
ACCIDENTS INVESTIGATION BRANCH
Department of Trade and Industry

Piper PA 19 G—AYPN
Report on the accident at Ditcham Woods near
Petersfield, Hampshire on 28 August 1971

LONDON: HER MAJESTY'S STATIONERY OFFICE
1972

List of Civil Aircraft Accident Reports issued by AIB in 1972

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11/72	Beagle 206 Series G—AVAM at Jersey Airport, Channel Isles, August 1970	June 1972
12/72	Piper PA 22 Series 150 Tri-Pacer G—APXS at Kingsdown, Kent, June 1971	July 1972
13/72	Piper PA 19 G—AYPN at Ditcham Woods near Petersfield, Hampshire, August 1971	October 1972

Department of Trade and Industry
Accidents Investigation Branch
Shell Mex House
Strand
London WC2R 0DP

27 July 1972

The Rt Honourable John Davies MBE MP
Secretary of State for Trade and Industry

Sir,

I have the honour to submit the report by Mr G M Kelly, an Inspector of Accidents, on the circumstances of the accident to Piper PA 19 G—AYPN which occurred at Ditcham Woods near Petersfield, Hampshire on 28 August 1971.

I have the honour to be
Sir
Your obedient Servant

V A M HUNT
Chief Inspector of Accidents

Accidents Investigation Branch

Civil Accident Report No EW/C392

Aircraft: Piper PA 19 G–AYPN
Engine: Continental C 90
Registered Owner: Air Tows Limited
Operator: Lasham Gliding Society
Pilot: Mr A J Slade – Killed
Passenger: One – Killed
Place of Accident: Ditcham Woods near Petersfield, Hampshire
Date and Time: 28 August 1971 at approximately 1215 hrs

All times in this report are GMT

Summary

The aircraft was on a private local flight from Lasham aerodrome. After take-off it completed a circuit before flying away in a southerly direction. It was two days before it was realised that the aircraft had failed to return from this flight and had not landed elsewhere.

The wreckage was eventually discovered in a wood 15nm south of the aerodrome on 31 October 1971. The aircraft had dived into the tops of the trees at a very steep angle and both occupants had been killed instantly. The report concludes that the pilot, flying low in turbulent conditions and poor visibility, was forced to enter cloud to avoid overhead power cables and that he became unable to control the aircraft in cloud because it lacked blind flying instruments.

The report notes that the delays in recognising the aircraft's disappearance and in discovering the wreckage stemmed from the circumstances that the accident was not heard or seen by anyone and that the aircraft's movements were not logged at the point of departure. The search and rescue authorities were thus hindered by a lack of reliable information about the activities of the aircraft or the pilot's intentions.

Technical examination of the wreckage revealed a fatigue crack in the cabin heat exchanger but the evidence was insufficient to indicate whether or not toxic fumes were present in the aircraft cabin.

1. Investigation

1.1 History of the flight

The aircraft took off from Lasham aerodrome at approximately 1130 hrs on a private local flight. After take-off the aircraft climbed straight ahead on a westerly heading and momentarily disappeared at about 700-800 feet into the base of the low cloud. Having regained visual flight the aircraft made a left hand circuit of the aerodrome and commenced what appeared to be an approach to land. However, before completing the final approach it started to climb away again and having turned left was last seen leaving the circuit and heading in a southerly direction. It was later seen over the northern outskirts of Petersfield flying south just below the cloud base at a height of about 200-300 feet. Two other eye-witnesses saw the aircraft over the village of Buriton at which time it was still flying south towards the Buriton railway tunnel. Although rocked by turbulence it did not appear to be in any difficulty. A fourth eye-witness standing on the high ground over the middle of the railway tunnel saw the aircraft appear from the north flying very low over the trees. As it passed it suddenly tilted to the left as though it had been hit by a gust of wind. Having righted itself it continued flying south down the valley through which the railway runs and appeared to be maintaining visual contact with the ground although the cloud base was getting lower. Just after it had gone out of sight in the poor visibility the engine note was heard to increase but a passing train then drowned any further sound from the aircraft and it was not seen or heard again. The witness was concerned enough to note that the time was 1212 hrs. He later searched the woods but did not go as far south as the accident site.

