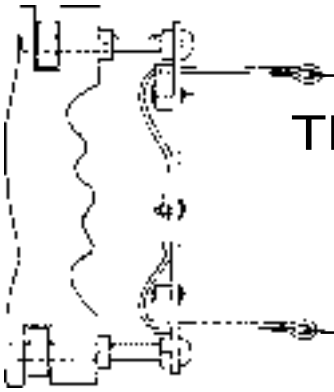

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THE VOICE OF CONTROL LINE AEROMODELLERS FROM AROUND AUSTRALIA

Number 78

Produced by the Victorian Control Line Advisory Committee

June 2004

INSIDE THIS ISSUE

Copy Deadline for next issue is: Wednesday 16th June 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 or email. This makes formatting much easier on the editor.

Email address:- acln@ozemail.com.au

COMING EVENTS

CONTROL LINE CONTEST CALENDAR 2003/2004

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, **Mini Goodyear** (from State Champs) 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
AUG 22	Classic Stunt,Vintage "A" Team race, Combined Speed.	KMAC
SEPT 5	Vintage "A" Team race, Aust "A" Team race.	SMAC
SEPT 19	**FAI & Combined Speed,** Simple Rat race, **1/2 A Team race.**	CLAMF
SEPT 26	FAI, Novice & Jnr Aerobatics, Classic Stunt, Bendix.	KMAC

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

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

Subscribers to ACLN can have the latest edition of the newsletter (in colour) emailed to them as a PDF file at no extra charge.

Simply send a request for this service to the editors' email address which is on the front page.

Notice

The South Australian State Championships are to be held at Monarto over the New Year 2005 period. More details will be published in later editions of ACLN.

COMING EVENTS

C.L.A.S. Contest Calendar 2004

DATE	CLUB	EVENT
12th-14th Jun	N.S.W. STATE C/L CHAMPIONSHIPS Whalan Reserve, Debrincat Ave, Whalan. NSW and the Sydney International Regatta Centre, Penrith Lakes, Castlereagh Rd, Penrith.	
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)
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
30th Oct	SSME	"Vintage 1/2 A, Vint B, Goodyear T/R, Combined Speed"
31st Oct	SSME	Phantom, Vintage A, Bendix T/R
7th Nov	SAT (Kelso Park)	F2B Aerobatics
14th Nov	KMFC	Vintage T/R, 1/2 A, A and B.
21st Nov	NACA at Gateshead (I.Smith Ph:024975 2292)	H.S.Classic Stunt & Cardinal Stunt.
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"

"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.)MitchellHill Field, New England Hwy, Muswellbrook"
"COMSOA (City of Maitland Society of Aeromodellers) Raymond terrace Rd, Metford. NSW. "

CLASII FIELD NEWS UPDATE.

GOOD NEWS. The field at Leichardt Park Ipswich is open again and given a bit more time will be bigger and better than ever before the movement sideways and reorganisation of roads and traffic movement.
All work yet to be carried out should completed by Christmas. This will include Fencing , car parking, tables and seating under shade and will include drinking bubblers and provision to water the two new circles which already have thee metre concrete centres fitted with speed pole fittings.
Further amenities are likely to be provided in the New Year. The grass of course is still regrowing but a test flying day last Saturday with a variety of models proved that Club operations can recommence on our own field after a longer than anticipated absence.
We hope those modellers who have flown here in the past will return again for our official reopening day which will be on the **second Sunday of July, ie JULY 11Th** Events to be contested will be Mouse T/R, Clasii Rat T/R, 2.5 Slow combat. **Mufflers to be fitted to 2.5 combat and Rat models**
Practice will commence at 9am, racing to start at 9.30am.
Please note that no parking is allowed on side of road, The old entrance to field is no longer there.
Visitors will have to drive past the field up to the first street on the left at the new War Memorial and toilet block. Turn left and drive up the street approx 100 metres turn left into the Scout Hall car park, then continue through the chain gate and follow the road down to the side of the field.
This gate will normally be locked in order to keep out the local hoons and their cars and motorbikes.
All visitors to CLASII Field will need to produce their current FAI card. **NO CARD NO FLY.**
A Calendar for the remainder of the year will be in next ACLN News.
General flying will be carried out on the 3rd Saturday of each Month as well as the usual Club Flying and competition day on the second Sunday of each month
John D. Taylor Secretary. Further information phone 07 33927679 fax 07 33927529 email johndt@iprimus.com.au

CONTEST RESULTS

Combined Speed held at Frankston 16/5/02

Entrant	Class	Flight 1	Flight 2	Flight 3
1.N Wake	1	**15.36**	15.52	15.5
2.N Wake	2	15.40	**15.25**	16.01
3.V Marquet	Vint Proto	**47.25**	47.34	48.82
4.L Smith	Vint Proto	N.T.	N.T.	N.T.

Simple Rat Race held at KMAC 23/5/04

	Heat 1	Heat 2	Final
Ray/Ray	109 laps	104 laps	216 laps
Hunting/Hunting	52	106	206
Bailey/Roberts	10DNF	103	142 DNF
Wilson/Wilson	89	101	

Nationals Results

In addition to last months Nationals results for Control Line events it is worth while noting how well some of the circle walking fraternity did in the open paddock. Both Night Scramble and Day Scramble were won by people that regularly feature in C/L events and a look through the list of entrants will reveal plenty of Control Liners.

Night Scramble had the good fortune of excellent conditions but Day Scramble competitors had to battle against the wind and later into the event a downpour did its best to drench competitors and spectators alike.

Night Scramble
1 Fitzgerald Robert
2 Kirton Norm
3 Longbon Vic
4 Hoffman Bruce
5 Oborne Greg
6 Pickin Matt
7 Stivey Jim
8 Sherlock Stuart
9 McFall James
10 Wright Graeme
11 Bellis Richard
12 Sherburn Mark
13 Dixon Ian
14 Taylor Alasdair
15 Pike Ray
16 Giggins Mark
17 Wilson Graeme
18 Walton Stephen

Day Scramble
1 Stivey Jim
2 MacMillan Noel
3 Kirton Norm
4 Longbon Vic
5 Dixon Ian
6 Sherburn Mark
7 Dyson Adrian
8 Wilson Graeme
9 F Ivor
10 Sherlock Stuart
11 Wright Graeme
12 Craine Robert
13 Pickin Matt
14 McFall James
15 Wansbrough Ken
16 Pedashenko Guy
17 Oborne Greg
18 Craven James
18 Heap Max

Mark Ellins holds his Vintage Combat model after winning the final bout. This is the only model he used throughout the competition. Mark had a very successful Nationals and would have been the C/L Champ of Champs if the award still existed!

