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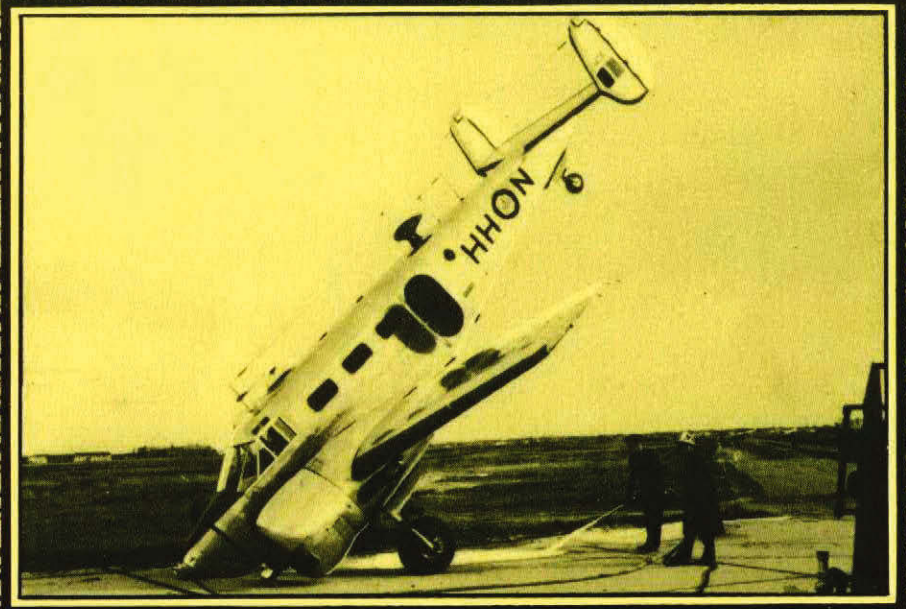
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CRASH COMMENT



FOURTH QUARTER 1951

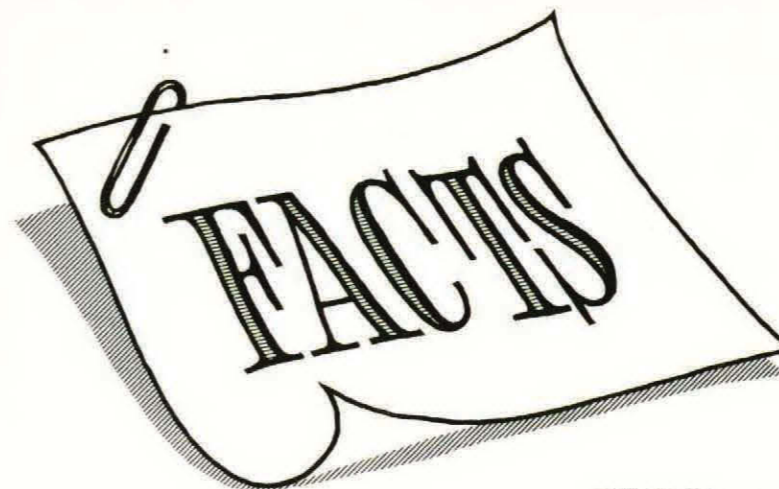


ISSUED BY
ACCIDENT INVESTIGATION BRANCH
R.C.A.F. HEADQUARTERS OTTAWA ONT.



We would like to express our appreciation at this time to Mr. W. H. Stuart of Vancouver, B.C., for providing us with the above photograph which appeared in an earlier issue of "Crash Comment".

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FACTS are:

Stronger than Argument

More Impressive than Reasoning

More Dependable than Opinion

What Has This To Do With You?

Just this -- whether you are an aircrew officer, technical officer or tradesman the time will come when you will be required to participate, either as a member or witness, in a board of inquiry.

What Will The Board Expect From You?

The answer is easily given in one word -- **FACTS!**

The more **FACTS** you can uncover during an investigation into a flying accident, the more certain you can be that the resultant action will reduce the number of similar accidents in the future.

SPECIAL MENTION

KNOW YOUR AIRCRAFT

A survey of the Canso accidents since January 1948 to December 1951 reveals that 60% have occurred while operating from a water base (take-off, landing or taxiing), 35% while operating from a land base and 5% during flight. The fact that 60% of the accidents occurred while operating from water, would indicate that more emphasis should be placed on water training. The following article which appeared in an earlier issue of "Crash Comment" is reproduced hereunder:

"STILL WATERS RUN DEEP?"

