

Impington Model Aeroplane Club
Founded in 1946 by Ray Malmström

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Climb and Glide competition

This was held on 4th August in rather good conditions as the wind dropped after a very windy spell of weather.



A motley crew turned out for this very low key and fun competition

This was just for fun and the models really needed to be given a handicap to make things fair. Richard Staines was unable to attend with what would certainly have been a winning large glider, so I seized my chance and decided to cheat and bring my largest glider as I felt it was about time I won one of the competitions!! It was fairly close in the end. The format was a 10 second power climb followed by the longest glide possible. The times below include the 10 second climb.

1 st	Alan Paul	Radian Pro	84s
2 nd	Peter Jude	Sandpiper	69s
3 rd	John Street	Mini Radian	63s
4 th	Stan Milsom	Flutterbug	62s
5 th	Denis Edwards	Skysurfer	61s
6 th	Alan Paul	Acrowot	51s
7 th	Dave Stopher	Waltz	41s
8 th	Chris Stewart	Galahad	34s

If we had done a proper handicapping system, the results would have been quite different!! This was almost Peters Sandpipers last hurrah and definitely my Radians (ask us!!)

Dates for your Diary

Power Nats – 26th to 28th Aug Barkston

Thur 14th Sept – First Indoor meet 7.10pm

Friday 15th Sept – Last Outdoor meet

Weekend of 23rd & 24th Sept – Last Old Warden event, the Festival of Flight

Old Warden July Scale Day

I think half the club must have been there – I certainly saw a dozen or so familiar and friendly faces. Between us all, we were able to get a few photos of club members in action



Tony Welch is seen fuelling up his Sea Fury (note the beverage in his hand) before flying into first place in the SAM 35 control line competition



Tony also flew Mick Staples 1979 Bristol Bulldog in the Scale competition. The Bulldog is seen here flying into second place in front of the famous Shuttleworth Hangars

A video of Tony flying the Bulldog is at <https://youtu.be/PS2pn54a2JQ>



John Wynn took this photo of Margaret Staples holding Micks Bulldog with her daughter and grandson plus pilot Tony. They were posing for Julio Isidro, a Portuguese TV personality who is also a keen Team Racer and friend who often comes over for events in the UK.

Bowden Trophy

Michael Marshall reports that this was held at the BMFA Gala at Sculthorpe over the weekend of 23rd July. It was a precision contest with two flights, ROG and land between 30 and 60 seconds. Second place was John Wynn and third place Gary Flack keeping the IVCMAC end up



John Wynn looks happy amongst the Sculthorpe weeds. Sculthorpe was quite a place during its Cold War heydays and it's a bit sad to see the runway looking like that, but if it gives us a place to fly, then that's OK.



Gary Flack attempts to keep his fingers intact whilst John shows flexibility and attends to his model.

Duxford "on our doorstep"

If you haven't been to Duxford recently, it's well worth a visit. I took these photos which reminded me of my model planes hanging up in the spare bedroom, although I suspect the chaps at Duxford use stronger string.....



The American Hangar



PT-17. It could almost be a model



The Airspace Hangar

A study in concentration?



Raymond Fella guides his mini Radian with a big smile on his face. There is no doubt that for light wind conditions this excellent little model provides more fun per pound than almost any other. I should get one whilst they are still being made!!



John Street has fun with his mini Radian. I think they were both muttering curses at the photographer actually as there was no escaping whilst they were flying!

How many models can you get in your car boot?



This was my attempt on the Open Day in June, but can you do better? Send in your photos!!