Enya SS 15 BB Diesel Tested

Maris Dislers

Introduction

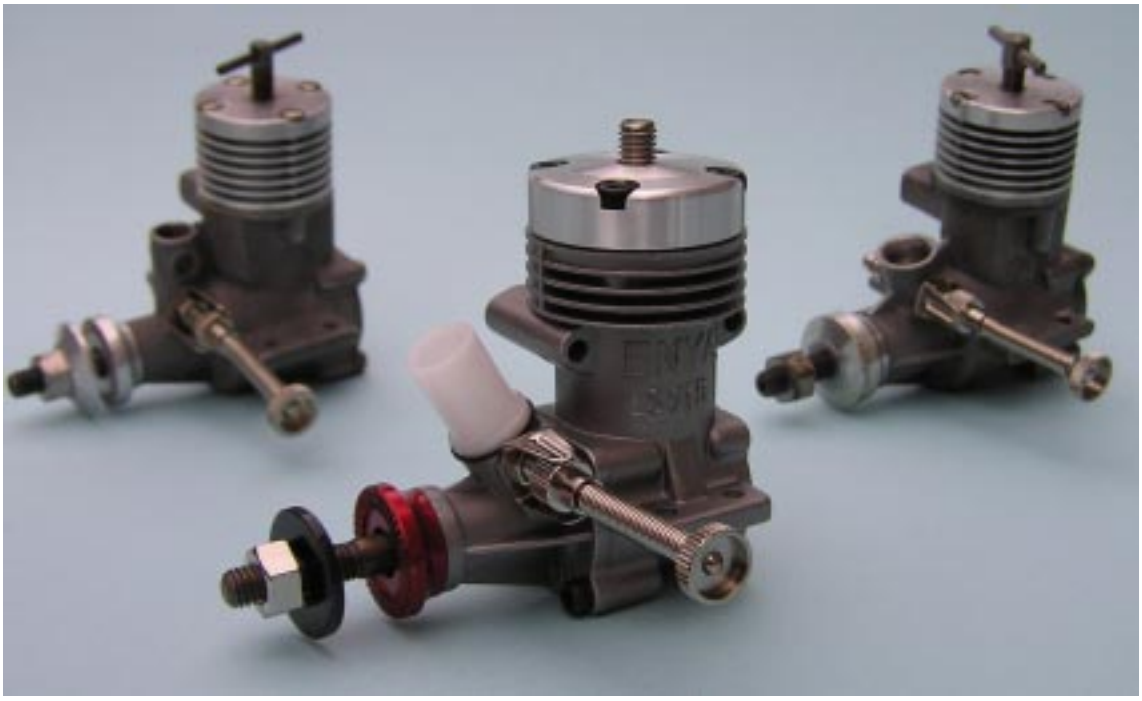
The Enya Company are no strangers to diesel engines, having entered the highly competitive 2.5cc class in 1956. The ENYA 15D raised more than a few eyebrows by using a novel cylinder porting arrangement that allowed for cross-flow scavenging at a time when radial reverse-flow porting was considered to be the best way to go. Performance tests showed the Enya diesel to be amongst the most powerful engines in its class and it gained praise for excellent workmanship and good handling qualities.

The original Enya 15D was replaced by the beefed up Mk 2 version in 1960, with production continuing for most of the next decade. This left occasional batches of the delightful 06D as the only diesel in Enya's product line and the only Japanese manufactured diesel in recent decades. So when the opportunity arose to put the new Enya SS15 diesel through its paces, we jumped at the chance.

Structural Data

Overall, the engine is an adaptation of the "Super Sport" 15 glowplug engine, which has been available for some time. In typical Enya fashion, the crankcase is a two-part affair comprising the main crankcase/cylinder block and a bolt-on crankshaft/carburettor housing.

"Trio of Enya 15 diesels. New SS15 D flanked by Mk1 15D left and Mk2 15D on right."



The SS 15 has a schnuerle-ported ABC piston/cylinder assembly with 15mm bore and 14mm stroke, giving a nominal swept volume of 2.47cc. The cylinder is of robust design, with a 20.5mm outside diameter, providing a wall thickness of 2.75mm. The lower portion, somewhat below the ports, is reduced to 17.5mm OD, thereby giving an annular transfer passage when the cylinder is located in the plain-bored crankcase. Three deep rectangular windows intersect this area, allowing a pathway for the incoming charge towards suitably angled upper edges, which in turn direct it in the manner of traditional transfer and boost ports. Actual port durations on the test engine were: exhaust 140 degrees, transfers 110 degrees and boost 106 degrees. A lightweight high-silicon aluminium alloy piston, with plain skirt and flat crown has wire circlips retaining the hollow 4mm diameter wrist pin. The conrod has bronze bushes top and bottom.

"Thick cylinder wall doubles as upper transfers, adds stiffness."

The test engine is of "BB" type, so the hardened steel crankshaft rides in a rear-mounted ball bearing measuring 10x19x5mm and a plain bronze bush for the remainder of its length. A large rectangular intake window leads to a 7.4mm diameter gas passage. The intake opens 43^0 ABDC and closes at 58^0 ATDC, giving an induction period of 195 degrees. The 5.5mm thick crankweb is cut away either side of the 4.5mm diameter crankpin to aid engine balance.

Up to this point, the SS 15 diesel is identical to its glowplug companion, even having the same muffler. The difference is simply in carburettor and head designs. The standard model's distinctive, tall venturi intake tapers down to a 5mm diameter throat, through which passes the usual control line needle valve assembly with 4mm diameter spraybar. This leaves a very modest opening amounting to less than 3 square millimetres.

Compression adjustment is accommodated by a cast iron

contra-piston riding in a cast iron housing, which extends 2mm into the bore and is of sufficient length to allow for reasonable compression adjustment. A plain unfinned aluminium head clamps down onto the contra-piston housing's outer flange, thereby providing a gas-tight seal. The M6 socket-head compression screw is adjusted with an Allen key.

Handling
There was no special instruction sheet provided with the engine, so aside from a fairly typical fuel specification (25% castor oil, 2-2.5% ignition improver), we were left to our own devices. Initial runs proved uneventful and without the early running difficulties experienced with some diesels. In fact, the engine could have been put into a model and sent aloft after a few preliminary runs, providing compression and mixture settings remained on the safe side.

People familiar with diesels will be right at home with the Enya. The main point to keep in mind is a tendency to "play dead" if flooded, tempting one to make the problem worse by adding more fuel. Continued flicking will get it to fire and run, thankfully without the tendency to bite or the need to alter compression setting. My preferred starting routine from cold is a light exhaust prime and 4-6 drops of fuel in the carburettor. Once it has fired up and run this out, the tank can be filled, fuel drawn up to the carburettor and it will start with ease. Restarting when hot is excellent after a part-choke (less than a full turn) and a few flicks. An exhaust prime works well with smaller props and higher compression settings.

