

No: 8/90 **Ref: EW/C1164** **Category: 1b**

Aircraft Type and Registration: Cessna 404, G-DAFS

No & Type of Engines: 2 Continental GTSIO-520-M piston engines

Year of Manufacture: 1980

Date and Time (UTC): 31 May 1990 at 0918 hrs

Location: Approximately 5 nm east of the coast of Colonsay, Scotland

Type of Flight: Commercial (Fisheries Protection)

Persons on Board: Crew - 3 Passengers - None

Injuries: Crew - 3 (2 minor 1 serious) Passengers - N/A

Nature of Damage: Aircraft destroyed - ditched and sank

Commander's Licence: Airline Transport Pilot's Licence

Commander's Age: 53 years

Commander's Total Flying Experience: 8000 hours (of which 1800 hours were on type)

Information Source: AAIB Field Investigation

G-DAFS was a Cessna 404 Titan aircraft that had been modified to carry out Fisheries Protection flights. The modifications included the installation of radar with an external pod under the centre fuselage section and the addition of a High Frequency (HF) radio aerial extending from the cockpit roof to the top of the fin. These modifications had been completed in September 1984 after which a full airworthiness flight test was carried out. Single engine climb performance was satisfactory, as were all other requirements and the Certificate of Airworthiness was renewed. Since this date the aircraft has been in regular use on fisheries protection flights.

G-DAFS was based at Edinburgh Airport and was tasked weekly for flights over specified coastal water areas. The maximum permitted take off weight for the Cessna 404 is 8400 lbs and this aircraft was operated by a standard crew of two pilots and a radar observer. The radar observer also operated the HF radio flight watch frequency and doubled as the photographer. On fisheries protection flights the aircraft was operated at a standard take off weight of 8319 lbs. The emergency equipment consisted of a 5-man dinghy, life jackets fitted with SARBE for each crew member, and an Emergency Location Transmitter (ELT). Immersion suits were available for all crew members but were usually worn only when the forecast sea temperature was below 10 degrees Celsius. Patrols were generally flown at 200 feet above mean sea level (under a special CAA exemption) and it was normal practice, in order to

improve manoeuvrability at low level, for pilots to use take off or approach flap and fly the aircraft manually at about 130 knots.

On the day of the accident, G-DAFS took off from Edinburgh Airport at 0832 hrs having filed an IFR flight plan which showed an intended transit direct to Tiree at Flight Level (FL) 85, a descent to less than 500 feet for the protection sortie task, and the final destination as Stornoway. The aircraft was operated at the standard weight and fuel load giving a total flight endurance of 8 hours. The weather conditions were overcast, however the forecast for the operational area off the western isles was for no cloud below 1000 feet, nil weather, and light winds. The transit across southern Scotland was normal and during this time two way radio contact was established on the HF flight watch frequency and thereafter 'ops normal' calls were to be transmitted every 30 minutes. At 0859 hrs the aircraft was cleared to descend into the operational area, and at 0902 hours reported passing 3500 feet, fully visual and continuing descent below 500 feet.

The pilots have reported that as the aircraft was descended to 200 feet several targets were sighted and a pass was made alongside the first trawler. Flap was lowered to the take off position and as speed reduced to about 130 knots and the aircraft was being positioned for a pass alongside a second trawler the right side engine began running rough with, what the first officer described as a dull banging sound. He also noted a discrepancy between the manifold pressures and propeller revolutions between the engines. It was therefore decided to abort the sortie and divert to Islay Port Ellen. The radar observer transmitted this intention on the HF flight watch frequency and the message was acknowledged. The commander selected all power levers fully forward, selected the flaps up and initiated a climb. The aircraft zoomed to about 300 feet as speed reduced to 109 knots (blue line speed for maximum climb), but then the aircraft started to descend. Suspecting that the right hand engine was producing drag the commander ordered it to be shut down. This was carried out by the first officer and all three crew members recall seeing the right side propeller fully feathered. However even though the left engine appeared to be producing maximum power the aircraft failed to accelerate and climb away, but continued to descend. Realising that there was insufficient height in which to lower the nose to increase airspeed and that a ditching was imminent, the commander allowed the speed to further reduce to about 80 knots and put the aircraft down into wind and into a slight sea swell. It did not bounce, but stopped rapidly and initially remained afloat. The three crew members were able to release themselves and get on to the left wing where they inflated their life jackets and launched the dinghy. At the same time the aircraft started to sink and they were forced to enter the sea before boarding the dinghy. During inflation and launching the dinghy took on a considerable amount of sea water.

The aircraft had disappeared from radar coverage at approximately 0916 hrs with the transponder height showing 100 feet. After repeated but unsuccessful attempts to contact the aircraft Scottish ATC alerted the Distress & Diversion cell and a Search and Rescue Sea King helicopter was launched from Prestwick. The dinghy was located and the crew were winched aboard the helicopter and flown directly to a hospital in Kilmarnock. They had been in the sea for about 40 minutes and all were suffering from the onset of hypothermia. The sea temperature is estimated to have been 11 degrees Celsius. No crew member had been wearing an immersion suit.

The aircraft was not recovered from the sea bed and it was not possible to determine the reason for the apparent failure of the right hand engine. Some time after the accident the left hand engine was trawled up. Examination of this engine showed no evidence of pre-crash failure, however after its prolonged immersion in salt water it was not considered possible to determine whether or not it had been capable of producing full power.

The aircraft had a current Certificate of Airworthiness and had been correctly maintained. The right hand engine had been installed as new on 22 May 1990 and, at the time of the accident, had achieved 40 hours. Fuel samples were taken from the re-fuelling installation at Edinburgh and found to be of the correct specification and uncontaminated.

Information Source:	Aircraft Accident Report Form submitted by the pilot
Commander's Total Flying Experience:	2,276 hours (of which 120 were on type)
Commander's Age:	57 years
Commander's Licence:	Private Pilot's Licence with Instrument rating
Nature of Damage:	Minor damage to left wing, fuselage and tail area. Damage to left landing gear.
Injuries:	Crew - None Passengers - None
Persons on Board:	Crew - 1 Passengers - 3
Type of Flight:	Private
Location:	Thurrock Airfield, Essex

Having cleared customs at Southend Airport, on an inbound flight from Le Touquet, the pilot took-off for Thurrock Airfield. The weather was generally fine, but he was aware of a storm situated to the north of his track. It was assumed that the storm was heading towards Thurrock and he considered that he could land safely before it arrived. An approach was made to runway 22, a smooth grass strip 600 metres in length. The surface wind was reported as light from the south-west. The touchdown was normal but as soon as he applied brake, it became obvious to the pilot that the runway surface was wet and very slippery, the storm having, in fact, already passed over the airfield. He realised that he would not be able to stop before the end and so decided to 'ground loop' the aircraft, a manoeuvre which was only partially successful as it continued to the left and came to rest with the left wing in a hedge on the southern edge of the runway.

The pilot and passengers were uninjured and disembarked in the normal manner.