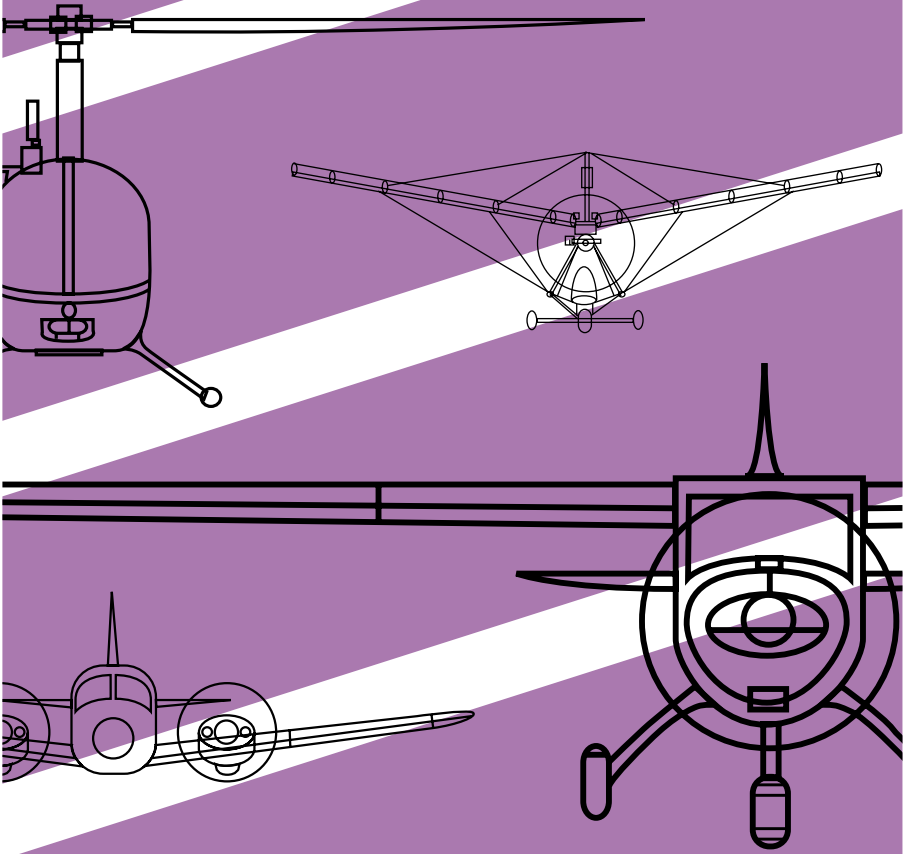




# 1C

## GOOD AIRMANSHIP GUIDE



# GOOD AIRMANSHIP GUIDE



Photographs: John Thorpe

## 1 INTRODUCTION

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**1.1** Although this guide is mainly intended for Private Pilots of fixed wing aircraft, much of the advice will be relevant to **all pilots**, whatever their experience or the type of aircraft they fly. However, there are specific leaflets for helicopter and balloon pilots.

**1.2** Any review of General Aviation Accidents shows that most should not have happened. They are a result of a combination of the following:

- use of incorrect techniques
- lack of preparation before flight
- being out of practice
- lack of appreciation of weather
- overconfidence
- flying illegally or outside licence privileges

- failing to maintain control
- a complacent attitude – the ‘it will be alright’ syndrome

**1.3** Comprehensive **Knowledge**, careful **Preparation** and frequent flying **Practice** are key elements in developing ‘Good Airmanship’ which is the best insurance against appearing as an accident statistic.

## 2 KNOWLEDGE

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### 2.1 Reporting

**a** Learn from the mistakes of others; you might not live long enough to make all of them yourself.

**b** Share your knowledge and experience with others, preferably by reporting to the CAA\* (BMAA, BGA etc) anything from which you think

others could learn. **Your report could prevent someone else's accident.**

Photographs often help to illustrate a problem.

c Improve your knowledge via other peoples' problems by reading the CAA's GASIL, published every other month, the Air Accident Investigation Branch's monthly Bulletin\*, the General Aviation Safety Council's quarterly Bulletin\* and the Confidential Human Factors Incident Reporting Programme's GA Feedback leaflet.

d Details of over 13,000 light aircraft occurrences are on the data base held by the CAA's Safety Data Department\*. Data is available free of charge for safety purposes. Make use of it.

