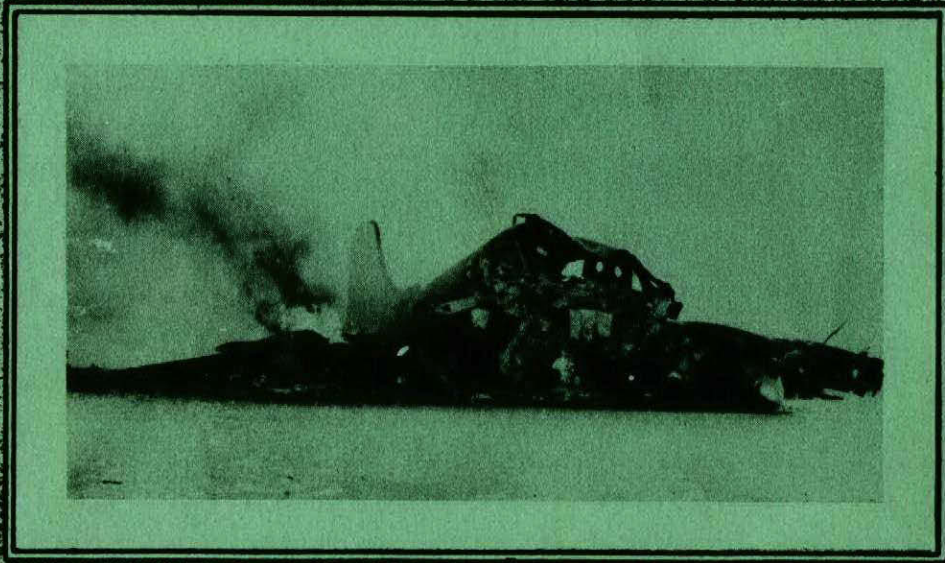


# CRASH COMMENT



JANUARY FEBRUARY MARCH 1951



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



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**PILOTS: PILOTS OPERATING INSTRUCTIONS GENERAL ARE CONTAINED IN ENGINEERING ORDERS EO 05-1-1. IF YOU HAVE NOT READ THE ORDERS WE WOULD SUGGEST YOU OBTAIN A COPY FROM YOUR C TECH O AND STUDY THEM.**

"Crash Comment" is classified "Restricted" and its contents, or any part thereof, are not to be divulged to persons not entitled to receive such information. The attention of all users is drawn to: The Official Secrets Act and KR(Air) para 401.

# Editorial

## KNOW YOUR AIRCRAFT

Since 1 April 1949 our elementary trainer - The Harvard - has hung up a somewhat sinister record.

<u>Trained Pilots at Controls</u>		<u>Instructor - Flight Cadets or Flight Cadets at the Controls</u>	
Killed	- 10 Trained Pilots	Killed	- 1 Flight Cadet
	- 1 Civilian Pass.	Injured	- 2 Flight Cadet
Injured	- 6 Trained Pilots	"A" Crash	- 5 Flight Cadet
"A" Crash	- 12 Trained Pilots	"A" Crash	- 0 Instructor - Flight Cadet
"B" Crash	- 11 Trained Pilots	"B" Crash	- 3 Flight Cadet
		"B" Crash	- 3 Instructor - Flight Cadet
Total	40 Points	Total	14 Points

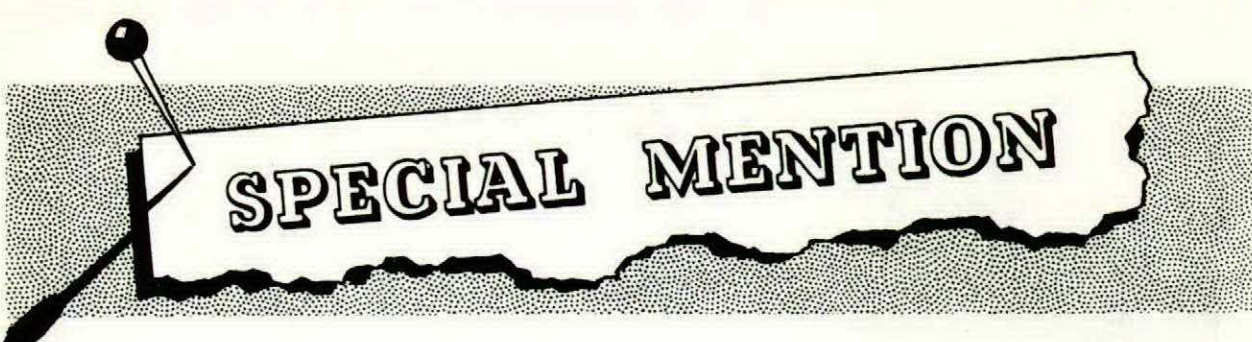
Nine of the ten trained pilot fatal casualties had one common factor - "Aerobatics" - preceding loss of control at a height from which recovery was not made. The tenth lost his life when he flicked in during low flying practice. In all but one case AIB were unable to discover any technical defect but of course the principle witness was dead.

In all the trained pilot accidents the pilot at the controls had from 200 to 1400 hours on type; some had been instructors just recently returned to active flying duty.

With a box score of 40 to 14 points and 10 to 1 fatalities in favour of flight cadets and their instructors, we suggest that the trained pilot do some more practice on the Harvard --- with plenty of height.

We also suggest you read pages (ii) and (iii) of this issue.





