The Electronic News letter of the Chichester and District Model Aero Club

Clear Dope

August 2023

Chichester and District Model Aero Club: Committee 2023
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Portshole Farm Rep.and Safety Officer: Ken Smith: portholerep@cadmac.co.uk
Deputy Portshole Rep: George Gilchrist: portholerep2@cadmac.co.uk
Slope Rep and Safety officer Trundle Hill: Steve Newman: sloperep@cadmac.co.uk
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Social Rep: Ray Shivjee: socialrep@cadmac.co.uk

Club Evening Thursday 10th August Fun fly at Fishbourne
Playing field small models only
Fly-in at Goodwood 3rd August (See page 5)

DOWN-THRUST - SOME WHYS AND WHEREFORES

A question from new members that comes-up occasionally on the patch is - "Do you think I need a bit of down-thrust?". Providing a coherent answer often needs a little forethought, because it brings into question other connected issues, like trim-state and some less helpful aspects of using down-thrust.

I'd like to take a canter through its principles as well as its evolution, since what we require of it today hasn't always been the case.

In my early years in the hobby, I merely followed others and automatically built it in, having wrecked my first free-flight model through lack of it. Our needs were simple, even with the early radio controlled models, just wishing to cure stalling under power, having no further interest after the engine had stopped, the models being trimmed for glide. I don't think any of us took on-board how the process actually worked, just that having the engine pulling down at the front somehow competed with the increase in lift as airspeed increased. Who cared? It worked and we were having fun.

With a little more thought, that casual acceptance becomes completely implausible. If we take the case of a model weighing say 5lb., and thus producing the necessary 5lb. of lift, and with 5lb. of thrust available, since lift increases with the square of airspeed, we see that if we double the airspeed, even without other effects coming into play, 5lb of lift has become 20lb. So how does 5lb. of available thrust divert sufficient force to defeat the extra 15lb. of lift? We can see that doesn't work, yet we know that down-thrust does, so how?

I find the easiest way of approaching this is to recall what we do when confronted with an unwanted climb - we hold a little forward pressure on the stick or reset the elevator trim. This reduces the tail down-force and causes to tail to rise a little, thus reducing the wing's angle of attack and thus its excess lift.

To mimic how we've corrected the climb by elevator trimming, we need to apply down-thrust to produce a similar effect by applying a force at the nose that not only has to balance the tail down-force that has been increased by high speed, but must also reduce the increased lift by lowering the wing's angle of attack. This means that we have to apply more force at the nose than might at first be anticipated. Mostly our models are set with a little positive pitch stability through tail down-force, in which case the square-law relationship between lift and airspeed would seem to move towards cubic.

What we have established here is that automatic corrective control is achieved by re-trimming using an alternative and efficient method, and not by brute force.

Is down-thrust our whole solution then? Well only "nearly", because there is a shortcoming - trimming using the elevator is immediate; trim correction by down-thrust is not.

The problem lies with the inertia of the model. When transitioning from low-power to full throttle, the model will initially find itself unbalanced owing to the increased down-force at the nose, and with insufficient tail down-force being developed at low speed until momentum has been gained. The nose will drop a little and the model will therefore lose height, which can be an embarrassment when flying low. Correspondingly, if the throttle is suddenly closed at high speed, the model will zoom up, with an excess of unbalanced tail down-force and also the increased lift arising from the high airspeed. These effects reimpose the heavier workload on the pilot if the down-thrust is excessive.

The solution I prefer, and not needing much stick intervention, is to set a moderate degree of down-thrust, and switch-in a small amount of up-trim at the Tx on the downwind landing leg, to slow the model for the final approach.

So there we have it, a means of automatic re-trimming varying with engine power, albeit with the shortcoming that minor intervention may be needed by the pilot.

