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COMMONWEALTH OF AUSTRALIA

DEPARTMENT

OF

CIVIL AVIATION

REPORT

ON

INVESTIGATION

INTO

AIRCRAFT ACCIDENT

TO

LOCKHEED HUDSON MK IV

VH-SMK

AT

CAMDEN N.S.W.

ON

1ST JANUARY 1950

CONFIDENTIAL

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ACCIDENT TO LOCKHEED HUDSON AIRCRAFT VH-SMK

AT

CAMDEN, N.S.W.

ON

1ST JANUARY 1950

REPORT ON THE INVESTIGATION

This accident was investigated by the following personnel -

C. A. J. Lum .. Acting Chief Inspector of Accident Investigations

A. Charlton .. Inspector of Accidents.

Notification of this accident was first received by Head Office of the Department at 0215 hours on 1st January.

Both officers arrived at Camden on the morning of 1st January and commenced the investigation immediately.

The investigation at Camden terminated on 11th January and since that date has been continued in Melbourne.

The following is a report on the investigation.

SUMMARY

At approximately 0057 hours on 1st January, 1950, Lockheed Hudson aircraft VH-SMK took off from Camden Aerodrome, N.S.W., on a scheduled newspaper delivery flight to Dubbo.

Immediately after take-off, from a height of approximately 150 feet, the aircraft apparently stalled and dived into the ground. The only two occupants, the Captain and First Officer, were killed and the aircraft was destroyed by impact and fire.

1. THE NATURE OF THE OPERATION

Lockheed Hudson aircraft VH-SMK was owned by John Fairfax and Sons Pty. Ltd. of Sydney, N.S.W., and operated by the Herald Flying Services at Camden, N.S.W. At the time of the accident the aircraft was engaged on a regular scheduled flight, carrying copies of the Sydney Morning Herald newspapers of Sunday's issue from Camden to Dubbo, N.S.W., where the whole consignment would have been off-loaded. The service was operated under the authorisation of Aerial Work Licence No. 13.

2. THE AIRCRAFT

2.1 Certification

2.1.1 The aircraft was operating under Certificate of Registration No. 1561 in Air Route Class 2, valid until 3rd July, 1950.

2.1.2 The Certificate of Airworthiness No. 1502 was renewed on 4th July, 1949, and was valid until 3rd July, 1950.

2.1.3 The Certificate of Safety covering the flight was No. 4077E which was issued at 0400 hours on 29th December, 1949. The period of validity of the Certificate of Safety for this type of operation is 7 days.

2.2 Airframe Details

Type:	Lockheed Hudson Mk. 4
Manufacturer:	Lockheed Corp., Burbank, U.S.A.
Maker's Serial Number:	6043 (USAAF No. 41-23184)

2.3 Engine Details

Type:	Pratt and Whitney R.1830 SC3G
Manufacturer:	Pratt and Whitney, East Hartford, U.S.A.
Maker's Serial Number:	Port 3302 Starboard 4145

2.4 Airscrew Details

	Port	Starboard
Type:	Hamilton 3 bladed Hydromatic	Hamilton 3 bladed Hydromatic
Manufacturer:	Hamilton	Hamilton
Diameter:	10'6"	10'6"
Basic Pitch Settings:	High 88° Low 17°	High 88° Low 17°
Hub Serial Number:	83613	69832
Blade Drawing Number:	ø	R/6379A-0
Direction of Rotation:	R.H.	R.H.

2.5 Operating Hours

	Airframe	Engines		Airscrews	
		Port	Starboard	Port	Starboard
Total since new	2566	1515.20	1266.05	∅	∅
Since complete overhaul	410.55	619.45	330.45	∅	183.25
Since last 100 hr. inspection	9.25	Nil	9.25	Nil	9.25

∅ Denotes information NOT AVAILABLE

3. THE ITEMS OF LOAD

3.1 The Occupants

The Captain .. Richard Eric CRUICKSHANKS

The First Officer .. Robert Bruce PURVIS.

3.2 The All-Up Weight

3.2.1 The load sheet compiled for VH-SMK on the morning of the accident (Appendix 33) lists the following items:-

	Weight (lb.)
Empty weight of aircraft ..	12116
Fuel 370 gallons	2664
Oil 24 gallons	216
Crew (2)	340
Freight	2919
Total ..	18255 lb.

3.2.2 The value of the all-up weight shown on this load sheet does not exceed the maximum permitted which is 18500 lb. However, discrepancies in this load sheet were revealed during the investigation and these are discussed in detail at para. 6.3.2. A more accurate statement of load at the time of the accident would be as follows:

	Weight (lb.)
Empty weight of aircraft ..	12116
Fuel 393 gallons	2830
Oil 24 gallons	216
Crew (2)	340
Freight	3178
Removable equipment ..	33
	18713 lb.

This total load represents the take-off conditions, due allowance having been made for fuel used on running-up and taxying, and it can be seen that the all-up weight at take-off exceeded the maximum permissible by 213 lb.

4. EVENTS PRECEDING THE ACCIDENT

4.1 On the afternoon of 28th December, 1949, Lockheed Hudson aircraft VH-SMK was inspected for the purpose of the issue of a Certificate of Safety. The airframe, the starboard engine and airscrew were given a 100-hourly inspection. The port engine and airscrew were given the usual daily inspection.

4.2 The Certificate of Safety (Appendix 34) was issued early on the morning of 29th December, and a flight of 4 hours 55 minutes duration was then carried out. On return from this flight the crew complained of slow operation of the starboard undercarriage, but no other defect of note was reported. Subsequently a normal daily inspection was carried out on the airframe, engines and airscrews and, in addition, the aircraft was jacked up and the operation of the undercarriage tested. Presumably the result of this test was satisfactory a s there is no entry in the Airframe Log Book to show that any adjustment was made.

4.3 On the morning of the 30th December a flight of 4 hours 30 minutes duration was carried out. On take-off the fuel load according to the trip record for the flight (Appendix 37) was 360 gallons. An intermediate landing was made at Coff's Harbour and a further 80 gallons were placed in the tanks (Appendix 38). During the course of this flight, therefore, the total quantity of fuel either initially present or subsequently added to the tanks was 440 gallons. The trip record shows that the total fuel used was 362 gallons, and that the fuel remaining in the tanks on return to Camden was 78 gallons. No report of any unserviceability was made as a result of this flight.

4.4 On return to Camden an inspection of the aircraft took place, during which the port engine and airscrew were given 100-hourly inspections, whilst those given to the airframe, starboard engine and airscrew were the normal daily inspection. On the same afternoon 350 gallons of fuel were placed in the tanks of VH-SMK (see Appendix 38A). No further work was carried out on the aircraft and it did not fly again until the night of the accident.

4.5 Just before midnight on 31st December, L. L. Pinner, one of the aircraft despatch personnel, laid down 12 oil flares on the 055° runway. One flare was placed on either side at the strip extremities, and the remaining eight were laid at regular intervals along the N.W. side of the strip. VH-SMK was then pushed from the hangar on to the apron and prepared for flight. During this preparation the pitot head covers were removed and the fuel tanks dipped. At approximately 0030 hours on the 1st January, 1950, the freight load of newspapers arrived by truck from Sydney. This load was placed aboard the aircraft by Pinner, aided by B. S. Allen, another despatcher. During the loading, the Captain and First Officer were present, either on the tarmac or in the aircraft.

4.6 By 0040 hours the loading had been completed and the Captain and First Officer entered the aircraft. The engines were started without any difficulty and, after starting, ran normally. The aircraft was then taxied in the direction of the strip and in so doing was lost to sight behind hangars. Witnesses agree that at all times whilst the aircraft was under observation the Captain, R. E. Cruickshanks, was occupying the first pilot's seat on the port side of the cockpit.

4.7 At 0046 hours VH-SMK called up Aeradio Mascot and notified that it was taxying at Camden (see Appendix 36). Between the time when it was lost to the view of the despatch personnel and the time of crash, the aircraft was seen by only one witness, A. Mears, who viewed it from Cobbity, a distance of 1½ miles directly abeam of the strip. His evidence is concerned mainly with the actual take-off and crash. From the aural observations of the personnel on the tarmac, it is evident that the aircraft was taxied to the southern end of the strip and, whilst in that position, the engines were run-up prior to take-off.

4.8 According to A. Mears who was the only eyewitness of the event, the take-off was normal, both headlights were used, and the aircraft became airborne about half way along the 1800 yard sealed strip. It was then levelled out and the engines were throttled back. The aircraft then appeared to commence a normal climb followed soon afterwards by a large increase in engine noise, indicating that power had been re-applied to some considerable extent. The climb did not appear to be excessively steep and nothing indicated any sudden change in the attitude or direction of the aircraft. Soon after passing the end of the flare path, and at a height estimated to have been between 150 and 200 feet, the aircraft dived steeply into the ground and fire broke out instantaneously.

4.9 From the available evidence it appears that the weather conditions were reasonably good, with approximately 4/8ths cloud at 4 - 6000 feet over the aerodrome, with the base lowering to the North where thunderstorms were evident. Visibility was estimated to be 10 - 20 miles to the North and unlimited to the South, and the wind light and variable. A light drizzle of rain existed at the time of the accident.

5. INJURIES TO PERSONS AND DAMAGE TO PROPERTY

5.1 Injuries to Persons

Both occupants were killed, having sustained extensive injuries and incineration in the crash.

5.2 Damage to the Aircraft

The aircraft was completely destroyed by impact and fire.

5.3 Damage to Property other than the Aircraft

Damage to property apart from the aircraft was negligible.

6. DISCUSSION OF THE EVIDENCE

6.1 The Crew's Qualifications

6.1.1 The Captain

6.1.1.1 Richard Eric CRUICKSHANKS was first issued with a pilot's licence in January 1947. The licence issued

was "B" Commercial No. 2053 endorsed for D.H.82 and Anson type aircraft, and was valid until 30th April, 1947. This licence was not renewed after the expiry date, and in September 1947 when Cruickshanks made application for a Student Pilot Licence, his Commercial Licence "B" 2053 was endorsed "expired" and he was issued with Student Pilot Licence No. 629 endorsed for D.H.82 and Anson type aircraft, valid until 30th June, 1948. This Student Pilot Licence was never renewed, and from the date of its expiry until the date of the accident Cruickshanks was not the holder of any form of valid pilot licence. This matter is discussed further in para. 6.7 of this report.

6.1.1.2 He was originally trained as a pilot whilst a member of the R.A.A.F. in which he enlisted in September 1943. He was discharged from the R.A.A.F. in October 1945 and, at the time of making application for his original Commercial Licence in December of the following year, he claimed to have flown 171 hours 15 minutes in command, 159 hours 15 minutes dual and 52 hours 45 minutes as second pilot during his service career. Although his R.A.A.F. Log Book has not been located, there is on record a certification by an employee of this Department to the effect that Cruickshanks's Log Book and Discharge Certificate were checked at the date of his claim and the foregoing flying times verified as correct.

6.1.1.3 Cruickshanks was engaged by the Herald Flying Services as a First Officer on 17th December, 1947. The earliest entry appearing in the available pilot log books is dated 17th December, 1947, and is in respect of a flight as Second Pilot with the Herald Flying Services. The date of this entry agrees with the records supplied by that organisation, and it would appear that either a new log book was commenced at that time, or that the flying recorded was the first to be carried out by him after his discharge from the R.A.A.F. One unusual feature apparent in the available log books is that no details of any previous flying experience are recorded.

6.1.1.4 On 14th January, 1949, Cruickshanks was certified by Captain G. H. Purvis as competent to act as pilot-in-command of both the Lockheed Hudson and Douglas C.47 type aircraft. His log book shows that at that time he had flown approximately 815 hours by day and 54 hours by night, as co-pilot, and 33 hours by day only as Captain, all with the Herald Flying Services. Although the records supplied by the organisation indicate that Cruickshanks first flew in command of the Hudson type aircraft in April 1949 and C.47 type in July 1949, his log book entries show a percentage, at least, of the time flown on many of the flights in both the Hudson and C.47 prior to those dates, as being time in command.

6.1.1.5 His pilot log book shows that at the time of the accident he had flown a total of 1,607 hours, of which some 460 hours by day, and 131 hours by night were flown in command, and 994 hours by day and 21 hours by night were flown as second pilot. The total instrument flying logged at that time was approximately 152 hours.

6.1.1.6 In November 1948 Cruickshanks successfully passed an examination in Flight Engineering (Pilot)

for the Lockheed Hudson type aircraft. This examination was conducted orally by the Regional Examiner of Airmen, New South Wales Region. No similar examination was carried out in respect of the C.47 type aircraft, although such is a requirement before endorsement of that type in a pilot licence.

6.1.1.7 The Regional Examiner of Airmen conducted a flight test of this pilot on 14th July, 1949, for the purpose of assessing his ability to fly on instruments and, if appropriate, of granting an Instrument Rating. The test was conducted on Lockheed Hudson VH-SMK and the assessment was "instrument flying sound" indicating that he was considered competent to hold an Instrument Rating.

6.1.1.8 Cruickshanks was the holder of Third Class Aircraft Radio Operator's Certificate of Proficiency No. 1038 issued by the Postmaster-General's Department in July 1947. He had not applied to this Department for a Flight Radio Operator's Licence and consequently did not hold this licence. In July 1949 he was examined by an officer of this Department on the type of radio equipment installed in the aircraft he was required to fly. This examination was satisfactory.

6.1.1.9 An examination of Cruickshanks's medical records show that he was first accepted as meeting the medical requirements for a Commercial Pilot Licence in October 1946. He had subsequent examinations on 3rd June, 1947, and 11th December, 1947, and at each of these he continued to meet the requirements for a Commercial Pilot Licence. The examination on 11th December, 1947, was conducted by Dr. E. C. Heffernan, Macquarie Street, Sydney, and is the last to appear on the Departmental records. His R.A.A.F. medical history reveals no past illness which might have bearing on his physical fitness at the time of the accident. A letter received from Dr. C. Watson of Nowra, N.S.W., indicates that he had examined Cruickshanks about February 1949 and to the best of his recollection he found him to be fit on that occasion (see Appendix 27). A number of persons closely associated with him, including his wife, was questioned on his physical fitness or otherwise, and without exception it was claimed that he was a particularly fit man, and in no way subject to illness of any kind (see Appendices 5, 9, 20 and 21).

6.1.1.10 Although Captain Cruickshanks was not the holder of any of the necessary licences at the time of the accident, no evidence has been obtained which would throw doubt on his ability to act in the capacity of pilot-in-command of the Lockheed Hudson type aircraft. The evidence of Captains G. H. Purvis and D. H. Swain, Manager and Flight Superintendent, respectively, of the Herald Flying Services, indicates that they had checked his flying in all phases on frequent occasions and assessed him above average as a pilot (see Appendices 20 and 22). Furthermore, Captain Purvis had, in January, 1949, certified him as competent in every respect to fly in command of the Lockheed Hudson type aircraft (see Appendix 39). Apart from the lack of the necessary medical assessment there appears no reason why he should not have been granted a

Commercial Pilot Licence duly endorsed for the Lockheed Hudson, had he made application for issue any time after January 1949. The same would apply in respect of the C.47 type aircraft except that there is no record of this pilot having undergone an examination on the Pilot's Engineering for that type of aircraft.

6.1.1.11 From the available evidence it must be concluded that Captain Cruickshanks was completely competent to fly in command of the Lockheed Hudson type aircraft even though he did not possess any form of valid pilot licence.

6.1.2 The First Officer

6.1.2.1 Robert Bruce PURVIS was the holder of Commercial Pilot Licence No. 2537 which had been renewed on the 1st December, 1949, and was valid until the 31st May, 1950. This licence was endorsed for D.H.82, D.H.85, D.H.87, Wackett, Avro 643, D.H.C.1 Chipmunk, Lockheed Hudson and D.C.3 type aircraft. He was also the holder of Private Pilot Licence No. 4489 and of Second Class Flight Radio Operator's Licence No. 331, both valid at the time of the accident. He was not the holder of an instrument rating.

6.1.2.2 He commenced flying in December 1945 with the Royal Aero Club of New South Wales, on light single-engined aircraft, and, in October 1946, was issued with Private Pilot Licence No. 4489.

6.1.2.3 He was originally issued with his Commercial Pilot Licence in January 1949 and in April of that year began flying with the Herald Flying Services at Camden. Prior to this date, all of his flying had been carried out on light single-engined aircraft on which he had logged a total of 179 hours. He was certified as competent on D.C.3 type aircraft on 21st April, 1949, and on Lockheed Hudson type aircraft on 23rd May of that year, and these types were subsequently endorsed on his licence. During his employment with the Herald Flying Services he flew as First Officer on both Lockheed Hudson and D.C.3 type aircraft and, at the time of the accident, had flown in this capacity a total of 690 hours by day and 178 by night.

6.1.2.4 During the three months preceding the accident he flew 257 hours by day and 52 hours by night and, of this total, 61 hours by day and 10 hours by night were flown in the last month. His total flying experience amounted to 1002 hours, most of which was flown in the capacity of First Officer on multi-engined aircraft.

6.2 Examination of the Wreckage

6.2.1 A plan of the scene of the accident showing the general distribution of wreckage appears at Appendix 45. The ground marks and the pattern of the wreckage indicated clearly that the aircraft struck the ground whilst in a steep nose-down attitude. Although the aircraft struck the ground whilst facing 90° to the left of the direction of take-off, it was evident that its flight path was not in that direction. After the initial impact the wreckage moved in a direction consistent with the track from the end of the strip to the point of impact. These facts indicated that the aircraft had stalled and was in that condition at the time of impact.

6.2.2 The port wing was the first portion of the aircraft to strike the ground and seemed to have taken much of the initial shock of impact. There were marks on the ground showing clearly where the whole of the leading edge of that wing came in contact with the ground and fragments of red glass from the port navigation light were embedded in the ground at the outer extremity of these marks (see photograph No. 1 at Appendix 32).

6.2.4 The whole of the fuselage from the nose to a position aft of the entrance doorway was completely destroyed by fire, while the starboard mainplane, outboard of the engine nacelle, and the tail assembly showed little signs of damage. The only recognisable portion of the port wing was a small section immediately outboard of the wheel well. Other portions of this wing had disintegrated due to impact or fire. (See photographs 4, 7 and 8 at Appendix 32).

6.2.5 The only substantial damage to the tail assembly was the lower section of the starboard fin below the tail plane. This had apparently come in contact with the ground as the aircraft moved to starboard after the initial impact. (See photograph No. 5, Appendix 32). The tail unit showed no signs of any pre-crash failure or abnormality. The starboard elevator trim tab was slightly distorted so that, with the elevator in the neutral position, the inboard tip at the trailing edge was deflected upward 7/16 inch and the outboard tip 5/16 inch upward. The port elevator tab was evenly deflected upward by $\frac{1}{2}$ inch. Both elevator trim actuating drums inside the tail plane were at identical settings. The settings of these drums were subsequently applied to Lockheed Hudson VH-SML and it was found to be equal to nine divisions nose down on the indicator in the cockpit. There were no marks on the elevator stops to indicate that the elevator had been moved to the limit of its travel either way with any abnormal force. The rudder trim tabs were in approximately the neutral positions and the rudders showed no signs of any unusual application of control. All control surfaces on this unit were capable of being moved freely through the range of movement.

6.2.6 The fuselage in the area of the centre-section and the cockpit had been subjected to intense heat and there was little left that was recognisable. From this area the remains of the auto pilot servo unit were recovered. The whole of the outside casing and actuating valves were burnt away leaving bare the three steel piston rods. It was not possible, therefore, to determine from this unit whether the automatic pilot was in the "ON" or "OFF" position at the time of the crash.

6.2.7 The central control pedestal in the cockpit was completely burnt away, the only portions remaining being the various control levers and their respective quadrants. Both the throttle levers and pitch control levers were in positions within the quadrants that corresponded to full throttle and full fine pitch respectively. The oil temperature control and carburettor heat control levers were found in positions within their quadrants equivalent to fully cold and carburettor heat "OFF" respectively. The tail wheel lock and automatic pilot engaging levers were found in positions agreeing with the tail wheel being locked and the auto pilot "OFF". It is considered that the loose and tangled condition of these levers was such as to make the positions as found anything but reliable evidence, with the exception of the tail wheel locking lever and the auto pilot engaging lever. In the case of the tail wheel locking lever its position agreed with the condition found on the practically undamaged tail wheel.

The quadrant within which the auto pilot lever moved was fitted with a safety catch which required independent operation to allow the lever to be moved to the "engaged" position. The lever was located in the "OFF" position behind the safety catch and this fact tends to make it reliable evidence to indicate that the automatic pilot was not engaged at the time of the crash.

6.2.8 The instruments within the cockpit area were almost completely destroyed by fire. Nothing of the flight instruments was recovered that would permit examination to determine whether or not they were operating at the time of the accident. However, the vacuum selector cock was recovered and indicated selection of the starboard engine.

6.2.9 The engine selector valve and the tanks selector valve of the fuel system were recovered. The position of the engine selector valve was found to be approximately mid-way between "both engines on" and "starboard engine on". The correct position for take-off is "both engines on". This valve is cable operated and could easily have moved as a result of impact and for this reason the setting as found is considered to be unreliable. The tank selector valve, however, was found in a position equivalent to the selection of "starboard rear tank" which is normal for take-off.

6.2.10 All control cables were fused by the intense heat in the vicinity of the centre section, therefore no conclusive check could be made of their continuity between the control columns and the control surfaces. Those sections that were not burnt, however, showed no signs of any breakage or other abnormality. The elevator, rudder and starboard aileron cables were securely attached to their respective actuating fittings both at the control surfaces and the control columns. The port aileron cables were broken in several places in the vicinity of the remains of the port mainplane. These breaks were clearly the result of disintegration of the various structural members due to the crash, and not to any prior defect or weakness.

6.2.11 The position in which the main undercarriage wheels were found indicated that they were in the retracted position. The hydraulic actuating jacks for the main wheels were recovered and the positions of the pistons relative to the cylinders indicated that the wheels had been retracted at the time of the crash. Likewise, the position of the piston in the hydraulic actuating jack for the landing flaps indicated that the flaps were also retracted at the time of the accident.

6.2.12 The starboard mainplane was intact outboard of the engine nacelle and was lying in correct relationship with the burnt-out fuselage. The only damage to this section consisted of buckling of the trailing edge at the tip due to contact with the ground after initial impact. The aileron was securely attached at the hinge points and showed no signs of any pre-crash defect. The remaining portion of the starboard flap was in the retracted position. (See photographs Nos. 3, 5 and 6, Appendix 32).

6.2.13 The only portion of the port mainplane recognisable as such was a comparatively small section containing the major portion of the wheel well and a few feet outboard of the wheel well including a section of the port flap. The whole of this section was inverted and lying at an angle towards the tail of the aircraft. (See photographs Nos. 4, 8 and 9, Appendix 32). Numerous small sections of the port mainplane were scattered about in the immediate vicinity of the main wreckage, the largest of

these being a portion containing a flap runner which was in a position some 15 feet to the right of the starboard tailplane. (See photograph No. 7, Appendix 32). Eyewitnesses gave evidence of a substantial explosion taking place after the initial impact and it is considered that this explosion could account for that portion of the port mainplane, which was more or less in one piece, being found in the inverted position. It would also account for the complete disintegration and scattering of the outer section of that mainplane including the aileron.

6.2.14 Both engines were completely detached from the airframe and they had either rolled or been dragged some distance in the general direction of movement of the wreckage after impact. The starboard engine came to rest some 40 feet from the point of actual impact and was lying adjacent and slightly to the right of the position where the nose of the fuselage came to rest. The front of this engine was facing the main wreckage and although it had sustained damage to the lower cylinders and reduction gear housing due to impact, there was comparatively little fire damage. The port engine was in a position approximately mid-way between the point of impact and the nose of the aircraft, and was considerably damaged. The whole of the accessory section, including the blower impellers and impeller housing, was almost completely burnt away. (See photographs Nos. 2, 6, 10 and 11, Appendix 32).

6.2.15 Both engines were subsequently stripped and examined in the Qantas Empire Airways engine assembly shop. A report on the condition of each engine is contained at Appendix 29.

6.2.16 It can be stated broadly that, as a result of this detailed examination, nothing was found to indicate that there was any pre-crash defect or mechanical failure in either engine. However, the report contains observations which suggest that neither of the engines was under power at the time of impact. These observations were based on the fact that there was no evidence of the engines rotating after certain cylinders had been torn from the crankcase or otherwise damaged on striking the ground. It is argued that, had the engines been operating under power at the time of the crash, there would have been evidence of "hammering action" on the crankcase, either by the cylinder or piston due to the engine continuing to rotate after the damage had occurred. The panel does not support this view, and is of the opinion that in this instance the engines would have ceased rotating before the impact forces were of sufficient magnitude to cause extensive damage to the cylinders.

6.2.17 With regard to the port engine, the report by Qantas expressed a view that the condition of the port airscrew is further evidence to suggest that the engine was "wind-milling" at the time of impact. Again the panel does not hold with this view, and argument against it is contained at para. 6.2.22.

6.2.18 The only other significant fact arising from the detailed examination of the engines is that contained in conclusion 4 of the report in respect of the starboard engine (see Appendix 29). Evidence was found to suggest that a minor fire had occurred in the induction system while the engine was in the normal flying position. This was deduced from the fact that all impeller blades were covered with a dark sooty substance and the wire screen in the air horn adapter section had been subjected to considerable heat, thus causing solder to flow in a definite downward direction towards the throttle valve.

6.2.19 Whilst there is no definite evidence to refute the possibility of a fire having occurred in the induction system prior to the crash, it is considered unlikely that any molten solder would remain in streams to be ultimately solidified had the melting occurred during the running of the engine. Furthermore, a dark sooty substance was found in all of the less ventilated areas of the wreckage such as the inside of the starboard mainplane and the tail unit. This is a common finding where an extensive fire occurs after a crash, and, as the position of the starboard engine at rest was adjacent to the main fire area, it seems likely that sections of it not ventilated to the open air might sustain a similar sooty deposit. Also the attitude of this engine at rest was near to the flying attitude which may thus account for the downward flow of solder. The panel is of the opinion, therefore, that the fire that was evident in the induction system could have been the result of a fire which took place subsequent to the crash. There must remain, however, considerable doubt on this point.

6.2.20 The starboard carburettor was submitted to R.A.A.F. Richmond for flow testing, dismantling and inspection. The tests disclosed that over most of the operating range this component would deliver to the engine a slightly over-rich mixture. Apart from this tendency, which would affect engine performance to a very limited extent, no other fault was detected. As a result of these tests it is considered that if any failure of the starboard engine did occur, then such failure would not be due to faulty operation of the carburettor. (See results of flow test at Appendix 30).

6.2.21 Arising from the detailed examination of the engines, various broken studs from the cylinders and from the blower-case to crankcase attachment of the starboard engine, together with the accessory drive gear from the port engine, were submitted to the Aeronautical Research Laboratories, Department of Supply and Development, for metallurgical examination. As a result of this examination no evidence was obtained to suggest that the failures were other than the result of impact.

6.2.22 The port airscrew and reduction gear housing had torn away from the engine on the initial impact. One blade of this airscrew had broken away from the hub at the root and remained embedded in the ground. The remaining two blades still attached to the hub were lying near the point of initial impact and were considerably bent and twisted as a result of striking the ground. The marks on the ground, the bending and twisting of all three blades, together with the fact that one blade remained deeply embedded in the ground indicate that this airscrew was revolving at high speed. As the aircraft was in a stalled condition at the time of impact it is considered that any high rotational speed of the airscrew could only have been due to the engine operating under power. (see photographs 12, 13 and 14, Appendix 32).

6.2.23 Two blades of the starboard airscrew remained attached to the engine. One of these was bent backward and also partly burnt away in the fire, the other was comparatively undamaged and had obviously not struck any object with force. The third blade had been torn away from the hub at the root and was found near to the starboard engine in the area of the main fuselage wreckage. Although the outer third of this blade had been burnt away it was clear that it had been bent backwards in a manner similar to the other damaged blade of this airscrew. The general damage to the starboard airscrew

differed considerably from that of the port airscrew and the indications were that it had not been rotating at the same high speed. The marks on the ground at the point of impact differed entirely from those made by the port airscrew. (See photographs Nos. 13 and 15, Appendix 32). There was no slicing of the ground and the distinct V-shaped impression made by this airscrew is consistent with it having little or no rotational speed at the time of impact. However, as such evidence is dependent on other unknown factors it cannot be regarded as conclusive.