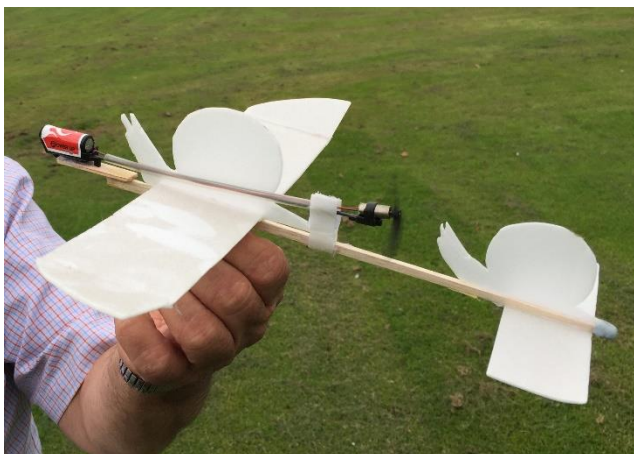
Vne – does it matter?

Vne is the “Never Exceed” speed and is vital to the safe operation of full size aircraft. It turns out that it applies to model aircraft too!!



The sad picture above confirms this. After a great thermal soaring flight at Cottenham, I had to lose some height. After a short dive, the speed picked up, the model tucked under and headed vertically to the ground completely out of control – a total write off and a clear case of pilot error. Non rigid models like the Radian family can't take a high speed dive!! I should have used the Crow braking that I had spent ages programming....

Wot no battery?



I was intrigued by the high pitched whine coming from Paul Craskes own design balsa and foam Snail Plane. This uses the electrics from the “Paper Plane” but his design flies a whole lot better. On a windy night it had some quite impressive flights with one over 30 seconds. The capacitor up front is charged up and the little prop spins at quite a speed prior to launch. As these little units are so cheap, I wonder if this could be a competition where you build whatever model you want but all powered by the same propulsion units. Paul says he can buy them for under a fiver!!

What's this then?



Answer at the end of the newsletter.....

Sales and Wants

We haven't had any takers for this section yet, but if you do have anything to sell or want, let me know and I will slot it in here

Safety Corner

When is an RC plane crash not pilot error?

I was recently flying at another club when a small model narrowly missed a few people and crashed into my car. The pilots excuse was that something had failed and he was unable to control the model. Whilst this might be a good excuse once in a blue moon, in this case the pilot had been “buzzing” the pits for a while and whilst he was a good pilot, when the failure occurred there was just no margin for error. Luckily it was a small plane!!

If high energy manoeuvres are always carried out on a line that does not point to the pits, it massively reduces any chance of a crash hitting people in the pits. Just a thought!! No names, no pack drill.

Answer to What's this then?

Richard Staines sent in the photo and says “In the early days of flying RC gliders it was foreseen as a major problem to get out of lift. The gadget is an all moving tailplane bellcrank, but with the application of full up elevator AND full up trim (remember this was before digital trims so you had a lever) the tailplane went up in excess of 45 degrees and thus the model DT'd as per free flight models. I never used it but seriously thought of installing it on the Dreamweaver but couldn't devise a system that would be unseen or not alter the model too much”.

Inspiration in a Coke bottle

Bryan Gostlow has been burning the midnight oil and looking at supersonic performance. He writes -

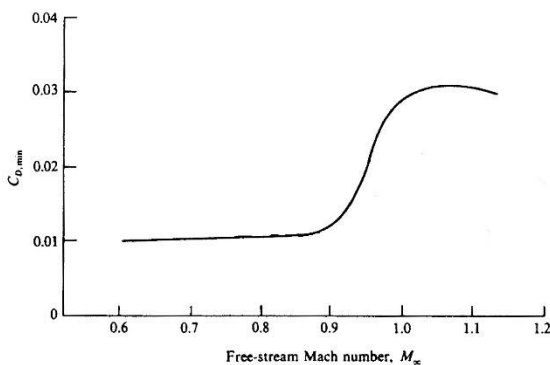
Imagine yourself working for Convair back in 1951. You've designed the stunning YF-102 delta-wing fighter, equipped with the J-57 turbojet - the most powerful available, in order to fly at supersonic speeds. It's October and the plane is being test flown at Edwards Air Force Base, meanwhile a production line is being set up at Convair's San Diego plant.



Convair YF-102

As testing progresses it becomes painfully clear that the plane can't fly faster than sound - the transonic drag is simply too much for even the J-57 engine to overcome. Oh bother!

