTROL LINE NEWS

Produced by the Victorian Control Line Advisory Committee

November 2000

INSIDE THIS ISSUE

Copy Deadline for next issue is: Wednesday 15th November 2000

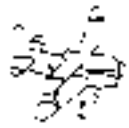
PRODUCTION SPECIFICATIONS

Please remember when submitting copy that if you have access to a PC, or suitable typewriter you can save us retyping by giving us 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.

Harry Bailey
37 Thompson Street. Clayton VIC. 3168.
Telephone (03) 9543 2259.
Email address:- acln@ozemail.com.au
Fax is also available, but please notify before sending to ensure fax is active.

COMING EVENTS



CONTROL LINE CONTEST CALENDER 2000/2001

NOV 5	Country Day at Knox	CLAG
NOV 12	Triathlon.	SMAC
NOV 19	**FAI & Combined Speed,** FAI & Modified Combat, **Mini Goodyear,** 1/2 A Combat.	CLAMF
NOV 26	Monty Tyrell Memorial - Classic Stunt.	KMAC
DEC 10	Aust "A" Team race, Aust "B" Team race, Bendix.	SMAC
DEC 17	**FAI Team race,** 2.5cc Open Combat, **1/2 A Team race.**	CLAMF
2001		
JAN 21	**FAI & Combined Speed, Mini Goodyear.**	CLAMF
JAN 28	FAI (Hearns), Novice & Jnr Aerobatics, Vintage "A" Team race, Aust "B" Team race.	KMAC
FEB 4	Simple Rat race, Simple Goodyear.	SMAC
FEB 18	**FAI & Combined Speed,** 1/2 A Combat, **Mini Goodyear.**	CLAMF
FEB 25	Classic Stunt, Vintage Stunt, Class 2 Team race.	KMAC
MAR 11	Hand Launched Glider.	SMAC
MAR 18	**FAI Team race, Goodyear,** Simple Rat race.	CLAMF
MAR 25	FAI, Novice & Jnr Aerobatics, Vintage "A" Team race, Aust "B" Team race.	KMAC
APR 8	Simple Combat.	SMAC
APR 13,14, 15,16	Victorian Control Line State Championships.	KMAC/CLAMF
APR 21 - 27	54th Australian National Championships.	Busselton, W.A.
APR 29	FAI (Yeoman), Novice & Jnr Aerobatics. Vintage Stunt.	KMAC
MAY 6	Vintage "A" Team race, Aust " A" Team race.	SMAC
MAY 20	**FAI & Combined Speed,** Triathlon (Artmil Trophy), **1/2 A Team race.**	CLAMF
MAY 27	FAI, Novice & Jnr Aerobatics, Classic Stunt, Simple Rat race.	KMAC
JUNE 10	Balloon Burst, Limbo.	SMAC
JUNE 17	**FAI Team race, Goodyear,** 1/2 A Combat, FAI & Modified Combat.	CLAMF
JUNE 24	FAI, Novice & Jnr Aerobatics, Combined Speed, Vintage "A" Team race.	KMAC
JULY 8	Simple Rat race (whipping permitted)	SMAC
JULY 15	**FAI & Combined Speed,** Jnr 2.5cc Combat, **Mini Goodyear,** Jnr 2.5cc Rat race.	CLAMF
JULY 22	FAI, Novice & Jnr Aerobatics, Class 2 Team race, Vintage Stunt.	KMAC
AUG 12	Simple Combat.	SMAC
AUG 19	**FAI Team race,** 2.5cc Rat race, 1/2 A Combat, **Combined Speed.**	CLAMF
AUG 26	FAI (Stuntmasters), Novice & Jnr Aerobatics, Vintage "A" Team race, Aust "B" Team race.	KMAC
SEPT 2	Classic Stunt, Vintage Stunt, Aust "A" Team race, Aust "B" Team race, Simple Combat.	Warragul
SEPT 9	Vintage "A" Team race, Aust "A" Team race.	SMAC
SEPT 16	**FAI & Combined Speed,** Simple Rat race, **1/2 A Team race.**	CLAMF
SEPT 23	FAI, Novice & Jnr Aerobatics, Classic Stunt, Bendix.	KMAC
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.	

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 CLAM.F 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

Competitors at CLAMF competitions are reminded that events **start at 10.30a.m.** and they should be ready to begin at this time.

COMING EVENTS

THE FOLLOWING PROGRAMME IS OPEN TO ALL MEMBERS OF THE MODEL AERONAUTICAL ASSOCIATION OF AUSTRALIA (M.A.A.A.)
LOCATION OF FLYING FIELDS

(ALL EVENTS START 9 am UNLESS OTHERWISE NOTED)

TAMWORTH MAC: CONTACT LEN SURTEES 02 67-61 8508
R.E.M.A.C.: PETER BOARD HIGH SCHOOL, WICKS RD.,
S.S.M.E.: LUDDENHAM ROAD, LUDDENHAM.
K.M.F.C.: ST. IVES SHOWGROUND, MONA VALE ROAD, ST. IVES.
S.A.T.: KELSO PARK, HENRY LAWSON DRIVE
I.M.A.C.: BIRKLEY ADJACENT TO FREEWAY.
MUSWELLBROOK M.F.C.: MITCHELL HILL FIELD, NEW ENGLAND HWY., MUSWELLBROOK.
DOONSIDE M.F.C. : EASTERN CREEK RACEWAY OFF REEN ROAD, BLACKTOWN
NARROMINE: CONTACT STEVE BAKAC 02 68 89 2501
CLAS CONTACT MIKE COMISKY 02 9605 2062

DATE	HOST	EVENTS & VENUE
NOV 19	SAT	F2B AEROBATICS
NOV 19	KMFC	VINTAGE A T/R, 1/2A T/R, VINTAGE STUNT
NOV 26	SSME	F2B AEROBATICS
DEC 2	REMAC	VINTAGE STUNT
DEC 3	WERRINGTON	CLASSIC STUNT TO 1970 WITH MUFFLERS
DEC 3	MACARTHUR	MODEL AVIATION CLUB SPORT inc SCALE DAY
DEC 10	KMFC	CHRISTMAS PARTY AND FUN FLY

All dates subject to change : for further details contact:-

Guy Bevan Hon Secretary CLAS 2 Kamilaroi Rd Bayview 2104 Phone / fax 02 9979 9595 Mobile 0412 465 802 Email: guybevan@hotmail.com

Queensland Control Line Events Calendar

DATE		FIELD
Oct 8	CLASII Rat, Scale Fly In,	CLASII
Nov 12	CLASII Rat, Class 2 T/R, Bendix, 35 Slow Combat	CLASII
Dec 10	CLASII Rat Final, Trophy presentations & Christmas BBQ breakup.	CLASII
Year 2001		
Jan 14	"Come n Try" Fun Fly CLASII Rat Demo	CLASII
Jan 26-27 (28th Stand by date if needed)	QUEENSLAND STATE CHAMPIONSHIP. C/L SCALE F4B, Qld. Stand off Scale, Fun Scale	CLASII
Feb	Round 1 CLASII Rat Yearly Competition FAI Combat, 36 Slow Combat	

SUBSCRIPTION APPLICATION

ARE YOU BORROWING?

