Department of Trade

ACCIDENTS INVESTIGATION BRANCH

Fuji FA 200 G-BEUB

Report on the accident in the sea near Fowey, Cornwall, on 30 July 1979

LONDON
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List of Aircraft Accident Reports issued by AIB in 1979

No	*Short Title*	*Date of Publication*
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2/79	Vickers Viscount Series 802G–AOJF Leeds/Bradford Airport November 1978	January 1980
3/79	Piper PA24 Comanche 180G–ARSC Preston Hitchin Herts December 1978	February 1980
4/79	Rockwell Commander 114HB–NCM Waterloo Farm Nr. Dundry Bristol Sept. 1978.	May 1980
5/79	Cessna 337A (Skymaster) G–ATNY Moel Siabod North Wales June 1979	February 1980

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No	*Short Title*	*Date of Publication*
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2/80	Piper PA 28 (Cherokee) Series 140 G–AYMJ Carlisle Municipal Airport Cumbria November 1978	
3/80	Fuji FA 200 G–BEUB Fowey, Cornwall July 1979	

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Department of Trade
Accidents Investigation Branch
Kingsgate House
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London SW1E 6SJ

18 June 1980

The Rt Honourable John Nott MP
Secretary of State for Trade

Sir

I have the honour to submit the report by Mr P J Bardon, an Inspector of Accidents, on the circumstances of the accident to Fuji FA 200 G–BEUB which occurred in the sea near Fowey, Cornwall, on 30 July 1979.

I have the honour to be
Sir
Your obedient Servant

W H Tench
Chief Inspector of Accidents

Accidents Investigation Branch

Aircraft Accident Report No 3/80
(EW/C 670)

Operator:		Bravo Aviation Limited
Aircraft:	*Type:*	Fuji FA 200
	Model:	180 AO
	Nationality:	United Kingdom
	Registration:	G–BEUB
Place of Accident:		In the sea near Fowey, Cornwall Latitude 50° 18′ 44″N Longitude 04° 40′ 00″W
Date and Time:		30 July 1979 at 0947 hrs
		All times in this report are in GMT

Synopsis

The accident was notified to the Accidents Investigation Branch by the London Air Traffic Control Centre at 1050 hrs on 30 July 1979.

The aircraft was engaged on a low level photographic sortie over the sea and suffered a loss of engine power such that flying speed could only be maintained by descending. The descent was continued until the aircraft struck the water and came to rest floating in a nose-down attitude. The pilot and front seat passenger escaped through the partially open canopy, but attempts to rescue the two rear seat passengers were hindered by the canopy which was found to have slid shut and was under water. One person was extricated before the aircraft sank with the other still on board. A diver recovered the trapped occupant some thirty minutes after the ditching but both rear seat passengers subsequently died in hospital.

The wreckage of the aircraft was recovered the same day and detailed examination revealed no evidence of malfunction or mechanical failure to the engine or other systems. The cause of the partial loss of engine power cannot therefore be determined with any certainty, but the relative humidity and temperature pertaining at the time were conducive to the formation of carburettor ice and this possibility cannot be discounted. The pilot's failure to recognise carburettor icing as a possible reason for the loss of engine power and to take the appropriate action may thus have been a contributory factor. It is also considered that the aircraft's low operating height was a contributory factor.

1. Factual Information

1.1 History of the Flight

The object of the flight was to photograph the start of a Tall Ships race from Fowey in Cornwall to the Isle of Man. The aircraft was being operated from a privately owned field near Fowey and was being flown by an experieced public transport pilot. Also on board was a photographer in the right front seat with two boys aged 12 and 15 respectively in the rear seats. The aircraft carried approximately 80 lbs of baggage and photographic equipment.

Earlier in the day, the aircraft had been flown by the same pilot to St Mawgan where he had had a sight of a meteorological briefing supplied to a public transport flight. From there the aircraft was flown to Plymouth (Roborough) where it was refuelled to full tanks, after which it returned to Fowey where it arrived at 0750 hrs.

