PILOT EXAM NOTES

AIRLAW

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Lecture 1 : Airlaw

1. UK Aviation law documents and Promulgation methods

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. The authority responsible for Civil Aviation in the UK is the CAA (Civil Aviation Authority). They provide an Aeronautical Information Service (AIS) to collect and disseminate information. This is done through 3 documentation channels.

1.1 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. The booklet CAP85 which is available from the BHPA, is the digest.

1.2 NOTAM's

Notification to Airmen. These contain information on any aeronautical facility, hazard etc. which might be of use to pilots. They are in 2 classes;

- Class I -for urgent matters and sent via teleprinter.
- Class II - distributed through the post for less urgent matters

1.3 Aeronautical Information Circulars

Or 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.

2. Law regarding royal flights and Glider radios

2.1 Royal flights

A "Royal Flight" is a civil or military flight over the UK carrying one or more of the principal members of the Royal Family. The special conditions relevant to the flight change with the type of aircraft.

- **Fixed Wing**. Royal flights are conducted where possible in existing airspace. Where this is not possible then "Purple Airspace" is set up. This airspace is [1]Rule 21 (IFR Rules only). Details are sent by Notam. The airway set up is 10nm wide. Vertical limits are set up in the Notam.

[1]Some controlled airspace has been specified (In Rule 21 in the rules of the air) as being restricted to pilots holding valid IFR rating and in aircraft equipped to fly IFR. Definitely not paragliders!.

• **Helicopter flights**. No special procedures are set up. Pilots should keep a good look out and keep well clear. In the event of close proximity, normal collision avoidance rules will apply.

2.2 Glider radios

There are 2 types commonly in use in paragliding.

• **Airband radio** - The airband radio is AM and has 720 channels, of which gliders are allocated 5. The airband 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 taken it to bits and said its OK to use. Without taking a 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). The British Gliding Association recommend that certain frequencies be allocated certain tasks such as ground to air etc. Radios used by glider pilots in this way must be type approved and lockable to those frequencies only. Recently the CAA approved the allocation of 118.675 for exclusively our use. This is Ok for our use anywhere in the UK FIR up to 5,000ft asl. Approval for the radio type must be sought and a licence held for the radio.

• **2m Amateur radio** - In the UK Radio Amateurs have use of many frequency bands including 144 to 146 MHz on FM. All of this band is in use. A lot of pilots use the frequencies just below this range for flying use. It is illegal to use a 2m set from the air, whether you are a licensed amateur or not.

The commonly used code for letter abbreviations (phonetic alphabet)

Alpha	**H**otel	**O**scar	**V**ictor
Brava	**I**ndia	**P**apa	**W**hiskey
Charlie	**J**uliett	**Q**uebec	**X**-ray
Delta	**K**ilo	**R**omeo	**Y**ankee
Echo	**L**ima	**S**ierra	**Z**ulu
Foxtrot	**M**ike	**T**ango	
Golf	**N**ovember	**U**niform	

3. Interpret Aeronautical charts

Airspace in the UK is shown on air charts. These must be used for any cross country flight to ensure you don't transgress airspace. For example it is not wise to go XC from Treak Cliff (NE DSC site) without checking first. Take a track too far North and you could cross Manchester airspace. Charts can be bought from most shops advertising in Skywings or direct from the [2]CAA Chart room. Remember to ask for the 3 free charts

• RAC 5-0-1 UK airspace restrictions and hazardous areas
• RAC 5-0-1.1 UK AIAA
• RAC 3-0-1 UK ATS Airspace classification

Note that none of the charts below carry information on small arms ranges. These are shown on the RAC 5-0-1 and should be copied onto the airspace chart you use. Also, none of the flying charts will contain any information on royal flights or air displays.

[2]CAA Chart Room
Room T1120,
CAA House
45-59 Kingsway
London WC2B 6TE
Phone 0171 832 5568/9

First, check the validity of the chart you wish to use. There are 3 main types listed below.

3.1 UK Topographical Air chart

Scale is 1:250,000 or about 1" for 4 miles. The revision cycle is 2-3 years. This covers the UK in about 18 sheets. These only show airspace that has a lower limit below 5,000ft [3]amsl or [4]Flight level 55 and so are of limited use if your flight goes above that altitude. Some of the older charts in the series only show airspace with a lower limit of 3,000ft or below.

Make sure you know the symbols and the airspace markings on this map

3.2 [5]ICAO Aeronautical Charts

Scale is 1:500,000 or about 1" for 8 miles. The revision cycle is 1-2 years. Sometimes called the half million map. This covers the UK in about 3 sheets. These show all airspace and are the standard map to use.

Make sure you know the symbols and the airspace markings on this map

3.3 UK Low level charts

Scale is 1:500,000. The revision cycle is 1-2 years. This covers the UK in 2 sheets. (None for Scotland). These only show airspace that has a lower limit below 5,000ft amsl or Flight level 50.

4. Zones, Airways etc.

The air above the UK is split into a number of different types of airspace -some we can fly in and some we can't. A brief diagram showing the airspace levels is shown below.