Response to needle and compression settings was positive and the fit of the contra piston was truly excellent, allowing fingertip adjustment without backing off or sticking. For absolute peak setting, a little time is needed for the cylinder assembly temperature to stabilise, before final adjustments are made. Once set, it can be left alone for the rest of the day.

For those used to running diesels with cast iron pistons, the Enya's smoothness of running will come as a surprise. Even at 20,000 RPM, this engine has low vibration levels, so no need to "beef up" the structure with this engine.

Performance Tests
Initial performance tests were characterised by exceptional fuel economy and impeccable manners on very large propellers. Clearly the engine had been set up for the R/C old timer Texaco event where minimal power, but good fuel economy is the aim. The Enya will turn an APC 10x6 prop at a little over 7000 RPM, giving 0.15 BHP (80% of peak power with the original venturi) and run for six minutes on the allotted 15ml of fuel.

This is not very exciting for control line work, so the venturi was replaced by a larger one of 6.9mm ID. This is still a quite modest 11mm^2 effective choke area (equivalent to 3.8mm diameter unobstructed hole, like Cox) and actually makes handling easier thanks to more fuel passing through the engine. The effect on power output is dramatic, lifting it from the original 0.19 BHP at 12500 RPM to a shade over 0.41 BHP at 17500 RPM.

The effect of the larger venturi on torque is equally dramatic, lifting this to a maximum of 27 oz-in at 11,000 RPM. What is more impressive is the manner in which torque remains at a high level throughout the useable speed range. So in terms of actual flight performance, this engine will perform nicely on a wide variety of propellers. You could try a 7x5 or 7x6 for hot-dogging, 8x5 or 8x6 for general use, or even larger for slow and steady stunt work.

Enya's supplied muffler reduced sound levels from 93 dB (A-scale at 3 metres) to 84 dB at 10,500 RPM. This rose to 91 dB at 15,300 RPM. There was no measured power drop with the muffler up to 18,000 RPM and 200-300 RPM thereafter.

Conclusion
It has been a long time since Enya produced a 2.5cc diesel. This new engine is a great performer in the "Super-Sport" class and is a worthy successor to its predecessors. People with long memories will know that the Mk 1 (and to a lesser extent, Mk 2) Enya 15D's suffered from crankshaft failure. We have had extensive experience with Enya 11CX and SS21 home-converted to diesel without any crankshaft problems. Perhaps improved balance with the lighter aluminium piston, good fuel and improved crankshaft metallurgy have done the trick. A check inside after three hours' running showed that everything was spot on. So I expect this engine will give long and faithful service. The Enya SS 15 BB diesel and its companion 11 CX diesel are in limited production, with either plain or R/C carburettor. Check with Chris Carpenter of Model Flight for price and availability.

Performance fits the purpose?
Test results gave a rather flat power output curve peaking at a modest 0.19 BHP at around 12500 RPM, while torque dropped off steadily with increasing revs. A subsequent look inside showed nothing amiss and all the "numbers" suggested a higher power output potential, excepting the ultra-conservative carburettor size. The obvious conclusion therefore is that this engine is aimed at the Old Timer R/C Texaco event for "Class A" engines, where the aim is to gain maximum flight time on the allotted fuel amount.

With this in mind, a series of fuel consumption tests were made using a 10 ml. Fuel tank. Economy is related to engine speed, so the slower the better (up to a point). The trade-of is power output and a certain minimum amount of this is needed to gain good altitude and place the model for glide once the fuel tank is empty. Running the engine at 9,000 RPM will give you 0.17 BHP (90% of full power) for around 3 minutes on 10 ml of fuel. At 7000 RPM, run time jumps by 33% to 4 minutes, but power output drops only 11% to 0.15 BHP. Around 7000 RPM is probably a reasonable limit, as larger props and lower RPM make reliable running more difficult. No doubt, the experts will improve on our results, perhaps by dropping oil content from our 30% to 20%, which is safe for this purpose.

But wait…there's more
Performance at this stage would not get the control line boys queuing up at the model shop counter for one of these engines, so we tried a larger venturi borrowed from an Enya 15 Mk IV glow engine, which has a throat diameter of 6.9mm. While a bit of a rattling fit and needing an additional O-ring to seal, it served the purpose of increasing choke area to a more usual size of around 11 square millimetres. In this guise, the Enya's good manners improved still further thanks to more fuel passing through the engine and it was clearly putting out a lot more power. Fuel suction was still quite acceptable and the engine should now give

spirited performance in a typical control line model.

" Well balanced crankshaft rides in rear bearing. Only front few millimetres touch bronze bushing."

A second series of tests confirmed the dramatic performance improvement, with peak power output doubled to just over 0.4 BHP at a little over 17,000 RPM. A new, remarkably flat torque curve climbs to 27 oz-in around 10,000 RPM and maintains most of this right through to the power peak and beyond. In practical terms, the engine has the torque to maintain steady RPM on a given propeller, even when load is increased. This would become very apparent in tight turns or when the nose is pointed up on a relatively heavy model. So in this sense, the old axiom that diesels are equivalent to "the next size up" glowplug engine (in terms of pulling power) remains true. Unlike diesel engines of old, the Enya does it all with minimal vibration, even at speeds of 20,000 RPM.

The added power of course comes at a price and a couple of checks showed fuel consumption rising quite a bit (3 minutes at 6,700 RPM and 2:08 at 8200 RPM from 10ml of fuel). With the larger carburettor opening and relatively racy intake timing, fuel droplets were seen blowing back out of the short temporary venturi during these later economy tests. Using the original longer venturi, with its better airflow characteristics would be less wasteful of fuel when enlarged for more power. The spitting tendency is of course largely alleviated at higher running speeds somewhat closer to its peak power RPM, when the dynamics of valve timing and fuel charge inertia are more closely synchronised.

What about the muffler?
With the unmuffled engine running at 10,000 RPM, a noise level of 93 dB at 3 metres distance was recorded. Adding the muffler dropped this to a very sociable 84 dB, climbing to 91 dB at 15,000 RPM. Power output was not in the least affected up to peak speeds and only a few hundred RPM were lost thereafter. In addition, the engine was perhaps a little easier to tune on larger propellers with the muffler in place.

Throttle control for R/C
The Enya SS 15 diesel is also available with a variable speed throttle of the twin needle type. Its bore is fitted with a brass restrictor, giving a choke area roughly equivalent to the bigger plain venturi tried earlier. So in terms of performance, the second set of power and torque curves are fairly representative of the R/C version. An APC 9x4 prop was used for testing of throttle response, as it is perhaps a good mid-range choice for flying. With a suitably realistic setting (a little on the rich side), 12,000 – 12300 RPM was recorded at full throttle. A safe idle around 3,300 RPM was quite easy to achieve and the engine would hold this indefinitely.

