

---

THE VOICE OF CONTROL LINE  
AEROMODELLERS FROM  
AROUND AUSTRALIA

---

Number 114



Produced by the Victorian Control Line Advisory Committee

SEPT 2007  
INSIDE THIS ISSUE

Contest Calendars.  
Victorian State Champs F2B Report  
Detachable Wings  
Brodak B25R AAC Break In  
Contest Results  
Notices  
For Sale, Wanted and Found

**Copy Deadline for next issue is:  
Wednesday Sept 19th 2007  
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:- [hbailey@optusnet.com.au](mailto:hbailey@optusnet.com.au)



## COMING EVENTS



## COMING EVENTS



### C.L.A.S. (NEW SOUTH WALES) CONTEST CALENDAR 2006

#### VICTORIAN CONTROL LINE CONTEST CALENDAR 2006/2007

SEPT 9	<b>FAI &amp; Combined Speed,</b> Vintage Combat, Carrier Deck, Sport Flying, CLAMF
SEPT 16	Vintage Combat Brimbank As we anticipate a large number of competitors on the day it will be a strict 10:30 am start.
OCT 7	"Ringmaster Muster" hosted by CLAG at Knox
OCT 14	Classic B, Vintage A, Sport Flying, 1/2A Combat. CLAMF
NOV 11	<b>FAI &amp; combined Speed,</b> Simple Rat, Aussie A T/R, Triathlon, Sport Flying. CLAMF
DEC 2	Classic and Novice Stunt hosted by CLAG at Moe
DEC 9	<b>FAI Team Race, Goodyear,</b> <b>Mini G/Y, FAI &amp; combined Speed,</b> CLAMF
MAY 4 2008	"All Aussie" hosted by CLAG at Knox

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), 10.00am start  
Contact :- G. Wilson (03) 9786 8153,  
Email :- [CLAMF@ozemail.com.au](mailto:CLAMF@ozemail.com.au)

**KMAC** Stud Rd . Knoxfield (opposite Caribbean Gardens)  
(Melway 72 K9) 10.00am start  
Contact :- Peter O'Keeffe (03) 9753 3442  
Email :- [kmac@aanet.com.au](mailto:kmac@aanet.com.au)

**Please note that for 2007, the KMAC club has decided  
that all events on the fourth Sunday of each month will  
be organised and hosted by KMAC only - no other  
clubs are involved in running events on the same day  
at the KMAC flying field.**

**CLAG** Contact :- Graham Keene  
Email :- [gkeene@wideband.net.au](mailto:gkeene@wideband.net.au)  
Details of venues can be found on web site  
[www.clagonline.org.au/home.htm](http://www.clagonline.org.au/home.htm)

**Brimbank Falcons** Stadium Drive, Keilor Park Recreation  
Reserve, Keilor. (Melways ref 15 C 5). Regular flying day  
3rd Sunday of each month 10.30am.  
Contact Ken Maier 03 9398 8244  
Email :- [combtkid@hotmail.com](mailto:combtkid@hotmail.com)

DATE	CLUB	EVENT
Sep 9	KMFC	Classic Stunt, Vintage Stunt, Club Racing, Slow Combat, SWAP MEET
Sep 23	SSME	F2B Aerobatics
Sep 29-30	CLAS	State Championships F2A & F2C @ Hard Surface on the Twin Cities MAC field, Albury. NSW. <i>Proposed supporting Club events for the weekend are :- Vintage A, Classic B, Combined Speed and F2F Team Race.</i>
Sep 29	KMFC	CLUB STUNT (Novice)
Oct 14	KMFC	Vintage British Flying Day Club Racing
Oct 28	SSME	Phantom, Vintage A, Bendix T/R, Vintage 1/2A
Nov 3	KMFC	CLUB STUNT (Novice)
Nov 4	SAT (Kelso Park)	F2B Aerobatics
Nov 11	KMFC	Vintage T/R, 1/2 A, A and B.
Nov 18	NACA (Gateshead H.S.)	Classic Stunt & Cardinal Stunt. (I. Smith Ph:024975 2292)
Nov 25	KMFC	1.6 and Slow Combat, Club Racing
Dec 2	Doonside. Venue TBA	F2B Aerobatics
Dec 9	KMFC	Christmas Party and Fun Fly
Jan.2008	CLAS.	(Details to be advised) CLAS. CITY OF SYDNEY CHAMPIONSHIPS
DOONSIDE - (Doonside Model Flying Club) - Kelso Park North, Panania.		
KMFC - (Ku-ring-gai Model Flying Club) - St. Ives Showground, Mona Vale Rd, St. Ives.		
NACA - (Northern Area Contest Aeromodellers) - Gateshead H.S., Pacific Hwy, Gateshead.		
REMAC - (Ryde Epping Model Aero Club) - Peter Board HS, Wicks Rd, North Ryde.		
SAT- (Sydney Aeromodelling Team) - Kelso Park North, Henry Lawson Dr. Panania.		
SSME - (Sydney Society of Model Engineers) - Model Park, Luddenham Rd, Luddenham.		
WMFC - (Werrington Model Flying Club) - Entrance to flying site @cnr. Landers & Walker Sts, Werrington.		
MDMAS - (Muswellbrook District Model Aero Sports Inc.) - Mitchell Hill Field, New England Hwy, Muswellbrook		
COMSOA - (City of Maitland Society of Aeromodellers) Raymond Terrace Rd, Metford.		