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Dear Editor,

Behind the scenes of all successful events are un-noticed and unsung hero's and at the recent N.S.W. C/L Championships there a number of them working away in the background.

I would like to take this opportunity to compliment and thank Dick and the other members of the Narromine C/L Club, their wives and family members for their magnificent efforts in hosting the champs.

The fields, surrounds, bitumen circles etc. were a credit to them and nothing was to much trouble. Meals were available at the venue from 6-30 a.m each day and the BBQ and presentation dinner nights were wonderful. Facilities available included licenced club and camping facilities right next to the field. I understand that next years champs will again be held at this venue in October 2001, and would strongly suggest readers keep this date open next year for a really great weekend with a great bunch of guys and gals. I for one certainly will be back!

Once again, thanks for everything on behalf of the members of CLASII club.

John Dalrymple
Secretary

News from 2VA

By Charlie Stone VH 4706

TARMAC Notes for September and October

Prompted by the advert for engine spares in the August issue of Windsock, I phoned Doug Murray to see if he could find a new con rod for my very first engine, an OS MAX II .15. I hadn't spoken to him for years and I am pleased to hear that he is fit, healthy and still active, even though not currently aeromodelling. Doug always was at the leading edge of modeling technology, and in recent times has become well versed in the black arts of computing. If you want to drop him a line to renew old acquaintance he can be contacted by Email at: dougm@netunltd.com.au (The address previously mentioned in Windsock is now out of date.) I am sure that he would be glad to hear from any old friends and he does still have a few engine spares available for sale.

With the coming of some good weather, there has been an amazing amount of activity at the flying field. There has been competition, sport flying and a few significant events. There are quite a few younger members flying now and Daniel Adler, who is a regular fixture there most weekends, recently flew in his first team race, a plain bearing rat event. Fred tells me (his words) that Dan is being trained up to replace an aging Jim Stivey as pilot for all the racing events. I hope that Fred hasn't forgotten that the ravages of age affect us all sooner or later, and before you know it, even he will be using make up to put the blush back in his cheeks (perhaps he is already).

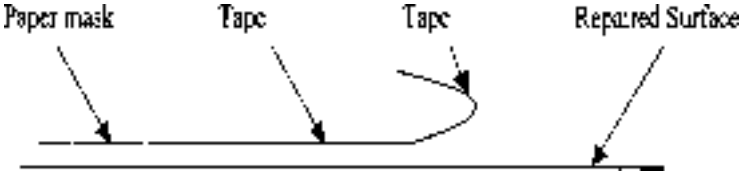
For those of you that spend (dare I say waste) some of your valuable building time roaming around the World Wide Web, it may be time to re-visit the 'Memories of Australian Control Line' web site of retired racer David Kidd. It can be found at < http://dkd.net/clmodels >. Thanks to the efforts of an anonymous worker known only as John Hallowell, a team racing page with photographs has now been added, as have the current rules for Classic B class team racing. After browsing through them yet again, it reminded me of a question that I would very much like answered. It will doubtless need some explanatory input from one of the rules twiddlers that seem to abound on the East coast. What the heck is the problem with fitting a valve in the tank filler pipe?? Can someone tell me?

The Classic B rules specifically exclude having a valve of any type on the filler pipe, but allow a valve of the schraeder type in the overflow pipe. Oddly enough, the most recent list of proposed changes to the Vintage A rules have also raised this issue, suggesting changes that line up exactly with the Classic B system, despite the fact that designs legal for Vintage A have used this feature, which is even shown clearly on the plans for the 'Time Traveller'. This certainly seems to be an issue that is a problem with someone over there, and if the change is made it will be a problem for me over here. You see I use a ball check (anti siphon) valve in the filler pipe of all my racers just like Dick Edmonds did on his Time Traveller, and since my tank setup works perfectly as it is, I don't want to change. And I don't see why I should have to. If it was legal in 1955, it should be legal now. That exact argument was good enough to tip the scales in the recent 'holes in Oliver pistons' furore, it should suffice for the tanks too. I notice that racing numbers have been dropping off in recent times and I know that if this proposed change goes ahead it won't help the numbers on this side of the country.

Everybody that puts pen to paper, or finger (singular) to keyboard on a regular basis, sooner or later runs out of steam. Or ideas. Just lately, having spent more than ten years producing these notes, I have been feeling that way. So if these notes from time to time seem a bit thin, then please remember that there is always the option of calling me with some news or ideas to be included for the edification of that other reader. I haven't yet decided to fade away completely, though there has to be an end sometime I suppose.

On that note, I would like to say thanks to Jim Trevaskis for his contributions from the distant East coast. He is one of very few. Jim is dividing his time between building speed models and polishing up his stunting skills at present. He also mentions that he is busy making a stooge (mechanical model release) at present so that he can fly when no human launchers are available. Anyone that has seen the paint jobs that Jim puts on his models, would have to concede that any finishing tips that he passes on are worth listening to, and he has shared a couple of them with us. Jim writes:

Here is an oldie but goodie. When doing spray repairs using either a gun or a pressure pack, rather than masking a hard line which leaves a ridge, fold the edge of the masking back on itself like the sketch and spray over that.



It works best if you can do it on an edge (Leading edge, fuselage side, top or bottom junction etc.), but it still works OK on a flat surface. The method is called back taping and was discovered by Chrysler in the early sixties. There used to be a tape available with adhesive on only half the width, but I haven't seen any for a while though.

Here is another one. If you are doing touch up repairs with a pressure pack and want to cut down on the fan width, put a hole 25 to 40 mm in diameter in a 300 mm square piece of cardboard and spray through the hole. Experiment by varying the card to spray can distance on a test piece first.

