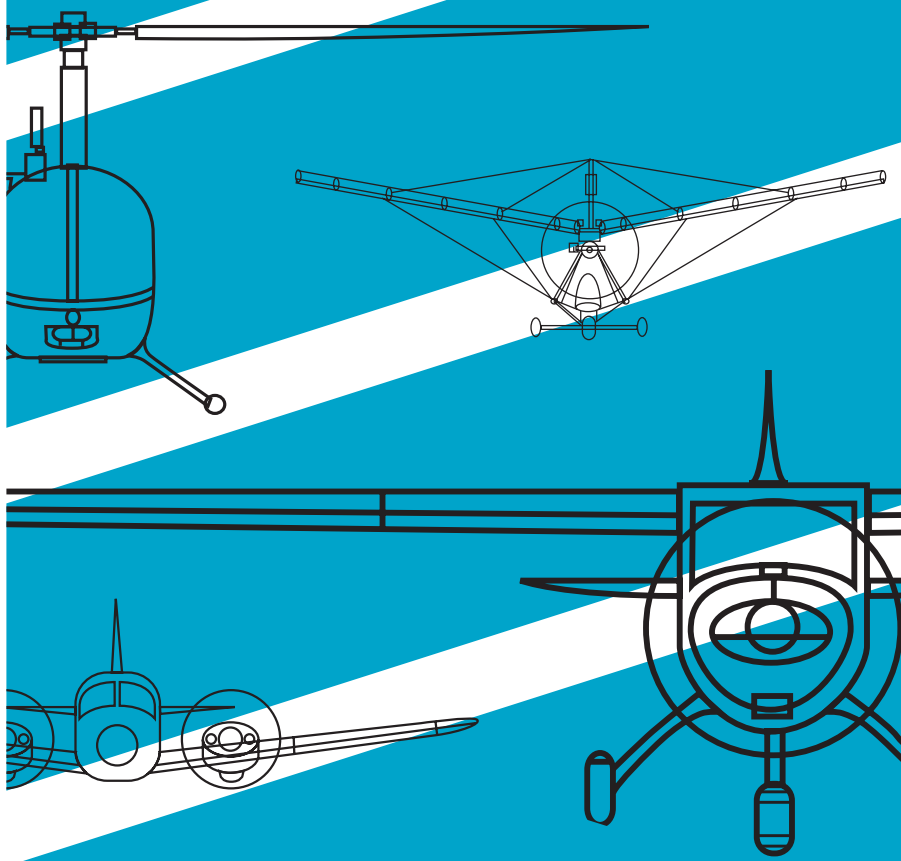


21A

DITCHING



DITCHING



Piel Emeraude, Irish Sea 1991

1 INTRODUCTION

a Ditching is a deliberate emergency landing on water. It is **NOT** an uncontrolled impact.

b Ditchings involving UK registered light aircraft are comparatively rare, therefore ditching statistics from United States registered aircraft have also been included.

- It appears that the ditching itself is generally successful, although subsequent survival and rescue do not necessarily follow.
- Data from both UK and USA indicates that 88% of controlled ditchings are carried out with few injuries to pilots or passengers. There is no statistical survival difference between high wing and low wing aeroplanes.

- However, despite most ditchings being survivable approximately 50% of survivors die before help arrives.

c This leaflet, is mainly aimed at private operators of aeroplanes but much of the advice will be equally relevant for helicopters. It includes details of how to improve the chances of survival after a ditching.

d Details of the UK Search and Rescue System together with appropriate advice, are available in the AIP GEN 3-6.

2 KNOWLEDGE

a Do you know how far YOUR aircraft can glide per 1000 ft of altitude in still air? It's in the Pilots Operating Handbook or Flight Manual.

b The main cause of death after ditching is drowning, usually hastened by hypothermia and/or exhaustion. It is thus essential to consider the reasons for this and how the risks may be minimised.

c In many cases, the deceased persons did not have lifejackets, either worn or available to them. It is vital **TO WEAR** a suitable lifejacket whilst flying in a single engined aircraft over water beyond gliding range from land.