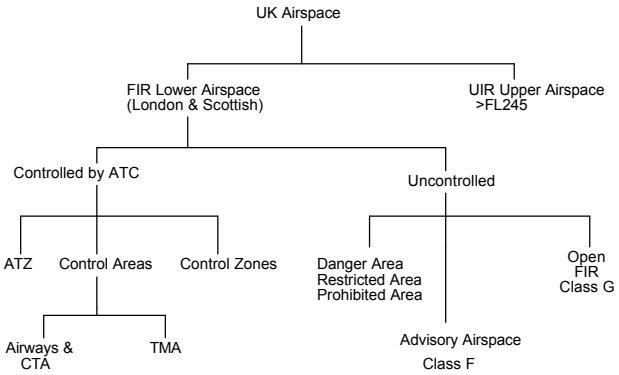


Figure 1 UK Airspace

In November 1991 the UK adopted the new system of classification of airspace developed by ICAO. Airspace is designated by a letter that determines the rules applying to it. In all classes of airspace it is the responsibility of the pilot to maintain [6]VMC which differ according to the type of airspace and level you are in. VMC minima for all classes of airspace are shown in table below.

[3]Above mean sea level
[4]Add 2 zeros to give height of 5,500ft.
[5]International Civil Aviation Organisation
[6]Visual Meteorological Conditions

Class	Remarks	VMC Minima
A	Subject to Rule 21(2)	8km flight visibility, 1500m horizontal/1000ft vertical clearance from cloud (known as full VMC)
B	At or above FL100	8km flight visibility and clear of cloud
	Below FL100	5km flight visibility and clear of cloud
C	None in the UK	
D	At or above FL100	8km flight visibility, 1500m horizontal/1000ft vertical clearance from cloud
	Below FL100	5km flight visibility, 1500m horizontal/1000ft vertical clearance from cloud
	At or below 3,000ft AMSL	8km flight visibility, clear of cloud and in sight of the surface
E	At or above FL100	8km flight visibility, 1500m horizontal/1000ft vertical clearance from cloud
	Below FL100	5km flight visibility, 1500m horizontal/1000ft vertical clearance from cloud
	At or below 3,000ft AMSL	8km flight visibility, clear of cloud and in sight of the surface
F	At or above FL100	8km flight visibility, 1500m horizontal/1000ft vertical clearance from cloud
	Below FL100	5km flight visibility, 1500m horizontal/1000ft vertical clearance from cloud
	At or below 3,000ft AMSL	1500m flight visibility, clear of cloud and in sight of the surface
G	At or above FL100	8km flight visibility, 1500m horizontal/1000ft vertical clearance from cloud
	Below FL100	5km flight visibility, 1500m horizontal/1000ft vertical clearance from cloud
	At or below 3,000ft AMSL	1500m flight visibility, clear of cloud and in sight of the surface

Table 1 VMC Minima [7]

4.1 Class A controlled airspace

Boundaries shown on 500,000 maps as below.

Figure 2 Class A Airspace

The B3 refers to the airway, the A in the box shows it is class A airspace, and the FL45+ means it starts from flight level 45 and goes up past flight level 245.

Class A airspace covers;

[7] Make sure you check this against latest airmaps

All Control areas (Airways)
Channel Islands CTR and CTA
Cotswold CTA
Daventry CTA
London TMA
London CTA
Manchester TMA
Shanwick Oceanic Control Area
Worthing CTA.

This airspace is closed to gliders due to the need to operate an aircraft to IMC in this airspace. Airways are 10nm wide and has an identifying colour and number i.e. Amber 3.

It used to be possible for certain airways to be crossed by gliders under the provisions of rule 21(2). This glider allowance is now no longer available so effectively all class A is out of bounds to us now.

4.2 Class B controlled airspace

The entire airspace above FL245 comprising the upper airspace CTA and the Hebrides upper control area (UTA) is class B airspace. Gliders are allowed in this as long as they maintain full VMC. If you get this high you are in trouble.

4.3 Class C controlled airspace

No Class C airspace is in the UK at present.

4.4 Class D Controlled airspace

Boundaries shown on 500,000 maps as below.

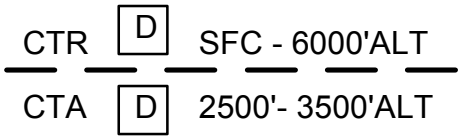


Figure 3 Class D Airspace

The boundary between 2 areas of class D. Assuming you are flying up the page, you are leaving the CTA (control area) which extends from 2500ft to 3500ft into another area of class D, the CTR or control zone (zones start from Zero remember) which extends from surface to 6,000ft.. So if you are flying at 4,000 you enter the airspace here.

In the good old days we used to be able to fly in certain class D areas subject to maintaining VMC. In March 1997 this privilege was taken away from us and things are a lot more difficult. An ATC clearance is now required in order for glider pilots to fly in class D. Although in theory, this can be obtained by radio, telephone or letter of agreement, in practice this could prove difficult to obtain.

