

RESTRICTED

f122 DFS LIBRARY

LIBRARY COPY - this
copy must be returned.

CRASH COMMENT



SECOND QUARTER, 1953



ISSUED BY
DIRECTORATE OF FLIGHT SAFETY
R. C. A. F. HEADQUARTERS, OTTAWA, ONT.

"PRICELESS PROSE"

The following quotes were extracted from accident reports:

In the words of a co-pilot -

"After the second bounce I turned my head facing the rear and held onto the back of the seat. After the third bounce I climbed over the seat and attempted to assume a safer position in the rear".

A pilot writes -

"I think I ducked my head as it went over on its back. I heard the crash and saw black for just a second. My eyes were full of dirt so I tried to dig it away with my right hand so that I could see and breathe. There was about four inches of space between the sides of the cockpit and the ground, so I put my left arm out and kept moving it so they would know I was alive". "I could hear the gyros spinning so I caged the gyro for something to do. I also tried to feel my head for injury but there was too much dirt".

In another case a pilot states -

"I reached down and instead of raising the flap lever I raised the undercart lever. Immediately the undercart collapsed and the aircraft skidded to a stop. After describing myself with all the abusive language I could call to mind I checked the position of the undercart solenoid switch and saw that it was wired in the "OFF" position. This discovery, however, had little, if any effect on my desire to get out and knock my head against the surface of the runway over and over again. I, therefore, called the tower on the RT and requested that they send a crash crew to the scene of my stupidity".



"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 Acts and QR (Air), art 19.36.

AIRCRAFT RECOGNITION

CAN YOU IDENTIFY THESE AIRCRAFT TYPES ?



EACH AIRCRAFT HAD ONE THING IN COMMON

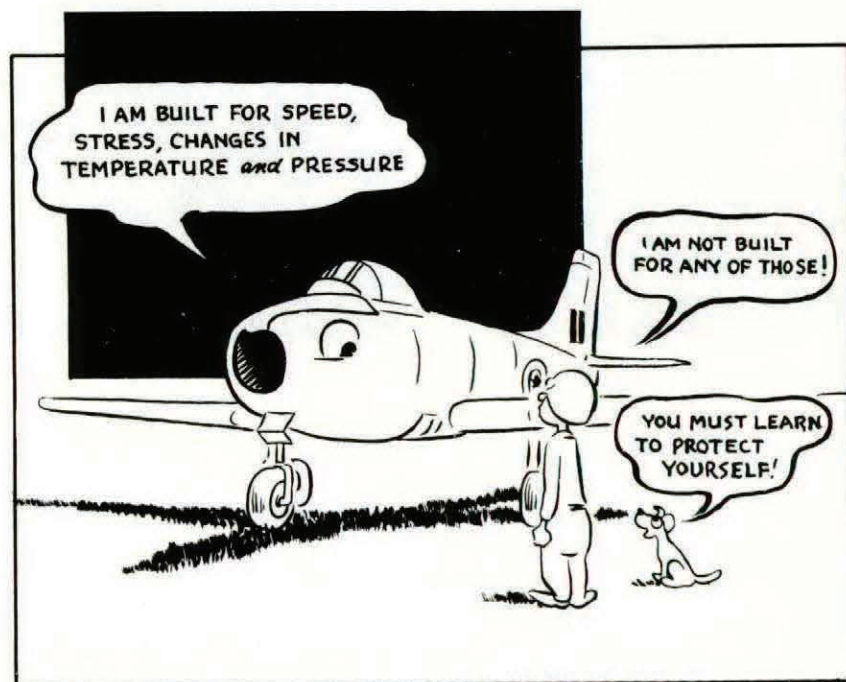
WHAT WAS IT ?

ANSWER: A pilot (each now deceased) who did not make practical application of his knowledge, or had insufficient knowledge concerning:-

1. The human requirement for oxygen above 10,000 feet.
2. Early recognition of human symptoms indicating lack of oxygen.
3. Oxygen systems in general as used in RCAF aircraft.
4. The oxygen system idiosyncrasies of the specific aircraft.
5. Pre-flight and in-flight oxygen equipment checks.
6. Emergency procedures in case of oxygen system failures.

Impossible! Fantastic! you well might say, after all oxygen has been in use for years (since 1938 in the RCAF) and every one knows about oxygen - or do they? The findings of accident investigations indicate otherwise.

Incidentally, in addition to the loss of life, the four scenes depicted represent a total loss of equipment valued at \$1,100,000.00.



Service aircraft are now designed and built for fighting in a world from three to nine miles above the environment for which nature designed you. Up to 8,000 or 10,000 feet you are a flyer but above that altitude you must function as a redesigned machine. With any machine, trouble begins when undue stresses and strains are applied. The same holds good for aircrew members who subject themselves unnecessarily to lack of oxygen through ignorance. If you know and follow the rules you will function smoothly and efficiently at altitude.