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The evolution in the use of down-thrust over the years has thrown-up some interesting developments. By the late 1940's, we had soon learned of its value, when powered free-flight was growing rapidly, thanks to the arrival of the small Diesels. Very soon we were flying single-channel radio control, initially merely guiding adapted free-flight models around the skies, until we were influenced by the aerobatic capabilities of models like Eric Clutton's little "Shark-Face" and Basil Murley's "Bazz-Bomb". The set-up of the "Bazz-Bomb" and Basil Murley's unusual flying techniques are most interesting and can be seen by downloading the October, 1964 issue of "Aeromodeller" from https://rcbookcase.com/. See pages 490, and 499 especially.

In the early 1960's, spurred-on by Basil Murley's example, and soon uncovering some of the problems encountered with large degrees of down-thrust, I cut two bays off each end of the wings of a .60-sized stunt control line model to convert it to single-channel RC. Initially rudder-only, the first of a couple of follies (rudders don't bank models without dihedral), it evolved into a strip ailerons-only set-up.

Pollux, Mk. IV

The model was over-powered quite deliberately for fighter-like performance. Having only aileron control, once fired-up you had no relaxation until the tank emptied. More importantly, it had no elevation control, so the fixed trim state had to be for the glide, set-up by the wing's incidence angle and by the CG. Necessarily strong down-thrust had to be applied to cure the problem of power-stalling and looping to great altitude seen in its earlier incarnations. The down-thrust problems exaggerated by the single trim state were this -

1/ The take-off run extended to about 60yds, with the model slapping-down noisily over bumps in the runway when down-thrust was defeating lift. This was not a problem in itself, but because of the forward position of the undercarriage, ground loops were frequent, and with no control over the throttle, the eventual take-off direction was quite arbitrary. This demanded the cooperation and understanding of other club members, needing to be ready to scatter at any time. On the more positive side, the climb-out was magical - fast and shallow, just as hoped-for.

2/ Given the risks of take-offs from the ground, I soon elected to hand-launch when other personnel were present. This required the help of an athletic launcher, who got to know the form well - hurl the model into the air at a shallow climb angle, then watch while it invariably curved into the ground, bouncing strongly into the air again as it gained speed and got away into its climb.

3/ The down-thrust conferred an unforeseen problem on the model in flight, in that when inverted, the model would fly some distance in this state under the effect of the inverted down-thrust, before capitulating to gravity. Although the source of some gratification, this was the point where sharp wits were needed, because with a natural looping diameter of close to 300ft brought about by the down-thrust, a prompt roll-out was needed to avoid disaster. The picture shows the model in its Mk. IV guise, a tail-end rebuild from behind the wings showing the disadvantage of being just 5ft. short of that height.

Colin Stevens 2023

Portshole access track improvement!

A big vote of thanks to Luke Blackford for carrying out the groundwork at Portshole to level the access track. No longer do you need to live in fear of having the sump of your car taken out!

This marks a big improvement in the track, so why not come out and check it out for yourself?

PS: Bring a model to fly!

We have also bought two fire beaters, just in case

CADMAC flying evening at Goodwood Aerodrome
Thursday 3rd August 2023

Introduction:

CADMAC have been invited to fly model aircraft at Goodwood Aerodrome on Thursday 3rd August 2023. This document outlines details for the evening.

Participants:

All CADMAC members are encouraged to attend, and bring their models to fly. The event is billed as a Goodwood Flying Club "fly-supper" evening, which the members will attend with a view to watching RC aircraft in action. It is hoped that CADMAC members will bring their models, with buddy boxes (if available), such that we can allow members of the Flying Club to experience model flying for themselves; similar to the cadet flying at Thorney.