## SPECIAL MENTION

### TRAINING ACCIDENTS

This quarter shows a serious increase in the number of "Student" and "Student under Instruction" accidents ranging from minor dents to write-offs.

It is appreciated that aircraft accidents occur in teaching the future leaders of the airforce to fly but we think that the majority of these so called unavoidable accidents can be eliminated.

Some of the causes of training accidents are listed:

- \* Ground-loops - several accidents were attributed to ground-loops, caused by uncontrollable swings on take-off or landing.
- \* Poor approaches or landings and failure to "go around" - long landings, low approaches while practicing landings and inability to overshoot through poor engine handling were some of the causes.
- \* Improper use of brakes - harsh application of brakes causing "nose-ups" are becoming too common.
- \* Taxiing accidents - improper lookout, taxiing too fast, not following the crewman, collisions with other aircraft and with other static structures have cost a lot of dollars.

Instructors are trained to allow a student every opportunity to correct his own mistakes and thereby gain confidence. Unfortunately this restraint from interference has on occasion been allowed to go too far and accidents have resulted. This may also be working in reverse to a certain extent. Are the students, with that comforting feeling of, "oh well! the instructor will get me out of any jackpot I get in", not concentrating on the job at hand?

The time for concentration is "All The Time".  
Remember this and Accidents will not be your fault.

(ii)

### HAVE YOU GOOD LANDING HABITS?

A quick breakdown of accidents in the RCAF during the last fiscal year reveal that 45% were landing accidents, 17% were taxiing accidents, 12% occurred during take-off and the remaining 26% were in flight accidents.

It would appear then that something is wrong with our landing technique. Constant application of proper flying habits will prevent a large number of landing accidents.

Check your landing technique with the following good landing habits:

- \* Initial Checkout - complete familiarization by the pilot on aircraft landing characteristics with sufficient check-out experience.
- \* Cockpit Checks - know the cockpit check for all aircraft which you are presently flying.
- \* Circuits - maintain a proper circuit for the type of aircraft you are flying. (Tight circuits followed by peel-offs have killed many pilots).
- \* Landing Gear and Flaps - make a complete landing gear and flap check.
- \* Approach Speed - maintain the proper speed for all stages of the approach.
- \* Normal Landing - touchdown on at least the first one third of the runway.
- \* Directional Control - align your aircraft with the runway and maintain that alignment.
- \* Landing Roll - maintain control of the aircraft until your landing roll is complete.

(iii)



\* Brakes - use your brakes judiciously.

\* Proficiency - maintain maximum proficiency by constant practice on the type you are flying.

Pilots must be impressed with the necessity for an over-shoot if landing conditions are not correct. Proper over-shoot procedure is the sign of a good pilot.

We will leave this little gem of information with you, three quarters of our accidents in the last year occurred on the ground. This was not a direct result of gravity either. The finger, it would appear, points at pilot error, crew discipline, aerodrome control and maintenance, and all the other minor causes which add up to the figure mentioned.

All "Pilot Error" accidents result from "Carelessness", "Incomplete Knowledge of Flying", or "Incomplete Knowledge of the Aircraft".

Do you know - your Flying Rules and Regulations?

- your Aircraft and it's Components?

Do you apply them conscientiously?!



ACCIDENTS ARE ALWAYS SOMEONE'S FAULT;

DON'T LET THEM BE YOURS.

## YOUR HARVARD HAS CHANGED

1 The majority of the pilots now employed in the RCAF cut their flying teeth (along with their wisdom teeth), on the Harvard (2U) aircraft. Since that time the 'old girl' has been given new roles to perform which has necessitated a change in her weight and balance. This has changed her flying characteristics to some extent and, as a result, when modified for certain roles, she can't perform as she used to.

2 To give you some idea of how the weight has changed we have listed on the next page the gross weights of the Harvard, when modified for its various roles, and the differences in weight to the 2U Harvard.

3 This article has been published in the belief that the pilots flying Harvard aircraft will make themselves acquainted with the various changes, and in some cases the restrictions placed on the aircraft, and take precautions accordingly.





### WEIGHTS OF AVERAGE HARVARD AIRCRAFT

The maximum allowable gross weight for the Harvard Mk II, IIA and IIU is 5,750 lbs.

Mk Role and Serial Number of Aircraft Weighed.	Gross Weight in pounds CAP100 Para 361(6)	Pounds in Excess of Mk IIU Gross	Weight of Removable Armament Equipment in pounds
Mk II U (Unmodified) General Flying Training Serial No. 3029	5,200	Nil	Nil
Mk II Radio Trainer Ser. No. 3825	5,388.2	188.2	Nil
Mk IIA (Armament) Ser. No. BW-200 Employed as a Radio Trainer	5,449	249	Nil
Mk IIA Employed as a Machine Gun Trainer	5,505.5	305.5	56
Mk IIA Employed as a RP Trainer	5,756	556	434
	Note: The fuel load must be reduced by 19 imp. gallons (136.8 lbs)		
Mk IIA Employed as a Bomber Trainer	5,618.9	418.9	170
Mk IIA Ferrying Version	5,690.9	490.9	205