The Eskimo will tell you that dark water is O.K. but don't take this as a general rule, particularly when you are flying Canso aircraft. During grey days most water, particularly north of the Circle, appears dark. Conversely, during sunny days, it has that clear, transparent appearance which makes you think that every sandbar is just under the surface. What is more, our geological friends tell us that ice will move rock shoals and that the channels at river mouths are altered annually. So if you landed in that spot last year don't assume that careful examination is not necessary this year.

If you ask any of the experienced pilots what to do about landing in strange waters they will give you this sort of briefing, but will end up by saying that they won't guarantee anything. They all suggest, however, that you take your time. Look the situation over carefully. Select your landing path, your probable take-off runs, your beach, mark them by prominent features, then go in and land or find yourself another landing area. Remember that the

wind may not be as strong or in the same direction tomorrow, so make sure you have enough length for a glassy water take-off.

Last year we had a few cases of damaged hulls due, possibly, to too much haste. Sometimes it takes as much as an hour to beach an aircraft. Sometimes it is wiser to sail in rather than to use power. When in doubt get the old lead-line out and put the wheels down. Always use a crewman in the bow.

It's all very well for us to sit here and theorize, but we know enough about operating conditions to understand that, regardless of the care which you take, landing in strange places has hazards which even you may not be able to anticipate. We ask you to use extreme caution.

Of course, there's the one where the crew struck a dock, we don't remember the specific details, but it could have been a combination of wave, tide, wind or current. Then there's the buoyancy aspect of salt water as compared to fresh water. Don't depend on the "Waterline method" of loading. Sea operations are different. You get off sooner. You draw less water. These variables exist in different proportions during every operation of a flying boat. They require your undivided attention."

As the season for water operations is nearly upon us, the "points to note" in this aspect of Canso flying are published:

- Know your pilot's operating instructions, especially those applicable to water flying.
- Know the aircraft - it will pay dividends when operating from remote bases.
- Know the basic weight of your aircraft and the maximum permissible all-up weights as laid down in Pilot's Operating Instructions.
- Know how to load your aircraft in accordance with C of G limits.
- Know your engine handling procedures.

- Know the technique to use when making off-shore landings and take-offs - the effect of swells, current, tide, wind, etc.
- Know your emergency landing procedures.
- Know the proper procedures for beaching, mooring, anchoring and docking - and the factors that decide which facility should be employed for an intended stop-over.
- Know when and how to use your drogues and/or undercarriage when manoeuvring on water.
- Know your emergency drills i.e., - undercarriage lowering and raising, float operations, dinghy and abandoning drills.
- Know how to operate your APU and keep it serviceable.
- Know your crew individually, their capabilities and limitations.
- Ensure you have a working knowledge of the other crew positions - it may help in an emergency.
- Ensure that your crewmen know how to handle ropes - tying the proper knot at the proper time and in the proper place may save you many a headache when beaching, mooring, or tying up to a dock.
- Ensure you have a knowledge of tides if operating in tidal waters.
- Ensure that your bilge pump is serviceable and remains so - it may save your life.

The importance of thinking before acting in flying boat operations cannot be over-emphasized, therefore:

- Estimate the situation.
- Make your decision.
- Carry it out.

WHAT'S THE SCORE ?

Although the Harvard (including Texan) accident rate has dropped considerably when compared with the previous quarter, as usual the majority of accidents are still occurring during landings. It will be noted that the number of taxiing accidents has increased by 50%.

The following is a breakdown of the combined Harvard and Texan accidents for the quarter:

Take-off	2
In Flight	5
Taxiing	15
Landing	32
Total	54

WILL YOU BE
THE NEXT PRESIDENT?
OF A BOARD OF INQUIRY?