6.2.24 Both airscrews and constant speed governor units were submitted to the De Havilland Propeller Division, Sydney, for testing, stripping and examination. A report on the results of the tests and examination is contained at Appendix 24.

6.2.25 It can be seen that the gear segments of each airscrew were in the fine pitch position and the pitch change mechanism was hard on the stops in the fine pitch position, with the stops undamaged. Nothing was found to indicate any recent feathering operation on either airscrew, in fact, the working surfaces within the feathering range were heavily coated with adhering deposits which suggested that the airscrews had not been feathered in recent operations. The report confirms the panel's observations in regard to the significance of damage to the airscrew blades, as outlined in previous paragraphs.

6.2.26 The constant speed governor unit of the port airscrew was given function tests and all settings were found to be within tolerance. The governor operated normally with the exception of the pressure cut out switch which operated at a pressure lower than normal. It was considered that this discrepancy may have been due to the heat to which it had evidently been subjected. The report contains a conclusion that this governor was at the maximum r.p.m.position, and functioning satisfactorily at the time of the accident.

6.2.27 The function test of the starboard governor unit revealed various pressure discrepancies which were considered to be due to the springs having been affected by heat. It was concluded that this unit was set in the minimum r.p.m. position and was functioning satisfactorily at the time of the accident.

6.2.28 The report at Appendix 24 expresses a view that from the conditions of the airscrews and the governor units it appeared that the starboard engine had either "cut" or "stopped". Whilst the panel is prepared to accept the condition of the airscrew blades as evidence pointing in that direction it considers that the r.p.m. settings of the governor units would be extremely unreliable evidence. The r.p.m. setting is controlled by a cable operated pulley and in this case both the port and starboard cables were broken. Therefore, the r.p.m. setting could easily have changed during impact.

6.2.29 As a result of a thorough inspection of the airscrews and the constant speed governor control units, nothing was found to suggest that either was in other than an airworthy condition at the time of the accident.

6.2.30 The only other portion of the wreckage of any significance was the cockpit escape hatch which was found in a position 90 feet to starboard of the centre

line of the fuselage. The canvas sun blind attached to the underside of this hatch had burnt away and, in so doing, had burnt a small area of grass immediately beneath the hatch. This burnt patch was quite separate from the area of grass affected by the main fire and there is little doubt that the canvas blind had been ignited prior to the escape hatch coming to rest. No evidence was obtained to support any suggestion that this hatch may have been freed from the fuselage prior to impact. On the other hand, the position in which it was found and the ignition of the canvas blind are consistent with it having been detached either on impact or by the subsequent explosion.

6.3 The Flight Path

6.3.1 As far as could be ascertained there was only one actual eyewitness to the take-off and crash of VH-SMK. The eyewitness was Mr. A. Mears who viewed the movements of the aircraft from a position approximately 1½ miles north of the runway on ground some 80 feet above the runway level. (See statement at Appendix 17 and Locality Plan Appendix 44. Mr. Mears first saw the aircraft standing at the southern end of the strip and later saw it commence the take-off run with the head-lights on. He states that the take-off run seemed perfectly normal and that the aircraft appeared to become airborne about halfway along the runway. After becoming airborne it commenced to climb in the normal way and at this point he heard a sound as though the engines were being throttled back. After the aircraft had climbed past the end of the runway, Mears heard a sound as though the "engines" were being opened up to full power. Soon after this, and when the aircraft was at a height of approximately 150 - 200 feet, he observed the landing lights to fade and then disappear completely with the "engines still roaring". Almost immediately afterwards the engine noise ceased simultaneously with a flash that lit the sky and he then saw the wreckage burning.

6.3.2 Another witness, Mr. I. J. Dowell, heard the aircraft take-off and saw the headlights just before it crashed. (See Appendix 7). He states that the engines sounded "very sick" and further described it as a "screaming noise". Later he also saw the headlights of the aircraft and within a matter of seconds the engine noise ceased and the lights went out, followed by flames shooting upwards from the aircraft and finally a flash of fire as the aircraft crashed. This witness was convinced in his own mind that the flames which he first saw coming from the aircraft occurred an instant before it crashed. However, in view of the evidence of Mears, who was in a better position to view the whole of the events, it is considered unlikely that there was any visible fire prior to the aircraft striking the ground.

6.3.3 Mrs. Z. Crookston (see Appendix 4) states that, whilst she was indoors, she heard the sound of engines in the direction of the aerodrome, and that the noise was "so unusual" that she immediately left the room and went out onto the verandah. Although the noise continued she was unable to see any sign of the aircraft. Finally, the engine noise ceased simultaneously with a "bright flash which illuminated the whole sky". This witness is considered to be sincere and reliable. The fact that she has been resident in Camden for a number of years and would have seen and heard innumerable aircraft operating from the aerodrome during that time, makes it

most unlikely that her attention would be attracted to anything that was not unusual. However, she was unable to give any accurate description of the noise she heard apart from the fact that it seemed to be "unusually loud and extremely laboured".

6.3.4 It is considered that evidence arising from an aural source can be misleading and unreliable, particularly as it is often difficult for the witness to give an accurate description of the particular noise. In this case, however, it is felt that the evidence of Mears, Crookston and Dowell cannot be ignored and that it appears more than likely that they did, in fact, hear an unusual sound emanating from the flight of VH-SMK.

6.3.5 One fact which cannot be overlooked when considering this aspect is that the engines of another of the company's aircraft, VH-SMI, were being run whilst on the tarmac at the aerodrome during the time that VH-SMK was taking off. It was not usual for this to occur and it is considered possible that the noise of those engines being run on the ground and the noise from VH-SMK could have combined to create an unusual sound to those who happened to be listening. Nevertheless, against this possibility is the statement of Mr. Mears who was aware of the engines of VH-SMI being run at the time that VH-SMK was taxying on the Southern end of the runway prior to take-off. It was also established that, at no time prior to the crash, were the engines of VH-SMI run beyond approximately 1,000 r.p.m. and would not, therefore, have created any great volume of sound during the take-off of VH-SMK.

6.3.6 The only other witness to give evidence relevant to the take-off was Mr. E. McArthur-Onslow, whose residence is situated on the aerodrome at the position shown on the locality plan at Appendix 44. Mr. McArthur-Onslow states that he heard VH-SMK taking-off whilst he was indoors at his residence and that the take-off sounded normal in every way. He further states that he was certain that the aircraft was airborne at the stage of passing the house and that the normal amount of power seemed to be applied. This witness is an experienced pilot and has been connected with flying for a considerable period of time and his evidence, which is consistent with that of Mears, seems to establish that there was nothing abnormal about the take-off up to the stage of the aircraft passing his house.

6.3.7 An examination of the locality plan at Appendix 44 will show that the aircraft crashed at a point some 400 yards from the end of the strip and on a line approximately 45 degrees to the centre line at its Northern end. (See also photograph 17, Appendix 32). It was also clear from the manner and attitude in which the aircraft struck the ground that it was in a stalled condition and thus out of control at the time. It is clear, therefore, that at some stage after commencing the take-off the aircraft deviated to starboard although the witness Mears detected no such deviation. Bearing in mind that Mears was in a position approximately at right angles to the runway, it is conceivable that he would fail to detect any gradual deviation. On the other hand, it would be expected that any abrupt change of attitude or direction would be apparent to anyone viewing the take-off from Mears's location. The circumstances, therefore, strongly suggest that the deviation was a gradual one rather than a sharp turn at or near the end of the runway and, in any case, possibly did not commence until after passing McArthur-Onslow's residence.

6.3.8 There is no evidence to suggest any reason for the pilot making a deliberate deviation to starboard. Furthermore, as the normal course required to proceed to the destination was well to the West, it would be expected that any deliberate turn would be made to port. The circumstances seem to suggest that the deviation to starboard was in some way connected with the ultimate loss of control.

6.3.9 It is considered that, if the deviation to starboard were due to engine failure, such failure would have been of the starboard engine, as any deviation from a straight path due to a port engine failure would have been to port. The possibility of engine failure is discussed fully at para. 6.5 of this report.

6.3.10 It will be seen from the locality plan at Appendix 44 and from photograph 17 at Appendix 32 that high trees are situated to the right of the Northern third of the runway. Depending on the stage at which the deviation to starboard occurred, the pilot might have been forced to climb the aircraft steeply to avoid the trees. If one engine were inoperative in these circumstances, it is quite possible that the aircraft would stall in the manner in which it is believed to have done.

6.3.11 The position of the crash was some 900 feet beyond the end of the strip and it has been calculated (see Appendix 18) that, had VH-SMK climbed away in a normal manner, it would have attained a height of some 490 feet over this position. If, however, one engine had failed immediately after the aircraft had gained single-engined flying speed, and a single-engined climb subsequently carried out, its height over this position would have been approximately 290 feet. This figure is consistent with the observations of the witness Mears.

6.3.12 After considering all of the known facts, it appears that the early stages of the take-off of VH-SMK were normal and that later the aircraft veered to the right and finally the pilot lost control. Although nothing was found which would indicate, definitely, the cause of either the deviation to starboard or the loss of control, the fact that it did so behave, together with the evidence of witnesses, strongly suggests that there was malfunctioning of an engine or engines due to some cause not disclosed.

6.4 The Loading of the Aircraft

6.4.1 The Operator's Loading Procedure

6.4.1.1 The only system available to this operator for the purpose of correct loading of aircraft is the use of the Load Chart which is made part of each Certificate of Airworthiness.

6.4.1.2 At the time of the accident it was the practice for the city office of the Sydney Morning Herald to phone through to the operating base at Camden the total weight of the paper consignment for a particular scheduled delivery flight. It was usual for this to be done during the afternoon prior to the early morning take-off. The total weight consisted of combined weights of the respective consignments for the various places of call during the flight. Although the individual weights of respective consignments were not given to the operator by the Herald office he was in possession of a "schedule" showing the weights of each consignment for any particular day.

6.4.1.3 The operator, therefore, was in possession of the information necessary to enable aircraft to be correctly loaded on the normal scheduled flights. However, it was admitted that index units were not computed for each specific load, but known weights were placed at predetermined stations within the aircraft to agree with "sample loadings" for which the index units had been calculated, and for which diagrammatic sketches of the distribution of the load within the aircraft had been prepared for the guidance of ground personnel conducting the loading. The figures for the sample loadings have been checked by the Aeronautical Engineering Branch of this Department and it has been found that, providing aircraft were loaded in conformity with the system, the centre of gravity would be within the prescribed limits at the time of take-off.

6.4.1.4 As the type of operations conducted by the organisation calls for the off-loading of sections of the freight, either by landing, or dropping in flight, at various stages throughout each flight, it is obvious that any pre-calculated centre of gravity position may not hold good for the entire flight. Although adjustments to the load are, allegedly, made following each off-loading, the adjustments are not made in conformity with any pre-calculations, nor are any fresh computations made that would indicate conclusively to the pilot that the centre of gravity position remained within the prescribed limits. It appears that the matter of balance of an aircraft at any time after departure is one of estimation based on the particular pilot's knowledge and experience. The statements of Purvis and Swain at Appendices 20 and 22, respectively, make reference to the foregoing.

6.4.1.5 The loading system described in the preceding paragraphs did not apply to the particular flight in question. On this occasion the entire load was intended to be off-loaded at Dubbo, as distinct from other flights where the load is made up of various smaller consignments to be off-loaded at different places. In the latter case, the total weight is sub-divided into a number of known weights, thus permitting a predetermined pattern of distribution to keep the centre of gravity within the limits at take-off, but making no allowances for centre of gravity movement due to off-loading; whereas, in the type of load carried on this flight, only the total weight was known. As there is no provision for the weighing of freight at Camden the load could not be divided into portions of known weights to be placed at various stations throughout the aircraft and thereby permit computations to determine the centre of gravity position. It was admitted that the entire load was merely arranged evenly throughout the loading space within the aircraft, and that the distribution for balance was estimated by visual judgment based on the past experience of those responsible for the loading. It so happened that the centre of gravity on this occasion proved to be within the limits prescribed in the Certificate of Airworthiness. (See para. 6.4.3).

6.4.2 The Loading on this Flight

6.4.2.1 The statements of L. L. Pinner and B. S. Allen, who loaded the freight in VH-SMK on this occasion, indicate that the freight was not tied or secured by any special means. Pinner states that the papers were stacked in such a manner (between the protruding

structures of the aircraft, such as spars and bulkheads) as to make movement of the load "practically impossible". (See Appendices 2 and 19). It is considered, however, that the load as stacked in the two rear compartments would be free to move rearwards or upwards, and the remainder of the load free to move upwards at least, under certain conditions. Whether or not those conditions would be encountered is a matter for conjecture. The fact remains that the load was not secured against movement under all conditions that might reasonably be encountered. This constituted a breach of Air Navigation Regulation 225(c).

6.4.2.2 The Load Sheet issued in respect of VH-SMK for this flight appears at Appendix 33. The pro forma was printed for the Sydney Morning Herald and is of a type not approved by the Director-General. This constituted a breach of Air Navigation Order 100.7.3.13.8.

6.4.2.3 The Load Sheet did not show the correct weight of fuel carried by the aircraft, nor the appropriate index-units for each item of load. This constituted a breach of Air Navigation Order 100.7.3.13.4.

6.4.2.4 The maximum permissible all-up weight of this aircraft was 18,500 lb. and, according to the Load Sheet, this left an unused load capacity of 245 lb. However, subsequent investigation disclosed large discrepancies in certain items shown on this load sheet.

6.4.2.5 The fuel load is shown as 370 gallons, but this figure appears to have been arrived at quite arbitrarily and could not have been the correct value.

6.4.2.6 W. D. Heron, who refuelled the aircraft during the afternoon of the 30th December, has stated that he subsequently dipped the tanks and found 120 gallons in each of the front tanks and 110 gallons in each rear tank, making a total of 460 gallons. L. L. Pinner, who prepared the aircraft for its last flight, dipped the tanks immediately prior to starting and states that on his dipping he found the fuel load to be 400 gallons, evenly distributed in all four tanks. (See statements at Appendices 10 and 19).

6.4.2.7 The trip record for the flight made on the 30th December (see Appendix 37) shows that on return from that flight the fuel remaining was 78 gallons. During the afternoon of that day, W. D. Heron refuelled the aircraft and placed in the tanks a total of 350 gallons (see Appendix 38A) so that, according to documentary evidence, the total fuel contained in the tanks of VH-SMK at that time was 428 gallons. During the Daily Inspection carried out on 30th December the engines were run, and there is nothing to indicate any further running until the starting for this flight.

6.4.2.8 The standard fuel allowance for starting, run-up, and taxying for the Lockheed Hudson is 50 lb. or approximately 7 gallons. Allowing this figure for the run-up during the Daily Inspection of the 30th December, and a similar amount for the engine running immediately prior to the final take-off, then assuming that the figure 428 deduced from documents is correct, the fuel load would have been 414 gallons, weighing 2,981 lb.

6.4.2.9 In view of the wide differences found on the dipping of the tanks of W. D. Heron and L. L. Pinner, and the fact that these differences disagree with the

figures deduced from the previous trip record and fuel receipts, the exact fuel load remains problematical. It is clear that on take-off the fuel state lay somewhere between a minimum of 393 gallons, i.e., 400 gallons as stated by Pinner less 7 gallons allowance, and a maximum of 446 gallons, i.e., 460 gallons, as stated by Heron less 14 gallons double allowance, whereas the Load Sheet states a figure of 370 gallons. For the purpose of compiling the all-up weight for this flight, the statement of L. L. Pinner, who carried out the final dipping of the tanks, has been accepted as a working basis.

6.4.2.10 The freight load is shown on the Load Sheet as 2,919 lb., which is 4 lb. more than the figure stated by the Sydney Morning Herald Circulation Manager. This freight consisted of copies of the Sydney Morning Herald for Sunday, 1st January. However, it was later found that, in addition, copies of the Saturday, 31st December, issue had also been placed on the aircraft and that the actual weight of the freight load was 3,178 lb. The fact that an extra 259 lb. over and above the figure shown on the Load Sheet had been added was not known to the personnel who carried out the loading and who were responsible for compiling the Load Sheet.

6.4.2.11 Items which come under the heading of Removable Equipment, and which are not included in the empty weight of the aircraft, were not shown on the Load Sheet. The Certificate of Airworthiness provides for the use of 33 lb. of equipment under this heading, and covers the following items:-

Cargo nets	6.5 lb.
Cups, spoons, food and water	8.0 lb.
Electric jug	1. 0 lb.
Auxiliary crew seat and safety belt	17.5 lb.
	33.0 lb.

It is known that in this instance cargo nets, auxiliary crew seat and safety belt were not carried, but the indications are that all the other items listed were present. A statement by L. L. Pinner (see Appendix 19A) sets out broadly the items actually placed on board but does not list their weights. In addition to items covered by the Certificate of Airworthiness, a bag of tools of unknown weight and an unspecified quantity of spark plugs were also carried. It is considered that the large quantity of plugs found in the wreckage and the bag of tools would, to a considerable extent, replace the weight of the cargo nets and auxiliary crew seat. In view of the unsatisfactory position regarding the items under the heading of Removable Equipment, it is considered that the weight should be taken as the full 33 lb. allowed by the Certificate of Airworthiness.

6.4.2.12 It is considered that a more accurate statement of the all-up weight at the time of take-off would be as follows:-

Item		Weight (lb.)
Empty weight of aircraft	..	12,116
Fuel (393 gallons)	..	2,830
Oil (24 gallons)	..	216
Crew (2)	..	340
Freight	..	3,178
Removable Equipment	..	33
Total	..	18,713 lb.

6.4.2.13 The panel is satisfied that at the time of take-off the all-up weight of VH-SMK exceeded the maximum permissible weight by at least 213 lb. This constituted a breach of Air Navigation Regulation 227 (1).

6.4.3 Position of the Centre of Gravity

6.4.3.1 The question of the all-up weight has been discussed in the foregoing paragraph and for purpose of estimating the centre of gravity the amended figures given in that paragraph have been used.

6.4.3.2 The freight loading on the night of the accident was carried out in a manner dictated by the past experience of the loading crew, and it appears that nothing more satisfactory than a visual check was used to ensure correct loading. None of the personnel concerned knew the exact weight in each compartment of the aircraft, the whole operation being based merely on visual estimation. To enable some definite values of loads in each section of the aircraft to be determined, the Sydney Morning Herald was requested to provide a duplicate load corresponding to that carried on the night of the accident, with each individual bundle marked with its weight. At the time of making up this duplicate load the Circulation Manager of the Sydney Morning Herald discovered the discrepancy of 263 lb. in the total weight. (See Appendix 8).

6.4.3.3 The duplicate load was placed into another of the operator's Hudson aircraft by the same personnel who loaded VH-SMK, and in conformity with their statements as to the original loading. It was found that the freight was distributed as follows:-

Compartment A	..	960 lb.
B	..	1428 "
C	..	632 "
D	..	158 "
Total	..	3178 lb.

The figures for this distribution, which are considered the nearest possible estimate to the actual conditions, together with data relative to the other items of the load, were submitted to the Aerodynamics and Flight Engineering Section of this Department for the purpose of calculating the centre of gravity. The results of the calculations are given at Case B of Appendix 18. From this it is evident that at the time of the take-off the centre of gravity of the aircraft was within the limits laid down in the Certificate of Airworthiness.

6.5 Consideration of some Possible Causes

6.5.1 Engine Failure

6.5.1.1 The possibility of engine failure being a contributory cause of the loss of control was strongly indicated by the pattern of the flight path and the statements of witnesses, consequently considerable thought has been given to this matter.

6.5.1.2 The evidence of witnesses who heard the take-off is conflicting and in no way conclusive. Two of the witnesses who heard the aircraft from a position about a mile distant in the township of Camden speak of the unusual nature and volume of the engine noise and indicate that it was of some duration. (See Appendices 4 and 7, together with Appendix 44. Their evidence conflicts with that of Mears (Appendix 17) who saw and heard the whole of the take-off from a distance of 1½ miles in the opposite direction. He states that the behaviour and noise of the aircraft were normal until after it had passed the end of runway. It was at this stage that he heard the engine noise increase considerably and, to him, it sounded as if full power had been applied. The only other witness, Mr. McArthur-Onslow, who was situated about two-thirds of the distance along the runway and approximately 300 yards to one side, described the noise as perfectly normal when the aircraft passed him; after that he heard nothing to attract his attention. (See Appendices 16 and 44). His evidence agrees with that given by Mears, and their combined evidence suggests that any unusual noise could only have been of short duration.

6.5.1.3 Discounting the conflict in the evidence of the abovementioned witnesses, the panel is reasonably satisfied that some unusual sound was heard and that there is little doubt that this emanated from the running of the engines of VH-SMK. Furthermore, it seems probable that the sound was of short duration and, therefore, probably occurred during the final stages of the flight. If the descriptions of the noise could be taken as accurate, it would be consistent with full power being applied to either one or both of the engines.

6.5.1.4 It is possible that an unusual sound, such as described, would occur as a result of the aircraft stalling and then diving to the ground. However, the evidence of Mears (see Appendix 17) seems to dispel this possibility. He states that he was certain that the headlights were still visible when he heard a noise as though "excessive" power had been applied. He later saw the headlights disappear before the aircraft finally crashed. As Mears was approximately 1½ miles away the sound would have taken some 6 or 7 seconds to reach him; therefore, any sound resulting from the dive would have reached him well after the crash. In view of the fact that this witness saw the whole of the events it seems unlikely that he would be mistaken on this point.

6.5.1.5 The findings resulting from the detailed examination of the airscrews and the constant speed governor control units are discussed under the heading "Examination of the Wreckage". There was no evidence to suggest that either the airscrews or the governor units had not been operating satisfactorily at the time of the accident.

Both airscrews were apparently at or near the full fine pitch position at the time of impact and there was evidence to indicate that the airscrews had not been feathered in recent operations.

6.5.1.6 The dissimilarity of the marks made on the ground by the airscrews during impact and the resultant damage to them has already been discussed at paras. 6.2.22 and 6.2.23. Photographs Nos. 10, 12 and 14 at Appendix 32 show these dissimilarities. The fact that all three blades of the port airscrew were considerably twisted as well as bent, and that one blade became deeply embedded in the ground before breaking away from the hub at the root, is strongly indicative of a high rotational speed at the time of striking the ground. As the speed of the aircraft is considered to have been comparatively low at the time of impact, it would seem that any high rotational speed of the airscrew could only have been due to power being applied. On the other hand, two blades of the starboard airscrew were bent backwards with very little twisting and the third blade was practically undamaged and did not strike the ground during impact. It is clear that this airscrew did not complete one revolution after striking the ground although the impact forces were much less than those on the port airscrew. It is strongly suggestive, therefore, that this airscrew was rotating at a much lower speed.

6.5.1.7 Discounting mechanical failure or extraneous forces of which there is no evidence, it is considered that there are three separate ways in which the speed of rotation of a constant-speed airscrew can be varied. Firstly, by a variation in the application of power from the engine, secondly, by the deliberate alteration of the blade angles either by the manipulation of the pitch controls or feathering mechanism and, lastly, by a variation in forward speed of the aircraft. As previously stated, there is little doubt that the aircraft had stalled, and that at the time of impact the forward speed was comparatively low. Assuming that no power was applied under these conditions, the airscrews would tend to move to full fine pitch; the speed of rotation, however, would be comparatively low. Therefore, if it can be accepted that the port airscrew was rotating at high speed, and the starboard airscrew at a comparatively low speed, it would seem that the difference could only have been brought about either by a difference in the amount of power applied by each engine or by a deliberate alteration of the blade angles by the pilot. This could only be true, however, provided there was no mechanical defect in the airscrews. No such defect was discovered.

6.5.1.8 Full details covering the findings resulting from a thorough inspection of the engine are discussed under the heading "Examination of the Wreckage". It is to be seen that there was no evidence of any mechanical failure or defect having occurred prior to the crash. Also discussed under that heading is the evidence of a small fire having taken place in the induction system of the starboard engine. Although the panel considers it likely that this fire occurred after the crash the evidence does not enable any conclusive finding.

6.5.1.9 Although the examination of the engines and their accessories offered no evidence to support any suggestion of engine failure, certain sections of the fuel system which could have affected the operation were totally destroyed. However, the fuel tank and engine selector valves were recovered and examined. The position of the Tank Selector indicated that the rear starboard tank had been selected. The Engine Selector was found in a position midway between the positions "Both Engines" and "Starboard Engine", the correct position being "Both Engines". As previously mentioned, this valve is cable operated and, therefore, capable of being moved during the crash; thus the position in which it was found is not conclusive evidence.

6.5.1.10 To summarise the possibility of engine failure it can be said that there is strong evidence suggesting that there was abnormal functioning of one or both engines during the latter stages of the flight. The pattern of the flight path suggests that if there were engine failure, it was more than likely the starboard engine. The damage to the airscrews and the marks made on the ground suggest that the starboard airscrew was rotating at a much lower speed than the port airscrew. Further, it seems that this difference in speed was probably due to less power being applied to the starboard airscrew at the time of impact.

6.5.1.11 Although it cannot be definitely determined whether or not there was engine failure to contribute to the accident, the following facts point to the starboard engine either having failed completely or suffered a considerable reduction in power output for some reason not evident:-

(a) The aircraft stalled and crashed out of control without any apparent abnormal gain in altitude.

(b) Unusual noise was heard by several witnesses.

(c) The aircraft veered to the right.

(d) The damage to the airscrews and the marks on the ground were distinctly dissimilar, and such as to indicate that the starboard airscrew was rotating at a much lower speed than the port.

6.5.2 Structural Failure

6.5.2.1 Details of the examination of the wreckage are contained at para. 6.2 It can be seen that nothing was found that would create the slightest suspicion of structural failure of any component of the airframe. On the other hand there were sections which had been totally destroyed and from which nothing conclusive could be gained.

6.5.2.2 The whole of the empennage was practically undamaged and a thorough examination of this section revealed nothing which might have contributed to the loss of control. The starboard wing outboard of the engine nacelle including the aileron was intact and offered no sign of any pre-crash defect or failure.

Although the port wing was extensively damaged by impact, fire and an explosion which occurred after the crash, the marks on the ground at the point of impact showed that this wing was structurally whole throughout its length and correctly positioned relative to the fuselage at the time of the crash.

6.5.2.3 Close and repeated examinations were made of the take-off strip, and the area between the strip and the scene of the crash. Nothing was found to indicate that any portion of the aircraft had become detached or that the aircraft had struck any object during the take-off and climb.

6.5.2.4 Although the degree and extent of damage to the aircraft was such as to make it impossible to determine definitely whether or not there was structural failure of the airframe or its components, the panel is satisfied that there was nothing evident to substantiate the possibility.

6.5.3 The Loading

6.5.3.1 The all-up weight of the aircraft, the distribution of the load and the centre of gravity have been discussed fully at para. 6.4.2 and 6.4.3. It can be seen that the all-up weight of VH-SMK on this flight is not accurately known. There is no question, however, but that the maximum permissible weight was exceeded by at least some 213 lb. This figure is an estimation based on the evidence offered by witnesses' statements and various documents and is considered to be the minimum degree of overload that could have existed. Likewise, the maximum degree of overload that could have existed at take-off is considered to be 594 lb. This latter figure being based on a fuel load of 460 gallons at the time that the aircraft was refuelled and the tanks dipped by W. D. Heron, on the afternoon of the 30th December, following which this was the first flight.

6.5.3.2 In view of the uncertainty of the actual fuel load and the possibility of movement of load during take-off, various possible combinations of load were submitted to the Aeronautical Engineering Branch for calculation of centre of gravity. The results of these calculations are given in the statement at Appendix 18 and it is evident that, even under the most unfavourable conditions of load, the centre of gravity would be within the permissible limits prescribed by the Certificate of Airworthiness.

