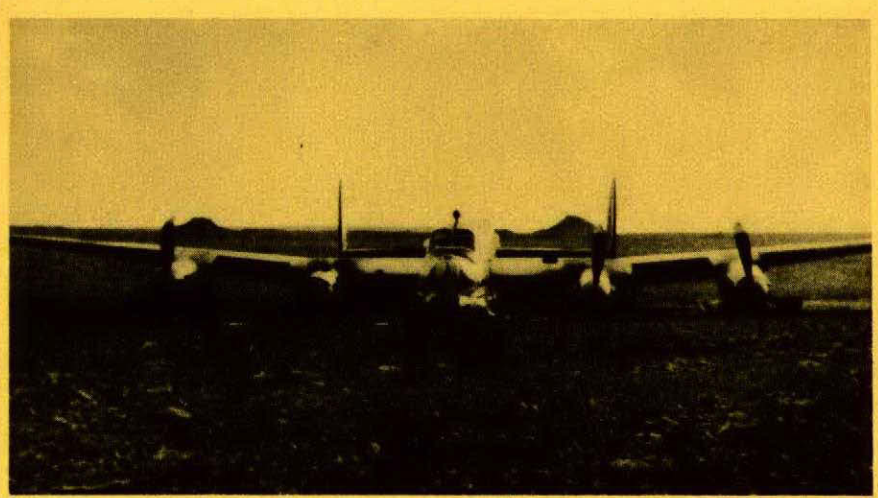
*Anniversary Issue*

# CRASH COMMENT

ACCIDENT PREVENTION

JULY AUGUST SEPTEMBER 1950



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

RESTRICTED

AN EFFICIENT FIGHTING FORCE CANNOT EXIST WITHOUT A HIGH STANDARD OF DISCIPLINE



# FOREWORD

AIRMANSHIP AND DISCIPLINE

It has long been my firm conviction that the achievements of any Service are directly proportional to its standard of discipline. With the RCAF on the threshold of a large expansion programme any slackening or lowering of our standards will certainly have an adverse affect on the fighting efficiency of our Force.

It is often difficult to carry into the air the restraining influence attached to discipline on the ground. Therefore discipline applies to flying personnel to an even greater degree than to those concerned with ground duties. When I speak of discipline in connection with flying I mean not only obedience to orders or the punishments that accompany the breaking of such orders, but also the many other things that discipline includes, for example; teamwork, knowing your job both on the ground and in the air, accepting responsibility, putting the Service foremost and doing your utmost to be a credit to yourself and to your country.

We often refer to our airwork with the general term airmanship. It and discipline are so closely interwoven as to become almost indistinguishable. One begets the other and a high standard of discipline is always accompanied by a high standard of airmanship.

I have reviewed our flying accidents during the past summer and regret to say that the majority of them have been the result of pilot error and can be traced back to poor discipline. Premature undercarriage retractions, disobedience of briefing orders, running out of fuel, low flying, approaching with undercarriage retracted and avoidable taxying accidents are all occasions which strain our resources to the utmost and which on numerous instances have caused the RCAF considerable embarrassment.

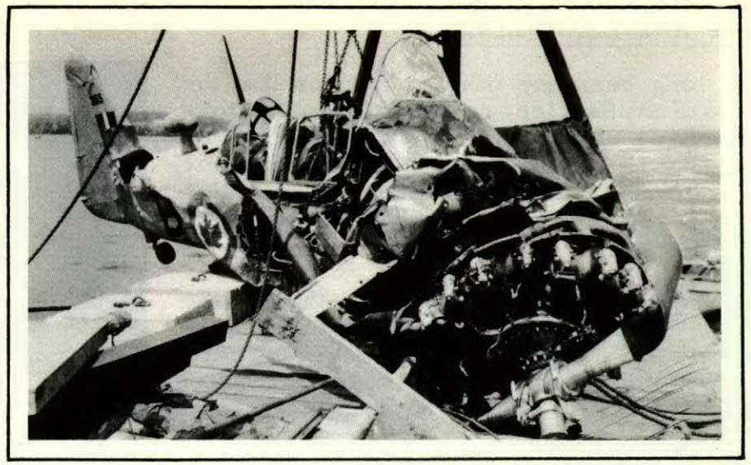
Rapid scientific advancements have brought modern highly technical aircraft which are expensive and costly to maintain, and it is our duty to ensure that every possible precaution is taken to avoid unnecessary accidents.