With a little adjustment of the idle mixture screw, a good transition to full speed was achieved and it could be slammed from full speed to idle and back with ease. Response to partial opening of the throttle was not particularly linear, with revs jumping quite sharply at first, but relatively little change for around the last quarter of barrel travel. As expected, throttle response after a prolonged period at idle was somewhat affected by the cylinder having cooled down in that time. The Enya warms up quite quickly (for a diesel) and it is a relatively short time before it settles down to smooth running again.

This cooling down tendency can be minimised by careful adjustment of ignition improver. The test fuel contained 2% DuPont DII. This was necessary to get smooth running at really high speeds, but a mixture containing 1.5% would be just fine with the 9x4 prop around 12,000 RPM. The advantage of running the engine with just enough ignition improver for a given top speed is that warm-up time is minimised without affecting top-end performance. Of course cutting it back too far will give rough running regardless of mixture and compression settings and may damage the engine. It goes without saying that the old 'three equal parts" mix of kero, ether and castor oil (and un-nitrated commercial blends) will not cut it with the Enya.

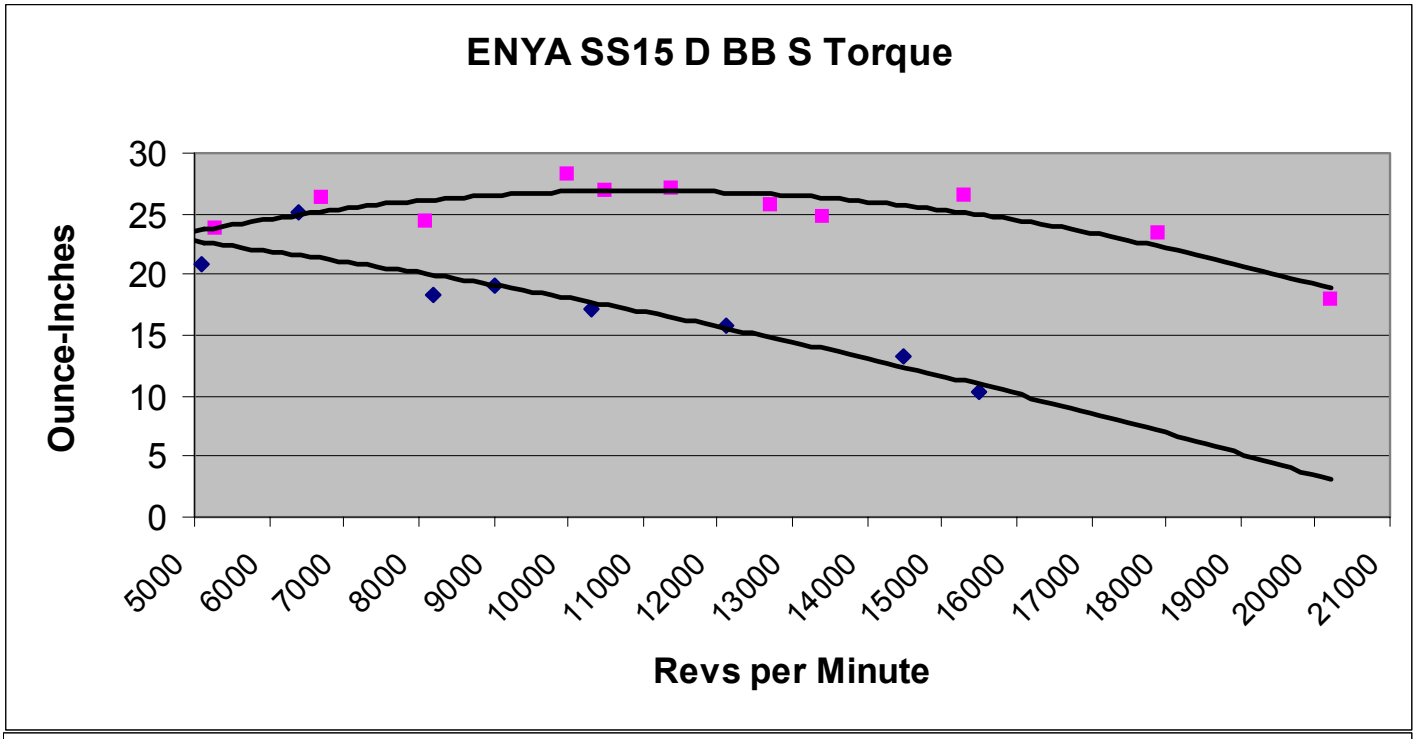
Tests were conducted without muffler pressure and although pressure feed is not commonly used with diesels, it may be worth a try. It is worth pointing out that while a diesel may misfire a bit until temperatures stabilise this is no cause for alarm. In fact, diesels will continue to run with compression and mixture setting so badly off peak that their glowplug equivalents would have long stopped running. Having said this, one must concede that the Enya 15 diesel is not a match for the precise speed control of the best glowplug engines.