If so, this may help you:

COMMON ERRORS IN PROCEEDINGS

- (a) Not stating in full the rank, name, decorations and appointments of the convening authority.
- (b) Not stating correctly the numbers, ranks, names, appointments, units and stations of the president and members, or of the investigating officer.
- (c) Not stating the correct terms of reference as quoted in the assembly order.
- (d) Not numbering the pages of the proceedings consecutively commencing with the front page as "1"
- (e) Not prefacing the evidence of witnesses with their full particulars and the requisite preamble.
- (f) Not obtaining signature of witness on each and every page on which his evidence appears.
- (g) Recording irrelevant evidence which has no bearing on the matter under investigation.
- (h) Commencing numbering of questions put to each witness at "1" instead of continuing the numbering consecutively throughout in one single series.
- (i) Not designating exhibits by letters, e.g., "Exhibit A, B, C, etc.," and not marking them as part of the proceedings of the particular investigation.
- (j) Not making mention of the exhibits in the body of the proceedings.
- (k) Not recording adjournments and reassemblies.

- (l) Not basing the findings on the evidence as recorded.
- (m) Not stating the cause of an accident correctly.
- (n) Not ruling out the unused portion of each page with a Z.
- (o) Not including in the findings (where applicable) particulars and estimated cost of any damage involved, or not stating reason for non-inclusion.
- (p) The president or investigating officer omitting to initial alterations and insertions.
- (q) The president or investigating officer omitting to initial each page of evidence.
- (r) Not complying with KR(Air) Art. 21:21 respecting civilian claims.
- (s) Failing to record compliance with KR(Air) Art. 21:06 when applicable, i.e., when character or reputation of officer or airman is affected.
- (t) Failing to make recommendations when called for by terms of reference.
- (u) Failure by the president and all members, or by the investigating officer, to sign the findings and recommendation, and date the proceedings.
- (v) Recording the evidence of more than one witness on the same page.
- (w) Failing to reserve sufficient space on final page for insertion of remarks of A.O.C. and appropriate authority at A.F.H.Q., where applicable.
- (x) Failure of court or investigating officer, where applicable, to express opinion as to whether the injured party was on duty and whether to blame.
- (y) Failing to attach form R.C.A.F. R.78A in the case of investigations into a personal injury or death.
- (z) Failing to comply with specific orders prescribed for investigations into flying accidents.

ACCIDENTS

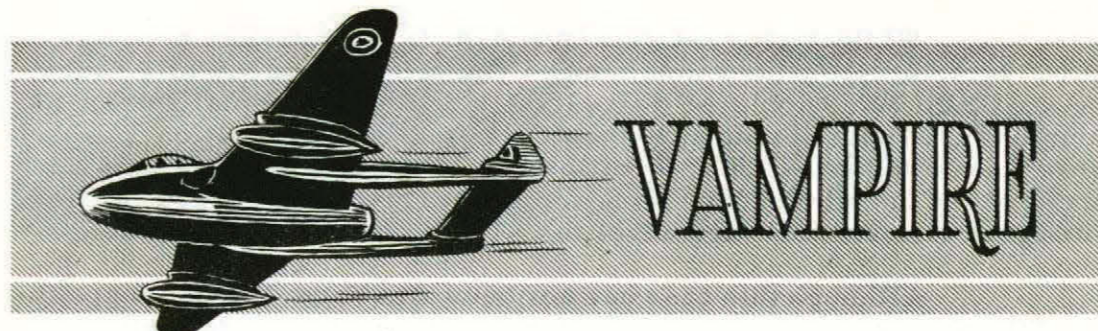


DON'T
PAY..

ask

THE MAN WHO HAD ONE

ACCIDENT RESUMÉ



• NO. 1 -- FLAP

After an overshoot, the pilot made another attempt to land and noted that it took an abnormally long time for the flaps to lower. As another overshoot was impossible due to low fuel load, the excessive height was dived off and the aircraft crossed the button at 130 knots. The pilot applied full brake immediately upon touching down and the aircraft came to a stop 3/4 down the runway. Due to harsh braking action the starboard tire blew out and left the aircraft before a full stop was attained.

Technical investigation revealed that there was a lag of 5 seconds only in the flap operation.

The accident was assessed as pilot error - the pilot was reproved.

