BHPA Advanced Pilot Revision Notes

Graham Taylor/DSC

Introduction

- Covers all theory requirements for BHPA AP exam
- BHPA required flying tasks follow

Flying tasks

- Hang gliding
  - A 10km cross country flight
  - A 20km cross country flight
  - A 30km cross country flight
  - One of the above flights to a Declared Goal
  - A 20km (total) Out and Return cross country flight
  - A total of at least 75 hrs logged air time and pass both: -
  - The current AP (HG) written exam paper
  - A final assessment as to airmanship

Flying tasks

- **Paragliding**
  - Complete a minimum of 150 flights since attaining P rating
  - Complete at least 35 hrs since attaining P rating
  - Achieve the FAI Bronze Eagle Badge (15km distance; 500 metre height gain or one hour duration)
  - Complete a 20 km cross country
  - Complete a 20 km out and return flight
  - Display an ability to fly competently and safely in the company of others; maintaining a good look out, complying with the Rules of the Air and exhibit good airmanship
  - Satisfy the Instructor as to the correct attitude to continue a flying career both safely and competently
  - Safely demonstrate slow flight awareness and discuss the relevant symptoms and dangers (WARNING: deliberate stalls must be avoided)
  - Demonstrate safe and effective use of rapid descent techniques (B lines and spiral dive), NOTE: if performed over land this manoeuvre is to be carried out using only specified gliders which have proven good recover characteristics
  - Demonstrate safe and effective recovery from a flat spin
  - Demonstrate safe and effective recovery from a amplitude max spin
  - Pass the AP (PG) written exam paper

General Documentation

Aviation law in the UK is enacted by parliament and published in statutory documents. The main one for UK pilots is the Air Navigation Order (ANO). Another is the Air Navigation Regulations. There are 4 main documentation channels: -

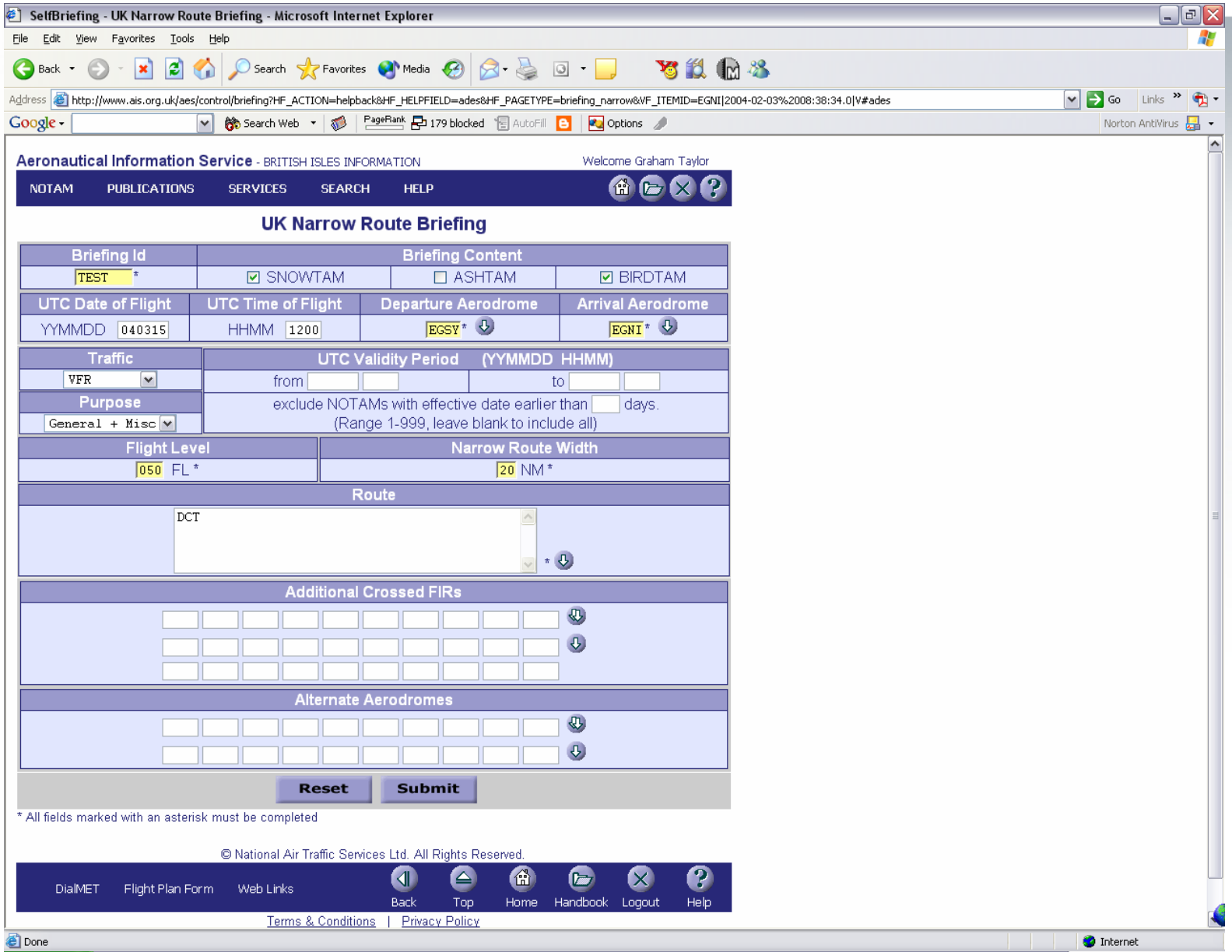
- ***Aeronautical Information Publication (UK AIP) or the UK Air Pilot*** - This contains essential information or instructions of a lasting nature. The UK AIP is published in 3 volumes with a regular amendment service.

- ***NOTAM*** - Notices to Airmen. These contain information on any aeronautical facility, hazard etc. which might be of use to pilots. They are most useful for informing of temporary restrictions to flying.

- ***Temporary Navigation Warning Bulletins*** - (TNW) and pre-flight route and aerodrome information bulletins (GEN's). Daily updated information and answers to queries may be obtained from the Aeronautical Information Service on 0208 754 3464 or in the internet

- ***Aeronautical Information Circulars*** - These are otherwise known as AIC's. These are published monthly and concern advanced warnings of operational changes or changes of an administrative matter, i.e. corrections or changes to the Airspace charts. Depending on the type of AIC, then the colour of the paper it is printed on changes.

Online Notams (www.ais.org.uk)



Notam briefing

SelfBriefing - UK Pre-Flight Information Bulletin - Microsoft Internet Explorer

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Address http://www.ais.org.uk/aes/control/briefing?HF_ACTION=send&VF_ARCID=TEST&VF_NOTAMPIB=NOTAMPIB&HF_DOM_ICAO_CD=EG&VF_F Go Links

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        PSN 534246N 0010728W, HGT 690FT AMSL/650FT AGL.
        UK AIP ENR 5-4-3 REFERS.


NAVW: FROM 02/10/16 08:13 TO PERM                          J0581/02
      E)(MIL REF) AUS 02-10-DAPLC20/3262/BJ/
        RESTRICTION OF FLYING REGULATIONS.  RESTRICTION OF FLYING REGULATIONS
        AROUND NUCLEAR INSTALLATIONS AT BERKELEY, BRADWELL, DUNGENESS,
        HARTLEPOOL, HEYSHAM, HINKLEY POINT, HUNTERSTON, OLDBURY, SIZEWELL,
        TORNESS, TRAWSFYNYDD, AND WYLFA NOW PERMANENT. A FURTHER AREA AT
        540635N 0031410W (BARROW IN FURNESS EG R445) RADIUS .5 NM EXTENDING
        SFC TO 2000 FT AMSL INTRODUCED.
        EG R002 (DEVONPORT) RECENTRED AT 502317N 0041114W AND ENLARGED TO
        1NM.  AIC 80/2002 (MAUVE 71) REFERS.
F)SFC G)2500FT AMSL


NAVW: FROM 04/03/08 18:00 TO 04/03/18 23:00                H1445/04
      D)MAR 08 17 AND 18 1800-2300
E)DANGER AREA ED D305 ACTIVE
F)SFC G)750FT AMSL


NAVW: FROM 04/03/15 00:01 TO 04/03/19 23:59                H1648/04
      E)(MIL REF) AUS 04-03-0286/653/AS3
        THE AVOIDANCE CRITERIA FOR MILITARY ACFT IN RESPECT OF TEMPORARY
        D BAND HIRTAS (RAPIER UNITS) LOCATED WI 2NM OF 5258N00033W (BARKSTON
        HEATH) ARE AS FOLLOWS. READ IN THREE COLUMNS.
        SUSCEPTIBILITY     RADIUS (NM)     FT (AGL)
        HIGH               0.15            945
        MEDIUM             0.08            475
        LOW                0.05            310
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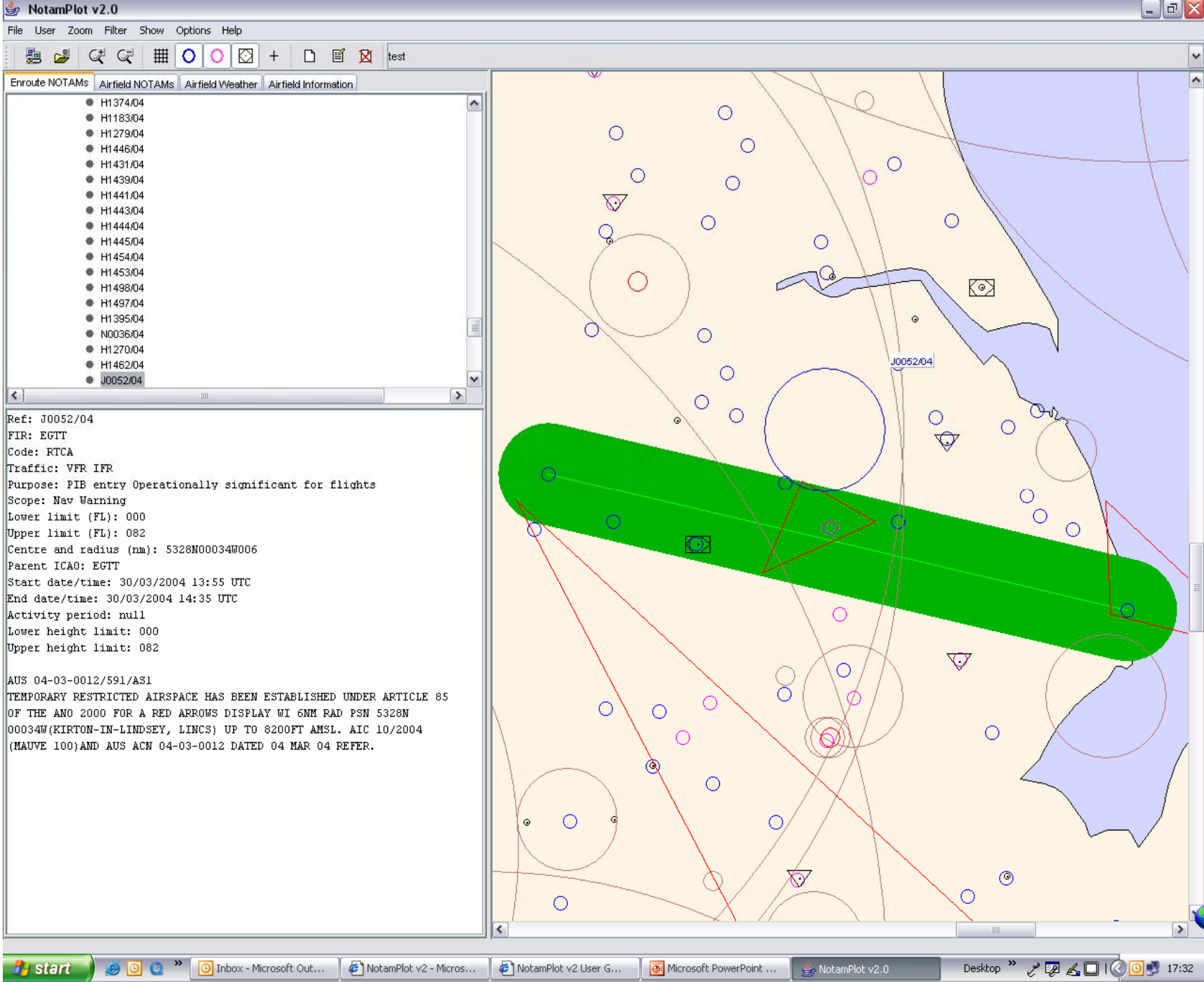
Done Internet