### CLASII CALENDAR 2006/2007

Flying has continued on Saturdays at the Leichhardt Park  
flying site in Ipswich ( UBD Map 232 R1)  
John D. Taylor,  
Secretary/Treasurer CLASII (Ipswich, Queensland)  
Phone (07) 33927679  
Email :- [johndt@iprimus.com.au](mailto:johndt@iprimus.com.au)

## Western Australia 2007 Control Line Calendar

Date	Club	Event
Sep 1 12pm	Lumen Christi	The Tarmac Day
<b>Sep 8 11am</b>	<b>CLAW</b>	<b>Vintage Combat</b>
Sep 16 2pm	CLAW	CLAW race day F2C & F2F
Oct 13 2pm	CLAW	CLAW race day F2C & F2F
<b>Oct 27 1pm</b>	<b>CLAW</b>	<b>Open Combat</b>
Nov 10 2pm	CLAW	CLAW race day F2C & F2F
<b>Nov 25 10am</b>	<b>CLAW</b>	<b>Combined Speed</b>

Events listed in normal type are Club events.

Events listed in **bold** type are State events.

Contact Trevor Letchford for further information.

Ph - 089 342 2625 Mob - 0439 956 846



## Adelaide Aeromodellers Club

### 2007 Events Calendar

Sep 1	Triathlon
Oct 6	Slow Combat # 2 and Balloon Burst
Dec 1	Peacemaker / FliteStreak Stunt # 2

#### Notes:

1. All days are Saturdays, dates are provisional
2. Start time of all competitions is 11.00 am. Practice from 10.00am  
(Note there will **no** be late starts during daylight saving)
3. All events to be held at the AAC field, Unley Rd City opposite BMX Park
4. All entrants must be MASA members and show their FAI licence
5. Safety straps required on all handles in all events.
6. Mufflers mandatory on all glow motors 2.5cc and above
7. No Carrier competition until some one organises a deck! (Any volunteers?)

**For more info contact Peter Anglberger,  
Tel 8264 4516**

Hi, I would like to advertise our event at Gosford City Aeromodellers on Sunday 21st October 2007 starting at 9am in the magazine.

We are having 1.5cc combat and 2.5cc slow combat contest, and hoping for this to be a yearly event on the competition calendar. There will be a sausage sizzle plus \$50 vouchers for first prize in both events also with second and third prizes of lesser amounts.

Entry fees \$10 for seniors \$5 for juniors per event. First prizewinners also have their entry fee redunded as well. Should be a great day all welcome

Contact Bob Fisher on 0243290975 for any information. Map of location to follow or ring me for directions.

To all members and friends of TARMAC.

Our annual get together is this coming Saturday 1st September at 1.00pm.

Come on down to Lumen Christi College and I'll put a sausage on the barbie.

A chance to catch up on old friends and make new ones.

Jim S

P.S. If you know any former members could you please contact them. The more the merrier.

We've been going 31 Years.



## VINTAGE BRITISH FLYING DAY

KMFC SUNDAY 14th OCTOBER



ENJOY A DAY RECALLING THE 1950s IN BRITISH AEROMODELLING

DRESS IN OLD SUITS AND TIES (see old Aeromodellers for fashion tips)

FLY ENGLISH MODELS WITH POWER BY FROG, E.D., ALLBON, ETA etc.

RELIVE THE ERA: DINE ON CUCUMBER SANDWICHES AND HEAR A MESSAGE FROM HER MAJESTY

KU-RING-GAI MODEL FLYING CLUB, ST IVES SHOWGROUND, NSW

SUNDAY 14th OCTOBER

ALL AEROMODELLERS WELCOME

(enquiries to John Nolan—02 9997 3434)

# **2007 F2B Victorian State Championship Report.**

## **“ Hems-worth it “**

The premier control line aerobatics stunt event of the year at Knox was the 2007 State Championships hosted by the Knox Model Aircraft Club.

The fliers had spent many months hoping for fine weather and thankfully were all rewarded with a perfect “stunt heaven” day, mid 20’s light gentle drift and clear blue sky. What more could we ask for? The competitors started to arrive the day before official practice day on Saturday.

The 2007 State Champs were also part of the selection process for qualification points to the upcoming World champs in France. The word on the street was many top fliers were going to make tracks down to our event to put up their hand for selection to the World Champs. The fliers didn’t disappoint either with past Australian National Champion Murray Howell flying making his way down from NSW to fly a very impressive Yatsenko model. Also flying a Yatsenko model was Dave Simons from NSW. Dave is a veteran of many World Championships and was keen to have a great event but things didn’t go as planned early on for him, as he flew through his own turbulence and had a freak accident. What else can be said other than its not pilot error, its not model error or a hardware failure, its just wrong place wrong time. We all felt your pain Dave. The contingent from NSW continued with Frank Battam who has also represented Australia at a World Championships level and still flying as good as ever. In true sportsmanship Frank lent Dave a spare model for the contest.

Always with a smile on his face Bill Swan from Bri-Stunt products also flew in the event as well as juggling his business duties managing his items for sale.

Not to be outdone by NSW, interstater Leon Baird from South Australia took part. Leon is making somewhat of a comeback to the national stunt scene. Leon is best known for superb shapes and his unusual “sheet wing” stunter amazes all as its wing flexes through manoeuvres.

The local Melbourne lads had a tough job on hand with this sort of talent invading us from all comers. If the 2007 Vic State Championship title was to remain in Victoria for the year then someone was going to have to display their best flying to impress the judges. The field of local fliers was very strong; Doug Grinham (always a tough man to beat when he is on song) was keen to add his name again to the podium. Mark Ellins flying an ex Grinham built Jazzer is really making strong headway in the stunt scene. His set up always reliable and well tuned. Surely the dark horse in the field for the event was Craig Hemsworth, perhaps dark horse aren’t the appropriate words, with Craig enjoying a very successful year after winning the Hearn’s trophy in convincing fashion. His shapes, intersections and bottoms are of world standard and those who compete against him in regular meets understand he’s a force to be dealt with. Damien Sammut, Dave Lacey and Greg Barclay had all been putting in the hours in the practice field and wanted to do more than just be fodder for the scoreboard, they were there to show that anyone could win, indeed if you don’t fly very well these guys will take your spot.