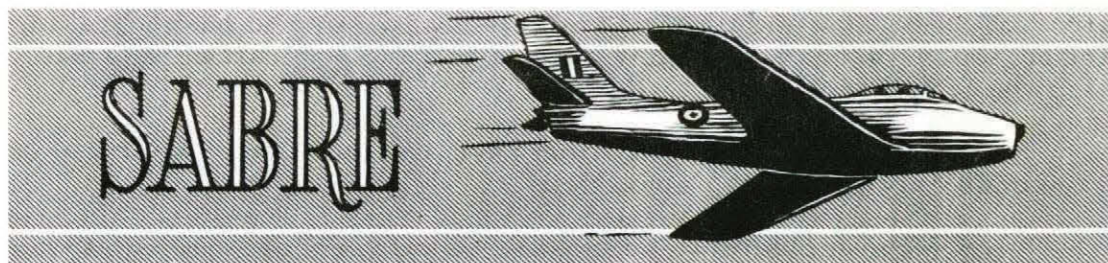
• NO. 2 -- UP AGAIN DOWN AGAIN

This pilot checked his undercarriage down and locked upon receiving final landing clearance from the tower but selected undercarriage up again in preparation for an overshoot when he noticed an Expeditor taxiing back up the "live" runway. The Expeditor cleared the runway in use, however, and the pilot continued his landing approach with undercarriage in the "up" position. In the final stages of his approach he was notified by the tower that his undercarriage was up. Power was applied but not in time to prevent the aircraft coming in contact with the runway and a wheels-up landing was made with minor damage to the aircraft.

● NO. 3 -- FLAME OUT

While flying as Number 4 during formation practice at 30,000 feet, the pilot throttled back to change position. While carrying out this manoeuvre he fell slightly behind the remainder of the formation and upon opening the throttle to regain his position, noticed there was no response. The throttle was closed and opened again with no effect and the pilot broke formation and carried out a forced landing, damaging the aircraft extensively.

Although this case has not been finalized, a strip inspection of the engine has revealed no mechanical failure. This could have been rough use of throttle at height.

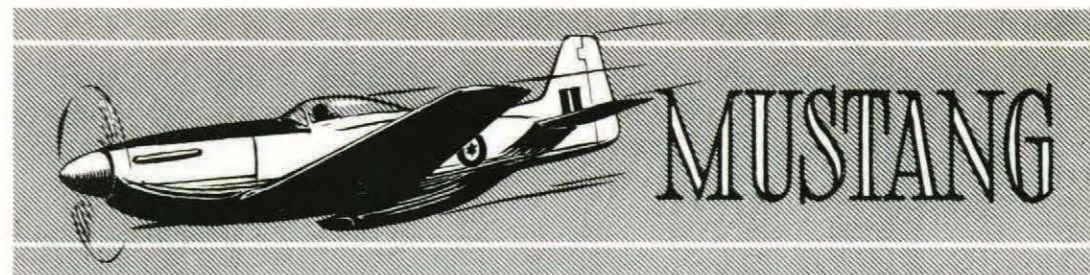


● NO. 4 -- INEXPERIENCE

After completion of a simulated landing at altitude the throttle was opened for an overshoot. Being inexperienced on type, the pilot allowed the airspeed to build up beyond the "maximum permissible for undercarriage down" before selecting "wheels-up". This resulted in damage to the nose wheel door and retracting linkage on the forward bulkhead.

The cause of this accident - inexperience on type.

We wonder if the pilot was adequately briefed on this point.



● NO. 5 -- A WHEELS-UP LANDING



The pilot reports he made a normal selection for lowering the undercarriage and did not know that the wheels had failed to go down. The tower warned the pilot of the position of his undercarriage too late to avoid a wheels-up landing. Retraction tests carried out on the aircraft showed that although the undercarriage warning horn was unserviceable, the undercarriage warning lights operated normally.

This accident is still under review.

● NO. 6 -- OIL ON WINDSCREEN

The aircraft returned from a training trip with a film of oil on the windscreen and the pilot attempted a formation landing. On "rounding out" his aircraft hit the slipstream of the preceding aircraft and the starboard wing struck the runway.

Corrective action was taken and a successful overshoot and landing were carried out.

Under the circumstances we would hardly consider a formation landing appropriate.

The accident was attributed to pilot error.