It was not until 30 August 1971 that the officials at Lasham came to realise that the aircraft had failed to return from its flight and had not landed safely elsewhere. The wreckage was discovered on 31 October 1971 in a heavily wooded area about four miles south of Petersfield and just over one mile south of the Buriton railway tunnel. The two occupants had been killed on impact and were still strapped to their seats. There had been no fire.

1.2 Injuries to persons

<i>Injuries</i>	<i>Crew</i>	<i>Passengers</i>	<i>Others</i>
Fatal	1	1	—
Non-fatal	—	—	—
None	—	—	—

1.3 Damage to aircraft

Destroyed.

1.4 Other damage

There was minor damage to several trees.

1.5 Crew information

Mr A J Slade, aged 25, held a valid private pilot's licence endorsed for Group A aircraft but without Instrument Meteorological Conditions (IMC) or night ratings. He was last medically examined for the issue of his licence on 5 June 1971. At the time of the accident he had flown 94 hours on powered aircraft of which 31 hours had been on PA 18 or PA 19 aircraft, mostly while towing gliders. Mr Slade was also a qualified glider pilot having been awarded his silver 'C' Certificate in July 1969. He had accumulated 82 hours gliding experience, nearly all from the Lasham gliding centre.

1.6 Aircraft information

The aircraft was a tandem two-seater, single engined, high wing monoplane. It was used mainly for providing aero-tow launches for gliders. When it was surplus to towing requirements the tug pilots were allowed to use it for private purposes.

It had been built by the Piper Aircraft Corporation, United States of America, as a military aircraft and had been operated by the French military authorities before coming on to the British register on 13 January 1971. It had a two year certificate of airworthiness in the general purpose category valid until 5 May 1973. According to the records it had been maintained in accordance with an approved maintenance schedule by the aircraft's owners, Air Tows Limited.

The aircraft was fitted with an altimeter, an air speed indicator, a magnetic compass, a tachometer, a combined oil temperature and pressure gauge, and a cylinder head temperature gauge. It carried no radio equipment, nor was it required to do so.

There were two 15 gallon fuel tanks, one in each wing, but it was the usual practice while aero towing at Lasham to save weight by filling only the starboard tank, leaving the port tank with about three gallons, as a reserve. The port tank was normally filled for cross-country flights.

At take-off for the flight on which the accident occurred the total fuel on board was between 15 and 20 gallons. The take-off weight was less than the maximum authorised and the centre of gravity was within the authorised limits.

1.7 Meteorological information

Subsequent to the accident a weather appreciation for the area was prepared by the Meteorological Office which showed that a south to southwest warm, moist and cloudy airstream covered the area of West Sussex, Hampshire and the Isle of Wight. To the north of the Hampshire Downs the cloud base was between 1200-1800 feet above mean sea level (amsl) with the visibility varying between 3 and 13nm and the conditions were dry with the surface wind 240 degrees 12-15 knots. To the south of the Downs the cloud base lowered to between 500-1200 feet amsl and there was occasional drizzle. The surface wind was from 240 degrees 20-30 knots. Over the hills there was occasional hill fog with the cloud covering the southern slopes. To the south of Petersfield the tops of the Downs were in cloud. The surface temperature was about 18-19°C and the humidity between 80-90%.

In the valley through which the railway runs the cloud base was about 600 feet amsl with a horizontal visibility of about half a mile in a light drizzle. Pylons carrying a power line over the valley were partially obscured by cloud. A weather forecast is received each day by telephone at Lasham and is displayed on the club's notice board. The following forecast obtained by telephone was displayed on the Gliding Society's notice board at Lasham on 28 August 1971.

Situation: Cold front laying from Cardigan Bay to north of Salisbury by 1500 hours. Cloudy. Occasional slight drizzle near front.

Cloud: Layers $\frac{5}{8}$ Stratus base 700 feet tops 1200 feet.

Surface wind: 240° 15-20 knots gusts to 25 knots.

2,000 ft wind: 270° 25 knots.

Pressure: 1016mb.

Lee waves: None.

Visibility: 15km becoming 7km.

Icing index: None.

Outlook: Tomorrow – morning cloud, improving in the afternoon.

General warning: Strong wind warning.

The pilot of G-AYPN on the day of the accident was said to be in the habit of telephoning for a weather forecast before leaving his home for a flight. It has not been possible to ascertain whether or not he did so on 28 August 1971.

1.8 Navigational aids

Not applicable.