At 0900 hrs, the aircraft took off to fly over the start area but because at the time there was little activity among the ships, the flight was curtailed after five minutes in order to conserve fuel since it was the pilot's intention after completing the photographic task to proceed direct to Wycombe Air Park, where the aircraft was normally based.

At approximately 0935 hrs the aircraft took off again and at 200 feet was levelled off and carburettor heat applied for a period which the pilot states was 'a few minutes'. It was then re-selected to COLD.

The aircraft then circled the ships in the vicinity of the harbour entrance at a height described by witnesses as being 'very low' and also in a nose-up attitude. It was then flown towards the sailing vessel *Rona* and a photographic run was made down its port side. The canopy was partially open (and reportedly locked) in order to give the photographer a clear view, though this did result in a high noise level which made communication within the cabin difficult.

On completion of this run, the pilot began to turn away to the left and as he did so, noticed that the airspeed had fallen below his target speed of 90 knots. The speed continued to decay despite further opening of the throttle so the pilot selected full throttle and levelled the wings. By this time the speed had fallen to 70 knots and in order to maintain flying speed, the pilot lowered the nose. At the same time, he selected 15 degrees of flap, his stated purpose for doing so being 'to obtain more lift and help keep the aircraft airborne'.

After a very short period of time, the aircraft struck the water in a relatively level attitude with no attempt being made by the pilot to prepare for or control the ditching or provide any warning to the aircraft's other occupants. The time of the occurrence was 0948 hrs. Two witnesses stated that prior to ditching, the aircraft's engine was faltering.

Immediately after impact, the pilot and front seat passenger escaped through the partially open canopy, but the two boys remained inside. A short while later one of them was extricated by a crewman from one of the sailing vessels and taken by helicopter to

hospital together with the pilot and photographer. The other boy remained in the aircraft, which had by then sunk and was resting on the sea bed in 55 feet of water. He was later extricated by a naval diver some 30 minutes after the ditching and taken to hospital, where he died shortly after admission. The first boy also died 21 days afterwards from the effects of his immersion.

The aircraft was recovered later in the day by a naval diving tender and taken ashore. Though one of the divers who went down to the aircraft later reported that it appeared only slightly damaged, it nevertheless sustained substantial damage during recovery due to adverse weather conditions at the time.

1.2 Injuries to Persons

Injuries	Crew	Passengers	Others
Fatal	–	2	–
Serious	–	–	–
Minor/None	1	1	

1.3 Damage to Aircraft

Substantially damaged during recovery.

1.4 Other Damage

None

1.5 Personnel Information

(a)	*Commander:*	Male
	Age:	33
	Licence:	Airline Transport Pilot's Licence valid until 16 September 1979
	Medical:	Class 1 certificate, date of last examination 6 June 1979
	Total flying experience:	5,500 hours
	Total hours on type:	38
	Previous duty times:	Not applicable
	Types of aircraft as pilot in command (part 1):	PA 23, Trident, Viscount
	Types of aircraft on Private Pilot's Licence:	Landplanes in Group A and B

(b) Summary of Flying Hours – Piston Engined Aircraft

Type	Pilot in Command	Second Pilot
Chipmunk	105 hours	49 hours
Apache	50 hours	31 hours
Cherokee		10 hours
Baron		5 hours
Fuji	38 hours	10 hours

The flying hours summarised in sub-paragraph (b) were, with the exception of the Fuji, flown at an approved flying school during a Commercial Pilot's Licence Course.