## 2.2 Statistics

a Regrettably, there is an average of one fatal accident a month in the United Kingdom.

b The main fatal accident causes during the last 15 years are:

- continued flight into bad weather, including impact with high ground and loss of control IMC
- loss of control VFR, including stall/spin
- low aerobatics and low flying
- mid-air collisions (sometimes when each pilot knew the other was there)
- runway too short or aircraft overloaded
- colliding with trees, masts, cables etc, such as too low on the approach
- running out of fuel
- alcohol, ie drunk.

The above accounted for 86% of all fatal accidents where the cause is known – the first three for over two thirds.

c A high proportion of pilots involved in stall/spin fatal accidents were not in good flying practice.

**Keep in practice.**

d Loss of control in flight is the major cause of fatal accidents in gliding and microlighting.

e The main causes of twin-engined aircraft fatal accidents were:

- pressing on into bad weather (often to aerodromes with limited navigational facilities) resulting in controlled flight into terrain or loss of control IMC
- loss of control VFR particularly following engine failure
- running out of fuel
- low flying/aerobatics.

The first two accounted for nearly three quarters of the fatal accidents.

## 2.3 Refresher Training

Revise your basic knowledge and skills by having a regular check flight, at least every year, with an instructor which includes:

- steep turns
- slow flight and stalls (clean and with flap) so that you will recognise the buffet, pitch attitude, control loads etc. Note that in a level 60° banked turn, the stall speed increases by about 42%, ie the 50kt stall becomes 71kts. Practise at a safe height, eg above 3000ft agl.



*'practise stalls at a safe height'*

- if the aircraft is aerobatic or cleared for spinning, practice full spins from a safe height. Aim to complete recovery by 3000 feet agl
- practise forced landings
- instrument flying, you quickly become rusty
- take-offs and landings, including normal, cross-wind, flapless and short
- if you fly a twin, **practice engine-out procedures** and power-off stalls. Manufacturers quote a minimum safe speed for flight with one engine inoperative, Vmca. Age and modifications may increase this for your aircraft.

## 2.4 Limitations

**a** You must know the aircraft's limitations and **HEED THEM**. If it is placarded 'NO AEROBATICS', it means it!

**b Know your own limitations;** if you are not Instrument or IMC rated, then generally you are only allowed to fly in VMC. If you are not in practice, you are not as good as you were!

**2.5** More specific information is available in the other Safety Sense Leaflets (see list at back), in Aeronautical Information Circulars (available on subscription)\* particularly the pink Safety ones, and in other publications.

## 3 PREPARATION

### 3.1 Paperwork

Make sure that your personal paperwork (licence/rating, Certificate of Test/Experience and medical), are up-to-date. Also check that the aircraft's documents, including Certificate of Airworthiness/Permit to Fly, Maintenance Release and Insurance are current.

### 3.2 New Aircraft Type (or one which you do not often fly).



*'before flying a new type . . . . '*

**a** Before you fly a new aircraft type, ensure any 'Differences Training' is completed. Study the Pilot's Operating Handbook/Flight Manual and be thoroughly familiar with:-

- limitations
- normal and **emergency** procedures
- operating speeds, stall and best glide speeds
- weight and balance calculation
- take-off, en-route and landing performance.

**b** Familiarise yourself with the external and ground checks, cockpit layout and fuel system, eg don't confuse the carb heat control with the mixture control.

**c** Even if not legally required, try to have a thorough check flight or flights, with an instructor, particularly if converting to a tail wheel type. (In the case of a single seat aircraft, make thoroughly pre-briefed exploratory flight(s).) Include the items listed in para 2.3, Refresher Training.

**d** Repeat the above if you have not flown the type in the last six months. Many clubs require a check-flight if you have not flown the type in the last 28 days.