4.5 Class E controlled airspace

Boundaries shown on 500,000 maps as below

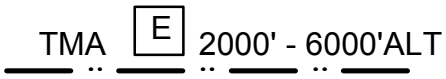


Figure 4 Class E Airspace

You are entering an area of class E, probably in Scotland from 2,000ft to 6,000.

Areas of the Scottish TMA and the Belfast TMA are notified as Class E and permit all aircraft including gliders to enter. without ATC clearance whilst maintaining VMC.

4.6 Class F airspace (Advisory airspace)

Boundaries shown on 500,000 maps as below

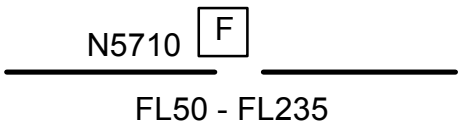


Figure 5 Class F Airspace

An advisory route from Flight level 50 to 245. Only the centre line is shown.

An Advisory Route (ADR) is a route used by airline type traffic but without the full protection of an airway. Depicted by a centreline of charts, it is nominally 10nm wide. Gliders may cross Class F airspace.

In class F airspace it is possible for gliders to fly in conditions less than the VFR minima. In this case IFR flight rules apply including the minimum height rule which states that when above 3,000ft AMSL you must not fly at a height of less than 1,000ft above the highest obstacle within 5nm of the aircraft unless it is landing.

4.7 Class G airspace

Boundaries shown on 500,000 maps as below

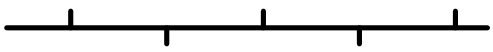


Figure 6 Class G Airspace

Open FIR (Flight Information Region) is the uncontrolled airspace not subject to the above classifications. You are responsible for collision avoidance and not some guy in a control room.

In class G airspace it is also possible for gliders to fly in conditions less than the VFR minima. In this case IFR flight rules also apply.

So in class F and G you are not actually breaking the law by entering cloud and long as you are high enough but it is not a good idea.

5. ATZ's and MATZ's

Are Aerodrome Traffic Zones and Military Aerodrome traffic Zones.

5.1 Aerodrome traffic Zones

The airspace surrounding most aerodromes listed in the UK is designated an ATZ. The dimensions are;

- from ground level to 2,000ft above aerodrome level
- within the area bounded by a circle of radius:

2nm, where the length of the longest runway is 1850m or less
2.5nm where the length of the longest runway is 1850m or longer
The centre of the circle is the mid point of the runway.

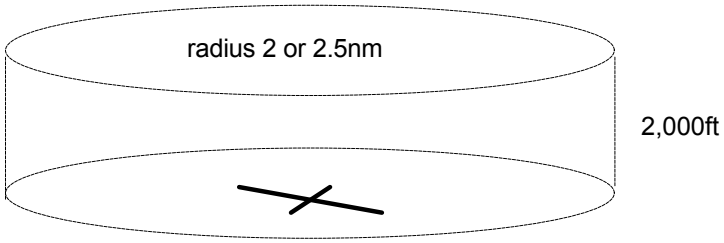


Figure 7 ATZ Dimensions

The number alongside the symbol on the chart shows the aerodrome height above sea level.

Flying inside the ATZ requires radio contact with the responsible party and so in the main we cannot go there, unless we have our RT pass and a radio and know what to do.

5.2 Military Aerodrome Traffic Zones

A MATZ is the airspace surrounding certain military aerodromes. They extend;
- from the surface up to 3,000ft above aerodrome level within a radius of 5nm; and

- with a stub (or stubs) , width 4nm, extending out a further 5nm along final approach path(s) for the main runway(s) between 1000 and 3000ft above aerodrome level. Better shown on a diagram they have the characteristic "pan-handle".

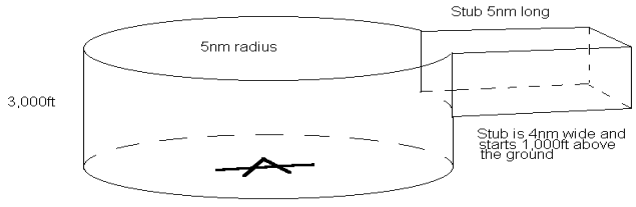


Figure 8 MATZ Dimensions

Note that it is OK for paragliders to enter a MATZ (which technically is non regulated airspace), each MATZ contains and ATZ which he must observe - in other most likely can't enter. If entering an MATZ outer, keep an eye out for Tornado's etc. - they can upset your day.

6. Altimeter settings

Vertical distances are hard to measure accurately. Most altimeters work by measuring the change in air pressure as you gain height. Pressure reduces about 1 millibar (1mb) per 30ft of height gained. At higher levels this relationship is not linear but good enough for us. Note that millibar is the same as hectopascal. Hectopascal might be used in more metricated countries - it means the same - but in the UK, the millibar is used for the moment.

Pressure also changes as air pressure systems - lows and highs - move across the country. Since the air pressure in Scotland may be quite a bit different from the South of the UK, the UK is split into Altimeter Setting Regions (ASR's). These are shown on the air chart. An airline pilot flying from one region to another will check the altimeter setting and readjust if necessary to take account of the general change in air pressure as he flies across the UK.