d Selection of the correct lifejacket is most important, since there are many different types available. Some so-called lifejackets are in fact little more than buoyancy aids which are used for leisure boating and have a permanent buoyancy of about 7 kg (15 lbs). This kind of 'lifejacket' will not keep an unconscious person afloat. Worse still, the inherent buoyancy may prevent a person from escaping from an inverted aircraft.

e A proper lifejacket provides 16 kg (35 lb) of buoyancy which can be enough to keep an unconscious person afloat with the head above water. It is essential to use a lifejacket designed for constant wear since this has the ruggedness and durability to prevent tearing and other damage during normal use.

f Many automatically inflated lifejackets, used by the sailing community, are activated when a soluble tablet becomes wet. This type is totally unsuitable for general aviation use as they will inflate inside a water-filled cabin, thus seriously hindering escape.

g It is reported that airline lifejackets are stolen by passengers. Such lifejackets are unsuitable for GA use, because they are not durable enough for significant constant wear.

h It is highly desirable that when being worn the lifejacket is unlikely to become entangled in harness/belt and should include the following:*

- a light activated by pulling a toggle or by immersion in sea water;
- a whistle for attracting attention;
- a crotch strap to stop the lifejacket from riding up over the face;
- a spray hood or plastic face mask which can be pulled over the face and lobes of the jacket. It will reduce heat loss through the head as well as the amount of water flowing across the face;
- high visibility colour with reflective tape.



i Wearing a suitable lifejacket, is not the end of the story. When not in use, the lifejacket must be properly stored in a dry environment and regularly serviced.

j A lifejacket should be serviced at least every year (more frequently if required by the manufacturer) by an approved servicing organisation or appropriately licensed engineer. The weight, and thus contents, of the gas cylinder will be checked, and the life-jacket itself examined for damage and leaks; and ancillary equipment inspected for serviceability.

*See Supplement B at back

The cost of this annual servicing is comparatively modest. (A list of the specialist organisations, that we are aware of, who undertake this work, is at the end of the leaflet.)

k Whilst properly fitted lifejackets can prevent people from drowning, none provide any protection against hypothermia.

l Hypothermia is defined as lowering of the 'core' body temperature. In cold water, the skin and peripheral tissues cool very rapidly, but it can be 10 to 15 minutes before the temperature of the heart and brain begin to decrease. Intense shivering occurs in a body's attempt to increase its heat production and counteract the large heat loss. Decreasing consciousness, mental confusion and the loss of the will to live, occur when the deep body temperature falls from the normal 37°C to about 32°C. Heart failure is the usual cause of death when 'core' body temperature falls below 30°C.

m Survival times for individuals in cold water will vary greatly depending on water temperature, individual build, metabolism, fitness and the amount of clothing worn. The graph overleaf shows average survival times. The chart shows March (the coldest month) surface water temperatures around the UK coast. Note that without a liferaft or survival suit **there is little difference between survival times in summer and winter.**

n In addition, several other responses to the shock of sudden immersion in cold water can cause death:

- heart failure is possible for those with weak circulatory systems, particularly the elderly;
- hyperventilation can increase the risk of swallowing water;
- cold makes coordinated movement difficult;

- ability to hold one's breath is severely curtailed, perhaps to just a few seconds, thus reducing the chances of successful escape from a submerged aircraft.

The effect of shock and panic can amplify the above effects, so it is important to consider ways of reducing the risk of both cold shock and hypothermia.