### 3.3 Weather

a Get an aviation weather forecast, heed what it says and make a carefully reasoned GO/NO-GO decision. Do not let Get-there/home-itis affect your judgement nor worry about 'disappointing' your passenger(s). Establish clearly in your mind the current en-route conditions, the forecast and the 'escape route' back to good weather. Plan a more suitable route if you are likely to fly over high ground which may be cloud covered. Note the freezing level. Don't forget to check on the destination's crosswind.

b The various methods of obtaining aviation weather, (including codes) are available in a small booklet 'GET MET'. This is available free from the Met Office. Please send SAE\*.

c Know the conditions that lead to the formation of carburettor or engine icing and stay alert for this hazard. Do a carb heat check at top of climb and periodically use it in the cruise and with the first indication of a loss of power due to icing; once formed it may take 15 seconds or more of heat to melt the ice. In the circuit, check carb heat during pre-landing checks and use carb heat at low power settings as directed in the Pilot's Operating Handbook/Flight Manual. (See Safety Sense Leaflet No 14A 'Piston Engine Icing'.)

### 3.4 VFR Navigation

a Use appropriate current aeronautical charts. (See Safety Sense Leaflet No 5D 'VFR Navigation'.)

b Check Notams, Temporary Navigation Warnings, AICs etc for changes issued since your chart was printed or which are of a temporary nature, such as a closed runway, an air display, navaid or ATC frequency change.

c Information on Royal Flights, Temporary Restricted Airspace, Red Arrows displays and Emergency Restrictions is available on Freephone (Mercury) 0500 354 802. The information is updated daily. (Free sticker available from Safety Promotion Section, please send SAE.)

d Prepare your Route Plan thoroughly, with particular reference



to Safety Altitude and suitable diversions. Familiarise yourself with the geographical features, time points, airspace en-route and frequencies.



*'thorough flight planning . . .'*

e Note masts and other obstructions in planning your minimum safe altitude; note Maximum Elevation Figures (MEF) printed on the charts.

f Allow extra height over hilly terrain, particularly in windy conditions, to minimise turbulence and the effects of down draughts.



*'allow extra height . . .'*

g Plan to reach your destination at least one hour before sunset unless qualified and prepared for night flight. Note aerodrome operating hours.

h In any aircraft, the minimum height over a congested (ie built-up) area is not less than 1500ft above the highest object within 600 metres. In any aircraft other than a helicopter, you must not fly over congested areas without sufficient height to safely alight clear of the area in the event of engine failure this could be higher than 1500ft (note: Permit to Fly aircraft may not be allowed over congested areas).

i Do not plan to fly below 1000ft agl, (where most military low flying takes place), unless necessary. (See Safety Sense Leaflet No 18A 'Military Low Flying.') If your engine fails you may need time to select a safe landing field!

j Know the procedure if you get lost, see para 4.8.

k Prepare a thorough route plan, which includes minimum safe altitude.

l If you use a GPS to back up your visual navigation, double check any way-points when working them out and entering them. Progress should be monitored by map reading and not by implicitly trusting the GPS.

### 3.5 Radio

a Know what to do in the event of radio failure, including when flying Special VFR in controlled airspace etc.

b Note all necessary radio frequencies, including destination and diversion aerodromes, VOLMET, LARS, Danger Area Crossing Service etc.

c So that you can use RADIO-NAV as a back up to visual navigation, note the frequencies and morse ident of radio NAVAIDs.

d If necessary, brush-up on radio procedures, phraseology etc (CAP 413 'Radiotelephony Manual').

### 3.6 Weight and Balance

a Use the **actual** empty weight and CG from the latest Weight and Balance Schedule of the specific aircraft you are flying. Aircraft get heavier due to extra equipment, coats of paint etc.

b Check that the aircraft maximum weight is complied with. If too heavy, you **must** reduce the weight by off-loading passengers, baggage or fuel.



*‘you must reduce the weight’*

**c** Check that the CG is within limits for take-off and throughout the flight. If your calculations show that it will not stay within the approved range, including the restricted range for spinning/aerobatics, you must make some changes.

**d** **Never** attempt to fly an aircraft which is outside the permitted weight/CG range and performance limitations. It is extremely dangerous (sudden loss of control likely), as well as illegal, invalidates the C of A and almost certainly your insurance. (See Safety Sense Leaflet No 9A ‘Weight and Balance’.)

### 3.7 Performance

**a** Make sure that the runways you are going to operate from are long enough for take-off and landing. Use the Pilot’s Operating Handbook/ Flight Manual to calculate the distances that you need. Check for any CAA Supplements that may downgrade the performance.