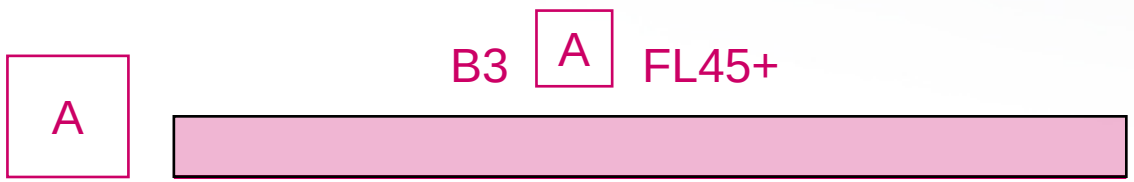

NotamPlot v2.0
File User Zoom Filter Show Options Help
test
Enroute NOTAMs
Airfield NOTAMs
Airfield Weather
Airfield Information
H1374/04
H1183/04
H1279/04
H1446/04
H1431/04
H1439/04
H1441/04
H1443/04
H1444/04
H1445/04
H1454/04
H1453/04
H1498/04
H1497/04
H1395/04
N0036/04
H1270/04
H1462/04
J0052/04
Ref: J0052/04
FIR: EGTT
Code: RTCA
Traffic: VFR IFR
Purpose: PIB entry Operationally significant for flights
Scope: Nav Warning
Lower limit (FL): 000
Upper limit (FL): 082
Centre and radius (nm): 5328N00034W006
Parent ICAO: EGTT
Start date/time: 30/03/2004 13:55 UTC
End date/time: 30/03/2004 14:35 UTC
Activity period: null
Lower height limit: 000
Upper height limit: 082
AUS 04-03-0012/591/AS1
TEMPORARY RESTRICTED AIRSPACE HAS BEEN ESTABLISHED UNDER ARTICLE 85
OF THE ANO 2000 FOR A RED ARROWS DISPLAY WI 6NM RAD PSN 5328N
00034W(KIRTON-IN-LINDSEY, LINCS) UP TO 8200FT AMSL. AIC 10/2004
(MAUVE 100)AND AUS ACN 04-03-0012 DATED 04 MAR 04 REFER.
J0052/04
start
Inbox - Microsoft Out...
NotamPlot v2 - Micros...
NotamPlot v2 User G...
Microsoft PowerPoint ...
NotamPlot v2.0
Desktop
17:32

Airspace Classifications

- All airspace is divided into one of 7 classes
- Controlled airspace classes are from A – E
- Uncontrolled airspace classes are F and G
- Its important to know about airspace classes as some we can fly in and some we cannot.

Class A

- Highly controlled airspace
- No VFR flight allowed
- Radios and flight clearance mandatory
- Class A is CLOSED to us.

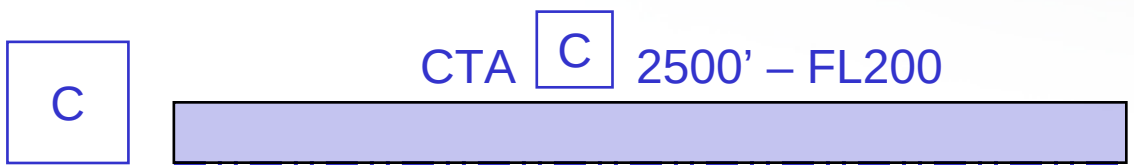


Class B

- Class B is only found above FL245
- Radios and flight clearance mandatory
- Unlikely we will ever be there
- Class B is CLOSED to us

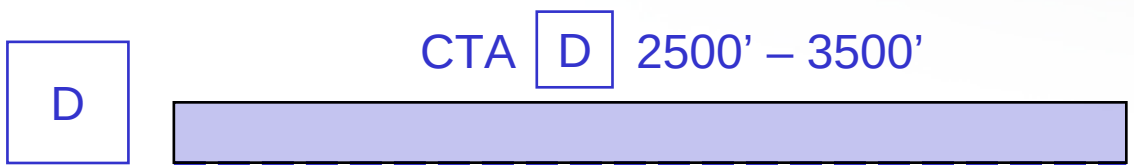
Class C

- There is no Class C in the UK
- Some parts of ROI airspace is Class C
- Radios and flight clearance mandatory
- Class C is CLOSED to us



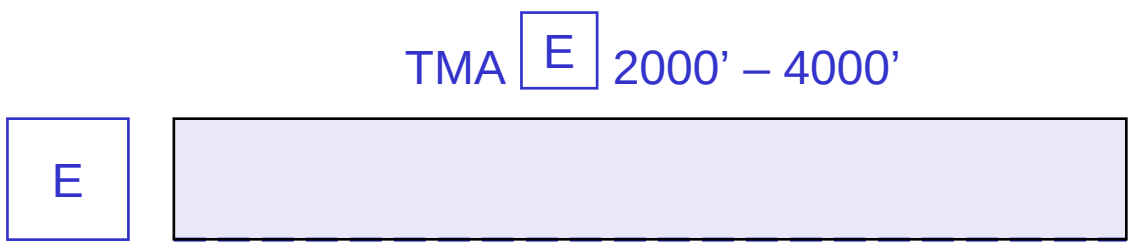
Class D

- Reserved for less busy controlled airspace
- VFR flights require radio and clearance
- Class D is closed to us



Class E

- Class E is only allocated to the Scottish CTR, the Scottish TMA at or below 6,000ft and the Belfast TMA
- Class E is similar to Class D but does not require radio or ATC clearance
- Class E is **OPEN** to us for VFR flights



Class F

- Class F is uncontrolled airspace
- VFR flight does not require radio or clearance
- Advisory route centre line of airway (10nm wide) is shown
- Class F is OPEN to us

F N571D F

Class G

- Class G is uncontrolled airspace
- VFR flight does not require radio or clearance
- Class G is OPEN to us

UK ATS AIRSPACE CLASSIFICATIONS

CONTROLLED AIRSPACE

IFR

A

SEPARATION:
All aircraft

SERVICES:
Air traffic control service

SPEED LIMITATION: *Not applicable* (Unless notified for ATC Purposes)

RADIO:

ATC CLEARANCE: *Required*

B

SEPARATION:
All aircraft

SERVICES:
Air traffic control service

SPEED LIMITATION: *Not applicable* (Unless notified for ATC Purposes)

RADIO:

ATC CLEARANCE: *Required*

C

SEPARATION:
IFR from IFR
IFR from VFR

SERVICES:
Air traffic control service

SPEED LIMITATION: *Not applicable* (Unless notified for ATC Purposes)

RADIO:

ATC CLEARANCE: *Required*

D

SEPARATION:
IFR from IFR

SERVICES:
Air traffic control service including traffic information about VFR flights (and traffic avoidance advice on request)

SPEED LIMITATION: 250kt IAS below FL100

RADIO:

ATC CLEARANCE: *Required*

E

SEPARATION:
IFR from IFR

SERVICES:
Air traffic control service and traffic information about VFR flights as far as practical

SPEED LIMITATION: 250kt IAS below FL100

RADIO:

ATC CLEARANCE: *Required*

F

SEPARATION:
IFR from IFR (participating IFR traffic)

SERVICES: (See Note)
Air traffic advisory service
Flight information service

SPEED LIMITATION: 250kt IAS below FL100

RADIO: *Not required*

ATC CLEARANCE: *Not required*

G

SEPARATION: (See Note)
Not provided

SERVICES: (See Note)
Flight information service

SPEED LIMITATION: 250kt IAS below FL100

RADIO: *Not required*

ATC CLEARANCE: *Not required*

VFR

A

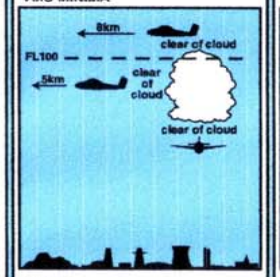
VFR FLIGHT NOT PERMITTED

B

SEPARATION:
All aircraft

SERVICES:
Air traffic control service

VMC MINIMA



SPEED LIMITATION: *Not applicable*

RADIO:

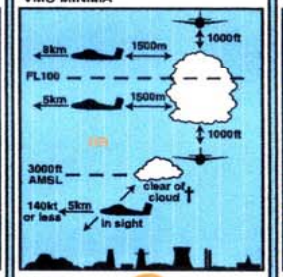
ATC CLEARANCE: *Required*

C

SEPARATION:
VFR from IFR

SERVICES:
Air traffic control service providing:
i) Separation from IFR
ii) VFR traffic information (and traffic avoidance advice on request)

VMC MINIMA



SPEED LIMITATION: 250kt IAS below FL100

RADIO:

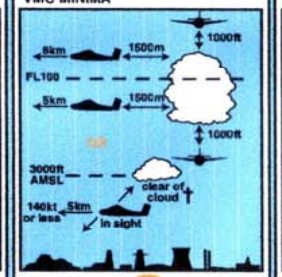
ATC CLEARANCE: *Required*

D

SEPARATION:
Not provided

SERVICES:
Air traffic control service providing:
traffic information on all other flights

VMC MINIMA



SPEED LIMITATION: 250kt IAS below FL100

RADIO:

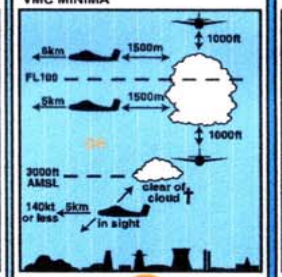
ATC CLEARANCE: *Required*

E

SEPARATION:
Not provided

SERVICES:
Air traffic control service providing:
traffic information as far as practical

VMC MINIMA



SPEED LIMITATION: 250kt IAS below FL100

RADIO: *Not required*

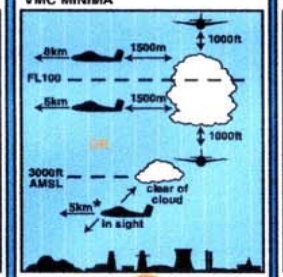
ATC CLEARANCE: *Not required*

F

SEPARATION: (See Note)
Not provided

SERVICES: (See Note)
Flight information service

VMC MINIMA



SPEED LIMITATION: 250kt IAS below FL100

RADIO: *Not required*

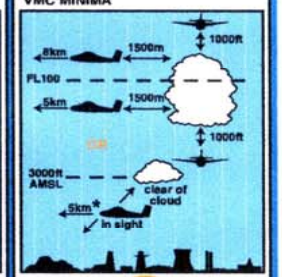
ATC CLEARANCE: *Not required*

G

SEPARATION: (See Note)
Not provided

SERVICES: (See Note)
Flight information service

VMC MINIMA



SPEED LIMITATION: 250kt IAS below FL100

RADIO: *Not required*

ATC CLEARANCE: *Not required*

250kt IAS Not applicable to Military aircraft

† Helicopters may fly at or below 3000ft AMSL clear of cloud and in sight of the surface.