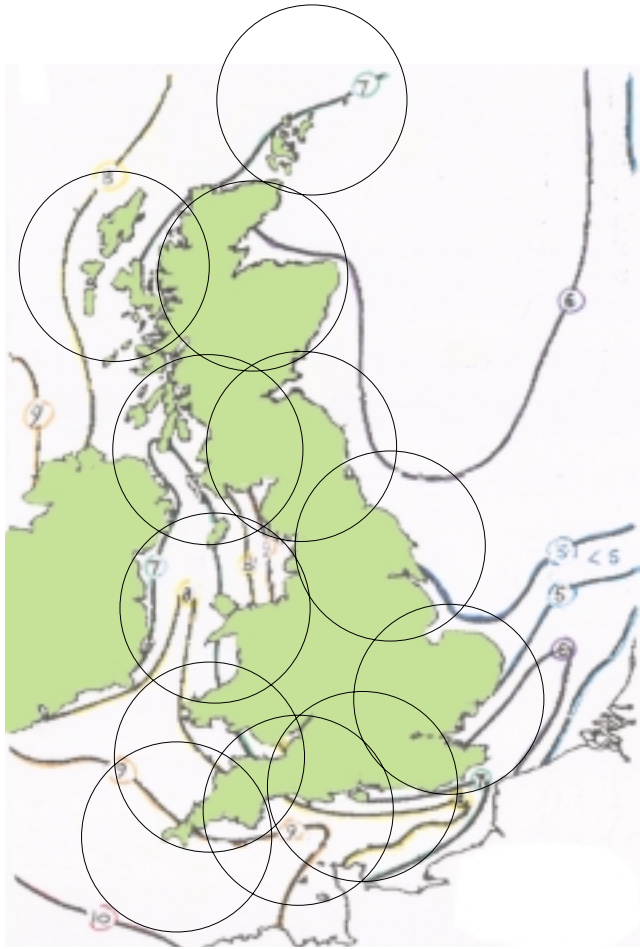
o Clearly, the ideal solution, is to get out of the water by using a liferaft.

p As with lifejackets, an aviation liferaft, with a recognised approval, is the safest option and this must also be regularly serviced and properly stored when not in use. The use of a liferaft, together with other survival tips, are detailed later in this leaflet. However, it is important to know how to use all your survival equipment.

q A marine life-raft is **NOT** suitable for aviation use because of a significant difference in the inflation system so that any malfunction of the CO₂ cylinder will cause it to vent INTO the liferaft, inflating it, and filling the cockpit possibly causing catastrophic results. Aviation liferaft cylinders are designed to vent to atmosphere in the event of a malfunction. (Just in case, carry a pocket knife or screwdriver.)

r If, for any reason, a life-raft is not available, the survival time in cold water can be significantly increased by wearing suitable protective clothing.

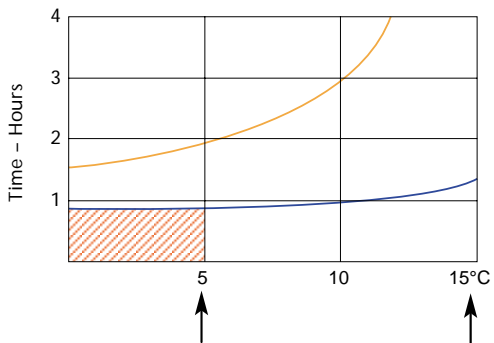
s A survival suit specially tailored for general aviation use is most effective, and can prolong life by keeping hypothermia at bay for the longest time, (see following photograph). Whilst some pilots may feel that this level of protection is 'over the top' for a cross Channel flight, there have been cases where lives have been saved by the wearing of such clothing. A leak-proof suit, properly worn, can increase survival time from



MEAN MARCH SURFACE WATER TEMPERATURE °C

Note: The sea temperature is below 10°C between October and April.

Circles represent standard 1 hour response assuming 15 minutes standby and 45 minutes flying time at 105 knots for Sea Kings/S61s.



LIKELY SURVIVAL TIME FOR RELATIVELY THIN PERSON IN CALM WATERS WITH NO LIFERAFT



Death likely due to cold shock before onset of hypothermia.

Blue

Lightweight summer clothing.

Orange

Survival suit, with long cotton underwear, trousers, shirt and heavy pullover.

INABILITY TO PERFORM TASKS WILL
OCCUR LONG BEFORE DEATH

3 to 10 times depending on the insulating qualities of the clothes worn underneath. Wear several layers of suitable clothing to create layers of air.

t As with all safety and survival equipment, it should be the correct type, with a recognised approval, be a comfortable fit, properly maintained and serviced, and carefully stored when not in use.



u If a survival suit is not used, then generally, the more layers of clothes that are worn, the longer will be the survival time. This will vary considerably depending on the type of clothing and the amount being worn. Therefore, if time permits, put on as much clothing as possible, including headwear, since a very large proportion of body heat escapes through the head. Wet wool retains 50% of its insulating properties, whereas wet cotton retains only 10%. Watersport suits could also be considered.