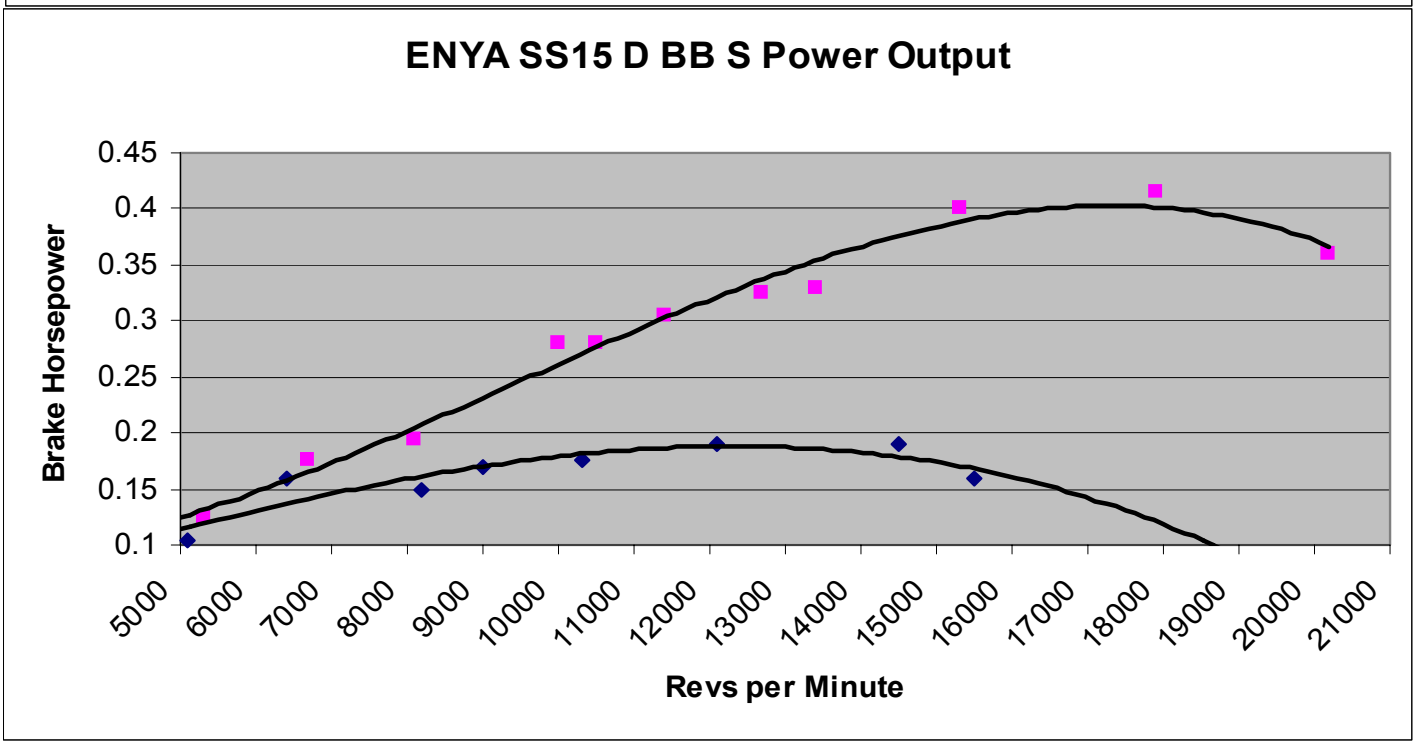
Conclusion
As presented, the new Enya 15 diesel "runs on the smell of an oily rag" and comfortably works with large prop sizes in a manner that will please the Old Time Texaco group. A 10x6 prop would be a good starting point. For others who are happy to trade a bit more fuel consumption for a lot more performance, drilling the carburettor choke to 6.9mm diameter will double power output, while retaining very good manners. In this arrangement, the Enya gives its best when given its head and a 7x6 prop would be a good choice for control line work. Similarly, the throttled version with 9x4 or 8x4 prop would be good for sport R/C. This engine will gladden the hearts of diesel lovers and is an excellent enticement for others to joint their ranks.

ENYA SS15 D BB S

Usual fuel with 1.5% ignition improver (DII) for most tests. Fuel with 2% DII for tests over 13,000 RPM

	Standard Venturi 5mm dia.			15 Mk 4 Venturi 6.9mm dia.		
Propeller	**RPM**	**BHP**	**Torque**	**RPM**	**BHP**	**Torque**
APC 12x6	5100	0.105	20.8	5300	0.125	23.8
APC 11x6	6400	0.16	25.2	6700	0.175	26.3
APC 10x6	7300	0.145	20.0	8100	0.195	24.3
APC10x4	8200	0.15	18.4	10000	0.28	28.2
Graupner 9x5	9000	0.17	19.0	10500	0.28	26.9
Graupner 10x3	9700	0.185	19.2	11400	0.305	27.0
APC 9x4	10300	0.175	17.1	12700	0.325	25.8
Graupner 8x5	10900	0.175	16.2	13400	0.33	24.8
APC 8x4	12100	0.19	15.8	15300	0.4	26.4
APC 7x4	14500	0.19	13.2	17900	0.415	23.4
APC 7x3	15500	0.16	10.4	20200	0.36	18.0





News from 2VA
By Charlie Stone VH 4706

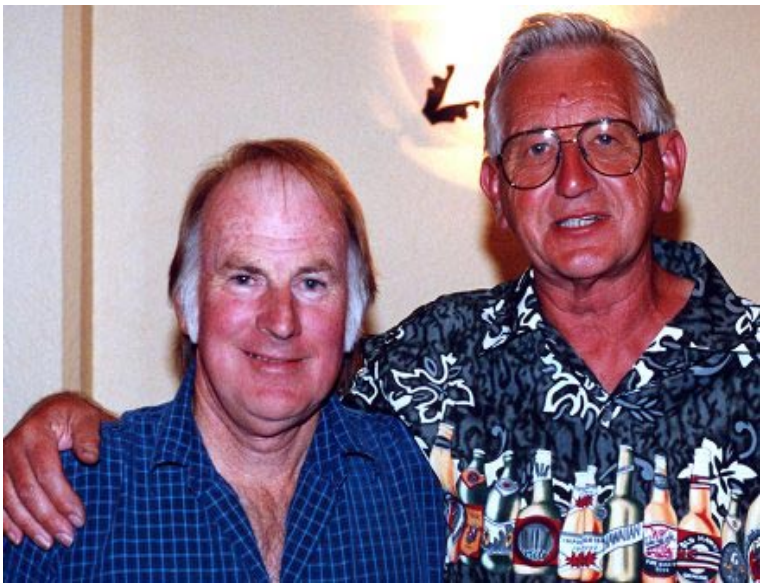
TARMAC Notes for March, April and May

Well here we are again. I'm back from the Nationals at Busselton in April, having met a lot of people and enjoyed myself. I found some old aeromodelling friends watching the action at the C/L circles. Among them were veterans Dicky Gibbs, Theo Merrifield, Noel Mitchell with son Rob, Doug Murray, Brian and Sylvia Sadler and Ray Sherburn. The team racing was good and at last I got a chance to see John Hallowell's howling Team Racers in action. There is no disputing that his machinery was the quickest in the vintage and classic events.

Vintage combat was scheduled as the last control line event of the Nationals. And last it certainly was, finishing some time after sunset. The lights at the hockey ground next door had been turned on, but it didn't do a lot to help the hapless cut judges who had trouble seeing the models, let alone the streamers. After a week of dull, windy weather, the day had been clear, calm and sunny. So sunny that there were quite a few sunburned faces to be seen by the end of the day. For me the highlight of the event was the fantastic bouts fought by the eventual winner Mark Ellins and propeller manufacturer Stuart Sherlock (AKA Joe Supercool) who is a very aggressive opponent. Sherlock (The 'Grey Avenger') put on a fantastic performance by matching Ellins four times and coming back to re-fly again and again. A great show even if it did make a few people a bit late for the presentation dinner and cause some meditation on the scoring system used.

Peter White (L), the winner of F2B and Vintage stunt at the Nationals, chats with Stuart Sherlock between bouts at Vintage Combat.