Sometime in the future you may have to put your endurance and efficiency to the test against an enemy. Constant attention and practise in the proper use of your oxygen equipment now will ensure habitual, correct, manipulation on occasions when there may be no time to think about your oxygen problems.

If you can readily answer all the questions listed hereunder - good, you are oxygen-wise. If you can't, it will be extremely beneficial to you, and to the Accident Investigation Branch, to make it a point to find out the answers.

EQUIPMENT

What type of oxygen system is installed in the aircraft on which you are current?

What type of oxygen regulator is on your current aircraft?

What is the maximum useable altitude for the demand oxygen system?

With the diluter demand regulator:

- (a) Give five occasions when the automix selector would be moved to the 100% oxygen position.
- (b) What does the emergency knob do and name four occasions when it would be used?

With the pressure demand regulator:

- (a) What is the purpose of the safety position and between what altitudes should it be used?
- (b) When should the above 45M position be used other than when at 45,000 feet or above?

What type of oxygen mask do you use?

Is your mask susceptible to freezing and if so where are the danger zones? What action would you take to free it of ice?

Can a pressure breathing mask be used on a regular demand system and vice versa?

What type of flow indicator is in use on your current aircraft?

Is the flow indicator blanked off?

You have been wearing your mask for a couple of hours and wish to clear your nose or some other such thing - what is the correct technique for removing and replacing the mask?

What is the normal full pressure for your oxygen system?

What is the minimum operating pressure with normal regulator fittings?

What type of "walk-around" do you use and does it have an automix mechanism?

At what pressure does the "walk-around" cease to function?

What is the maximum altitude at which a "walk-around" can be used?

Does your aircraft system have a re-charger hose for "walk-arounds" and do you know how to refill it?

What is the full pressure for a "bail out" bottle?

Can you accomplish your pre-flight and in-flight checks automatically?

PHYSIOLOGICAL ASPECTS

Why does the human body require supplemental oxygen above 10,000 feet?

Why is pressure breathing in addition to supplemental oxygen required at the higher altitudes?

What is anoxia?

What are the symptoms of anoxia and what is the immediate remedial action?

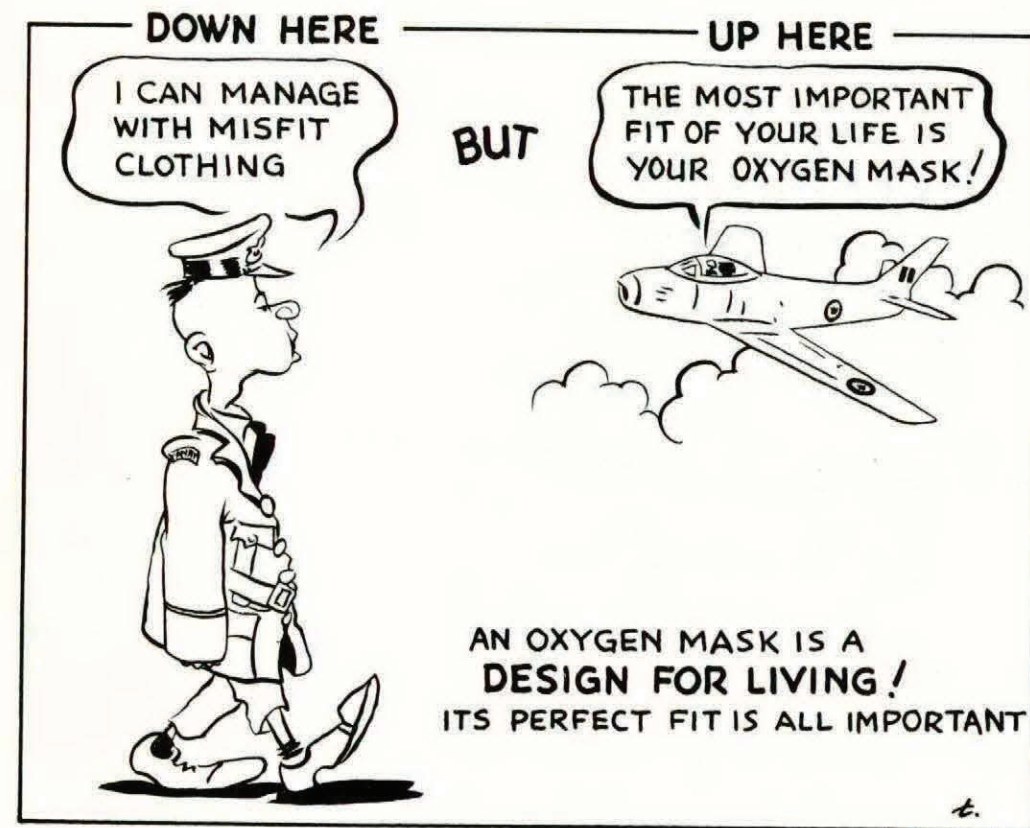
What is hyperventilation? How and why does it occur?