6.5.3.3 On the available evidence the panel is satisfied that, at the time of the accident, the centre of gravity was within the prescribed limits and that the distribution of load had no bearing on the loss of control. On the other hand, however, the panel is also satisfied that the all-up weight of the aircraft at take-off was between 213 and 594 lb. in excess of the maximum permissible weight. In normal circumstances an overload, even to the extent of 594 lb., if properly distributed would have no appreciable effect on the performance of the aircraft. Even under adverse conditions it is unlikely that an overload of some 200 lb. would affect the issue. However, in view of the uncertainty in regard to the precise degree of overloading in this case, the panel is reluctant to dismiss entirely the possibility of the overloading being a contributory cause of the loss of control.

6.5.4 Misuse of Automatic Pilot

6.5.4.1 The apparent behaviour of the aircraft and the consequent loss of control in this accident could possibly have been due to misuse of the automatic pilot, but no evidence could be obtained to substantiate this possibility.

6.5.4.2 Only two items of the automatic pilot system were recovered, namely, portions of the servo unit and the cockpit ON-OFF control. The only identifiable portions of the servo unit were the three piston rods - the pistons themselves and the remainder of the unit had been completely destroyed by the intense heat - consequently no conclusions could be drawn from an examination of this unit. The cockpit ON-OFF control was so designed that a separate action was required before the lever could be moved to the ON position. When recovered, the control lever was in the OFF position and the manual release catch was still engaged, thus locking the lever in this position. These positions are regarded as a fairly reliable indication that the automatic pilot was not engaged at the time of the accident.

6.5.4.3 The only reason for the engagement of the automatic pilot on the ground would be under strong wind or gusty conditions when its use would be in the nature of a control lock. On the night of the accident the weather conditions at Camden were such that the wind was negligible and it is highly improbable that the automatic pilot would be engaged for control lock purposes. Evidence has been obtained from the Manager of the organisation that instructions had been issued prohibiting its engagement below cruising altitude and that he had never known of an instance within the organisation when the automatic pilot had been used on the ground for taxying.

6.5.4.4 Thought was given to the possibility of the automatic pilot engaging lever being mistaken for some other control and thus involving inadvertent engagement of the automatic pilot. The only controls which could reasonably have been confused are those of the automatic pilot and the tail wheel lock. These controls, however, operate in such a way that, had the auto pilot lever been mistaken for the tail wheel locking lever and used as such to attempt to lock the tail wheel, the result would have been the disengagement of the auto pilot.

6.5.4.5 Although the available evidence on this aspect is insufficient to permit any conclusive finding, it is considered that misuse of the automatic pilot was extremely unlikely.

6.5.5 Failure of Flight Instruments

6.5.5.1 No evidence was obtained during the examination of the wreckage which would indicate conclusively whether or not the flight instruments were operating correctly. All the instruments had either been destroyed or damaged to an extent which did not allow any conclusions to be drawn as to their behaviour before the crash. The only portion of the flight instrument system which was recovered was the Vacuum Selector Cock. The selection which had been made indicated that the vacuum system was being operated from the starboard engine.

6.5.5.2 In the event of a starboard engine failure the function of all vacuum operated instruments would be affected, and in this instance there is strong evidence indicating the possibility of such an engine failure. However, it is known that any failure of the engine could only have taken place during the final stages of the flight, in fact, a matter of seconds before the final loss of control. Over such a short period the loss of vacuum pressure would only have affected the instruments to a slight extent, which would be in no way consistent with the abrupt loss of control evident in this instance.

6.5.5.3 The take-off was made in reasonable weather, from a runway along which flares had been laid for the entire length, and in addition full use was made of the aircraft headlights. It is beyond question that, under these conditions, a pilot of Cruickshanks's experience would have been able to carry out the initial part of the take-off without reference to the vacuum operated instruments. If these had failed he would have experienced difficulty in controlling the aircraft only after losing sight of the flarepath. It can only be concluded that even if the instruments had failed the take-off would have been normal to a position approximately at the end of the runway.

6.5.5.4 The position of the wreckage was some 400 yards from the end of the runway and 300 yards to the starboard side. To reach this position and stall the aircraft a matter of seconds after leaving the end of the strip, where it would be known to the pilot that the aircraft was in a normal climbing attitude, could only be effected by a violent and unnatural use of the controls. It is considered highly improbable that an experienced pilot would make such use of the controls as a result of faulty instruments.

6.5.5.5 The circumstances of this accident in no way conform with the pattern associated with the failure of flight instruments and, in fact, are considered to be quite inconsistent with such failure.

6.5.6 Control Locks

6.5.6.1 The control locks used on VH-SMK were of the type fitted in the cockpit and it was ascertained that external gust locks were not used on the Sydney Morning Herald Lockheed Hudson type aircraft. The type of internal lock fitted to VH-SMK was standard. The ailerons and elevators were restrained by a bar fitted between the control pedestal and the port side of the fuselage, the movement of these controls being restricted by straps which couple them to the bar. The rudder lock was fitted to the floor of the cockpit and when engaged held the rudders rigidly.

6.5.6.2 The bulky and obtrusive nature of these control locks renders the possibility of their having been inadvertently left in position most unlikely. Further, the behaviour of the aircraft on take-off and the fact that it maintained an apparently normal angle of climb after take-off are circumstances inconsistent with control locks being fitted during take-off.

6.5.7 Physical Collapse of the Pilot

6.5.7.1 Evidence given by the aircraft despatch crew establishes that R. E. Cruickshanks was occupying the first pilot's seat in the aircraft as it taxied away from the tarmac, and it seems reasonably certain that he was occupying that seat and was in command at the time of the take-off.

6.5.7.2 His R.A.A.F. medical record shows that he suffered no physical or mental weakness during his service career which could cause him to become suddenly incapable of controlling the aircraft. Subsequent to his discharge from the service he is known to have been medically examined on four occasions, the last of these being in February 1949, and none of these examinations revealed any disability. Three of these examinations were conducted to the Commercial Pilot's licence standard and were carried out by practitioners authorised for the purpose by this Department. Evidence given by Cruickshanks's close associates over the two years preceding the accident indicates that his health was good. His movements for the six hours preceding the accident have been established and from these it is evident that he was in perfectly normal health and spirits prior to commencing the flight.

6.5.7.3 Medical evidence submitted by the Superintendent of Aviation Medicine as the result of post mortem examination (see Appendix 26) discloses no trace of alcohol in either pilot.

6.5.7.4 While the physical collapse of the pilot cannot be entirely eliminated in accidents of this nature, the Captain's medical history and the circumstances of the accident indicate that such was most unlikely in this case.

6.6 The Weather

6.6.1 The Route Forecast issued for the intended flight appears at Appendix 35. This forecast has been compiled to cover the period from 0315 hours to 1000 hours E.S.T. on the day of the accident, whereas the departure of VH-SMK was made some two hours before the commencement of that period. However, since the only conditions which could possibly have any bearing on the accident are those that existed at the time of take-off, this irregularity has been disregarded for the purposes of this report and will be pursued separately.

6.6.2 It is known that current meteorological data were passed to the Herald Flying Services by telephone from Sydney shortly before the take-off of VH-SMK. At that time an unofficial observer at Camden reported the cloud base there to be 12,500 feet. As the Kingsford Smith Airport was closed due to low cloud, it was on the information given by the Camden observer that Air Traffic Control issued the initial clearance for the flight. (See Appendix 25).

6.6.3 Information was sought from the Meteorological Branch concerning the exact conditions pertaining to Camden at the material time. Their report appears at Appendix 31. It can be seen that the information supplied covers two separate observations made at Mascot at times

rather widely spaced on either side of the time of the accident. For this reason the evidence of witnesses who observed the weather at Camden at or near the time of the crash has been accepted as more reliable.

6.6.4 Captain D. H. Swain, Flight Superintendent for the Herald Flying Services, has stated that the weather conditions were reasonably good, with cloud consisting of 4/8th cumulus and strato-cumulus at 4-6000 feet over the aerodrome with the base lowering to the North where thunderstorms were evident. He further states that visibility was good and estimated to be between 10-20 miles to the North and unlimited to the South, with winds light and variable. The humidity was high and a very light drizzle of rain existed. (See Appendix 22). Captain Swain was due to take off in VH-SMI shortly after VH-SMK, and for this reason it seems that he would be conscious of the weather conditions and his evidence in this respect is most likely reliable.

6.6.5 Two other witnesses who were present on the aerodrome at the time of departure of VH-SMK have given their impressions of the weather. L. Pinner, at Appendix 19, states that it was generally overcast with some thunder and lightning, but rain had not started to fall, and R. Allen (Appendix 1) states that it was clear with no rain falling. The only other evidence given in respect of the weather was by A. Mears who was situated 1½ miles from the aerodrome. He has stated that it was "drizzling slightly , moderate wind". (See Appendix 17).

6.6.6 Whilst it can be seen that the impressions gained by various witnesses differ slightly, their combined observations are not inconsistent with the conditions that might be deduced from the Route Forecast and the observations supplied by the Meteorological Branch (Appendices 25 and 35). It seems reasonably certain that the weather was not bad, and at the worst there may have been slight drizzling rain at the time of the take-off. The evidence of the witness Mears seems to establish that the visibility was reasonably good and that VH-SMK did not enter cloud at any time prior to the crash.

6.6.7 On the available evidence on this subject, it is considered most unlikely that the weather prevailing at the time had any bearing on the accident.

6.7 <u>The Circumstances Connected with Cruickshanks's Failure to Obtain the Necessary Licences</u>

6.7.1 The records of both the Head Office and the Regional Office of this Department indicate clearly that Cruickshanks had held no form of valid Pilot Licence after the expiry of his Student Pilot Licence on 30th June, 1948. Despite this fact, the evidence of a number of witnesses indicates that he was in possession of, and produced at various times, a document purporting to be a valid Commercial Licence, duly endorsed for both the Lockheed Hudson and C.47 type aircraft. In view of this conflicting evidence, the panel has spent considerable time and effort in an endeavour to determine the true facts underlying this matter. To this end it was considered necessary for the answers to the following questions to be established:-

(a) Are the departmental records an accurate indication of the pilot's status?

(b) If (a) is in the affirmative - was the pilot in possession of, and did he produce from time to time, a document purporting to be a valid Commercial Licence? and

(c) If (b) is in the affirmative - what were the reasons for the pilot's failure to obtain a valid Licence?

In considering the question at (a) it must first be stated that both Head Office and the Regional Office records agree in detail and, in so far as medical examinations are concerned, the Aviation Medicine Branch records agree with all other departmental records.

6.7.2 The sequence of recorded events in chronological order is as follows:-

(i) 31st October, 1946, R. E. Cruickshanks medically examined by Dr. C. H. Walsh at Bradfield Park, N.S.W. - assessed fit to hold Commercial Licence.

(ii) 20th November, 1946, Cruickshanks advised of the result of the above medical examination.

(iii) 9th December, 1946, Cruickshanks applied for issue of Commercial Pilot's Licence.

(iv) 13th December, 1946, underwent written examination in Air Legislation.

(v) 20th December, 1946, advised by Department that he failed Air Legislation examination and advised to undergo further examination.

(vi) 9th January, 1947, underwent further examination Air Legislation - result pass.

(vii) 10th January, 1947, advised by telegram that Commercial Pilot's Licence could be anticipated.

(viii) 16th January, 1947, issued with "B" Commercial Pilot Licence No. 2053 endorsed for Avro Anson and D.H.82 valid until 30th April, 1947.

(ix) 3rd June, 1947, medically examined by Dr. E. C. Heffernan, Sydney, assessed fit to hold Commercial Licence.

(x) 5th June, 1947, Cruickshanks wired Department requesting result medical examination of 3rd June.

(xi) 14th July, 1947, advised result of medical examination 3rd June.

(xii) 1st September, 1947, applied for Student Pilot Licence and at the same time forwarded time-expired Commercial Licence No. 2053.

(xiii) 8th September, 1947, Cruickshanks wired Department requesting authorisation Student Pilot Licence.

(xiv) 10th September, 1947, advised that Student Pilot Licence issued 9th September, 1947.

(xv) 11th September, 1947, Student Pilot Licence No. 629 endorsed for Avro Anson and D.H.82 valid until 30th June, 1948, forwarded.

(xvi) 11th December, 1947, medically examined by Dr. E. C. Heffernan, Sydney, assessed fit Airline Transport Pilot Licence.

(xvii) 6th August, 1948, requested by letter from Department to forward Student Pilot Licence together with enclosed Application for Renewal Form in order that licence could be renewed for a period until 31st December, 1948. Also warned that any flying carried out whilst licence expired constituted a breach of the Regulations.

(xviii) 29th November, 1948, examined orally by Regional Examiner of Airmen on Pilots Flight Engineering for Hudson type aircraft - result, pass.

(xix) 14th July, 1949, flight-tested by Regional Examiner of Airmen for Instrument Rating - test satisfactory.

(xx) 4th August, 1949, Head Office requested Regional Office to advise the type of equipment for which instrument rating was granted to Cruickshanks and whether or not the rating had been endorsed in his licence.

(xxi) 8th August, 1949, Regional Office reply to the effect that Cruickshanks had been advised to submit his Commercial Licence to the Regional Office for endorsement of Instrument Rating.

(xxii) 12th September, 1949, a letter from Head Office to the Regional Office advising that according to Head Office records Cruickshanks did not possess a valid Pilot Licence and requesting that a check on his licence be made.

(xxiii) 13th September, 1949, Regional Office despatched a letter to G. H. Purvis, Manager Herald Flying Services, requesting that Cruickshanks's Commercial Pilot Licence be forwarded for the purpose of endorsement of the Instrument Rating. (See Appendix 43).

6.7.3 The Regional Office letter of 13th September, 1949, is the last record of any reference to Cruickshanks.

6.7.4 Every avenue has been explored to determine whether or not any documents relating to R. E. Cruickshanks could be missing from his Pilot Licence file. Files in respect of licencees of like names in all categories have been checked to ensure that no document has been misplaced or incorrectly filed and the result has been negative. The medical records of pilots are kept by the Aviation Medicine Branch quite independent from any other records

within the Department's Head Office or Regional Office and all communication with approved Medical Practitioners is through a direct channel between the Superintendent of Aviation Medicine and the practitioners. Both these records agree, and show that Cruickshanks was not medically examined for the purpose of issue or renewal of a pilot licence after December 1947 and that there was no issue or renewal of any form of licence after that date. This is considered to be conclusive evidence that the records are correct.

6.7.5 The panel is satisfied that departmental records are an accurate indication of Cruickshanks's official status as a pilot and that he did not, in fact, possess any form of valid pilot licence at the time of the accident.

6.7.6 For the answer to question (b) at para. 6.7.1 the panel has had to rely almost entirely on statements given by witnesses. The only papers or documents recovered from Cruickshanks's personal effects, which have any bearing on the matter, were his expired old type "B" Commercial Licence, his time-expired Student Licence, Certifications of Competency for both the Lockheed Hudson and C.47 type aircraft issued by G. H. Purvis, and his Third Class Aircraft Operator's (Radio) Certificate of Proficiency issued by the Postmaster-General's Department. No document purporting to be a valid Commercial Pilot Licence in respect of Cruickshanks has been found. The Certificate of Competency in respect of the two types of aircraft issued by Purvis should have been forwarded to this Department in the normal course of events for the endorsement of these types on his licence. Cruickshanks, however, failed to carry out this action.

6.7.7 It is on record that when Cruickshanks applied for a Student Pilot Licence in September, 1947, he also forwarded his time-expired "B" Commercial Licence No. 2053. At this time the Department was progressively changing the form of all pilot licences to conform with the I.C.A.O. agreement and, although the fact is not recorded, it seems more than likely that his "B" Commercial Licence was at that time endorsed "expired" and returned to him. The old type licence recovered (see Appendices 41 and 42) seems to bear this out. It appears, therefore, that after the 9th September, 1947, the date of issue of the Student Licence, the only documents in the form of Pilot Licences officially held by Cruickshanks were Student Pilot Licence No. 629 endorsed for Avro Anson and D.H.82 type aircraft with a period of validity extending to 30th June, 1948, and the old type "B" Commercial Licence No. 2053 plainly endorsed "expired" (see Appendix 42).

6.7.8 The foregoing would be the state of affairs existing at the time of his engagement as a First Officer with the Herald Flying Services in December 1947. Captain Purvis has emphatically stated at Appendix 20B that he examined Cruickshanks's licence at that time and satisfied himself "without doubt" that Cruickshanks held a valid Commercial Licence. Furthermore, Purvis has stated that he had sighted Cruickshanks's Commercial Licence on other occasions, subsequent to his engagement, when Purvis requested that it be produced for the purpose of ensuring that it had been renewed at the relevant times, and that the necessary endorsements for aircraft types, etc., had been carried out. (See Appendix 20).

In addition to Purvis, other witnesses have given evidence of having sighted Cruickshanks's Commercial Licence under various circumstances. Among these witnesses are Captain Swain, Flight Superintendent, Herald Flying Services; Mrs. Cruickshanks, wife of the deceased; and First Officer Selwyn, who shared a room with Cruickshanks at the aerodrome (see Appendices 22, 5 and 21). The evidence of Captain Jenkins at Appendix 12 indicates that Cruickshanks was carrying on his person some form of Pilot Licence on the day prior to the accident.

6.7.9 In considering the value to be placed on the evidence of these witnesses, it must be borne in mind that, with the exception of G. H. Purvis and P. Cruickshanks, all gave their evidence without knowledge of the true situation revealed by departmental records. It is unlikely, therefore, that there could be, at that stage, any motive for telling other than the truth. On the other hand, Purvis had been made aware, prior to making his statement, that Cruickshanks did not hold a valid licence. He endeavoured to show that he employed a system whereby all licences were personally inspected by him periodically to ensure that they had been duly renewed and that they contained the necessary endorsements (see Appendix 20). However, this system, which depended on the Secretary bringing to his notice the dates of expiry of Pilots' Licences, was subsequently proved to be not reliable after March 1949. (See statement by past Secretaries of the Herald Flying Services, Mrs. M. P. Maundrell and Miss T. Haddin - Appendices 15 and 9).

6.7.10 One fact which seems to give strong support to Purvis's statement regarding this system is that in a previous accident involving an aircraft of this organisation the licence of the pilot-in-command was found to be not endorsed for the aircraft type. Purvis claims that, following that accident, he became extremely conscious of Pilot Licence details and was meticulous in his efforts to avoid any repetition of the previous irregularity. Cruickshanks was first employed by the organisation soon after that accident and it seems almost certain that either Captain Purvis or Captain Swain would have viewed Cruickshanks's licence on more than one occasion prior to March 1949. It is considered, therefore, that Purvis, at least, has good reason to be certain in his own mind that Cruickshanks held the necessary valid licence.

6.7.11 If the foregoing argument is accepted, it must also be accepted that Cruickshanks was in possession of a document purporting to be a valid Commercial Licence in respect of himself and that such document was either forged or defaced in such a way as to mislead any persons to whom it was presented for inspection. The evidence of I. Hodder, Departmental Examiner of Airmen (Radio), to the effect that Cruickshanks avoided presenting his licence when requested to do so, is considered significant in this respect. (See Appendix 11). It is also strange, to say the least, that a letter sent to the Manager of the Herald Flying Services on 13th September, 1949, requesting that Cruickshanks's Commercial Licence be forwarded in order that an Instrument Rating be endorsed, was not to be found on the files of that organisation. The Manager and the Secretary have both stated that they had never sighted the original of that letter (see Appendices 20 and 15). The inference that could be drawn from this is that Cruickshanks had good reason to ensure that such a letter was not sighted

by the management, and that it may have been convenient for him to intercept such a letter on its arrival at the office of the organisation.

6.7.12 An examination of Cruickshanks's old type "B" Commercial Licence and his Student Pilot Licence reveals their condition to be such as to make it almost certain that those documents were not used by him to effect the apparent deception. This means that it would be necessary for him to obtain an Aircrew Licence cover and a Commercial Licence form, and enter, or have entered, on those papers such details and entries as would be necessary to create the impression that the whole was a valid Pilot Licence. Whilst there is a number of possible ways in which this could be done, no evidence was obtained which might point to any method in particular having been adopted.

6.7.13 The panel has been faced with no alternative but to conclude on the available evidence that R. E. Cruickshanks did possess and produce from time to time, a document purporting to be a valid Commercial Licence.

6.7.14 With regard to the question (c) at para. 6.7.1, several possible reasons for Cruickshanks not obtaining a valid licence have been considered.

6.7.15 At first it was thought that the only logical explanation for his not obtaining a licence was one based on medical grounds. The strongest evidence in support of this being the fact that he had qualified in all respects, other than medical, to meet the requirements of this Department. On examining the position further, however, it was found that there is circumstantial evidence, at least, to refute any such theory. Firstly, there is the evidence of G. H. Purvis, who claims that he satisfied himself that Cruickshanks held a valid Commercial Pilot Licence at the time of engaging him as a pilot on 17th December, 1947. It is known that he did not, in fact, possess a valid Commercial Licence at that time, nor did he possess any licence which might reasonably have passed as being a valid Commercial Licence. Therefore, if Purvis's statement is correct, Cruickshanks was in possession of a bogus document on or about the 17th December, 1947, and it follows that if there were any motive for deception such motive existed at that time. The fact that Cruickshanks had undergone and passed his last official medical examination on 11th December seems to be conclusive evidence that medical considerations could not have been a motive for any such deception. Further, the evidence of Dr. Watson of Nowra (see Appendix 27), indicates that he examined Cruickshanks in February 1949 and found him to be fit. In addition to this evidence, there are the statements of various persons who were associated with him in some way, and who claim, without exception, that they had never known Cruickshanks to suffer from any illness, and that he always appeared to be perfectly fit. His medical records, both R.A.A.F. and civil, are quite clear of evidence to indicate that any latent disability existed.

6.7.16 Any suggestion there might be that Cruickshanks's failure to obtain a licence was due to ignorance in respect of the requirements cannot be sustained if it is accepted that he was producing a faked document. In any event, he was reminded in August 1948 that his Student Licence had expired and that any flying carried out before the licence was renewed would constitute a breach of the Regulations.

6.7.17 The fact that Cruickshanks did not forward to this Department the certificates of competency for D.C.3 and C.47 type aircraft issued by Purvis, that he made no move to bring to a conclusion the Instrument Rating test and the Radio test conducted by Examiners of Airmen, and that he failed to undergo any official medical examination after 11th December, 1947, seems to indicate quite conclusively that he knowingly and deliberately refrained from obtaining a valid Pilot Licence. On the available evidence the panel has been unable to determine the reasons for his actions in this matter.

6.7.18 The circumstances are not clear whereby it was possible for Cruickshanks to operate as a Commercial Pilot with a regular operator for a period of 18 months without a valid Pilot Licence and, at the same time, not be detected by this Department. It appears from the Head Office licence file that, after Cruickshanks had been advised in August 1948 to forward his Student Licence for renewal, no further action was taken until July 1949 when the Regional Office forwarded a report on the flight Instrument Rating test. It was then that the Regional Office was advised that Head Office file indicated that Cruickshanks held no valid pilot licence and that a check should be made by the Region. This advice was despatched on September 12, 1949, and the Regional file indicates that on 13th September, 1949, a letter was despatched to the Manager of the Herald Flying Services requesting that Cruickshanks's Commercial Pilot Licence be forwarded for the purpose of endorsing the Instrument Rating. For unexplained reasons this letter did not reach the management and there was no follow-up action by the Regional Headquarters. Although it is usual for this Department to pursue matters of this nature to a stage where the pilot is finally advised that his name will be struck off the Register, such was not done in this case. However, the responsibility of ensuring that a pilot has a valid licence is, and always has been, one that rests entirely on the pilot concerned.

6.7.19 Whilst the failure of a pilot to obtain a valid licence could, in certain circumstances, point to some aspect having bearing on the cause of a particular accident, the panel is satisfied that there is nothing in the evidence available, in respect of this case, which might suggest that the pilot's failure to hold a valid licence had any bearing, either directly or indirectly, on this accident.

7. FINDINGS

From the evidence obtained, it is found that:-

7.1 At 0057 hours on 1st January, 1950, Lockheed Hudson aircraft, VH-SMK, owned by John Fairfax and Sons Pty. Ltd., and operated by the Herald Flying Services, dived into the ground after taking off from the Camden aerodrome, Camden, New South Wales.

7.2 The aircraft was engaged on a newspaper delivery flight from Camden to Dubbo, and carried a crew of two pilots, Captain R. E. Cruickshanks and First Officer R. B. Purvis, who were the sole occupants.

7.3 Both occupants were killed in the crash.

7.4 The aircraft was destroyed by impact and fire.

7.5 Damage to property other than the aircraft and its contents was negligible.

7.6 The Certificates of Registration, Airworthiness and Safety in respect of the aircraft were in order, and there was no evidence to suggest that the aircraft was other than airworthy at the time of departure.

7.7 The Captain of the aircraft had not held any valid Pilot Licence since June 1948. This constituted a breach of Air Navigation Regulation 50 (1).

7.8 The Captain was competent to act as pilot-in-command of Lockheed Hudson type aircraft, and there were no apparent circumstances to prevent him from obtaining the necessary Pilot Licence, had he applied for such Licence to be issued.

7.9 The First Officer was correctly licensed for the duties he was performing, and he was competent and licensed to act as pilot-in-command of Lockheed Hudson type aircraft under Visual Flight Rules.

7.10 There was no suggestion of either pilot being physically incapable of exercising normal control of the aircraft.

7.11 At the time of take-off, VH-SMK was loaded to an all-up weight which was between 213 lb. and 594 lb. in excess of the maximum weight permitted by its Certificate of Airworthiness. This constituted a violation of Air Navigation Regulation 227.

7.12 Although the load was correctly distributed within the aircraft, it was not secured so as to be safe for flight. This constituted a violation of Air Navigation Regulation 225(c).

7.13 The cause of the accident was loss of control of the aircraft for reasons undetermined.

7.14 The starboard engine probably failed prior to impact and such failure, if it did occur, would be a possible contributory cause of the loss of control.

7.15 In view of the uncertainty with regard to the degree of overload carried by VH-SMK, the possibility of an overload contributing to the loss of control cannot be entirely dismissed.

7.16 The Load Sheet issued in respect of VH-SMK for this flight was not of a type approved by the Director-General. This constituted a breach of Air Navigation Order 100.7.3.13.8.

7.17 The Load Sheet did not show the correct weight of fuel carried by the aircraft nor the appropriate index units for each item of load. This constituted a breach of Air Navigation Order 100.7.3.13.4.

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C. A. J. LUM

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A. CHARLTON

4th June, 1950.

APPENDIX 1

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1ST JANUARY, 1950

Statement by B.S. Allen - Aircraft Maintenance Engineer

I am Bert Sydney ALLEN. I am employed by Sydney Morning Herald Flying Services at Camden Aerodrome as an unlicensed engineer and I reside at 23 Elisabeth Street, Camden.

I arrived at the aerodrome at 00.10 hours on morning of January 1st, 1950.

I assisted in pushing VH-SMK from the hangar onto the tarmac and then waited in the crew room until the truck with the papers arrived from Sydney. I saw the truck directed to VH-SMK by First Officer Purvis and then I assisted Mr. Purvis in loading the papers into the aircraft. The papers were loaded in the normal way for a load of that size in that they were stacked in rows starting from the front up to a height just below the lower edge of the windows. The bundles were loaded so that the top surface was level to a distance approximately in line with the fifth fuselage window from then backward to about three feet forward of the door. The rear of the load was reduced in steps, the last row being about one or two bundles high.

During the loading both the Captain and the First Officer had entered the cabin and observed the procedure adopted, neither of these officers passed any comment in regard to the loading.

Soon after loading was complete the crew took up their stations, the engines were pulled through, and started. The engines started and ran normally, soon afterward I removed the port chocks and the starter trolley. Soon afterwards I saw Captain Swain indicate to Captain Cruickshanks that all was well and the aircraft commenced to taxy off, I watched it until it was lost to sight behind hangars.