Sean Frith our youngest flier is making giant leaps and bounds in experience, in recent comps he has started to post scores that surely must make dad proud.

The field was as strong as any other year. An exception to

this was the absence of P.J Rowland. Disappointed with the 2006 season for several reasons he has decided to cease all flying for a minimum of 12 months with no clear answer as to when he will return.... if ever.

The event started on time at 10am with a full 3 rounds to be flown.

Everyone was doing their best with good scores being posted in round one, the leaders after the 1st round were Murray Howell with 1082.5, Craig Hemsworth with 1077.67 Mark Ellins with 1000. 5.

They were the only ones to break the elusive 1 000 points margin. Frank Battam, Doug Grinham, Damien Sammut and Dave Simons all scored mid to - high 900’s.

Round 2: Saw the scores and flights lift with no less than 5 fliers breaking 1000 with the highest score being 1103.33 those who witnessed that flight by Craig Hemsworth had a feeling that if he could hold his nerve that would seal the deal. Never one to take a backward step, Murray took to the sky and posted a fantastic score of 1094.83 with the smallest errors in shapes being marked down- At this level anything can make the difference, a loop, an exit, a comer.

Round 3: The decider, it was tight at the top with only 2 points separation between Craig and Murray (1090 vs. 1088 combined round 1 and 2 average) As the final flights were being flown we all watched Murray put in an awesome flight, without a doubt the flight of the contest, as the score went up it read 1107.33 a blinder by any measurement. Could Craig respond? His flight was equal to the task, some fine bottoms and intersections, and that landing .... Who could forget that, textbook stuff? The score went up and it was good, but not Murray Howell good, it was only 1102.67, surely without doing the maths, this means Murray in the winner!

With 2 out of the 3 rounds flown being higher than Craig’s scores, Murray deserved to be crowned the Champion. However with the lowest score being dropped and the best two being averaged together the scores were tight, VERY close.

So close in fact the tabulator made sure every manoeuvre for all 3 rounds, by all 3 judges was 100% correct, which it was.

A mere 1.92 points over 3000 + points 3 rounds, that’s as close as you get them. Congratulations Craig Hemsworth who took home the 2007 Victorian State Championship for the 1st time in his career. A tough battle indeed but it was

### **Hems-worth it**

1st	Craig Hemsworth	1103
2nd	Murray Howell	1101.08
3rd	Doug Grinham	1062.17

Many thanks for all those who contributed to the success of the event. The judges were again, Craig Yeoman, Andrew Frith, and Kim Laughton. Peter Rowland Snr carried out the duties of contest director. Many members of the Club also helped in running the event with Peter O’Keefe doing the tabulation, scoreboard duties which were again up within 5 minutes of the flier finishing his round.

Other Club members who assisted greatly with the running of the event in their own special way were Ken Donnelly, Frank McPherson, Greg Barclay, and Damien Sammut. Without their efforts the event surely would not have been a huge success.

Peter Rowland (Snr)

The blackboard with all the round points at the Victorian State Championships.

COMPETITOR	ROUND 1	ROUND 2	ROUND 3	TOTAL
	Vic State Champs	F2B Stunt		
DAMIEN SAMMUT	906.67	721.17	878.83	892.75 8
DAVE LACY	600.50	655.17	692.67	673.92 12
FRANK BATTAM	995.50	1052.17	1043	1047.585 4
SEAN FRITH JNR	635.17	750	809.17	779.585 11
GREG BARCLAY	838	817.83	788.83	827.915 9
CRAIG HEMSWORTH	1077.67	1103.33	1102.67	1103 1
MURRAY HOWELL	1082.50	1094.83	1107.33	1101.08 2
BILL SWAN	889	636	910	899.5 7
LEON BAIRD	714.83	755.33	836.83	796.08 10
DAVE SIMONS	950	929.83	978.83	974.415 6
DOUG GRINHAM	923.17	1061.17	1063.17	1062.17 3
MARK ELLINS	1000.50	1032.50	1048	1040.25 5

## SUBSCRIPTION APPLICATION ARE YOU BORROWING?

If you have just finished reading somebody else's copy of Australian Control Line News why not get in now and order your own copy. Australia and New Zealand residents cost \$20A and other countries \$30A. For this annual amount you will receive eleven issues of this newsletter, and be up to date on Control Line both in Australia and elsewhere. Please make payments payable to "Control Line Advisory Committee"

You can order from:

G.WILSON  
P.O BOX 298  
SEAFORD  
VICTORIA 3198 AUSTRALIA

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

POSTCODE \_\_\_\_\_

TELEPHONE \_\_\_\_\_

## Going to Brodak's

The article in last months edition neglected to include a picture of the author Ian Smith, that was taken with Art Adamisin.

(Editors apologies to Ian)

Here is the missing picture.

The majority of pictures in last months Brodak article were taken by Ian Smith.

Fig 1 & 2 were taken by Charles Mackey



Fig 21. Ian Smith and Art Adamisin - deciding the next episode.