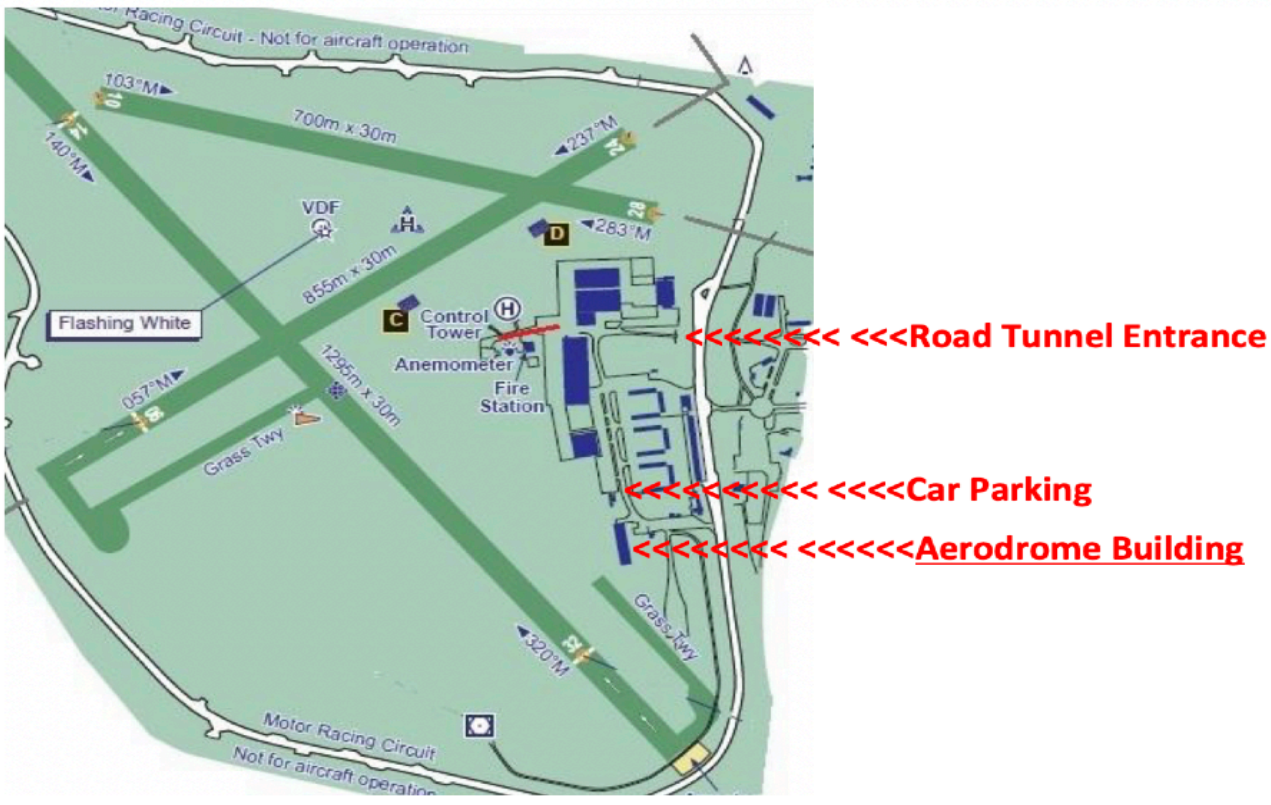
Times:

Flying will take place between 6.30pm and 9.00pm. Aim to arrive at the site after 6pm.

There will be a model flyers' briefing at 6.30pm, followed by a "belt & braces" safety check of each model before taking to the air for the first time.

How to get there & Parking:

Enter the airfield through the entrance tunnel and follow the road to the left. Then drive straight ahead keeping the airfield operating area and hangars to your right. The Aerodrome Building is at the end of the road (see photo). There is plenty of car parking available adjacent to, and around, the Building.