1.6 Aircraft Information

(a) Type:	Fuji FA–200–180AO (Firefly)
Date of Manufacture:	1977
Engine:	Lycoming 0–360–A5AD
Certificate of Airworthiness:	Valid until 21 July 1979
Maintenance:	The aircraft had been maintained in accordance with an approved schedule
Flying hours:	240 as at 23 June 1979
(b) Maximum weight authorised:	
(Normal category):	2510 lbs
Estimated take-off weight:	2430 lbs assuming an approximate weight of fuel on board of 260 lbs
Maximum weight authorised with canopy open:	2315 lbs
Centre of gravity range: (Normal category)	Forward limit 97.95 ins aft of datum – 26.6% of Mean Aerodynamic Cord (MAC). Aft limit 103.58 ins aft of the datum – 36.0% MAC
Estimated centre of gravity:	102.1 ins aft of the datum – 33.55% MAC
(c) Fuel:	Avgas 100 LL. A sample check conformed to specification

(d) Low engine rpm were reported on 21 June 1979 but a subsequent check on the engine was satisfactory.

(e) The aircraft's Flight Manual was not on board and nor was it required to be. However a check list was carried though it was noted that this did not contain the actions specified in the Flight Manual to be taken in the event of an engine power loss.

1.7 Meteorological Information

(a) The only weather information obtained by the pilot on the day of the accident was from a sight of a meteorological briefing supplied to a public transport aircraft at St Mawgan. The details of the briefing are not known.

(b) An aftercast prepared by the Meteorological Office for the period 0700 to 1030 hrs on 30 July 1979 included the information that a moist westerly airstream covered the area, which gradually backed to the South West as an occluded front approached. The weather was generally cloudy, with 1 to 3 oktas of stratus at 500 to 800 feet amsl. The visibility was 20 km but 5000 m in drizzle. The relative humidity between 500 and 3000 feet would have been 85–90%, but approaching 100% in drizzle and near the cloudbase. The air temperature at 500 feet amsl was approximately 15 °C.

(c) The weather recorded at the climatological station at Fowey at 0900 hrs on the day of the accident was as follows:

(i) Cloud: 7 oktas of stratiform type above 5000 feet, a few fragments cumuliform estimated 1200–1500 feet;

(ii) Wind: From 160 degrees at 5 knots;

(iii) Visibility: Over 15 nm;

(iv) Temperatures:

Dry bulb	15.9 degrees centigrade
Wet bulb	15.1 degrees centigrade
Dewpoint	14.5 degrees centigrade

(v) Relative humidity: 91.5%;

(vi) Vapour pressure: 16.5%;

(vii) Sea temperature: 14 degrees centigrade.

(d) The accident occurred in daylight in clear conditions.

1.8 Aids to Navigation

Not applicable.

1.9 Communications

Not applicable.

1.10 Aerodrome Information

Not applicable.

1.11 Flight Recorders

None required and none fitted.

1.12 Examination of the Wreckage

(a) On Site Examination

From the evidence of the police divers who inspected the wreckage whilst it was still on the sea bed, it appears that the aircraft sustained only light damage during the ditching. This was confirmed on later examination after the aircraft had been brought ashore, when it was determined that the damage resulting from the ditching appeared to be confined to the outer starboard wing leading edge and to distortion of the starboard side of the engine cowling. This damage suggests that the aircraft was slightly banked to the right when it entered the water.

The aircraft was extensively damaged during recovery from the sea and subsequent removal to the quayside at Fowey. A preliminary inspection of the aircraft was made at this stage together with an external examination of the engine, including the removal of those sparking plugs that were accessible. No abnormalities were found with respect to the engine. However it was noted that the airframe fuel filter had been broken open, but this was considered to have occurred during impact with the water since the damage appeared to be associated with the distortion of the cowling. A sludgy deposit on some of the sparking plugs was attributed to the ingestion of sea water, large quantities of which were expelled from the engine oil breather system when the engine was rotated by hand.

The cabin was examined on the quayside and the post impact positions of the instruments and controls were noted. The following items are considered to be significant: fuel selector to right-hand tank, ignition on both, master switch on, boost pump on, carburettor hot air control set to cold, throttle at fully open position, mixture at full rich position, flap set to 15°, radio off, primer in.