**b** Note that any factors given for elevation, temperature, slope, grass, snow, tail wind etc are all cumulative and must be **multiplied**, eg  $1.3 \times 1.2$  etc.

**c** The performance figures given in the Handbook/Manual were obtained by a test pilot on a new aircraft, so in addition to the published factors,

**apply a safety factor** of 1.33 for take-off and 1.43 for landing. These give acceptable safety margins for Public Transport operations, and will offset an out-of-practice pilot/tired engine. On a few aircraft these may have been included in the manufacturers information as ‘factored’ data. (See Safety Sense Leaflet No 7B ‘Aeroplane Performance’.)

**d** Note that short wet grass may need a factor of up to 1.6, its like ice!

### 3.8 Fuel Planning

**a** Always plan to land by the time the tank(s) are down to the greater of 1/4 tank or 45 minutes, but don’t rely solely on gauge(s) which may be unreliable. Remember, a headwind may be stronger than forecast and frequent use of carb heat will also reduce range.

**b** Understand the operation and limitations of the fuel system, gauges, pumps, mixture control, unusable fuel etc and remember to lean the mixture if it is permitted.

**c** Don’t assume you can lean the engine and achieve the Handbook/Manual fuel consumption. As a rule of thumb, due to service and wear, expect to use 20% more fuel than the ‘book’ figures.

### 3.9 Destination

**a** Check for any special procedures and activities at your destination such as parachuting, gliding, microlighting. Use the UK Aeronautical Information Publication (UK AIP) or other Flight Guides together with NOTAMs, Temporary Navigation Warnings, etc.

**b** If your destination is a strip, remember that the environment may be very different from the licensed aerodrome at which you learnt to fly,

or from which you normally operate. There may be hard to see cables or other obstructions on the approach path, or hills, trees and buildings close to the strip giving wind shear and/or unusual air currents.

c Before going to a strip, it is suggested that you are checked out by an instructor or by someone who knows the strip well. If you can't arrange either, go by road and have a look at the potential problems for different wind/surface conditions. Assess the slope; it may be visually deceptive. (See Safety Sense Leaflet No 12C 'Strip Sense'.)



*'look at potential problems'*

d You **must** obtain permission if the destination is Prior Permission Required (PPR). If flying non-radio, phone to find out the procedure.

e Prepare a Flight Plan for filing on the day if you are going more than 10 nm from the UK coast or over a sparsely populated area (see UK AIP ENR 1-10 para 3.1.3, and Safety Sense Leaflet 20A).

### 3.10 Flying Abroad

a Make sure you are conversant with the aeronautical regulations, charts (including scale and units, eg feet or metres), airspace etc for each country you are flying to/over. Remember,

your IMC Rating is is not valid outside the UK.

b Take the aircraft documents, your licence and a copy of 'Interception Procedures' (Safety Sense Leaflet No 11).

c Before crossing an International FIR boundary you **must** file a Flight Plan. Check that it has been accepted. (See Safety Sense Leaflet No 20A 'VFR Flight Plans'.)

d Don't overlook the Prevention of Terrorism restrictions for flights to Ireland, Channel Isles and Isle of Man. (UK AIP GEN 1.2.1 para 5.)

e Ensure you have informed Customs and Immigration about your return if you are returning from an EU country but not landing at a Customs aerodrome. See AIP GEN 1.2.1.2 (1.2.1.3 covers flights from outside the EU).

f In some countries, for example Germany and France, it is a legal requirement to have a 760 channel radio, which can transmit and receive on frequencies between 118 and 137 MHz.

### 3.11 Over Water

a The weather over the sea can often be very different from the land, eg sea fog.



*'Wear a lifejacket.'*

**b** When flying over water, everyone in a single-engined aircraft should, as a minimum, wear lifejackets. In the event of an emergency there will be neither time nor space to put it on.

**c** The water around the UK coast is very cold in winter and cold in summer. Survival time may be as low as 15 minutes (about the time needed to scramble an SAR helicopter). A good quality insulated survival suit, with the hood up and well sealed, should provide over 3 hours survival time. In water, the body loses heat 100 times faster than in cold air.

**d** In addition, take a life-raft; it's heavy, so re-check weight and balance. A life-raft is much easier to see and will help the rescuers find you. It should be properly secured in the aircraft, but easily accessible, you will not have much time.