1.9 Communications

Not applicable.

1.10 Aerodrome and ground facilities

Lasham aerodrome, 618 feet amsl, is unlicensed and has no air traffic control facilities. Its main activity is as a gliding centre and powered aircraft flying is mostly limited to the aero-tow launching of the gliders and to motorised gliders. Visits by light aircraft are restricted, are by prior permission only (PPO), and must not interfere with the gliding activities.

Visiting aircraft are expected to be familiar with the pattern of flying and to conform to the local rules. Commercial aircraft, visiting the Dan-Air Ltd maintenance base, use a company radio frequency which is not available to private and club aircraft.

1.11 Flight recorders

Not required, none fitted.

1.12 Wreckage

The aircraft struck the ground in an extensive forest area comprising young beech and ash trees growing to a height of about 45-50 feet. The height of the accident site was approximately 475 feet amsl. Examination of the surrounding trees indicated that the aircraft had dived into the tops of the trees on a westerly heading in an attitude of approximately 70° nose-down and 70° port wing down. It had come to rest almost vertically nose-down on a heading of 210°(M). The speed at impact was about 60-70 miles per hour. Examination of the controls revealed no evidence of pre-crash mechanical failure, dislocation or restriction of movement. The engine had been rotating at the time of impact and there was no evidence of mechanical failure or malfunction. The filler cap to the port fuel tank was missing and may have been dislodged before the impact. The fuel selector was set to the starboard tank. This tank was ruptured but there was evidence that it had contained fuel when the aircraft struck the ground.

A fatigue crack was found in the heat exchange unit of the cabin heater system, the precise origin of which could not be determined. Deposits containing lead and bromine, both of which are present in high octane fuels, were found inside the heater muffler on the exhaust in a position that indicated that the crack had allowed exhaust fumes into the heater system. The control valve for the heater system which either allows air from the system into the cabin or dumps it overboard was found shut, as was the valve for the carburettor hot air. However the operating levers for these valves had been struck by one of the aircraft's occupants on impact in such a way that if either had been open it would have been driven to the shut position. The crack was subjected to metallurgical examination but neither its precise origin nor its cause could be established. It was not possible to determine how long it had taken to develop.

The schedule to which G-AYPN was required to be maintained specifies the following checks for engine exhaust systems:

At Check I (50 flying hours or 3 calendar months)	General examination of the muff/heater installation.
At Check II (100 flying hours)	Establish that those parts of the system which are enclosed within the cabin heating pipes, shrouds or muffers are serviceable so that contamination of the cabin air cannot occur.

According to the evidence the exhaust unit of G-AYPN was examined and pressure tested when the engine was replaced on 27 May 1971. At a Check I (27 hours later) on 27 June 1971 the unit was subjected to an external visual examination and at a Check II (56 hours later) on 19 August 1971 the shroud was removed for a more critical examination of the unit. Since then the aircraft had flown a further 7 hours.

1.13 Fire

There was no fire.

1.14 Survival aspects

1.14.1 The accident was not survivable. The aircraft and its occupants were subjected to acceleration forces considerably in excess of the maximum required for the seat fastenings and safety harnesses.

Both occupants had received fatal injuries on impact and the head injuries in each case were such as would not have been prevented by protective helmets.

1.14.2 *Notification that the aircraft was missing and subsequent action*

1.14.2.1 Events leading to the discovery that the aircraft was missing

The aircraft took off from Lasham at about 1130 hrs on 28 August 1971. The first intimation that the aircraft had not returned to Lasham was when a club member reported the absence of an aircraft from the tug hanger during the morning of the 29 August. A similar report was made by another member during the afternoon of the same day. The club official to whom these reports were made concluded that they referred to aircraft whose whereabouts were known. One of the Super Cubs had been loaned out for a week (it had in fact returned about lunchtime on 29 August) and another aircraft had taken off later in the day for a visit to Blackbushe. What had not been appreciated was that in fact two aircraft were absent from the hanger when each report was made. As a result the matter was not pursued.

About 2030 hrs on 29 August the pilot's sister, worried because her brother had left no message explaining his absence from home, telephoned the club for news. Unfortunately flying had ceased for the day and no member of the staff was available at the airfield. The person answering the call was not able to help. The pilot's sister telephoned Lasham again the following morning (30 August) and eventually, as a result of her calls, a check was made of the aircraft on the airfield. At the same time the duty flying instructor had discovered that an aircraft was missing from the hanger and could not be accounted for. It was then realised that G—AYPN had not returned after taking-off two days earlier. The pilot's sister was so informed.