● NO. 7 -- NO OIL

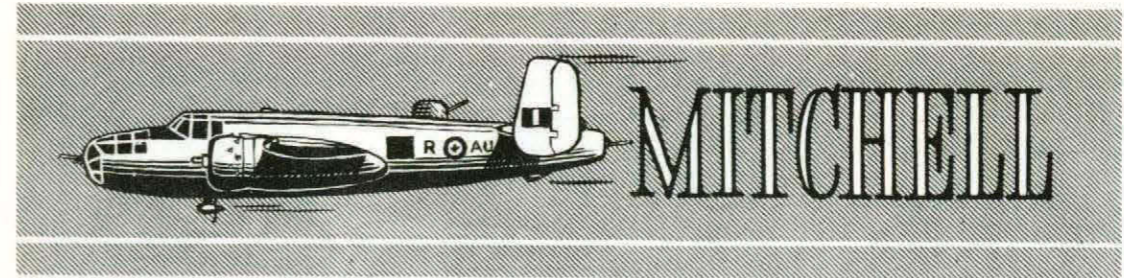
While taking part in a formation exercise the pilot noticed that his oil pressure had dropped off to zero. He immediately set course for base, and despite the fact that the engine cut-out completely a few miles short of the aerodrome, made a successful "wheels down" landing on the runway.

Upon examination it was found that the oil tank was empty and the engine had seized.

● NO. 8 -- ANOXIA?

The pilot flight planned VFR direct while on a ferry flight and indicated his intentions of flying at 3,000 feet. During the trip he ran into thunder storm activity and notified airways that he was climbing to 18,000 feet to avoid icing conditions. Thirteen minutes later, the aircraft crashed and burned, killing the pilot. Although the exact cause of this accident may never be known, the following facts were brought to light:

- (a) Pilot's total flying time on type - 6 hrs. 15 mins.
- (b) Total instrument flying time for past six months - 50 mins.
- (c) Total link trainer time for past six months - Nil
- (d) Pilot was not equipped to take oxygen although he notified airways that he was climbing to 18,000 feet to avoid icing.