How does the consumption of alcohol tend to limit the human ceiling?

How does sulphur drugs and carbon monoxide limit the human ceiling?

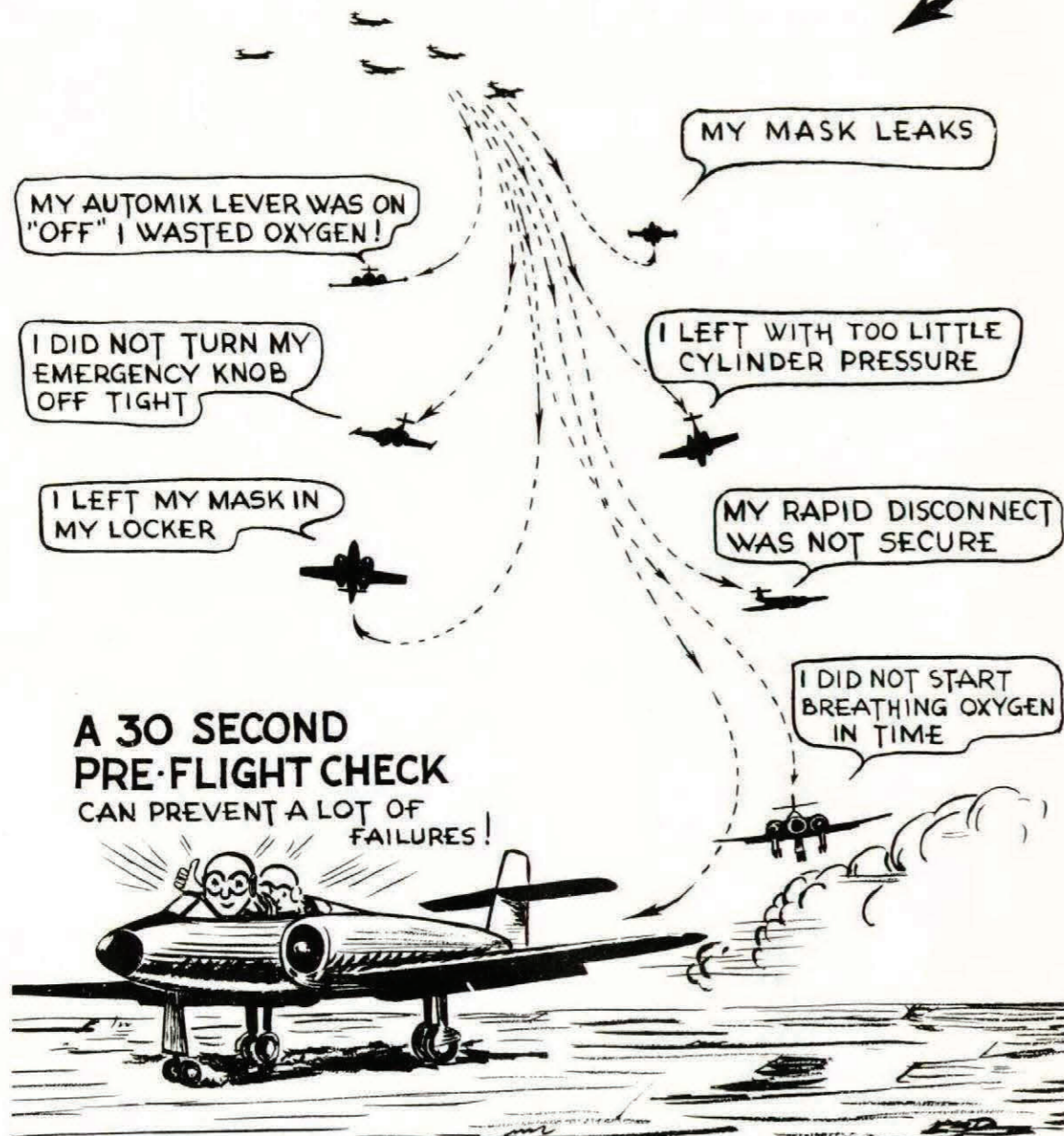
What is "the bends"?

Above what altitude is bends likely to occur? What is the remedial action?



WHY the HIGH-ALTITUDE MISSION FAILED

THESE AIRCRAFT WERE FORCED BACK TO THE FIELD



The answers may be obtained by:

(1) Reading EO 05-1-1 "Pilots Notes General"

Part I Chapter 3

Part III Chapter 9

(2) Conferring with your medical and technical officer.