*At speeds of 140kt IAS or less flight is permitted in flight visibilities to 1500m. Helicopters may operate in less than 1500m flight visibility at a speed which, having regard to the visibility, is reasonable.

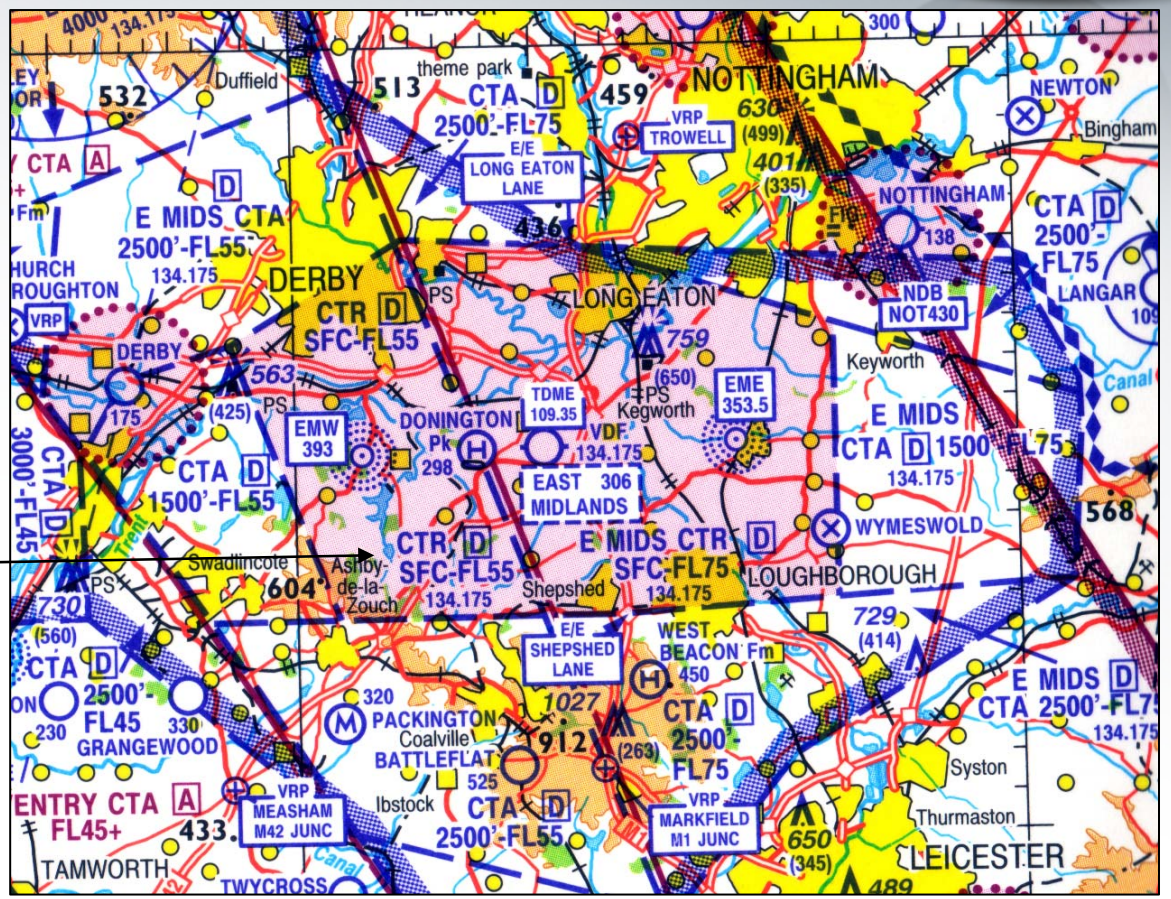
NOTE: In Class F and Class G airspace a Radar Advisory Service (RAS), a Radar Information Service (RIS) and Approach Control Service may be available from Air Traffic Service Units. Pilots are urged to make use of these services, details of which are published in AICs and other documents.

Civil Aviation Authority

ACD M9414g 09.8.01

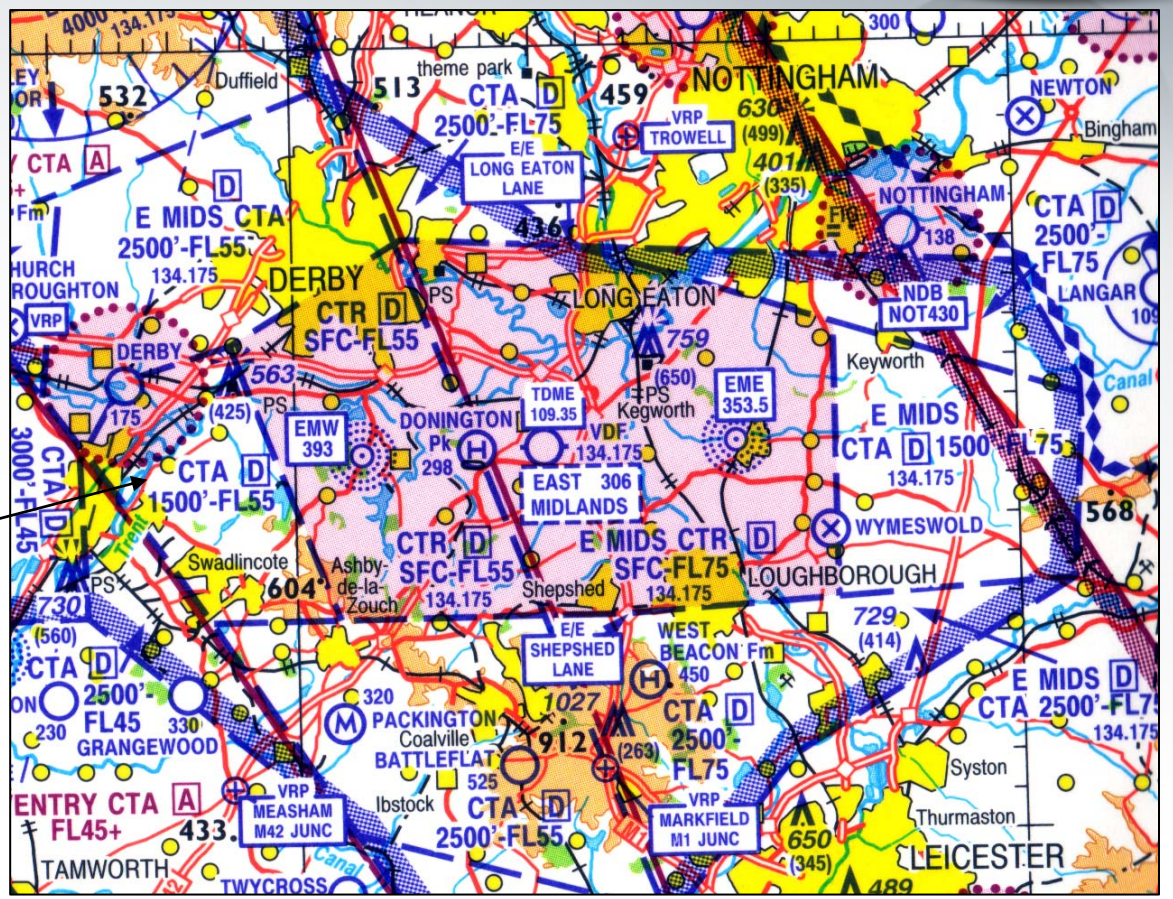
Control Zone - Dimensions

- CTR on the map
- Zones go from (Z)ero to a specified altitude or flight level
- East Midlands CTR (Class D) from Surface to FL55



Control Area - Dimensions

- CTA on the map
- Areas upwards from a specified base altitude or flight level to an upper limit expressed as a flight level.
- East Midlands CTA (Class D) from 1500’ to FL55



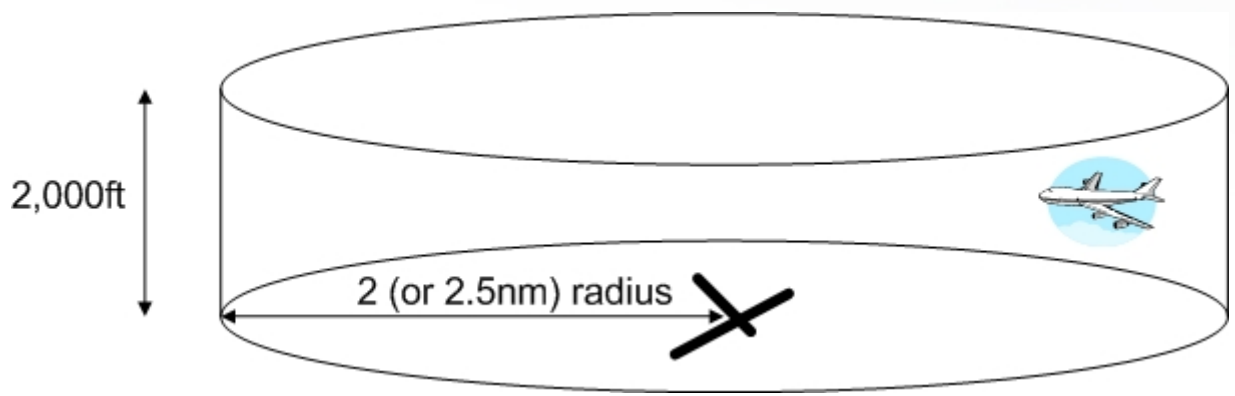
Terminal Control Area - Dimensions

- TMA (From Terminal Manoeuvring Area)
- Control area established at the confluence of controlled airspace routes in the vicinity of one or more major aerodromes.
- They extend from a specified base altitude or flight level to an upper limit expressed as a flight level.
- Manchester TMA (Class A) 3500’ – FL 245 overlays Class D 3000’ – 3500’
- Shining Tor max height 3000’ ASL!