### Contact

Bech and Borge Engineering Pty Ltd (ABN 36 006 187 506) can be contacted as follows:

Phone	(03) 9544 8600
Fax	(03) 9540 0609
Address	42 Carinish Road, Oakleigh South VIC 3167
Email	enquiries@bechborge.com

Engine Reconditioning Specialists



# DETACHABLE WINGS

By Brian Burke

*Article on replaceable wings used in slow combat models up here in South East Queensland.*

The story began back in the early 80s when Phil Cartier of "Gotcha" and "Tantrum" fame wrote an article in Flying Models about his 95mph AMA slow combat design, I can't remember what he called it but apart from being restricted to suction fuel feed and having a replaceable, slide in wing that was taped in place, didn't appear too different from AMA Fast models.

The major disadvantage was the double taper wing planform employed as this would complicate the ply fuselage sleeve and/or loosen up in flight. Over the years at various times some guys talked about it but no one seemed inclined to adopt it. About 4 or 5 years ago Peter Wallace and I chose to fly to the NSW State Champs. Seeking to take a couple of slowies I found that they were normally too long for the F2D model box.

As the "Maverick" used a constant chord wing with truncated tips to delay tip stall I decided to have detachable wings together with external controls.



*A Maverick with replaceable (detachable) wing*

One used a partial sleeve with elastic bands anchored on fuselage dowels whilst the second employed a full ply sleeve mounted through the profile fuselage, the wing being taped in place.

However as the Maverick wing is normally rebated to allow the tank to fit, it was necessary to mount the wing further back which of course would have made the model quite nose heavy. To offset this, enhance bellcrank mounting and strengthen the fuselage generally (one less thing to fix!) full length 1.5mm ply doublers were used.

To cut a nauseously long story a bit shorter, perishing rubber bands proved a problem with the first set up but the second model flew much better than expected. The slightly extra weight yielded a little more line tension and though it still turned as tightly as the one piece Mavericks it did so a touch slower. There must be around 30 or so around by now and old man Comiskey won the Qld State Champs event this year whilst I won NSW in 2005 so they can't be too uncompetitive!



*The ply sleeve*

I now use 1.5mm ply strips 76 – 80mm wide cut with the grain across the model. Soak at least overnight in a wallpaper trough filled with a couple of bottles of Woolies cloudy ammonia. Cut at least twice as many strips as you want as they are very easy to break! Gently bend a strip around the wing you intend using releasing it frequently and wetting it again from time to time.

When to shape, clamp in place around wing and leave to thoroughly dry. Chamfer a piece of ca 5mm pine trailing edge and epoxy in place. Trim to size and sand to finish. I find that it's best to have a loosely fitting wing that can be packed firmly in place and aligned with bits of thin cardboard or very soft balsa makes life a lot easier. After this I hold the wing in place with strips of signwriters vinyl although I've also used contact and various adhesive tapes.



*Bellcrank and mount*

The bellcrank mount is cut from 25mm aluminium angle and is bolted through the fuselage and full length top bearer. The bolt is also used to anchor the engine tether. A wood screw or second bolt is employed to prevent the mount rotating.

Let me know if any clarification or further information is desired.

Brian Burke (07)32001308.

July 2007

**Mr Brian Burke**  
**2-24 Appaloosa Court**  
**Munruben QLD 4125**



## CONSTRUCTION GUIDELINES

1. using a tailpiece drawing, cut out all timber parts from material listed. Obtain or fabricate all "hardware".
2. mark wing centre line (use from top edge) on both sides of lower tailpiece nail. Nail slots for stud and main piece of well as bellcrank mount and tailpiece
3. draw and cut out for engine bearers, allowing for width of the engine to enter. Epoxy in place and wipe off excess glue.
4. glue upper and lower tailpiece halves together. When dry sand and finish smooth replacing sealings as necessary. Chisel the trailing edge of the top of fly control and glue into right hand end in place.
5. after drying, cut out for engine coverboards and slot fly for upper and lower tailpiece. Cut out for engine bearers and replace wing control.
6. slot claspplate for monkey and fins and glue in position. Bend upper and lower tailpiece to follow curve of wing and secure tabs in top engine bearer. Fabricate clasp from metal brass tube and drill screw/bolt holes.
7. glue bellcrank mount in position followed by stud spart. Secure assembly in all places and alignment with centre line.
8. without glueing, shape elevators to the tailpiece. Mark and fit the as illustrated. Bismantle and glue tailpiece accordingly in position.
9. after raising the pumpino guide tube in place, connect the bellcrank and control horn with pushrod. Ensure free operation.
10. On the left wing, nail and cut out each top spar slot as well as retaining wing control horn and elevator control guides. Install fit wing to fuselage and when finish, mark position.
11. remove wing and attach leadout wires to bellcrank. glue wing into place and secure fit with accurate fit. Similarly slot and relieve right wing and top guide in place.
12. Check tailpiece fit and correct if necessary. Attach top and bottom spar trailing by sewing to glue and sand 2000 grit paper and guides to left tip. Glue sand and vacuum model into place. Mark and install wing control horn and elevator control and trailing edge with tail clasp. Check alignment with fuselage or Unbranded epoxy.
13. Cover wings as preferred and glue each off 3-4mm of wing root parallel to fuselage side. Seal with epoxy and wipe off excess. Attach elevator control horn and paint and paint remainder of the model. Attach hardware, monkey and paint