1.14.2.2 Subsequent action taken by officials of the Lasham Gliding Society

An enquiry into the aircraft's movements was opened by the Society's staff and it was discovered that the pilot had mentioned in conversation the possibility of visiting Sandown aerodrome in the Isle of Wight. A telephone call established that no request had been made for a landing at Sandown (prior permission being required before using the aerodrome) and that the aircraft had not been there. The police at Basingstoke and the duty officer at the Department of Trade and Industry Headquarters were asked if there had been any report of the aircraft having forced landed or crashed. Since there was none, it was decided to take no further action until dusk as it was thought possible that the pilot had borrowed the aircraft for the weekend without permission.

When the aircraft failed to appear at dusk it was reported as overdue to the Basingstoke police, the duty officer at the Department of Trade and Industry, the London Air Traffic Control Centre (LATCC) at West Drayton, and the Royal Air Force Rescue Co-ordination Centre (RCC) at Plymouth, Devon. This report stated that the aircraft had taken off from Lasham at 1400 hrs on

28 August with an endurance of approximately 3½ hours, and that the destination was unknown although the pilot had been heard to mention Sandown and a relative had suggested Scotland. Next day (31 August) the time of take-off was discovered to have been 1130 hrs and this revised departure time was given to LATCC at 1540 hrs on 31 August. It was also passed on to the police, but the records do not show when this occurred.

1.14.2.3 Action taken by the London Air Traffic Control Centre (LATCC), West Drayton

The Airways Supervisor at the centre was first notified by Lasham that the aircraft was missing at 2043 hrs on 30 August. Since there was no useful information about the pilot's intentions the centre could only set in motion the procedure for dealing with an overdue aircraft. This included passing all known details to the Air Traffic Control Centres at Preston (Northern) and Redbrae (Scottish) and asking the French Airways Supervisor in Paris for information. A close link was maintained with the Rescue Co-ordination Centre (RCC) about the possibility of mounting an aerial search and when the revised departure time of 1130 hrs was received from Lasham on 31 August it was immediately passed on to them.

Official sources were unable to discover any information about the aircraft or its whereabouts. The only news came from the general public in the form of sighting reports which were passed on to the RCC and the local police. The BBC was asked to replay its video tape of the power boat race on 28 August, but the yellow aircraft seen by television viewers proved not to be G-AYPN.

1.14.2.4 Action taken by the Rescue Co-ordination Centre (RCC) Plymouth, Devon

The RCC was informed about the missing aircraft on the evening of 30 August by both the Lasham Gliding Society and LATCC. Lacking information on the aircraft's movements or possible whereabouts the RCC could not institute an aerial search. Coastguard authorities and shipping were alerted and the crew of the patrol ship for the power boat race were asked if they had seen the aircraft. No sighting reports resulted from these actions. On 3 September, to follow up a sighting report from a member of the public, a helicopter search of an area north of Midhurst was authorised by the RCC in answer to a request from the Hampshire police to the Royal Air Force station at Thorney Island, Hampshire. This search did not cover the area in which the aircraft was subsequently found.

1.14.2.5 Action taken by the police

The police first became aware of the possible disappearance of G-AYPN at 1305 hrs on 30 August when the Basingstoke police received a telephone call from the manager of the Lasham Gliding Society asking if there was any report of an aircraft having force landed or crashed. He said that the aircraft had left Lasham at about 1400 hrs on 28 August and had not been seen since and that it might have flown to Sandown in the Isle of Wight. This information was passed to the Aldershot police who are responsible for the Lasham area, and the message was also transmitted to all other Hampshire stations. At 2150 hrs the Aldershot police were informed by Lasham that the aircraft was now officially overdue and that there was also a possibility that it might have flown to Scotland. As a result of these calls a police officer at Aldershot was appointed to supervise the enquiries and a general alert was broadcast to all stations.

On 31 August when the news of the aircraft's disappearance appeared in the press and on television, sightings of the aircraft began to come in from the general public. All these reports, which originated from many parts of the country, were assessed against the information that was available at the time about the aircraft's movements. Many were rejected because of their particular circumstances or the time at which the sightings had been made but those which appeared significant were investigated further, and as a result of one report the aerial search already referred to took place.