ATZ - Dimensions

ATZ extend from surface to 2,000ft above aerodrome level and a circle of radius:

- 2nm where the length of the longest runway is 1,850m or less
- 2.5nm, where the longest runway is greater than 1,850m

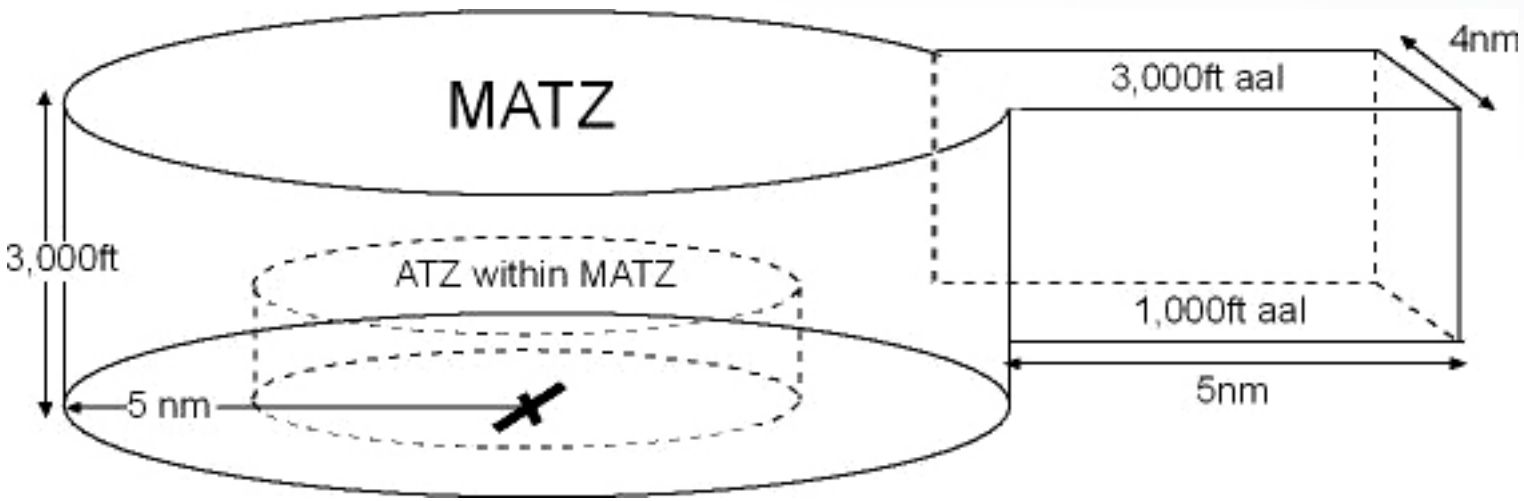


CLOSED to us

MATZ - Dimensions

A military aerodrome traffic zone is specified airspace surrounding military aerodromes. Dimensions are:

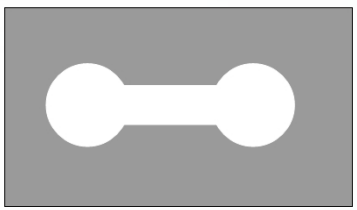
- From the surface up to 3,000ft above aerodrome level with a circle radius of 5nm
- With stub (or stubs) width 4nm, extending out 5nm and from 1,000ft aal to 3,000ft aal



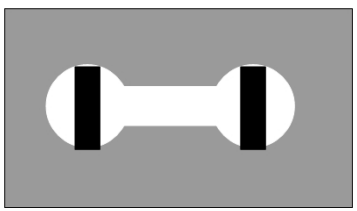
MATZ are technically OPEN to us but all MATZ contain an ATZ which is CLOSED to us

Aerodrome markings

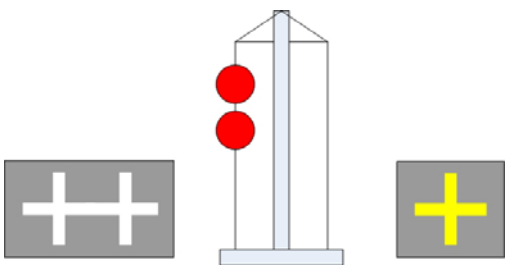
A signals area is positioned near to the control tower at aerodromes to allow messages to be passed to the pilot without the use of radio.



A white dumb bell signifies that movements of aeroplanes and gliders shall be confined to paved, metalled or similar hard surfaces.



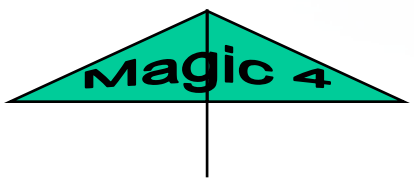
The addition of black stripes in each circular portion of the dumb bell at right angles to the shaft signifies that aeroplanes and gliders taking off or landing must do so on a runway but that movement on the ground is not confined to hard surfaces.

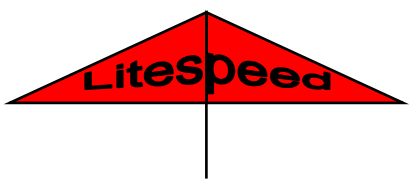


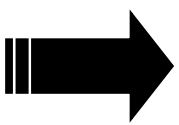
A double white cross and/or two red balls suspended from a mast one above the other signify that glider flying is taking place at the aerodrome.

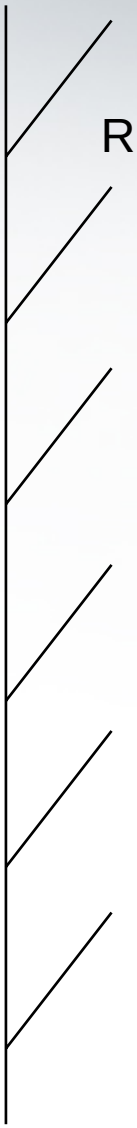
A yellow cross indicates the tow rope dropping area

Overtaking



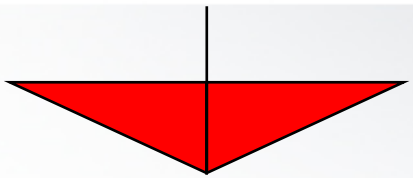




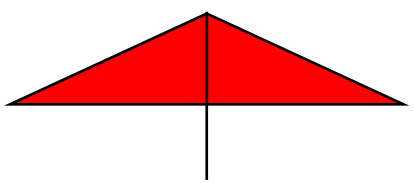


When overtaking in free air, it is permissible for gliders to overtake on either side

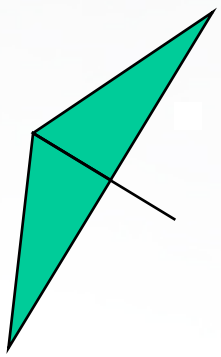
Head on

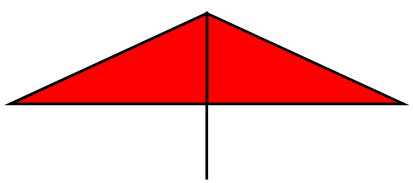


When approaching head on or very nearly head on, each glider must turn to the right (pass port to port)



Converging



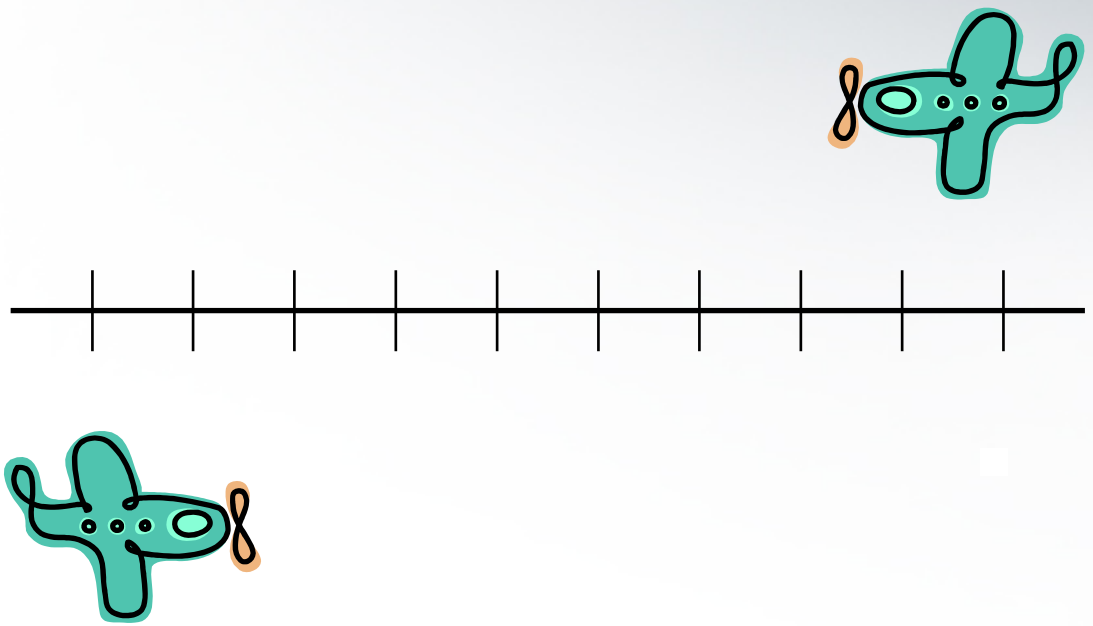


When converging, the one which has the other on its right must give way, avoiding crossing ahead of the other unless passing well clear (on the right, in the right).

Gliders landing

- In the case of 2 or more flying machines, gliders or airships approaching any place for landing, the lower aircraft has right of way (although it must not cut in front of, or overtake another which is on final approach.
- A flying machine must after landing should move clear of the landing area as soon as possible.

Right hand rule



Used by GA aircraft - the right hand rule says that the aircraft should keep the line of landmarks on its **left** (unless otherwise advised by ATC).