For those of you that like something a bit different, Brian Gardner of 'Bristunt' has, I'm told, recently acquired the plans of the French models used at this years World Championships. They include the Sukhoi, Gee Bee and Caudron designs. All of them are designed to suit Saito .50 to .56 four stroke motors. They are not conventional stunters, but are obviously very competitive (World Class). Contact Brian Gardner if you would like copies of these plans.

Grant Lucas sometimes brings his new projects along to the flying field so that we can see what he is up to. It is a good habit as far as I am concerned as you can learn a lot by looking at work that is not hidden under a layer of filler

and paint. His most recent treasure is a highly polished mould machined from aluminium plate. It is to produce very accurate carbon fibre tail planes for his speed models. I saw his (unfinished) new speed model for Nelson .29 and it looks very promising. Grant will be putting his dyno back into action soon to measure the horsepower curves of his new motor. That is the way to learn exactly what it takes for record breaking performance. Interestingly enough there was quite a lot of information on the subject of power measurement in the July Australian Control Line News (#35) by Maris Dislers and Stuart Sherlock (the Prop doctor) also mentioned the same subject.

As I am sure that I have mentioned already, I have not been attending many contests of late and as a consequence cannot give any blow by blow event coverage. I do however have a few results to reveal, even though they may be a bit devoid of detail. On the 19th of August Club Stunt was won by Hans Bertina, with Dick Morrow in second place and Trevor Letchford in third.

This was followed on the 2nd of September by State Vintage Combat which had seven entries and was won by Bob Fry, who was in good form on the day. Garry Turna placed second and Adrian Dyson was third. I was told that Trevor Letchford earned himself the nickname 'Wrong Way' by repeated attempts to fly with his handle held upside down (he has probably been watching Phil Trueman who always flies that way). One thing that was achieved was to thoroughly prove the strength of Taipan un-reinforced nylon props.
They stand up to this sort of mistreatment very well.

On the 17th of September, the hard surface racing events of State F2C and Goodyear were held. F2C had six entries and was won by the team of Stivey/Bertina, with Bellis/Walton in second and Hoogenkamp/Leknys in third. Goodyear had five entries and was won by Fry/Taylor, with Thompson/Letchford in second and Bellis/Walton in third.

Do you know that you don't need a parachute to skydive? You only need a parachute if you want to skydive twice.

Charlie Stone VH4706
Email<cestone@bigpond.com>

Subject:- Proposed 2 Tier MAAA Membership

The 2 tier membership proposed by Leo O'Reilly and Joe McGuffin of MASA would be laughable, if I wasn't so scared that it would succeed.

Consider the following:

Total Cost to the MAAA of $41,271 per year for FAI Membership.

Based on the proposal of 8000 Sport Modellers and 2000 FAI modellers, the saving for Sport Modellers would be $5.15 and the cost to FAI modellers would be $20.60. Doesn't look too bad now does it, but what if.....

The number of FAI modellers in Australia was less than 500 resulting in a saving of $4.34 for the Sport Modeller and a cost to FAI modellers of $82.54 per year (based on 10000 members as in the proposal example), and it just gets worse....

There were 171 entries in FAI events at Nowra (F2C and F2D require two FAI members) and this doesn't even begin to consider the fact that many of the FF and C/L members fly in multiple FAI categories. Ballarat had 257 entries.

If many "FAI" members decide to leave because of the extra cost (and some will), 250 FAI members is not unrealistic - a saving of a whopping $4.23 for the sports flyer, with an increase of $165.08 per year for the FAI flyer.

MODEL AEROSPORT S.A. Inc - GET REAL - the cost to sport flyers is less than most would spend on fuel in a weekend!

Every modeller should actively oppose the two tier proposal presented by MASA.

If MASA want their own national group - fine, just make sure they have to negotiate their own R/C frequencies, airspace with CASA etc. and tough luck to any non MAAA members that may want to compete in MAAA events, FAI events or even to set FAI recognised records.

Keith Baddock AUS 29574
Email:- keithbaddock@uswest.net

CALM CLASSICS IN SEPTEMBER

Good weather finally arrived for the KMAC club stunt day on 24th September when the F2B and Classic fliers had a great time.

While both competitions turned out to be another Doug Grinham and Peter White benefit as they demonstrated their aerobatic superiorities, the remainder of the entry enjoyed the pleasant conditions. Unlike previous club days in bad winds when too many fliers hit the deck.

The day marked the return to stunt of John Hallowell who enjoyed flying his recently lightened Cobra. But Mark Ellins had trouble with a new ST46 motor that needed more running-in so he withdrew it and returned with his "high mileage" Nobler.

Derek Pickard maiden flew his newly acquired Tucker Special which required major trimming work but completed the Classic pattern.

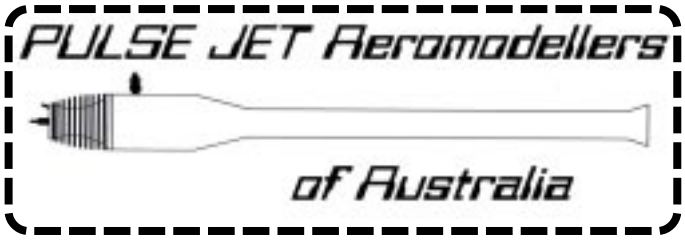
RESULTS

F2B

Doug Grinham	(Jazzer2/ST46)
Peter White	(Zodiac/Moki 51)
Derek Pickard	(Singing Sixty/Stalker 61)
John Hallowell	(Cobra/ST46)
Mark Ellins	(Minato/ST46-G.Nobler/Fox 35)

CLASSIC

Doug Grinham	(Nobler/DS 40)
Peter White	(Nobler/Fox 35)
Mark Ellins	(G.Nobler/Fox 35)
John Hallowell	(Tucker Special/OS FP35)
Robin Hiern	(/Frog 500)
Derek Pickard	(Tucker Special/Fox 35)



Pulse Jet Fuels

By Bob Fry.

A Pulse Jet engine will run on almost any flammable liquid as long as the correct air/fuel ratio is maintained. Petrol based fuels have high BTU ratings and will run for a longer time when compared to alcohol fuels, but have narrow limits of flammability and can cause difficult starting. Higher octane rating fuels require higher ignition temperatures. Once initially started, the combustion process is self-sustaining without the need of any ignition device. Lower octane ratings make this process easier, high octane ratings are good for piston engines but bad for Jets. Both petrol and alcohol based fuels can be mixed with other chemicals to improve their use as a Pulse jet fuel.