Chuck Yeager was credited with being the first person to break the sound barrier in level flight on October 14, 1947, flying the Bell X-1, but that wasn't the starting point. Described as a "bullet with wings", the X-1 closely resembled a Browning .50-caliber machine gun bullet, known to be stable in supersonic flight. Also well known by ballistics engineers, working for the artillery, was that the drag curve rises sharply as it nears Mach 1 due to compressibility effects of the air.

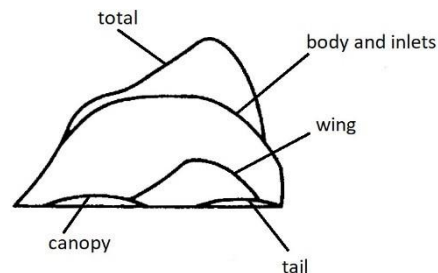


XF-102 wind-tunnel data

The drag experienced by the YF-102 was much higher than expected, and the aircraft was limited to Mach 0.98, with a ceiling of 48,000 ft, far below the requirements.

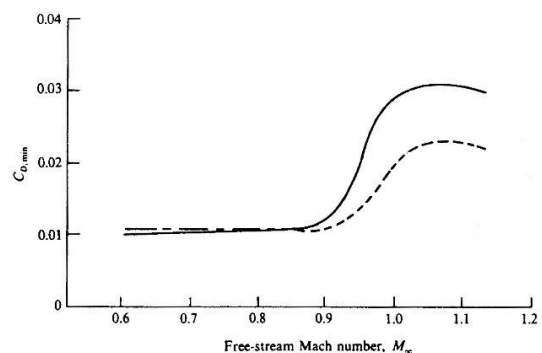
So, the designers took their problem to NACA at Langley. Over the years, several people had studied the problem and independently discovered ways of overcoming it: Otto Frenzl while working on a transonic wind tunnel at Junkers works; Dietrich Küchemann who designed a tapered fighter that was dubbed the "Küchemann Coke Bottle" when it was discovered by US forces in 1946; Wallace Hayes, a pioneer of supersonic flight, developed the transonic area rule in publications beginning in 1947 with his Ph.D. thesis at the California Institute of Technology.

Whitcomb area rule - Richard Whitcomb, after whom the rule is named, independently discovered this rule in 1952, while working at the NACA. At high-subsonic flight speeds, the local speed of the airflow can reach the speed of sound where the flow accelerates around the aircraft body and wings. The speed at which this development occurs varies from aircraft to aircraft and is known as the critical Mach number. The resulting shock waves formed at these points of sonic flow is experienced by the aircraft as a sudden and very powerful drag, called wave drag. To reduce the number and power of these shock waves, an aerodynamic shape should change in cross sectional area as smoothly as possible.



YF-102 cross section

As you can see, the air flowing from nose to tail past the original YF-102 sees anything but a smooth change in cross section. Work began to pinch the waist of the plane and give it the 'coke bottle' look. Further work on lengthening the fuselage by 11 ft, with two large fairings on either side of the engine nozzle, with revised intakes and a new, narrower canopy.

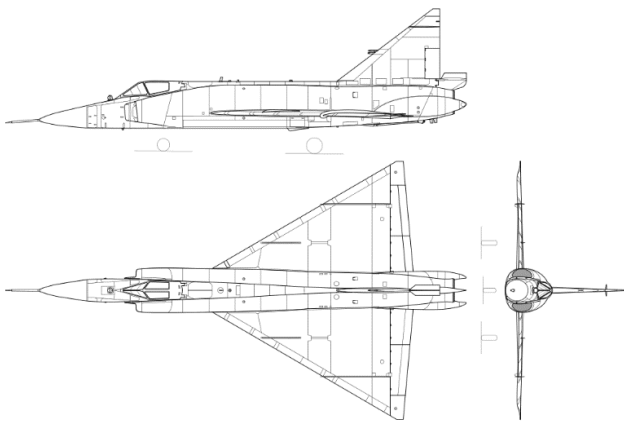


- - - after revision



YF-102A

So, did it work? - The first revised aircraft, designated YF-102A flew on 20 December 1954, 118 days after the redesign started, exceeding Mach 1 the next day. It demonstrated a speed of Mach 1.22 and a ceiling of 53,000 ft.