After VH-SMK had gone from sight. Captain Swain, Mr. Pinner and myself proceeded to aircraft VH-SMI and I assisted with the starting of that aircraft. During this time I heard VH-SMK being run up in the direction of the south end of the strip. When the engines of VH-SMI had been started the aircraft was taxied to the front of the hangar and under the loading light. At this stage due to noise of engines of VH-SMI, I could no longer hear the engines of VH-SMK. I then stood in front of the hangar watching VH-SMI until my attention was distracted by a bright glow in the sky. I ran to the North West side of the hangar to see what was causing the glow. I was joined by Mr. Pinner who thought it might be his house on fire. We decided to go there in the jeep and on our way we met two women who told us they thought an aircraft had crashed. We returned to the hangar coupled on the fire tender and proceeded to the rescue of the crash. There we attempted to put out the fire using the extinguisher bottles. But could do nothing.

Signed: A. Charlton
Investigator
4.1.50

Signed: B. Allen
4.1.50

INTERROGATION BY INVESTIGATING OFFICER

Question 1. Have you any idea of the weight of the respective bundles of papers of that load.

Answer. No.

Signed: A. Charlton
Investigator
4.1.50

Signed: B. Allen
4.1.50

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1ST JANUARY, 1950

Statement by B. S. Allen - Aircraft Maintenance Engineer (Contd.)

Question 2. Were all the bundles of the same weight.

Answer Mostly they were all the same but there were a few smaller ones.

Question 3. Have you any idea of the weight of each bundle.

Answer No

Question 4. Did you have any idea of the total weight of papers placed on board that night.

Answer Yes. I knew from Mr. Pinner that the weight was in the region of 3000 lbs.

Question 5. When you last saw the Captain and First Officer did they appear to be in normal health and spirits.

Answer Yes definitely.

Question 6. Could you state definitely if the Captain was in the port side seat.

Answer I saw him sitting in that seat as the aircraft was taxying out.

Question 7. Could you say if the papers were tied down in the aircraft.

Answer To my knowledge they were not tied.

Question 8. When you used the fire extinguishers did they function correctly.

Answer The first one I used was a big red one with a funnell and spray seemed to have little pressure, went no distance and seemed ineffective.

Next I tried to use one of the smaller fluid type but could not get it to work.

After this I did not attempt to use any more.

Question 9. Have you ever seen an external gust lock in use on the Hudson

Answer No. The usual practice is to use the cockpit control lock.

Question 10. Prior to the glow in the sky were the engines of VH-SMI opened up at all beyond warming up speed.

Answer No.

Question 11 What were the weather conditions at the time VH-SMK took off.

Answer Clear, no rain was falling.

Signed: A Charlton
Investigator
4.1.50

Signed: B. Allen
4.1.50

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1ST JANUARY, 1950

Statement by B. S. Allen - Aircraft Maintenance Engineer (Contd.)

Question 12. Do you recall the wind conditions at that time.

Answer No. I do not remember even noticing the wind.

Question 13. Did you see Captain Cruickshanks or First Officer Purvis at any time prior to your arrival at the aerodrome.

Answer Yes. I saw them both together during the interval of the show at the Paramount Cinema in Camden at approximately 9 o'clock that evening.

Question 14. Did you speak to them.

Answer No. I don't think they actually saw me.

Question 15. What time did the performance finish at the Cinema.

Answer At 11 o'clock.

Signed: A. Charlton
Investigator
4.1.50

Signed: B. Allen
4.1.50

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1ST JANUARY 1950

Statement by S. L. ALLEN - D.C.A. Groundsman

S. L. Allen states :-

I am Sydney Lewis Allen, employed by Department of Civil Aviation as Groundsman at Camden Aerodrome and I reside 23 Elizabeth St., Camden. My duties consist of care and maintenance of the aerodrome and buildings. I was first informed of the accident at about 6.30 a.m. the morning of the accident. I found that the fire trailer belonging to the Department of Civil Aviation, and located at the Sydney Morning Herald's hangar, had been taken to the scene of the accident and put to use.

Signed: A. Charlton
Investigator
6.1.50

Signed: S. Allen
6.1.50

Interrogation by Investigating Officer

Question 1 When was this particular fire trailer brought to Camden?

Answer In August, 1949.

Question 2 Are you responsible in any way for the maintenance of the fire fighting equipment?

Answer As far as I know I have never received any instructions to this effect and I believed that some one from the Regional Office would inspect the equipment periodically.

Question 3 Was the equipment as far as you were aware in serviceable condition?

Answer I believed it to be in order.

Question 4 Subsequent to the accident have you received any complaints relative to the behavior of the equipment at the accident?

Answer Yes, Mr. Pinner mentioned to me that two of the extinguishers did not work.

Signed: A. Charlton
Investigator
6.1.50

Signed: S. Allen
6.1.50

APPENDIX 2 (Cont'd)

ACCIDENT TO LOCKHEED HUDSON VH-SUK AT CAMDEN, N.S.W., ON 1ST JANUARY 1950

Statement by S. L. ALLEN - Cont'd.

Interrogation by Investigating Officer - Cont'd.

Question 5 Did anyone from Regional Office pay a visit to the aerodrome after the accident expressly in connection with this equipment?

Answer Mr. Reg. Staines came down on the morning of the accident he visited the scene of the accident but was prevented by the police from touching the fire equipment.

Question 6 Subsequent to the accident what happened to this equipment?

Answer On Tuesday 3rd January I packed the equipment and it was removed to Region.

Question 7 Has this equipment since been replaced?

Answer I mentioned to Mr. R. Staines that it would have to be replaced and on Tuesday 3rd January a replacement trailer with equipment arrived.

Question 8 Has any training been given to aerodrome personnel in use of this equipment?

Answer When I went to Mascot to take delivery of the original trailer in August I was told how to operate the various types of extinguishers. With me at that time was Mr. M. Taplin another of the Groundsmen.

Question 9 Have any of D.C.A. personnel here at Camden had any training in fire fighting?

Answer Apart from one substantial demonstration with a fire tender we have had none.

Question 10 Has anyone been trained in the use of the fire fighting equipment now stationed on the aerodrome?

Answer Not to my knowledge.

Signed: A. Charlton
Investigator
6.1.50

Signed: S. Allen
6.1.50

APPENDIX 3

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1ST JANUARY 1950.

Statement by G. D. CAMERON - Witness to Crews Movements

G. D. Cameron states :-

I am Gordon Dallas Cameron proprietor of the Capitol Cafe Camden, where I reside. At approximately 6.30 p.m. on the 31st December I was supervising in the cafe when Mr. Cruckshanks, Mr. R. Purvis and I believe a Mr. Jenkins entered the cafe. They had a meal during the course of which I approached them as I knew Cruckshanks and Purvis fairly well. I spoke to them for about five minutes. As they took their departure at around 7 p.m. I said "Well Dick I suppose you will be celebrating tonight". He replied "No we are on the job tonight at 0100 hours".

Signed: A. Charlton
Investigator
6.1.50

Signed: G. D. Cameron
6.1.50

Interrogation by Investigating Officer

Question 1 Are you fairly well acquainted with Mr. Cruckshanks and Mr. Purvis?

Answer Yes.

Question 2 On the evening in question would you say that they were in good health and spirits?

Answer Yes.

Signed: A. Charlton
Investigator
6.1.50

Signed: G. D. Cameron
6.1.50

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1ST JANUARY, 1950.

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Statement by Zoe CROOKSTON - Eyewitness.

Zoe Crookston states :-

I am Mrs. Zoe Crookston, wife of Doctor R. Crookston of John Street, Camden. At approximately 1 o'clock on the morning of January 1st, 1950 I was at my home in Camden. I heard an aircraft in the direction of Camden Aerodrome and the noise of the engines was so unusual that I immediately went on to the upstairs verandah and looked toward the aerodrome of which I had an unobstructed view. I could see no sign of any aircraft but the noise of its engines still continued. Finally the noise of the engines ceased and simultaneously there was a bright flash which illuminated the whole sky, followed by the glow of flames.

Signed : A. Charlton
Investigator
3.1.50.

Signed : Zoe Crookston
3.1.50.

Interrogation by Investigating Officer

Question 1. How would you describe the noise when you first noticed it?

Answer The noise seemed to be unusually loud and extremely laboured, so much so that I felt certain something was wrong.

Question 2. How did the noise seem to change after you went on to the verandah?

Answer It did not become any louder but seemed to become more and more laboured and continued in this manner until all sound ceased.

Question 3. How well acquainted are you with the sound of aircraft?

Answer I have lived here in Camden for many years and have often heard aircraft using Camden Aerodrome during this time. I have never before heard sounds of such an unusual nature as in this case.

Question 4. Although you had an unobstructed view of the aerodrome can you suggest any reason why you saw no sign of the aircraft?

Answer In the region, off the aerodrome, where the aircraft crashed any view would be obstructed by a hill and trees.

Signed : A. Charlton
Investigator.
3.1.50.

Signed : Zoe Crookston
3.1.50.

APPENDIX 5

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W. ON 1ST JANUARY, 1950

Statement by P. CRUICKSHANKS

P. Cruickshanks states :-

I am Mrs. Patricia CRUICKSHANKS, widow of the late Captain R. E. Cruickshanks. I reside at 1 Junction Street, Nowra, N.S.W.

Signed : A. Charlton
Investigator
20.2.50.

Signed : P. Cruickshanks
20.2.50.

Interrogation by Investigating Officer

Question 1. What are you able to say in connection with your husband's flying licence?

Answer I am convinced my husband had a Commercial Pilot's licence during the whole of his flying career. I have seen this licence very many times. I have seen the words "Commercial Pilot's Licence" in the pages of this licence. At one period during 1947 he held a Student's Pilot's Licence but subsequent to this he had his commercial one. He was very particular about his licence and used to discuss with me his new endorsements, his renewals and his medicals. I have actually seen the type of endorsements in his commercial licence and the last two types on the page were the Hudson and the C47. Alongside these endorsements were initials in a stamped figure.

During December last, or thereabouts, he went to a pageant of some sort given by the Newcastle Aero Club and he did some flying in a Comper Swift with a Mr. George Coleman. When he came home he told me that he was now in a position to have the Comper Swift endorsed on his licence. Soon afterwards an account was received from George Coleman for the flying done.

He was always talking of renewals and of going to doctors for his examinations. From what he told me I knew he was due to renew his licence at the end of January. In connection with this renewal he told me he would go to Dr. Crookston of Camden again.

Question 2. What can you tell me of your husband's medical history?

Answer To the best of my knowledge he has never had a day's illness in his life. He had his appendix removed in April, 1947 by Dr. F. P. Ryan of Berry Street, Nowra and was up and about within three weeks. He has never been off from work through illness and never during his time off was he sick. I believe his first civil medical was done with a Dr. Walsh. Later he used to go to Dr. Heffernan of Sydney. I know he went to Dr. Hefferman in June and December of 1947 and again in June of 1948. On this occasion he told me the doctor had made some remark of a jocular nature regarding his appendix. Subsequent to this he told me he used to go to Dr. Crookston. He did once mention Dr. Charles Watson of Nowra and was considering going to him if he was an authorised doctor.

Signed : A. Charlton
Investigator
20.2.50.

Signed : P. Cruickshanks
20.2.50.

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W. ON 1ST JANUARY, 1950.

Statement by P. CRUICKSHANKS - Cont'd.

Interrogation by Investigating Officer - Cont'd.

Question 3. Did your husband ever mention having any difficulty with his flying?

Answer Never, he always seemed perfectly happy and confident about it. Except on one occasion when he told me that at night he was flying Hudson S.MK. and was taking off. The aircraft started to swing, to the right I believe, and he pulled it up. He was with 1st Officer B. Purvis at the time. He asked Purvis if he too had felt the swing. Purvis said he thought it did. Dick then said "perhaps it's me, I might be tired". He went back up the flare path and did the take-off again. He told me that at about 80-85 miles per hour the aircraft swung violently to the right, vibration was intense and he pulled the aircraft up once again, this time well off the strip. The take-off, up to the point of swing, he told me had been perfectly normal. The load was transferred to Hudson S.M.L. and my husband then took that off and he said it "went off like a bird." Subsequently the trouble was found in the tail wheel I believe.

Signed : A. Charlton
Investigator
20.2.50.

Signed : P. Cruickshanks
20.2.50.

APPENDIX 6

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W. ON 1ST JANUARY, 1950.

Statement by C. G. DAVIES - Licensed Aircraft Maintenance Engineer.

C. G. Davies states :-

I am Caradog Gwyn Davies, Licensed Aircraft Engine Maintenance Engineer in Category "D" No. 2552 endorsed for Pratt & Whitney R1830 and R2000. I am employed by Sydney Morning Herald Flying Services at Camden Aerodrome and reside at 22 Fullagar Road, Wentworthville.

On the afternoon of Wednesday, 28th December, 1949 I was on duty and carried out an inspection of the engines of Hudson VH-SMK for the purpose of issue of a Certificate of Safety. This inspection was normal and I found absolutely no abnormal defects in either engine. As a result of this inspection I certified the airworthiness of the engines on a Certificate of Safety. I verify the signature which appears on the duplicate copy Certificate of Safety No. 4077E.

Signed : A. Charlton
Investigator
4.1.50.

Signed : C. Davies.
4.1.50.

Interrogation by Investigating Officer

Question 1. Would the engines subsequent to the above inspection for the Certificate of Safety have been given any further inspection?

Answer Yes. Prior to each flight and in this case the engines of VH-SMK were given a daily inspection on the 29th and 30th December in accordance with a schedule approved by Department of Civil Aviation for that particular type of engine.

In the case of, the 30th, the port engine it was Schedule No. 2 (100 hourly).

In the case of, the 30th, the starboard engine it was Schedule No. 1 which is the routine daily inspection.

Signed : A. Charlton
Investigator
4.1.50.

Signed : G. Davies
4.1.50.

APPENDIX 7

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1st JANUARY, 1950

Statement by I.J. Dowel (Eyewitness)

I.J. Dowel states -

I am Irwin James Dowel, a slaughterman employed by F.A.M. Boardman and reside at 80 John Street, Camden.

At approximately 12.50 a.m. on 1st January, 1950, I was in my backyard when I heard the engines of an aircraft taking off at the aerodrome. I remarked to my daughter that the engines sounded very sick and I would describe it as a screaming noise. I then went up on to the back verandah and I said to my daughter "I would not like to be in that aircraft". I was watching in the direction and could see the headlights of the aircraft. Within a matter of seconds the engine noise ceased, the lights went out and I saw flames shoot up from the aircraft and in the next instant it had crashed and there was then a terrible flash of fire. I did not hear the noise of the crash or any explosion. The fire that I saw coming from the aircraft before the crash seemed to go straight into the air.

Signed: C.A.J. Lum
Investigator
6.1.50

Signed: I.J. Dowel
6.1.50

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1ST JANUARY 1950

Statement by R. F. GOLLAN - Circulation Manager, Sydney Morning Herald.

R. F. Gollan states :-

My name is Ross Francis GOLLAN, Circulation Manager of the Sydney Morning Herald. I reside at Cliff House, Belah Gardens, Vaucluse, N.S.W.

I am in charge of the Circulation Department, which gives instructions on the papers to be conveyed by the Herald flying service and which informs the flying service of the weights to be carried by our planes.

The weights are computed on the following system. A test weighing is made from time to time of the number of pages of the paper contained in one lb. From that number and from the number of papers to be carried by the particular plane the total weight which will be assigned to the plane is calculated. For more exact definition the number of pages contained in a lb. of Sydney Morning Heralds of the present page is 66, which allows also for papers used in wrapping complete parcels and for lashings. Sixty-six is divided into a figure reached by multiplying the number of copies to be carried by a plane with the number of pages contained in that particular issue. The result of this division is the weight of the consignment.

The number of papers of our Sunday issue despatched from this office on January 1 was 5667 and the weight calculated was 2919 lb. These figures refer to papers despatched by transport for our Dubbo plane.

On Thursday evening I received a request that a duplicate load to that carried by the Dubbo plane on January 1 last should be made up and sent to Camden to assist the Air Investigations Committee. It was necessary to collect these papers from various points and agencies and I made arrangements to send up this load yesterday, Monday, January 9. The Committee had requested that the weight of the papers involved should be marked on each bundle and on totalling the weights it was discovered by me that the actual load was 3178 lb.

The difference in this weight and the weight supplied to Camden came about in the following way. The numbers of papers of the Sunday issue had been correctly taken out and the actual weight of the duplicate parcels of this issue was 2915 lb. In addition, there had been sent by the plane a number of Saturday Sydney Morning Heralds of December 31, totalling in weight 263 lb. The member of my staff who computed the weights for the Dubbo plane was unaware that these papers were being carried and made no allowance for them. He informs me that he had never been aware that such Saturday papers had been despatched by the Dubbo plane.

Signed : Ross Gollan.
Jan. 10 1950

Signed : C. A. J. Lum
Investigator
10.1.50

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1ST JANUARY 1950

Statement by T. M. Haddin - Former Secretary
Herald Flying Services

T. M. Haddin states :-

I am Truda Mayne HADDIN, student, and reside at the C. W. A. Hostel, 52 Bayswater Road, Sydney. I was employed as Secretary by the Herald Flying Services, Camden, for a period of approximately 7 months, beginning March 1949. During the whole of that period I had never been instructed by anyone to keep a check on the dates of expiry of pilots' licences. I have never seen the late Captain Cruickshanks' pilot licence, nor has he ever mentioned to me any details concerning his licence.

I knew Captain Cruickshanks very well and I had never known him to suffer any illness or to be indisposed in any way during my employment with H. F. S.

I have seen a copy of a letter produced by the Investigating Officer which was addressed to the Manager of the Sydney Morning Herald Flying Services relating to Mr. R. G. Cruickshanks' Commercial Licence, and as far as I can remember I have never seen the original of that letter. If such a letter had been passed to me by Mr. G. H. Purvis I would have placed it on the office file.

On the night of the accident to VH-SMK I was not at home at my parents property at Camden, being absent at Bombala, N.S.W.

Signed : T. M. Haddin
8.2.50

Signed : C. A. J. Lum
Investigator
8.2.50

APPENDIX 10

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W. ON 1ST JANUARY, 1950.

Statement by W. D. HERON - Licensed Aircraft Maintenance Engineer.

W. D. Heron states :-

I am Walter David HERON, Aircraft Maintenance Engineer in Category "C" No. 2537 with light aircraft endorsements. I am employed by Sydney Morning Herald Air Services at Camden Aerodrome and I reside C/o Macquarie Grove, Camden.

On the afternoon of the 30th December last I refuelled Aircraft VH-SMK. I placed a total of 350 gallons distributed throughout all four tanks in such a manner as to have slightly more in the front tanks than in the rear but so as to have an equal quantity in either wing.

To the best of my recollection there were 120 gallons in each of the 2 front tanks and 110 gallons in each of the two rear tanks, making a grand total of 460 gallons. After carrying out the refuelling I entered the amount of 350 gallons supplied to VH-SMK on Shell Co. docket No. 76986.

Signed : C. A. J Lum
Investigator
4.1.50.

Signed : W. Heron
4.1.50.

APPENDIX 11

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1st JANUARY, 1950

Statement by I.R. Hodder - Examiner of Airmen (Radio)

I.R. HODDER states:

I am Ivan Reynell Hodder, Examiner of Airmen (Radio), employed by the Department of Civil Aviation and reside at 10 Magdala Avenue, Strathmore.

On or about 3rd August, 1949, I visited Camden, N.S.W., for the purpose of conducting radio equipment endorsement examinations. I remember checking R.E. Cruickshanks on the practical operation of the radio installation in the type of aircraft he was required to fly. He was successful in the examination. On completion of the tests I requested him to produce his radio licence for the purpose of endorsement. He replied that he had just forwarded his licence to the Department's Head Office. On returning to Melbourne I submitted the examination report on C.A. Form 1 and made enquiries as to the whereabouts of Cruickshanks's aircrew licence. I was informed that it had not been sighted, and I requested the clerk handling radio licence renewals to make periodical inquiries at the pilot licence section in order to intercept Cruickshanks's licence should it come to hand. Due to a change in clerical staff the matter was not pursued as requested and it was not until after the accident that further investigations made by me revealed that he was not the holder of a Flight Radio Operator's Licence.

Signed: C.A.J. Lum
Investigator
29th March, 1950.

Signed: I.R. Hodder
29th March, 1950

APPENDIX 12

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1st JANUARY, 1950

Statement by W.D. Jenkins - (First Officer - Herald Flying Services)

I, William Desmond Jenkins, am a licensed pilot holding a Commercial Pilot's Licence No. 1250 endorsed for Lockheed Hudson, Douglas DC.3 type, and other lighter aircraft. I am employed by Sydney Morning Herald, Flying Services at Camden Aerodrome and I reside 32 Hill Street, Camden.

Signed: A. Charlton
Investigator
6.1.50

Signed: W.D. Jenkins
6.1.50

INTERROGATION BY INVESTIGATING OFFICER

Question 1. Have you ever sighted the licence held by Captain Cruickshanks?

Answer Yes, on the day before the accident when he was at my home for lunch.

Question 2. What did you notice about the licence on this occasion?

Answer Nothing in particular, as we were merely comparing the photographs in our respective licences.

Question 3. Did he have it on his person on this occasion?

Answer Yes, he took it from his pocket.

Question 4. What are your actual duties with this organisation?

Answer I am employed as first officer both on Hudson and C47 aircraft.

Question 5. Have you at any time flown with Captain Cruickshanks?

Answer Yes.

Question 6. What was your opinion of his ability as a pilot?

Answer I considered him to be a very capable pilot.

Signed: A. Charlton
Investigator
6.1.50

Signed: W.D. Jenkins
6.1.50

APPENDIX 13

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1ST JANUARY 1950

Statement by J.A.W. LAMING - Clerk, Herald Flying Services

J. A. W. Laming states :-

I am John Anthony Worthington Laming employed as a Junior Clerk by John Fairfax and Sons Pty. Ltd., at Camden. I reside at the aerodrome Camden and my address is c/- Herald Flying Services.

On the morning of the 30th December, 1949, I was on duty and was present when VH-SMK departed on its flight to Tamworth. When the aircraft departed I went off duty at approximately 0830 hours and was not present at the aerodrome when that aircraft returned from that flight. I did not return to duty again until after the accident to VH-SMK.

Signed: C. A. J. Lum
Investigator
7.2.50

Signed: John A.W. Laming
7.2.50

Interrogation by Investigating Officer

Question 1 Have you any idea who might have dipped the petrol tanks of VH-SMK after its return from the flight on 30th December?

Answer No I have no idea.

Signed: C.A.J. Lum
Investigator
7.2.50

Signed: John A.W. Laming
7.2.50

APPENDIX 14

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1ST JANUARY 1950

Statement by R. MARSHALL - Ground Engineer

R. Mrshall states :-

I am Roger MARSHALL. I am employed by the Sydney Morning Herald Flying Services at Camden aerodrome as an Apprentice Engineer. I reside at 33 Elizabeth St. Camden. On the evening of the 31st December, 1949, I was at the Paramount Cinema in Camden. During the interval I saw Captain Cruickshanks and First Officer Purvis and First Officer Jenkins outside the cinema. This was at approximately 9.15 p.m.

After the show at about 10.45 p.m. as I was leaving the theatre I saw Captain Cruickshanks and First Officer Purvis preceeding me from the building.

Signed : Roger F. Marshall
6.1.50

Signed : C. A. J. Lum
Investigator
6.1.50

Interrogation by Investigating Officer

Question 1 Captain Cruickshanks and First Officer Purvis were well known to you?

Answer Yes.

Question 2 When you last saw them at 10.45 p.m. did they appear to be in normal health and spirits?

Answer Yes.

Signed : Roger F. Marshall
6.1.50

Signed : C.A.J.Lum
Investigator
6.1.50

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1ST JANUARY 1950

Statement by M. P. Maundrell - Former Secretary, Herald Flying Services

M. P. Maundrell states :-

I am Margaret Pamela MAUNDRELL, housewife, residing at 164 New Canterbury Road, Petersham, Sydney. For a period of approximately two years ending April 1949 I was employed as Secretary by the Herald Flying Services, Camden.

Part of my duties during that time was to keep a check on the expiry dates of pilots' licences. It was arranged that I should advise Mr. Purvis well ahead of the due date of expiry of a licence. This was always done, and following that I know Mr. Purvis used to view the licence to ensure that it had been renewed. I am not sure whether I instructed my successor to carry on with the system I have described.

Signed : Margaret Maundrell
8.2.50

Signed : C. A. J. Lum
Investigator
8.2.50

APPENDIX 16

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W. ON 1ST JANUARY, 1950

Statement by E. McARTHUR-ONSLOW (Aural Witness)

I am Edward McArthur-Onslow grazier of Camden Park Estate Menagle and reside at Hassall Cottage Camden. I am a licensed Commercial Pilot and hold Licence No. 729 which is endorsed for numerous light types of aircraft. My total flying experience is approximately 1500 hours gained over a period of 20 years approximately. I am also a licensed Ground Engineer in categories "C" and "D".

In the early hours of the morning of January 1st, 1950, I arrived home at my residence at Hassall Cottage. At approximately 12.45 a.m. I was indoors when I heard a Lockheed aircraft taking off from the airstrip at Camden Aerodrome. It sounded normal in every way for a Lockheed take-off. As is normal the aircraft passed within 300 yards of the house. At the time I was cleaning my teeth and had stopped momentarily to hear the aircraft go by and mentally register that it was another aircraft safely away. I feel certain that the aircraft was airborne at the stage of passing the house and it seemed to have the normal amount of power applied. After the aircraft had passed the house I resumed cleaning my teeth and I heard no other sound nor did I hear the crash.

Signed: C.A.J. Lum
Investigator
9.1.50

Signed: E. McArthur-Onslow
9.1.50

APPENDIX 17

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1ST JANUARY 1950

Statement by Allan MEARS - Eyewitness

Allan MEARS states :-

I am a motor engineer employed by Leach & Co. Pty. Camden, and reside at the township of Cobbity. At approximately 1 o'clock on the morning of January 1st 1950 I was standing at the doorway of my house in Cobbity and noticing an aircraft on the Southern end of the strip at Camden I decided to watch the take-off. The aircraft, with landing lights on, appeared to do a perfectly normal take-off. He levelled off, then began to gain height. At this point it sounded as if the motors were throttled back. Then the engines seemed to be opened up to full power after he had left the strip behind. The landing light seemed to fade out, then disappeared completely. I could hear the engines still roaring, then simultaneously the engine noise stopped and a huge flash lit the sky. I could then see the wreckage burning.

Signed : A. Charlton
Investigator
3.1.50

Signed : A. Mears
3.1.50

Interrogation by Investigating Officer

Question 1 After hearing what was apparently throttling back and the engine then opened up again, how would you describe the noise?

Answer Excessive. It seemed to me that considerable power was being applied.

Question 2 Are you quite certain the headlamp was visible when the engine noise increased?

Answer Yes.

Question 3 Do you remember seeing any other lights apart from the headlamp?

Answer No.

Question 4 Did you see any sign of fire prior to the crash?

Answer No, none.

Question 5 Did you at any time see the headlamp again after the first disappearance?

Answer No.

Signed : A. Mears
3.1.50

Signed : A. Charlton
Investigator
3.1.50

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1ST JANUARY 1950

Statement by Allan MEARS - Cont'd.

Interrogation by Investigating Officer - Cont'd.

Question 6 Did you notice if the aircraft made any turn after take-off?

Answer It did not appear to me to do so.

Question 7 How far do you consider the aircraft had travelled before becoming airborne?

Answer About half way down the strip.

Question 8 Do you recall hearing any other aircraft on the aerodrome?

Answer Yes. I recall hearing one running up at the time the aircraft which crashed was taxying on the strip.

Question 9 What were local weather conditions at the time?

Answer Drizzling slightly, moderate wind.

Question 10 How familiar are you with the sound of aircraft engines?

Answer I have lived at Camden for some months; previously I lived near Mascot and have heard many aircraft taking off.

Question 11 Before the landing light faded out did its attitude change?