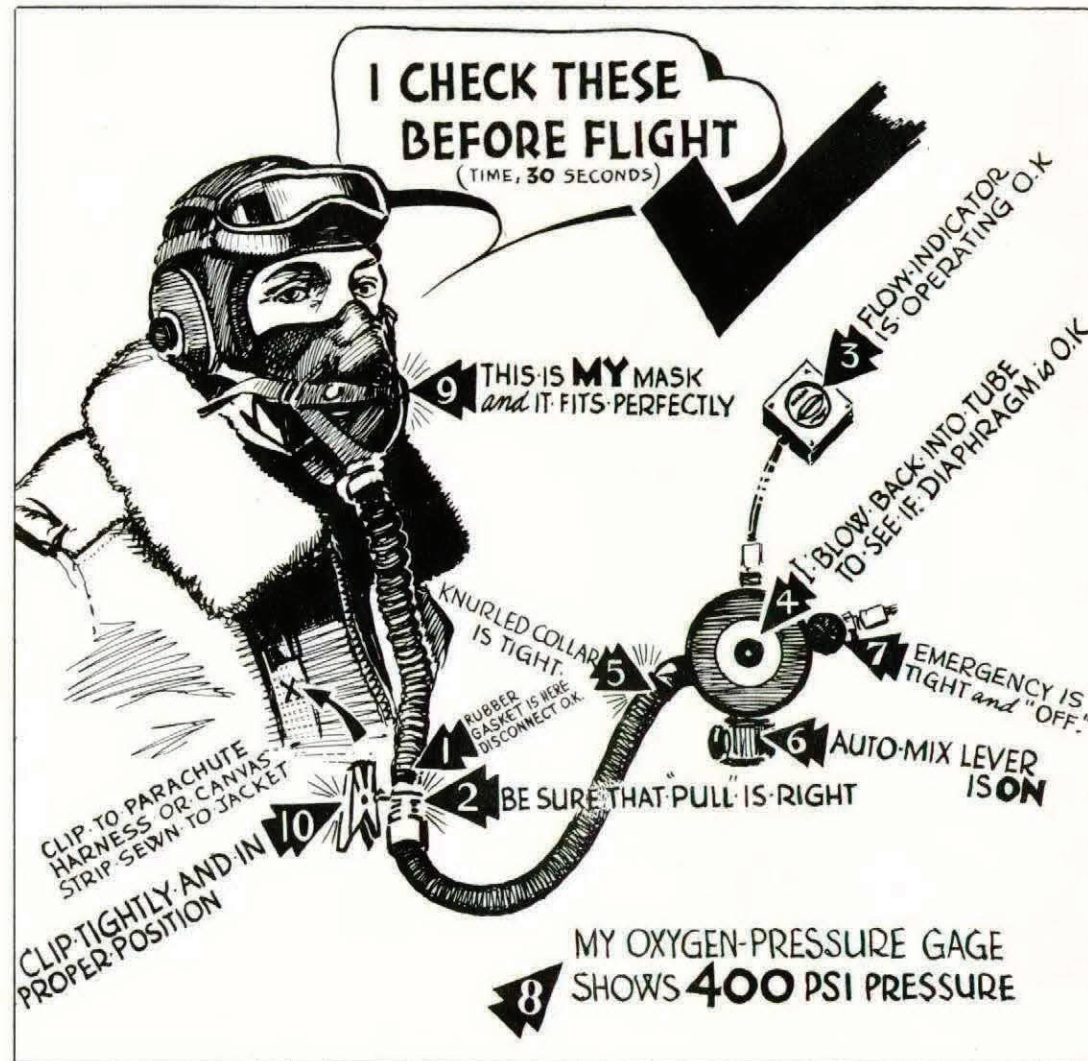
(3) Inviting IAM specialists to lecture on the subject.

ABILITY ALONE IS NOT SUFFICIENT; IT MUST BE SUPPLEMENTED BY KNOWLEDGE AND PRACTICE.

LIFE INSURANCE AT ALTITUDE

Premium - 30 seconds in Pre-flight

Benefits - 60 Years?



Watch for the publication EO 20-115-1G regarding Oxygen Equipment. All aircrew should study this publication when it becomes available.

Is your unit complying with the following regulations concerning oxygen?

Commanding Officer's and Officer's Commanding responsibilities:

- See CAP 100 para 169(3).

Captains of Aircraft Responsibilities:

- See CAP 100 para 169 (1) & (2).

Technical Officers:

- For replacement of demand regulators see EO 20-115-2G.

Supply Officers:

- For storage and testing before issue see EO 20-115CD-2, Section VIII 8-3.