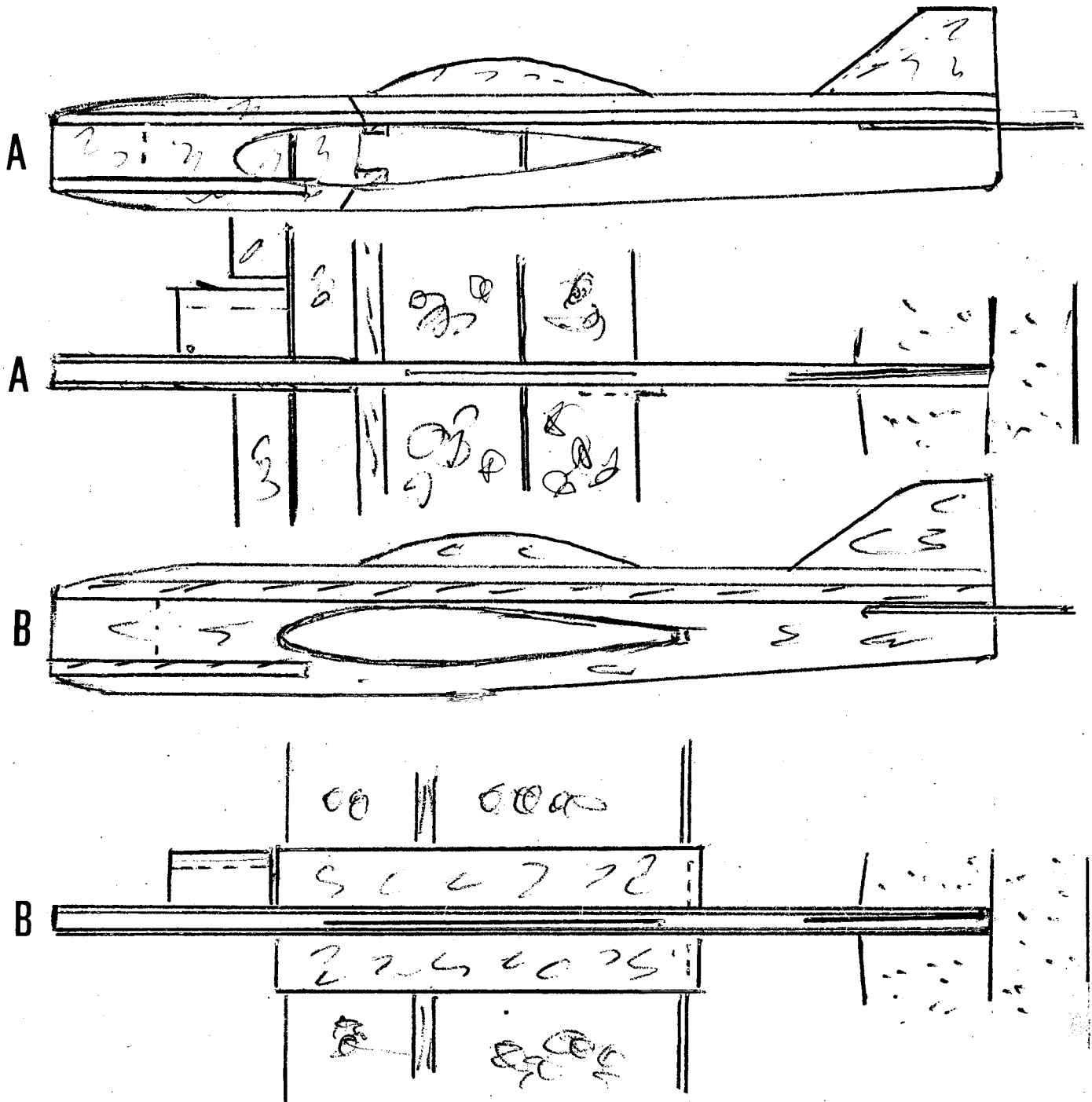
**MATERIALS RECOMMENDED**

[illegible]

"hardware" such as ballpens, control horns, or w/cart clasp may be fabricated or similar proprietary items used if preferred.

BRIAN BURKE ENTERPRISES (C) 1.4.97

Rise sized Ven/Acu ca. 10 yrs ago. Spun up 4044 then rings - now uses 3044 ring. A3 size is close to 1/2 size.



A SIDE & PLAN VIEWS - MONOLITHIC TYPE

B DITTO - DETACHABLE TYPE

After having Rory Dillon's photo in last months ACLN, Mark Dillon has come under pressure to include Rory's younger brother Callum.

The following photos were recently taken at the ALC flying field in Queensland.

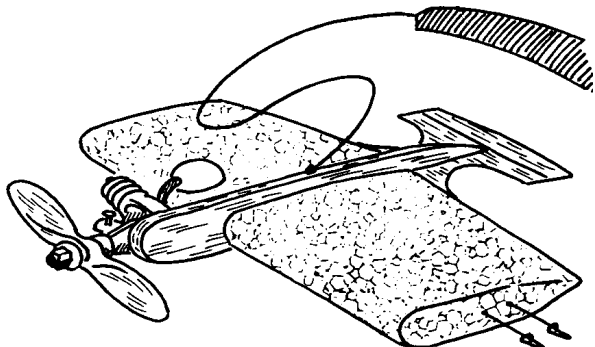
Callum is 4 years old and is seen here with his .049 combat trainer.



*Good enough to take on the big guys - flying with Dad (Paul)*



*Flying combat with big brother Rory.*



*A picture from a recent Vintage 'A' racing event in Western Australia.*

*From left to right are we have Adrian Dyson, Mark Sherburn, Dave Gannon, Richard Bellis, Ian Thompson and Charlie Stone.*

# 2007 NSW State Championships

On the 29<sup>th</sup> and 30<sup>th</sup> of September 2007  
At Twin Cities Model Aero Club field  
Albury NSW

## Flying Programme

<i>Saturday 29th</i>	<i>Sunday 30th</i>
<i>9am Rounds 1 &amp; 2 F2A Speed</i>	<i>9am Round 3 F2A Speed</i>
<i>11am Rounds 1 &amp; 2 F2C Teamrace</i>	<i>11am Rounds 3 &amp; 4 F2C Teamrace</i>
	<i>Final F2C Teamrace</i>

### Entry Fees:

No Administration Charge

Junior - \$5.00 per event

Senior - \$10.00 per event

Team Events - \$10.00 per Snr Person, \$5.00 per Jnr Person

**For all events the CD will take entry fees on the day prior to commencement of competition**

All Inquiries To:

### **Grant Potter**

21 Kingdon Street

Scone 2337

Ph 02 6545 3012

Fax 02 6545 9341

[Potters.engineering@hunterlink.net.au](mailto:Potters.engineering@hunterlink.net.au)

In addition to the above events it is also intended to run some support events over the two days.