v Personal Locator Beacons (PLB) are portable radio transmitters which will greatly assist in locating you after ditching. It should float, have a

satisfactory power output and provide a continuous signal for 24 hours. The present generation operate on 121.5 MHz although a bulkier more robust beacon operating on 406 MHz and causing fewer false alerts is being introduced. It contains a 121.5 MHz homing device and some even have GPS to improve the position information they transmit.



w Signals from both types can be received by orbiting COSPAS/SARSAT satellites. These alerts are relayed to the Aeronautical Rescue Co-ordination Centre at RAF Kinloss. The time between activation and satellite detection, should NOT exceed 90 minutes (one satellite pass).

x Thus, the best use of a 121.5 MHz PLB is to enable the rescue services to locate you following receipt of a distress call made using a conventional communications radio.

y Some PLBs are designed to float in the water with the transmitting aerial pointing upwards – the aerial's optimum transmitting position. Most PLBs have a battery test facility. Users **MUST NOT** test the transmit facility – this must only be done by an avionics engineer.

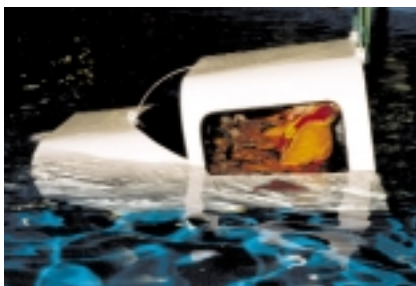
3 PREPARATION

a Many ditchings and subsequent drownings could have been prevented by careful planning and preparation.

b Those who frequently fly over-water should consider attending a survival course (see end of leaflet) Here, in a non-threatening environment, you will be taught the correct operation of lifejackets, methods of getting into life-rafts and the problems which might be encountered after a ditching.



c Some specialist companies arrange sessions in swimming pools with wave machines whilst others have light aircraft structures which can be used as 'dunkers' to practice underwater escapes. Those companies known to be offering this training are also listed at the back of the leaflet.



d On the day of the flight, obtaining and correctly interpreting the weather forecast is vital. Often,

whilst the weather might be pleasant on one side of the Channel, it may be very different on the other side. It would be no fun to leave English shores in CAVOK, only to struggle against unexpected headwinds, find sea fog or lowering cloudbases resulting from warm air over the cold sea any of which could force you to return.

e Use forecast wind to ensure that enough fuel is onboard for the flight, **plus any diversions**, which may include a return from overhead the destination or else to a suitable alternative airfield. In many accidents and some ditchings, the reason for engine stoppage, has proved to be fuel exhaustion.

f Thorough pre-flight inspection of the aircraft is essential, including double-checking that fuel and oil levels are satisfactory.

g A 4-person liferaft can weigh as much as 15 kg (35 lb) so it is a significant extra load. Therefore, determine the total weight and centre of gravity position, since these factors may require higher power and prolonged climbs if the aircraft is heavy, resulting in higher fuel consumption.

h Pilots must review any recommended procedures contained in the Aircraft Flight Manual or Pilot's Operating Handbooks for both a power-on and power-off ditching.

i The law requires that, as commander of the aircraft, you **MUST** brief the passengers on the emergency escape features of the aircraft, operation of the seats, seatbelts etc. However, on flight across water, in single engine aircraft, this briefing should be extended to ensure that each passenger knows how to operate the lifejacket they should be wearing. Brief the passengers on the contents

and the features found on the lifejacket, including how to inflate it if the bottle fails.

j Before boarding the aircraft, brief the passengers carefully:

- on the location of the liferaft;
- on the order in which people should vacate the aircraft in the event of a ditching and **who will be responsible for taking the liferaft with them;**
- that lifejackets must **not** be inflated until clear of the aircraft and that the instructions normally state – ‘pull the toggle’ to inflate;
- to remove headsets and glasses and to stow glasses on their person prior to touchdown
- tighten seat straps/harnesses prior to touchdown on the water and rear seat passengers should assume a braced position;
- indicate reference points on the aircraft’s internal structure that they should reach for when exiting the aircraft as well as any features which might impede exit.



k The liferaft must be **SECURED** in an accessible position. If flying alone, place the liferaft on the front passenger seat and secure it with the harness. Check it will not interfere with the controls, lookout or exit.

l Some pilots have a hand-held VHF radio or mobile phone; put them in a sealed plastic bag along with any hand held GPS in order to keep them dry. A waterproof torch or better still a portable waterproof strobe could also be useful.

m Once airborne, particularly over the sea, it is prudent to fly as high as can be safely and legally flown. This will give better radio reception and more time between the onset of a problem and ditching. Consider a high level longer crossing compared with a short one at low level.

n Before crossing the coast, carry out a particularly careful cruise check (FREDA check) to ensure that everything is normal.