There are 3 ways of height representation.

6.1 QNH

QNH is given by Air traffic control as a pressure reading that the pilot sets on his expensive altimeter. The altimeter then displays his height above Sea level. The ATC will broad cast the regional QNH to aircraft to take account of pressure changes caused by atmospheric conditions to make sure the pilot does not crash into a hill unexpectedly. Eh??.

Imagine a deep low over the UK and the pilot is flying from the outside of the low (where the pressure is higher) to the inside of the low (where the pressure is lowest), If the pilot keeps to the same displayed altitude on his altimeter as he flies into the low what happens. As the pressure outside the aircraft falls, the altimeter will show a higher altitude (lower pressure = higher altitude) and so the pilot will descend the keep the displayed altitude the same. The pilot does not know he is descending since he is watching his altimeter and its reading the same. Unfortunately for him, he is descending!!.

So QNH is a pressure setting given by ATC and is the current pressure reading at Mean Sea Level.

6.2 QFE

If our pilot is landing at a small airfield with not many facilities, then QNH might not be accurate enough for him to land without hitting some houses maybe. The pilot needs the pressure setting for the airfield. ATC might say "QNH is 1015mb, QFE is 1000mb". I.e. the air pressure at this airfield is 1000mb. So by setting the altimeter to this, we get the height above the airfield.

So QFE is a pressure setting by ATC and is the current pressure reading at the airfield now.

In general paragliding, when we say QNH it is the height above sea level, and when we say QFE is it the height above "the field", maybe takeoff or landing - its up to you

6.3 QNE

This one is the strange one. QNE refers to the height indicated on a pressure altimeter when the aircraft is on the ground at an aerodrome and the pressure setting of 1013.2mb (remember this) is set on the sub scale. i.e. it is the height of the 1013.2mb pressure level. Note that this is the only reference which is a height, the others are pressure settings.

It is used when the height of the aerodrome is beyond the range of adjustment of the Boeings altimeter scale.

It is sometime displayed on some altimeters but erroneously. The setting on the altimeter you might have would display flight level.

6.4 Flight level

Shown on charts as FL something. FL65 is flight level 65 which is 6,500ft. Why have it??.

Airlines flying everywhere would have to keep adjusting their altimeter every 10 minutes to make sure that the height they should be at is the height that are indeed at and not at the height displayed by their altimeter which has drifted out of alignment in the last 5 minutes due to rapidly changing air pressure outside the cabin. Since all aircraft, once they are high enough can forget about the ground - its more important to keep away from each other so they all use the same pressure setting on their altimeters. The International Standard Atmosphere (ISA) sea level pressure of 1013.2mb is used and then vertical position is called flight level.

As an aircraft climbs away from the airport, once past the transition altitude, he retunes his altimeter to 1013.2mb and so every else who does the same can keep accurate relative distances apart. In the UK the transition altitude is 3,000ft.

It is worth remembering that flight levels go up in regions of high pressure and the reverse in regions of low pressure. Thus in a deep depression, Buxton (first stop after Shining Tor) which is in Daventry Control Area, Class A airspace starts at flight level 45, could have its airspace lower limit reduced to 3,500 ft - worth knowing.

7. Rules of the Air

The rules are established under article 64 of the [8]ANO. The rules apply to all aircraft in the UK and to all UK registered aircraft wherever they may be,

7.1 Collision avoidance rules (Rule 17)

- A constant relative bearing means a collision risk exists.

- Regardless of anything else it is the duty of the pilot to take all possible measures to see that he does not collide with another aircraft.

- An aircraft must not fly close to another to create a risk of collision

- Aircraft must not fly in formation unless they all agree to do so

- An aircraft which is obliged to give way to another aircraft must avoid passing under, or over or ahead of the other aircraft (unless well clear)

- The aircraft with right of way should maintain course and speed

- For this purpose, a glider and any aircraft towing it are considered 1 aircraft under the command of the tug pilot.

7.1.1 Approaching head on

[8]Air Navigation Order

When 2 aircraft are approaching head on, each must turn right. When gliders are hill soaring, the aircraft with the hill on his right cannot turn right, so he has to keep going in a straight line and the aircraft with the hill on the left has to give way. In this way it is common and good practise where soaring aircraft have the same speed (i.e. big gliders) to see circuits set up, where the gliders with the hill on the right are close into the hill and a general anti clockwise circuit is set up. This is not so common in mixed company (Hg's and PGs) due to the different speed ranges.

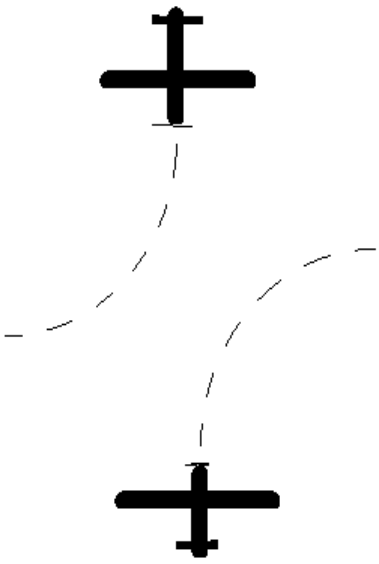


Figure 9 Approaching head on

7.1.2 Overtaking

An aircraft which is being overtaken has right of way. For gliders, they may overtake on both sides but when hill soaring, overtake on the hill side to avoid forcing the overtaken aircraft into the hillside.