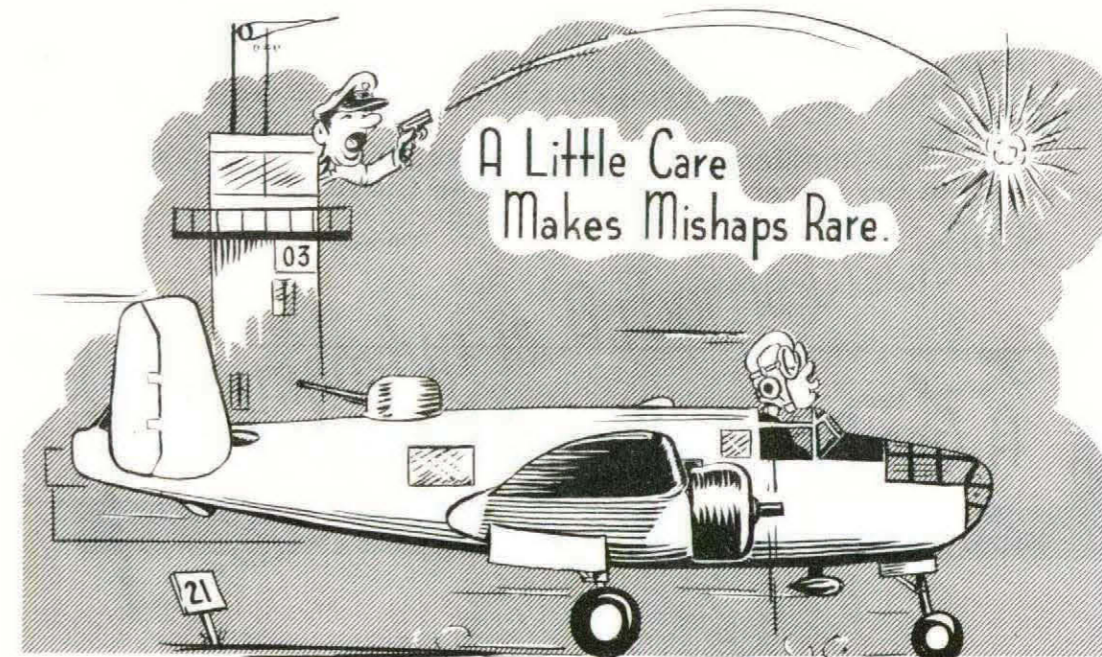


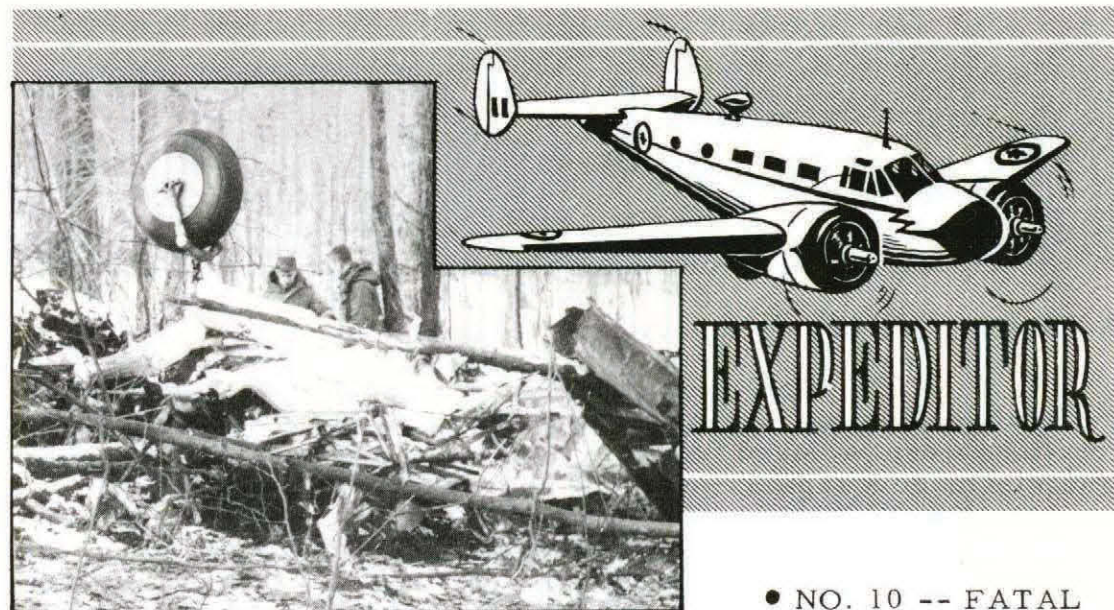
● NO. 9 -- DOWNWIND

This pilot, upon completion of a night instrument flight, made visual contact over his destination at 3,000 feet. Landing instructions were received from the tower, the runway in use being 03. The pilot made a rapid descent and commenced his approach on runway 21. No check was made by the pilot during the approach to ascertain his magnetic heading. The aircraft landed 1/3 down the runway and as the braking action was poor, ran off the end, causing damage to the port engine nacelle.

Although the pilot claims that the "lead in" lights were lit on runway 21, no evidence has appeared, as yet, to substantiate his claim.

This case is still under investigation.





• NO. 10 -- FATAL

This aircraft departed on an IFR flight plan with a "met" ceiling of 1100 feet and the visibility one mile in rain and fog. After take-off, the pilot reported the ceiling as 400 feet. Two or three minutes later the pilot requested a "course to steer" from the VHF "Homer". Two courses were passed but the last course not acknowledged by the aircraft. After being airborne for approximately five minutes the aircraft crashed into a hill at the 525 foot level and killed six of the occupants and seriously injuring the sole survivor. It would appear that the pilot was carrying out a wide circuit of the aerodrome.

This accident has been assessed provisionally as "cause obscure" but the investigation has not been finalized.

A Good Safety Record Reflects Ability.

• NO. 11 -- POOR AIRMANSHIP?

This aircraft had a flat tire on the starboard side which required inflating before the aircraft was able to take off on a navigation exercise. Upon approaching to land after completion of his exercise, the pilot decided to touch-down on his port wheel first as he was doubtful if the starboard tire was serviceable. This caused the aircraft to start a ground loop, the pilot used harsh brakes to correct the swing and the aircraft nosed up. The result is depicted on the front cover.

This accident is still under investigation but we consider the pilot should not have accepted the aircraft if he was doubtful of its serviceability.