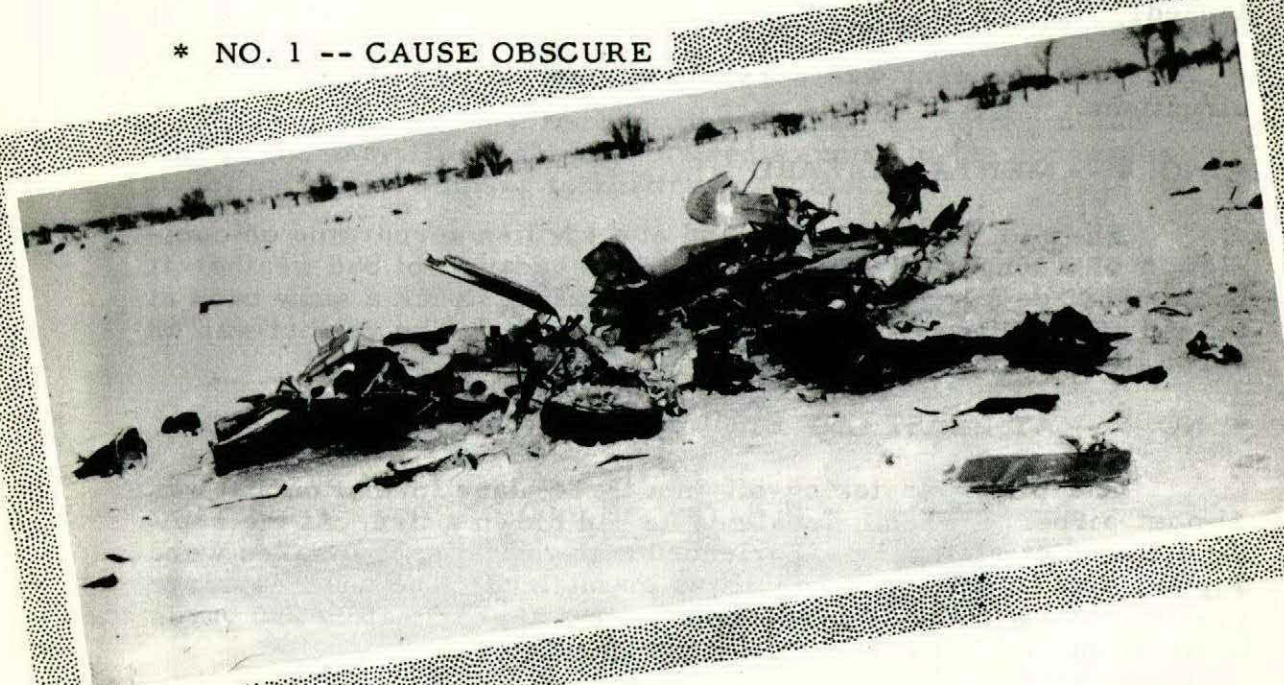
It is to be noted that if the aircraft is employed in more than one armament role as some units are doing, the weight of the armament equipment, as shown in the right hand column, must be added to the gross weight.

## ACCIDENT RESUMÉ



VAMPIRE

\* NO. 1 -- CAUSE OBSCURE



The leader of a formation briefed to do a cloud penetration, noticed one of the aircraft moved out of formation and was last noted descending in an inverted position. Investigation revealed that one wing failed during the pull-out. Further investigation is being carried out to determine whether the break was progressive or was directly caused by excessive loading. The pilot was killed but the reason for his losing control in cloud may never be known.

\* NO. 2 -- "G" STRESSES

This aircraft was flying with full drop tanks. During a climbing turn both tanks sheared off. It is considered that excessive stress



was placed on the tanks. It is suggested that Vampire pilots exercise extra precaution when doing steep turns, pull-outs etc., if the aircraft is fitted with droptanks. This will eliminate accidents of this nature.

The pilot was given extra duties by his CO.

\* NO. 3 -- WHEE-EE-EE!!

On completion of a low level cross country flight, the pilot, realizing he had more than maximum permissible fuel remaining, decided to land at a higher than normal speed to compensate for the overload. The aircraft skipped on landing and the nose wheel collapsed.

This accident was a result of disobedience of operating instructions.

\* NO. 4 -- MENTAL HAZARD

The pilot was ordered to land at a civilian aerodrome on completion of a long range navigation flight because of bad weather at base. He made a low approach and as a result struck a snow bank at the end of the runway. Minor damage occurred. The verdict was an error in judgement.

\* NO. 5 -- AT LEAST ONE BLOW-OUT

The pilot was taking off in a three plane formation and was almost airborne when he realized he had blown a tire. At the same time the pilot states he experienced a power failure. Brakes were applied and directional control was maintained. The undercarriage was retracted and the aircraft came to rest approximately 250 yards off the runway. Net result a "B" category crash.

The strip test of the engine did not reveal any cause for the power failure. Only those parts damaged through impact were abnormal.