That a certain rate of attrition will always accompany the building up of a fighting force goes without saying but I ask that everyone does his utmost towards vigorously maintaining a high standard of discipline.

W.A. Curtis

(W.A. Curtis)
Air Marshal
Chief of the Air Staff

# SPECIAL MENTION



LOW FLYING

During an authorized low level formation flight at 300 feet above all obstacles, one of the pilots broke formation, descended and according to witnesses flew so low he had to raise the wings of his aircraft in order to get over the trees. He was also seen to complete a slow roll at an altitude of approximately 100 feet. Shortly after the pilot was seen to dive his aircraft within a few feet of the surface of a lake, pull up to about 150 feet, and commence another roll. The roll ended disastrously with the aircraft crashing into the lake. Both the pilot and passenger were killed.

The formal investigation into the accident disclosed no evidence of structural or engine failure or malfunction of controls but uncovered one very important fact---''prior to the flight the pilot had advised his crewman that he would be flying upside down''.

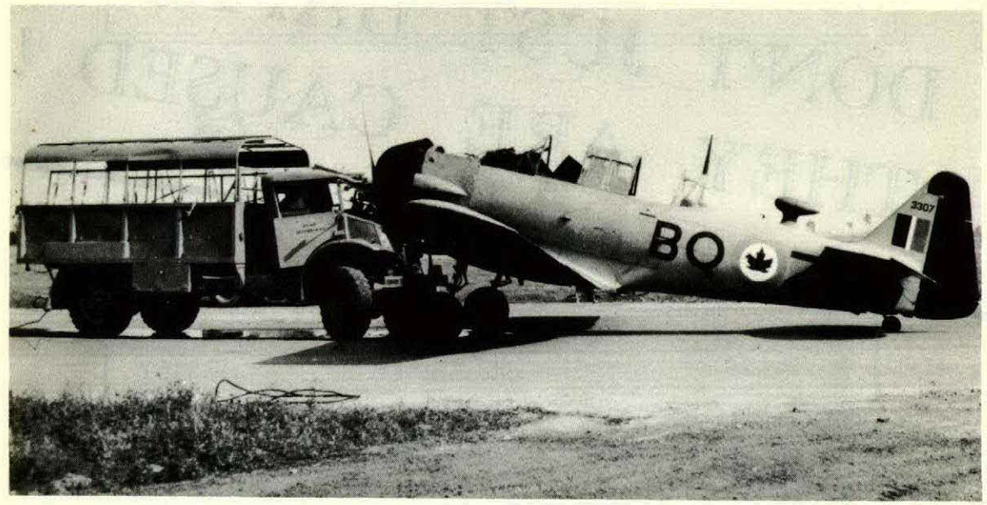
The actual cause of the accident was obscure. However, the evidence obtained very strongly suggests that this accident was caused by the pilot losing control while executing unauthorized aerobatics at an altitude contrary to CAP 100, Chapter II, Section 8, Para 97(2)(b)(c).

Loss of life, destruction of property, discredit to the RCAF, and heavy extra administrative and maintenance loads are a few of the regrettable results that accompany accidents occasioned by unauthorized and foolhardy low flying.

It is certainly hoped that this particular crash will serve as a deterrent to any pilot who's discipline is such that he would consider contravening the regulations concerning low flying.

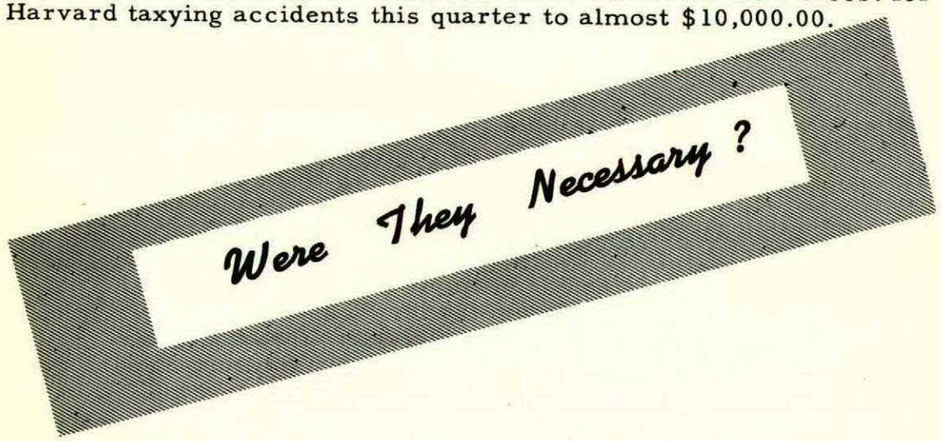







This was the outstanding taxying accident for the quarter. Damage amounted to $6000.00.