4 PRACTICE

4.1 Ditching

a The worst has happened – you are unable to maintain height and a ditching appears likely. If you are flying a twin-engined aircraft and one engine stops, everyone should put on a lifejacket. Make a PAN call.

b Immediately adjust the airspeed for the best glide speed and taking into account the wind direction either aim towards the nearest coast or towards shipping. Remember, that a medium size vessel is the best choice to ditch near, since a large ship may take many miles to slow down. In any event, avoid landing immediately in front; landing alongside and slightly ahead is better.

c At this stage, transmit a MAYDAY call, using the frequency you are working or the emergency frequency of 121.5 MHz. If fitted, immediately select transponder code to 7700, unless you are already using an allocated code. Transmit the best position fix that you can, this may be

by means of VOR, DME or GPS or even your estimate in relation to the coastline. **Make this position report as accurate as you can.**

d Check immediately for any problem which can be dealt with by vital actions such as: selecting carburettor heat, change of fuel tank, use of the electric fuel pump, etc.

ABOVE ALL, THROUGHOUT, FLY THE AIRCRAFT.

e Conventional wisdom is that the swell direction is more important than wind direction when planning a ditching. By the time you are down to 2000 ft, the swell should be apparent and your aim should be to touchdown parallel to the line of the swell, attempting, if possible, to land along the crest. The table below describes sea states.

f If you can see spray and spume on the surface, then the surface wind is strong. In this case it is probably better to plan to land into wind, rather than along the swell. Winds of 35 to 40 kts are generally associated with spray blowing like steam across waves and in these cases the waves could be 10 ft or more in height. Aim for the crest again or, failing that, into the downslope.

g The force of impact can be high so ditch as slowly as possible whilst maintaining control.

h Retractable gear aircraft should be ditched with the gear retracted (beware of automatic lowering systems). The Flight Manual/Pilot's Operating Handbook may provide suitable advice. Consider unlatching the door(s).

i Hold the aircraft off the water so as to land taildown at the lowest possible forward speed; do not stall into the water from a height of several feet.

j There will often be one or two minor touches, 'skips', before the main impact with the water. This main impact will usually result in considerable deceleration with the nose bobbing downwards and water rushing over the cowling and windshield. It may even smash the windshield – leading you to think that the aircraft has submerged.

k With a high wing aircraft, it may be necessary to wait until the cabin has filled with water before it will be possible to open the doors. A determined push or kick on the windows may remove them.

Wind Speed	Appearance of Sea	Effect on Ditching
0–6 knots (Beaufort 0–2)	Glassy calm to small ripples	Height very difficult to judge above glassy surface. Ditch parallel to swell
7–10 knots (Beaufort 3)	Small waves; few if any white caps.	Ditch parallel to swell.
11–21 knots (Beaufort 4–5)	Larger waves with many white caps.	Use headwind component but still ditch along general line of swell.
22–33 knots (Beaufort 6–7)	Medium to large waves, some foam Crests, numerous white caps.	Ditch into wind on crest or downslope of swell.
34 knots and above (Beaufort 8+)	Large waves, streaks of foam, wave crests forming spindrift	Ditch into wind on crest or downslope of swell. Avoid at all costs ditching into face of rising swell

I The shock of cold water may adversely affect everyone's actions and this is where the importance of the proper pre-flight passenger briefing which emphasised reference points and the agreed order in which to vacate the aircraft becomes apparent. **Do NOT inflate lifejackets whilst still in the aircraft**, inflate them as soon as you are outside. The natural buoyancy of the un-inflated liferaft may make it hard to pull it below the surface to get it out of a sinking aircraft.

m Consider leaving the master switch and the anti-collision beacon or strobes on, since if the aircraft floats for a while or sinks in shallow water, the lights may continue operating and provide a further sign of your position. Having exited the aircraft as calmly, but as swiftly as possible, and if it is afloat after the passengers are clear, provided you don't put yourself in danger, deploy loose items that could float on the surface and help rescuers spot you, e.g. blankets, overnight bags, seat cushions. The first aid kit and plastic bag with the PLB, handheld radio, phone etc. should be taken with you.