(b) Subsequent Detailed Examination of Wreckage

This examination was confined primarily to the engine and related systems, concentrating on the fuel systems and the ignition systems. The engine was stripped and examined but no abnormalities of any significance were found. The air frame fuel system was examined and found to be free of obstruction. Both fuel pumps were found to function satisfactorily. The fuel system was progressively dismantled from the wing root areas forward. The system was found to contain no fuel in significant quantity although the aircraft fuel tanks were almost full. The carburettor was removed and examined and was found to be full of sea water, together with a considerable quantity of sludge and powdery deposits. These deposits were

examined by using an X-ray fluorescence machine. All the elements found during the analysis were constituent elements to be found either in the materials used in the construction of the carburettor, or sea water, or aviation gasoline, ie there were no elements suggesting contamination of the fuel system. The seat back lock mechanism on the left-hand (pilot's) seat was found on inspection to be jammed. This jamming was caused by binding of the lock pins in the seat frame.

1.13 Medical and Pathological Information

There was no evidence of any medical condition that could have been a contributory factor to the accident. The death of the two rear seat passengers was due to drowning in one case and adult respiratory distress syndrome in the other case some 21 days after the accident.

1.14 Fire

There was no fire.

1.15 Survival Aspects

The passengers were briefed on the operation of the backs of the two front seats which could be moved forward to permit access to the rear seats, and were warned that the catches were stiff, particularly the one on the port side. There was no emergency or life jacket briefing given, and although life jackets were carried in the aircraft, none were being worn.

There was apparently no warning given to the passengers that a problem existed or that the aircraft was about to ditch and on impact the cockpit immediately started to fill with water. The pilot and front seat passenger managed to escape to the surface through the open canopy, the passenger experiencing difficulty and some delay in disentangling his camera straps from his harness. The aircraft had quickly adopted a steep nose-down attitude in the water with approximately eight feet of the rear fuselage behind the canopy standing out of the sea.

The pilot returned to the aircraft and found that neither of the two boys had emerged. The canopy was by this time under the water and apparently locked shut. He called out to the crew of one of the sailing vessels, *Rona,* which had manoeuvred alongside, that two passengers were still in the aircraft. He continued his efforts to open the canopy but was unsuccessful. The watch officer and the navigating officer of the *Rona* jumped into the water to give assistance. The navigating officer secured a line to what he described as a ring on the side of the aircraft, whilst the watch officer attempted to open the canopy. Having twice failed to move it using the handle, he succeeded on the third occasion in opening it by about an inch. Placing his toes in the gap, and his hands under the lip of the canopy, he eventually managed to open it using all his strength. Reaching inside the cabin, his hand contacted a leg, which appeared to be trapped and which he could not release. He reached around again and contacted the other passenger, whom he was able to pull clear. Whilst holding this boy, he made a further attempt to release the other passenger, but was unsuccessful. At this point his breath gave out and he returned to the surface with one of the boys in his arms. He was met by the navigating officer who immediately began to apply artificial respiration. A short while later, the boy was

transferred to a rubber inflatable where resuscitation was continued. The watch officer dived once again to the aircraft, but had to return to the surface. The aircraft then sank an estimated seven minutes after the ditching, the line attaching it to the *Rona* becoming detached as it did so.

Shortly after this a police marine patrol arrived, having observed a red flare that had been fired by one of the boats in the vicinity. They embarked a fully equipped civilian diver from a nearby boat who attempted to locate the aircraft, but was unsuccessful. The response of the police marine patrol had been delayed because their craft's radio was unable to operate on the appropriate maritime frequency.