The “Flash Point” of a fuel is the minimum temperature at which the fuel form vapours that can be ignited. A low flash point will assist in starting and is a good property in a Jet fuel. The “Limits of Flammability” is a ratio given at which the fuel will burn in air, if the fuel is below this ratio the engine will run lean and stop and if above this ratio will run rich and also run poorly and stop. Using a fuel with wide flammability limits allows for greater variation in metering jets when starting and tuning, where as a fuel with narrow limits will not run until just the right metering jet is found.

The following is a list of some fuel components and their properties.

PETROL

Limits of flammability are 1.4 to 7.6% in air and a flash point of -40(C. The narrow limits of flammability can cause the Jet to be difficult to start. The Engine to tank position will have an affect on the fuel supply to the engine in flight and can easily change to cause a rich or lean run if the air/fuel mixture range is out of these limits. Petrol also has a high vapour pressure of 15 psi, which is a major concern as vapours clouds form easily and linger in the immediate area. The ignition temperature is high at 456(C. Petrol will cause the Jet to run very hot if stationary and will reach a temperature high enough to melt down the combustion chamber and tail pipe. Petrol has a high BTU and will allow the engine to run for a longer duration than most other fuels.

METHANOL

Limits of flammability are 5.5 to 44% in air and a flash point of 12(C. With an exceptionally wide range of combustibility Methanol is a better fuel for jets than Petrol and can be further improved when mixed with other chemicals. The low flash point can be a problem when starting in very cold conditions. Vapour pressure is 1.9 psi making unwanted vapour clouds less of a problem. The ignition temperature is high at 455(C. Methanol is a cheap, easily available and is a good base ingredient for Jet fuels.

MEK

Methyl Ethyl Ketone has flammability limits of 1.8 to 11.5% in air which is better then Petrol but still fairly narrow. The flash point of -1(C is good but the ignition temperature is higher at 505(C. Vapour pressure is 1.5 psi making MEK safer to use. A mixture of 80% Methanol and 20% MEK was once used by the American AMA but was never very popular.

NITROMETHANE

Nitromethane has a very large flammability range of 7.3 to 63% in air and is not a volatile chemical and has a vapour pressure of only 0.5 psi. The flash point is high at 44(C and the ignition temperature is 415(C. Nitromethane adds oxygen as it burns and produces extra power but does not work well by itself due to its non-volatile nature with a high ignition temperature and flash point. When mixed with other chemicals with better ignition properties Nitromethane can work very well as a Jet fuel.

PROPYLENE OXIDE

Limits of flammability are fairly wide at 1.9 to 24% in air with a very low flash point of -37(C.

Vapour pressure is high at 14.4 psi tending to produce unwanted vapour clouds heavier than air. The ignition temperature is 430(C. Propylene Oxide is a volatile chemical but is an excellent ignitor for Jet fuel. It should be mix just before use, as it does not stay fresh over long periods. A mix of 80% Methanol and 20% Propylene Oxide has been adopted by the American AMA in preference to the earlier 80/20 MEK mix.

ETHER

Ethyl Ether flammability is 1.7 to 26% in air with a very low flash point of -40(C. Ignition temperature is low at 170(C and a vapour pressure of 8.6 psi. Ether is an excellent ignitor and can be used in place of Propylene Oxide to assist in improving combustibility. The boiling point is 34(C and it should be handled carefully and store in a cool place and not exposed to light. One way to stabilise Ether is to mix it 50-50 with Methanol while still fresh to eliminate handling problems.

Recommended fuels.

When using methanol it is easier to obtain the correct air/fuel ratio than with petrol. It will work fine by itself (except if very cold) but is far better when mixed with an ignition agent such as Ether or Prop Ox. The addition of Nitro will also improve the flammability of the fuel. The combination of 80% methanol and 20% Prop Ox will give good performance and other combinations using Ether and Nitro will also produce good results. One of the most powerful fuel combinations has been proven to be 50% Nitro and 50% Prop Ox.

I have tried a mix of 50% Nitro, 40% Prop Ox and 10% Ether that produced a deep throaty growl and recorded a personal best time with my stock Bailey Jet.

The blend of 80% methanol and 20% MEK was once used

as the competition fuel in the United States to reduce model speeds in their stock class but was found not to run well in all Jet types. Petrol, White Spirit and Shellite will give more range over alcohol fuels but have very narrow flammability limits and must be jetted just right and the setting can vary depending on atmospheric conditions.

One combination I will be experimenting with shortly is a combination of 80% Methanol and varying percentages of Nitromethane, Prop Ox and Ether. Possibly a 10/5/5% of these additives to find an easy starting fuel for all conditions with the best performance at the least additional cost.

There are many chemicals and combinations that could work well as a Pulse Jet fuel. Not all combustible chemicals are dealt with in this article, only those considered to be most suitable for Jets have been covered. Other chemicals such as Ethanol, Pentane, Hexane, Heptane, Nitroethane, Nitropropane could be used. Some experimentation may find different fuels that could work better than what you are currently using.

When Pulse Jets are used in competition and speed is the ultimate goal, the right fuel and jetting will produce the greatest gains in performance. Once the correct combination is found only small changes in metering jet size should be needed to suit different conditions.

All of these chemicals should be stored and handled carefully, some have health warnings on the data sheets supplied by the chemical supply companies when purchased and these instructions should be read and followed.

So get your Jets out there and FEEL THE NOISE!!

P.S.

The email address for the tuned exhaust intake article published in the October issue has been changed. Contact for Bill Capinjola is now. jetbill40@aol.com

Bob Fry e-mail
bob.fry@wpcorp.com.au

CONTEST RESULTS

N.S.W. State Championships results

F2B

EXPERT		ADVANCED	
1. Eather B.	1931.25	1. Tansley G.	1609.75
2. Batty M.	1889.25	2. Brown J.	1529.75
3. Towell R.	1831.25	3. Alleyn N.	1449.25
4. Parisi J.	1830	4. Elias J	1441.5
5. Turner P.	1787.25	5. Batty J.	1418.75
6. Gee T.	1649.25	6. Graham R.	1398
7. Graham K.	1188.25	7. Bakac S.	1388.25
		8. Masterton S.	1315
		9. Smith I.	1126.5
		10. Norrie W.	690.25

VINTAGE		CLASSIC	
1. Elias J.	173	1. Towell R.	771.5
2. Smith I.	164.5	2. Elias J.	738.5
3. Raymond J.	159	3. Masterton S.	674
4. Beahan M	59	4. Smith I	594

Queensland News
From John Taylor

Just recently CLASII ran a grass speed event which unfortunately attracted only our own club members with Jet & Proto speed being the only speed events contested. Better luck with the interclub mouse racing with once again Thunderbird's Club coming out winners. We will however try another speed event early next year. Our next big event is the Queensland State Championships C/L Scale weekend on 26th-27th January.