• NO. 12 -- CARELESSNESS

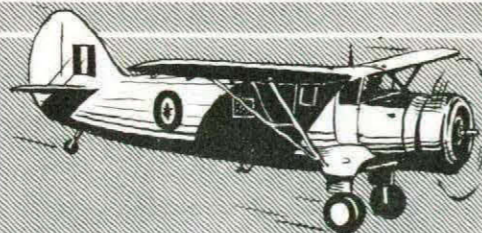
While taxiing close to a snow bank, the pilot executed a short radius turn. The tail fin was damaged when it came in contact with a large lump of frozen snow which had rolled down off the bank.

Although this accident was attributed primarily to an error in judgement and the secondary cause as carelessness, we would like to know how long the lump of frozen snow had been allowed to lie in a position where it was a potential hazard to taxiing aircraft.

The pilot was awarded an administrative deduction.



NORSEMAN



• NO. 13 -- FLOATS IN THE AIR

This aircraft was proceeding to a water base for the purpose of changing from floats to wheels. Shortly after touching down (while carrying out a "glassy water" landing) the aircraft struck a sand bar and turned over on its back.

Result - a "B" category crash.

During the board of inquiry the following factors were made known:

The pilot was inexperienced on floats.

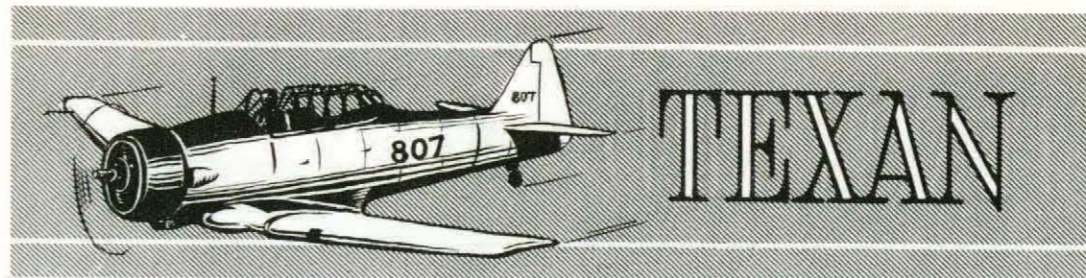
The pilot had not previously landed at this base.

According to CAP 454 (Directory of Hinterland Aerodromes), radio facilities were available at this base but there is no evidence in the board to show that the pilot attempted to make contact.

No evidence to indicate that either the pilot or the briefing officer consulted CAP 454.

The primary cause of this accident has been assessed as pilot error with lack of proper briefing as a secondary cause.

Due to the pilot being inexperienced no disciplinary action was taken in this case.



TEXAN

• NO. 14 -- COCKPIT CHECKS

The pilot attempted a night landing with his undercarriage not fully down. Upon throttling back, the warning horn sounded and the pilot took overshoot action but not in time to prevent damage to the propeller when it struck the ground. The aircraft completed another circuit and landed successfully.

The incident was assessed as pilot error and the pilot awarded an administrative deduction.

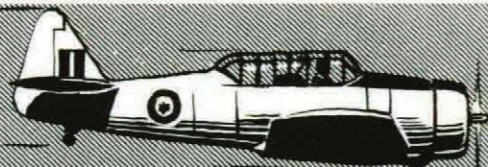
• NO. 15 -- TOO MUCH BRAKE

The aircraft swung after landing. Corrective action was taken to stop the swing but the excessive use of brakes with no power caused the aircraft to nose up and the propeller to strike the runway. Fire broke out and damaged the engine.

The cause of this accident was assessed as pilot error.



HARVARD



● NO. 16 -- CONTRARY TO REGULATIONS

The pilot was authorized to carry out a dual dive bombing exercise and was designated as leader of a three-plane formation. While waiting for permission from the bombing range to commence the exercise, the leader of the formation began "tail chasing" his Number 2. After making several attacks, the pilot did a sharp climbing "wingover" to the right and passed under his Number 2 in a diving vertical bank. The pilot did not recover from this manoeuvre and the aircraft crashed, killing both occupants. His last attack had been carried out at 2,000 feet.

The verdict - loss of control while carrying out unauthorized manoeuvres contrary to regulations contained in CAP 100, para 97(2) (b) & (c), CAP 100, para 99(1) & (3) and AFRO, para 310 dated 25 May 51.

A heavily loaded Harvard will not take rough handling either aerodynamically or structurally.