**e** Make sure that lifejackets, survival suits and life-raft have been tested recently by an approved organisation – they **must** be serviceable when needed.

**f** You are strongly urged to carry an approved Emergency Locator Transmitter and flares.

**g** Remain in contact with the appropriate aeronautical radio station.

**h** Know the ditching procedure.

**i** Pilots and passengers who regularly fly over water, are advised to attend an underwater escape training and Sea Survival Course. Details in Safety Sense Leaflet No 21 'Ditching'.

### 3.12 Pilot Fitness

**a** Don't fly when unfit – it is better to cancel a flight than to wreck an aircraft or hurt yourself!

Are you fit to fly – Check against the 'I'm Safe' list below.

- I Illness (any symptom)
- M Medication (your family doctor may not know you are a pilot)
- S Stress (upset following an argument)
- A Alcohol/Drugs
- F Fatigue (good night's sleep etc)
- E Eating (food keeps blood-sugar correct).

**b** Plan to use oxygen when flying above 10,000ft. Use it at lower altitude when flying at night or if you are a smoker (more carbon monoxide in the blood). Do **not** smoke when using oxygen.

**c** If you need to wear glasses for flying, make sure that the required spare pair is readily accessible.

**d** Wear clothes that cover the limbs and will give some protection in the event of fire. Avoid synthetic material which melts into the skin. In winter, take additional warm clothing in case of heater failure or a forced landing.

**e** Use the seat belts/harnesses provided for everyone's protection.

## 4 PRACTICE

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### 4.1 Pre-Flight Inspection

**a** After removing tie-downs, control locks, pitot cover and tow bar, complete a thorough pre-flight inspection. Use the Check List unless you are very familiar with the aircraft.

**b** Determine **visually** that you have enough fuel of the right type. If necessary, use a dip-stick to check fuel levels. Personally supervise re-fuelling. Don't let anyone confuse AVGAS and AVTUR. Make sure the filler caps are properly secured. With the fuel



*'check visually . . .'*

selector ON, check fuel drains for water and other contamination. Be aware of the danger of static electricity during re-fuelling.

c Check the engine oil level and if necessary top it up with the correct grade, but do not over fill.



*'personally supervise . . .'*

d Remove **all** ice, frost and snow from the aircraft. Even frost spoils the airflow over aerofoil surfaces and results in loss of lift and abnormal control effects. Beware of re-freezing. Only use authorised deicing fluids. (See Safety Sense Leaflet No 3B 'Winter Flying'.)

e If you find anything which you are not happy about, get further advice.

f Check **visually** that the flying control surfaces move in the correct sense, in response to control inputs.

g Properly secure any baggage so that nothing can foul the flying controls. Beware of loose items, eg cameras being used by passengers.

h The law requires you **must** brief passengers on location and use of doors, emergency exits and equipment, as well as procedures to be followed in the event of an emergency. Personally secure doors and luggage hatches. (See Safety Sense Leaflet 2B 'Care of Passengers'.)

j Confirm all seats are upright for takeoff and properly locked in place.

## 4.2 Starting Engine

a Know where to find and how to use the aircraft's fire extinguisher, as well as the location of any others in the vicinity.

b **Never** attempt to hand swing a propeller (or allow anyone else to swing your propeller) unless you know the proper, safe procedure, and there is a suitably briefed person at the controls, the brakes are ON and the wheels are chocked. Check that the area behind the aircraft is clear.

c Use a Check List which details the correct sequence for starting the engine. Make sure the brakes are ON (or chocks in place) and that all avionics are OFF before starting engine(s).

## 4.3 Take-off

a Never attempt to take-off unless you are sure the surface and length available are suitable.

b Visually check the approach and runway are clear before lining up and taking-off.

c In the event of engine failure after take-off, if the runway remaining is long enough, re-land and if not, **never** attempt to turn back. Use areas ahead of you and go for the best site. It is a question of knowing

your aircraft, your level of experience or practice and working out beforehand your best option at the aerodrome in use. (One day, at a safe height, and well away from the circuit, try a 180° turn at idle rpm and see how much height you lose!)