These proposed events are Combined Speed, F2F Team Race, Vintage A & Classic B T/R.

The timing of these additional events has not yet been finalised but the preliminary thoughts are:-

Saturday F2C Rd1, F2A Rd1, F2C Rd2, F2A Rd2, Vintage A T/R. F2F if enough time/entries.

Sunday F2C Rd3, F2A Rd3, F2C Rd4, F2C Final, Combined Speed, Classic B T/R.

Any queries regarding the support events can be answered by calling either :-

Harry Bailey on (03) 9543 2259 or

Graeme Wilson on (03) 9786 8153

# BRODAK B25R AAC ENGINE BREAK-IN

An article from Lance Smith

The correct procedure for breaking in the B25R is absolutely critical. The AAC-type engines require less time for break-in than the lapped or ringed iron and steel engines. For an AAC engine to attain and maintain maximum performance levels, however, an entirely new set of break-in procedures is required.

AAC engines rely on a very close fit between the piston and cylinder to prevent combustion gas blow-by at operational temperatures and speeds. The primary advantage of the AAC concept is the ability of the piston and cylinder to expand from ambient to operational temperatures at almost equal rates, thus avoiding the damaging seizures occasionally experienced by non-AAC/ABC types. Complications arise because the portion of the cylinder above the transfer and exhaust ports operates at a much higher temperature than below the ports, allowing the upper cylinder to expand more than the bottom. To compensate for this, the cylinder bore is machined with a taper, producing a smaller bore at the top than at the bottom (#0.0015 in the B25R).



*Replacing head shims*



*Transfer and boost ports*

*Alloy Chromed liner*



*These photos show the very well made alloy chromed piston and liner assembly with very generous and well cut transfer ports*

Trial-and-error experimentation in the 1970s discovered that AAC engines performed best when the piston actually interfered with the cylinder (zero clearance) at TDC (ambient temperature). This is a squeak that may be heard and the resistance felt when turning these engines over without the glow plug installed. Since the high-silicon-content aluminium alloys used for the piston allow the chromed cylinder liner to expand slightly more at running temperatures, a free-running assembly is achieved while maintaining a gas-tight, blowby-free combustion chamber.

The problem with this system centers on a narrow band at the top of the piston's head, just below the crown, where it contacts

the cylinder at TDC. Typically measuring only about 0.060 in height, depending on the size (displacement) of the engine, it controls the operational fit of the piston within the tapered cylinder. Wear it slightly (smaller diameter), and the delicate balance shifts; a great running engine is now only adequate. Wear it a bit more and the engine is worn out. Unfortunately, all of this can happen during the first few runs of a new AAC-type engine, perpetrated by an unsuspecting operator.

The objective of AAC-type engine break-in is to maintain the delicate top-of-the-piston fit while allowing the internal components to heat-cycle for the purpose of stress relief. Sound simple? Let's look at the requirements:

## **Fuel.**

From the outset, use the highest factory recommended Nitromethane fuel content. If the instructions say to use 15 to 20 percent nitro, then use the higher 20 percent. This generates the highest combustion temperature, resulting in the greatest expansion and therefore the most clearance between the piston and cylinder (when they're the tightest they'll ever be). After break-in, this same fuel must be carried over to the flying phase of the engine's operational life.

After running the engine for a season or two, you'll probably notice that performance begins to diminish (nothing lasts forever!). Performance can be determined by comparing tachometer readings on a standard propeller from when the engine was new to the time of comparison. If rpm drop by several hundred or more, the piston and cylinder clearance is probably excessive, so you should reduce the nitro content to 5 percent. Less nitro means lower combustion temperatures and less component expansion; this results in a tighter piston and cylinder fit with less blowby and lost power. Experience has shown that reduced Nitromethane content is compensated for by the improved piston and cylinder fit at running temperatures. That's why some "worn-out" sport pylon racing engines make very acceptable fun—flying engines: less nitro!

## **Lubrication.**

For break-in, use 20 percent lubrication by volume. This is the standard oil content I use throughout an AAC-type engine's life-break-in and flying. A minimum of two-thirds of this volume is castor oil, (we use 100% Klotz BeNol) the greatest insurance policy you can buy against engine damage due to a hot, lean run.

Competition racers sometimes experiment with oil percentages of less than 18 (percentages of 18, 16, 14 and less have been used). Reducing the mass of lubricants in the air and fuel mixture may improve flame propagation (burning) in the combustion zone, which ultimately affects power output. These are minor performance gains and best left to the experimenter.

## **Two- vs. 4-cycling operation.**

If it were possible to completely eliminate 4-cycling within an AAC-type engine, it would be a great day for its longevity. Four—cycling operation is cool operation, which leads to premature wear. Never purposely run an AAC-type engine 4—cycling rich; the relatively cool temperatures generated by firing every other revolution of the crankshaft accelerate piston wear and the onset of significantly reduced performance.