4.2 The Liferaft

a Before inflating the liferaft, it should be tied to someone holding firmly onto the aircraft, so that it doesn't blow away. (It will float even before it is inflated.) **Do NOT** attach it to the sinking aircraft. The lifejacket harness or belt would be a good attachment point. If possible, inflate the liferaft on the downwind side so that it is not blown against the aircraft and damaged. (A pocket knife to cut the cord would be easier than trying to undo a wet knot.) If necessary and you are able to stand on the wing, it may, be easier to turn the liferaft upright.

b Should the liferaft need to be turned upright while you are in the water, get downwind of it and rotate it so that the inflation cylinder is towards you. The weight of the cylinder and the wind will help turn

it over. Avoid getting tangled in the attaching cord.

c If possible, get into the liferaft from the wing, or lower yourself gently into the water to keep your head dry. Remove high heeled shoes and **do not** leap or jump into the liferaft as this may damage it. If you have to enter the water first, hold the bottom of your lifejacket with one hand and place the other hand over your mouth and nose.

d Climb into the liferaft, if anyone is in the water and injured or cannot climb aboard, get the persons back towards the entrance. Two people should then hold the person under the armpits, (not by the arms), while any others balance the liferaft by sitting at the far end. Push the person initially down into the water, then give a good pull as the buoyancy from the lifejacket pushes the person back up again. Warn them first!

e Once everyone is aboard the liferaft, inflate the floor, trail the sea anchor as soon as possible, and erect the canopy to prevent wind chill hypothermia affecting wet bodies.

PROTECTION is the key to survival.

Get all the water out using the bailer and mop up with a sponge or spare item of clothing. If necessary, fully inflate the buoyancy chambers. All should be firm, but not rock hard.

f Ensure that at least one person is tied to the liferaft just in case a large wave should overturn it; then it should be possible to get back into it and help the others aboard.

g To avoid vomiting, ensure that everyone takes a sea sickness pill straight away – do not wait for the onset of sickness. The smell inside the liferaft and the loss of visual references will increase the risk of sickness. (Vomiting causes serious fluid loss). The sea sickness pills will normally be found in the equipment pouch inside the liferaft. You can

survive around the UK without water for over 4 days. **NEVER** drink sea water.

h Once the canopy is erected, you will have PROTECTION. Wring out your clothes as much as possible and if you have anything suitable, insulate the floor.

i Even on a warm day, keep the cover up to provide protection from the sun.

j Treat any injuries and administer appropriate first aid. It will have been a traumatic experience, some survivors may be suffering from shock, which can affect mental processes.

k. The second element of survival is **LOCATION**, so switch on your PLB. Rig it as high as possible with the aerial vertical. **DO NOT** leave the PLB lying on the floor. If the hand-held radio is available in the waterproof bag, now is the time to make sure it is ON and working. Selecting 121.5 MHz will confirm that your PLB is working. This is where a mobile phone or GPS could be useful.

l Use any other signalling equipment which might be available. However, with pyrotechnics do read the instructions first and check, then check again since some are double-ended. (It would be disastrous if you thought you were about to set off a smoke signal only to discover a white hot magnesium flare burning inside the liferaft!).



m Take turns to keep watch and only use flares or smoke signals when you are sure somebody will see them, not, for instance, as a search aircraft is flying away from you. Flares should be held at arms length, outside and pointing away from the liferaft as they often drop hot deposits. If you have any gloves or other protection, wear them when using pyrotechnics. Sweep the horizon with the heliograph, (mirror), at any time when the sun is shining. Any marker dye will normally last around 3 hours in the vicinity of the liferaft, so make an intelligent guess as to when to use it – normally once a search aircraft is seen.