Answer It seemed to be that just before fading the beam became steeper, tilting downward. In fact, I said to my wife "he has either switched off the landing light or he is going to crash".

Signed : A. Charlton
Investigator
3.1.50

Signed : A. Mears
3.1.50

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1ST JANUARY, 1950

Statement by I. T. PERRY - Grade 1 Aeronautical Engineer, Department of Civil Aviation.

Interrogation by Investigating Officer :-

Question 1 What would be the position of the Centre of Gravity of VH-SMK under the following conditions of load?

Oil (24 gallons)	216 lbs.
Crew (Two)	340 lbs.
Removable equipment in Compartment "E"	33 lbs.
Freight	
Compartment "A"	960 lbs.
Compartment "B"	1428 lbs.
Compartment "C"	632 lbs.
Compartment "D"	158 lbs.

and fuel as in the following three cases :-

(a) 446 gallons; 233 in front and 213 in rear tanks.
(b) 414 gallons; evenly distributed.
(c) 393 gallons; evenly distributed.

Answer In case (a) 1.20" aft of datum (28.9% MAC)
In case (b) 1.4" aft of datum (29.1% MAC)
In case (c) 1.38" aft of datum (29.0% MAC)

Question 2 What would be the position of the Centre of Gravity in the above three cases if the 158 lbs. load in compartment "D" shifted back into compartment "E"?

Answer If the load had shifted in this manner the effect would have been:-

In case (a) - To shift C.G. position to 1.76" aft of datum (29.4% MAC)
In case (b) - To shift C.G. position to 1.92" aft of datum (29.5% MAC)
In case (c) - To shift C.G. position to 1.91" aft of datum (29.5% MAC)

Question 3 Case (a) represents the greatest all-up-weight considered. What percentage overload does this represent in relation to the maximum permissable all-up-weight?

Answer Overload 594 lbs. or 3.2%.

Signed : (I.T. Perry)

Witnessed by (A. Charlton) Date: 10/5/50
Investigator.
10/5/50

Statement by I. T. PERRY - Cont'd.

Interrogation by Investigating Officer (Cont'd)

Question 4 What height would VH-SMK have attained over the point of the crash had the load been as for case (b) and all other conditions normal?

Answer Approximately 490 feet.

Question 5 What would have been the height if the aircraft had been climbed steeply to a stall over this point?

Answer Approximately 650 feet.

Question 6 If one engine had failed at the point of attaining climbing speed and a normal single-engined climb commenced, what height would the aircraft have attained over the crash under conditions of case (b)?

Answer Approximately 295 feet.

Question 7 What would be the value of the height in Question 6 if the aircraft had been climbed steeply to a stall over the position of the crash?

Answer Approximately 460 feet.

Signed : (I. T. Perry)

Date: 10/5/50

Witnessed by (A. Charlton)
Investigator.
10/5/50

APPENDIX 19

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W. ON 1ST JANUARY, 1950

Statement by L.L. Pinner - Assistant Aircraft Maintenance Engineer

Leonard Laurance Pinner states:-

I am employed by Sydney Morning Herald Flying Services as an Assistant Engineer stationed and residing at Camden Aerodrome. I came on duty at approximately 11.30 p.m. on evening of 31st of December, 1949. At 11.45 I proceeded to lay out the flare path on the only sealed strip. I proceeded to the strip with twelve oil flares. I laid one on each side at either end of the strip, and the remaining eight flares I laid along the north western side of the strip at approximately 200 yards intervals near to each alternate mark on the strip side. At approximately 12.10 I returned to the hangar and dipped the tanks of aircraft VH-SMK. To the best of my recollection the fuel was fairly evenly distributed between all four tanks, if anything there may have been slightly more in the rear than in the front tanks. Total fuel in VH-SMK that night was 400 gallons. I then removed the pitot head covers eased chocks off the wheels and checked the aircraft for such contents as tool kit, flight gear and rations. At approximately 12.35 the paper load arrived from Sydney by truck. The truck was backed to the door of the aircraft helped by Mr. B. Allen I proceeded to load the papers into VH-SMK.

The loading for this flight which was the Dubbo half of Route 3 was carried out to distribute the load evenly and to have the correct weights in the various compartments. To achieve this loading was commenced from the front compartment to a height just below the bottom edge of the window. Similar loading was carried out as far to the rear as the aft end of the fifth fuselage window.

From this point aft to just ahead of the door, the paper bundles were stepped down until the last row was approximately one foot high. This form of loading results in the entire floor being covered to the height of the lower edge of the window until stepping commences. Each step is continuous from side to side. Half way through the loading operation the First Officer Purvis entered the cabin, inspected the loading but passed no comment. Loading was completed at approximately 12.40 p.m. At approximately 12.45 the engines were started up after being pulled through. The engines started normally and ran correctly. I removed the starter battery cart and the port chock. Captain Cruickshanks from the pilots seat signalled "thumbs up" and I replied likewise.

The aircraft taxied off, I watched it out of sight behind hangars and then proceeded with my duties on another aircraft. From then on I did not observe VH-SMK until after the crash. In the interval between this and noting the glow in the sky, the engines of Douglas VH-SMI had been started and it was not possible for me to hear the take-off of VH-SMK. Whilst standing watching the Douglas I saw a terrific glow in the sky. My first impression was that the glow was not connected in any way with any aircraft mainly because the light was coming, as it appeared to me, too far to the right of the runway. I moved off in the direction of the glow and was informed that an aircraft had crashed I guessed this to be VH-SMK.

I returned to the hangar, attached the fire cart to a jeep and proceeded to the rescue of the accident.

Signed: A. Charlton
Investigator
4.1.50

Signed: L.L. Pinner
4.1.50

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W. ON 1ST JANUARY, 1950

Statement by L.L. Pinner- Assistant Aircraft Maintenance Engineer (Contd.)

Interrigation by Investigating Officer

Question 1.	Do you hold any form of Aircraft Maintenance Engineers Licence.
Answer	No.
Question 2.	What was the total weight of the paper load placed in VH-SMK in this instance.
Answer	2919 lbs.
Question 3.	How did you ascertain that weight.
Answer	From a slip of paper in the general office.
Question 4.	Have you any idea of the individual weights of bundles.
Answer	No, the weights vary with the size of the bundle.
Question 5.	Was the whole load of papers placed in VH-SMK that night destined for Dubbo.
Answer	Yes.
Question 6.	What experience have you of loading papers in Sydney Morning Herald's aircraft.
Answer	About 10 months and about 3 loads every 2 weeks.
Question 7.	Have you ever received any instructions relative to loading in general.
Answer	Yes by the Flight Superintendent Captain Swain and by instruction charts displayed on the hangar wall.
Question 8.	To whom are you responsible for loading.
Answer	To the first officer.
Question 9.	The loading procedure in this instance conform to the practice generally used by the staff.
Answer	It is the procedure on this type of loading.
Question 10.	Have you known a first officer to make complaints regarding the distribution of the load.
Answer	No.
Question 11.	Are the papers tied down in the aircraft in any way.
Answer	No, but the bundles are stacked in such a manner that movement is practically impossible.

Signed: A. Charlton
Investigator
4.1.50

Signed: L.L. Pinner
4.1.50

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W. ON 1ST JANUARY, 1950.

Statement by L.L. Pinner - Assistant Aircraft Maintenance Engineer (Contd.)

Interrigation by Investigating Officer

Question 12. Is it usual to have the fuel evenly distributed in all four tanks on the Hudson for this Dubbo flight.

Answer To the best of my knowledge, on all machines tanks are filled as evenly as possible.

Question 13. On this occasion did you record in any way the dip readings you took on the tanks.

Answer Only in as much as I passed on the readings of all four tanks to the first officer.

Question 14. Are you sure that the total quantity of fuel in VH-SMK in this case was 400 gallons.

Answer To the best of my belief the grand total in the tanks was 400 gallons.

Question 15. When you laid the flare path did you take the wind conditions into consideration.

Answer In this case I found the wind to be too light as to be neglegible.

Question 16. Do you consider it possible that any of the flares were not burning at the time VH-SMK took off.

Answer No becuase all flares were still burning when I extinguished them the next morning.

Question 17. Have you any idea of the general weather conditions at the time VH-SMK took off.

Answer Generally overcast, intermittent thunder and lightning but it had not yet started to rain.

Question 18. When you arrived at the rescue of the crash did you attempt to use any of the equipment from the fire cart.

Answer Yes, but found that the three extinguishers I attempted to use ineffective as two failed to operate at all and the stream from the third travelled no more than 2 yards.

Question 19. Would you describe the crew as being in normal health and spirits when you saw them last.

Answer Yes I saw them in the cockpit and was talking to them just before they entered the aircraft.

Question 20. Where was the aircraft standing prior to loading.

Answer In the hangar.

Signed: A Charlton
Investigator
4.1.50

Signed: L.L. Pinner
4.1.50

APPENDIX 19A

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1st JANUARY 1950

FURTHER STATEMENT BY L. PINNER

L. PINNER states:-

I am L. Pinner of MacQuarie Grove, Camden N.S.W. Further to my previous statement I desire to state that on the morning of January 1st whilst preparing VH-SMK I checked the removable equipment itemized as follows:-

1 Cardboard Carton containing Spark Plugs (quantity unknown)

1 Canvas Bag containing tools (quantity unknown)

1 Box containing two each of enamel plates and mugs, knives and forks and various glass jars and bottles containing tea, milk and sugar.

1 Canvas Waterbag (which was half full) ½ gallon capacity.

To the best of my recollection these were situated in Compartment A with the exception of the box containing eating utensils and food which was in Compartment D. I am unable to estimate the approximate weight as I had no knowledge of the number of Spark Plugs or the number or type of tools carried.

(Signed) G.H. PURVIS
Witness

(Signed) L. PINNER

20th March 1950.

APPENDIX 20

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1ST JANUARY, 1950.

Statement by G. H. PURVIS - Manager, "Herald" Flying Services.

G. H. Purvis states :-

I am George Henry PURVIS of Bandeong, The Oaks Road, Camden. I am employed by John Fairfax & Sons Pty. Ltd. as Manager of the "Herald" Flying Services located at Camden, N.S.W. I am the holder of Commercial Pilot Licence No. 442 and Snr. Commercial Pilot Licence No. 31. This licence is endorsed for various types including Lockheed Hudson, Lockheed Lodestar and Douglas DC3. My duties embrace the full control of administration and flying operations of the "Herald" Flying Services. In this regard I am answerable only to the General Manager of the Sydney Morning Herald. On the morning of the accident Capt. D. Swain called me by telephone and informed me that Lockheed VH-SMK had crashed in the vicinity of Macquarie Grove Aerodrome, exact location unknown. I immediately proceeded by car in the direction of the aerodrome and had no difficulty in locating the crash. The aircraft was burning fircely at a spot approximately ¼ mile from the North East end of the NE-SW runway. After ascertaining that the Fire Tender, Ambulance and Police were in a ttendance and that nothing could be done for the two crew members I p roceeded direct to my office located on Macquarie Grove Aerodrome. Here I contacted Capt. Swain who had been in charge until my arrival.

Mr. R. M. Adsett of the Dept. of Civil Aviation arrived at Camden approximately 2½ hours after the accident and proceeded straight to the scene of the wreckage. He then returned to my office and took possession of the original Certificate of Safety and Load Sheet, a duplicate of each document being retained in this office. I signed a short statement in his presence.

Regarding witnesses I believe there is only one with any technical knowledge or flying experience, Mr. Edward Macarthur Onslow. The a ircraft in its normal take-off path passes within a few hundred yards of his residence. He was awake and dressed at the time of the accident and states that the take-off sounded normal right up to the time of the crash. He has heard this same aircraft depart some hundreds of times.

Certain very bad features were revealed regarding the local fire fighting equipment. Regardless of my protests both written and verbal D.C.A. removed the mobile fire tender from the aerodrome over one year ago. We were completely without any mobile fire fighting equipment for some months. And after repeated requests a trailer containing fire extinguishers of various types was located in our hangar. When asked how the trailer was to be propelled we were informed that we could tow it to the scene of the fire ourselves. I am not clear how other aircraft were to fare when our jeep was locked in the hangar with the equipment. Large four engined aircraft use Camden Aerodrome for training purposes involving continuous take-offs and landings.

The trailer was towed to the scene of the accident whereupon it was found that over half of the extinguishers would not work. To my knowledge no examination of this equipment since its arrival some months ago had been made.

Regarding endorsement D.C.A. requirements called for one Commercial Pilot only for Lockheed Hudson aircraft when operating on instrument flight rules off recognised air routes. On the occasion of the accident to VH-SMK two (2) Commercial Pilots according to all documents sighted within this office duly endorsed for type were carried in accordance with standard company procedure. In addition to R.E. Cruickshanks, R.B. Purvis held a valid Commercial Pilot Licence endorsed for the type and was a qualified Second Class Radio Operator.

Witness: C.A.J.Lum. Signed : G. H. Purvis. 9.1.50.

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1ST JANUARY 1950.

Statement by G. H. Purvis - Cont'd.

Interrogation by Investigating Officer

Question 1. Are you personally responsible for the maintenance of the flying standard of crews or has that duty been delegated to some other person within the organisation?

Answer I was personally responsible for the flying standard of all crews for the first nine months of our operations dating from 5.5.1947. After that date the responsibility was delegated to Capt. D. Swain in his capacity as Flight Superintendent. However, being the more experienced member of the organisation, I often made spot checks on occasions when I flew.

Question 2. Have you any policy laid down for the regular periodical checking of pilots?

Answer No set policy laid down but the small roster of pilots are checked with frequent regularity.

Question 3. Do you keep any record of the results of those checks carried out?

Answer No written record is kept, the policy being immediate action to double check by me should an adverse report be received on any pilot. No such adverse report has been received to date although minor criticisms have been made against certain pilots by Capt. Swain. These criticisms are mainly concerned with radio approach procedure.

Question 4. Had you ever personally flown with Capt. Cruickshanks, and if so what opinion did you form on his ability as a pilot?

Answer Yes, on frequent occasions and my assessment would be "above the average."

Question 5. Had you personally checked Capt. Cruickshanks on assymetric flight?

Answer I do not recall any check on assymetric flight near the ground, but I recall clearly checking him at high level. This check was the result of complaints by Swain of variations in procedure.

Question 6. Have you issued any written instructions to pilots setting out the operating procedures to be adopted in respect of the C.47 and the Hudson type aircraft?

Answer All of my Handbooks, reports, etc. resulting from my experience in the R.A.A.F. as Chief Lockheed Hudson instructor were made available to the air crew. The methods passed on to me by the Chief Pilot of Royal Dutch Airlines and the Chief Test Pilot of the Lockheed Corporation were those used in the before-mentioned documents. In addition an Operations Manual has been compiled and submitted to the Department.

Witness : C.A.J.Lum.

Signed : G. H. Purvis.
9.1.50.

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1ST JANUARY, 1950.

Statement by G. H. Purvis - Cont'd.

Interrogation by Investigating Officer - Cont'd.

Question 7. What system do you adopt to ensure that your pilots are fully qualified and certified before allowing them to fly in command of any aircraft under your control?

Answer I have a standard system whereby my secretary passed me a reminder a week before a pilot's licence is due for renewal. I always called that licence in from the pilot concerned and checked its renewal before expiry date. The same procedure applied for a pilot newly endorsed on any particular type except that in this case the Flight Superintendent submitted the licence for me to sight before the pilot was allowed to fly as Captain.

Question 8. Can you recall having sighted Capt. Cruickshanks Commercial Pilot's Licence on those occasions when it should have been renewed and when it should have contained endorsements for the C.47 and the Lockheed type aircraft?

Answer Yes, I distinctly recall all of these occasions. As the result of my perusal of these documents I was perfectly satisfied to allow this pilot to operate in command of both Douglas and Lockheed aircraft.

Question 9. What has been the system insofar as this organisation is concerned to put into effect the periodical renewal of a licence and the endorsement of an aircraft type on a licence?

Answer Originally in accordance with A.N.O. Part 40, the certification was submitted to me for signature by the pilot concerned who then took the necessary action to have his licence endorsed. The licence was not forwarded through our office channels. This system has been abandoned over the last few months and the matter is now controlled entirely by this office. With regard to renewals it is the pilot's responsibility to forward his licence and submit to this office on return and this system is still in force.

Question 10. You have produced certain documents, viz: a certification of competency of Capt. Cruickshanks on C.47 type aircraft, a certification of competency of Capt. Cruickshanks on Hudson type aircraft, an expired Commercial Licence No. B.2053, a Third Class Aircraft Operator's Certificate of Proficiency in Radio and a Pilot's Log Book bearing R. Cruickshanks' name. How did these documents come into your possession?

Answer They were handed to me by the late Capt. R. E. Cruickshanks' wife. These documents will be returned at a later date.

Question 11. Have you taken any steps subsequent to the accident to locate the Commercial Pilot's Licence held by Capt. Cruickshanks?

Answer All efforts have been made to locate this document. Contacts have been made with various people who knew Capt. Cruickshanks including his wife and brother, but the document has not been located.

Witness : C. A. J. Lum.

Signed : G. H. Purvis.
9.1.50.

APPENDIX 20 (Cont'd)

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1st JANUARY, 1950.

Statement by G. H. Purvis - Cont'd.

Interrogation by Investigating Officer - Cont'd.

Question 12. Can you recall having received a letter from the Dept. of Civil Aviation Regional Headquarters at Mascot dated the 13th September, 1949, requesting that Capt. Cruickshanks' Commercial Pilot Licence be forwarded to the Regional Headquarters for the purpose of endorsement of the instrument rating as a result of a flight test conducted by R. M. Adsett of the Department?

Answer I am certain that this letter has never been received in this office. An extensive search has been made of our files but no trace of the letter can be found.

Question 13. With regard to the Certificates of Competency which you obtained from the wife of the late Capt. Cruickshanks, could you indicate whether it was the practice for only two copies of such certificates to be prepared with respect to each type of aircraft concerned and whether it is the practice to hand all copies to the pilot concerned?

Answer The normal practice was to make out two copies only which were duly handed to the pilot concerned for onward transmission to the Department.

Witness : C.A.J.Lum

Signed : G. H. Purvis.
9.1.50.

APPENDIX 20A

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W. ON 1st JANUARY,1950

Further Statement by G.H. Purvis - Manager, Herald Flying Services

G.H. Purvis states -

I am George Henry Purvis of Bandong, The Oaks Road, Camden. I am employed by John Fairfax & Sons Pty.Ltd., as Manager.

Signed: C.A.J. Lum
Investigator
7.2.50

Signed: G.H. Purvis
7.2.50

INTERROGATION BY INVESTIGATING OFFICER

Question 1. In a previous statement you mentioned that you had employed a system whereby it was ensured that your pilots were fully qualified and certified before being allowed to fly in command of any aircraft under your control. Could you explain the system further and indicate whether it operated continuously and whether in your opinion the system was foolproof?

Answer I was under the impression that the system was operating continuously up to the time of the departure of my original secretary, Miss M. Jefferis (Now Mrs. Maundrall) I know that it worked with certainty and without fail. On her departure early 1949, I instructed her to stay a week with my new secretary and inform her of all duties delegated by me. Investigations by me have failed to reveal whether or not instructions regarding the licences were passed on by Miss Jefferis. I am not in the habit of issuing instructions to my secretary in writing and the foregoing instructions were purely verbal.

Question 2. Would you state what the normal practice was in regard to the use of the automatic pilot in Lockheed type aircraft prior to and at the time of the accident to VH-SMK?

Answer The automatic pilot was never engaged by the aircrews except at cruising altitude according to instructions issued. I have never known any instance within this organisation where a pilot engaged the automatic pilot for taxying for control locking purposes.

Question 3 Was it ever the practice to use external gust locks on the Lockheed Hudson?

Answer No, the internal lock was always used.

Signed: C.A.J. Lum
Investigator
7.2.50

Signed: G.H. Purvis
7.2.50

APPENDIX 20B

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ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1ST JANUARY,1950

Statement by G.H. Purvis - Manager, "Herald" Flying Services

G.H. Purvis states:

I am George Henry Purvis of Bandoeng, the Oaks Road, Camden, Manager of the Herald Flying Services located at Camden, New South Wales.

Interrogation by Investigating Officer

Question 1. Mrs. Cruickshanks, the wife of the late Capt. Cruickshanks, has stated that her husband mentioned to her the details of an incident concerning a swing on take-off of Lockheed Hudson VH-SMK in about September, 1949, where two attempts were made to take off, both ultimately abandoned, and subsequently the load being transferred to Lockheed aircraft VH-SML. Have you any knowledge of such an incident?

Answer I recall the incident. Lockheed aircraft VH-SMK was exhaustively examined as a result of this report, and no fault could be found with engine or airframe with the exception of a very small offset noticed on the tailwheel assembly. I do not consider that this particular offset could have had any effect so far as creating a swing.

No reports were received prior to this particular incident of any tendency to swing by the aircrews flying this particular aircraft.

Adjustments were made to remove this particular offset or malalignment. No subsequent reports were received.

Question 2. Did you ever discuss this incident with Capt. Cruickshanks?

Answer No, but I understand the matter was discussed between Cruickshanks and the Flight Superintendent, Capt. Swain.

Question 3. Would you outline the circumstances surrounding the initial engagement of the late Capt. Cruickshanks as a pilot of your organisation?

Answer Cruickshanks applied personally for a position between October and December 1947. He informed me that his home address was Liverpool which is not far from Camden. As we had previously had difficulty regarding transport for pilots living in Sydney, I informed him that his application would receive favourable consideration due to this fact. I then examined his Commercial Pilot's Licence and subsequently wrote to him confirming his appointment. On the occasion of viewing his licence I satisfied myself without doubt that he was the holder of a valid Commercial Licence. My examination of this licence was meticulous. My reason for this close examination was governed by some difficulty we had experienced regarding the validity of a pilot's licence which arose as a result of an accident which occurred a short time before.

Question 4. At the time of engagement of Cruickshanks as a pilot, would you have been prepared to employ as a pilot the holder of a Student Pilot's Licence.

Answer No, not under any circumstances.

Signed: C.A.J. Lum
21.2.50
Investigator

Signed: G.H. Purvis
21.2.50

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1ST JANUARY,1950

Statement by G.H. Purvis (Continued)

Question 5. Can you recall having seen at any time a Student Pilot Licence in respect of the late Capt. Cruickshanks?

Answer No.

Question 6 Have you any knowledge of any complaints being made by other pilots in regard to Capt. Cruickshanks' standard of flying?

Answer No actual complaints - only normal routine criticism as a result of his tests by the Flight Superintendent.

Question 7. Have you any knowledge of carburetter icing on the Lockheed Hudson aircraft.

Answer Yes. From my own experience the Ceco carburettor as fitted to the Lockheed engines will ice badly under humid conditions when taxying to take-off point or running slowly on the ground. All Lockheed aircraft operated by the Sydney Morning Herald carry a warning notice on the dash stating "Caution. Check carburettor for ice before take-off".

This notice was originated within S.M.H. organisation but so far as I am aware this is standard procedure for all Lockheed operations although no instructions are contained in the Lockheed manual to this effect.

I have never experienced icing on Lockheed Hudson engines during initial take-off. To ensure that no carburettor heat would be left applied during the take-off I had included as a final check in the pre-take-off drill "All four levers on the left hand side of the central pedestal all to the rearward position."

Question 8. In your opinion do you think it would be quite obvious to a pilot if any carburettor icing existed prior to the take-off?

Answer Yes, it would be instantly obvious when boost was checked against R.P.M.

Signed: C.A.J. Lum
21.2.50
Investigator

Signed: G.H. Purvis
21.2.50

Further Interrogation by Investigating Officer

Question 1. It has been noted that at the time of you making certain certification for endorsement of C47 type aircraft in respect of the late Capt. Cruickshanks that Capt. Cruickshanks had flown a total of 642 hours 35 minutes on the C47 type aircraft. Can you explain why Capt. Cruickshanks was permitted to fly as a crew member on that type of aircraft prior to his endorsement?

Answer I can only assume that my interpretation of crew requirements for a C47 type aircraft privately operated carrying freight only was for two commercial pilots one duly endorsed for type and with appropriate radio qualifications.

Question 2. Did you insist on a pilot having a Flight Radio Operator's Licence before allowing that pilot to fly in command of an aircraft?

Answer Not necessarily. Providing that Regulations were covered sometimes the First Officer carried the necessary radio qualifications. This was permitted for an interim period only, to enable the Captain to obtain the necessary qualifications.

Signed: C.A.J. Lum
22.2.50 Investigator

Signed: G.H. Purvis
22.2.50

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W. ON 1ST JANUARY,1950

Statement by G.H. Purvis (Continued)

Question 3. Can you recall having ever sighted a Flight Radio Operator's Licence in respect of the late Capt. Cruickshanks?

Answer Yes. I have sighted this licence when it was contained within the cover containing his Commercial Pilot's Licence.

Question 4. Can you explain why the late Capt. Cruickshanks flew in command on flights under instrument flight rules before he was in possession of an appropriate instrument rating?

Answer All Sydney Morning Herald pilots flew without this endorsement with the full knowledge of the Region until such time as the Regional Examiner visited Camden on the 14th July and tested all concerned.

Signed: C.A.J. Lum
22.2.50
Investigator

Signed: G.H. Purvis
22.2.50

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1st JANUARY, 1950

Statement by W.G. Selwyn - (First Officer - Herald Flying Services)

I am William Godfrey Selwyn. I am a licensed pilot holding Commercial Pilot's Licence No.2150, endorsed for Lockheed Hudson and DC.3 type aircraft. I am employed by Sydney Morning Herald, Flying Services, at Camden Aerodrome and I reside at 10 Liverpool Street, Rose Bay, Sydney.

Signed: A. Charlton
Investigator
6.1.50

Signed: W.G. Selwyn
6.1.50

INTERROGATION BY INVESTIGATING OFFICER

Question 1. Have you ever sighted the licence held by Captain Cruickshanks?

Answer Yes, on more than one occasion.

Question 2. What was the last occasion on which you saw this licence?

Answer Last week. We share a room at the aerodrome. One day I just happened to glance through it.

Question 3. On this occasion what did you notice about the licence?

Answer It was of the ordinary green folder type. Inside was the older type commercial licence, cancelled, followed by the later edition of the newer type together with his photograph and signature. I believe the date of issue of this portion was at the beginning of 1947. It was endorsed for DH.82, Wackett, Anson, DC.3 and Hudson.

Question 4. Are you aware of when Captain Cruickshanks had his last medical examination?

Answer Not the exact date but I believe it to have been October last as I knew he needed his examination shortly after mine and I had mine in September.

Question 5. How did you know that his examination was due shortly after yours?

Answer About April 1949 he mentioned to me that he was due to go for one. We discussed going to the local doctor Dr. Crookston but left the matter very much in the air.

Question 6. Have you any idea which doctor Cruickshanks normally went to for his medical examination?

Answer I am under the impression he used to go to Doctor E.C. Hefferman of Macquarie Street, Sydney.

Question 7. To your knowledge had Cruickshanks had any serious illness or had any difficulty in passing his medical?

Answer Not to my knowledge.

Signed: A. Charlton
Investigator
6.1.50

Signed: W.G. Selwyn
6.1.50

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1st JANUARY, 1950

Statement by W.G. Selwyn - First Officer - Herald Flying Services (Cont'd)

Question 8. What are your duties with this organisation?

Answer I fly as Captain on Lockheed Hudson and C.47 type aircraft.

Question 9. Have you on any occasion ever flown with Captain Cruickshanks?

Answer Yes.

Question 10. What is your opinion of his ability as a pilot?

Answer I would say he was above the average.

Signed: A. Charlton
Investigator
6.1.50

Signed: W.G. Selwyn
6.1.50

APPENDIX 21A

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W. ON 1st JANUARY, 1950

Further Statement by W.G. Selwyn - First Officer - Herald Flying Services

I am William Godfrey Selwyn, licensed pilot employed by Sydney Morning Herald Flying Service and reside at 10 Liverpool Street, Rose Bay, Sydney.