\* NO. 6 -- PANIC REIGNED SUPREME

During a formation exercise the pilot did not notice that his starboard tanks were not draining. The exercise was completed and while descending to join the circuit the pilot had a flame out. A belly landing was carried out on the runway. No cause has been found to date for the fuel flow failure. The pilot was criticized for not noting

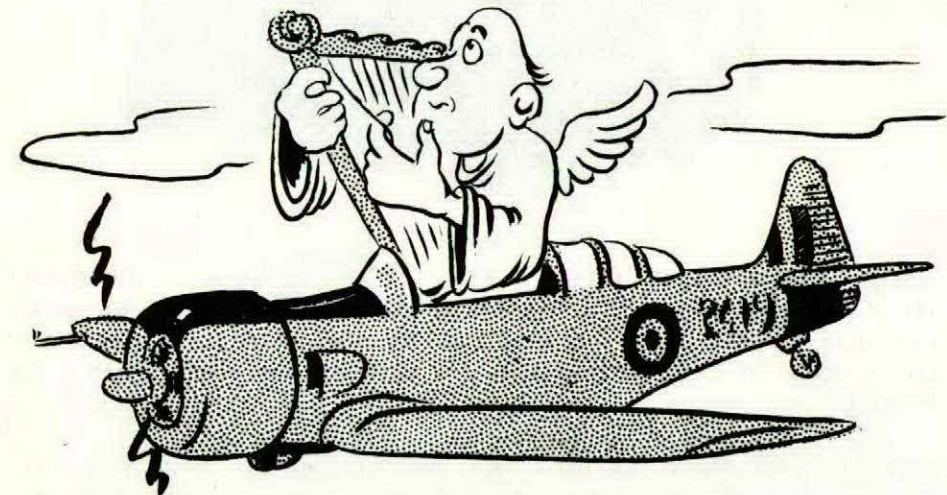
the fuel state correctly and abandoning the exercise, and for carrying out a wheels up landing on the aerodrome.

\* NO. 7 -- A FATAL FORMATION

A two plane formation encountering low cloud and poor visibility either flew, or collided and crashed into a river. Dragging operations have not produced enough evidence to ascertain the exact cause. Two lives were lost in this accident.

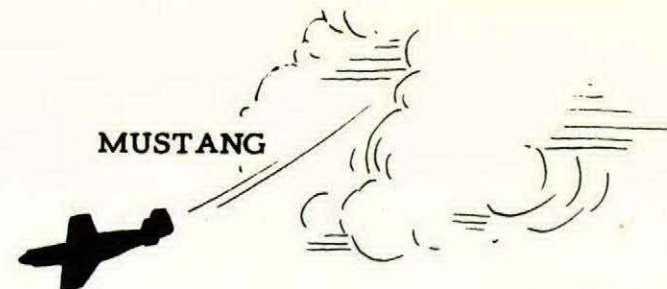
NOTE: Maybe there is a moral in this particular resume. We would suggest that low level formations in marginal weather conditions for practice purposes may be non habit forming.

There have been three reported mid-air collisions in the previous 18 months. Pilots should not need warning of the consequences for not being alert during formation exercises.

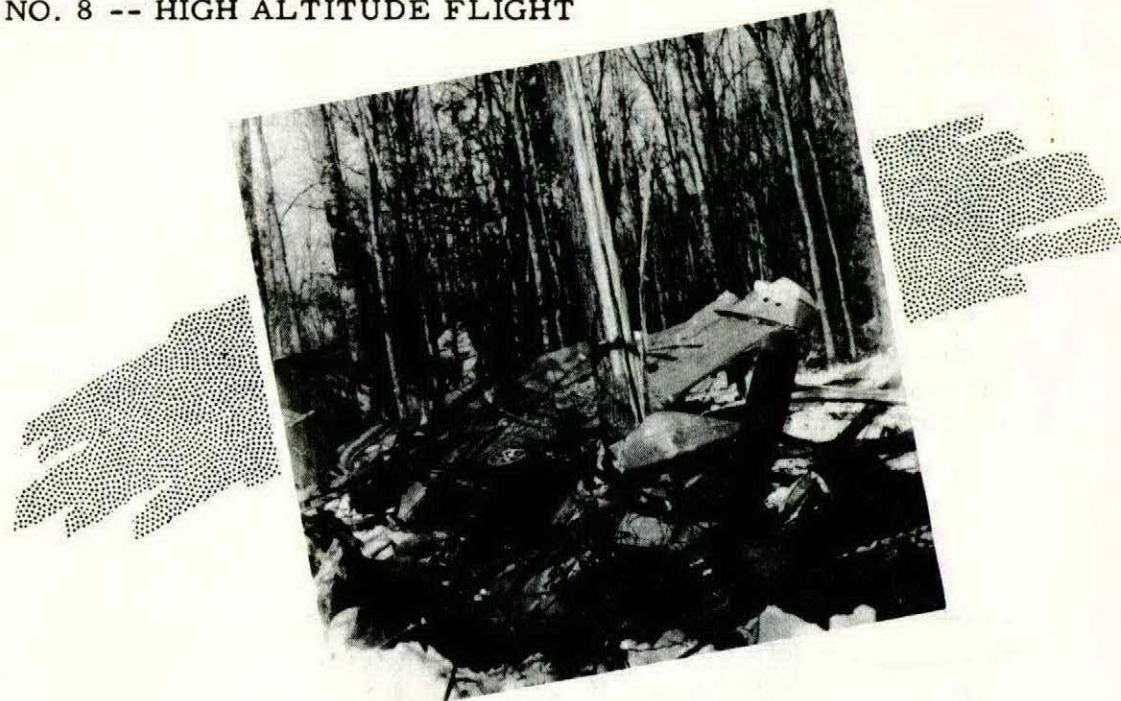


*Playing Safe Beats Playing The Harp!*





\* NO. 8 -- HIGH ALTITUDE FLIGHT



During high altitude flight tests, including high speed dives, the aircraft disintegrated. It is now known that the break-up of the aircraft was due to the loss of control by the pilot, who had only limited experience in test work and on the Mustang aircraft. The pilot was killed.