4.3 No Liferaft

a If you do not have a liferaft, but have to survive in the water with only a lifejacket, then this is a life-threatening situation. **Do NOT give up hope, the will to survive is the most powerful force to prolong life.**

b The sea is cold, UK waters only reach 15°C even in summer and are below 10°C from October to April. If you are **not** wearing an immersion suit; then it is **ESSENTIAL** that you and any other survivors immediately adopt the following measures in order to conserve body heat:

- The cold will cause you to lose the use of your hands very quickly, so perform any manual tasks straightaway while you are still able and if possible tie yourselves together.
- Ideally tie the PLB onto the lifejacket. Get the PLB as high as you can, either hold it up or wedge it into your lifejacket with the aerial vertical.
- Do NOT swim in an attempt to keep warm. The heat generated due to more blood circulation in the arms, legs and skin as well as increased water flow through the clothing, will cause the heat to be lost to the cold water.

- Generally, don't attempt to swim to the shore unless the distance is say less than 1 km and you are a strong swimmer.
 - The main aim must be to conserve heat. The most critical areas of the body for heat loss are the head, sides of the chest and the groin region. If the lifejacket has one, cover your head with the lifejacket's spray hood.
- c If there is a group of survivors, tie yourselves together and huddle with the sides of your chests and lower bodies pressed together. If there are children, sandwich them within the middle of the group for extra protection.



d A lone survivor should adopt the 'HELP' position (this is the Heat Escaping Lessening Posture). The use of this position significantly increases survival times.

- Hold the inner sides of your arms in contact with the side of the chest. Hold your thighs together and raise them slightly to protect the groin region. See below.



e A single floating person is very difficult to see from the air. When a search aircraft is close enough to be able to see you, signal using your heliograph (mirror). If this is not available, sparkling light reflected by splashing water with your arms, may be enough to attract attention.

f To attract the attention of surface vessels, use the whistle attached to the jacket; shouting is much less effective and more exhausting to the survivor.

4.4 No Lifejacket or Lifteraft

a This is a very life threatening situation, again **DO NOT give up hope.**

b Use anything from the aircraft such as seat cushions, plastic boxes or pieces of polystyrene that will help you stay afloat.

c If all else fails an inflated plastic bag or wet shirt are better than nothing.

d Follow the advice of earlier paragraphs.

4.5 The Rescue

a If survival equipment is dropped to you, it may consist of two attached packs, get into the raft and investigate the equipment in the other pack.

b When help arrives, whether it is a boat or helicopter, stop signalling and wait for instructions from the rescuer. **DO NOT:**

- attempt to stand up
- try doing things on your own initiative.

c If a helicopter is making the rescue, wait for the winch man to tell you what to do, do not reach out and grab the cable.

d The winchman will, most likely, use a strop and carry out a double lift, i.e. go up with the survivor. When the strop is secure, the survivor should put both hands by his side, or better still hold hands behind his back. Most people seem to think they should hold on to the cable on the way up. This is unnecessary and could be dangerous as it increases the risk of falling out of the strop. Equally, on approaching the door sill, don't grab at the helicopter or try to help yourself in, the crew are much better at this than you!!

e Once in the helicopter, your inflated lifejacket is a hazard. You will either be asked to deflate it, or you will be given a new jacket by the crew.



f In most cases, the rescue services will deflate the liferaft after rescuing you and take it away. It is neither practical nor safe to try to recover it intact and leaving it afloat may result in a false alarm.

g There is further information on SAR in the UK AIP GEN 3-6 'Search and Rescue'.

CAA APPROVED COMPANIES WHICH SERVICE LIFEJACKETS AND LIFERAFTS

*Aviation Engineering & Maintenance Ltd
Stansted Division
Stansted Airport
Stansted
Essex CM24 1RB
Tel: 01279 680030 ext 200
Fax: 01279 680395

Seawweather Aviation Services Ltd
625 Princes Road
Dartford
Kent
DA2 6FF
Tel: 01322 275513
Fax: 01322 292639

Bristow Helicopters Ltd
Safety Equipment Section
Aberdeen Airport
Dyce
Aberdeen AB2 0ES
Tel: 01224 723151
Fax: 01224 770120