C/L modelers are currently being asked to vote on altered rules, added rules and added events to be decided at next February's MAAA Council Conference. In the hope that things "MIGHT" change in the future, I would like to offer some constructive (not destructive) criticism.

If the stunt group of fliers can manage to run their events on time and according to the rules, why can't T/Race and Combat fliers do likewise ? I strongly believe that by the time competitors get to State Championship & National / International levels that all rules, time limits etc. should be rigidly enforced i.e. if you are not ready on time the race or bout goes on without you. Pitting rules should observedand enforced in T/R events. Last but not least, contrary to what a recent scribe wrote, CLASII has 5-6 team race teams including junior member teams.

Happy flying.

John Taylor

CONTEST RESULTS

Results of the Riverside Trophy competition held at Frankston on Sunday October 15th.

The Riverside Trophy was presented to the club by The Riverside Hobbies model shop.

The first competition for the trophy was held in 1971. The event is for 2.5cc Rat Race models and the innaugral winners were the team of Tilley / Kennedy.

Five teams entered this year with a mixture of models and motors. It was not just a case of the fastest model that was going to win because with whippng permitted and a 20 minute final the fittest pilot with the strongest arm would have an advantage.

Results:- 5 minute heats, 20 minute final

Team	Heat 1	Heat 2	Final	Engine
C Ray/J Ray	123	DNS	486	OS15FP modified
M Ellins/G Wilson	117	DNS	442	OS15FPstandard
J Hunting/ K Hunting	112	118	234	ST G20-15D
H Bailey/P Stein	102	106		OS15FPstandard
M Wilson/G Wilson	101	101		OS15FPstandard

Knox contest 22/10/00

Vintage team race

Only two teams took part so only one heat was flown. Both teams flew Voodoo models.

Hallowell / Ellins	3:26.78
Bailey / Roberts	3:54.70

Class 2 Team Race

Again two teams flew and both were using Nova Rossi .21 engines. Bailey / Ellins were keen to see how close they could come to their record breaking Nationals time but landing through the plug leads and breaking the connections during the pit stop put paid to that plan. Hallowell / Roberts had a lean first tank, but improved the tune for the last 35 laps to come out on top of the time sheet.

Results

Hallowell / Roberts	3:19.6
Bailey / Ellins	4:36.0

CONTEST RESULTS

Combined Speed
Held at Knox 22 /10/ 2000

Pos	Name	Class	Engine	Flight 1	Flight 2	Flight 3	Fastest	Km/h	%
1	R Hiern	1/2A	AME .049	11.79	9.75		9.75	148.55	98.67%
2	R Hiern	.21	Novarossi 21	14.56			14.56	247.25	96.04%
3	N Wake	.21	Picco 21	15.73			15.73	228.86	88.90%
4	N Wake	2	Picco 21	11.91	12.36	12.06	11.91	243.33	84.00%
5	H Bailey	Proto	Novarossi 21	30.72			30.72	188.60	79.04%
6	V Marquet	Vintage							
		Proto	McCoy 29	53.63	48.19	48.31	48.19	120.22	74.70%
7	J Hallowell	Proto	Novarossi 21	35.19	34.59		34.59	167.49	70.19%
8	P Roberts	4	K&B 40	15.28	14.00	14.30	14.00	206.92	68.19%
9	N Wake	4	OPS 40						0.00%
9	C Agnew	1	OS CZ11 PS						0.00%
	J Hunting	Midge	PAW	-					
	K Hunting	Midge	PAW	10.10			10.10	143.41	

South Australian Control Line State Championships.
To be held at Monarto S.A.
Hosted by Adelaide Model Aerosport Inc.
26th – 28th January 2001.

Bulletin 0

The 2001 State Championships will be the first competition held at Adelaide Model Aerosport's newly constructed control line flying site. The site is situated 8km west of Murray Bridge on the Princes Highway and is approx. 45 minutes drive from Adelaide.

Accommodation for the weekend can be booked locally in the area, Murray Bridge has a number of hotels and caravan parks offering a full range of facilities.

Bulletin 1, including a program of events and entry form, will be published in the next issue of Australian Control Line News.

For more information contact:

Rob Fitzgerald
Ph: (08) 8261 7341
Email: fitzgerr@cssp.com.au

WHITES WRITINGS

REWORKING AND SETTING UP A STUNT MOTOR.

From Peter White

Some years ago, 1975 actually, I began corresponding with New York aerobatics flier and engine man, Rene Mechin, known to the general U.S. stunt fraternity at the time as "Mother" because of his preparedness to help anyone who was having motor or equipment problems.

Rene, who suffered a fatal heart attack in late 1980, worked with "Big Jim" Greenaway on fine tuning Super Tigre 46's for aerobatics. Big Jim went on to developing S.T. 60's to a high level and is still a leading engine man in the U.S., having also designed the often built or modified (in the U.S. at least) Patternmaster.

Some time during 1974 I had bought a S.T. 40 which was giving me all sorts of bother but nothing else. Finally, I wrote to one of the well known U.S. flyers of the time who passed my letter on to his engine man, Rene Mechin.

Rene suggested some procedures that had worked on some 40's but for some reason not on others so it seemed that getting a S.T. 40 to work for aerobatics was a bit of a pig in a poke. He also suggested that the .46 was a better alternative - easier to set up, more power and similar dimensions to the .40, which I had built the model for.

The letter which Rene sent contained eight pages of detailed steps on preparing a S.T.46 for aerobatics although much of the information could be applied to other motors. The following is a copy of the appropriate section of the letter with a little paraphrasing here and there where necessary.