Two other collisions occurred which raised the dollar cost for Harvard taxying accidents this quarter to almost $10,000.00.



# ACCIDENTS DON'T JUST HAPPEN--- THEY ARE CAUSED !

IS YOUR WINTER GEN PROGRAM COMPLETE?

* Icing
* Engine Handling
* Taxying and Landing Hazards
  - Slush and Water
  - Icy Strips
  - Blowing Snow
  - Snow-Banks
* Snow Clearance
* Ski Conversion
* Flight Planning
* Meteorology

ACCIDENT PREVENTION PAYS DIVIDENDS:

An outstanding example of the results of an intensive safety campaign was the FTS Station Centralia feat of flying 3868 accident-free hours during the month of August.



# ACCIDENT RESUMÉ

VAMPIRE

* No. 1 -- PILOT ERROR

Pilot error, especially during landing, was conspicuous in the Vampire statistical review for the quarter. The following are outstanding examples:-

- The pilot rounded out too soon and too low causing the starboard flap to collide with a fence post.

- The pilot made a low approach at low airspeed. During the round out the aircraft stalled and the starboard wing struck the runway. The wing had to be replaced.

- The pilot undershot and landed short. The aircraft struck the centre contact light just short of the button, resulting in damage to the port flap.

- The pilot landed with the flaps in the "up" position. Subsequent harsh use of brakes caused both tires to blow out. Luckily damage was not severe when the aircraft swung off the runway. The accident is featured on page 1.

- The pilot retracted the wheels too soon on take-off and scraped the runway. Both drop tanks and the underside of the fuselage were damaged.

* No. 2 -- LONG RANGE TANKS

Shortly after take-off the starboard long range tank fell from the aircraft. The pilot flew out to sea, jettisoned the port long range tank and returned to base.

As the starboard tank could not be found it was impossible to determine whether faulty installation or materiel failure was responsible for the loss of the tank.

* No. 3 -- BIRD TROUBLE

Two occasions arose of Vampires striking birds during flight. Damage in one case was serious.

* No. 4 -- FORCED LANDING

Rapid deterioration of weather conditions over base, with fog forming to a height of 200 feet, resulted in one of the pilots returning from an interception exercise being unable to align his aircraft with the runway. He had insufficient fuel to proceed to an alternate and was ordered to look for an opening in the fog and carry out a wheels-up forced landing.

The pilot completed a successful forced landing and was uninjured. The aircraft however was seriously damaged and the accident was categorized as a "B" crash.

Annual overhaul of the Station's GCA equipment at this time was instrumental in the accident occurring.

* No. 5 -- MAINTENANCE ERROR

Severe vibration accompanied by a steady rise in rear bearing temperature necessitated another forced landing. The pilot did an excellent job of landing the aircraft wheels down without further damage on an unused airstrip.



The cause of the engine ceasing to function was attributed to rear bearing failure. This was brought about by oil starvation caused by the rear metering pump being set so low that insufficient oil was supplied to the bearing.

EO 05-10A-7A, Section 2, Item PP15, outlines the procedure when alterations are made to the settings of metering pumps.

* No. 6 -- MATERIEL FAILURES

The following cases of materiel failure occurred during this quarter:

- Radio compass dynamotor burned out filling cockpit with smoke. Successful landing completed.