HYPERVENTILATION

The preceding article has proved the necessity to know your oxygen equipment and how to use it. To prove how vital is the care and maintenance of your oxygen mask, read this near-accident report. An RCAF Sabre pilot submitted these facts to his SMO.

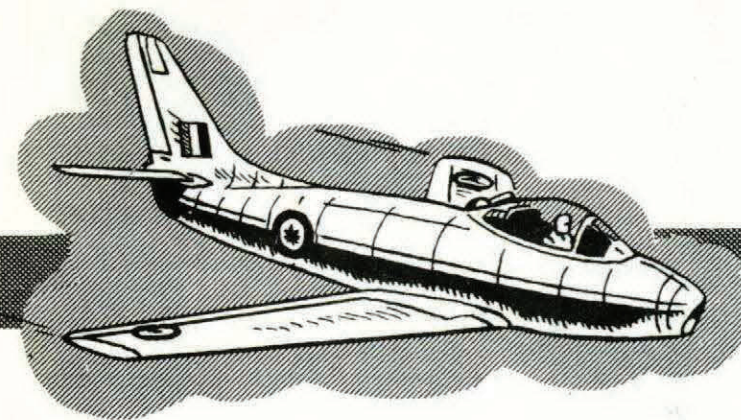
The pilot was flying in an eight plane formation at 38,000 feet when he experienced a sensation as if he were pressure breathing. Witnesses in the formation state that his Sabre slid under the rest of the formation and went into an uncontrolled dive. Repeated calls on the R.T. failed to obtain any response from the apparently unconscious pilot. Fortunately, the pilot regained consciousness at about 10,000 feet, levelled off, and returned safely to base.

An instrument technician believed the regulator diaphragm was leaking. The IAM tested and found the regulator fully serviceable. A specialist in Aviation Medicine then examined the pilot's oxygen mask. He discovered dirt under the inlet valve. This dirt caused the pilot to experience difficulty in exhaling, he became anxious, inhaled an excessive amount of oxygen, and suffered hyperventilation. The pilot's anxiety was probably increased by his belief that he was about to suffer anoxia. During his descent the pilot's rate of breathing returned to normal and he regained consciousness.

There has been one other case of hyperventilation reported by an RCAF Sabre pilot. He also was fortunate in regaining consciousness before that fatal crater was dug in the earth. There may have been other unreported cases. One way of ensuring that all pilots profit from your experience is to report, through the usual channels, all cases of suspected anoxia or hyperventilation.

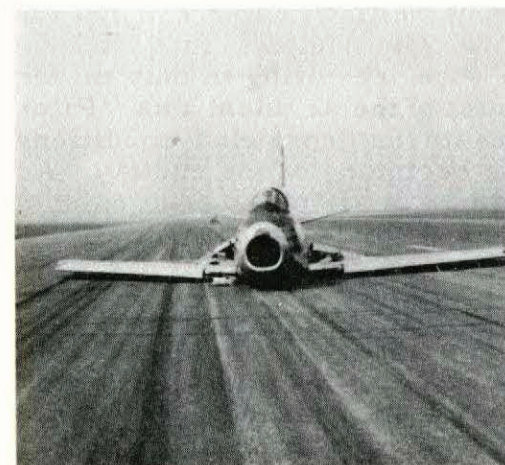
These examples should emphasize to every pilot the dire need of maintaining his oxygen mask. Small amounts of dust and grit or other foreign substance can get under the inlet valves at any time, which will make exhalation very difficult or even impossible. All pilots should check the operation of their masks before each flight, and should have their masks thoroughly cleaned at least every two weeks by the Safety Equipment Section.

ACCIDENT RESUMÉ



SABRE

1 -- UNDERSHOOT



The leader of a four plane formation made a tight break and approach. The pilot fearing he would land on the right hand side of the runway attempted to further tighten his turn to the left. The Sabre stalled, striking the ground short of the button in a level attitude. This "B" category crash was caused by "Pilot Error". The pilot pulled his approach too tight and allowed his airspeed to drop to the stalling point. Mitigating factors in this accident were the poor visibility due to haze, and the lack of markings to clearly indicate the end of the runway.

2 -- HARSH BRAKE

This pilot landed his Sabre at an excessive speed. He applied full brake soon after touchdown to maintain direction. The pilot's harsh application of brake at a high speed caused the port tire to blow out. The Sabre swung to port but the pilot corrected and controlled the rest of his landing run with nosewheel steering. The underside of the port wing sustained considerable damage from the thrown tire and tube. "Pilot Error" was the cause of this accident.