A sighting near the outskirts of Petersfield and another about a mile north of the accident site, were not pursued at the time of reporting because they gave times between 1130 and 1400 hrs and the amendment to the original departure time of 1400 hrs had not then been received by the police.

It has not been possible to establish exactly when the revised departure time of 1130 hrs was received but it may not have been until the 3 or 4 September when it came to light in the course of a telephone conversation about the missing aircraft rather than as a specific report. There is nothing on record to show that these sightings were re-assessed in the light of the new departure time.

1.14.2.6 Other activities

During the week following the accident, private pilots from Lasham and Blackbushe flew on their own account over an area covering the South Downs and westwards over the New Forest as far as Chesil Beach, Dorset, but saw no sign of the aircraft or of wreckage. Employees of the Forestry Commission occasionally visited the woods in the area where the accident occurred in the course of their ordinary duties but none saw the wreckage in the dense foliage although some of them passed quite close to it. By the time the wreckage was eventually discovered by a member of the public on 31 October, the leaves had begun to fall.

1.15 Tests and research

None necessary.

1.16 Medical aspects

Owing to the lapse of time between the accident and the post mortem examinations the specimens available for analysis were extremely unsatisfactory. No suitable specimens were available for the determination of alcohol or therapeutic drugs. No evidence of carbon monoxide poisoning was found.

No medical evidence as to the cause of the accident can therefore be advanced.

1.17 Other information

1.17.1 *UK Search and Rescue (SAR) Organisation*

The organisation is set out in the SAR chapter of the *UK Air Pilot*. The section dealing with alerting the organisation is in the Appendix to this report. The SAR chapter also includes the following paragraph dealing with advice to pilots of aircraft not fitted with radio.

‘5.1 A pilot of an aircraft not equipped with radio is advised to file a flight plan if he intends to fly more than ten miles from the coast or over sparsely populated or mountainous areas. Information contained in the flight plan can greatly assist search and rescue action should an aircraft be reported as overdue. Full information on filing flight plans is given in Chapter 6 of the RAC Section. Pilots should particularly note that flight plans can only be delivered to destinations which are on the AFTN or linked to the AFTN by the parent station scheme (Information Circular 105/1966 refers) and that search action can only be initiated if an aircraft is reported overdue by the destination aerodrome. Pilots intending to fly to destinations which are not on the AFTN or linked to it by the parent station should advise a responsible person at destination of the intended flight and arrange for that person to notify the ATS authorities in the event of non-arrival.’

1.17.2 *Regulations relating to private flying*

The regulations require a pilot to file a flight plan whenever he intends to fly under Instrument Flight Rules in controlled airspace. At other times he may file a flight plan if he wishes, but he is under no obligation to do so, or to advise anyone of his intentions, or to require anyone to take any action if he fails to return from a flight or to reach his destination.

1.17.3 *Description of the operations carried out at Lasham aerodrome*

The flying activities and aerodrome operation at Lasham are supervised by the Lasham Gliding Society to whom a number of gliding clubs are affiliated. The Society provides facilities for, among other things, aero-towing gliders and at the time of the accident leased four light aircraft for this purpose of which the Super Cub G—AYPN was one. These aircraft were flown by a small number of suitably qualified pilots who were also allowed to fly them for practice and pleasure when the aircraft were not required for towing. The provision of powered aircraft for private and pleasure flying was not part of the Society’s general activities. The tug pilots authorised their own aero-tow flights whenever they were called for. Their personal pleasure flights, however, had to be authorised by a Society official. Each pilot entered the details of his flights, aero-tow or pleasure, including the times, on a sheet which was carried in the aircraft and returned to the Society offices at the end of each day. No record of tug movements was maintained on the ground. There was no legal requirement to do so.

After the disappearance of G—AYPN the British Gliding Association advised all their member clubs and societies to maintain a closer supervision of their tug aircraft’s activities, and as a result there is now an authorisation book at Lasham in which the pilot must record the details of any pleasure or cross-country flight and which must be signed on completion of the flight.