Also about this time two helicopters from RNAS Culdrose arrived at 1005 and 1010 hrs respectively in response to an earlier call by the Fowey Coastguard at 0948 hrs. The three survivors who had been taken aboard various vessels in the vicinity were transferred to the helicopters and taken to hospital. At 1020 hrs a third helicopter arrived from Culdrose with a Royal Navy diver on board who without delay jumped into the sea and quickly located the wreckage which was lying inverted on the sea bed in 55 feet of water. He freed the remaining occupant and brought him to the surface in a matter of minutes. He was immediately winched into the helicopter and taken to hospital. However he died shortly after admission. The other boy died twenty one days later from the effects of his immersion.

It is concluded that the accident was survivable despite the fact that two of the aircraft's occupants died. Had the rear seat passengers been briefed on the ditching drill prior to flight and been warned of the ditching when it was impending, their chances of survival might have been increased, particularly if the canopy had been fully opened and locked before the aircraft entered the water, though it is recognised that the pilot had very little time to do this.

1.16 Tests and Research

Two flights in Fuji aircraft of a different series but essentially the same configuration were made with the canopy open to the fourth red mark (as on the subject aircraft) and with 15 degrees of flap extended. At a weight of approximately 350 lbs less than the all up weight of G–BEUB at the time of the accident and at 1700 rpm a rate of descent was observed of just over 500 feet per minute (fpm) at 70 kts: at idle power the rate of descent was 730 fpm. On one aircraft the stall warning horn was inaudible due to wind noise, and there was found to be no distinctive buffet on approaching the stall in this configuration.

1.17 Additional Information

1.17.1 Action in the Event of Engine Power Loss

The Flight Manual drill in the event of engine power loss, the cause of which is specifically related to either fuel system blockage or carburettor icing, is as follows:

Fuel booster pump	–	ON
Fuel selector valve	–	Turn to other tank
Mixture level	–	RICH
Carburettor heat	–	HOT
Primer	–	Lock
Ignition Switch	–	BOTH

1.17.2 Flight with Canopy Open

The gross weight limitation for take-off with the canopy open of 2315 lbs was imposed to restore the rate of climb to the value obtained with the canopy closed at 2510 lbs.

1.17.3 Canopy and Flap Position for Forced Landing

In the event of a forced landing following a loss of engine power, the Flight Manual states that the canopy should be locked fully open and full flap selected on touch down.

1.17.4 Fuji Canopy Locking Mechanism

The canopy locking mechanism basically consists of handles on the front exterior and interior of the canopy which are interconnected and which control a hook-shaped latch and pins that extend from the sliding runners of the canopy.

To close the canopy it is slid forward until the latch engages in a slot on the aft face of the windscreen frame with the handle in the unlocked (athwartships) position. The latch is spring loaded so that when it located in the slot, the hook will engage automatically. Turning the handle to the locked (fore and aft) position applies tension to the latch and draws the canopy tight against the windscreen frame. If the canopy is to be locked open at any of the specified intermediate positions this action also extends pins from the bottom of the canopy sliding runners which locate in holes at appropriate points on the track.

To unlock a closed canopy from outside the aircraft the handle is rotated clockwise to the arthwartships position and this releases the tension on the latch so that the canopy can be moved back an inch or so, but the latch remains engaged. The handle must be turned a further 10–15 degrees against a spring to disengage the latch before the canopy can be opened. (See Appendix A) This information is placarded adjacent to both handles.

When the canopy is locked open and the pins engaged, turning the handle to the OPEN position will withdraw the pins and the canopy is then free to slide. If for some reason the canopy slid fully forward the latch would engage into the windscreen frame against its own spring and would not disengage until the handle was rotated a further 10–15 degrees against the spring.

1.17.5 Carburettor Icing

A chart showing the probability of icing with a float type carburettor is given at Appendix B. This shows that at the time of the accident, the meteorological conditions were conducive to serious icing at any engine power setting.