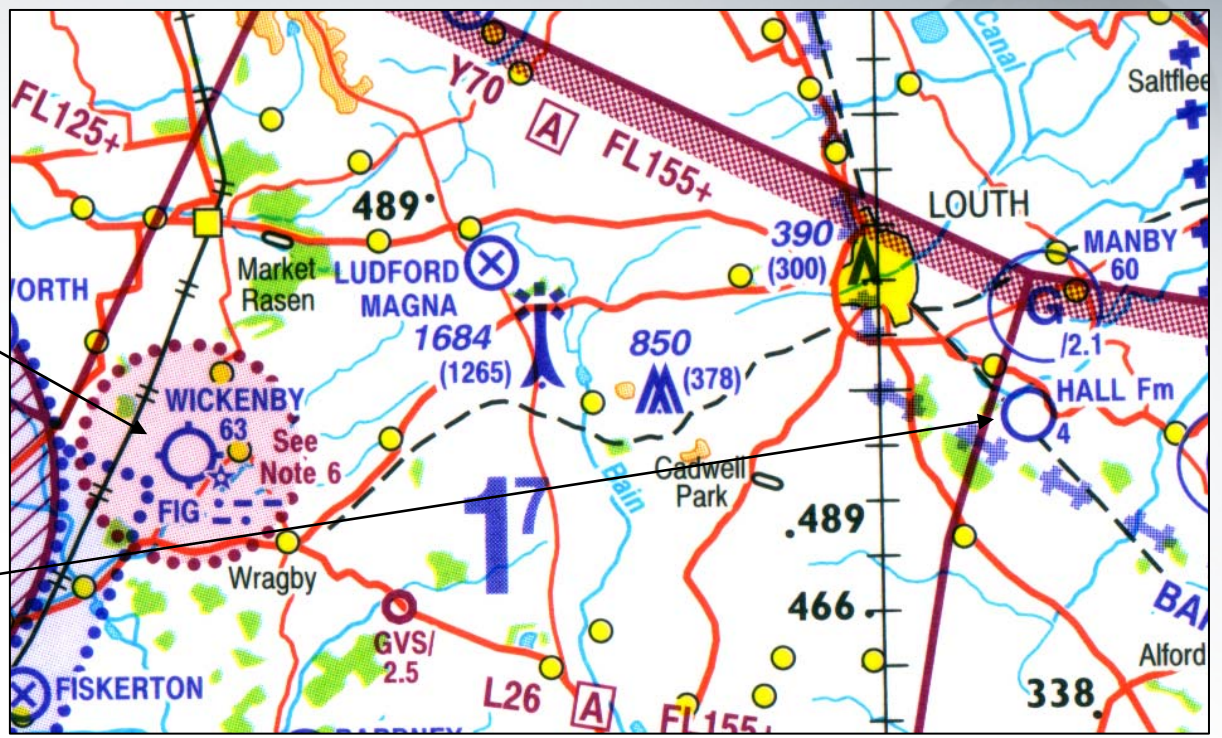
Airmaps and symbols

- Mandatory for any XC flight.
- 2 types;
  - UK topographical 1:250,000 Scale 1” to 4 miles
    - Only shows airspace with a base level below 5,000ft.
    - Also known as quarter million map
  - ICAO Aeronautical charts 1:500,000 Scale 1” to 8 miles
    - Also known as half million map

Civil Symbols -1

Civil Aerodrome
(Wickenby 63ft ASL)

Civil Aerodrome – limited or no facilities



Civil Symbols - 2

Civil Heliport

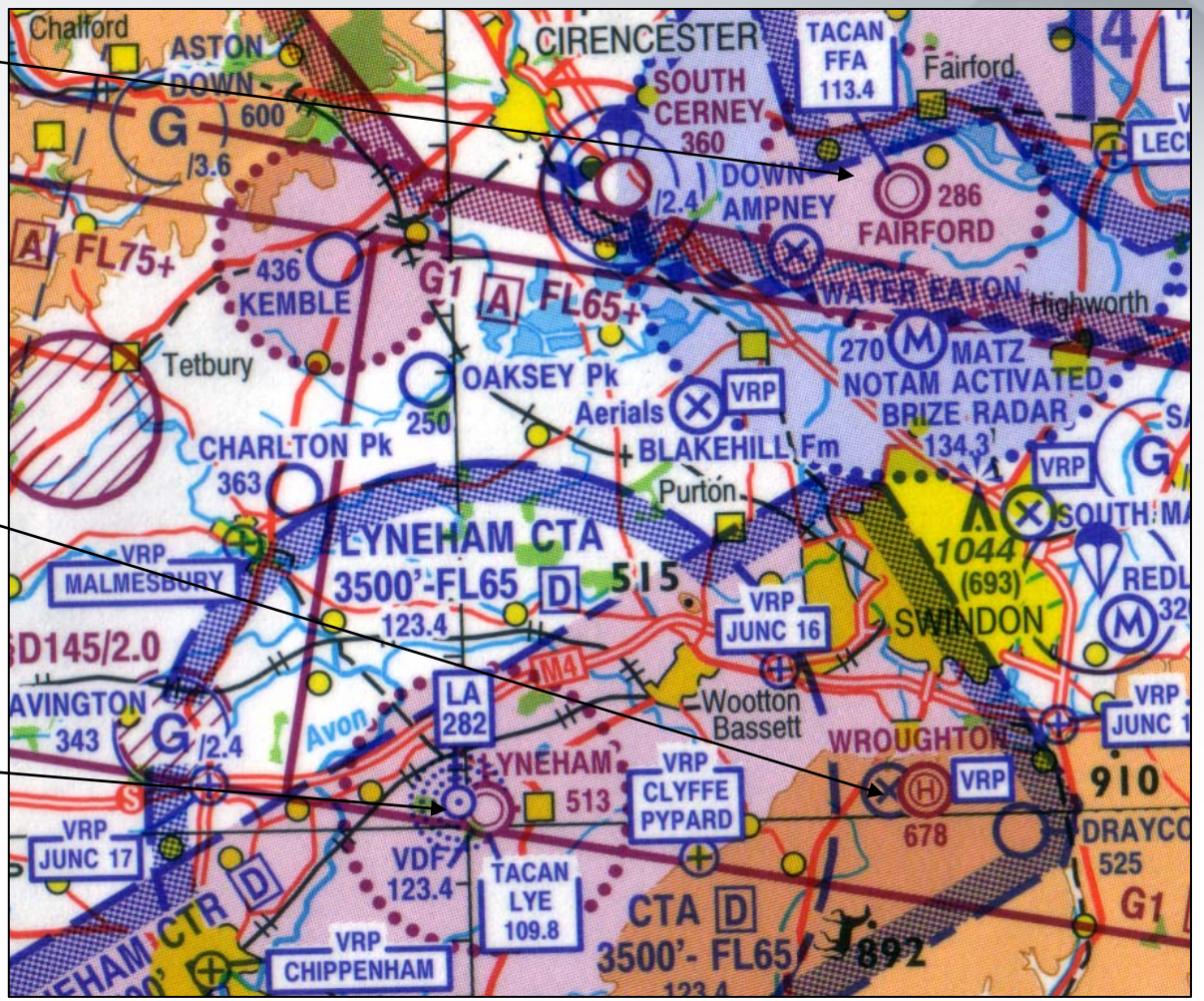
Disused Airfield

Military symbols

Government Aerodrome – NOT available for civil use

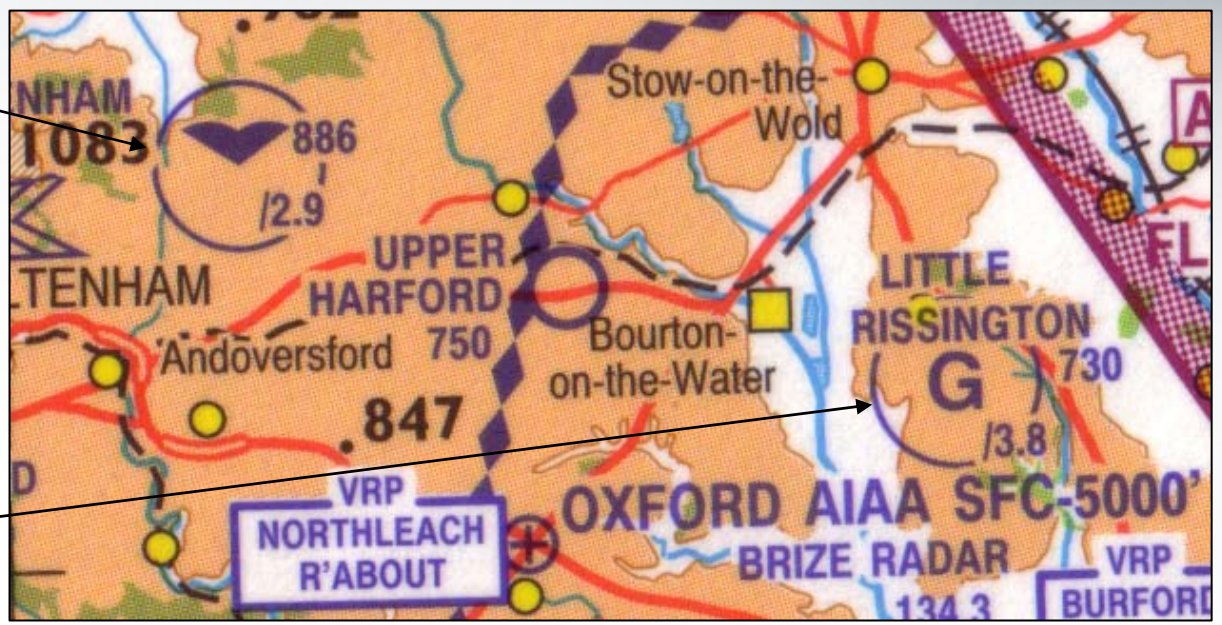
Government heliport

Government Aerodrome – available for civil use



Gliding sites - 1

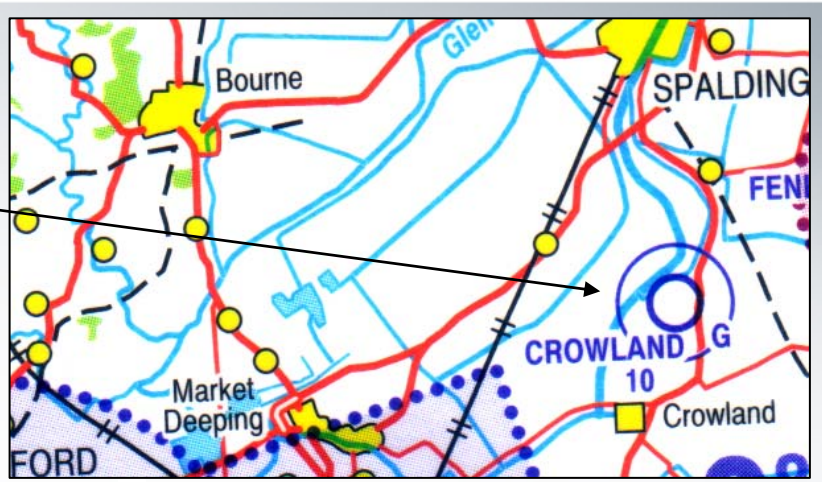
Winch launched hang/para site with max height in thousands ft (ASL) on launch