Because AAC—type engines were originally designed as wide-open throttle racing engines, their pistons and cylinders operated happily. Today, AAC engines are also expected to idle and throttle reliably. Unfortunately, this allows them to cool excessively, especially below throttle, where poor cylinder scavenging causes them to 4-cycle, rubbing away at the critical piston and cylinder fit.

## **Tight AAC piston and cylinder.**

When new, some AAC-type engines are so tight at TDC that the possibility of damage to components (connecting rod, wristpin, crankpin or piston) exists the first few times the engines are cranked over. To avoid this situation, warm the cylinder and head with a heat gun before the first few starts; this will cause the cylinder to expand, pulling away from the piston, permitting you to easily crank over the engine.

## **Use the 20 x 30 second rule.**

Set the engine to run slightly rich, not four-stroking on a fine pitch prop. I use an APC 7x6 with the Brodak to try an simulate air RPM. Run the engine for 30 seconds and then stop it and allow it to cool back down to room temperature. With an AAC engine cooling takes from 5 to 8 minutes, leave it 10 minutes if you want to be on the safe side, then run the engine again maintaining a slightly rich setting. After about 3-4 runs you will hear the engine RPM go up a little and the engine will tend to run freer as the number of runs increased. Adjust the needle to keep the engine just slightly rich but not four-stroking.

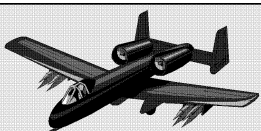
After twenty x 30 second runs the engine will be ready to put in the model and fly. Why 30 seconds? Well after 30 seconds the engine has reached a stable operating temperature and running longer is just burning fuel, not running the engine in.

Cycling between hot and cold is important as it helps stabilises the piston and liner materials, and helps speed-up the run in process.

If you done all this correctly, the engine will last and last, giving many trouble free races. If you hurry the process, you are only going the hurry the process of wearing-out or damaging your engine before the racing begins.

Taken From: Break-in: The secret to longevity and reliability, Model Airplane News, Nov 2001 by Gierke, Dave

# CONTEST RESULTS



Combined Speed at Frankston 12/8/2007

	Name	Class	Engine	Flight 1	Flight 2	Flight 3	Fastest	Km/h	%
1	R Hiern	Vintage 2.5 1957	OS Max II - .15	20.14	18.58	DNS	18.58	193.76	108.72%
2	M.Wilson	Vintage Proto	Brodak 25 MK 4	32.73	31.22	DNS	31.22	185.57	105.16%
3	R Hiern	Class 1	Novarossi 12	14.50	14.36	DNS	14.36	250.70	99.72%
4	J Hallowell	Vintage Proto	Magnum 25	34.68	35.10	34.10	34.10	169.90	96.28%
5	R Hiern	Class 2	Novarossi 21	11.42	11.10	10.48	10.48	276.41	95.42%
6	H Bailey	Vintage Proto	OS 25 FP	36.10	35.54	DNS	35.54	163.02	92.37%
7	N Wake	Class 1	Marz .15	15.96	15.71	15.73	15.73	228.86	91.04%
8	M.Wilson	Classic Fai	Rossi 15 RV	18.49	18.40	18.83	18.40	195.65	77.17%
9	N Wake	Vintage Proto	FROG 500	55.85	108.13	DNS	55.85	103.74	58.78%
10	N Wake	VINT FAI 1960	Super Tigre G20/15	DNF	DNS	DNS			0.00%
10	R Hiern	Class 4	Profi	NEL	DNS	DNS			0.00%

## 1957 speed model ....OS Max II - .15 powered.....

A few years ago I built a "REPLICA" of the Tony Farnan /Graham Rice speed model that had Australian record in 1957 and won the Tasmanian Nationals.

It is powered by the same type of motor, an OS MAX II- .15 glo motor, it also has a fibre glass pan as used on the original.

Motor is modified as they all did back then but nothing that was not available at the time, uses a 6x7 wood prop, ordinary sport plug and nitro fuel.

The record was 178.22kph in 1957. On Sunday at the Frankston competition I managed to finally break it. It is now 193.7 kph using the same 52ft lines.

The aim was to fly old speed models and fly against the old records, but USING THE SAME TECHNOLOGY. It is all about having fun and developing motors and models.

We have a speed comp nearly every month in Melbourne, and we always fly. If weather is no good we try the next week.. By having regular comps it gives something to aim for and to improve next month, all it takes in other States is to have a ring around and all get together and have a comp or just a fly. There are plenty of models out there ready to fly, you may not be competitive first time, but with regular flying and you will improve. Rome was not built in a day.

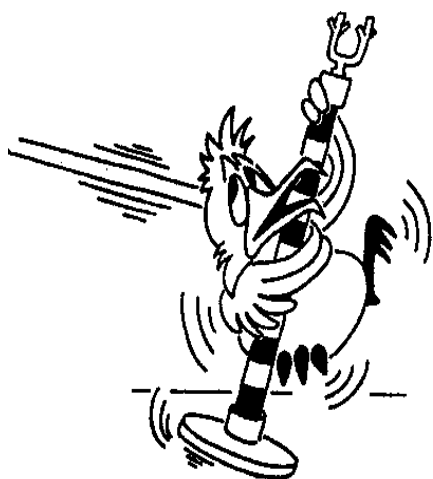
My first speed flight in a comp was a wing over .

You don't have to fly National classes, just dream up some classes for local comps, JUST SO LONG AS SAFETY IS ADHERED TO, and please send information to the newsletter reporting what is going on as this encourages others to start If you can, send in photos, the newsletter needs articles.....

Next speed comp is at Frankston on Sept 9th. then up at Albury on the weekend of Sept 29/30 FAI speed will be flown as part of the NSW State Champs. We will run combined speed after FAI. We can run the long lines at Albury as it looks like we don't get to fly at KNOX any more!!! as a calendar has not been done????!!!