1.17.6 Aircraft Operating Height

A number of photographs were taken of the start of the race by a spectator standing on a nearby cliff top. The aircraft can be clearly seen in the photographs and an expert analysis was made to determine its operating height. This was deduced to be between 90 and 125 feet at the time the various photographs were taken. It was not possible to determine from the photographs whether the aircraft was being flown in contravention of Rule 5(e) of the Rules of the Air which states that an aircraft shall not fly 'closer than 500 feet to any person, vessel, vehicle or structure'. However the flight may have been in contravention of Rule 5(d) which states that 'an aircraft shall not fly over or within 3,000 feet of any assembly in the open air of more than 1,000 persons assembled for the purpose of witnessing or participating in any organised event, except with the permission of the Authority .....'. There is no evidence that the number of people present exceeded 1,000.

2. Analysis

Certificate of Airworthiness

Though the aircraft's certificate of airworthiness was out of date by nine days at the time of the accident, this is not considered to have been due to lax maintenance procedures but to a simple oversight brought about by recent changes in the period of validity for certain categories of aircraft and had no bearing on the accident.

Engine Power Loss

An examination of the engine and its associated fuel and ignition systems did not indicate that the engine power loss was due to any mechanical failure or malfunction. The settings of the cockpit controls as found in the wreckage were consistent with the pilot's recollection, and with the exception of the carburettor heat control, were in conformity with the settings recommended in the Flight Manual in the event of engine power loss. The pilot states that he did not select the carburettor heat control to HOT when he first became aware that there was no engine response to his application of throttle since it did not occur to him to do so for reasons which are discussed later. It would seem to be beyond dispute that this was the correct action in the circumstances since not only was it prescribed by the engine power loss drill but also because the lack of throttle response could have been indicative of carburettor ice. The meteorological conditions were certainly conducive to its formation as can be seen from the graph at Appendix B and the possibility that this was the reason for the loss in engine power must be strong.

Pilot Experience

The failure of the pilot to suspect carburettor icing as the reason for the loss of engine power and to take the appropriate action, despite his considerable flying experience, appears to have had its origins in his training. Most of the flying that he had done since qualifying as a pilot had been on jet and turbo propeller aircraft, and it follows that not only did he have little or no experience of normally aspirated engines during that time, but also and possibly more importantly he was unaware of the considerable emphasis and publicity that has been given during recent years to the phenomenon of carburettor icing. During his pilot training the emphasis appears to have been on preventive action by the strict application of drills involving the use of the carburettor heat control. Thus it transpired that throughout the whole of his training and the small amount of flying he had done since on piston engine aircraft, the pilot never knowingly experienced carburettor icing or became aware of its symptoms. It is therefore understandable, though not necessarily excusable, that at the time when the engine began to lose power, the possibility of carburettor icing being the cause simply did not occur to him.

Though the Fuji 200 is a relatively simple aircraft to operate compared with the larger types flown by the pilot in his professional capacity, it does nevertheless operate in a substantially diffferent environment and to different criteria. The apparent simplicity of the operation may therefore result in a misplaced confidence on the part of an

experienced public transport pilot not regularly acquainted with light aircraft aviation. One can point to a number of accidents in recent years to light aircraft flown by public transport pilots which tend to support this view.

The Ditching

At no time did the pilot appear to accept that the ditching was inevitable. As a consequence, he did not prepare the aircraft for landing on the water nor did he give any warning to the passengers. It is recognised that because of the low height of the aircraft, he had very little time but nevertheless a brief shouted warning would have been better than nothing, notwithstanding the high noise level in the cabin. As it was, the pilot simply allowed the aircraft to fly into the sea with 15 degrees of flap set and the canopy partially open. The pilot's selection of partial flap at this stage was hardly likely to achieve his stated purpose of helping to keep the aircraft airborne, since all it would do would have been to steepen the descent angle. With the benefit of hindsight, it can be seen that at this stage he would have been better employed preparing the aircraft for ditching in accordance with the forced landing drill contained in the Flight Manual.