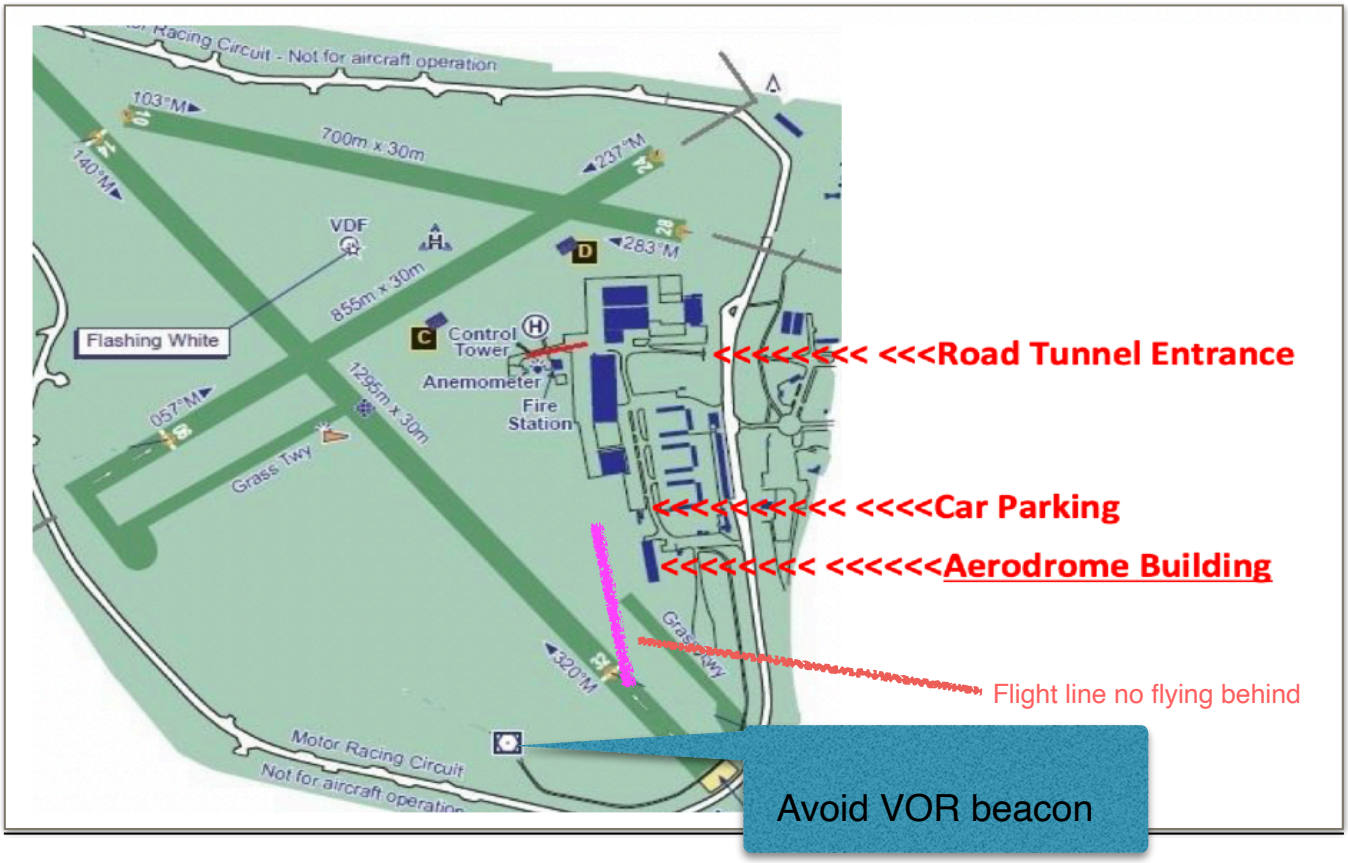
Once parked, go into the Aerodrome Building via the main entrance; flying will take place on the area of the airfield behind the building (see attached photos).

Flying Area:

The flying area will be behind the Aerodrome Building as shown below. As at Fishbourne, cones will be set up to designate the pilots' box and the "no fly behind" line. In general terms the flying area is over the airfield, away from the Aerodrome Building and never behind the Pilots' Box and a line extending from it. The start-up pits area will be upwind of the Pilots' Box.
The staff at Goodwood will endeavour to provide a mown strip for model operations, and there will be no full-size aircraft parked on the patch.