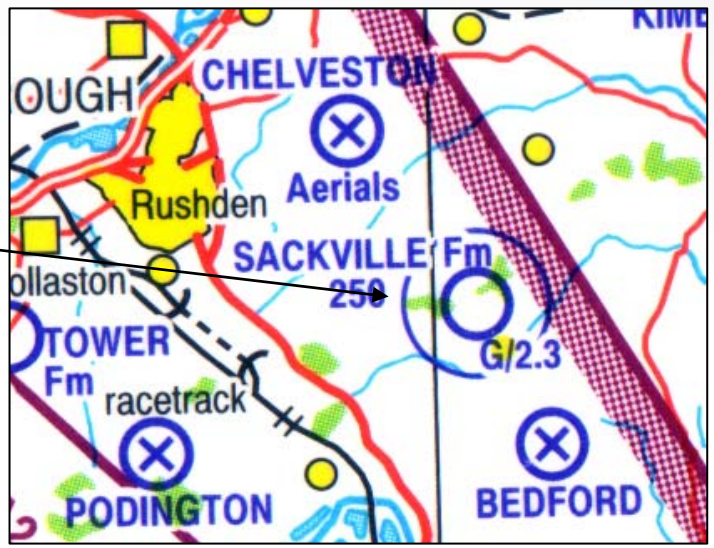
Primary winch launched gliding site with max height (ASL) on launch

Gliding sites - 2

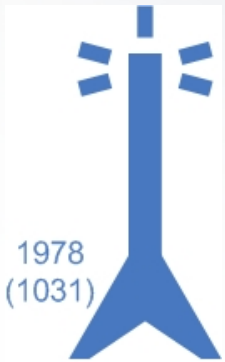
Additional site – not winched launched

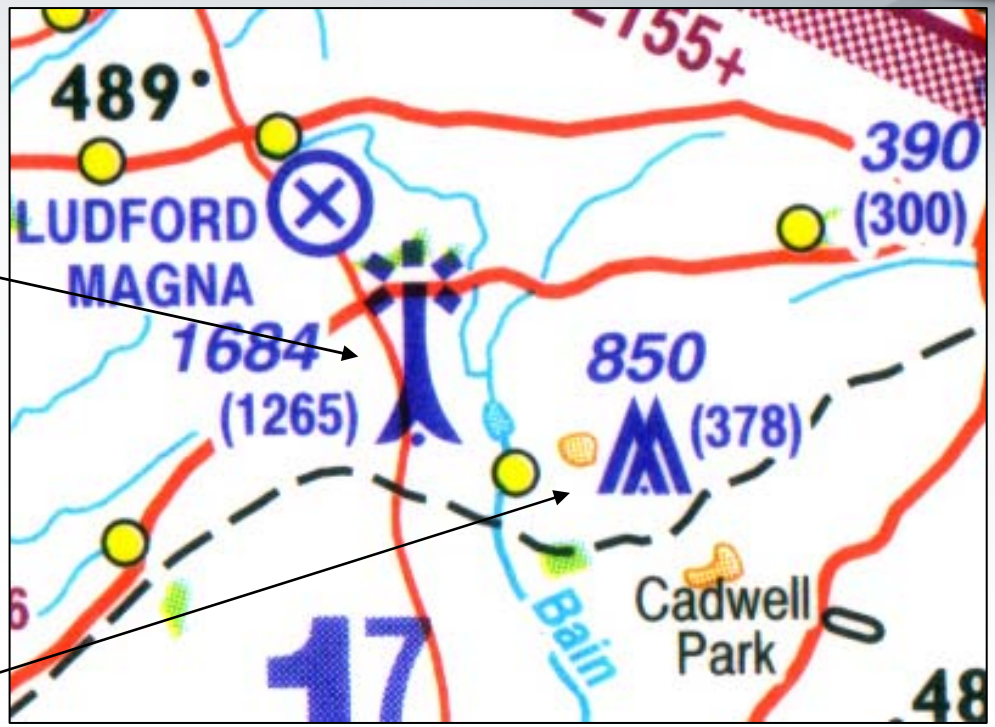


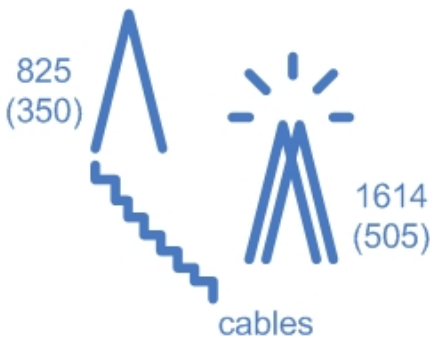
Additional gliding site with max height (ASL) on launch



Obstacles

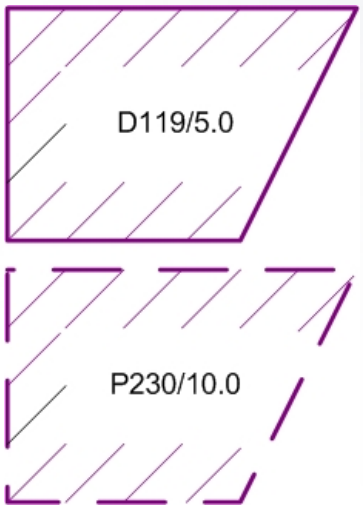






Map shows multiple unlit obstacles 850 asl and 378 agl

Danger areas



Danger areas may have bylaws legally restricting entry. They may or may not be active

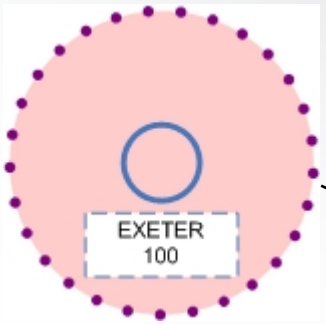
Prohibited areas are prohibited to all aircraft

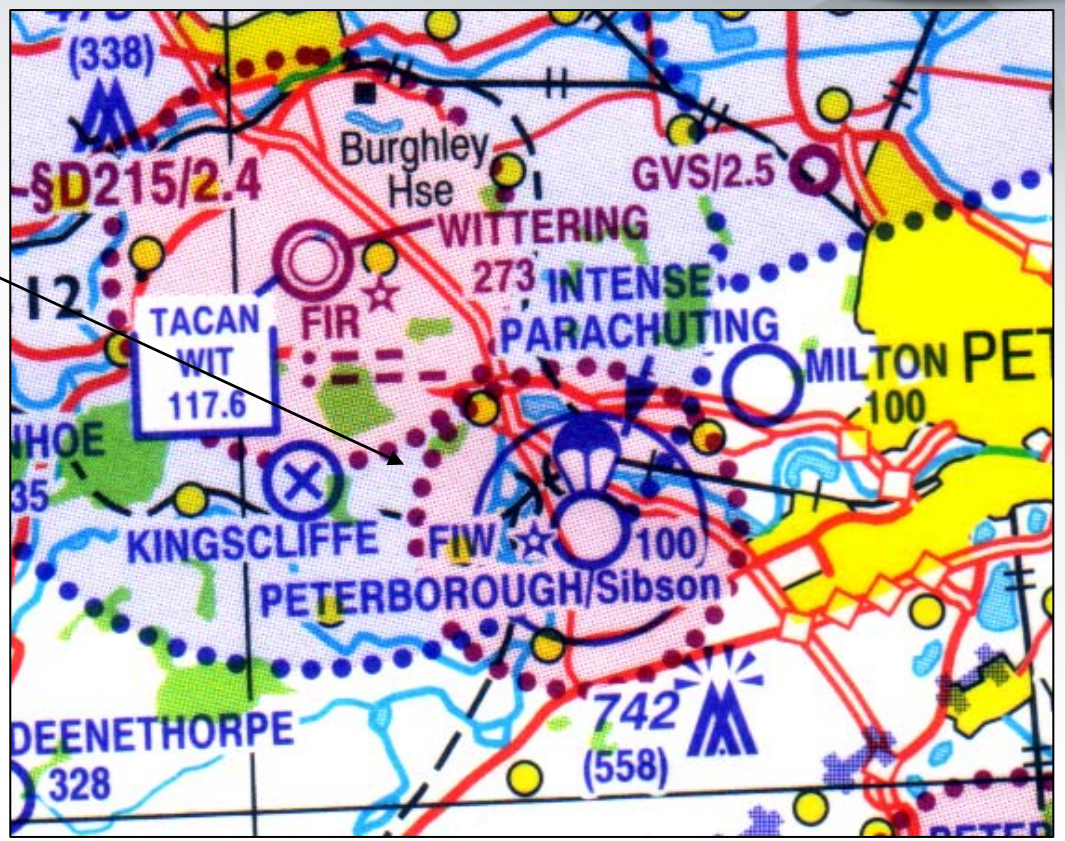
Restricted areas have certain conditions (times, type of aircraft etc restricting entry)

Danger Area D314.
Permanently active
up to 2,900ft

Danger Area 304.
Activated by Notam
up to 3,500ft

ATZ

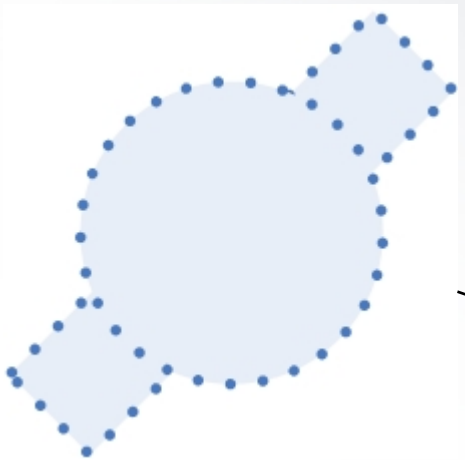




Map shows Peterborough airport (Sibson)

- Civil airfield (blue)
- Limited or no facilities
- Height of airfield is 100ft ASL
- Airfield has ATZ
- Intense parachuting takes place
- Airfield lies partially in the MATZ of Wittering

MATZ



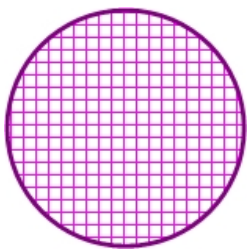
Map shows RAF Cottesmore

- Military airfield (Magenta)
- Not available for civil use
- Height of airfield is 461ft ASL
- Airfield has ATZ
- 2 Stubs to the MATZ