Whether or not the application of this drill would have materially altered the outcome is difficult to judge, but it is considered that at least it would have given the two boys in the rear seats a better chance of escaping from the aircraft than was the case, particularly if they had been given prior warning. As it was the partially open canopy covered the backs of the front seats, and would still have hindered escape even if the seat backs had been lowered. There is no evidence that the boys tried to lower the seat backs, the catches of which they knew to be stiff to operate.

The Rescue Attempt

Given that the circumstances of the ditching were less than satisfactory and that the rear seat passengers were thus placed in a situation from which it was virtually impossible to extricate themselves, it appears that thereafter practically everything that could be done to save the boys was done. In particular, the actions of the two officers from the sailing vessel *Rona* are to be commended as are those of the Royal Navy diver who subsequently located the wreckage on the sea bed and brought the second boy to the surface.

Notwithstanding these efforts, the fact remains that the police marine patrol could have been on the scene earlier, and perhaps before the aircraft sank, had its radio been able to operate on the marine frequency. Whether or not the police crew would have been able to achieve anything more than was in fact achieved had they been on the scene earlier is a matter for conjecture, but clearly this must remain a possibility. It is considered essential therefore that whenever the police are operating on the water in support of an organised event they must be capable of communicating by radio with the coastguard on the appropriate frequency. Since the accident the Devon and Cornwall Police have equipped their marine patrol craft with a transceiver capable of operating on the coastguard frequency.

Life Jackets

Since the flight was to be made over the sea at low level in a single engine aircraft, commonsense suggests that the pilot should have insisted that his passengers wear the

life jackets that happened to be available, particularly bearing in mind the ages of the two boys in the rear seat. It is acknowledged that there was no legal requirement that life jackets should have been worn or even available nor is it being suggested that had they been worn that the outcome would have been any different. The point is made as a further illustration of the apparent lack of anticipation on the part of the pilot of the flight safety aspects that he should reasonably have had in mind before making a flight of this nature and accepting responsibility for the safety of his passengers.

3. Conclusions

(a) *Findings*

(i) The aircraft had been maintained in accordance with an approved maintenance schedule. Its Certificate of Airworthiness was nine days out of date.

(ii) No technical defect or mechanical malfunction was found in the aircraft, its engine or equipment other than the left hand front seat back lock mechanism which was stiff to operate.

(iii) The pilot held a valid airline transport pilot's licence and was permitted by current legislation to fly in command of the aircraft with passengers on a private flight. However his recent experience of flying this category of aircraft was limited and was a contributory factor to the accident.

(iv) The engine suffered a partial loss in power such that level flight could not be sustained.

(v) The reason for the loss of engine power was not determined, but the possibility of carburettor icing being the cause cannot be discounted since the prevailing meteorological conditions were highly favourable to its formation, of which the pilot was unaware.

(vi) The pilot was unfamiliar with the symptoms of carburettor icing and accordingly took no action to correct for it when the possibility of its occurrence should have been suspected.

(vii) There was sufficient time available for the pilot to have recognised that a ditching was inevitable and for him to have landed the aircraft on the water in a controlled manner. Also had he recognised soon enough that a ditching was unavoidable there was sufficient time for the pilot to have given some warning to the passengers.

(b) *Cause*

The accident was caused by a significant loss of engine power at a time when the aircraft was operating at a low height over the sea in conditions that were highly conducive to the formation of serious carburettor ice, of which the pilot seemed to be unaware. His failure to take the necessary preventive action or to recognise the symptoms of the engine power loss as being possibly associated with carburettor icing may thus have been a contributory factor.

4. Safety Recommendations

It is recommended that:

4.1 Future revisions of Aeronautical Information Circular 31/77, entitled 'The Effect of Icing in Piston Engines' should incorporate a carburettor icing probability chart, an example of which appears at Appendix B.

P J BARDON
Inspector of Accidents

Accidents Investigation Branch
Department of Trade

June 1980

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