"A .46 needs little or no modification. It will run with a variety of venturis and compression ratios. Bill Simons, for instance, flew a ship in the '73 Nationals weighing 66.5 oz, 60" span with a .246" I.D. venturi on a 12.5 X 5 Rev-Up prop and finished fifth (by 1/4 of a point) with less than a weeks practice.

We normally drill a hole through the case with the hole centre for the spraybar 1/2" above the base of the mounting lugs, since we're using one inch deep tanks which brings the feed pipe from the tank level with the spraybar. We nearly all use tank compartments and removable tanks (uniflow with muffler pressure). We also use 1/16" or 1/8" aluminium plates on the bearers and make the tank compartment 1.25" to 1.5" (or more) deep so that we can shim the tank up or down to cure lean or rich runs from upright to inverted flight.

Whatever you do, err on the high side for the spraybar hole - 9/16" is far better than 7/16". Drill a 3/32" pilot hole and ream it to fit the spraybar. If you're out in getting the pilot hole dead in the centre in the case, with some careful filing and reaming you can adjust it. (This step doesn't apply to most motors which are produced with the spraybar holes already in place. It does apply to motors such as the .46 which have the "sprinkler" set up that we wish to modify.)

The I.D. of the venturi will govern fuel consumption and horsepower (but not torque) so it can vary from say .250" to .300" depending on what you need for power. To enlarge the venturi use a 1/8" to 3/8" or 1/8" to 1/2" ordinary tapered hand reamer. Proceed carefully, trying to have the narrowest point (where the two tapers meet) just above the spraybar. Hold the venturi to a strong light and by looking in the bottom end you'll see where the tapers meet and you can adjust accordingly.

However, if you wish to use the "sprinkler" system, try the following. Carefully insert a drill slightly smaller than the venturi I.D. and chamfer the very obvious step just above the inlet holes but don't enlarge the I.D. Any enlargement really effects the way the engine runs so be very circumspect about increasing the I.D. a few thousandths at a time.

Now to the internals of the engine. Disassemble the engine carefully. If you have trouble with the sleeve (liner) do not try to pry it out. Heat the case to 275 deg -300 deg F. in the oven and with a plastic implement (toothbrush handle or the like) or a 1/4" dowel in the bypass against the bottom of the sleeve, tap it out gently. If it doesn't come out easily, increase the heat and keep trying. Before you heat it remove as much oil from the engine as you can. Now fish the wrist pin out through the hole in the back of the case using a bent pin or wire through the hollow wrist pin. Remove the piston and con rod. Now remove the shaft by tapping with a mallet or hold a piece of wood over the end of the shaft to protect the thread.

Tap the front bearing out using a dowel. Removing the rear bearing can sometimes be difficult. Heat the case as before and then holding it by the front bearing housing, give the back of the case a good slam against a pad of newspapers - the bearing should pop out after a few whacks.

To the head. The squish band should measure .133'' wide and .150" deep. Some of the newer .46's have a squish band with a raised portion at the base of the band and the band itself measures .188" wide and .160" deep so that you have a lot more compression and should use at least one extra head gasket.

Polish lightly and radius all the inside edges of the head particularly around the plughole.

Don't do anything to the outside of the head, which should fit tightly in the sleeve.

Next, clean the bearings and if you have an old one use it for fitting by scraping the front bearing housing where shiny

spots appear very carefully with an Exacto blade or some polishing paper around a dowel or the butt of a drill bit. Keep taking the bearing in and out until the shiny spots are almost gone. When you think you haven't gone quite far enough STOP! You should be able to push the bearing completely home with both thumbs. Do the same with the rear bearing but even more carefully and not at all unless it seems extremely tight.

With the bearings removed, lap the shaft gently in the case with Fox Garnet, Brasso or something similar. Lightly polish the con rod and lap it to the wrist pin and the crankpin.

Tape the crankshaft and crankpin with masking tape and polish the interior of the crank with a rubber polishing point as found in the Dremel tool kit.

Chamfer or radius all the edges on the counterweight and the exit hole of the crankshaft.

Clean the interior of the crankpin, you can also grind the inside of the rear of the intake port in the shaft with a Dremel carbide cutter but be careful as the tool can jump and chew the devil out of things. A foot pedal speed control helps at this stage.

Check the inside of the case for flash and clean up if necessary.

Roughen and thoroughly degrease the by-pass indentation on the back plate and fill with liquid steel, wrapping and taping a strip of acetate around the backplate to form a dam. Ensure that it is free of air bubbles and leave it to cure overnight. After it has cured, place it in an oven and bake for an hour or so at 300deg - 350 deg. Don't forget to remove the acetate strip.

Alternatively, the back plate from a late model plain bearing S.T.35 combat engine will fit and doesn't have the by-pass indentation.

Clean the exterior of the sleeve with polishing paper or crocus cloth.

Take a small, fine flat file and dull or remove the cutting edges so that the file will fit vertically in the transfer and exhaust ports and not damage the top and bottom edges of the ports. Carefully bevel the edges of the webs to almost a knife-edge facing you but take little or nothing from the inner edges of the webs. You wish to have the fuel enter easily but don't narrow the webs / widen the ports so far that the ring might catch on them.

Using a very small brake cylinder hone with medium or fine cut, hone the sleeve interior with a figure eight pattern by holding the flanged top of the sleeve in one hand and turning it about half a revolution anti-clockwise while turning the hone in your other hand the same amount clockwise at the same time moving the hone almost to the top of the sleeve from the bottom. Still turning in the same direction pull the hone to the bottom of the sleeve. Check to see that the interior of the sleeve has a definite pattern of fine scratches in a figure of eight pattern which will help to retain oil and seat the ring. "To ensure that the hone travels into the bore far enough and no more than is necessary, hold the head firmly in (on?) the top of the sleeve. Stick a layer or two of masking tape on the inside of the head to prevent the hone from marking it."

Check the ring clearance or gap by carefully removing it from the piston. They break easily so be sure to have a spare new one handy.

Clean the inner side of the ring carefully and then place it in the sleeve and push it down with the bottom of the piston until you can see the gap in one of the ports. With a feeler gauge you should find a tight .005" or loose .004" gap. If the gap is less, then very, very gently, a stroke or two at a time on each end with a fine file, increase the gap until it is correct. Clean the ring groove in the piston thoroughly.