Signed: C.A.J. Lum
Investigator
7.2.50

Signed: W.G. Selwyn
7.2.50

INTERROGATION BY INVESTIGATING OFFICER

Question 1. Were you the pilot in command of VH-SMK on its flight to Tamworth on 30th December, 1949?

Answer Yes.

Question 2. Did you personally compile the "Trip Record" for that flight and which is now produced?

Answer I filled in the arrival time for Camden, the flying time from Coffs Harbour to Camden, and the ground time for Coffs Harbour and Camden. I also filled in the total times at the foot of columns 4 and 5, the total fuel dipped and the total engine hours. The remaining figures appearing on page 1 of the Trip Record were not entered by me.

Question 3. Do you know who entered the figures 78 in the column headed "Total on Arrival"?

Answer No. It looks like Capt. Swain's figures to me but I wouldn't be sure of that.

Question 4. How are the figures for the column headed "Total on Arrival" usually obtained?

Answer The figures are usually obtained from the despatch engineer who dips the tanks when the aircraft returns from a flight, there may be times when the dipping is done by the pilot or pilots concerened.

Question 5. Have you any recollection of any figures being mentioned regarding the quantity of fuel remaining in the tanks of VH-SMK after returning from the flight on the 30th December.

Answer No, I have no recollection at all.

Signed: C.AJ. Lum
Investigator
7.2.50

Signed: W.G. Selwyn
7.2.50

APPENDIX 22

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1st JANUARY,1950

Statement by D.H. Swain (Eyewitness)

I am Douglas Hereward Swain of Springs Road, Elderslie, via Camden and am employed by John Fairfax & Sons' "Herald" Flying Services in the capacity of Flight Superintendent. In this capacity I am responsible for the operation of all aircraft which includes the checking and training of the crews, the manner in which the operations are carried out, including the dropping operations. I am the holder of Senior Commercial Pilot's Licence No.24, which is endorsed for C.47, Hudson and other like types. I hold an Instrument Rating and also a First Class Flight Radio Telephone Operator's Licence. On the morning of 1st January I was present on the tarmac at the Camden Aerodrome when aircraft VH-SMK departed on its last flight.

Witness: C.A.J. Lum
6.1.1950
Investigator

Signed (D.H. Swain)
6.1.1950

INTERROGATION BY INVESTIGATING OFFICER

Question 1. On the morning of the 1st did you have conversation with Capt. Cruickshanks and First Officer Purvis?

Answer Yes, I discussed the meteorological information received from Mascot and made out our respective flight plans.

Question 2. Did the crew of VH-SMK appear to be in normal health and spirits?

Answer Yes, exceptionally so. They were in particularly good health.

Question 3. Did you notice the load that was placed aboard SMK.

Answer A casual glance only and to my observation it appeared to be quite normal.

Question 4. Did you actually observe the aircraft taxi away from the tarmac?

Answer Yes, I did. The engines started smoothly, the taxy away was quite normal and I continued to watch the aircraft until it was obscured by the hangars.

Question 5. Could you say whether the engines of VH-SMK were run up prior to take off?

Answer Yes, the engines were definitely run up. I listened to the run up right through and everything appeared to be quite normal.

Question 6 Did you observe or hear any part of the actual take off?

Answer I did not observe the take off and heard only the initial part of the take off owing to the fact that I was then starting the motors prior to the run up of VH-SMI.

Signed: C.A.J. Lum
6.1.50
Investigator

Signed: D.H. Swain
6.1.50

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1st JANUARY,1950

Statement by D.H. Swain (Eyewitness) (Cont'd)

Question 7: When did you first have your attention drawn to the fact that the aircraft had crashed?

Answer During run up of SMI there was a dull explosion and a very bright glow from the port cockpit window and almost simultaneously the frantic signals of the ground engineer indicated that something had taken place.

Question 8. Would you describe what your impressions were of the weather conditions prevailing at the time of the take off of SMK.

Answer 4/8 cumulus and strato cumulus cloud at 4 to 6000 ft. over the aerodrome, North of the aerodrome, lowering cloud base and thunderstorm distant about 20 miles. A very, very light drizzle of rain, humidity very high. Ground wind light and variable. Visibility unlimited South, 10 to 20 miles North.

Question 9. Did you notice the flare path this night?

Answer Yes, I did.

Question 10. How were the flares placed?

Answer The flares were placed on the northern side of the East-West runway at specified intervals throughout the length of the strip with a double flare at either end.

Question 11. How long had Capt. Cruickshanks been in the employ of the "Herald" Flying Services?

Answer Since November 1947.

Question 12. Who interviewed Cruickshanks for his engagement with this organisation?

Answer Capt. G.H. Purvis, the Manager of the "Herald" Flying Services.

Question 13. Were you responsible for flight checking Captain Cruickshanks soon after his engagement by the organisation?

Answer No, as he was engaged as a First Officer. All that would be necessary would be to ensure that he had the necessary licence endorsed with the necessary type of aircraft.

Question 14. Did you subsequently carry out any flight check with Cruickshanks?

Answer Yes, I have flown with him on numerous occasions and at each time he has been given flight dual instruction or some form of flight check. Flight check and Route endorsement was carried out on 18th December, 1949.

Question 15. Were you responsible for any certification as to Cruickshanks eligibility for type endorsements?

Answer I think so - on Lockheed type of aircraft, but to make certain information could be obtained from the Dept. of Civil Aviation who should have the necessary forms on Cruickshanks' licence file.

Signed: C.A.J. Lum
Investigator
6.1.50

Signed: D.H. Swain
6.1.50

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1st JANUARY,1950

Statement by D.H. Swain (Eyewitness) (Cont'd)

Question 16. Would this certification be forwarded to Dept. of Civil Aviation by the management of the "Herald" Flying Services or by Cruickshanks himself?

Answer Latterly the organisation has been handling certifications but in this specific case it is possible that Cruickshanks forward the certification himself.

Question 17. Do you keep any record of flight checks that are carried out with pilots?

Answer No specific record is kept of individual personnel but all flights made with captains constitute a flight test and can be obtained from the trip records.

Question 18. Have you any definite programme for the checking of pilots?

Answer No. All checks are conducted at random, in other words, there is no set three monthly check.

Question 19. Would these checks cover all aspects of flight?

Answer Yes - en route, assymetric and instrument flight as the circumstances permitted.

Question 20. Had you personally checked Cruickshanks in all sequences of flight?

Answer Yes, on many occasions and he has been found completely competent in all aspects of flight. His reflexes were particularly good.

Question 21. Have there been any operating instructions issued to pilots of this organisation?

Answer Yes, it has been a requirement of the company that all flying personnel will study the operational handbook for each particular aircraft, as well as individual orders issued from time to time dealing with the safety of the operation. These orders are issued and placed firstly on the notice board for a period of one month and subsequently filed.

Question 22. Have you any system to ensure that all pilots have noted any instructions that are issued?

Answer All instructions issued are taken up personally with the pilots individually. There is no possibility of a pilot misconstruing any notice issued by the company.

Question 23. When was Cruickshanks last tested on assymetric flight?

Answer In June 1949 he was checked both by myself and a departmental examiner.

Question 24. Is it the practice to use or not to use flaps during take off?

Answer Definitely not.

Question 25. Are pilots regularly checked on engine failure during take off?

Answer They are checked from time to time and in Cruickshanks' case it would be in June last year.

Signed: C.A.J. Lum
Investigator
6.1.50

Signed: D.H. Swain
6.1.50

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1st JANUARY, 1950

Statement by D.H. Swain (Eyewitness) (Cont'd)

Question 26. To your knowledge had Cruickshanks been certified as competent to act in command on Douglas DC3 type aircraft?

Answer Yes, he had been certified.

Question 27. What form did the certification take?

Answer The certification was made in compliance with A.N.O. Part 40.

Question 28. How long had Cruickshanks been flying in command of Douglas type aircraft?

Answer Since 27th July, 1949.

Question 29. After a pilot has been certified as competent to act in command on the type what would be the procedure adopted before that pilot would be allowed to actually fly in command?

Answer After the certification has been issued, the pilot would not be permitted to fly in command until the management had viewed his pilot licence actually endorsed for the aircraft type.

Question 30. Has the organisation any standard system which it adopts to ensure correct loading of aircraft under all circumstances?

Answer The organisation has drawn up loading procedures for specific paper consignments for given flights and the weights of respective consignments for various places of call on those flights are known and it is possible to calculate the index units for the particular weights placed at the particular loading stations marked in the aircraft and in this way it is possible to compute the weight distribution. This system applies to all flights except that which is carried out directly to Dubbo carrying only those papers destined to be off-loaded at Dubbo. The Dubbo weight conforms with other standard weights being carried by similar aircraft during the weekly operation and the loading is conducted in such a way that it conforms with normal loading as for a load of a similar weight where the actual individual weights are known.

Question 31. Would a pilot compute the value of index units for the Dubbo consignment?

Answer The index units cannot be computed because the actual weight of each individual bundle is not known and the pilot satisfies himself purely by viewing the load and passing his judgment of the weight distribution on his past experience.

Question 32. How does the pilot determine the gross weight of this load?

Answer The weights are 'phoned through from Head Office in the afternoon prior to the departure.

Question 33. Is the weight of each bundle the same?

Answer No, they vary according to the number of papers contained in each bundle.

Signed: C.A.J. Lum
6.1.50
Investigator

Signed: D.H. Swain
6.1.50

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W. ON 1st JANUARY, 1950

Statement by D.H. Swain (Eyewitness) (Cont'd)

Question 34. It has been said by Mr. Herron an employee of your organisation that the total quantity of fuel in the tanks of VH-SMK after refuelling for this particular flight was 460 gals. Can you explain why the quantity stated on the load sheet is 370 gals?

Answer I am certain that Herron's statement is incorrect.

Question 35. It has been stated by Mr. Pinner, an employee of your organisation, that on his dipping of the tanks he found the quantity to be 400 gallons. Would you consider this statement to be correct?

Answer Yes, I would. The maximum fuel which could be carried on this flight because of the freight loading was 403 gallons and I consider that it would be filled up to that capacity.

Question 36. How would the person who filled the tanks determine what quantities were to be placed in those tanks?

Answer On receiving notification of weights from Head Office we then compute the amount of petrol that can be carried in each particular aircraft. From the final dip prior to filling we compute the amount to be added.

Question 37. Would that person who placed fuel in the tanks be aware of the load to be carried at that time?

Answer No, he would not know.

Question 38. At what time of the day would the weight's load be known to the organisation?

Answer The Sunday's weights are known by 2.30 p.m. Friday.

Question 39. On what consumption of fuel are the flights planned?

Answer Flights are planned on 80 gallons per hour.

Question 40. What is the greatest paper load known to have been carried on Lockheed type aircraft?

Answer 4,564 lbs.

Question 41. Do you consider it possible that a greater load could be lifted on normal operations?

Answer Yes. A greater load than 4,564 could be lifted on Dubbo provided no alternative aerodrome is required and in that case 105 lbs. extra could be lifted.

Question 42. Do you know of any occasion on which any part of the load is loaded into the nose compartment of the Lockheed?

Answer Yes. The loading chart requires a certain section of freight to be placed in the nose compartment when the freight is 4000 lbs. or over. This is necessary to comply with the weight and balance chart.

Question 43. Do you know when Cruickshanks' licence was due for renewal and whether it was actually renewed at that time?

Answer His licence expired on 31st December, 1949. The licence was not renewed. I questioned the pilot concerned regarding medical examination and renewal and he informed me that his medical examination and renewal had been deferred by the Dept. of Civil Aviation until a later date.

Signed: C.A.J. LUM 6.1.50 Signed: D.H. Swain 6.1.50

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1st JANUARY, 1950

Statement by D.H. Swain (Eyewitness) (Cont'd)

Question 44. Did you make any subsequent check to ascertain whether his statement was correct?

Answer No, because in my own case my licence, due for renewal on 31st December, had been deferred by the Department until 31st January.

Signed: C.A.J. Lum
Investigator
6.1.50

Signed: D.H. Swain
6.1.50

APPENDIX 22A

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1ST JANUARY, 1950

Further statement by D. H. SWAIN - Flight Superintendent

I am Douglas Hereward Swain of Springs Road, Elderslie, via Camden, Flight Superintendent of Herald Flying Services.

On the morning of 14th July I had a telephone call from Capt. Cruickshanks and he informed me that VH-SMK had swung on take-off, and it was his intention to change aircraft.

On my arrival at the Company's premises I inspected the aircraft with A.M.E. N. Toplis. We found that the starboard taper of the tail wheel locking block was worn.

On test we found that the tail wheel lock would permit a gradual swing to port when either the port brake was used or uneven power applied to the starboard engine. The aircraft would not swing to starboard unless sufficient pressure was applied to overcome the safety slip of the tail wheel locking block.

After installation of a new tail wheel locking block I tested the aircraft and found it serviceable.

I interrogated Cruickshanks and he informed me that during take off he had swung to port and corrected with rudder, power on port engine, and finally starboard brake. This combination apparently applied sufficient force to disengage the tail wheel locking block at the safety tension and a swing to starboard ensued.

I did not inspect the marks on the runway immediately as Cruickshanks indicated by diagram the path of the aircraft. When I did check the marks of the aircraft they substantiated his statements.

Captain H. Gibson-Lee on no occasion ever complained about Cruickshanks. Actually his reports were so satisfactory regarding his flying ability that it assisted materially in influencing me to recommend Cruickshanks for promotion. Lee and Cruickshanks operated most successfully as a crew and spent a great deal of time off together.

(D. H. Swain)
28.2.50

APPENDIX 23

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1ST JANUARY 1950

Statement by N. W. TOPLIS - Licensed Aircraft Maintenance Engineer.

N. W. Toplis states :-

I am Neville Walter TOPLIS, Licensed Aircraft Maintenance Engineer in categories "A" and "C", No. 1771, endorsed for Hudson type aircraft. I am employed by Sydney Morning Herald Flying Services at Camden aerodrome, and reside No. 6 Murrandah Avenue, Camden.

On the afternoon of Wednesday 28th December, 1949, I was on duty and carried out an inspection on the airframe of aircraft VH-SMK for the purpose of issue of Certificate of Safety. This inspection was normal in every way and I discovered no abnormal defects. As a result of this inspection I certified the airworthiness of the airframe on a Certificate of Safety. I verify the signature which appears on the duplicate copy Certificate of Safety No. 4077E.

Signed : A. Charlton
Investigator
4.1.50

Signed : N. Toplis
4.1.50

Interrogation by Investigating Officer

Question 1 Can you recall any report of unusual defects on this aircraft?

Answer No.

Question 2 What defects, if any, were there in the fuel tanks of this aircraft?

Answer Nothing to talk of. There was slight trace of weeping from the under side of the port front tank.

Question 3 Were you on the aerodrome at the time of the accident?

Answer Yes, I was at a party in a house which was in the grounds of the aerodrome, and was indoors at the time.

Question 4 Did you hear VH-SMK take off?

Answer Yes, I did.

Question 5 Did you hear anything abnormal about the take-off?

Answer No. It seemed all right to me. I did not hear the crash.

Signed : N. Toplis
4.1.50

Signed : A. Charlton
Investigator
4.1.50

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1ST JANUARY 1950

Statement by N. W. TOPLIS - Cont'd.

Interrogation by Investigating Officer - Cont'd.

Question 6 Would the aircraft, subsequent to the above inspection for the Certificate of Safety, have been given any further inspection?

Answer On the 29th and 30th of December daily inspections were carried out in conformity with instructions laid down in the Manufacturer's Maintenance Manual.

Signed : A. Charlton
Investigator
4.1.50

Signed : N. Toplis
4.1.50

APPENDIX 23A

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1ST JANUARY, 1950

Further statement by N. W. TOPLIS - Licensed Aircraft Maintenance Engineer

I am Neville Walter Toplis of 6 Murrandah Avenue, Camden, Aircraft Engineer.

On the morning of the 14th July, 1949, the pilot of aircraft VH-SMK reported that the aircraft was swinging on take off.

On inspection of the tail wheel lock it was found that the lock block was in a half shear condition on one edge.

A new block was drawn from stores and fitted. The aircraft was jacked and the brakes checked. The aircraft was then taxi tested and found to be serviceable.

(N. W. Toplis)
28.2.50

Appendix 24

Accident to Lockheed Hudson VH-SMK at Camden, New South Wales on 1st. January, 1950.

Report on Test and Examination of Propellers and Governor Units from Hudson MK 1V VH-SMK

REPORT NO. 107

PORT GOVERNOR - TYPE 4K11-GOT. SERIAL NO. 41064.

(a) OBSERVATIONS

Upon receipt of this governor it was noted that :

(1) The cover was damaged on the top of the rack boss. This damage indicated that the governor had been scraped during the crash resulting in the removal of metal.

(2) The feathering line connecting bolt was broken off level with the end of the feathering line boss. The remainder of the bolt and the swivel connection were missing.

(3) The control shaft was damaged. Teeth has been broken from this component from the minimum r.p.m. position to seven teeth passed this point in opposite direction to maximum r.p.m., indicating impact due to snatching of control cables when frontend of engine parted company with installation, i.e. the rack would have moved freely from the maximum r.p.m. position (normal take-off position) into the minimum r.p.m. position, at which time the rack assembly comes into contact with the end of rack bore in the cover, a position not normally encountered in operation. Further turning of the control shaft would then result in the damage sustained by the control shaft teeth.

(b) FUNCTION TESTS

New feathering line connections and new control shaft were necessarily fitted to this governor in order to carry out function tests, the only other components disturbed being the cover/body nuts, control shaft pulley and control shaft packing nut, which were replaced in their original positions after the fitting of the new control shaft. A complete rig test was then carried out on this governor, all settings being within tolerance, and governor operated normally with the exception of the pressure cut out switch operating pressure. This may have been due to heat to which unit had been subjected at this point. Lead seals adjacent to switch, had melted, others remote from switch were intact.
Figures obtained were as follows :

SETTING	SPECIFIED	RECORDED
Minimum R.P.M.	1060 ± 20 R.P.M.	1080
Maximum R.P.M.	2600 ± 10 R.P.M.	2600
Angular Travel	116° ± 5°	108°
Accuracy Check	2000 R.P.M. @ 57° ± 5°	2000 R.P.M. @ 56°
	2200 R.P.M. @ 75° ± 5°	2200 R.P.M. @ 72°
Relief Valve Pressure	180 - 200 p.s.i.	170 p.s.i.
Delivery	99.75 G.P.H.	109 G.P.H.
Internal Leakage	12.5 Qts. P.H.	4 Qts. P.H.
Pressure Test @ 400 p.s.i	No leakage	O.K.
Cut Out Switch	600 ± 25 p.s.i.	550 p.s.i.
Transfer Valve Leakage	Nil	Nil

The feathering valve operated satisfactorily.

(c) CONCLUSIONS

At time of accident governor was at maximum r.p.m. position and was functioning satisfactorily.

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Report No. 107

STARBOARD GOVERNOR - TYPE 4K11-GOT. SERIAL NO. 55648

(a) OBSERVATIONS

Upon receipt of this governor it was observed that it had been subjected to severe heat.

(b) FUNCTION TESTS

The governor was fitted to the testing rig, the minimum governing position was found to be 900 r.p.m. (1060 specified), the relief valve setting was 130 p.s.i. (180 to 200 p.s.i. specified), and the cut out switch operated at 480 p.s.i. (600 ± 25 p.s.i. specified). These results appeared to indicate that governor springs had been affected by the heat.

(c) STRIP INSPECTION

The governor was partially stripped, the springs removed and tested with the following results :

Part No.	Description	Specified	Recorded
53387	Feathering Valve Spring	6.2 lbs. ± 10% @ 1.406" Free length 1.766"	5 lbs. @ 1.406" Free length 1.594"
50665	Speeder Spring		O.K. to drawing
51737	Relief Valve Spring	20 to 21 lbs. @.988" Free length 1.5"	14½ lbs. @ .988" Free length 1.344"
59480	Cut Out Switch Spring	32.75 to 33.75 lbs. @ .548" Free length .715" to .710"	33lbs. @ .548" Free length .660"
54720	Rack Balancing Spring	11.75 lbs.- 0 ±10% @ 1.1094" Free length 1.547"	5½ lbs. @ 1.1094" Free length 1.281"

(d) CONCLUSIONS

At time of accident governor was set in minimum r.p.m. position, and there was no indication other than governor was functioning satisfactorily at time of accident.

PORT PROPELLER - SERIAL NO. 83613

(a) OBSERVATIONS

Gear Segments in fine pitch position, change pitch mechanism in fine pitch position hard up on stops.
No. 1 Blade, Serial No. 220008, completely twisted round approx. 180° past fine pitch partly due to blade bush dowels and retaining screws having sheared, remainder due to twisting of blade. Shank bent approx. 20° close to barrel and blade edge and face bent in two or more places.
No. 2 Blade, Serial No. 220009, bent from radius of shank approx. 20°, twisted from 42" outboard, edge bent and face bent at two or more places.
No. 3 Blade, Serial No. 220010, broken at shank in line with 42" station towards low pitch (5° to 10° from low pitch stop). Blade bush choked up with mud and grass and same extending along barrel to No. 2 Blade.

This propeller broke away from engine complete with reduction gear housing but was close enough to aircraft for tip of No. 1 blade to be affected by fire on 4" of trailing edge from tip inboard, metal having melted.

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Report No. 107

(b) FUNCTION TESTS

Distributor Valve functioned satisfactorily and changed over at 610 p.s.i. leakage within tolerance.

STARBOARD PROPELLER - SERIAL NO. 69832

(a) OBSERVATIONS

No. 1 Blade Serial No. 263642, flat rams-horn bend at 42" station, 45° towards leading edge, also broken and torn at this point.
This damage due to melting of metal when at approx. 60° to ground and leaning forward.
No. 2 Blade Serial No. 263643 broken off at shank at approx. right angles to fine pitch position, i.e. in direction of flight.
No. 3 Blade Serial No. 263644, lead and trail slightly bent 4" from tip, probably due to damage in transit after removal from aircraft.

(b) FUNCTION TESTS

Distributor Valve functioned satisfactorily and changed over at 640 p.s.i. leakage within tolerance.

(c) CONCLUSIONS

There is evidence that during the fire which followed the accident the starboard governor and pressure cut out switch of port governor reached a temperature exceeding 340°C, which is the tempering temperature of the springs and is a pointer to the control positions at time of accident.

It is considered that the two propellers and governors were in an airworthy condition at the time of accident.

On strip examination of the propellers, it was noted that there was no indicatio in either of the change pitch mechanisms or the inside diameter of the domes, that the propellers had been feathered in recent operations. From fine pitch position to limit of constant speed range, working surfaces were practically free of adhering deposits, while feathering range was heavily coated.

From condition of the propellers and governors it would appear that the starboard engine had cut or stopped (direction of fracture of No. 2 blade being in direction of flight. Nos. 1 & 3 blades were practically undamaged, except No. 1, which was burnt. Pitch change mechanism was on low pitch stop and gear segments with blades were in similar position when removed from engine. The stops were undamaged).

While port engine was, most probably, on full power, No. 3 blade fracture would indicate propeller blades were 5° to 10° off fine pitch stops normal position for same under normal take-off conditions, and rotating at maximum r.p.m., as would normally have been the case just prior to failure of starboard engine, if such failure did take place at time of being air borne.

Basil T.G. Williams
Chief Inspector & Engineer
De Havilland Propeller Division
ALEXANDRIA.

APPENDIX 25

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W.

ON 1st JANUARY, 1950.

REPORT ON ACCIDENT BY C. BEECH - AIR TRAFFIC CONTROLLER

At approximately 311410Z, Sydney Morning Herald rang from Camden to get their forecasts and clearances for the flights of VH-SMK to Dubbo and VH-SMI to Coffs Harbour. An Observer, Mr. W. Loeven answered the phone in the Met. office and passed the forecasts which are available if required, and handed the phone to me. By phone I ascertained the endurance, and after checking the forecasts cleared the flights on condition that the Dubbo flight carry alternate Dubbo for Mascot on the return flight.

Mascot being at the time closed to landings due to low cloud, I asked the caller to give an approximation of the cloud base at Camden. He said it was about 12,500 ft., which I took as being a good enough indication that there was no low cloud to prevent a clearance being given.

With all Herald flights, the main Flight Plan is passed by radio after the aircraft is airborne.

At 1446Z SMK called Mascot aeradio to advise that he was taxying at Camden, and at 1505Z the Communications Officer on that circuit advised me of the fact that some time had elapsed since the aircraft advised it was taxying.

Shortly afterwards I put a call through to Camden to see if the aircraft had returned to the tarmac and while I was waiting for the call to be connected, at approximately 1515Z, The Herald rang to advise A.T.C. of the accident. It was reported to have occurred on take-off at 1457Z, 2½ miles South East of the runway and both crew members were killed.

I later contacted Mr. H. Purvis of The Herald Flying Services who said the aircraft was almost on the Northern end of the N/S runway.

At 1630 VH-SMI departed Camden for Coffs Harbour, and at 1641Z was asked to report on the height of the cloud base, the reply being "not too accurate but 3500 ft."

Regarding the weather conditions at Camden at the time of take-off of SMK, the Forecaster on duty at Mascot was of the opinion that the cloud base at Camden would not be as low as that at Mascot, and the visibilitywould be good.

Attached are a copy of the Aeradio Log and the forecast issued to SMK.

(Sgd.) C. BEECH.

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APPENDIX 26

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W. ON 1st JANUARY 1950

REPORT ON INJURIES BY DR. J. C. LANE, SUPERINTENDENT OF AVIATION MEDICINE

R. B. Purvis

Had his first civil aviation medical examination at the private pilot standard in November 1945. He was assessed as "pass" with a restriction to daylight flying only because he was at that time thought to have defective colour vision. He passed further examinations at the private pilot standard in November 1946 and October 1947, with the same restriction.

2. He had a medical examination at the commercial pilot standard in November 1948 and was accepted, since his colour vision on a re-check was regarded as defective but safe. He had further medical examinations at this standard on 6.5.49 and 9.11.49 (Dr. E. C. Heffernan, 149 Macquarie Street, Sydney) and on each occasion he was accepted as meeting the commercial pilot medical requirements.

R. E. Cruickshanks

3. Had his original medical examination at the commercial pilot standard in October 1946, and was accepted as meeting the "B" licence medical requirements. He had subsequent examinations on 3.6.47 and 11.12.47, at which he continued to meet the medical requirements for a commercial pilot licence. The examination on 11.12.47 (Dr. E. C. Heffernan, 149 Macquarie Street, Sydney) is the latest that the Aviation Medicine Branch has any record of.

4. Limited post-mortem examinations were carried out on the crew of VH-SMK on 1.1.50 by Dr. R. M. Crookston of Camden and the Superintendent of Aviation Medicine. Identification of the bodies was by no means certain. Both bodies were extensively burnt, the degree of incineration being less in the upper trunk and head than in the lower trunk and limbs. The suggests that something was partly covering the bodies and protecting them from the fire.

R. B. Purvis

5. The legs were severed by incineration about knee level. There were compound fractures of the right thigh and the right upper arm. There were fractures of the right 1st, 2nd and 3rd ribs and left 2nd and 3rd ribs, near their junction with the sternum. There was a large tear of the heart wall into the left ventricle and a complete transverse tear of the ascending aorta. Death was due to this lesion and took place before burning. The location of the rib fractures and the cardiac damage suggest that this injury was due to a violent impact between the chest wall and the control wheel. A blood sample was taken from the pericardial cavity and an alcohol estimation produced a zero result.

R. E. Cruickshanks

6. Both legs were removed by incineration in the upper third of the thigh. There were compound fractures of the left forearm and right upper arm. There was an extensive compound of the lower jaw in the region of the chin. Though the cranial cavity was not opened, it is concluded from this jaw fracture that there was

sufficient head impact to produce extensive contusions and lacerations of the brain, to which death would be attributable. The burning therefore occurred after death. A blood sample was taken from the left pleural cavity and an estimation of alcohol in this showed a concentration of .029%, a value not significantly different from zero.

7. In summary, death in each case was immediate and due to deceleration injuries. The blood alcohol findings eliminate the possibility that alcohol was a contributory cause of the accident.

(Sgd.) JOHN LANE
S.A.M.