7.1.3 Converging aircraft

• An aircraft in the air must give way to other converging aircraft as follows;
- Flying machines give way to airships, gliders and balloons
- airships give way to gliders and balloons
- Gliders give way to balloons

• Subject to the above, when 2 aircraft, when 2 aircraft are converging at the same height, the aircraft which has the other on the right must give way ("on the right *in the right*").

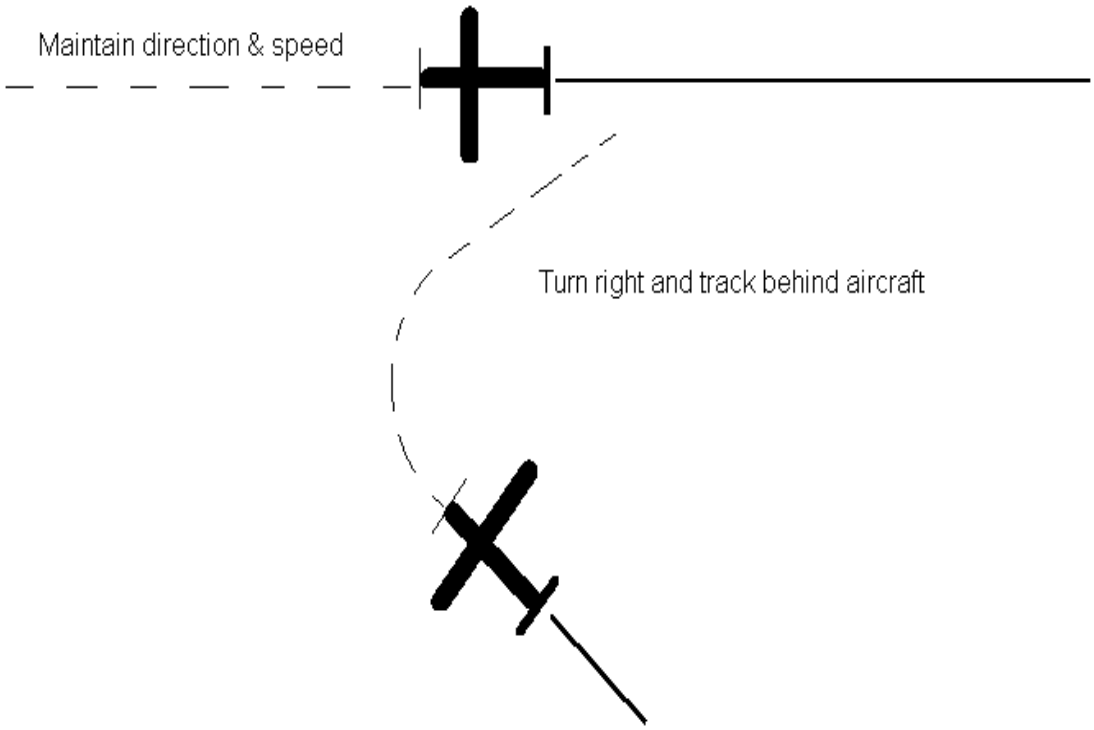


Figure 10 Converging aircraft

7.2 Right hand traffic rule (rule 19)

An aircraft flying in sight of the ground and following a road, railway, canal, coast or other feature shall keep the line feature on its left, except where instructed to do otherwise by ATC. This ensures separation.

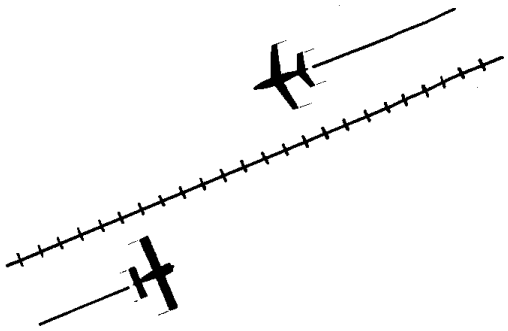


Figure 11 Right hand traffic rule

7.3 Lights on aircraft (rule 9 to 15)

At night, aircraft must display lights as are specified for the particular category of aircraft.. No other lights that would impair the effectiveness of the required lights should be displayed. A glider may show either the basic lights for a flying machine (red on port wing, green on starboard wing and white on tail) or a steady red light visible in all directions.

NIGHT is defined for the rules of the air as being;

- from 30 minutes after sunset;
- until 30 minutes before sunrise

7.4 Low flying rules (rule 5)

7.4.1 Flight over 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 (other than a helicopter) must not fly over a congested area;

- below a height that would allow it to land clear of the area and without danger to people if the engine fails; or
- less that 1500 feet above the highest fixed object within 600m of the aircraft, whichever is higher.