As quite a few people know, (anyone that will listen) my team race partner and friend Norm Kirton and myself share the same birthday. (April the 19th.) This year it was his 65th and my 60th and it fell during the time of the Nats at Busselton. Norm (who has lots of bright ideas) suggested that we get together for a few drinks and a meal to celebrate. Possibly with a few friends. For technical reasons, we couldn't make it on the 19th, but decided to aim for the evening of the 22nd. And so it was. At least fifty people turned up at the hotel to help us remember the day, including Mark Giggins whose birthday had been on the 20th (the same as Adolph Hitler – I wonder if that is significant? Is he making plans for world domination?). The proprietors of the pub must have thought it was Christmas as they probably sold a barrel of Guinness to Ian Thompson alone. I had a great night and I hope everyone else did. Thanks a million to those of you that came along to be with us. There are too many to list.



The official birthday photo of the old blokes. Charlie (L) and Norm. Sadly not quite up to centerfold standard, but we only had the one. This shot was taken that night in the pub and Mark Ellins insisted that he wanted to see it in the magazine. Against my better judgment, here it is.

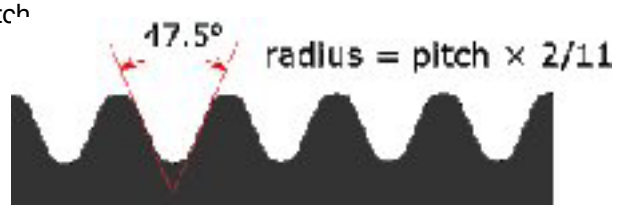
I hear that from next year, the FAI have decided that the control lines for F2C must be .015" wire instead of the present .012". No one seems to know exactly why the change was made. It may have been for speed reduction or for safety, but it is alleged by many fliers to be less safe due to the heavier lines giving poorer control during take off. I believe there has been some discussion about trying to have this rule reversed. Time will tell.

A matter that was raised in idle conversation at the Nats was the subject of screw threads and in particular the British Association (or BA) thread form. I suppose that almost everyone uses nuts and bolts to hold things together and most people do not give them too much thought. Except perhaps, other than to wonder if this one will fit in that hole or where the devil did the long one go? While I am babbling on, just in case someone who should read this does not know the difference between bolts and set screws (sometimes called metal thread screws), a bolt has a section of unthreaded shank just under the head and a set screw is threaded for the full length. You probably already knew that, or if not, didn't need to know it.

While you are using nuts and bolts for modeling purposes, it probably doesn't matter too much what type or size you use as long as the nuts match the bolts and they do the job

you are asking of them. Although, I have noticed a general tendency for folks to underestimate the strength of the things and use much larger (hence heavier) items than are really needed for the task at hand. However, where the bolts (or screws) are being used in tapped holes such as in an engine crankcase, it is essential that the correct size and thread form is employed. This is where we sometimes run into trouble due to the incredible variety of small screw thread systems. All being different, but many looking almost the same and using the wrong bolt in a tapped hole can ruin the job.

Of course, none of this has anything to do with BA threads, which was the subject that started me off on this little ramble. They were widely used in British model engines until the fairly recent conversion to metrics. The BA thread system was introduced as far back as 1884 by the British Association for Advancement of Science for use in small electrical and scientific equipment, but it was not an imperial system. It was actually based on the Swiss Thury metric thread series. They quickly caught on and rapidly became the standard in Britain for sizes less than ¼". They are very good and have a thread angle of 47-1/2 degrees (useful for holding in thin work like clock wheels); rounded tips and crests (less power needed to cut them, less risk of tearing threads and less wear on the manufacturing tools), and an enormous range of sizes (0 - 26BA). The thread number specifies the size AND the pitch



The BA thread form

The largest size in the series was #0 BA of 6 mm diameter and 1 mm pitch, and the smallest that I have dimensions for is #23 BA at 0.33 mm diameter and 0.09 mm pitch which as you can see very, very small. The British Standards Institution (BSI) discouraged the use of #0 BA in favor of ¼" BSF, but recommended the BA series replace the Whitworth and BSF series for all screws smaller than ¼ inch, and that preference be given to the even number sizes. The ¼ inch BSF was retained and the #0 BA discontinued as the two were too easily confused. I hope that dissertation hasn't left you too confused (or bored).

After the Nationals were over, Graeme Wilson, Mark Ellins and Rob Fitzgerald with their families stayed on for an extra day or two. Along with lots of locals they visited the new control line facilities that the keenest of our local competitors (led by an enthusiastic Trevor Letchford) have created at our State aeromodelling centre in Whiteman park. Here is a photo of the concrete racing and speed circle that I took on that day. The grass is coming on nicely and in a few months should be perfect. The only possible drawback being the thin layer of kangaroo droppings left by the local inhabitants overnight. If you would like to see a pictorial history of the progress to date, check out Trev's page on the TARMAC web page at URL:

http://members.iinet.net.au/~letchi/Freeflight/wpark1.htm

Jim Stivey (L) with pit crew son David here seen preparing for Open combat. The model is a modified John Thompson design called 'Undertaker'. It was published in 'Model Aviation' in October 1985. They are easy to build, turn very well and fly fast.

Another item of interest (now two items of interest) seen lately is this victim of the Nationals F2C competition. Dicky Morrow's Vorobiev SE

Team Race engine that blew it's top off for no obvious reason. There is a little darkening of the metal at the front and the back, but the break looks like fresh metal just as though it failed all at once.

Here is something that isn't seen too often. A third generation Control Line flier being trained. Ryan Sherburn seen here at the handle is just six years old and is flying his trainer very well while Dad Mark looks on. No doubt Grandfather Ray will be proud of him too.

Well, that is it until next month. The question is, 'If a pig loses its voice, is it really disgruntled?'

Charlie Stone VH4706
Email cestone@bigpond.com

AROUND THE CLUBS

Adelaide Aeromodellers Club

Visit of Japanese Stunt flier, Hisada Minoda, 13th March 2004.

On a recent trip to Japan, AAC member Peter Anglberger met Minoda-san and many other stunt pilots at a CL contest in Toyota City. The Japanese hospitality was so fantastic that when Minoda-san e-mailed that he'd like to visit Adelaide and fly control line with AAC members a Fun Fly was organised.

Minoda-san brought his Ro-Jet 60 powered Yatshenko RTF F2B model with him. The engineering and finish of this model was outstanding. As the photos show it's a 'take apart' model that once disassembled fits into a custom box only 800 x 400 x 400 mm! Despite being over 70, Minoda-san still flies F2B seriously and struck up a great rapport with Brian Horrocks and Bernie Shinks.

Minoda –san has interesting flying style. He learnt to fly clockwise in 1950 and after a layoff of some years, could not adapt to flying anticlockwise until he turned the handle upside down so that 'up is up' while flying inverted i.e. clockwise.

AAC Triathlon, 4th April 2004.