#### 4.4 Look-Out

**a** Always keep a good look-out (and listen-out) for other aircraft, particularly over radio beacons and in the vicinity of aerodromes and Visual Reference Points. The most hazardous conflicts are those aircraft with the least relative movement to your own. These are the ones that are difficult to see **and** the ones you are most likely to hit. Beware of blind spots and move your head or the aircraft to uncover these areas. Scan effectively. (See Safety Sense Leaflet No 13A 'Collision Avoidance'.)



*Photo: Alan Wickens  
'always keep a good lookout'*

**b** Remember the Rules of the Air which include flying on the right-hand side of line features and giving way to traffic on your right.

**c** If the aircraft has strobe lights, you should use them. If you are in a

crowded circuit environment, use landing lights as well.

**d** Spend as little time as possible with your head 'in the office'.

#### 4.5 Airspace

**a** Do not enter controlled airspace unless **properly authorised**. At times, you might have to orbit and wait for permission. Keep out of Danger and other Prohibited Areas. Don't forget the Danger Area Crossing and Information Services.

**b** Use the Lower Airspace Radar Service (LARS) which is available from many RAF and civil aerodromes particularly on week days. It may prevent you from getting a nasty fright from military or other aircraft. (See Safety Sense Leaflet No 8D 'Air Traffic Services Outside Controlled Airspace'.)

**c** A Radar Advisory Service (RAS) will tell you about conflicting aircraft and offer avoidance. If you take alternative action, or consider no action necessary, then you must tell the controller. A Radar Information Service (RIS) gives you details of conflicting aircraft, but you have to decide if avoiding action is necessary. Make sure you know which service you are receiving. **Pilots are always responsible for their own terrain and obstacle clearance.**

**d** Allocation of a transponder code does **not** mean that you are receiving a service.

#### 4.6 En-Route

**a** If you encounter deteriorating weather, turn back or divert before you are caught in cloud. A 180° turn in cloud will not be as easy as in the skills test!

**b** Do not attempt to fly between lowering cloud and rising ground.



*'you must avoid scud-running'*

Many pilots have come to grief because a lowering cloud base has forced them lower and lower into the hills. You **MUST** avoid 'scud running'.

**c** If forced into or above cloud, do not fly below your planned Safety Altitude.

**d** Don't overlook your en-route checks such as FREDa – fuel, radio, engine, DI and altimeter. Engine should include a carb heat check.

#### 4.7 Diversion

**a** Unless you have an IMC or Instrument Rating, are experienced and in current practice, and flying a suitably equipped aircraft, you must remain in sight of the surface. Before encountering lowering cloud base or deteriorating visibility, make plans for a retreat or diversion to an alternative aerodrome. If conditions get worse, eg 1000ft cloud base and 3km or less visibility, carry out these plans **immediately**. Turn back before entering cloud. Don't fly above clouds unless they are widely scattered and you can remain in sight of the surface.

**b** Divert to the nearest aerodrome if

the periodic fuel check indicates you won't have your planned fuel reserve at destination.

**c** An occasional weather check from VOLMET is always worthwhile.

#### 4.8 Lost

**a** If you are lost or temporarily unsure of your position, then **tell someone**. Transmit first on your working frequency. If you have lost contact on that frequency or they cannot help you, then change to 121.5 MHz and use Training Fix, PAN or MAYDAY, whichever is appropriate (see CAP 413 'Radiotelephony Manual'). If you have a transponder, you may wish to select the emergency code which is 7700. It will instantly alert a radar controller.

**b** If you are lost and any of the items below apply to you, call for assistance – 'HELP ME':

- H High ground/obstructions – are you near any?
- E Entering controlled airspace – are you close?
- L Limited experience, low time or student pilot (let them know)
- P Position uncertain, get a 'Training Fix' in good time; don't leave it too late
- M MET conditions; is the weather deteriorating?
- E Endurance – fuel remaining; is it getting short?

**c** As a last resort, make an early decision to land in a field while you have the fuel and daylight to do so. Choose a field with care by making a careful reconnaissance and, if possible, pick one which may give easy access to a telephone to enable you to obtain a weather update or further advice.

#### 4.9 Speed Control

**a** You **must**, at all costs, avoid inadvertent stalling or spinning, a

major killer in aviation.