No-fly zones:

No flying behind a line parallel to the Pilots' Box and over the Goodwood VOR beacon (see Fig 2 below)



Models:
All types and sizes of RC models (electric and i.c.) are permitted, apart from gas turbines. *If required, a control-line flying area will also be designated.*
Spectators:
Spectators can sit inside or outside the Aerodrome Building in the appropriate seating areas. They will be permitted to walk out to, and stand behind, the Pilot's Box to watch model aircraft being flown.
There is a café/bar and indoor seating area in the Aerodrome Building which will be available for the use of CADMAC members.
Safety Considerations:
CADMAC will provide a small first aid kit and Lith-Ex fire extinguisher for immediate use. Additionally, there are fire extinguishers and first aid kits available in the Aerodrome Building.

A risk assessment has been carried out. Whilst the findings accord broadly with those of the other CADMAC flying sites, there are some unique considerations for flying at Goodwood. Specifically, given the proximity of the Goodwood VOR beacon and the widespread use of R/T, which could interfere with radio signals, pilots should land ASAP if their model exhibits any unexpected "glitches" in the air. Similarly, pilots must land ASAP if a full-size aircraft is sighted in the vicinity of the airfield.

Photographs of the site:

Aerodrome Building – entrance. >>>>>

<<<< Aerodrome Building - view from model flying area.

Model Flying Area. >>>>>>>>>>>>

(Note: Full-size Aircraft will have been removed for model flying!).

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AirACES©2023

Arun & Chichester Air Enthusiasts Society

www.airaces.org.uk

We are on Facebook Like us on Facebook for news and events.

Arun & Chichester Air Enthusiasts Society (Air ACES) presents 'The Royal International Air Tattoo - RIAT- the fun and the challenges'.

A talk presented by Mr. Tim Prince at the Chichester Park Hotel, Chichester. PO19 7QL, on Monday 21st August 2023 – 7 pm for a 7.30 pm start.

Inspired by Squadron Leader Jack Currie DFC RAF, a small team of volunteers staged an air show at North Weald Aerodrome in 1971, in support of the Royal Air Forces Association (RAFA). To ensure that it would stand out from the numerous other annual 'air shows in the UK, they called it the 'Air Tattoo'. It was a success with the participating aircrews enjoying the energy and enthusiasm of the volunteers, and the spectating public happy with the exciting flying with aircraft from far & wide. It is now the 'Royal International Air Tattoo', and in its 50th year.

Tim Prince, who has been part of the RIAT's story since 1971, will share some of the many stories about this important annual gathering of the world's military aircraft and aviators.
The talk will be fully illustrated and promises an enthralling evening for everyone, not just those interested in aviation.

Entrance for Air ACES members is £5, guests £7 with under 16's FREE. Tickets are on sale at the door the evening with no pre-booking and no reserved seating. Doors open at 6.45pm.

First flown in May 1953, WT725 entered service first with 15 Sqn at RAF Coningsby and later transferred to 50 Sqn at RAF Binbrook, moving to RAF Upwood with the squadron when they switched stations.

She was eventually struck off charge in 1972 and moved to the then-Imperial War Museum store at Duxford. She has been refurbished in her 50 Sqn guise and is now on permanent static display at Duxford - for some years outside, but now undercover, dangling from the roof in the Airspace hangar.

Popham Airfield
EGHP
The Spitfire Flying Club

BOOK EARLY

POPHAM MODEL SHOW

2nd/3rd September 2023

EVERYONE WELCOME

TO THIS FABULOUS TWO DAY MODEL SHOW.

Full flying display on both days 10am - 4pm. Jets, large models and top class pilots!

Supported by traders and a catering village.

Portsmouth Model Boating Lake

Andover Model Railway Club

Off Road RC Car Racing

Something for everyone and a great day out!