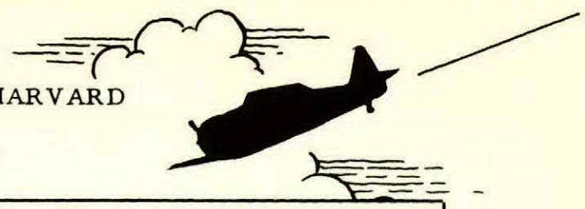
- The bolts holding the starboard oleo leg in place sheared on landing. Inspection disclosed that the undercarriage collapsed because a high carbon steel bolt had been installed in place of a high tensile steel bolt. Further investigation also brought to light that both types of bolts were stamped with the same part number. Neither Unit maintenance personnel nor the pilot were to blame for this one.

- During a patrol at 10,200 feet engine failure occurred. The pilot displayed excellent skill in carrying out a wheels-down forced landing on the parent aerodrome. Inspection disclosed that the fuel pump was inoperative as a result of failure of the centre gear cluster. The engine was removed for shipment to the contractor.

- Complete severing of the brake cable at the ferrule attached to the pilot's hand control caused the braking system to become inoperative and resulted in the aircraft overshooting the end of the runway.

- Excessive wear on the canopy operating lever locking pin caused the pin to disengage during flight. As a result the canopy blew completely open and cracked in two places. The pilot was able to effect a safe landing.

- The canopy problem is still unsolved. This one disintegrated at 31,700 feet. The pilot returned to base successfully.




* No. 7 -- WHAT - NO GAS?

It's not hard to imagine the look of chagrin on the Chief Instructor's face when he learned that this student had failed to switch over to a full tank before commencing a forced landing practice.

The student forgot his cockpit check and as a result the RCAF had another "A" category crash on its hands.

Tempting fate is a risky business and it is to be hoped that this student doesn't push his luck too far.




* No. 8 -- DUBIOUS LEADERSHIP

During a formation landing, No. 3 aircraft swung and damaged a wing tip.

One of the main causes of the accident was considered to be the failure of the leader to keep rolling thus forcing both No. 2 and No. 3 off the runway.

The leader was reprimanded and relieved of his duties as formation leader.

* No. 9 -- MATERIEL FAILURE

On routine flight at normal cruising settings the engine cut suddenly and excessive vibration developed. The pilot carried out a successful forced landing with a minimum of damage to the aircraft.

Subsequent inspection disclosed the loss of power was occasioned by the failure of No's. 8 and 9 cylinder heads.

* No. 10 -- INADEQUATE LIGHTING

When taxying out to commence a night take-off, the pilot taxied into an unmarked hole in an area under construction. Replacement of the starboard wing was required.

Flying control were at fault this time in that the area under construction was not properly marked.

* No. 11 -- MAINTENANCE

A routine navigation flight abruptly ended when a sharp explosion in the engine followed by very rough running necessitated a wheels-up forced landing.

Inspection disclosed that the engine failure was caused by the exhaust rocker housing assembly breaking free from No. 2 cylinder head.

Further examination indicated that the break had been progressive and that the engine had been operating for a considerable time with the exhaust rocker housing partly cracked.

Attention to Special Inspection EO 05-55A-5/17 would have prevented this accident.

* No. 12 -- CARBURETTOR TROUBLE

While on a ferry flight at 5000 ft, the pilot experienced surging and sputtering of the engine when about two-thirds of the way over a large lake. Constant use of the wobble pump and primer resulted in the engine catching intermittently and enabled the pilot to lose height slowly enough to be able to reach land. Shortly after, at about 50 - 100 ft the primer jammed and the engine cut completely.

The pilot landed the aircraft in a clump of trees - the impact resulting in "A" category damage to the Harvard. Neither occupant was injured.

The cause of the accident was not definitely determined. The engine was removed and shipped to a Repair Depot where it was test run and performed satisfactorily. In the absence of any materiel defect it appears most probable that a blockage occurred in the carburettor fuel nozzle occasioned by either foreign particles or carburettor icing. It is worthy of note to mention here that temperature and humidity conditions were ideal for carburettor icing.



* No. 13 -- STALL ON APPROACH

During mutual practice two experienced instructors stalled one in while simulating a precautionary landing.

Both the starboard oleo leg and starboard wheel had to be replaced.

Remember - It can happen to anyone!