3 -- FOLLOW THE LEADER

The number two pilot lost his leader during a cloud penetration. Instead of transferring immediately to instruments the pilot attempted to find the formation. His Sabre stalled and spun through nearly 10,000 feet before the pilot regained control. Instead of returning to base, the pilot then climbed back through the overcast to 33,000 feet in a vain attempt to locate the formation. After a quick search the pilot was forced to declare an emergency as he had only 50 gallons of fuel. The homer directed him to base. The pilot landed very fast from a straight-in approach and ran off the end of the runway, causing considerable damage.

4 -- TURNING TOO LOW

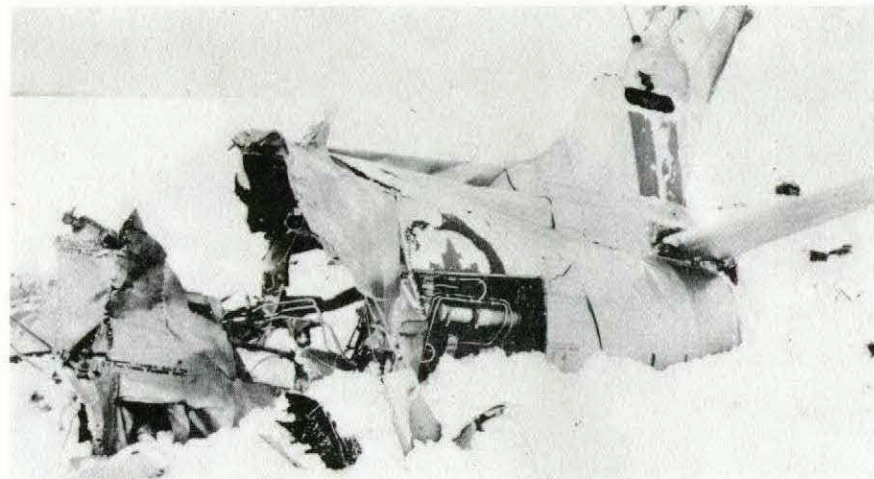
The number two in a four plane Sabre formation crossed the aerodrome boundary fence while still turning onto the runway. All pilots at the unit had been warned to have their aircraft straight and level and lined up on the runway before crossing the boundary fence. The pilot was aware of a strong gusty crosswind which should have warned him not to turn at a very low altitude. Just before the button of the runway a sudden gust of wind caused the starboard wing to drop. The starboard wheel struck a mound of earth from an excavation for runway lighting and the wheel was torn off. The pilot made a successful landing on the nose and port wheel resulting in only minor damage to the aircraft. The primary cause of the accident was "Pilot Error" because the pilot did not compensate for crosswind conditions and he was trying to land too close to the beginning of the runway. As a result of this and other similar accidents, a strip has been painted across the runways 500 feet in from the end, to be used as an aiming point for touchdown. The secondary cause of the accident has been charged against Flying Control because they allowed a mound of earth to remain adjacent to the approach and they failed to mark the mound or warn pilots of such a hazard.

5 -- A VERY HOT LANDING



Immediately after take-off the number four pilot in a four plane Sabre formation noted his engine surging with a drop in RPM. He switched to emergency fuel system but the engine continued to surge and lose power. The pilot dropped his external tanks and made a 180 degree turn to get back onto the field. In his confusion from making a 180 degree turn at 200 feet with a failing engine, the pilot forgot to close the throttle, open dive brakes, and lower his flaps. He touched down at approximately 180 knots about one-third down the runway. On touchdown he opened the dive brakes and applied brake. The tires were stripped immediately and it appeared as if power was resumed. When the pilot realized he would overrun the runway he selected undercarriage up but could not press the "panic button" before the Sabre ran off the end of the runway into a dangerous overshoot area. The nosewheel collapsed when the Sabre struck a manhole. The fuselage separated from the wings and the entire aircraft burst into flames. The pilot is uncertain how he escaped from the aircraft. He suffered severe shock and burns about the face, arms and shoulders. The aircraft was burned beyond repair. This accident is still under investigation but a tentative primary cause for the accident appears to be "Pilot Error" because of the poor airmanship displayed by the pilot during his forced landing. It is believed the engine failed because of water in the fuel.

6 -- FATAL HORIZON



This fatal formation accident occurred in the first quarter 1953 but the lesson to be learned warrants inclusion of the accident in this issue of Crash Comment. A two plane Sabre formation was making a pipeline descent to base. During the descent number one's radio compass became unreliable so he asked number two to take the lead. The leader reported over the inner beacon at 4,000 feet and stated they were intermittently visual. Instead of continuing the descent to the field the leader requested permission to make a single beacon approach from 4,000 feet. During this procedure both Sabres crashed and disintegrated on the ice of a bay and both pilots were killed. There were no reports from the pilots after the leader's request for a single beacon approach and there were no eye witnesses to the crash. Investigations have determined the following course of events to be most probable. It is believed the formation became visual before the let down procedure was completed so the leader decided to continue to base at low altitude under visual conditions. In a turn to starboard the pilots apparently suffered "white-out" and flew into the snow covered surface. "White-out" is a winter phenomenon whose characteristics must be recognized or the consequences may be fatal. When the atmosphere is "milky" with low thin cloud and haze, there is no contrasting features on the snow covered surface, and the pilot can easily lose his sense of depth perception as the sky and land seem to merge into one. When this condition is even suspected go onto instruments immediately as it is impossible to accurately judge your height above ground. The cause of this accident has been assessed as "Pilot Error" because the leader of the formation deviated from the standard pipeline descent, and then failed to recognize the hazardous condition of poor depth perception due to "white-out".