10.1.50

APPENDIX 27

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1ST JANUARY, 1950.

COPY OF LETTER FROM DR. CHARLES WATSON

DR. CHARLES WATSON,
65 Osborne Street,
Nowra, N.S.W.

3.3.50.

Dear Doctor Lane,

R.E. Cruickshanks consulted me about February 1949 and asked me for an examination (he knew that I was ex-R.A.A.F. and asked me if I could give him an "aircrew medical" - I told him that I thought the ordinary insurance examination would be sufficient if done with care).

I examined him in accordance with the A.M.P. type of form and did a proper exercise tolerance test - to the very best of my memory his results were satisfactory, as I am sure I would recall if he were not fit.

What became of this form I am not certain. I may have given it to Cruickshanks or, more likely I think, I may have posted it to his headquarters - frankly I don't know.

I had occasion to see him again about (very roughly) July 1949 but this was only for an urticarial rash which settled down within 24 hours.

He was not ill apart from this during the past year or more in which his home was in Nowra.

Yours sincerely,

(Sgd.) CHARLES WATSON.

APPENDIX 28

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W.

ON 1st JANUARY, 1950

COPY OF LETTER FROM DR. F.P. RYAN

DR. F.P. RYAN,
27 Berry Street,
Nowra, N.S.W.

6/3/50.

The Superintendent of Aviation Medicine.

Dear Doctor,

In reply to your letter of 2nd instant re the late Richard E. Cruickshanks I have no record of having attended him personally since April 1947, when he underwent operation for Appendicitis. Since then I have seen him socially on many occasions, when he always appeared to be in the best of health.

Yours faithfully,

(Sgd.) F.P. RYAN

APPENDIX 29

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ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W. ON 1st JANUARY, 1950.

ENGINE STRIP REPORT BY QANTAS EMPIRE AIRWAYS LTD.

Engine No. 3302. Type: PRATT & WHITNEY R-1830. Report No.....

Reference Above Report of Incident Dated.....

Ex Aircraft VH-SMK. Owned by: SYDNEY MORNING HERALD.

Details of Strip Report together with a list of Components damaged is appended.

REPORT TO BE MADE IN THE FOLLOWING SECTIONS:

(a) Cause of Failure.

(b) General Condition of Engine.

(c) Details of Investigation.

(d) Conclusions, Relevant to Cause of Failure. (If defect rectified, only state whether Engine returned to Service).

(a) Aircraft crash landing.

(b) A visual external inspection of the engine, airscrew and remaining portions of aircraft installation revealed extreme damage both by fire and heavy impact with the ground.

The following outlines the general condition on receipt:-

1. Airscrew and reduction gear unit had been torn away from engine.
2. All hold-down studs, No. 9 cylinder snapped and cylinder adrift from engine.
3. Nos. 10, 11 and 12 cylinders extremely damaged.
4. Whole of supercharger and rear section burnt away, leaving a mass of molten non-ferrous metal, together with several remaining steel gears, shafts, etc.
5. All accessories, magnetos, carburettor and fuel pump either missing or severely damaged by fire.

(c) Examination and investigation commenced with:-

AIRSCREW AND REDUCTION GEAR ASSEMBLY:

Airscrew was in a state of assembly to the propellor shaft and reduction gear section of the engine. Both components had been wrenched away, as a unit, from the engine, all crankcases retaining studs having been broken.

One airscrew blade was broken off at the root, while the remaining two blades were badly bent. Removal of the propellor dome assembly revealed the piston to be in the extreme "fine pitch" position.

The reduction gear assembly was extremely damaged, having been torn away from the engine, with extensive smashing of the outer case.

Further inspection revealed that the tail and extension of the airscrew shaft was snapped off roughly midway of its length. The reduction gear assembly, although extensively damaged, had not been subjected to any great heat and all damage would appear to have been the result of impact with the ground

(Continued overleaf)

Base Inspector P. Beringolf (Sgd)

Base E.O.S. MASCOT. Date 15/3/50.

Accident to Lockheed Hudson VH-SMK at Camden, N.S.W. ON 1st January, 1950. 95

Pratt & Whitney Engine No. 3302. 15th March, 1950.

CYLINDERS:

No. 9 Cylinder was detached from the engine with all cylinder hold down studs broke away at crankcase. Inspection revealed that cylinder head was missing entirely, also barrel was bent rearwards at the junction of the skirt and mounting flange.

The piston was also missing, but gudgeon pin was in place with one end pad missing, and would appear that piston had been destroyed by fire.

No. 9 link rod was visibly bent rearwards.

No.10 cylinder, although still secure on the crankcase, had the whole head smashed away with staving inwards of the barrel top.

No.11: All hold-down studs at this location were broken, leaving the cylinder loose on crankcase. The cylinder head was extensively split, but still in place.

No.12 cylinder head was split away from the barrel but was still secure in crankcase.

The remaining cylinders were all damaged to some extent, but mostly confined to cowl mounting lugs and cooling fins. Other than No. 9 referred to earlier, all pistons were in normal condition having sustained no damage due to the crash. Removal of No. 11 cylinder revealed the link rod to be visibly bent, and referring to condition of No. 11 cylinder, it would appear that impact snapped all cylinder base studs also bending the link rod.

POWER SECTION: had sustained extreme damage both from fire and tearing away of reduction gear assembly. Fire had extended into rear of the power section, severely damaging all valve gear, etc. Damage due to tearing away of reduction gear was very severe breaking all studs, and included smashing the main driving or "bell gear." This gear was split in two places on its periphery roughly 8" apart, and this section partly flattened outwards.

No further internal damage was evident other than that associated with and described under cylinders 9 and 11. Generally the master and link rod and piston assemblies appeared to have been functioning normally, and no evidence of prior mechanical failure was revealed.

SUPERCHARGER AND REAR SECTIONS:

Were completely destroyed by fire, and little can be said other than described under section (b) of this report.

The accessory drive shaft and portion of the accessory drive gear were still in place and it would appear that missing portion of gear had been burnt away. In view of the possible failure of the accessory drive gear prior to the aircraft crash, investigation of this part is being carried out by the Department of Civil Aviation.

ACCESSORIES:

Magnetos, carburettor and fuel pump were all extremely damaged by fire. The condition was such that no evidence was gained from an inspection of the remaining portion of these accessories.

IGNITION HARNESS:

Was severely damaged by fire and revealed no evidence of any description.

(c) From the extreme condition of the engine and the little evidence available, no definite conclusion can be drawn, but several points are noteworthy and are as follows:-

1. No evidence of prior mechanical failure revealed in either power or reduction gear assemblies.

2. It would appear that the engine was not under power, or at the most idling or windmilling at moment of impact with the ground. This statement is substantiated to some extent by the fact that even though No. 11 cylinder was adrift and No. 10 barrel staved inwards, no serious damage was evident to either piston. Internal damage of the power section was confined to the visible bending of Nos. 9 and 11 link rods in a

Accident to Lockheed Hudson VH-SMK at Camden, N.S.W. on 1st January, 1950.

Pratt & Whitney Engine No. 3302. 15th March, 1950.

rearwards direction, and would appear in direct relation to the damage sustained by the cylinder at these locations. Although No. 9 piston was missing, No. 11 exhibited no evidence of having been operating with the link rod in the condition stated. The evidence of the bent airscrew blades and the control piston in "full fine pitch" position would suggest that the engine was "windmilling."

APPENDIX 29

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W. ON 1st JANUARY, 1950.

ENGINE STRIP REPORT BY QANTAS EMPIRE AIRWAYS LTD.

PRATT & WHITNEY

Engine No. 4145. Type: R-1830. Report No.....

Reference Above Report of Incident Dated.....

Ex Aircraft VH-SMK. Owned by: SYDNEY MORNING HERALD.

Details of Strip Report together with a list of Components damaged is appended.

REPORT TO BE MADE IN THE FOLLOWING SECTIONS:

(a) Cause of Failure.

(b) General Condition of Engine

(c) Details of Investigation.

(d) Conclusions, Relevant to Cause of Failure/Defect. (If defect rectified, only state whether Engine returned to Service).

(a) Aircraft crash landing.

(b) A visual external inspection of the engine, airscrew and remaining portion of the aircraft installation revealed extreme damage through impact with the ground. Considerable damage by fire was also evident but confined to the front portion of the engine:-

The following outlines the general condition on receipt:-

1. Airscrew and reduction gear section had been removed from engine.
2. No. 2 cylinder and piston had been removed.
3. All lower cylinders, Nos. 8, 9, 10 and 11 extremely damaged.
4. Both magnetos extensively damaged.
5. Ignition harness and leads extensively damaged by fire.
6. Carburettor and fuel pump appeared to have escaped serious damage.

(c) Examination and investigation commenced with:-

AIRSCREW S/N 69832:

No. 1 blade bent to an angle of roughly 70° midway of its length. Tip of blade had been subjected to extreme heat to a point where the metal had commenced to run. No. 2 blade broken off at the root. No. 3 blade was intact and had sustained minor damage only.

Inspection of airscrew dome revealed piston to be in the extreme "fine pitch" position.

REDUCTION GEAR SECTION:

Escaped major damage, with no evidence of internal damage or mechanical failure.

(Continued overleaf)

Base Inspector P. Beringolf (Sgd).

Base E.O.S. MASCOT. Date 15/3/50.

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Accident to Lockheed Hudson VH-SMK at Camden, N.S.W. on 1st January, 1950.

Pratt & Whitney Engine No. 4145. 15th March, 1950.

CYLINDERS:

Nos. 8 and 9 were both extremely damaged. Heads were cracked and smashed away from barrels, leaving the piston heads visible. Tops of barrels were staved in so that no further travel of the piston was possible. All cylinder base nuts and pal-nuts were intact, but in both instances the eight front nuts were no longer tight. Checks carried out revealed the eight rear nuts in both instances had retained the normal load of 350" lbs.

Removal of the cylinders revealed that in both instances the pistons were undamaged.

No. 10 cylinder also sustained extreme damage, but of a different nature. Evidence was that cylinder had sustained an enormous blow in a rearwards direction. In this instance, all hold-down studs were snapped and cylinder had lifted roughly 1½" from crankcase. The cylinder head, although badly damaged and cracked, was still in place, but whole cylinder barrel was bent rearwards commencing at the junction of the skirt and hold-down flange. It was not possible to remove the cylinder from the piston, due to damage of the skirt preventing further movement of the piston. Cylinder was subsequently removed in unit with the piston and respective link rod after dismantling of the master rod assembly. Further inspection of the cylinder and piston assembly revealed that piston was undamaged, but link rod was visibly bent rearwards.

No. 11 cylinder head was badly damaged; also several of the front hold down studs had snapped off. The balance of the studs were intact with nuts and pal-nuts.

The remaining cylinders were all damaged to some extent, but mostly concerning cowl mounting lugs, fins, etc. Pistons were undamaged, and all in normal running condition.

POWER SECTION:

Other than the damaged studs described under "Cylinders," this section failed to reveal any mechanical defect. Valve timing was correct, master rod bearing in good order, and generally the whole section was in normal condition.

SUPERCHARGER AND REAR SECTION:

Inspection revealed five of the studs securing the supercharger to the power section were broken and missing at a point adjacent to the left side of the carburettor mounting. Prior to dismantling of the supercharger, the impellor was fouling the throat portion slightly. This would appear to be due to distortion of the case following on the evidence of the five broken studs.

Inspection after dismantling did not reveal any evidence of the impellor having fouled the case during previous running. Although all parts appeared in good order the impellor was not in quite the usual condition. All blades were covered with a dark, soot-like deposit, and it would appear that the part had been subjected to some fire or flame.

MAGNETOS AND HARNESS:

That portion of the ignition harness forward of the "fire wall" was completely destroyed by fire, and no evidence could be gained. Both magnetos were extremely damaged from impact with some object. Both contact breaker boxes were torn away and casing was distorted. No evidence was gained from inspection of the magnetos.

SPARK PLUGS:

Were A.C. LS-86, fitted with steel distance pieces. All appeared to have been in normal condition and exhibited no evidence of mal-functioning.

CARBURETTOR:

"Cece" S/N 915, Model 1375 DB1: From an external inspection, it would appear that this unit escaped major damage.

Accident to Lockheed Hudson VH-SMK at Camden, N.S.W. on 1st January, 1950.

PRATT & WHITNEY ENGINE NO. 4145. 15th MARCH, 1950.

The throttles and surrounding portions were covered with a sooty deposit, and may have been subjected to a minor fire.

Inspection of the air horn adaptor section revealed that wire mesh screen had been subjected to considerable heat. All solder had melted away from the metal framework. The direction of flow of the solder was in a definite downwards direction towards the throttle valve, as evidenced by the remaining solder streams.

Further investigation of the carburettor will be carried out, and if possible a flow check carried out. To date, the results of flow tests carried out on the Stromberg Flow Bench have been unsatisfactory, and the carburettor has not been dismantled. Pending dismantling and a flow check if possible, a further report will be submitted on the carburettor if required.

FUEL PUMP:

Pesco AN-4101 S/N C-500A: This unit was undamaged and met all requirements of the test as specified by the makers.

Due to damage of parts, no reliable report can be submitted covering the air horn or carburettor heat control.

(d) Reviewing all the evidence available, no definite conclusions can be drawn, but several facts have emerged which would suggest that all damage evident was caused by impact or fire, and are, as follows:-

1. It would appear that the engine was not under power at moment of impact with the ground. This point is substantiated by the fact that even though No. 10 cylinder was torn away from crankcase by breaking all hold-down studs, the piston had sustained no appreciable damage, neither had there been any hammering action of the cylinder to crankcase. Both of these conditions could be expected if the engine had been under power at moment of impact.

Internal damage of the power section was confined to the visible bending in a rearwards direction of No. 10 link rod. This would appear to be in direct relation to the damage sustained by the cylinder at that location.

Pistons Nos. 8 and 9 sustained no damage, even though top portions of cylinder barrels were staved inwards.

Further evidence, although not conclusive, is that one airscrew blade sustained minor damage only.

2. Tests proved the fuel pump to be in serviceable condition.

3. No evidence of internal mechanical failure of the engine.

4. Carburettor air scoop adaptor had been subjected to sufficient heat to cause melting of solder in wire mesh frame. Referring to the condition of the super-charger impellor, also throttles of carburettor, it would appear that a minor fire had occurred in the induction system while engine was in normal flying position. This may have occurred after impact with the ground. No information is to hand stating the position of the engine after crash.

STANDARD FLOW TEST SHEET

Metering Pressure in inches H.G."		9.0	10.7	13.0	10.7	12.7	10.5	10.2	9.7	8.9	6.7	1.0
Throttle Opening Spacers		.009"	.020"	.035"	.068"	.110"	.200"	.300"	.375"	.450"	.550"	Wide Open
Mixture Control Position					FULL	RICH	ALL	TESTS				
Volume of Fuel In C.C.		150	300	450	500	1000	2000	2500	3000	3000	3000	3000
Time in Seconds	Max.	53.5	65.7	60	40.8	48	58.5	46.4	41.2	31.3	24.5	21.7
	Min.	51.6	63.8	58.2	39.1	45.7	55.1	44.2	39.3	29.8	23.3	20.7

ACTUAL FLOW CARB. S/NO. 915

Time in Seconds		34.7	42.8	49	34	42	1.18	1.17	1.24	24.3	20.3	20.7

Fuel Level Check — Standard Fuel Level $1\frac{1}{2}$" - $1\frac{3}{4}$"

Level as measured $2\frac{1}{2}$"

FUEL PRESSURE DURING ALL CHECKS 10 lbs.

...

APPENDIX 30 A

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1ST JANUARY, 1950.

CAM LIFT CHECK. CARBURETTOR S/No.915.

STANDARD			ACTUAL READING
Throttle Opening Degrees.	Cam Lift	Limits	CAM Lift Actual
1	.007"		.009"
2	.014"	± .002"	.016"
3	.022"		.024"
5	.038"		.041"
8	.064"		.071"
10	.081"		.090"
12	.102"		.112"
15	.132"		.145"
18	.164"	± .003"	.179"
21	.199"		.214"
24	.232"		.250"
25	.244"		.260"
26	.254"		.269"
27	.266"		.270"
30	.297"	± .006"	.305"
33	.325"		.332"
36	.352"		.360"
40	.387"		.400"
43.	.419"		.433"
46.5	.456"		.470"

APPENDIX 31

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1ST JANUARY, 1950.

Copy of letter from Meteorological Branch, Department of Interior.

The Director-General,
Department of Civil Aviation,
"Almora House,"
522-536 Little Collins St.,
MELBOURNE, C.1.

Meteorological Conditions Camden, N.S.W. : 1100/Z to 1700 - 31.12.1949.

With reference to your memorandum 410/4/44 of 27th February, 1950, it is advised that the meteorological situation prevailing throughout the period 1100/Z to 1700/Z on 31st December, 1949, consisted of an active cold front stretching through the Camden Area with associated overcast low cloud base 500 to 1000 feet, thunderstorms and continuous light rain.

2. Synoptic weather observations prepared at Mascot during this period were -

(1) 1100/Z - Overcast low clound base 500 feet; surface wind 24 knots; moderate thunderstorm, barometer rising rapidly with passage of the thunderstorm, dry bulb 67°F ; dew point 65.

(2) 1700/Z - Overcast low cloud, base 1000 feet; surface wind S.W. 15 knots; continuous light rain; barometer rising slowly; dry bulb 68°F; dew point 63.

3. No official observations are available from Camden, but the conditions applicable to Mascot extended for at least 60 miles and can be taken as representative of conditions at Camden during the period.

Sgd. H. N. Warren
Director.

APPENDIX 32

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1ST JANUARY 1950

Photographs of the Wreckage

1. Impact mark of the port wing

2. General view showing extent of fuselage damage, initial impact marks of both engines, and general movement of wreckage to starboard and to the rear.

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1ST JANUARY 1950

Photographs of the Wreckage

3. Relationship of starboard wing to fuselage.

4. Only substantial portion of port wing remaining, consisting of approximately 5 feet outboard of and including wheel well, lying inverted.

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1ST JANUARY 1950

Photographs of the Wreckage

5. Damage to starboard fin and rudder

6. Damage to starboard wing at trailing edge of outer section and showing position of starboard engine.

Photographs of the Wreckage

7. Position of portion of port wing relative to wreckage.

8. Remains of port mainplane viewed from tail of the aircraft, leading edge faces camera.

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1ST JANUARY 1950

Photographs of the Wreckage

9. Port wheel well and undercarriage.

10. Starboard engine, one airscrew blade bent to rear and burnt, second blade showing only superficial damage.

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1ST JANUARY 1950

Photographs of the Wreckage

11. Port Engine

12. Port airscrew and reduction gear cover detached from engine on impact showing nature of blade damage.

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1ST JANUARY 1950

Photographs of the Wreckage

13. Detached port airscrew assembly showing ground slice marks, area of main impact and shank of buried blade.

14. One detached port airscrew blade buried, shank only visible above the ground.

Photographs of the Wreckage

15. Vee-shape of initial impact mark of starboard engine.

16. Escape hatch relative to main wreckage.

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1ST JANUARY 1950

Photographs of the Wreckage.

17. Aerial view of locality showing runway used for take-off, position of crash and McArthur-Onslow's residence.

Aircraft Load Sheet

JOHN FAIRFAX & SONS PTY. LIMITED

The Sydney Morning Herald

38 HUNTER STREET, SYDNEY. Telephone: B0399

AIRCRAFT LOAD SHEET

Aircraft VH SMK Departing Camden

For Route III Date 1-1-50

MAXIMUM PERMISSIBLE ALL UP LOAD 18.500 lbs

Empty weight of Aircraft	13.116 "
Fuel 377.0 gallons	2.664 "
Oil 24 "	216 "
Crew 3	340 "
Passengers Nil	"
Crew's Baggage Nil	"
Freight	2.919 "
Flight Equipment Nil	"
Weight of Aircraft Loaded	18.255 "
Unused Load Capacity	245 "

Certified that I have checked the above figures and that the aircraft is loaded in accordance with Air Navigation Regulations.

R. Brundle CAPTAIN.

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1ST JANUARY 1950

Certificate of Safety

CAForm 53.
Revised Apl. 48)

COMMONWEALTH OF AUSTRALIA
DEPARTMENT OF CIVIL AVIATION

No 4077 E

CERTIFICATE OF SAFETY

UPLICATE.

Aircraft Type HUDSON

Nationality and Registration Marks VH-SMK.

Inspection at CAMDEN

I hereby certify that I am satisfied that the above aircraft [including its prescribed instruments and equipment, but excluding the engine(s) and engine installation(s) and all instruments relating thereto] is in every way safe for flight, when loaded as specified in the Certificate of Airworthiness, and I hereby certify that all maintenance and inspection in accordance with the approved maintenance schedules have been carried out and that adjustments and rectifications found necessary have been made and inspected to my satisfaction.

Signed [signature] Lic. A/C Maintenance Eng. No. 1771

Time of issue 1500 Date 28/12/49

I hereby certify that I am satisfied that the engine(s) and engine installation(s) (including the prescribed instruments relating thereto) of the above aircraft are in every way safe for flight, and I hereby certify that all maintenance and inspection, in accordance with the approved schedules have been carried out and that adjustments and rectifications found necessary have been made and inspected to my satisfaction.

Signed [signature] Lic. A/C Maintenance Eng. No. 2552

Time of issue 1600 Date 28-12-49

I hereby certify that I am satisfied that all units of radio apparatus installed in the above aircraft are in every way safe for flight and are functioning normally, and I hereby certify that all maintenance and inspection, in accordance with the approved schedules, have been carried out and that adjustments and rectifications found necessary have been made and inspected to my satisfaction.

Signed [signature] Lic. A/C Maintenance Eng. No. 2512

Time of issue 1530 Date 28/12/49

I have this day fully satisfied myself that the above aircraft, engine(s) and radio equipment have been examined by the Aircraft Maintenance Engineers, whose signatures appear above and, in my opinion, the aircraft is fit for flight and complies with the compulsory conditions of the Certificate of Airworthiness.

Time of issue 0100 Date 29.12.49 Signed [signature] Pilot

APPENDIX 35

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COMMONWEALTH METEOROLOGICAL SERVICES C.M.B. 4/11

AIR ROUTE FORECAST AND REPORTS

Air Route From CAMDEN **To** DUBBO & RETURN **Route or Flight No.** 1715

Office MASCOT **Issued at** 31/12/1949 (Date) **To** (Pilot)

Time of Origin 1700 **Period Covered** 1715 **hours to** 2400 **hours.** H.I. ROSMAN (Forecaster)

SYNOPTIC SITUATION (Fronts. &c.) at 1100 hours		COLD FRONT NORTH OF NEWCASTLE ANTICYCLONE SOUTH OF C. DeCOUDIE.		
ROUTE SECTION	From	CAMDEN		
	To		DUBBO AND	RETURN
WEATHER		COASTAL SHOWERS - FINE WEST OF THE RANGES.		
Visibility (Miles)		15/20		
Low Cloud	Form	St CuSc		
	Amount (Eighths) ..	Patches 8-3		
	Ht. of Base above M.S.L.	800/1000 3/5000		
	Ht. of Tops above M.S.L.	2000 10/11000		
Middle Cloud	Form	AcAs		
	Amount and Height	7/8 - 2/8 12/13000		
High Cloud Form		Ci		
Type of Icing		Light clear above 14000'		
Freezing Level		14000'		
Turbulence		Moderate intermittent.		

WIND FORECAST	ROUTE SECTION From	CAMDEN			DUBBO			TAMWORTH		
	To	DUBBO			TAMWORTH			CAMDEN		
	Ht. Range	Direction	Knots	Ht. Range	Direction	Knots	Ht. Range	Direction	Knots
	Surface			Surface			Surface		
	4000 ft.	230	15	ft.			5500 ft.	230	18
	6000 ft.	240	18	5000 ft.	250	16	ft.		
	8000 ft.	260	22	7000 ft.	260	18	ft.		
	ft.			ft			ft.		

TERMINAL FORECASTS

TERMINAL	Time	Surface Wind Dir'n.	Surface Wind Knots	Vis. Mls.	WEATHER	Cloud Types Low Form	Low Amt.	Low Above	Middle Form	Middle Amount	Altimeter Setting (Q.N.H.)
SYDNEY		160	18	10	SHOWERY	4	4	1500			
DUBBO	2000	200	10	15	FINE	CuSc	5	2500	Ac	3/8	
TAMWORTH	2100	230	10	20	FINE	CuSc	5	2500	AcAs	3/8	
CAMDEN	2300	160	12	15	SHOWERY	CuSc	7	2500	Lower patches		

LATEST AVAILABLE UPPER WIND OBSERVATIONS ON ROUTE AT ALTITUDES ABOVE M.S.L.

Time	Place	1,000 ft. Dirn.	1,000 ft. Kn.	2,000 ft. Dirn.	2,000 ft. Kn.	Dirn.	Kn.	5,000 ft. Dirn.	5,000 ft. Kn.	Dirn.	Kn.	8,000 ft. Dirn.	8,000 ft. Kn.	10,000 ft. Dirn.	10,000 ft. Kn.	15,000 ft. Dirn.	15,000 ft. Kn.

LATEST AVAILABLE WEATHER REPORTS ON ROUTE

Time	Place	Surface Wind Direction	Surface Wind Knots	Vis. Miles	Present Weather	Cloud Total Amount (Eighths)	Cloud Forms	Cloud Low Amount	Cloud Low Base Height Above Station	Pressure (M.S.L.) Mbs.	Pressure (M.S.L.) Ins.	State of Sea

AIR ROUTE FORECAST ABOVE ALSO ISSUED FOR FOLLOWING AIRCRAFT DEPARTURES

Aircraft	Time of Departure	Pilot	Aircraft	Time of Departure	Pilot

G.M.T.

ALL TIMES GIVEN ARE STANDARD TIME AT STATION OF DEPARTURE UNLESS OTHERWISE STATED

C.A. FORM 71
Revised Oct./43

COPY ONLY.

APPENDIX 36

115

COMMONWEALTH OF AUSTRALIA

SHEET No. 1.

DEPARTMENT OF CIVIL AVIATION

AERADIO SIGNAL LOG

DEPT. CIVIL AVIATION KINGSFORD SMITH AIRPORT DATE STAMP 31 DEC 1949 AERADIO STATION

SERVICE A/G 1. NORTH.

TIME	CALL LETTERS TO	CALL LETTERS FROM	f IN KC/S	A1 A2 A3	STRENGTH SIGS	STRENGTH X'S.	RECORD OF ALL SIGNALS (Operators' Comments in Brackets)
1400z		New Local Day Comm 1.1.50.					
1400z		W O Farrell on Log					
1446	Sy	SMK	6525	3	4	¾	Taxying at CDN QTR? = R 1446½ = R.
47	Sy	CH	6665	3	3	3	ETD Butlers? = AS
49	CH	Sy	6665	3			Flt planned ETD 1500z but may be later = R.
1507	Ops officer advised re SMK call on taxying at CDN - Nil heard since.						
02	Sy	DV	6665	3	3		QRU? - R QRU = R
28	DV	Sy	6665	3			Sends NR1 DEL SMK. R/I
1623	Sy	SMi	6525	3	¾	¾	QRK? - R K. QTR? - R 1623z. - R.
30	Sy	SMi	6525	3	4	2	PX1 QTN CDN = R.
31	Sy	SMi	6525	3	4	2	PX2 Flt Plan = R.
36	Sy	DV	6665	3			QRU? - R QRU = R.
40	Sy	SMi	6525	3	4		PX4 ABM Sy = AS.
41	SMi	Sy	6665	3			Clear 7000 R/R - what height did you make old Base? - R not too accurate but 3500 - R.

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1ST JANUARY, 1950

JOHN FAIRFAX & SONS PTY. LTD. FORM F.S. 200

"SYDNEY MORNING HERALD" – TRIP RECORD

Date 30-12-49 VH-SM K

	CAPTAIN	FIRST OFFICER
1	W. SELWYN	W. JENKINS
2		
3		
4		

Certificate of Safety No. 4077E A/craft Sgd. N. Toplis Eng. Sgd. C. Davies Radio Sgd. N. Warlow

Certificate of Safety No. ..... A/craft Sgd. ..... Eng. Sgd. ..... Radio Sgd. .....