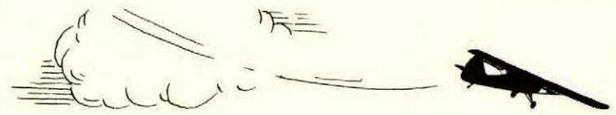
* No. 14 -- GROUNDLOOPS

This peculiar condition of flight was very inconspicuous during the first half of this year, but sure came into prominence with a bang during the Jul - Sep quarter when eight Harvard groundloops occurred. The majority of these accidents were the result of inexperience, as in only one case was an experienced instructor in charge.

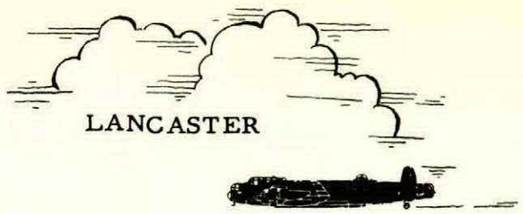
Groundloops can be quite costly, as several of the eight aircraft had to have undercarriages and wings replaced.

## AUSTER

* No. 15 -- AUSTER REVIEW



Two incidents involving Auster aircraft occurred during the quarter under review. One resulted in slight damage when, after the aircraft ballooned on landing, the pilot overcontrolled causing the propellor tips to strike the ground. The other was the result of engine failure occurring at 300 feet during take-off. The pilot carried out a successful forced landing with no damage to the aircraft. The cause of the failure was fuel starvation resulting from foreign particles jamming the carburettor float.




* No. 16 -- FUEL STARVATION

During approach to land, at an altitude of approximately 100 feet and one hundred yards from the end of the runway, the aircraft suddenly swung to port.

The captain opened all throttles fully, called for wheels and flaps up and endeavoured to keep the Lancaster airborne. However, even with full right rudder and aileron he was unable to maintain directional control and was forced to close the throttles and crash land to the left of the runway. The resultant "write-off" is shown on the front cover of this issue.

Subsequent investigation disclosed that the fuel selectors had been on No. 2 tanks at the time of the crash. The investigation also brought to light that there was no fuel remaining in the No. 2 and No. 3 port tanks and that the port engines had failed as a result of fuel starvation.

At the time of the crash there were still at least 1000 gallons of fuel on board approximately 475 of which were in the port No. 1 tank. The primary cause of the accident was assessed as mismanagement of the fuel system. A contributing cause was the unserviceability of the pilot's fuel gauge for the No. 2 port tank. The captain was also criticized for not exercising sufficient supervision over his crew.

*A High Standard of Crew Discipline would have Prevented This Accident*



* No. 17 -- FOULED CONTROLS

After completing an ice reconnaissance the crew of the Lancaster flew over a Northern weather station in order to drop supplies of food and equipment to the personnel engaged in manning the station.

According to the witnesses the run was made over the station at approximately 400 feet. The pack and parachute were seen to leave the rear door of the aircraft and immediately become entangled in the starboard elevator. The aircraft, out of control, dived into the ground at an estimated angle of 45 degrees, exploded and burned.

All nine personnel on board were immediately killed and the aircraft was completely destroyed.

The reviewing authorities were of the opinion that the accident was due partly to the members of the crew not having sufficient, if any, experience in handling parachute packs for dropping and due also to the inherent dangers that exist when supply dropping is attempted from the side door of the Lancaster aircraft.

They recommended that supplies should only be dropped from bomb-bays of Lancaster aircraft, and if a role is visualized whereby para rescue personnel will be required to drop from Lancasters, then consideration should be given to removing the tail gun turret and utilizing its space in the extreme tail to provide a safe exit for both para rescue personnel and supply dropping.

* No. 18 -- SWING ON TAKE-OFF

The third Lancaster write-off for the quarter was caused by the aircraft swinging on take-off and running into rough ground beside the runway.

The investigation on this accident is not complete at date of writing.