F-102

Closer to home, a detailed specification was issued in June 1952 as Naval Staff Requirement NA.39, calling for a two-seat aircraft with folding wings, capable of flying at 550 knots (Mach 0,83) at sea level, with a combat radius of 400 nautical miles at low altitude. The first responses were returned in February 1953. Blackburn's design by Barry Laight, won the tender in July 1955. For reasons of secrecy, the aircraft was called BNA (Blackburn Naval Aircraft) or BANA (Blackburn Advanced Naval Aircraft) in documents, leading to the nickname of "Banana Jet". The first prototype made its maiden flight from RAE Bedford on 30 April 1958. The Blackburn Buccaneer entered service with the Royal Navy in July 1962.



Buccaneer

This photo clearly shows the way Blackburn followed the 'area rule' to achieve speeds up to 580 kn (Mach 0.88) at 200 ft

So, was that it? - Well, no. As designers became more familiar with working to the 'area rule' the changes became more subtle and harder to spot, but they're still there.

Fighter planes now fly way beyond the transonic region, where the drag falls away, and anyway, have access to more powerful engines, but passenger aircraft don't.

Mach 1 is accepted to be 1,117 ft/s at ground level (761.1 mph, 661 kn) but it falls with altitude and at 45,000' it is 'down to' 660 mph (573 kn).

With a maximum take-off weight of 575 tonnes the Airbus A380 is far from being a fighter plane but it has a service ceiling of 43,000' and a maximum operating speed of 588 mph (511 kn or Mach 0.89) – its maximum design speed is given as Mach 0.96 if you can believe that!



Airbus A380

It flies close to the transonic region and many features reflect attention being paid to the 'area rule' seeking to minimise wave drag.

Put together by Bryan Gostlow with the help of Wikipedia and 'A History of Aerodynamics' by John Anderson

Model Flying at Cottenham

Many thanks to Norman for getting the agreement of the Parish Council for model flying on the 3rd field which we have been using successfully for 2 years now. Steve Mynott has carefully transcribed the actual agreement for us so we know exactly what we are allowed to do there!!

Extract from Cottenham Parish Council Full Council Meeting May 2015

15/095. Model aircraft – to consider allowing model aircraft to fly on the recreation ground, restricted to 3rd field only (resident request) – Clerk outlined the request.

Signage suggested to warn of aircraft flying on the 3rd field.

Resolution that CPC in principle allow the flying of model aircraft on the 3rd field of the Recreation Ground subject to a suitable agreement drawn up by CALF. RESOLVED.

Subsequently a sign was erected by the Parish Council detailing Model Aircraft flying rules.

Norman Atkin wrote an agreement, which was approved in April 2015. Details below

Flying Restrictions – Cottenham

1. Only the Top Field to be used when not being used by others i.e. Sport, Games etc
2. No noisy aircraft, large Helicopters or Quadcopters
3. No IC or Jet Aircraft
4. BMFA insurance compulsory
5. Restricted to Cottenham residents and their guests
6. No vehicle to be taken on to the Flying field
7. No flying over other recreation areas, school, playing fields or children's play area

Explanations / Additions

- Top field = 3rd sports field through the gap in the hedge.
- Cars are not allowed on any of the 3 sports fields.
- Please take extra care when driving to and from the Village Hall via Lambs Lane. There are very busy periods when large numbers of children are in the area from the school next door
- In general there is very little activity on this field during the working week. We are trying to get a timetable of activities, but even if you get there and an activity is going on, there is enough space for flying at the far end
- We are all Norman or Steves guests, but don't invite any rif raf!!



Aircraft recognition

How many aircraft can you spot? No prizes unfortunately!!