7.4.2 Large open air gatherings

No aircraft may fly over or within 1,000m of an open air gathering of more than 1,000 people except with written permission of the CAA, nor may it fly below any height that would enable it to glide clear.

7.4.3 The 500ft Rule

An aircraft must not fly closer than 500ft to any person, vessel, vehicle or structure with the following exceptions.

Several exemptions apply to powered aircraft here, but the one for gliders are the exemptions when landing or taking off and when hill soaring.

8. VMC/VFR

A quick note on these. In the UK an aircraft shall always be flown in accordance with either VFR or IFR. When you are in VMC you are flying under VFR (Commercial pilots may elect to still fly IFR even if there is sufficient VMC) and responsible for avoiding collisions with other aircraft using the principle of see and avoid. You are flying in IMC when you cannot comply with any of the VMC cases.

VMC = Visual Meteorological flying conditions. This refers to the amount of visual observance it is possible to keep. In these conditions we fly under VFR or Visual Flight Rules.

Note the different types of visibility that are in different types of airspace. Ref. table 1 previously shown. You have to know what conditions are like when you enter a specific type of airspace, usually the nearer to "A" the airspace, the more stringent the visual conditions become. The most stringent is full VMC which is 8km flight visibility, 1500m horizontal/1000ft vertical clearance from cloud. This is in class A airspace that we might be allowed to enter (i.e. crossing airways). The least VMC or VFR minima is 1500m flight visibility, clear of cloud and in sight of the surface, which is at under 3,000ft in class F and G airspace.

9. IMC/IFR

When flying in IMC you must fly under IFR. IFR rules applicable in uncontrolled airspace (class F and G) are rules 29 (minimum height rule) and rule 30 (Quadrantal rule). These are explained below. The extra rules for IFR in controlled airspace is about filing flight plans and reporting positions to ATC so we can forget about that. In class A airspace it is mandatory to fly IFR which is why they are closed to us (apart from airways crossing).

In conditions that are not VFR, the conditions then become IMC or Instrument meteorological conditions and then we fly under IFR or Instrument Flight Rules.

Note that in class F and G as mentioned before, it is allowed to fly in IMC conditions and maybe enter the cloud. In that case we then fly under IFR rules. Anybody may fly their hang or paraglider under IFR as long as they are;

- Not carrying a paying passenger (including a student under instruction)
- Outside controlled airspace (class F and G only)
- Not flying for payment.

We may therefore, under the above conditions legally fly in and out of VFR as conditions changes. Before you enter cloud however, think about who might be in there with you and do you really want to do it!.

9.1 Minimum Height Rule

The minimum height rule which is an IFR rule (rule 29) then states we should not fly at less than 1000ft above the highest obstacle within 5nm. i.e. cloudbase should be at least 1,000ft above the biggest hill around.

9.2 Quadrantal rule

Although not likely for the exam, you might be asked what this is. In flight levels above 3,000ft, Pilots must select cruising levels according to the quadrantal rule. These refer to the magnetic track of the aircraft and state which level to fly at and applies at aircraft below 24,500ft. Due to the need to keep to a level heading this rule cannot apply to us.

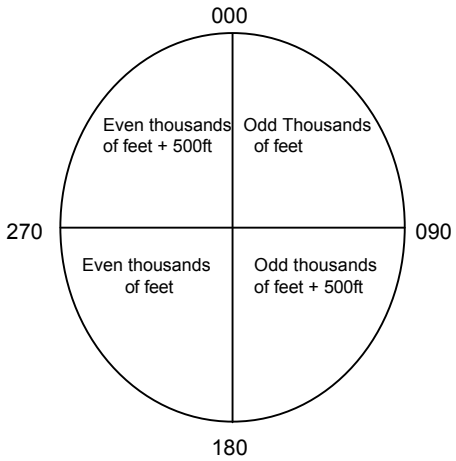


Figure 12 Quadrantal rule

10. Compasses/warning signals

10.1 Compasses

For any XC flying a compass is a must. Note that a 1° error in track will put you out a mile in 60 miles.

10.1.1 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.

10.1.2 Variation

This is the difference between real North and the North that the compass points to. This moves very slowly and is about 5 1/2 ° West.

10.1.3 Isogonals

Isogonals are lines joining points of equal magnetic variation.

10.2 Warning Signals

These are flags, lights and rockets used to advise aircraft in the air from the ground.

In the UK, by day or night, a series of projectiles fired from the ground at intervals of 10s, each showing, on bursting red and green lights or stars, indicates to a pilot that he is about to enter or is in, an active Danger Area, Restricted area or Prohibited area and that immediate action should be taken;

- To leave the area by the shortest route and without changing level or;
- To change course to avoid it.