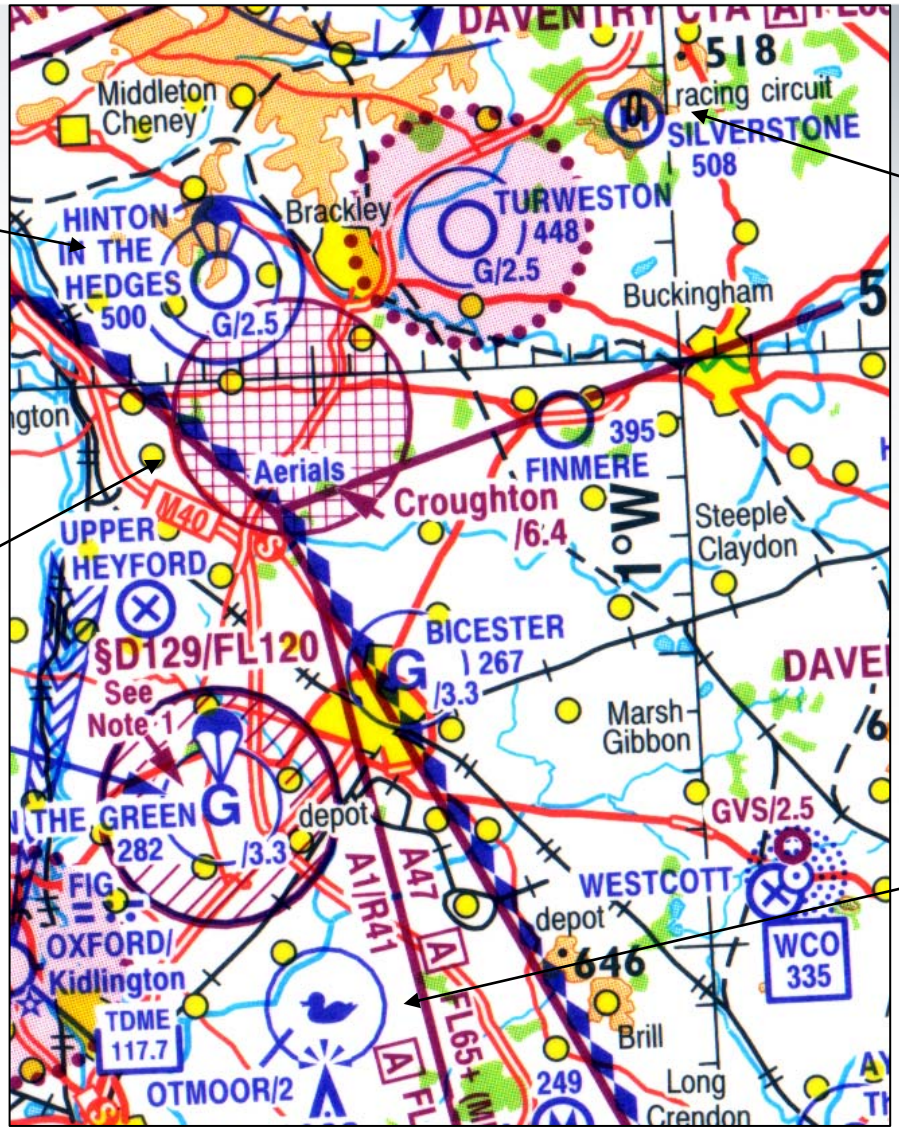
CMATZ = Combined MATZ
LARS = Lower airspace radar service
VDF = VHF Direction finder

Other symbols

Parachuting drop zone (Map also has gliding with cables to 2,500ft)



HIRTA (High Intensity Radio Transmission Area)



Microlight flying area

Bird sanctuary

Compasses

XC flying a compass is a must. There are 2 terms you should know

- Deviation

  Deviation is the effect that the airframe has on the compass. This can lead to errors if uncorrected. Some compasses for gliders have internal magnets used to correct for this.

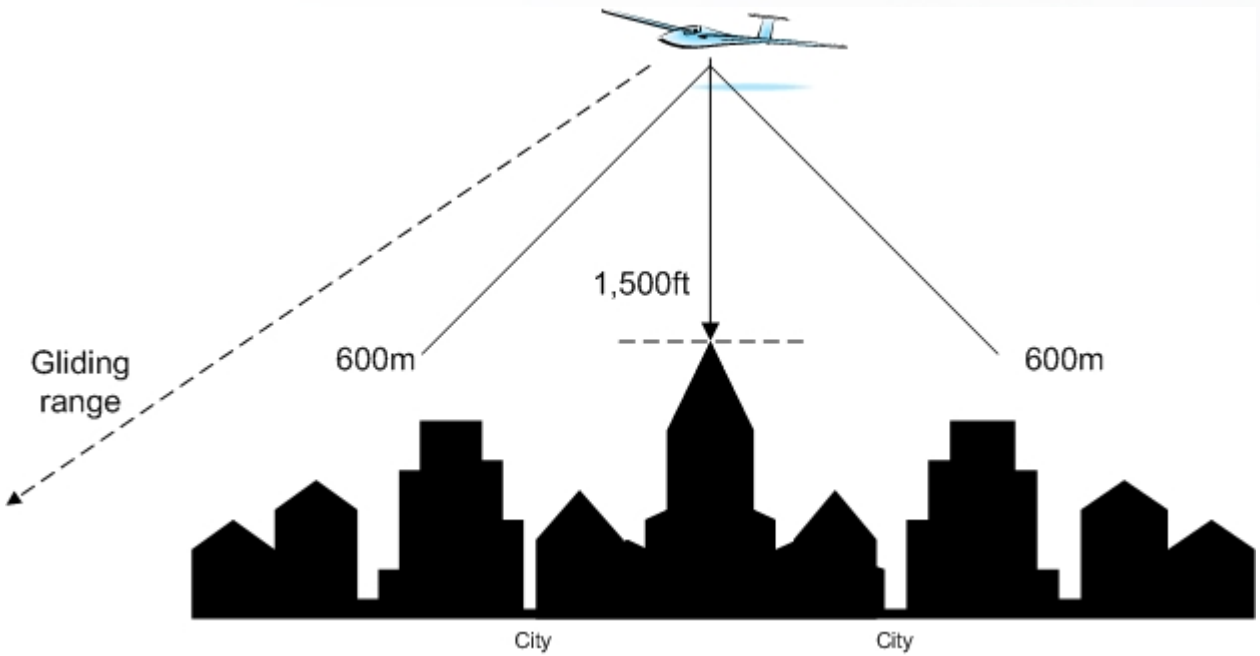
- Variation

  This is the difference between real North and the North that the compass points to i.e. the difference in degrees between true North and magnetic North.

LFR – Congested areas

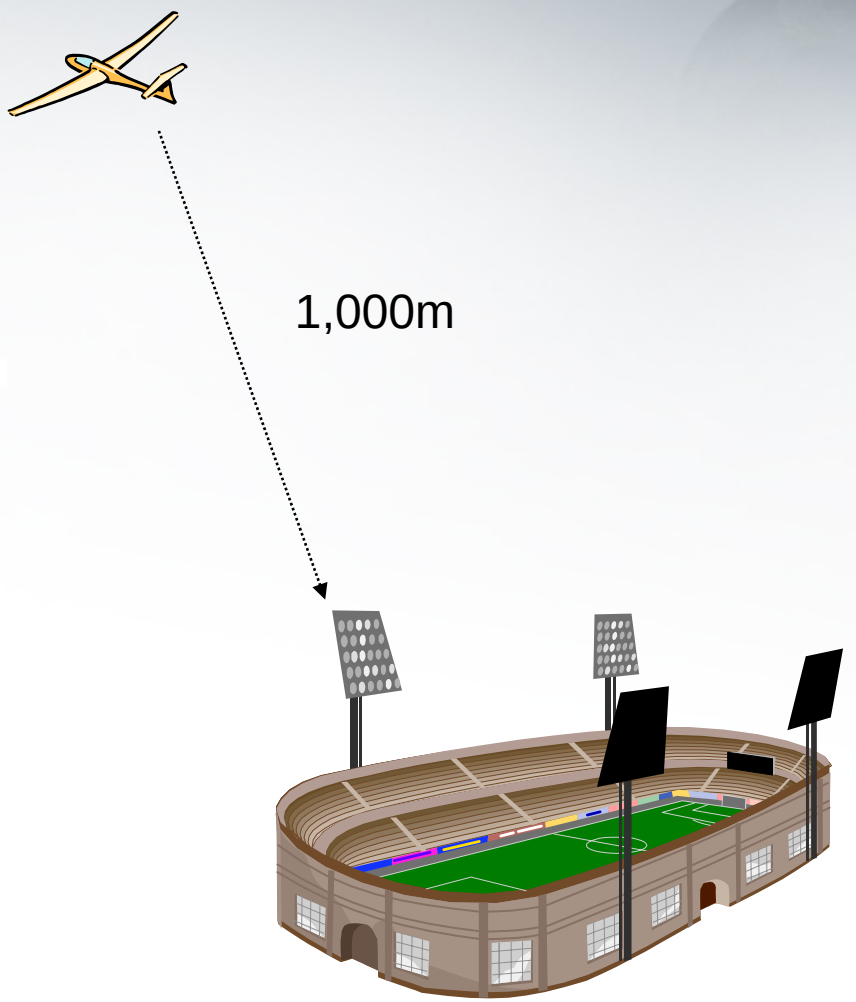
A congested area in relation to a city, town or settlement means any area which is substantially used for residential, industrial commercial or recreational purposes. An aircraft must not fly over a congested area:-

- Below a height that would allow it to glide clear of the area
- Less than 1500ft above the highest fixed object within 600m of the aircraft, whichever is higher



LFR – Open air gatherings

No aircraft may fly over or within 1000m of an open air gathering of more than 1,000 people except with the permission of the CAA.



LFR – 500ft rule

- An aircraft must not fly closer than 500ft to any person, vessel, vehicle or structure.

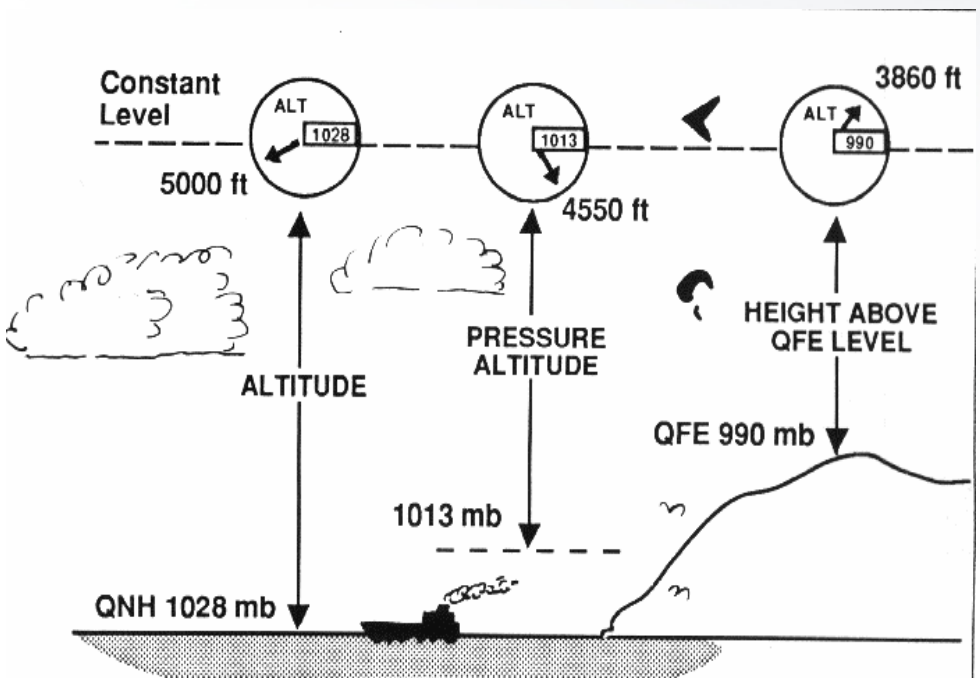
- This does not apply to gliders hill soaring nor to any aircraft taking off or landing in accordance with any normal aviation practice.