All contributions subject to availability

BMFA

This event is supported by the BMFA

Popham Airfield Just off A303
Coxford Down, SO21 3BD

Book Online:
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and click on 'Events'

For Sale one careful owner

The first production GR.1, XX180 first flew on 12th October 1972 and was a trials aircraft, initially lacking the chisel nose housing the laser gear used in service. She became the Jaguar International demonstrator airframe and was exhibited as such at the 1974 Farnborough Airshow. She suffered an embarassing nose gear collapse at the 1979 Paris Air Show (no doubt delighting Dassault) but was soon back in the air. She was upgraded to a GR.1B in 1996 and used for Adour Mk.106 trials in 2000 before being retired in 2002. The IWM acquired her a few years later and she is now on display in the Airspace hangar, dangling from the roof. She lacks engines, guns and pylons.

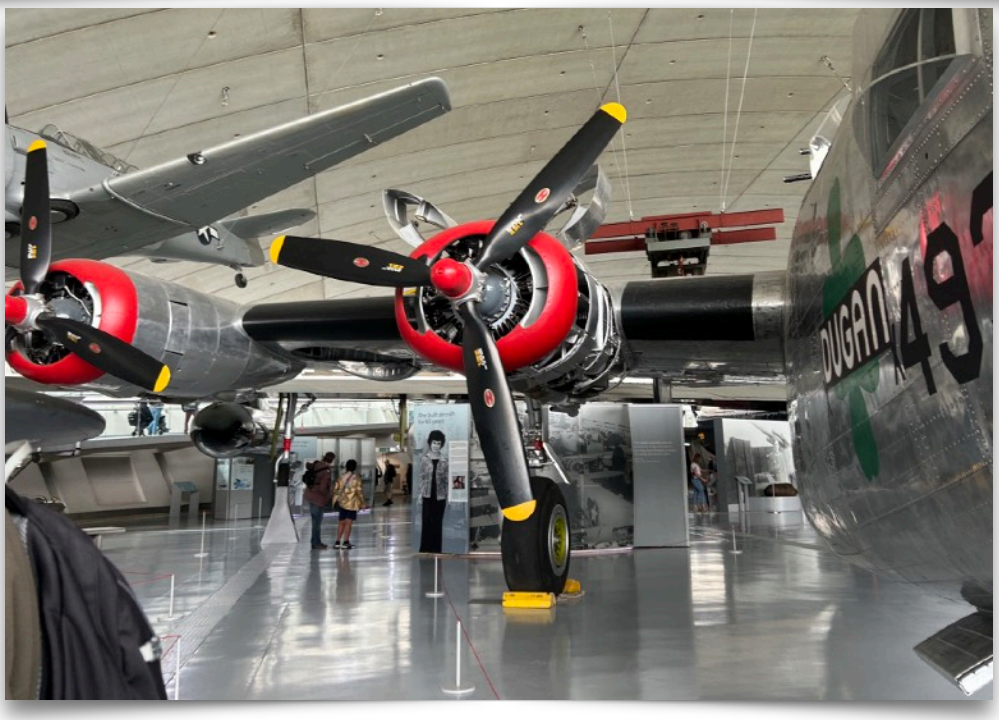
CAA Registration information,

In the early days, a number of members paid for this through the CAA rather than the now more popular route, the BMFA.
I phoned the BMFA this morning to ask if it was possible to switch, and to my surprise they said yes, everyone can pay the £10 through the BMFA.
The possible advantages are:
1. Country Members won't have to deal with the CAA, only the BMFA.
2. Full Members who up to now pay the CAA themselves can switch membership types and become Senior Member (CAA), so the club pays it all.