10.2.1 Aerodrome signals and markings

Refer to CAP 85 for them all, but the ones in the main for gliders are;

Gliding is taking place at this aerodrome

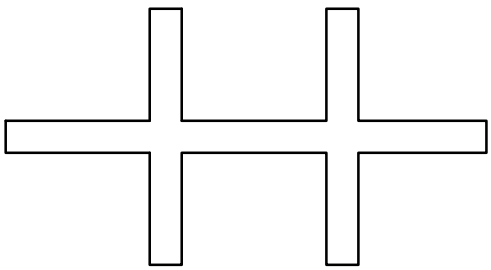


Figure 13 Gliding taking place

10.2.1.1

This is shown in the signals area.

Some signals may be shown on a mast such as;

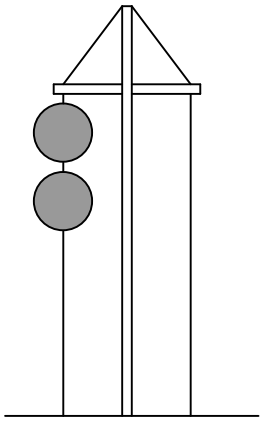


Figure 14 Gliding taking place (mast indication)

Two red balls on a mast means also that gliding is taking place.

11. Common abbreviations and initials

AGL Above ground Level
AIAA Area of Intense Aerial Activity
AMSL Above mean Sea Level
ANO Air navigation Order
ASR Altimeter setting Region
ATC Air traffic Control
ATZ Aerodrome Traffic Zone
CTA Control Area
CTR Control Zone
FIR Flight Information Region
FL Flight Level
HIRTA High Intensity Radio Transmission Area
IFR Instrument Flight Rules
IMC Instrument Meteorological conditions
MATZ Military Air traffic Zone
QFE Query Field Elevation
QNH Query Nautical Height
SRA Special Rules Area
SRZ Special Rules Zone
TMA Terminal manoeuvring Area
VFR Visual Flight Rules
VMC Visual meteorological Conditions

12. Airspace restrictions and hazards

These are depicted on air charts.

12.1 Prohibited area

A prohibited area is defined airspace in which flight is prohibited. These include certain nuclear installations and certain areas in Northern Ireland.

Figure 15 Prohibited area

Prohibited area 311 extends up to 2,200 ft.

12.2 Restricted area

A restricted area is defined airspace in which flight is restricted according to certain conditions. These are similar to prohibited areas.

Restricted areas can be found in the publications RAC 5-0-1. Edition 23; UK airspace restrictions and hazardous areas. In the absence of accurate information, they should be avoided. Some temporary restrictions are set up by Notams. and are on Freephone 0500 354802.

12.3 Danger Areas

These include weapons ranges for guns, missiles and rockets. Entry into some danger areas is prohibited by military bye-law. A crossing service may be available but will involve the use of radio. Danger areas of those with an upper limit of 500ft are NOT notifies in the UK air pilot and so you need to reference the hazards air chart. A danger area is defined airspace in which activities dangerous to flight may occur. They are shown as;

- Solid red outline if they are active in published hours
- Pecked red outline if they are inactive unless notified by Notam class 1.

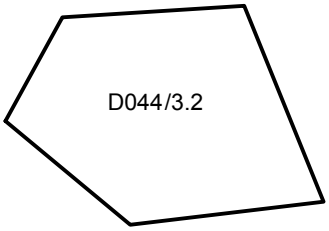


Figure 16 Danger area

D044 is active up to 3,200 ft in published hours.

12.4 Air Navigation Obstructions.

Details of structures which reach a height of 300 ft AGL are shown on charts. Obstructions over 500ft AGL are lit.

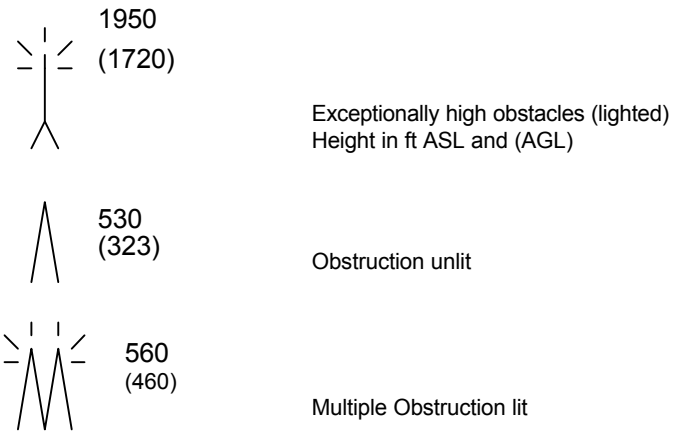
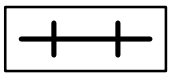


Figure 17 Air navigation obstructions

12.5 Glider launching sites

A winch launched glider may carry the cable to 2,000ft. At few sites this is exceeded.

Primary Site



Additional activity

Figure 18 Glider launching sites

12.6 Free fall parachute sites

Regular Free fall sites are listed. All parachutists are required to operate in conditions which will enable them to remain clear of cloud, in sight of the surface and in a flight visibility of 3nm.

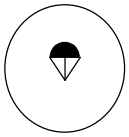


Figure 19 Free fall parachute sites

Circle radius 1.5nm or 2nm up to F150.