The nine entries included 2 from Whyalla (Mark Poschkens and Brenton Thomas) and two from Murray Bridge (Brett Kenewell and Trevor Wehrman) The stunt event was closely contested, however all of the top 3 had short motor runs resulting in incomplete schedules.

Maris Dislers won the Rat Race with his ever reliable Mars powered Zero ably pitted by Bob Edgecombe.

Newcomer Trevor Wehrman placed second with a purpose built model finished just before the event.

Maris Dislers won Combat and subsequently was overall winner. Trevor Wehrman came third in Combat and 3rd overall, a great effort as he learnt to fly CL only a year or so ago.

Overall it was a great day, with many spectators having almost as good a time as the competitors.

The next AAC event is Vintage and Classic Stunt in October, details to be advised in the next ACLN.

Results

Overall
1. M. Dislers
2. G. Roadknight
3. T. Wehrman

Stunt	Rat Race	Combat
1.G. Roadknight	1.M. Dislers	1.M. Dislers
2. P.Anglberger	2.T. Wehrman	2.G. Roadknight
3. M. Dislers	3.B. Thomas	3. T. Wehrman

Peter Anglberger

RECENT RACING REFLECTIONS on A,B & BENDIX.

Firstly the Victorian State Champs, then the W.A. Nats at Busselton. It was a hectic two weeks of aero modeling! At the State Champs we were lucky to enjoy pleasant conditions for the entire Easter weekend.

Vintage A Team Race saw the arrival in Victoria of the always welcome teams from NSW. The Vic's were expecting some hot competition from the visitors and got even more than they bargained for. The locals were literally blown away by that tornado of an engine, the new Steve Rothwell R250. Andy Kerr's version was going great guns too, and eventually took the honours.

The Vics were forewarned when they heard about the Luddenham Vintage A results from March 28th where a couple of seasoned campaigners in Justic/Kerr and Camps/Pilgrim couldn't even make the final with times of 3.27.05 and 3.28.13 respectively!! Yes, the Mexicans certainly did sit up and take notice.

The future of Vintage A T/R in Australia and quite possibly the world was clearly demonstrated. In the next 12 months, these engines will push the event boundaries with previously undreamed of times. They have the raw speed to regularly make sub 3.20 heat times and, more importantly, do a 2 stop final with 65 lap range. That cuts at least 15-20 seconds from a normal 3 stop final. Yes, even lightning quick Wilson / Ellins stops.

If you plan to be flying Vintage A in the future, don't hesitate. Order one now by emailing Steve at smrpl@ozemail.com.au The price of $375 + $10 postage for a hand build performance motor like this is an absolute bargain. Cheap compared to a 'Timmy Tiger'! No R250 leaves the works until it reaches a pre-determined level of rpm. So quality and performance of every engine is guaranteed.

Also provided is a helpful and detailed instruction sheet, along with good old fashioned water slide decals to decorate your racer. Precise measurement are given for the very important engine cooling. Ray Harvey and Dave Bailey developed the ducting and Ray says the size must be adhered to down to the last millimeter!

I'd reckon a lot of old C.S. Oliver T/R motors will be finding their way into Vintage combat wings as the new R250 renders them obsolete! Vintage Combat in WA was a huge success with 16 entries. No doubt this new event will quickly draw many more enthusiasts from the eastern states. In Britain it has been extremely popular for years. A good Oliver Tiger or high performance diesel replica has always been a popular choice
Steve now has written advice from the UK VTR Special Interest Group that they are happy with the R250 engine and it will be on their list of eligible engines for use in the current season.

A new book has been published about the definitive history of the Oliver Tiger marque. It is called the "John Goodall Oliver Book". It contains over 200 photos including the car motors from the early fifties right through to the later schneurles. The famous Tiger Mk 111's are featured along with modern day replicas including the Australian produced R250. The book is priced at £20 soft back and £25 hard back plus postage & packing.
UK and European airmail, plus world wide surface mail £5.00. Rest of the world airmail £10 per book.

Contact John Goodall directly to confirm availability and pricing:

Barton Model Products,
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50 Main Street,
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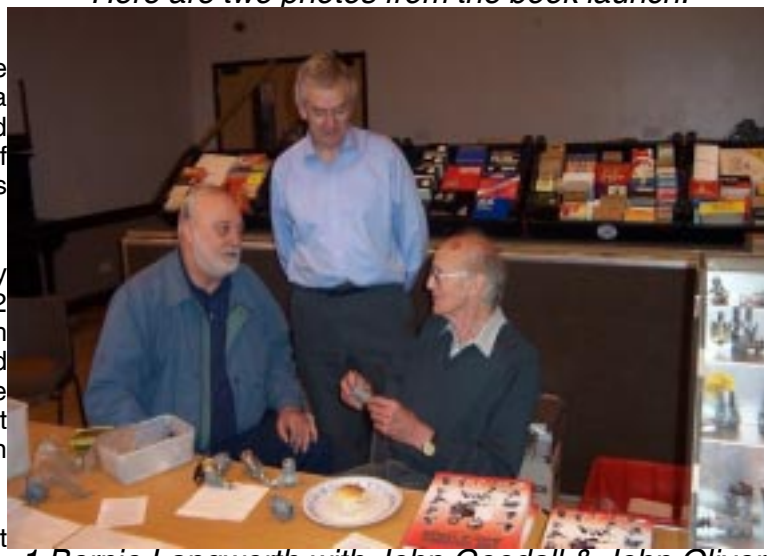
Tel: +44 (0)1283 713 715

Here are two photos from the book launch.



1.Bernie Langworth with John Goodall & John Oliver
2.A showcase display of engines that includes an R250

The NSW domination in Victoria was completed by Andy Kerr and Richard Justic who posted a sensational 3.17.28 heat and won the event with a blistering 6.50.69 final. They finished only 5 seconds in front of Grant Potter and Brian Hoggan who recorded 6.55.78. Grant and Brian would have posted an amazing heat time in the first round if it had not been for a fast landing and a slipped catch. Brian had to go to the next segment to retrieve the Voodoo 5 and then go back to his segment and re-start. It must have taken at least 12 to 15 seconds to do this and yet they still made a 3.26.19!

A week later and more than3000 kilometres away across in Western Australia, a dozen teams lined up for some more close racing in Vintage A. Local hotshots Ian Thompson and Hans Bertina had motor problems and were way off their potential with the Elliptical. It was left to the super consistent Norm Kirton and Charlie Stone to fly the flag for W.A. with their superbly finished new Pluto. While lacking the blistering speed now common in the eastern states, their vast experience showed, with consistent flying and fast pitwork gaining them second place.

Graeme Wilson and Mark Ellins fall into the same category for experience. In the final when the leaders faltered, they were there to take quick advantage. Rob Fitzgerald and John Hallowell had plenty of laps and extra speed with the Voodoo 1. They also made fastest time of day. In the final, they were well in the lead when the shutoff accidently activated and a DQ resulted.