1.17.4 *The terrain over which the aircraft was observed*

The railway line which the aircraft appeared to be following runs south from Petersfield through a short tunnel at Buriton below a ridge which is about 500 feet amsl, and then follows a winding valley between hills which at one place rise to about 650 feet amsl. The railway runs south through the bottom of the valley at a height of about 350 feet amsl. About half a mile beyond the tunnel’s

southern exit a line of high tension power cables crosses the track diagonally from north east to south west. The pair of pylons which carry the cables over the track are sited on hills on either side of the valley and the tops of these pylons rise to about 575 feet amsl.

1.17.5 *Description of the area surrounding the accident site*

The wreckage was found in an undulating region of a 4,000 acre forest, whose trees were mainly young beech and ash growing to a height of about 50 feet. The horizontal visibility through the trees was restricted by foliage and it was not until about 20 - 30% of the leaves had fallen that the wreckage could be seen about 50 yards from a track which had been used only three weeks previously by the member of the public who made the discovery.

The aircraft had dived into the trees too steeply to leave a trail of damage through the tops and had disappeared below the foliage. An aerial survey carried out shortly after the wreckage had been found confirmed that it would have been impossible to locate it from the air until most of the leaves had fallen.

2. Analysis and Conclusions

2.1 Analysis

The investigation covered the causes of the accident and the associated search and rescue operations. In this particular accident the delay and confusion in providing information to get the search and rescue organisation into useful action did not result in any loss of life, but clearly this will not always be the case. It was therefore important to consider in addition to the circumstances of the accident why the aircraft's loss was not discovered for two days and why the wreckage was not found for over two months.

2.1.1 *The cause of the accident*

Although there was no direct evidence of the exact time of the accident, since no one saw the aircraft hit the ground, the circumstances indicate that it occurred shortly after the aircraft was observed at 1212 hrs. It was then flying just below the cloud base, which was about 600 feet amsl, and at the same height as the power cables across the valley. These cables were not shown on the pilot's chart and he may have been unaware of them. It is possible that he did not see them until the last moment and was then forced to take the only action feasible in the circumstances, to climb steeply. The probability that this is what the pilot did is substantiated by the burst of engine power that was heard by the last of the witnesses. The climb would have taken the aircraft into the low cloud and the pilot would have immediately lost all visual reference to the ground. Without the assistance of the necessary blind flying instruments it would have been extremely difficult for him to regain level flight even if the flying conditions had not been turbulent. If this hypothesis is correct the assumption follows that the aircraft went out of control in the cloud and then dived into the tree tops, there being insufficient height between the base of the cloud and the ground to regain control by visual reference.

2.1.2 *The crack in the heat exchange unit of the cabin heater system*

The hypothesis outlined above does not take into account any effect on the pilot's performance of exhaust gases seeping into the cabin through the heater system. Such gases – if they were present in sufficient quantity – could effect the pilot's judgment and skill. Continuing the flight into bad weather, not seeing the overhead cables soon enough, even losing control in the cloud could all be cited as pointers to toxic effects. However, the evidence for the presence of exhaust fumes in the cabin as regards both the position of the heater control and the results of the post mortem analysis is not conclusive enough for any finding to be made.

2.1.3 *The search and rescue operations*

Two of the most important factors which affect the speed at which the rescue and medical teams can reach the accident site are the immediate notification of the emergency and the identification of the area in which the accident had, or might have, occurred. Both were lacking in this particular case. The reasons lay partly in the way the Lasham Gliding Society supervised the activities of their powered aircraft, relying mostly on personal supervision without any documentary back-up, and partly in the way in which private aircraft in the United Kingdom are allowed to operate, in that pilots of private VFR flights are not required either to file a flight plan or notify anyone of their intentions.

The system at Lasham worked satisfactorily as long as the aircraft were being used as tugs and therefore carrying out only short flights within the vicinity of the aerodrome. It meant, however, that there was no record on the ground which showed that an aircraft was being used for private purposes or was on a cross-country flight. Although these flights had each to be authorised by an official of the Society it was always possible that he would be the only person who knew where the aircraft had gone. It was, therefore, difficult to discover the whereabouts of a particular aircraft without making extensive enquiries over the whole site. It was also unrealistic to expect the duty instructor or any other club official on a site so extensive and active as Lasham to rely on memory alone to account for every item of the day's activities. One advantage of an authorisation sheet or a booking out log is that it provides a central record to which anyone can refer. If there had been such a log at Lasham on 28 August 1971 the club officials would have known at the end of the day that G-AYPN had not returned from the flight. The alert could have gone out immediately and much of the subsequent confusion would have been avoided.