Mustang pilots should be aware of the proper procedure for recovery from high speed dives. The recommended procedures are covered in EO 05-55C-1, (Pilots Operating Instructions, Mustang 4) part 2, para 29.

\* NO. 9 -- CAUGHT OUT

This aircraft was returning to base under very adverse weather conditions. The pilot found his base in conditions of 100 feet and  $\frac{1}{2}$  mile visibility. Under these conditions he landed too far down the

runway, braking action was poor and the aircraft ran off the end, minor damage occurring.

Pilot error, an unforecasted snow storm, and poor braking action added up, - result one accident.

\* NO. 10 -- THE QUARTERLY QUESTION MARK

Two reported power failures on take-off have been investigated and as yet the causes have been undetermined. Both these power failures occurred as the undercarriage was being retracted. One aircraft was damaged. Similar power failures have been experienced by pilots who failed to see that they had sufficient tension on the throttle prior to take-off. This may not be the cause of these power failures but a word of warning has been issued to all units flying Mustangs.

\* NO. 11 -- SLIPSTREAM EFFECT

While landing in formation at the end of an exercise the pilot ran into the slipstream of the lead aircraft. A swing developed and although the pilot took corrective action the aircraft swung, ran into heavy snow and nosed up.

The pilot was reprovred for not having been more careful in selecting his landing path.



THIS COULD HAVE BEEN THE RESULT OF ANY OF THE FOLLOWING INCIDENTS.



\* NO. 12 -- COLD WEATHER FLYING

The pilot carried out his normal pre-landing cockpit check, the undercarriage was lowered, green lights came on and the horn did not blow. On final the pilot noted that the port warning light was red. He then did an overshoot and an emergency lowering was carried out following which the green light came on but the horn continued to blow. The tower, on advice from technical officers advised the pilot to land. The port oleo leg collapsed at the end of landing run.

Investigation found that the locking pin had frozen in the unlocked position due to moisture on the locking pin.

\* NO. 13 -- JUST TOO LOW

During an authorized low level formation exercise the leader made a turn over a snow covered lake. The pilot of one of the forming aircraft, while in a level attitude hit a snow drift with his propeller. The aircraft, though damaged was flown safely to its home base. This accident was caused by an error in judgement on the part of the pilot who was subsequently given extra duties by his C.O.

\* NO. 14 -- NOT LOST - JUST BEWILDERED

A pilot ferrying an aircraft became separated from the formation while flying in marginal weather. He continued to fly to his destination but as no home facilities were available he missed the aerodrome. The pilot was able to pin point himself at several places in the vicinity but was unable to find the aerodrome. He finally carried out a wheels up landing when his fuel supply became low. The accident was classed as a "B" crash.

In spite of the many contributing factors the main cause of the accident is considered to be pilot error.

\* NO. 15 -- MAINTENANCE OR MATERIEL?

After a wheels down forced landing which resulted in the aircraft nosing up, the damaged parts were replaced and the engine ground tested. It was found during the ground test that the engine would cut-out if the throttle was opened too rapidly. Investigation revealed that the two retaining bolts holding the mixture control to the carburettor were loose, resulting in engine cut-out. No reason was given for the absence of the locking wire which should have secured these retaining bolts.

This is related as an object lesson in the need for alert maintenance.



\* NO. 16 -- MATERIEL FAILURES

Three Dakota accidents this quarter were due to materiel failure. Two of these resulted in exercises being abandoned and the aircraft returning to base. The other incident occurred during a landing.

- During an air navigation flight a short circuit, causing sparks, was observed behind the instrument panel. The pilot returned to base. Investigation found a cable securing clip installed too close.

A special inspection EO-05-35-5/34 dated 18 Apr 51, has been issued to eliminate further incidents of this nature.

- In the circuit prior to landing the pilot noticed an oil leak from one of his engines. After landing a dull explosion was heard in this motor. Examination showed that #11 cylinder had separated from the engine. Some of the studs were broken, some stripped.

To date the cause has not been established.

- During a flight one of the engines began to vibrate and a loss of power was evident. The pilot returned to base with the faulty engine under reduced power. The engine was ground tested and examined. Examination found that both spark plugs in #12 cylinder were damaged, the piston and cylinder were damaged, metal particles were found in the sump and filters.