12.7 Area of Intense Aerial Activity

Are just that - very busy. We are allowed to enter but keep a good lookout.

12.8 High Intensity Radio Transmission Areas

We can enter but maybe not a good idea for your instruments or yourself. Pilots are advised to avoid for their own good!.

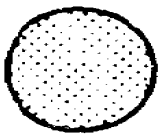


Figure 20 High Intensity radio transmission areas (HIRTA)

12.9 Bird Hazards

Or sanctuaries are shown on charts with the name and the relevant airspace restrictions, usually SFC to some lowish altitude. Pilots are requested to avoid these areas.

Figure 21 Bird sanctuary

12.10 Hang gliding sites

Known sites are shown on the charts. At certain sites hang gliders may be towed to 2,000ft AGL.

Figure 22 Hang gliding sites

May have the word "Cables" next to the symbol for flat land towed gliders.

12.11 Microlight flying sites

Intensive microlight flying takes place here.

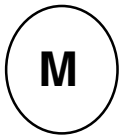


Figure 23 Microlight flying sites

12.12 Parascending/paragliding sites

Known sites are shown on the charts. At certain sites paragliders may be towed to 2,000ft AGL.

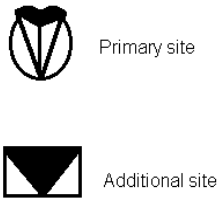


Figure 24 Parascending/paragliding sites

13. Typical flights

By now you should now everything you need for XC so as example, we shall imagine a couple of great flying days. You will need a half mill airmap for these.

13.1 Shining Tor

Its spring, a cold front went through yesterday, there is a ridge of high pressure building, Michael Fish mentions something about "instability" and cumulus and WNW about 15mph. Shining Tor it is.

Leaving Shining Tor in a nice thermal. What's the max height?. Shining Tor is below Manchester TMA Its the 2 hang glider symbols (Cats and Shining) so our max height is 3,000 ASL before we scrape the bottom of class D Control Area. This is not notified for us to enter so 3,000ft is our max - not very much in these conditions with cloudbase expected at 5,000ft today. We head off downwind to South of Buxton. On the way we leave the restriction of 3,000ft and enter Daventry CTA Class A airspace starting at FL45. The pressure is about standard today so FL45 is about 4,500ft in real terms too. We

check on our altimeter and keep below 4,500. If going low, remember the low flying rules if over Buxton.

Pressing on, we start to leave the hills behind and can see Matlock in the distance. We enter Daventry CTA Class A minimum alt FL 55 so things are getting clearer. We can see Carsington reservoir on the right as we fly to the South of Matlock slightly. Over Matlock, the airspace relents to Airlane B4 Class A at FL105 so its open season. We are in Class G up to FL105 so can fly VFR or if very high IFR in the wispy bits below a cloud.

The large sprawls of Derby and Nottingham are to the South of us but Nottingham is in the way. We track North to avoid the ATZ of Hucknall. Altitude of Hucknall is 281ft so our lower limit is 2281ft. Note the microlight flying centre North West of the ATZ so keep a look out.

Skirting Nottingham we have to negotiate the 3 ATZs of Nottingham, Bingham (Gliding cables) and Syerston (gliding cables). The River Trent glistens below.

Having done that we enter the Lincolnshire AIAA 2500 - FL180 so keep a look out. The next hazards are various MATZ's. The outer area is OK but remember the ATZ in the centre. The rest is a mixture of MATZ's and some restricted areas (avoid).

13.2 Lords Seat

Its summer. A high low system is over UK and North North Easterlies are blowing down the peak district. Lords Seat is a classic site.

Winding out of Lords, we are in Daventry CTA FL45+ so gain good height before airspace. Taking a track North of Buxton we have a dilemma. Too far North and we are in danger of hitting Manchester TMA corner just near the Leek/Macclesfield road. Tracking a bit further South we avoid this but are limited to 3000ft max as we enter the restrictions of Manchester CTA. If however we keep quite a Southerly track, we aim for South of Buxton from Lords and head for Leek, thus keeping our upper limit of 4500ft which is the best thing to do. We have to avoid the Danger area (Flash weapons range) which is activated by NOTAM - D304 max alt 2500ft and D314 max alt 2900 just South of Buxton on axe edge moor (whatever that is!).

Flying over Leek and getting a monster thermal, we are restricted to FL45 from Daventry CTA class A.

You have probably got the idea by now.

If you are planning a flight the night before, check the wind and pick a site. Then look at the map the night before and try to think out the flight route you will take and through what types of airspace you will go. Look for land marks to keep you on track like towns, rivers and other notable things shown on the map.

14. References and acknowledgements

CAP 85 Aviation Law for applicants for the PPL	CAA
Air Pilots Manual (Volume 2)	Trevor Thorn
Touching Cloudbase	Ian Currer

15. Revision history

Date	Revision	Comments
Oct 96	1	Initial Issue
23 March, 1997	2	Revised with Index and class D changes
27 July, 1997	3	Old Class D information removed
06 Feb 1998	4	Generally reviewed