We wonder if this pilot read the article "Your Harvard Has Changed" which appeared in an earlier edition of "Crash Comment".

● NO. 17 -- BIG FEET?

The student was carrying out a night landing when his left flying boot jammed between the brake pedal and inside rudder bar causing left brake to be applied. The instructor immediately applied right rudder to correct the swing but his action increased the pressure of the student's left foot on the brake pedal. The right brake was then applied and the aircraft went forward on its nose damaging the propeller and engine.

● NO. 18 -- VARIATION EAST, MAGNETIC LEAST

This pilot was designated as leader of a formation of three aircraft that were to be ferried under VFR conditions. A short distance from their destination they broke formation when adverse weather was encountered. The pilot was brought over his destination by means of VHF "Homer" but as the weather was below limits he was diverted to another aerodrome. A "course to steer" was passed to the pilot by the control tower. A short time later (while flying in a snow shower) the aircraft crashed into the side of a mountain at the 7,000 foot level. The route flown by the pilot shows that he was approximately 45° off course.

The pilot died later of injuries.

This accident is at present under investigation by a board of inquiry but we wonder if the magnetic variation of 22°E had been added to the true course rather than subtracted.

● NO. 19 -- MAINTENANCE - MATERIEL?

Following a normal run-up and take-off, the power was reduced from 32" to 28" when a loud bang was heard and all power was temporarily lost. The engine was found to run intermittently at 32" and the pilot made an attempt to do a partial circuit and land. Height could not be maintained, however, and the pilot carried out a successful forced landing.

Technical examination revealed that the loss of power was due to rocker box failure.

This reminds us to remind you - is EO 10A-10BB-5/2 being complied with at your unit?

• NO. 20 -- WHO HAS CONTROL ?

The instructor and student missed both visual and R/T instructions regarding a change of runway and taxied up the runway in use as an aircraft was approaching to land. The approaching aircraft commenced an overshoot at the same time as the taxiing aircraft cleared the runway. In an attempt to keep clear of the overshooting aircraft, the instructor opened his throttle at the same time as the student applied brakes. This resulted in the aircraft nosing up and damaging the propeller.

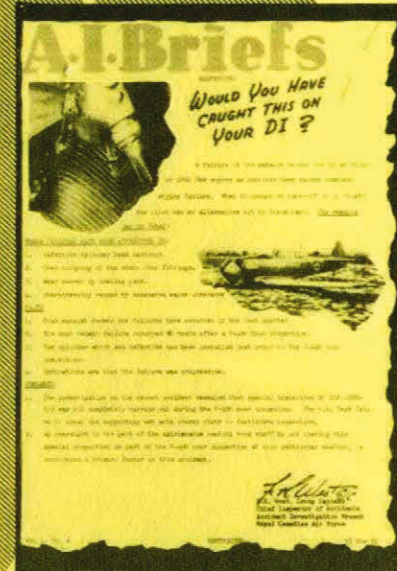
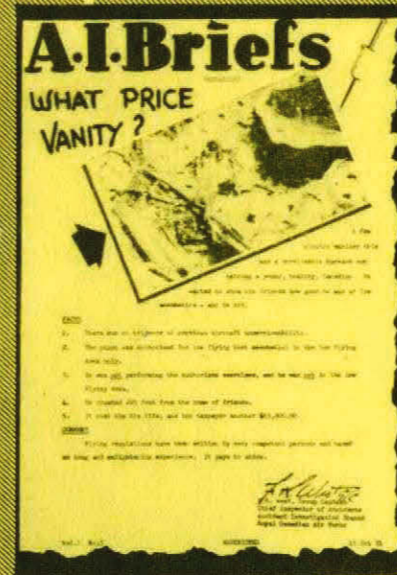
The instructor apparently opened the throttle without first advising the student that he was taking over control of the aircraft.

The cause was attributed to pilot error on the part of the instructor.

• NO. 21 -- MULES ARE MIGHTY TOUGH

A senior student was taxiing his aircraft prior to a solo flight and failed to notice a "shop mule" which had stalled at the edge of the taxiing strip. Although the pilot's view was unobstructed and braking action considered good, no brake was applied and the aircraft received considerable damage when it came in contact with the mule.

This accident was assessed as carelessness and the pilot awarded an administrative deduction.



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