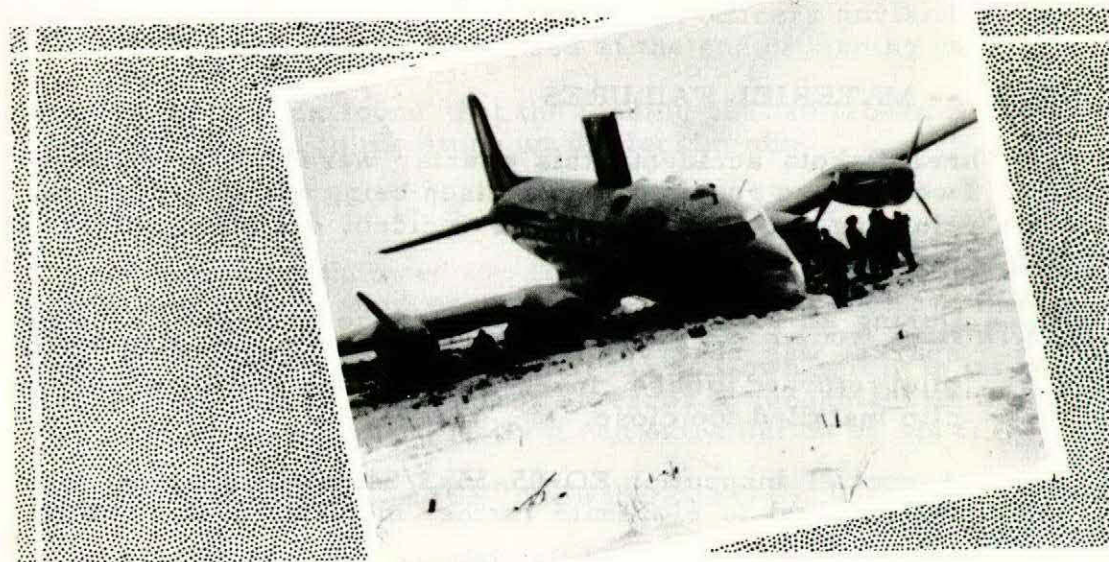
The engine is being checked at the factory to ascertain the cause of the failure of the parts mentioned above.



NORTH STAR



\* NO. 17 -- MANY CONTRIBUTING FACTORS



This aircraft was landing in bad weather on a comparatively short runway which at the time was 90° out of wind and icy. The captain instructed the crewman that he would be using reserve pitch immediately after landing. The crewman was ordered to reverse the propellers immediately all wheels were on the runway. The captain then opened up to approximately 3/4 power before the reversing action was complete, which caused acceleration. He then closed the throttles and re-opened them at which time some reversing action was noted. The captain then decided to go around and ordered the propeller to be un-reversed but there was insufficient time or space remaining to overshoot. The captain ordered the fuel and switches "off". The aircraft overshot the runway resulting in a "B" category crash.

The cause of this accident was pilot error with evidence of poor crew drill being a contributing factor.

\* NO. 18 -- TOO MANY COOKS ETC.

This accident occurred during a take-off under adverse conditions, a crosswind of 20 mph with blowing snow restricting the visibility to 1 - 3 miles. The captain instructed the co-pilot who in turn

instructed the crewman in the crosswind take-off procedure to be followed. On the take-off run the aircraft began to drift. The captain considered he needed help in lifting the aircraft and gave a command "Pull it off". The crewman misinterpreting the command pulled off the throttles. The aircraft by this time had drifted into the snow on the side of the runway. The nose oleo collapsed and the aircraft crashed and burned. The cover picture depicts the result.

The major cause of the accident was pilot error with poor crew discipline a contributing factor.

\* NO. 19 -- PRACTICE DOES NOT ALWAYS MAKE PERFECT

While practicing circuits during a night training flight a three engine take-off was attempted. When the aircraft was almost airborne it ran onto an icy area on the runway. The skid could not be controlled and during the emergency take-off the port wing was damaged.

The pilot had a small chat with his C.O. concerning his apparent lack of discretion.



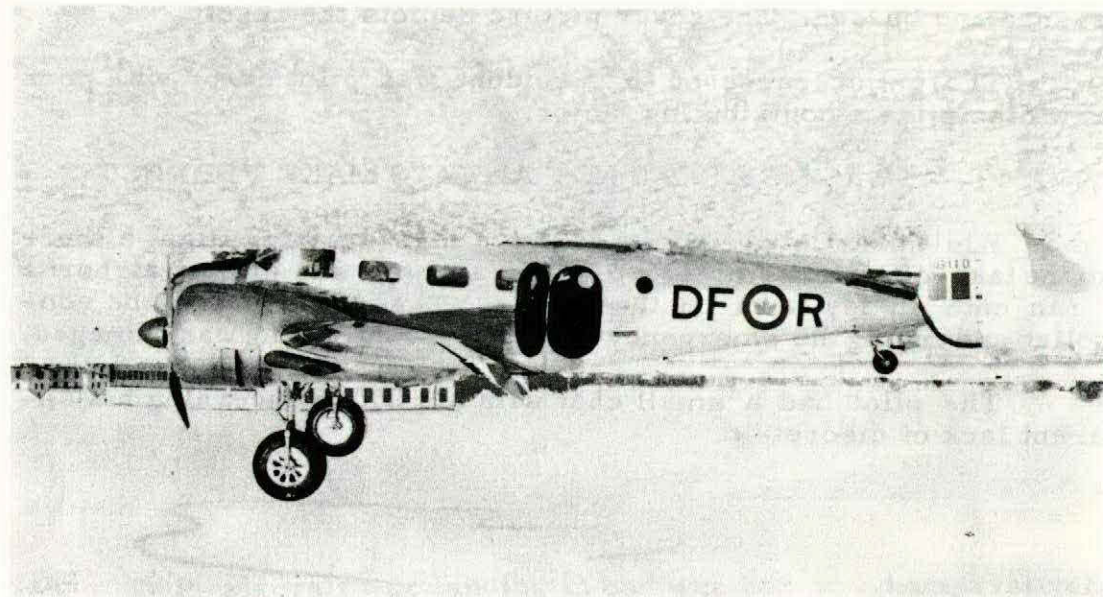
**EVEN ONE ACCIDENT IS ONE TOO MANY**



EXPEDITOR



\* NO. 20 -- LOW CEILING????