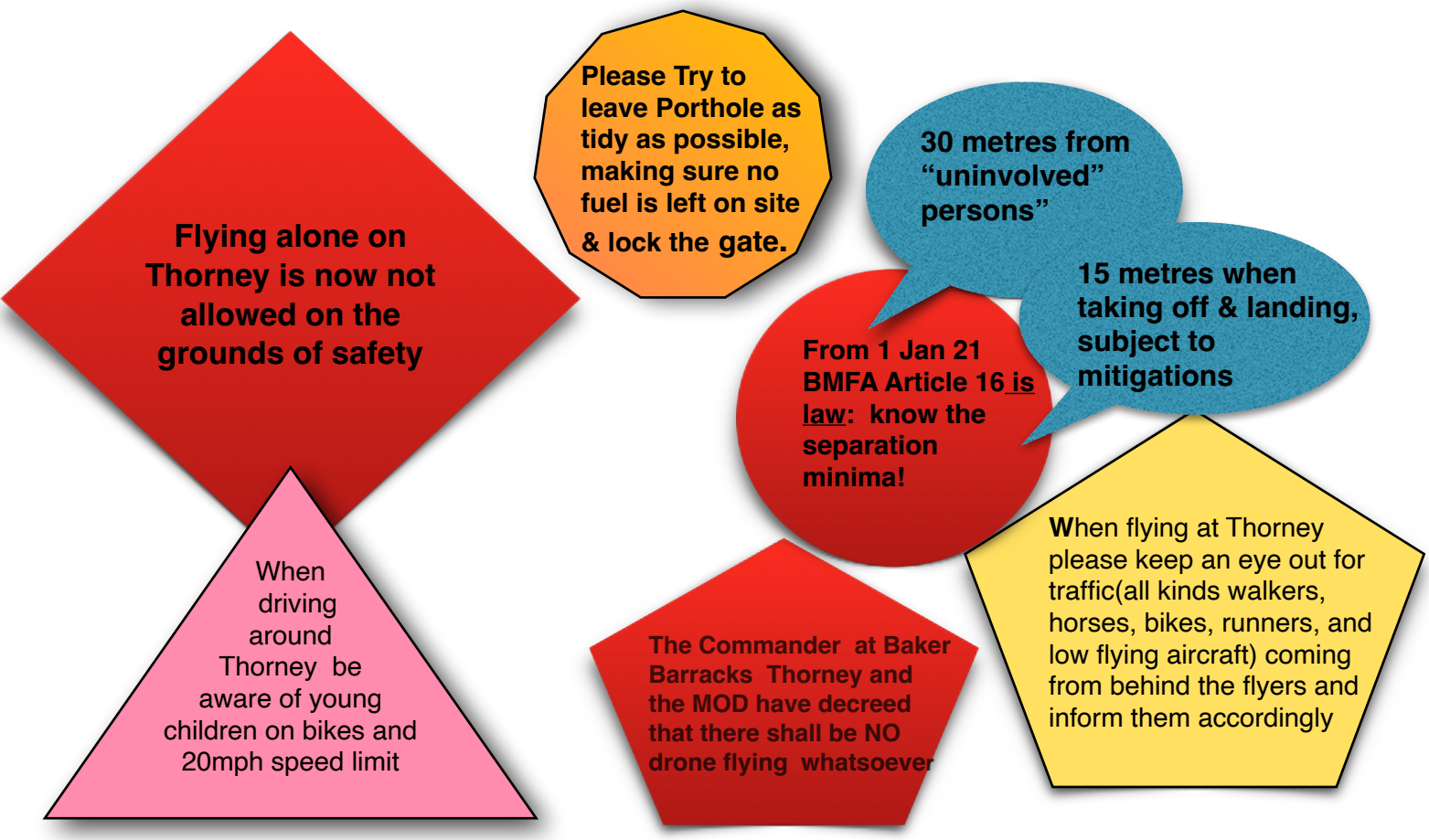
Regards.
Jeff

The following dates are booked for Fishbourne Field Flying evenings

Thursday 10th August
Thursday 14th September



Date	Day	Location	Event
3rd August	Thursday	Goodwood airfield	Thursday evening fly-in (see Notice above)
05 August 2023	Saturday	Thorney	Gliding Competition
12 August 2023	Saturday	Thorney	Gliding Competition
19 August 2023	Saturday	Thorney	Gliding Competition
3 September	Sunday	Thorney	Glider Competition



The club Facebook page is now in its fifth year. It has over one hundred members. It contains many contemporary site reports, and has a wealth of photos in its archives.
Administered by Nick Gates. David Hayward & Ken Knox
Here is the link:-
https://www.facebook.com/groups/Chichesteraeromodellers/