Gardan GY80-150, G-ATXF

AAIB Bulletin No: 9/97 Ref: EW/G97/06/03Category: 1.3

Aircraft Type and Registration:	Gardan GY80-150, G-ATXF
No & Type of Engines:	1 Lycoming O-320-A3B piston engine
Year of Manufacture:	1964
Date & Time (UTC):	7 June 1997 at 0900 hrs
Location:	Near Alderney Lighthouse, Channel Islands
Type of Flight:	Private
Persons on Board:	Crew - 1 - Passengers - None
Injuries:	Crew - None - Passengers - N/A
Nature of Damage:	Aircraft sank and not recovered
Commander's Licence:	Private Pilot's Licence
Commander's Age:	54 years
Commander's Flying Experience:	196 hours (of which 89 hours were on type)
	Last 90 days - 45 hours
	Last 28 days - 24 hours
Information Source:	Aircraft Accident Report Form submitted by the pilot and further enquiries by the AAIB

History of the flight

The pilot intended to fly to Montelimar in France to attend afly-in for Gardan Horizon aircraft. His original plan had beento depart Popham, Hampshire at 1800 hrs the previous evening,but strong winds of 20 kt minimum were forecast and he decidedto delay the flight until the following morning.

At 0700 hrs the next morning he filed a VFR flight plan for thefirst sector of the route which was to Jersey where he intendedto refuel. As a synoptic weather chart for the route was notavailable at Popham that early in the morning, he decided to planhis route using a 10 kt headwind and estimated his flight timeas 1 hour and 30 minutes. This would have been equivalent toa ground distance of 121 nm and was a reasonably accurateassessment of the actual distance to Jersey. The surface windat Popham at that time was given as light and variable.

The pilot stated that his version of the Gardan Horizon has amaximum fuel capacity of 35 gallons. The pilot used a Universalfuel gauge and a chart, which had been constructed by the previousowner of the aircraft, to determine that he had a total fuel loadof 16 gallons which at a consumption rate of 7·5 gallonsper hour he interpreted as an endurance on departure of some twohours. The pilot later stated that he was reluctant to fuel theaircraft to its full capacity as he believed it had a tendencyto siphon fuel through the tank vents when full. In additionhe considered the aircraft fuel gauges to be highly inaccuratewhen the tanks were less than half full.

The engine was started at 0815 hrs and the aircraft was taxiedout without undue delay for a take off on Runway 21. After takeoff, the pilot observed that the top latch of the door had sprungopen; this was not an uncommon occurrence in this aircraft, andso he carried out a circuit of the airfield and landed back onRunway 26. After landing, he closed the door and taxied aroundfor a further take off on Runway 26, finally getting airbornefor Jersey at 0837 hrs.

The first part of the flight was flown at 1,000 feet until southof the Needles at which stage a climb was made to 2,000 feet. At 0943 hrs radio communication was established with Jersey Zonewhen the aircraft was radar identified at 50_N which is the northernboundary of the Channel Islands Control Area (CTA).

At 0947 hrs, the pilot called ATC to request a diversion to Alderneyas he required to refuel due to the head winds. Permission wasgranted for the diversion and he was cleared under Special VFR(SVFR) maintaining 2,000 feet direct to Alderney on his own navigation. The controller suggested a heading of 230°. At 0949 hourscontrol was passed to Alderney at which time the aircraft was13 nm from the airfield. At 1000 hrs Alderney cleared the aircraftto report on final approach for Runway 26, the surface wind being180_/18 kt. Less than a minute later the pilot made a MAYDAYcall to the effect that his engine had failed, he was runningout of fuel and was then one mile to the north of the island. After being cleared to land on any runway he then advised thathe would have to ditch the aircraft.

During the glide to the surface, the pilot saw a fishing boattowards which he turned the aircraft and ditched within 200 yardsof it along the swell. It took at least a minute for the waterlevel inside the aircraft to equalise with that outside and soallow the pilot to open the door. During this time he was ableto unfasten his harness and generally prepare himself. Once hehad opened the door he stood on the wing and attempted to retrievehis flight bag, however, the aircraft then pitched steeply nosedown and sank. The pilot then inflated his life jacket and swamclear; he was rescued by the crew of the fishing boat less thaneight minutes later.

Flight Planning

The wind at 2,000 feet altitude at the time of the flight was200_/30 kt. Although the track to Alderney was not always directlyinto the wind, analysis of the radar data (obtained by the AAIBfor the flight) allows an estimation of the average overall groundspeedas 72 kt. On occasion the aircraft's groundspeed fell to as littleas 58 kt. For a direct route to Jersey from Popham via the reportingpoint ORTAC, the total distance is approximately 123 nm which,at an IAS of 90 kt and 10 kt of headwind, would take 1 hourand 31 minutes. However, using a headwind of 20 kt or the averagegroundspeed of 72 kt that has been calculated for this flight, the flight time would have been 1 hour and 44 minutes. Takinginto account the extra circuit that was flown at the beginningof the flight, which took 22 minutes from engine start tofinal take off for Jersey, minimum fuel required without reserveswould have been 2 hours and 6 minutes. Given a calculated consumption of 7.5 gallons per hour this is equivalent to 16·8gallons. The pilot calculated that he had 16 gallons

on boardat engine start. In summary, the consumption of 22 minutes offuel endurance before the start of the flight had reduced theplanned fuel reserves to only 8 minutes. This calculation beingbased on the pilot's estimated time en route of 1 hour and 30minutes, allowing for a 10 kt head wind, and a reserve of 30 minutes.

In the event, the engine ran for 1 hour and 46 minutes beforestopping which would indicate that the actual consumption ratewas closer to 9 gallons per hour, assuming that the assessmentof a departure fuel state of 16 gallons was accurate. Takingaccount of the pilot's estimate of 140 lbs of baggage on boardthe aircraft, an increase in the usual fuel consumption mightbe expected.