An instructor was giving simulated single engine landings on the students final handling test. The student bounced and subsequently touched down too far down the runway. The instructor tried in vain to stop the aircraft which finally came to rest on its back in a snow bank.

The instructor was reproved by his C.O. for not having taken over in time and in contravention of flying orders had cut one engine on a simulated single engine exercise.

\* NO. 21 -- WATCH THAT CROSS-WIND

The aircraft was being landed in a 90° crosswind of 20 mph. The landing was normal and the speed had been reduced to approximately 30 mph when the aircraft swung to port. Directional control could not be maintained and the aircraft ran into a snow bank damaging both propellers.

\* NO. 22 -- THAT OLD DEVIL ICE

Two accidents this quarter were attributable to ice forming on the tail wheel retraction mechanism during take-offs from wet or slushy runways.

It is probably either too late in this season or too early in the next, to warn pilots that, when taking off in icing conditions either leave the undercarriage down until the water and slush is expelled from the tail wheel or operate the undercarriage several times to ensure that it does not freeze in the retracted position.



\* NO. 23 -- MAINTENANCE

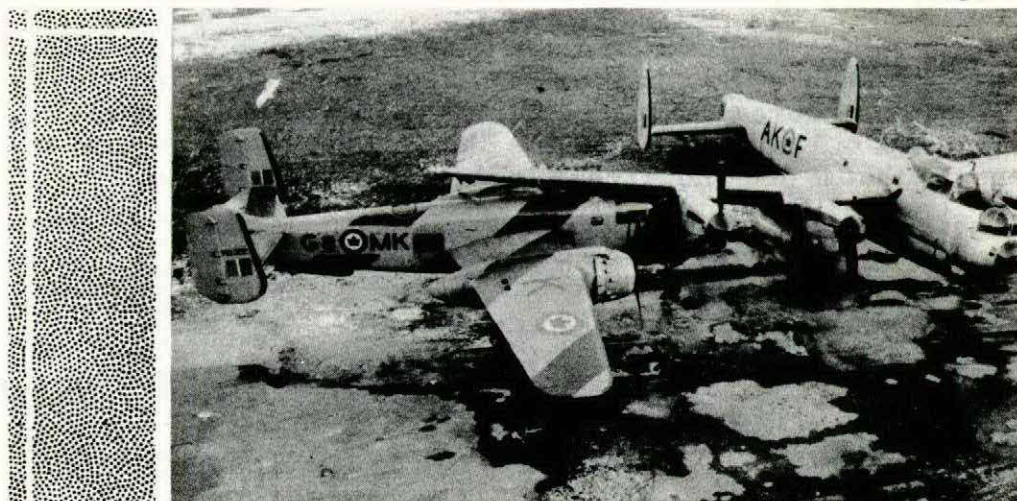
The aircraft was on a supply dropping trip when one engine began to backfire. A single engine landing was carried out. Investigation showed that the rear spark plug had blown out of the cylinder. Examination of the spark plug and cylinder indicate that the plug seized during installation. Thus even though a torque wrench might show proper loading the spark plug would not be properly installed. Under different circumstances this could have caused some embarrassing moments for the pilot. The need for alert maintenance is an ever present problem.

*Being Careful is Part Of Your Job !*





\* NO. 24 -- NOT ENOUGH ROOM



This aircraft was being taxied into a restricted space. The pilot states that he had a complete brake failure. Realizing that a collision with another parked aircraft was imminent, the pilot cut the switches and placed the mixture into idle cut off. Substantial damage to two aircraft was the result. Investigation found some foreign materials in the hydraulic system which may have caused a momentary brake failure.

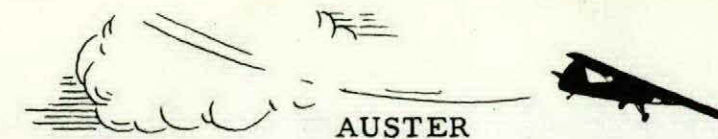
\* NO. 25 -- ENGINE FAILURE

Shortly after taking off on a Radio Range exercise the pilot noticed the temperatures on his starboard engine begin to rise. At the same time the oil pressure began to drop. An immediate landing was carried out. Metal particles were found in the filter and sump.