As the Editor commented in the last issue, this rule should be amended to "intentional use" as a team is already penalized with an accidental shutoff. I believe the installation of shutoffs should be encouraged purely on safety grounds. One of the Nats heats had a huge line tangle with a lot of damage. I venture to say much of the carnage could have been avoided if pilots had the ability to shut off and land when trouble begins. It's certainly a safety issue as well.

In Classic B, firstly in Victoria, it was Wilson / Ellins who showed the way with another strong performance. A sharp heat time was followed by a final in which they gave away airspeed but nothing in the way of laps, flying, landing, catching and starting. And that's what team racing is all about. For the first time ever, the Hallowell / Baddock F.P.P.E. dropped laps. It was the opportunity Graeme & Mark needed to go sailing past. Despite excellent airspeed, the starting woes of Ray / Ray continued. When Jim finds the answer, other competitors had better be on their toes!

A week later over in Busselton, a brand new Classic B race was run. They say a week is a long time in football, and so it was in this event. This time the F.P.P.E. got the usual 50 laps, took no prisoners and ran away to an easy win in 6.19, thanks to Rob Fitzgerald and his two one flickers. Super consistent as usual, Graeme & Mark actually went about 2 seconds quicker than last week with a 6.33.47. Faster air in the west?

A highlight from my point of view was the emergence of some genuine Classic B challengers from the West. Hans Bertina has showed his class before. Now, with Ian Thompson on board, they plan to be a force to be reckoned with…something like Bob & Alasdair in Bendix… The Thornlie Thunderbolt has scorching speed and only needs a few more laps and a change of starting technique to being recording times that will make the eastern states really sit up and take notice.

Also, the 'dynamic trio' of Colin & Ryan Leknys and 'Hoogie' have the right gear and unlimited potential. Ryan's 'Blista' design is a real 'black beauty'. It has been inspired by Wayne Trivin's dual US Nats winning racer, just like the 'Swooper' was. They just need a few more weekends of decent practice to sort out tanks, fuels, etc. They will then be ready throw down the gauntlet.

No doubt we will see more of the WA guys soon as some of them plan to travel across to Murray Bridge in South Australia next January for the SA State Champs and then later to NSW for the 2005 Nats. Next year promises to be an exciting time for B Class team racing.

As most flyers know, Classic B quite a popular event in the USA. One of the very few differences between our rules is that they have a 35 lap and 70 lap heat, where as we run two 70 lappers. They also run a 1oz tank which I think is around 28cc. So a reliable 50 laps for the final must be harder to get over there. The model pictured below belongs to Vic Garner who holds the American record for 35 laps at 1.32.71. The 70 lap heat record is 3.30.75. They use ball race .25's, so I can't understand why the times aren't quicker.

It was a treat to see and touch the beautiful Dalesman of Norm Kirton and Charlie Stone. Having drooled over photos last year, it was a real delight to see this superbly built racer 'in the flesh'. Using a genuine Tornado 8 x 8 wood prop on an original ETA 29 V1c, this model brought back strong memories of the two Dalesmen I built when a teenager in the early 60's. They didn't have that sort of finish, though! I also didn't have an ETA or a Tornado wood, but did have a OS Max 111 29 and a number of re-worked Stant 8x9 wood props as well as the trusty 8x8 Tornado nylon. And we raced around a 44 gallon drum at Albert Park!

Bendix Team Race at the Nats was a race to really look forward to. It's just something about the challenge when you go head to head with those Bendix wizards from the west, Rob Fry & Alasdair Taylor. Our Nelson .36 powered

Nemesis showed eyebrow raising speed, practicing as low as 15 dead for 7 with 44 laps in hand. Even Mark McDermott would be impressed with that!

At the end of the day, our shutoff malfunctioned and the Fry /Taylor team once again earned the title of Captain Bendix. They may not always be fastest, but their teamwork and reliability is clearly the best. However, despite a less than perfect landing, Mark Ellins and I managed to take the Bendix heat record into Victorian hands.

Another very interesting experience in WA was seeing Ron Hoogenkamp's FORA.36. For those people who thought they couldn't afford a Nelson to go Bendix racing…now there's an option! These lightweight combat motors really howl and, if USA Combat results mean anything, are rated at least as good if not better than the benchmark Nelson. At just US $210, wait until our dollar regains some ground and then don't hesitate…grab one! As Rob Fry said last month, "life's not a practice run". So like the Nike ad says, Just Do It! You can find more info on the FORA.36 at GRS Models: http://pages.prodigy.net/gcleveland_grsmodels/

In reflection, the W.A. Nats at Busselton would have to be the most enjoyable ever. Those sandgropers are warm and friendly people and the relatively light program allowed plenty of time to take in the wonders of the west. When it's time for the next Nats over there, don't just consider going, make it a MUST!

After the Nats, Rob Fry took Harry Bailey and I to see the new hard surface at the new Perth control line site on Saturday afternoon. It was most impressive. The adjacent R/C flying field was packed. There were so many models… helicopters, jets, pattern etc that it could have been a Nationals lineup! I had to keep reminding myself that this was just a normal Saturday afternoon flying session! No doubt about it, the hobby/sport of building and flying model aircraft is booming along the Indian Ocean coast.

Lastly, a thought for the month. An update on Cosmic Rays. Glenys's boys have been a bit unpredictable in Classic B of late. After showing enough promise to blow away all the records, things went mysteriously wrong. The Cosmic Rays genuine form is an unknown, just like the real thing.

Scientists at the Los Alamos National Laboratory have come up with a new theory to help explain how giant radio galaxies could create cosmic rays through a process called magnetic field reconnection. According to this theory, the magnetic field lines of the supermassive black holes at the heart of these galaxies connect and vanish, converting the energy of the field into a spray of particles. Cosmic rays are a mystery to astronomers because they have so much energy, there doesn't seem to be anything in the Universe that could propel them. Now that should get you all wondering!

John Hallowell

VH 1984.

Nationals Classic B finalists

Nationals Bendix finalists

John Hallowell congratulates Robert Fry on the good work that the W.A. crew have done in creating the new hard surface.

One of the many Vintage Combat models at the Nationals

Pictures from the Busselton Nationals

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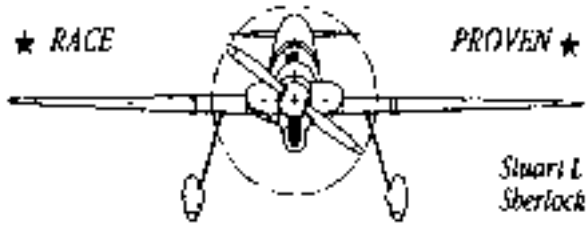

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