If you have the equipment, drill a 1/16" or smaller hole in each of the wrist pin bosses in the piston. Put something in the wristpin hole so that the drill won't go through and chew up the opposite side of the hole and drill carefully at low speed. The use of any of the liquids for drilling and tapping will help and be prepared to run through a drill bit per piston. Clean up any edges on the interior of the wrist pin holes caused by the ones you have just drilled.

Make sure that everything is spotlessly clean, including your hands, work area and tools to be used.

Begin reassembling your engine by placing the bearings and the crank in the case, add the con rod, place the piston in the sleeve with the wrist pin hole visible below the bottom edge of the sleeve, which should go back in the case with strong thumb pressure, until the wrist pin holes line up with the hole in the back of the case. Put in the wrist pin making sure that the conrod is lined up too and push the sleeve down firmly. Make certain that the sleeve is in the right way around before pushing it down. Exhaust ports don't work as transfer ports and vice versa!

Before putting on the back plate, oil lightly with a good grade machine oil. Do both bearings, the piston bosses, conrod, etc.

Finish the assembly and your done. You can, if you wish, tap all the screw holes in the case to 5-40 and install 5-40 socket head screws - 1/2" in the head, 1/4" in the backplate.

When you break-in the engine use a 10 x 6 wood prop, cut to 8 x 6. With the exception of the first two runs of thirty seconds or so, which are blubbering rich, run it two or three minutes at a fast four cycle. Let it cool between runs and keep running it until the ring is a uniform grey colour and then increase the runs a minute or so at a time and lean it in for thirty seconds a couple of times each run until you reach about seven minute runs.

After a couple of runs, with the engine hot, give the shaft a good rap to make sure the front bearing is properly seated.

Put an 11 x 5 or 11 x 6 on and give it a couple of runs.

In the plane, for the first couple of flights, run it rich with a 10 x 5 or 10 x 6 and then add the muffler and your standard prop to see how it runs, keeping it on the slightly overly rich side for a few flights.

Plugs that work well in these engines are the Fox 2 volt R/C, Fireball medium (yellow) and, if it's warm, the English Taylors.

As for mufflers, if you are going to use the Merco or O.S. Jetstream, cleaning up the interior of the extension will really help.

Removing amounts off the baffles in the muffler body until it starts to become too noisy will help the engine to run better.

The choice of muffler will have a good bit to do with the way the engine runs. Good engine runs and happy flying!"

So there it is. All good stuff to help you set up a motor that has the basic design specifications suitable for control line aerobatics. I would think that much of the work detailed here would be applicable to motor's used in other types of events as well, picking the eyes out of it to suit the particular motor concerned.

Proposed 2 Tier MAAA Membership

The 2 tier membership proposed by Leo O'Reilly and Joe McGuffin of MASA would be laughable, if I wasn't so scared that it would succeed.

Consider the following:

Total Cost to the MAAA of $41,271 per year for FAI Membership.

Based on the proposal of 8000 Sport Modellers and 2000 FAI modellers, the saving for Sport Modellers would be $5.15 and the cost to FAI modellers would be $20.60. Doesn't look too bad now does it, but what if.....

The number of FAI modellers in Australia was less than 500 resulting in a saving of $4.34 for the Sport Modeller and a cost to FAI modellers of $82.54 per year (based on 10000 members as in the proposal example), and it just gets worse....

There were 171 entries in FAI events at Nowra (F2C and F2D require two FAI members) and this doesn't even begin to consider the fact that many of the FF and C/L members fly in multiple FAI categories. Ballarat had 257 entries.

If many "FAI" members decide to leave because of the extra cost (and some will), 250 FAI members is not unrealistic - a saving of a whopping $4.23 for the sports flyer, with an increase of $165.08 per year for the FAI flyer.

MODEL AEROSPORT S.A. Inc - GET REAL - the cost to sport flyers is less than most would spend on fuel in a weekend!

Every modeller should actively oppose the two tier proposal presented by MASA.

If MASA want their own national group - fine, just make sure they have to negotiate their own R/C frequencies, airspace with CASA etc. and tough luck to any non MAAA members that may want to compete in MAAA events, FAI events or even to set FAI recognised records.

Keith Baddock AUS 29574

Keith Baddock Email keithbaddock@uswest.net>

Monty Tyrrell Memorial Classic Stunt

RULES OF NOSTALGIA AEROBATICS

***Don't miss it.**

The annual Monty Tyrell Memorial Classic Stunt is on again.

Make a note to be at the KMAC flying field on Sunday 26th November.

***Great range of classic stunters.**

***Meet old friends.**

***Monty Tyrell Memorabilia Display.**

The event is for control line stunters of a design similar to that of pre - 1966 that will do the classic pattern in a maximum of 7 minutes.

Food and drinks available at the field.

Enquiries to:-

Derek Pickard

Tel (03) 9889 1149 (A.H.)

54th Australian Nationals.
April 21st – April 27th 2001.

Accommodation.

Busselton during the school holidays is a busy town. Accommodation should be booked as early as possible or you may find it difficult. Detailed examples of accommodation are attached. Please book through the Tourist Bureau giving clear indication you are attending the model aircraft championships. They will attempt to book you into the accommodation recommended so that the Nats doesn't get too scattered and is very social

Beachlands Holiday park,. a wide range of well appointed accommodation units as well as shady camping and caravan sites eg. Park cabins @ $330.00 p/week aprox

Vasse River Resort. offers various styles of rooms from single through to family. e.g. single p/night @$70.00 – family p/night @$99.00 (enquire for weekly rate)

Abbey Beach Resort. A really top resort with all the trimmings.
e.g. - 1 b/room p/night @$155.00, 2 b/room p/night @$187.00,
(specials apply for week stays)

For accomodation bookings contact Sue Evenngham at the Busselton tourist bureau for an information pack and or bookings. Ph – (08) 9752 1288
Fax – (08) 9754 1470. e-mail - bta@bsn.downSouth.com.au

Weather

After Easter the weather is at its best. Days should be mainly fine with maximums around 25 degrees but nights can be cooler.

Getting to WA.

It's a long way – true. But if WA competitors can attend a Nats in the East then you can come west. It is costly. These tips may help. They come from experience.

Driving. If you've never done it before do it before you get too old. With the cost of petrol you need three or four in the car. For your models – tow a trailer or send them road freight direct to your accommodation. It will take you three days driving but its something you just have to do once in your life. Standing on the edge of Australia looking from the cliffs on the Nullabor over the Southern ocean is a once in a lifetime experience. If you are too old for this adventure hire a bus between a group. There is plenty of room for models underneath.