**b** When landing, use the flight handbook speed or 1.3 times the stall speed ie. 30% above stalling speed with flap, over the threshold and reduce speed in the round-out. If it is turbulent/gusty, add a margin of, say, 5kts or half the gust factor, whichever is the greater.

**c** A spin occurs when an aircraft is 'out of balance' at the stall, so keep the ball in the centre. Remember your stall/spin training.

**d** If you have not practised slow flight for some time, get an instructor to accompany you while you do so.

#### 4.10 Environmental

**a** Many people don't like aircraft noise and several aerodromes are under threat of closure due to this, so it is vital to be a good neighbour.

**b** Adhere to noise abatement procedures and do **NOT** fly over noise sensitive areas near aerodromes. These are detailed in the UK AIP or other Flight Guides, or may be established on a local basis.

**c** Select sites for practice forced landings or aerobatics very carefully, HASELL includes 'LOCATION'.

**d** When en-route, fly at a height/power setting which will minimise noise nuisance, as well as complying with Rule 5 'Low Flying'.

**e** When flying a variable pitch propeller aircraft, change pitch slowly to avoid excessive noise. When flying twins, synchronise the engines to avoid 'beats'.

**f** Select engine run-up areas to minimise disturbance to people, animals etc.

**g** **NEVER** be tempted to fly low or 'beat up' the countryside.

#### 4.11 Wind and Wake Turbulence

**a** Make sure you know the maximum demonstrated cross-wind for the aircraft type you are flying and factor this for your experience and recency.

**b** Don't operate in cross-winds in excess of those stated in the Pilot's Operating Handbook/Flight Manual. Remember, these were obtained by a test pilot! It may be necessary to divert.



*'Crosswinds may force you to divert.'*

**c** When cross-winds or gusts exceed 50% of the stall speed, in general, don't go flying! If you have to, use outside assistance for taxiing such as a wing walker. Taxi very slowly when winds exceed 30% of the stall speed (unless the POH specifies otherwise). You may retain better control on landing by not using full flap.

**d** Use the 'Sixth Sense' rule to work out the cross-wind component.

- 10° off runway = 1/6 of the wind
- 20° off runway = 2/6 wind
- 30° off runway = 3/6 of the wind etc.

**e** If there is a cross-wind, the reduced head-wind component will cause the take-off and landing runs to be longer.

**f** If another runway which is more into wind is available, **ask** Air Traffic if you can use it. You may have to wait a few minutes while they fit you in with other traffic.

**g** Stay 1000ft clear of the 'blast' end of powerful aircraft.

**h** Beware of wake turbulence behind heavier aircraft on take-off, during the approach or on landing. You should remain 8nm, or 4 minutes or more, behind large aircraft. Note that wake turbulence lingers **when wind conditions are very light**. These very powerful vortices are **invisible**. Heed Air Traffic warnings. (See Safety Sense Leaflet No 15B 'Wake Turbulence'.)

#### 4.12 Circuit Procedures

**a** When joining or re-joining, make your radio call early and keep radio transmissions to the point – 'Cut the Chat'. If non-radio (or your radio has failed), know the procedures. (See Safety Sense Leaflet No 6B 'Aerodrome Sense'.)

**b** Check that the change from QNH to QFE reduces the altimeter reading by the aerodrome elevation. If landing using QNH, eg airstrips, don't forget to add aerodrome elevation to your planned circuit height.

**c** Use the correct joining procedures for your destination aerodrome. Check circuit height and direction. Look out for other aviation activity such as gliding, parachuting.

**d** Check windsock/signals square or nearby smoke to ensure you land in the right direction. Be very sure of the wind direction and strength before committing yourself to an approach at a non-radio aerodrome.

**e** Make radio calls in the circuit at the proper places and listen and look for other circuit traffic. Don't forget

pre-landing checks, which are easily forgotten if you make a straight-in approach.

**f** Be aware of optical illusions at unfamiliar aerodromes with sloping runway or approach terrain, very long, or very wide runways.

**g** Take care at aerodromes where the runways can be confused, eg 02 and 20. Make sure you know whether the circuit is left-hand or right-hand, as this will determine the dead side. If in doubt – **ASK**.

**h** In most piston engined aircraft, apply carb heat **BEFORE** reducing power, cancel at 200ft or so above the ground.