With so little information to assist the search and rescue authorities, it was clearly impossible for them to mount either a ground or aerial search for the aircraft. However, steps were taken to ensure that all the appropriate authorities were alerted. It was not until the disappearance of the aircraft was reported in the newspapers and on television that any information began to accumulate. Most of this was in the form of sighting reports made by the public to the police who appointed a co-ordinator with the responsibility of sifting and evaluating the evidence.

Whilst the police have a responsibility for finding missing persons, the responsibility for co-ordinating the search for missing aircraft has been delegated to the appropriate Royal Air Force Rescue Co-ordination Centre where the expert knowledge to deal with information of an aeronautical content resides. Each authority, however, has its own particular contribution to make to the search and each can do much to analyse the value of its own information. This particularly applies to the police who often have specialised local knowledge of the areas involved. It is essential, therefore, that the progress of the search is developed through the exchange of information between all those participating. This exchange was of special importance in the search for G-AYPN with the dearth of information on its movements, but does not appear to have been fully accomplished. One reason appears to be the absence

in Police Force Standing Orders of any readily available information about the authorities with whom the police should co-operate in searching for a missing aircraft, although the matter had been circulated in a general form in 1963. The result in this instance was that members of the police undertook the task of analysing the sighting reports themselves and no real exchange of information took place between those who were accumulating it and those who had the means and authority to use it. In fact, the nature of the disappearance of this aircraft would suggest the value of an 'on-the-site' co-ordinator who, in instances of this nature, would ensure that the maximum advantage was drawn from the limited evidence available.

The investigation revealed that among the many reported sightings only two could be confirmed as having been G—AYPN. Both were discarded in the confusion over the aircraft's take-off time and were not re-evaluated when the correct departure time became known some time later. It is probable that the failure to re-assess the evidence stemmed from the fact that the revised time only came to the attention of the police co-ordinator in the course of a telephone conversation some days after it had been established and when its relevance had lost much of its impact. The information provided by these sightings, if it had been accepted, might have narrowed the search area to practicable limits but it is impossible to say whether the aircraft would even then have been found. Subsequent events have shown that it would have been highly unlikely that the wreckage could have been seen from the air and a thorough search of the forest in the prevailing circumstances of heavy foliage would have been a difficult and lengthy process. The circumstances have shown that if an accident is not seen and the pilot's intentions are unknown, then the authorities have an almost impossible task to locate the area of its occurrence.

2.2 Conclusions

(a) Findings

- (i) The pilot held a valid private pilot's licence without an Instrument Meteorological Conditions (IMC) rating.
- (ii) The aircraft had a valid certificate of airworthiness and had been maintained in accordance with an approved maintenance schedule.
- (iii) The aircraft was not equipped with blind flying instruments or radio.
- (iv) No log or authorisation record of the aircraft's movements were kept in the Society premises.
- (v) No proper search operation could be mounted for lack of information of the aircraft's movement and the pilot's intentions.
- (vi) There was no evidence of pre-crash engine failure or malfunction.

- (vii) There was no evidence of dislocation or obstruction in the control circuits.
- (viii) The evidence was insufficient to determine whether or not a fatigue crack in the cabin heater/engine exhaust system, resulted in the presence of toxic fumes in the aircraft cabin.
- (ix) The aircraft was flying low in poor visibility in a valley obstructed by high tension power cables.
- (x) In avoiding the cables the aircraft went into cloud and the pilot, inexperienced in instrument flying, was unable to maintain control without blind flying instruments.
- (xi) The aircraft dived into a dense wood in a steep nose-down and port wing down attitude.

(b) *Cause*

The aircraft, which was not equipped for instrument flying, went into cloud when taking action to avoid power cables while flying low in poor visibility and subsequently went out of control.

3. Recommendations

- (1) That consideration be given to a requirement for flying clubs or groups to maintain a log and adequate supervision of their powered aircraft's activities.
- (2) That all police authorities should include in an appropriate form in their disaster orders the relevant details of the search and rescue facilities as published in the United Kingdom *Air Pilot*.
- (3) That consideration be given to the development of a reliable carbon-monoxide detector for aircraft cabins.

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Department of Trade and Industry
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