7 -- ELEVATOR FAILURE

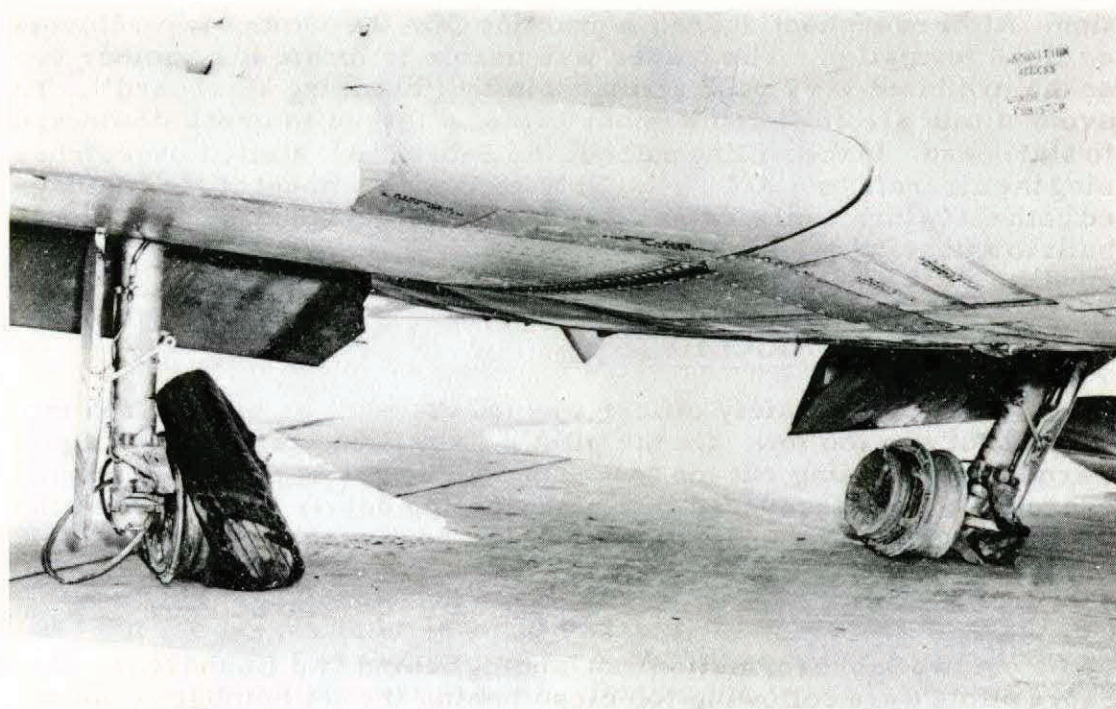
The pilot was flying number two in a two plane Sabre formation. After overshooting from a practice GCA the number two reformed close formation. The leader was unable to locate his number two so he exhibited very poor airmanship by "breaking starboard". To avoid a mid air collision number two was forced to break downward to starboard. In the rolling pull out the Sabre flick stalled overstressing the aircraft to $8 \frac{3}{4}$ "g". This excessive amount of "g" damaged both elevators to the extent they had to be replaced. The Sabre is built to withstand certain stresses and if the aircraft is subjected beyond its "g" limitations, structural failure will result.

8 -- BEWARE OF RICOCHETS

The range safety officer warned the pilot on his dry run that his pull out was too low. On the pilot's first firing pass he was again warned about pulling out too low. On completion of the air to ground exercise it was discovered that ricocheting debris had damaged the leading edge and the undersurface of the port wing.