STAGE		TIMES Hour	Flying	Ground	PETROL (Galls.) Amt. Added	Total Dept.	Total on Arrival	Used for Stage	Stage Comp.	OIL (Qts.) Port Fill	Port Level	Stbd. Fill	Stbd. Level	DOCKET Nos.
CAMDEN	DEP.	0480				360								
TAMWORTH	ARR.	0585	1.05	.10										
	DEP.	0515												
CASINO	ARR.	0635	1.20	.5										
	DEP.	0645												
COFFS HBR	ARR.	0715	.30	.5	80									SMALL 20323
	DEP.	0740												
CAMDEN	ARR.	0915	1.35	.5			48							
	DEP.													
	ARR.													
	DEP.													
	ARR.													
	DEP.													
	ARR.													
	DEP.													
	ARR.													
	DEP.													
	ARR.													
	DEP.													
	ARR.													
	TOTALS	4.30	.25											

TANKS DIPPED 440 A.M. 78 P.M.

TOTAL PETROL CONSUMED 362 GALLS.

TOTAL ENGINE HOURS ....4....Hrs. ..50..Min.

CONSUMPTION—PETROL 75 G.P.H. OIL G.P.H.

Flying Times Entered in Log Books

Completed by Service Engineers

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1ST JANUARY 1950

Receipt for Supply of Fuel to VH-SMK on 30/12/49

SHELL

AVIATION SUPPLIES RECEIPT. Nº 20323 A

THE SHELL COMPANY OF AUSTRALIA LTD.
(Incorporated in Great Britain)

Depot/Inst'n (BLOCK LETTERS) COFFS HARBOUR Airport (BLOCK LETTERS) COFFS AIRPORT 30/12/49

Name (BLOCK LETTERS) JOHN FAIRFAX & SON Carnet or Order No.

Address (BLOCK LETTERS) P.O. Box 506 G.P.O. Sydney Type of Aircraft Anson

Registration VH. SMK.

PRODUCT	GRADE	IMPERIAL GALLONS		RATE	AMOUNT
		FIGURES	WORDS (Block Letters)		
AVIATION GASOLINE	91/98	80	Eighty GALLS		
AVIATION TURBINE FUEL					
AEROSHELL OIL ..					
AEROSHELL SPECIALTIES					

DETAILS OF FUEL DELIVERIES		DETAILS OF OIL DELIVERIES	
TANK LOCATION	QUANTITY	TANK LOCATION	QUANTITY
P. Tank	40		
S.T.B. 11	40		
	80 uplift		

The above-mentioned goods have been delivered and accepted in good order and condition and subject to Conditions of Sale operating on date of delivery.

Delivered by TOM DAVIS Pilot's Signature

Form 7/42 (11-48 McC.B.)

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1ST JANUARY 1950

Receipt for Supply of Fuel to VH-SMK on 30/12/49

SHELL AVIATION SUPPLIES RECEIPT Nº 76986

THE SHELL COMPANY OF AUSTRALIA LTD.
(Incorporated in Great Britian)

Depot/Inst'n (BLOCK LETTERS) CAMDEN Airport (BLOCK LETTERS) CAMDEN 30 12 1949

Name (BLOCK LETTERS) J FAIRFAX & SONS Carnet or Order No.

Address (BLOCK LETTERS) BOX 506 SYDNEY Type of Aircraft HUDSON

Registration VH SMK

PRODUCT	GRADE	IMPERIAL GALLONS Figures	IMPERIAL GALLONS Words (Block Letters)	RATE	AMOUNT
Aviation Gasoline	91 98	350	THREE HUNDRED & FIFTY		
Aviation Turbine Fuel					
Aero Shell Oil	120	18½	EIGHTEEN & HALF		
Aero Shell Specialties					

DETAILS OF FUEL DELIVERIES Tank Location	Quantity	DETAILS OF OIL DELIVERIES Tank Location	Quantity
		PORT	15
		STD	3½

The above-mentioned goods have been delivered and accepted in good order and condition and subject to Conditions of Sale operating on date of delivery.

Delivered by W. Heron *Pilot's Signature* [signature]

Form 7/42 (5-48 McC.B.)

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1ST JANUARY 1950

Certification for Endorsement of Lockheed Hudson Type Aircraft

Endorsement of Pilot Licence for aeroplane of a tare weight exceeding 10,000 lbs. including those aeroplanes listed in Appendix "B" of the Air Navigation Orders Part 40, Sub-section 40.1.3 and Appendix "D" of the Air Navigation Orders Part 40, Sub-section 40.1.4.

This is to certify that RICHARD ERIC CRUICKSHANKS
holder of COMMERCIAL Pilot Licence No.....
has completed the requirements of the Air Navigation Orders for the endorsement of his licence for the HUDSON
type of aeroplane and I consider him competent to act as pilot in command of this type of aeroplane.

Total Time Flown on Type ..... Hours 231
Mins.....

Registration Markings VH-SMK

Sequence	Date	Period of Flying. Hours	Mins.	Place	Result
1. General Flying	Until 14.1.49	188	-	Camden	
2. Instrument Flight	"	8	-	"	
3. Asymmetric Flight	"	1		"	
4. Night Flying	"	43		"	

(signed) .....

(Date) 14.1.49 Licence Type Commercial.

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1ST JANUARY 1950

Certification for Endorsement of Douglas C.47 Aircraft

Endorsement of Pilot Licence for aeroplane of a tare weight exceeding 10,000 lbs. including those aeroplanes listed in Appendix "B" of the Air Navigation Orders Part 40, Sub-section 40.1.3 and Appendix "D" of the Air Navigation Orders Part 40, Sub-section 40.1.4.

This is to certify that RICHARD ERIC CRUICKSHANKS
holder of COMMERCIAL Pilot Licence No.....
has completed the requirements of the Air Navigation Orders for the endorsement of his licence for the C.47
type of aeroplane and I consider him competent to act as pilot in command of this type of aeroplane.

Total Time Flown on Type ..... Hours 642
Mins 35

Registration Markings VH. SMH; SMI.

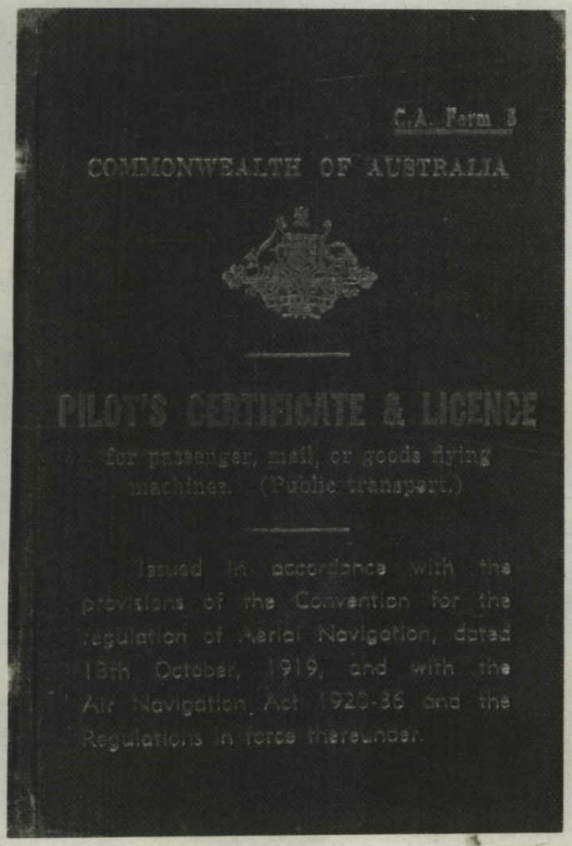
Sequence	To Date	Period of Flying. Hours	Mins.	Place	Result
1. General Flying	Until 14.1.49	544	.35	Camden	
2. Instrument Flight	"	8		"	
3. Asymmetric Flight	"	2		"	
4. Night Flying	"	98		"	

(signed) .....

(Date) 14/1/49 Licence Type. Commercial

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1ST JANUARY 1950

Comparison of Old and New Type Licence Covers

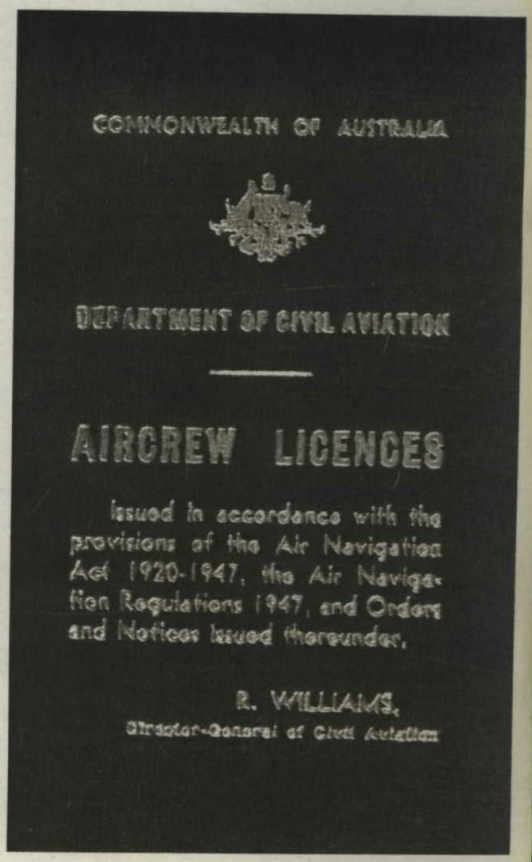


Front Cover of Old "B"

Commercial Licence (Above)

Front Cover of Present

Aircrew Licences (Below)



ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1ST JANUARY 1950

Old-Type "B" Commercial Licence No. 2053 Issued to R.E.Cruickshanks

LICENCE 1.

LICENCE

Photograph of Holder.

Signature of Holder R.E. Cruickshanks

This Pilot's Licence for passenger, mail or goods flying machines (public transport), No. "B"2053 dated 10.1.47 has been issued to CRUICKSHANKS, Richard who is hereby licensed to fly the types of flying machines referred to on page 2 of Licence.

This Licence is valid until 30/4/1947

Given at Melbourne this Tenth day of January 1947

(Signature)

for Director-General of Civil Aviation.

EXPIRED

LICENCE 2.

LICENCE

Particulars.	Description.
Surname	CRUICKSHANKS
Christian Names	Richard Eric
Nationality	British
Place of Birth	Liverpool, N.S.W.
Date of Birth	1/5/1925
Address	58 Speed St. Liverpool N.S.W.

Types of Flying Machines referred to on page 1 of Licence: AVRO-ANSON, DH.82. Initials of responsible officer: D.G. C.A.

EXPIRED

1

CERTIFICATE OF COMPETENCY.

Photograph of Holder.

Signature of Holder R.E. Cruickshanks

This Pilot's Certificate of Competency for passenger, mail, or goods flying machines (public transport) No. "B"2053 dated 10/1/47 has been issued to CRUICKSHANKS, Richard Eric for the type of flying machines referred to on page 2 of Certificate of Competency.

Given at Melbourne this Tenth day of January 1947

(Signature)

for Director-General of Civil Aviation.

EXPIRED

2

CERTIFICATE OF COMPETENCY.

Particulars.	Description.
Surname	CRUICKSHANKS
Christian Names	Richard Eric
Nationality	British
Place of Birth	LIVERPOOL, N.S.W.
Date of Birth	1/5/25
Address	58 Speed St., Liverpool. N.S.W.

Types of Flying Machines referred to on page 1 of Certificate of Competency: AVRO-ANSON, DH.82. Initials of responsible officer: D.G. C.A.

EXPIRED

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W., ON 1ST JANUARY 1950

Old-Type "B" Commercial Licence No. 2053 Originally

Issued to R. E. Cruickshanks

LICENCE 3. LICENCE 4.

RENEWAL OF LICENCE

Medical Examinations.				Periods of Validity of Licence.		
Date.	Place.	Result.	Initials of Medical Officer	From.	To.	Signature (or stamp) of responsible officer.

EXPIRED

EXPIRED

APPENDIX 43

ACCIDENT TO LOCKHEED HUDSON VH-SMK AT CAMDEN, N.S.W.

ON 1st JANUARY, 1950

COPY OF LETTER FORWARDED TO HERALD FLYING SERVICE

BY N.S.W. REGIONAL OFFICE

13th September 1949.

Dear Sir,

It is requested that Mr. R.E. Cruickshank's Commercial Pilot Licence be forwarded to this office in order that the Instrument Rating may be endorsed.

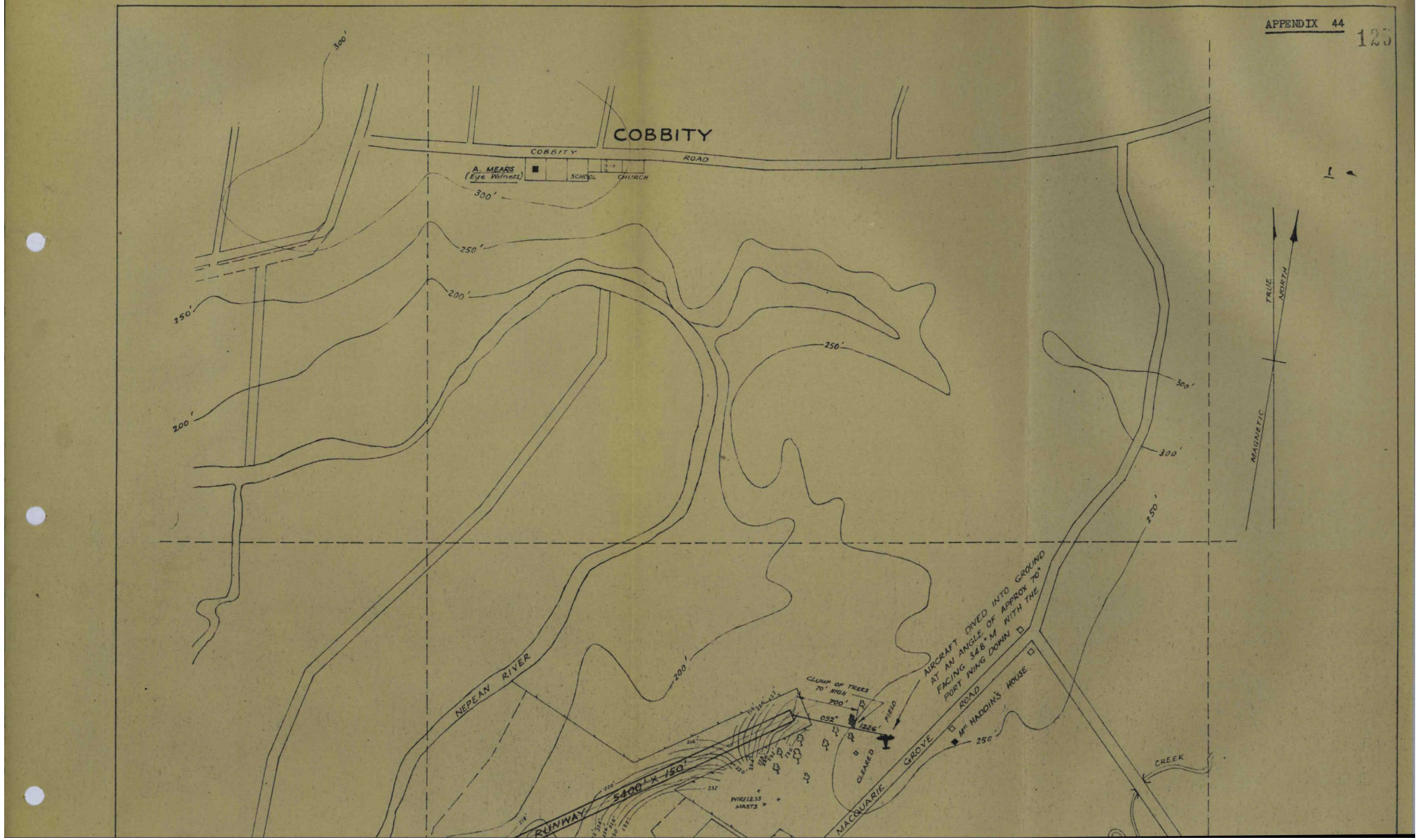
Yours faithfully,

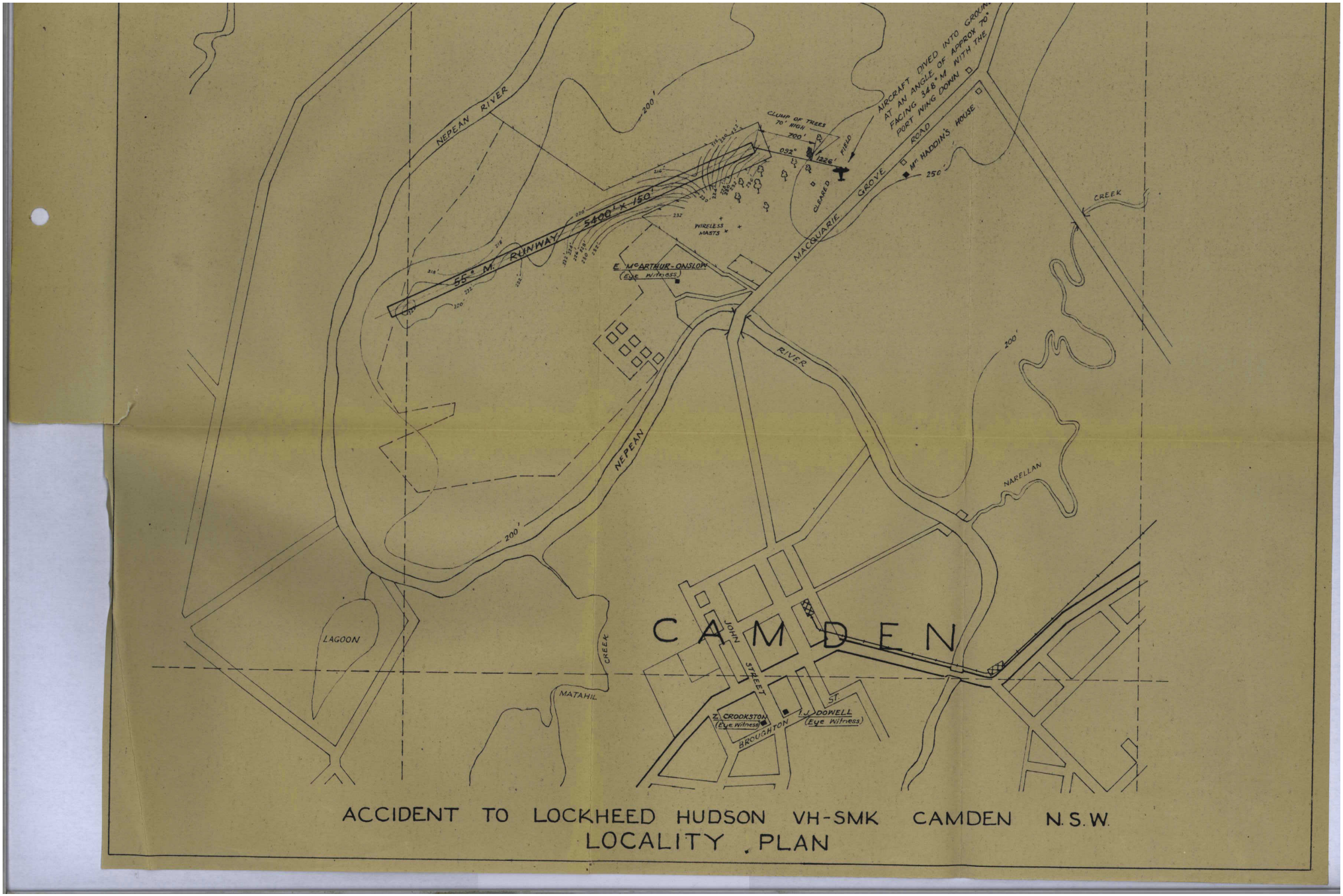
(Sgd.) R.W. ADSETT

for Regional Director

The Manager,
Sydney Morning Herald Flying Services,
Macquarie Grove Aerodrome,
CAMDEN. N.S.W.

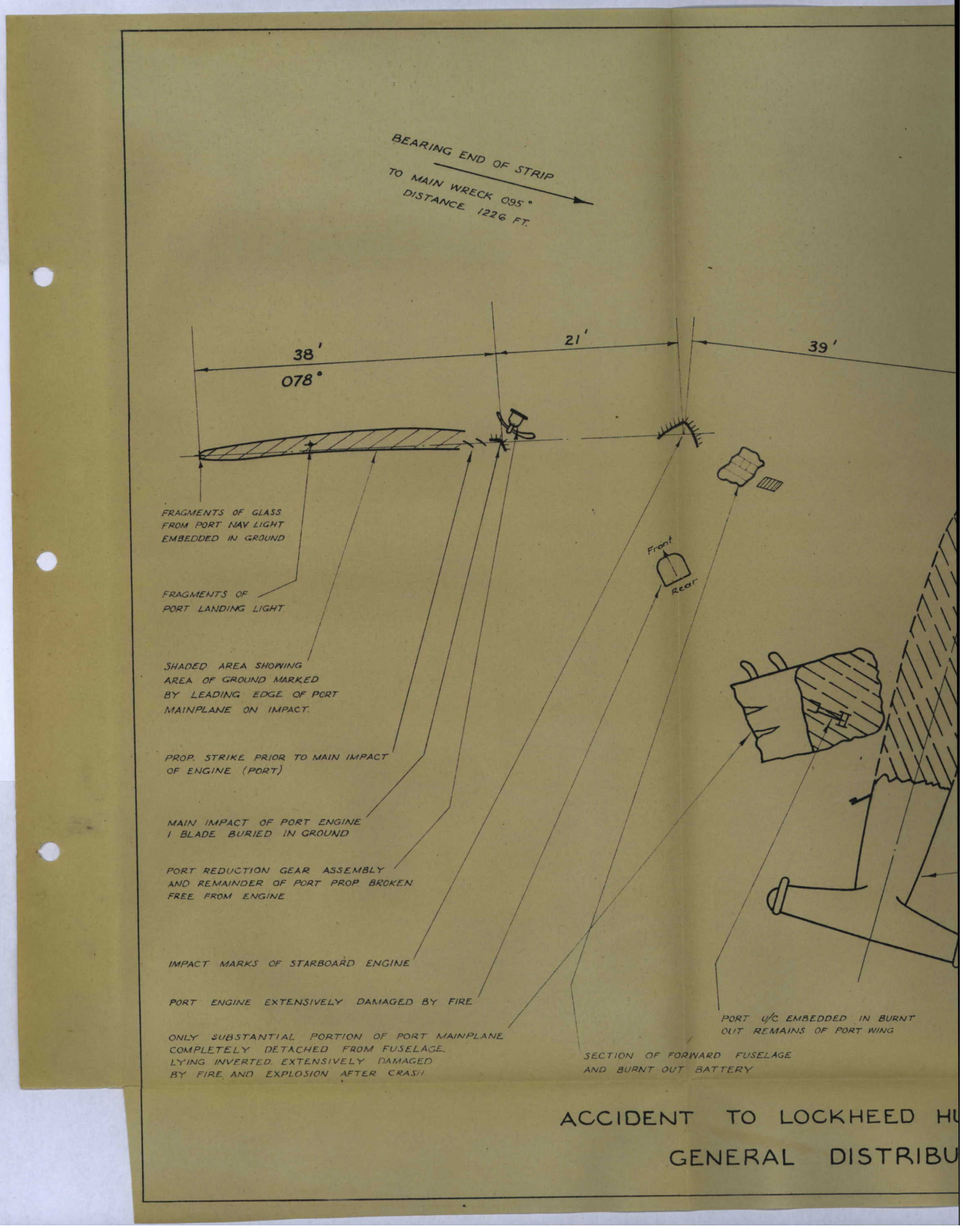
THIS ITEM HAS BEEN DIGITISED IN SECTIONS



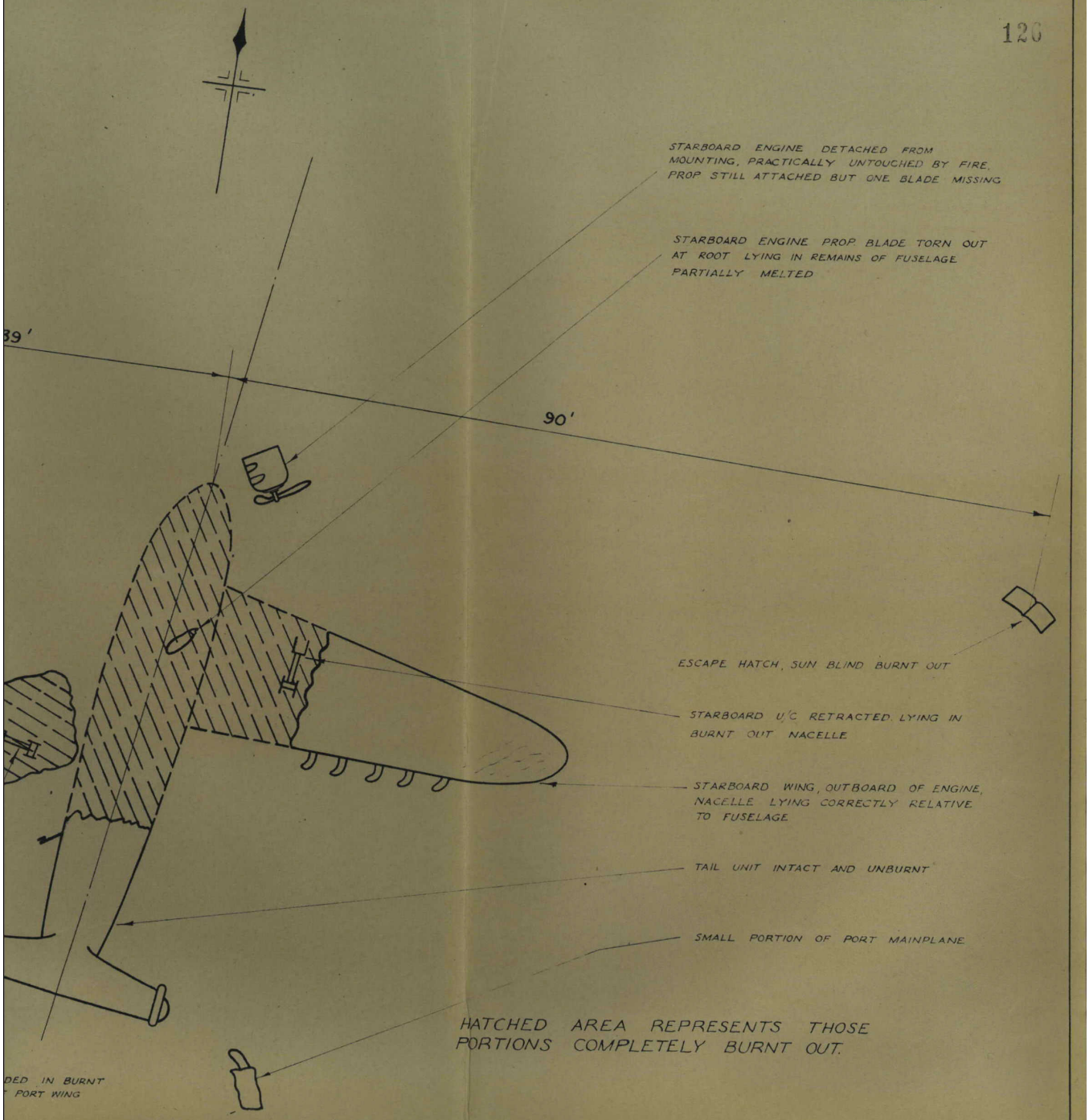


ACCIDENT TO LOCKHEED HUDSON VH-SMK CAMDEN N.S.W.
LOCALITY PLAN

THIS ITEM HAS BEEN DIGITISED IN SECTIONS



126



KHEED HUDSON VH-SMK CAMDEN N.S.W.

DISTRIBUTION OF WRECKAGE