Flying. You can reduce the cost by advance purchase airfares. If you haven't booked by Christmas it gets expensive. Travel on the late night flights is a lot cheaper. You can get a model box on as a second piece of luggage. Usual cost $10 each way. Don't expect to bring fuel by air. Nicads have to be packed in certain ways. How big a box ? Usually 450mm square by 1.2 metres or so will get through OK. The AWA president attends jet meets on the East coast. His model box fills the back of a Falcon wagon (back seat down). That's pushing your luck for $10.

Train. Not cheap - but one of the great railway journeys of the world

Car Hire. From the airport – not cheap but convenient. Quite reasonable if you share. Light utes are cheaper to hire than cars. For cheap hire cars try Bayswater hire cars about $25 a day for Corellas. Bigger cars from Carousel Rent a Car.

Go on – this is the excuse you have been looking for to come West.

Organising committee Contacts

Chairman .... Theo Mentzis - 25 Jacks st, Rockingham 6168. Ph - 08 9528 5124
Secretary .... Fred Adler - 18 Ivory st, Noranda 6062. ph - 08 9276 9821
Treasurer ..... Mark Dent - 15 ...cole st, Highgate 6000 ph - 08 9227 9331
R/C contact Ian Clapp ph - 08 9727 2210
C/L contact .. Richard Morrow. ph - 08 9417 6048
F/F contact ... Trevor Leichford. ph - 08 9342 2625 ..... E-mail - leichi@net-wrx.net.au
Please note - 1) the above are home phone numbers 2) when calling, Perth is 2 hours behind Eastern Std Time

Date	Activities	R/C at SWARMS	R/C at airport	R/C Haddons field	C/L at airport	Hockey field	F/F Grass field
Saturday 21st April	Registration and Processing	Practice		Practice			Practice
Sunday 22nd April	**Indoor night** Peanut scale **Hangar rat** R/C electric	**Aerobatics** 9.00am - IMAC sportsman	**Pylon** 9.00 - F3D ---------- 1.00 pm Formula 400	**Glider** 9.00 am - Thermal	**Teamrace** 9.00 practice ---------- ----- 1.00 .. F2C		7.30am Open Rubber ----------
Monday 23rd April		**Aerobatics** 9.00am - Sportsman	**Pylon** 9.00am - 1/2 A	**Glider** 9.00 am - F3J	**Teamrace-** ---------- 1.00 Goodyear	**Helicopter** 8.00am F3C Advanced Novice	7.30am **F1B Rubber** ---------- 7.30pm Night Scramble
Tuesday 24th April	**Helicopter** night flying demonstration BBQ	**Aerobatics** 9.00 Advanced combined	**Pylon** 9.00am - Sports	**Electric** 9.00 am - handicap (7, 10, 27 cell)	Speed 9.00 - combined ----------	**Helicopter** 8.00am continued. **Combat** 1.00 pm- 2.5cc Fast	7.30am Open Power ----------
Wednesday 25th April	BUY, SELL and SWAP night	**Old-timer** 9.00 . Duration	**Scale** 9.00am - F4C	**Electric** 9.00 am - 7 cell		**Aerobatics** 9.00am - F2B	7.30am - F1A Glider ---------- 3.00 pm H.L.G. 4.30pm Day Scramble
Thursday 26th April		Old-timer 9.00 1/2 A texaco Std Duration	**Scale** 9.00am - Stand-off	**Glider** 9.00 am - F3B		**Teamrace** 9.00 - Bendix ---------- 1.00 pm- Vintage A	7.30am P-30 Rubber ----------
Friday 27th April	Nationals presentation Dinner	**Old-timer** 9.00 - Texaco	**Scale** 9.00am - Large	**Glider** 9.00 am - hand launch.		**Combat** ---------- 1.00 - Vintage	7.30am F1J Power ----------

Notes - Free Flight events .. , F1A Glider and F1B Rubber to have seven rounds.
Helicopter .... F3C, Advanced, Novice are all run concurrently, starting 8.00am 23rd April and finishing by 12.00 midday 24th April. timetabl.doc

Control Line Triathlon

To be held at the Knox field on November 12th

The organising club is Springvale Model Aircraft Club and all modellers are invited to compete.

The model should be able to compete in three disciplines.

Aerobatics

Team Race

Combat

2.5cc Max Engine capacity

Non plain bearing motors must use an 8inch diameter propeller

For more information contact Reeve Marsh on 9776 5949

For Sale

Tigre 60 stunt engine, excellent. Eather set up and in box. Bargain $160

Derek Pickard (03) 9889 1149 AH

✈ ✈ ✈ ✈ ✈ ✈ ✈ ✈ ✈

Sig Super Chipmunk C/L stunt. 53 1/2" span.

Suit .29-.40 motors. $120

Phone Ron on (03) 9579 1143

✈ ✈ ✈ ✈ ✈ ✈ ✈ ✈ ✈

Royal 46 reworked for stunt by Randy Smith

(Only run in test stand) $150

Merco 61 Stunt

(Little use, as new) $150

Magnum 40, reworked by Tom Dixon

(Had little use) $80

Phone Paul Allen on (02) 65 72 4436

WANTED

A couple of pairs of "Artmil" Streamline wheels, aluminium centres - 1 3/4" and 2"

Phone Peter White on 03 5623 5120

The following passage was taken from the September edition of the VMAA Newsletter

Two-tier Membership.

There will be a proposal put to the MAAA Council Conference to introduce a two-tier membership. If successful, it would see "fun" fliers pay some $25.00 less than "competition" fliers on the basis that some 2000 of our current members would elect to pay the extra $25.00 fee and the other 8000 would opt for the lower fee. If this were to happen, the total monies received as affiliation fees would be unchanged. The MAAA Council will have to consider whether or not the estimate of 2000 competition fliers is correct and the probable consequences on the level of fee if the number was less, say 200. Another issue is that the members of Australian teams competing in World Championships already spend at least $6000.00 each on airfares, meals, car hire, freight of models etc. Do our "fun" fliers wish to pay $5.00 less and so make it necessary for the competition fliers pay more? Another factor is the Australian Tax Office ruling that the income of "social" clubs, that is those without a competitive purpose, is not exempt from income tax.

If you have any strong feelings about the above article then let your State Delegate know about them.

AUSTRALIAN CONTROL LINE NEWS
Print Post Publication No. PP 343695/00024

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