**SEMS Aerosafe
13 & 25 Olympic Business Centre
Paycocke Road
Basildon
Essex SS14 3EX
Tel: 01268 534427
Fax: 01268 281009

*FAA Approved

**They also undertake practice evenings in a pool with wave machine and have a rental service.

CAA APPROVED LIFEJACKET AND LIFERAFT MANUFACTURERS

Beaufort Air-Sea Equipment Ltd
International Safety Products
ML Lifeguard Equipment
RFD Ltd

0151 652 9151 ext 211
0151 922 2202
01824 704314
01232 301531 ext 102

COMPANIES KNOWN TO PROVIDE SURVIVAL TRAINING USING A 'DUNKER'

Fleetwood Offshore Survival Centre
Broadwater, Fleetwood
Lancashire FY7 8JZ
Tel: 01253 779123
Fax: 01253 773014

Robert Gordon Institute of Technology
338 King Street
Aberdeen AB24 5BQ
Tel: 01224 619500
Fax: 01224 619519

Humberside Offshore Training Association
Malmo Road
Sutton Fields Industrial Estate
Hull
East Yorks HU7 0YF
Tel: 01482 820567
Fax: 01482 823202

Warsash Maritime Centre
Newtown Road
Warsash
Southampton
SO31 9ZL
(using ANDARK facility)
Tel: 01489 576161
Fax: 01489 579388

SUITABLE LIFEJACKETS

- CAA Approved equipment is only required for Public Transport aircraft use and with the exception of North Sea helicopter operations, are NOT intended for constant wear. (Note: when serviced approx. 50% of airline style lifejackets used for GA purposes are found to be defective, versus less than 25% of the constant wear jackets.) Thus, on non-Public Transport flights it is up to you what to wear since not all lifejackets designed for constant wear are CAA Approved. (See Supplement A.)
- There are lifejackets available that are 'Approved' to US or to European Community Standards, some are designed to meet marine criteria.
- It is thus impossible to provide specific details on which are likely to be satisfactory. The subject should be discussed with manufacturers, stockists and maintainers.
- When choosing a lifejacket it will need to be a compromise of:
 - comfort when worn
 - convenience yet avoiding it becoming entangled in seat belt/harness
 - price
 - durability

COMPLACENCY IS THE ENEMY OF SAFETY

Other leaflets in this series:

- 1C *Good Airmanship Guide*
- 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*
- 22 *Radiotelephony*
- 23 *Pilots – it's your Decision*
- 24 *Pilot Health*

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Suggestions and technical queries to SRG Safety Promotion Section, Aviation House, Gatwick Airport, West Sussex RH6 0YR. Telephone 01293 573225/7.

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MAIN POINTS

- Don't panic – Ditchings are SURVIVABLE. The key elements are a good ditching then PROTECTION and LOCATION, water and particularly food are by comparison minor considerations.
- Correct actions will increase your chances of survival and early rescue.
- Always wear a properly maintained constant wear lifejacket when beyond gliding range from land in a single engined aircraft.
- Carry a serviceable aviation liferaft, stowed so that it is accessible, or else wear a survival suit, particularly when the sea temperature is below 10°C.
- Carry a Personal Locator Beacon (and flares).
- In single engined aircraft, route to minimise the time over water or fly high to increase your glide range. Know the range per 1000 ft of altitude.
- Carefully pre-flight the aircraft and make sure there is enough fuel for all contingencies.
- Before take off, brief passengers on ditching procedures and survival equipment.
- Transmit a Mayday preferably on 121.5 MHz; and select 7700 on the transponder.
- Ditch along the crest of the swell, unless there is a very strong wind.
- Touch-down as slowly as possible – but don't stall.
- Inflate lifejackets once clear of the aircraft cabin.
- Get everyone into the liferaft as quickly as possible and get the cover up.
- Switch on the PLB (or hand held radio, mobile phone).
- If in the water with no liferaft, conserve energy and heat by huddling together to reduce the risk of hypothermia. Remember – the will to live is the single most important factor in surviving until you are rescued.
- Have the other signalling devices e.g. pyrotechnics, heliograph etc ready for use.
- Let the rescuer take control of the actual rescue.