Radios

The air-band radio is the only legal means of communication from the air.

- The air-band radio is AM and has 720 channels, of which gliders are allocated 5. The air-band radio must be type approved. This means that the maker must have submitted a radio of the same type to the CAA who have then tested it and approved it use.
- Without taking a Radio telephony (RT) test, glider pilots are limited to 5 frequencies (129.9, 129.975, 130.1, 130.125, 130.4 and the International Distress frequency of 121.5). Radios used by glider pilots in this way must be type approved and lockable to those frequencies only.
- It is not legal to use 2m radios from the air (even if you are a licensed amateur)
- It is not legal to use CB radios from the air

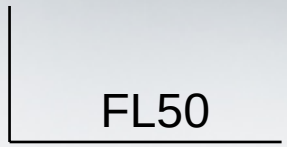
Altimeter settings

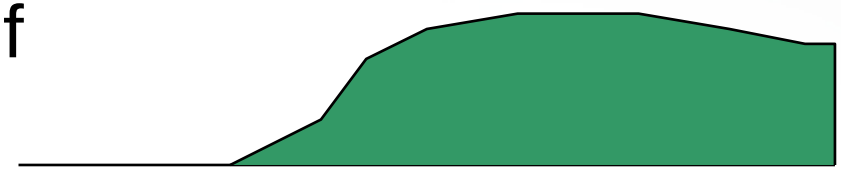


- Atmospheric pressure decreases with height by approx 1mb per 30’.
- Pressure levels are contours of equal pressure
- **QNH** - Atmospheric pressure at mean sea level
- **QFE** - Atmospheric pressure at take off
- **Pressure Altitude** - Height above the International Standard Atmosphere (ISA) of 1013.2mb. By removing the last 2 zeros we get flight level.Thus Pressure Altitude of 5,000’ = FL50. Transition Altitude to Flight Levels is 3,000;

Altimeter settings - question

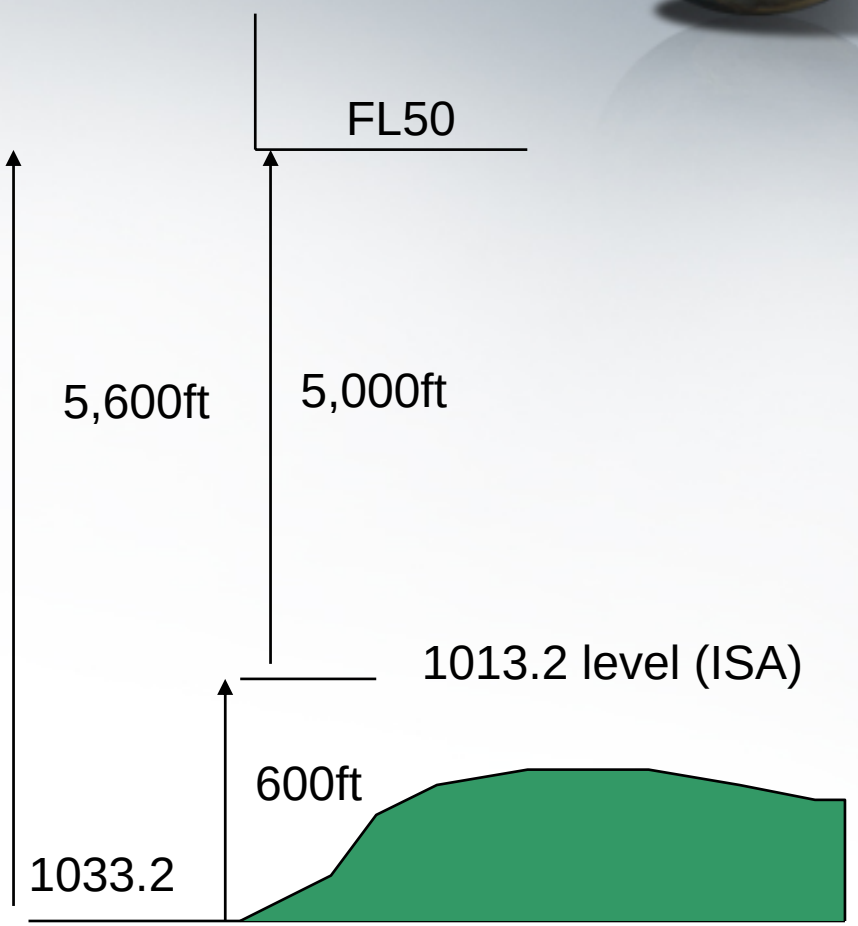
- Air pressure at sea level is 1033.2mb
- Your altimeter is set to display QNH and has not been moved
- You are approaching an airway whose lower limit is FL50.
- What height will be displayed on your altimeter at the base of the airway

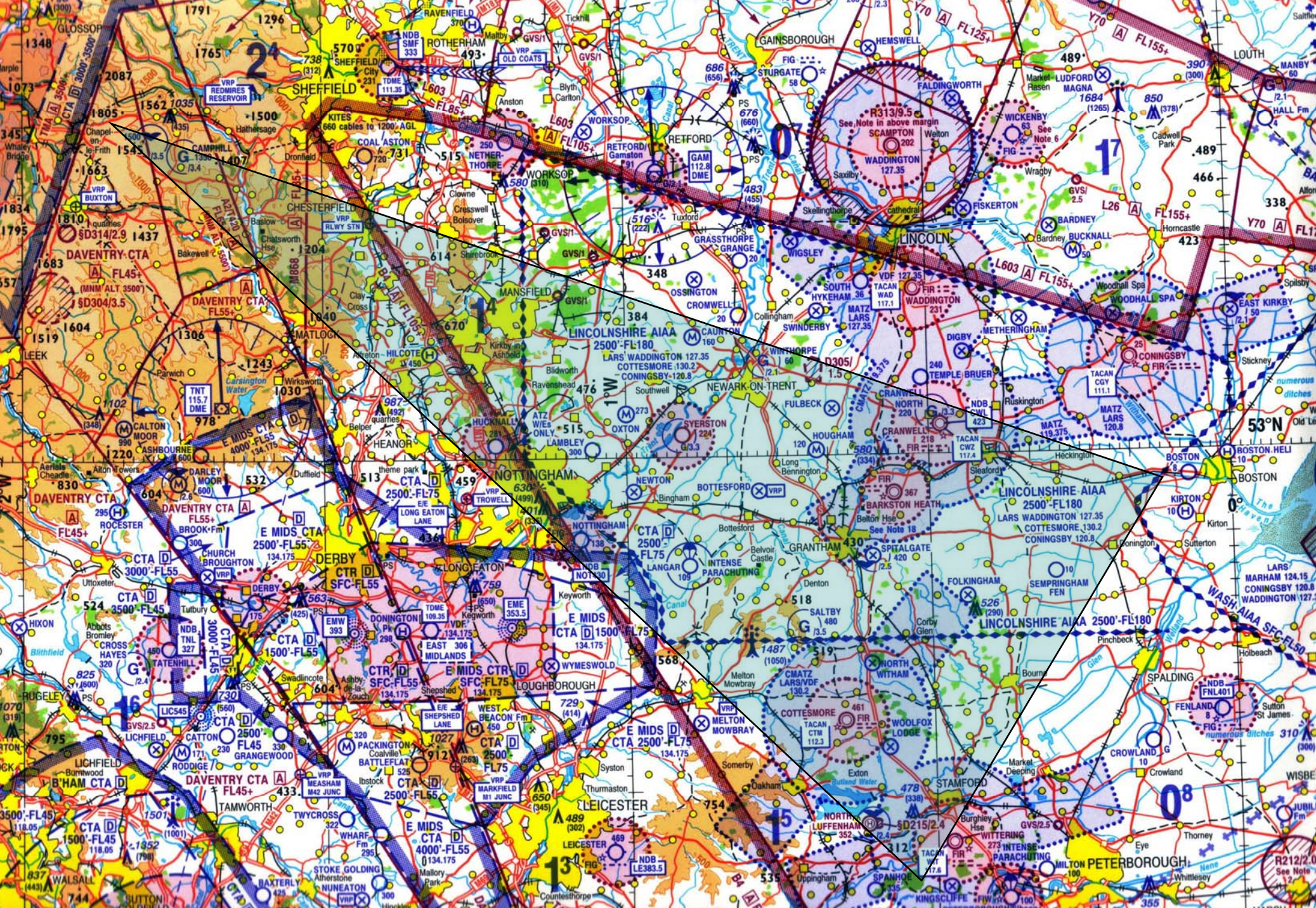




Altimeter settings - answer

- Flight levels reference the ISA which is 1013.2mb
- If the air pressure at sea level is higher than 1013.2, then the height of the1013.2 level is going to be higher than sea level.
- **Air pressure changes with height approx 30ft = 1mb**
- 1033.2 – 1013.2 = 20mb pressure diff
- 20mb is the same as 600ft
- The 1013.2 level will be ay 600ft ASL so FL50 will be at 5,600ft ASL
- **In times of high pressure, Flight levels go UP**




SHEFFIELD
ROTHERHAM
RETFORD
WORKSOP
GAINSBOROUGH
LINCOLN
MANSFIELD
CHESTERFIELD
MATLOCK
NOTTINGHAM
NEWARK-ON-TRENT
GRANTHAM
LOUGHBOROUGH
LEICESTER
PETERBOROUGH
BOSTON
SPALDING
STAMFORD
TAMWORTH
LICHFIELD
DERBY
LONG EATON
DAVENTRY CTA
LINCOLNSHIRE AIAA 2500'-FL180
E MIDS CTA 2500'-FL55
CTA 2500'-FL75
CTR SFC-FL55
53°N
0°


GLOSSOP
1348
Marple
1073
345
Whaley Bridge
TMA A 3500'+
CTA D 3000'-3500'
2087
1805
Chapel-en-le-Frith
1765
VRP REDMIRES RESERVOIR
1562
1035
(435)
1500
1545
/3.5
CAMPHILL 1350
/3.4
1407
Hathersage
·1500
738
(312)
5700
SHEFFIELD
SHEFFIELD City 231
NDB SMF 333
ROTHER
TDME 111.35
L603
FL85+
KITES 660 cables to 1200' AGL
COAL ASTON
720
731
515
Dronfield
1663
VRP BUXTON
1834
1810
quarries
1795
§D314/2.9
1437
DAVENTRY CTA
1683
A FL45+
(MNM ALT 3500')
§D304/3.5
657
1604
1519
LEEK
A2/T420 FL65+ (MNM ALT 5500')
Bakewell
Baslow
Chatsworth Hse
1204
CHESTERFIELD
VRP RLWY STN
FL85+
M868
DAVENTRY CTA FL55+
1306
1040
MATLOCK
Clay Cross
Alfreton
HILCOTE
B4 A FL105+
M1
614
670
Clow
1500
1000

The exam…..!

- You have 1 hour to complete the exam
- There is a 4 month waiting period before you can resit the exam if you fail
- Pass mark is 70%

The end!