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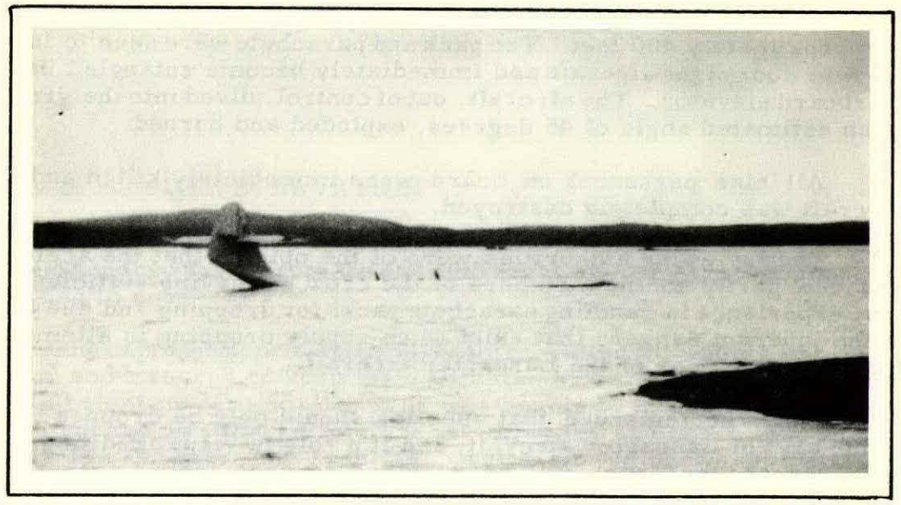
## * No. 19 -- UP PERISCOPE



The day previous to the accident pictured above, the captain had flown over the lake and carefully selected a landing and take-off area and a suitable path to taxy into a sheltered beach. The subsequent landing and beaching were uneventful.

The following day when taxying out to take-off, the captain chose a different taxy path. The consequences were disastrous, as shortly after the undercarriage was raised the hull struck a submerged rock or reef.

The captain attempted to take-off but the aircraft filled with water so rapidly that take-off had to be abandoned. An effort was made to beach the aircraft on a nearby island but the Canso sunk when still about 150 feet off shore.

The crew and passengers were uninjured and were able to abandon the aircraft and move ashore in the dinghies.

The cause of the accident was considered primarily an error in judgement on the part of the captain in that he did not use the same taxying path that he had used previously. Limited experience on flying boats was a contributing factor.



## * No. 20 -- WATER LOOP

This accident occurred during a northern transport operation. The pilot made a careful survey of the lake and chose a landing run in comparatively smooth water between the shore and an island which was a short distance off-shore.

Initial touchdown took place at least halfway along the selected landing run and the aircraft travelled beyond the shelter of the island into the open water where it was subjected to a stronger wind and to rougher water conditions. At this point the aircraft began to swing to starboard. Starboard throttle and rudder were applied but were ineffective. The pilot advanced both throttles with the intention of taking off but as the aircraft was in danger of colliding with a small island directly to the right, throttles were closed immediately and the aircraft completed a waterloop.

On completion of the water loop the pilot commenced to taxi to a dock about one mile distant. The aircraft at this point had sprung a leak and one of the compartments was leaking badly. The pilot lowered the wheels and used drogues because the aircraft was being taxied downwind. After docking was completed the pilot selected wheels up but as the main wheels were aground they could not be retracted until the aircraft was unloaded. During the unloading of the supplies aboard the Canso the aircraft took on water faster than the bilge pump could pump it out and when the undercarriage was raised the aircraft sank, the bottom of the hull coming to rest on the lake bottom with the nose in four to five feet of water.

The investigation attributed the cause of the accident to inexperience on the part of the pilot in that he attempted to land the aircraft on the water using a technique -- "slightly moving the control column forward when the aircraft contacted the surface of the water and waiting until the aircraft lost sufficient speed before closing the throttle" -- he had not as yet mastered. It was considered that this technique resulted in a longer landing run and left the aircraft in a critical attitude, where trouble could develop, for a much longer period of time than necessary.

The captain was criticized for not beaching his aircraft on a suitable sandbar approximately half-way between the point of the water loop and the dock. He was also severely criticized for not having briefed his crew on ditching or emergency procedures.

# Attention!

COMMANDING OFFICERS

and

ACCIDENT PREVENTION OFFICERS

Statistics record that during the past three years the highest quarterly accident rate of each calendar year has occurred during the first quarter.

A special effort is required towards keeping everyone "Safety Conscious" during this period.



# Airmanship is Airborne Discipline

"Crash Comment" has now completed its first year of publication. The Editors would like to take this opportunity to thank our readers for their suggestions and criticisms. These, wherever possible, have been utilized in an effort to increase the value of the magazine. Further comments are welcome and should be addressed to CAS, AFHQ Attn: AIB.


ACCIDENT
PREVENTION