So please make the effort to get models out and join in .....

Robin Hiern .....



## Classic Stunt Results at Frankston 12/8/2007....

1st	Mark Ellins	Nobler / Fox 35	1705
2nd	John Hallowell	Tucker Special / OS35 FP	1691
3rd	Peter Roberts	Nobler ARF/Brodak 40	1473
4th	Graeme Wilson	Avenger/OS 35	1446

A cold gusty wind made flying a bit interesting. Mark managed to persuade his well worn Nobler to stay away from the ground long enough to come out on top. John also did a nice job handling the conditions with his Tucker, Peter didn't... decking the Nobler in Rd 2 !! Graeme turned up with an Avenger he's had lying around somewhere, denying rumours that he's preparing for retirement by taking up stunt !! Steve Mitchell took care of the judging... thanks Steve !



**SOUTHERN MOWERS**  
12 Stephenson Rd, Seaford  
**Ph 9775 1015**  
Fax 9775 1018



**A reminder to subscribers that an electronic PDF version of this newsletter is available at no extra cost. If you wish to join the group of subscribers who use this option to get the newsletter with coloured pictures then email a request to the Editor.**

The views and opinions expressed in ACLN do not necessarily reflect those of the Editor or Committees of Clubs or of the members of the Club represented in ACLN but are those of the respective authors.

Any comments, queries or complaints with respect to any article in this publication should be addressed to the author of the article.

The Editor and Committee of Clubs accept no responsibility or liability for any loss or damage incurred or suffered by anyone as a result of this publication or in reliance upon or as a result of acting upon anything contained in this publication.

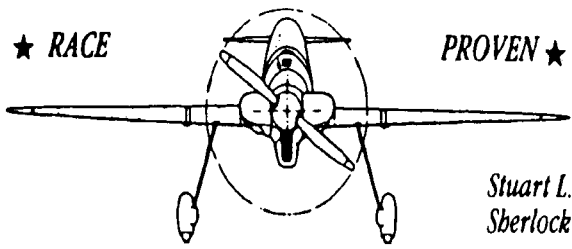
# Found

A control line handle was found last month at the Albury hard surface, possibly from C/L Scale at the Nationals. It has been in the weather for 7 months and has a distinctive handle tether.

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

## SUPERCool RACING PROPELLERS

42 Hepburn Way, Balga, 6061 W.A. Australia Tel/Fax: 61 8 9247 2481  
Email:- props@iinet.net.au www.supercoolprops.com

★ RACE

PROVEN ★

*Stuart L. Sherlock*

- ★ Minimum induced loss computer designed propellers
- ★ Advanced technology precision mouldings

K43141-26

F2C11 6.4 X 6.2	
F2C12 6.4 X 6.3	<i>Supercool .....</i>
F2C13 6.4 X 6.4	<i>First in Racing</i>
F2C14 6.4 X 6.5	

F2C11 to F2C14 now with Suzuki low Re, high Mach airfoils

### Newsletter Editor

**Harry Bailey.**  
37 Thompson Street  
Clayton 3168  
Victoria  
Tel (03) 9543 2259

### A.C.L.N. ADVERTISING

For the newer readers, we point out that "private" (personal) ads are free to subscribers, and "commercial" ads are \$20 per quarter page, or \$5 for business card size. Commercial Advertisers can receive a free business card size ad for submitting original articles of interest to A.C.L.N. readers.

Copy or artwork for ads should be sent to the editor, cheques to the treasurer (G Wilson P.O. Box 298 Seaford, Vic. 3198) If you want to save a stamp, I can forward on any cheques sent with ads, but please make them payable to "Control Line Advisory Committee"

# For Sale

"Thunder Tigre" early first series "1980" Control Line Glow engines .15, .20 and .25.

All brand new, never mounted or run. \$100 each  
or \$270 for all 3 +  
Postage, registered.

O.S.Max 10 "1970's" Stunt Glow. New, unused.

\$100 + postage

Contact Ray:- 07 3814 2308

### First pressing pure castor oil.

Price: \$38 for 5 litres including container.  
Std post Melbourne area \$7 including P&H  
Other amounts available - POA  
Email postcode for post quote from 3018  
[combtkid@hotmail.com](mailto:combtkid@hotmail.com)  
Telephone 03 9398 8244 day or evening.

### FOR SALE:

Vintage Combat models.  
10 Ironmonger 1970 design, solarfilm covered, to suit ST G20 15, or PAW, or Oliver

Price: \$70 each + p+h

For more information email Murray @  
[vmaareg@ozemail.com.au](mailto:vmaareg@ozemail.com.au)

# WANTED

### WANTED

Conventional style (Not pod and boom) TR, designed round ST G20/15 D FISE

In flyable condition, tank and or pan useful but not essential.

Will pay sensible price

Contact me at home address – [Duncan@east-tw.co.uk](mailto:Duncan@east-tw.co.uk)

Duncan Bainbridge  
The Varnish Works  
3 Bravington's Walk  
London N1 9AJ  
Tel 020 7843 6161  
Mob 07747 446 708

### WANTED

Glo Chief 49 conrod, or motor for parts.

Contact John Henderson  
25 Darwin Crescent  
Morley 6062  
W.A.  
Tel (08) 92795407 or (08) 92752709

# AUSTRALIAN CONTROL LINE NEWS

If undeliverable return to:-

**G. WILSON**

**P. O. BOX 298**

**SEAFORD VIC 3198**

**SURFACE  
MAIL**

Printed by Minuteman Press  
3/14-16 Hartnett Drive  
Seaford, VIC 3198  
Phone: 03 9773 5586