#### 4.13 Landing

**a** A good landing is a result of a good approach. If your approach is bad, make an **early** decision and go-around. Don't try to scrape in.



*'near the runway threshold'*

**b** Plan to touch down at the right speed, close to the runway threshold, unless the field length allows otherwise. Use any approach guidance (PAPI/VASI) to cross-check your descent.

**c** Go-around if not solidly 'on' in the first third of the runway, or the first quarter if the runway is wet grass. However, if the runway is very long,

plan your landing to minimise runway occupancy – think of the next user.

**d** Wait until you are clear of the active runway before stopping to carry out the after landing checks. Double check the lever you intend moving is the flaps and NOT the landing gear.

**e** If the clearance between the propeller and the ground is small, or grass is long and hiding obstructions, be especially watchful to prevent taxiing accidents.

**f** If you are changing over passengers, shut down the engine. Do not do 'running changes'; propellers are **very** dangerous.

**g** Remember, the flight isn't over until the engine(s) are shutdown and all checks completed.

**h** 'Book in' and close any Flight Plan.

Addresses:

- **Safety Promotion Section, Aviation House, Gatwick Airport South, W. Sussex, RH6 0YR**  
Tel: 01293 573225/7  
Fax: 01293 573973
- **Safety Data Department (address as above)**  
Tel: 01293 573220/1  
Fax: 01293 573972
- **Air Accident Investigation Branch, Berkshire Copse Road, Aldershot, Hants, GU11 2HH**  
Tel: 01252 510300  
Fax: 01252 376999  
24 hour Tel: 01252 512299
- **General Aviation Safety Council, Holly Tree Cottage, Park Corner, Nettlebed, Oxon, RG9 6DP**  
Tel/Fax:01491 641735
- **Met Office Customer Centre, Powell Duffryn House, London Road, Bracknell RG12 2SX**  
Tel: 0845 300 0300  
Fax: 0845 300 1300

## COMPLACENCY IS THE ENEMY OF SAFETY

Other leaflets in this series:

- 2B *Care of Passengers*
- 3C *Winter Flying*
- 5D *VFR Navigation*
- 6C *Aerodrome Sense*
- 7B *Aeroplane Performance*
- 8D *Air Traffic Services Outside Controlled Airspace*
- 9A *Weight and Balance*
- 10A *Bird Avoidance*
- 11 *Interception Procedures*
- 12C *Strip Sense*
- 13A *Collision Avoidance*
- 14A *Piston Engine Icing*
- 15B *Wake Vortex*
- 16A *Balloon Airmanship Guide*
- 17B *Helicopter Airmanship*
- 18A *Military Low Flying*
- 19 *Aerobatics*
- 20A *VFR Flight Plans*
- 21A *Ditching*
- 22 *Radiotelephony*
- 23 *Pilots – it's your Decision*
- 24 *Pilot Health*

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## 5 SUMMARY

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- Keep in current flying practice, have an annual check-out with particular emphasis on stall recognition and asymmetric practice in twins.
- Get an aviation weather forecast.
- Prepare a thorough Route Plan using the latest charts, check on NOTAMs, Temporary Nav warnings etc.
- Know the aircraft thoroughly.
- Don't over-load the aircraft.
- Make sure the runway is long enough in the conditions.
- Over water in a single-engined aircraft, wear a lifejacket (perhaps also an immersion suit), carry an accessible life-raft.
- Pre-flight properly with special emphasis on fuel/oil contents and flying controls.
- In a single-engined aircraft, bear in mind the consequences of engine failure.
- Maintain a good look-out, scan effectively.
- If the weather deteriorates, or night approaches, make the decision to divert or return **before** you are in cloud.
- Don't end up in weather outside your ability or licence privileges.
- NEVER descend below your safety altitude in IMC.
- Request help early if lost or have other problems, eg fuel shortage.
- Keep out of controlled airspace unless you have clearance.
- Make regular cruise checks including fuel contents/selection and carb heat.
- Maintain flying speed, avoid inadvertent stall/spin, don't fly low and slow.
- Don't do anything stupid – become an old pilot, NOT a bold pilot.

### Finally

- Pilots exercising GOOD AIRMANSHIP never sit there 'doing nothing', they always think 15 to 20 miles ahead.