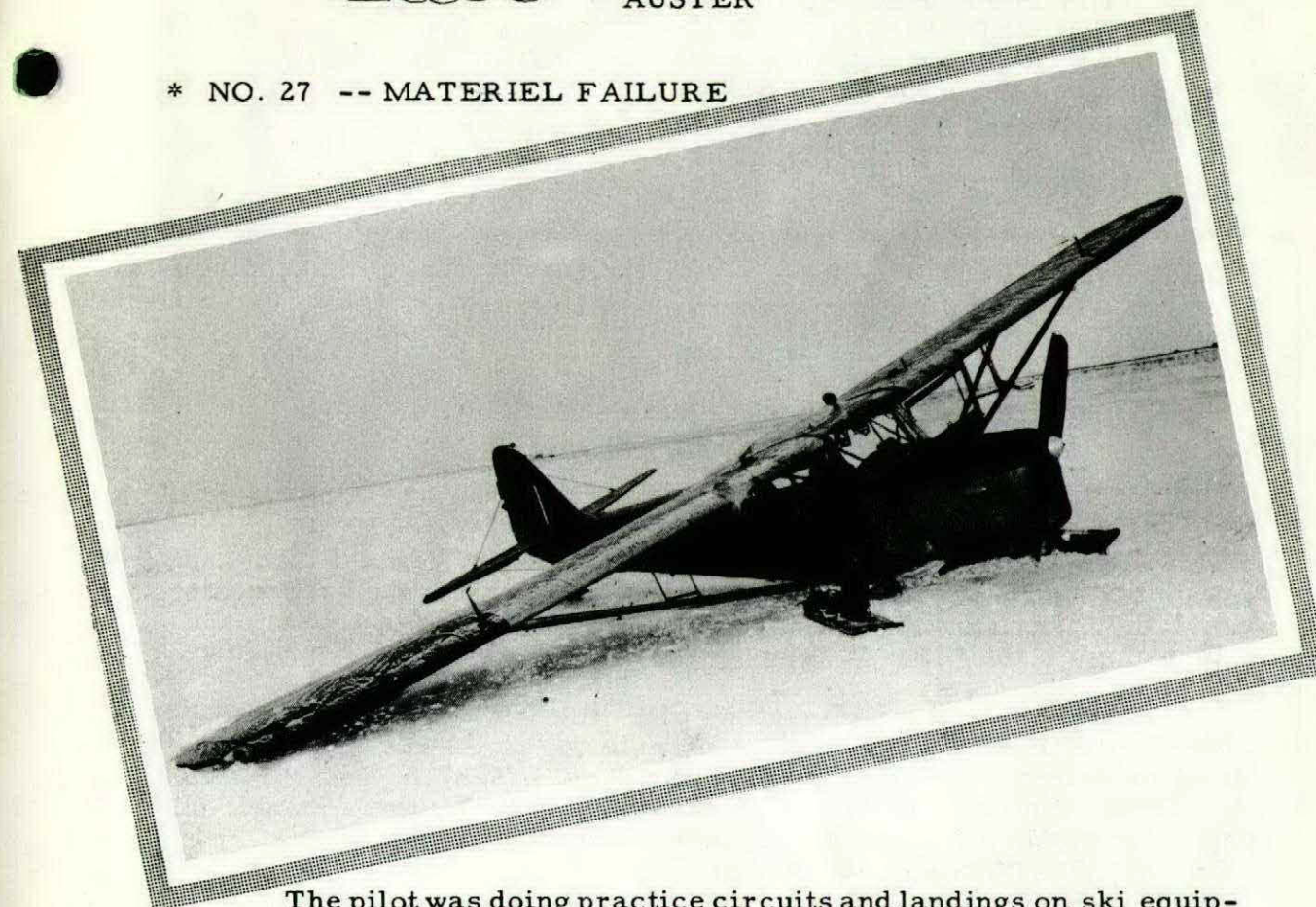
A strip report has been requested.

\* NO. 26 -- MATERIEL FAILURE

A fractured hydraulic line at the flared end resulted in a complete loss of hydraulic pressure. A wheels up landing was carried out doing severe damage to the aircraft.



\* NO. 27 -- MATERIEL FAILURE



The pilot was doing practice circuits and landings on ski equipment. On the third landing the pilot noticed a drag on the starboard ski which resulted in a swing to starboard. The starboard undercarriage strut and radius rod failed causing the accident.

CHIPMUNK

\* NO. 28 -- OH WELL!!

The pilot indulged in some low flying to break the monotony of a ferry flight. The aircraft struck the snow on a lake doing structural damage necessitating a forced landing. The aircraft ended up as "B" category crash.

The pilot was court martialled, awarded a severe reprimand and reduced in rank.



THIS IS AN EXCERPT TAKEN FROM A NEWSPAPER PUBLISHED IN 1908. THE EXACT LOCATION OF THE PAPER IS NOT KNOWN AS WE RECEIVED ONLY THE BOTTOM HALF OF THE SHEET. IT IS INTERESTING TO NOTE THAT EVEN AT THAT EARLY DATE ACCIDENTS WERE OCCURRING WITH, WE FEEL, SOME JUSTIFICATION.

#### AERODROME TURNS IN FLIGHT

Damages Front Controls and Right Wing  
in Sudden Descent.

HAMMONSPORT, N.Y., July 5.--Before a crowd of several thousand persons Glenn H. Curtiss made an ascension to-day in the aerodrome No. 3, the June Bug, and for the first time in the series of trials made a turn during the flight and faced directly toward the starting point.

After covering five-eighths of a mile it was necessary to fly over a vineyard, and fearing disaster, owing to the fact that he was flying low, Curtiss brought the machine down with a slight damage to the front controls and the right wing. Mr. Curtiss was uninjured. The flight and the manoeuvres were considered a great success, it being the first attempt to describe a circle. The members of the Aero Club committee, who left here to-night, expressed great satisfaction at the outcome of this trial. The aerodrome will be repaired to-night and experiments will be continued to-morrow.

#### COMMENDATORY ENDORSEMENT

The Editor of "Crash Comment" takes pleasure in publishing the following "Commendatory Endorsement" received during this quarter.

20224 F/O K.F. Williams

F/O Williams is commended on his flying skill and judgement in beaching a Canso during a training exercise on 7 Nov 50. His quick action in this respect saved the aircraft from sinking, thereby avoiding the loss of an aircraft to the R.C.A.F.



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