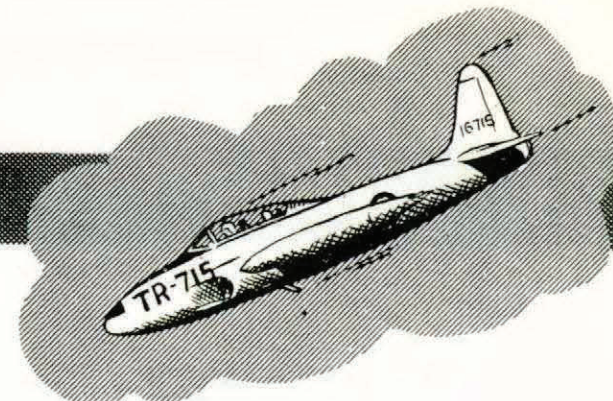
9 -- DOUBLE JET WASH

A two Sabre formation was landing behind two Canberras. The Sabre pilots were following too close behind the jet bombers. As the number two pilot rounded out he struck the jet wash of the Canberra landing ahead of him. His Sabre completely stalled and seemed to drop vertically onto the grass approach to the runway. The nosewheel struck a clump of sod and collapsed. The Sabre slid down the runway for over 700 yards and then skidded off the runway. The aircraft received "B" category damage. This another example of the disastrous results of following too close behind jet aircraft and stalling in the jet wash.



After completing a high level formation flight and nearing his base, the leader of a three plane Sabre formation heard peculiar noises behind the cockpit accompanied by instrument fluctuations and vibration. The pilot believed a flame out was imminent. He received emergency clearance and elected to make a straight in approach. He crossed the button at 160 to 170 knots but decided an overshoot was too risky. Upon harsh application, the brakes seized and both tires blew out. The aircraft ran off the runway and was seriously damaged. The board of inquiry assessed the cause of this accident as "Pilot Error". When the pilot decided to make an emergency landing he was in a suitable position to make a forced landing into wind. Instead, he elected to land downwind even though power was available throughout the emergency. When the tires blew out the pilot did not attempt to maintain control by use of the nosewheel steering. Technical examination of the aircraft and engine, failed to reveal the noises, vibration and instrument fluctuations observed by the pilot.

SILVER STAR



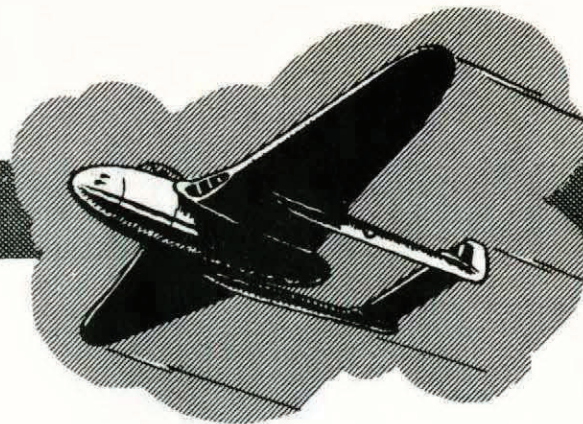
11 -- FAULTY MAINTENANCE

On take-off the captain of a Silver Star heard a series of loud explosions and noted the RPM climbing above 105%. The fire warning light for the plenum chamber came on and the pilot immediately closed the throttle and braked the aircraft to a stop on the runway. The Silver Star was shut down and abandoned. Technical investigation revealed the fuselage fuel vent line had not been connected at the flexible connection after repairs to the aircraft. This permitted fuel from the fuselage tank to be vented directly into the plenum chamber when the engine was operating under a high RPM throttle setting. Considerable damage resulted from the fire. The cause of this accident was careless maintenance.

12 -- CANOPY JETTISON

A normal landing was made in a T33 but after rolling a third the length of the runway the port undercarriage appeared to collapse. The aircraft swung to the left off the runway. With the possibility of a serious accident in the rough infield if the port undercarriage collapsed, the pilot attempted to jettison the canopy. The canopy failed to jettison. The reason for the port undercarriage beginning to collapse and then holding firm is unknown but the reason for the canopy failing to jettison is known. It is very difficult to move the jettison lever through its full travel if the pilot's elbow is on or inside the seat arm rest. The pilot must move his arm outside the seat to pull the canopy jettison lever far enough to actuate the jettison mechanism.

VAMPIRE



13 -- MUSH, MUSH

Number two in a two plane formation lifted his Vampire off with the leader and immediately selected undercarriage up. The Vampire mushed onto the runway, damaging the undersurface, then bounced into the air. The pilot completed the circuit and made a successful landing. He violated command instructions by retracting the undercarriage before reaching a height of 50 feet and before having attained sufficient flying speed to remain airborne.

14 -- EVER HEAR OF OVERSHOOT?

The pilot was number three in a three plane formation. On completion of their exercise the formation was informed by the control tower that the wind was from 200 degrees at 10 - 15 K. Despite this information the formation leader elected to land on runway 33. He also neglected to inform the remainder of the formation they were landing downwind. The number three made his final approach too steep and too fast. He also neglected to lower full flap when he had to "S" turn to make the runway. The pilot touched a third the way down the runway with only 40 degrees flap and an excessive airspeed, yet he did not overshoot. He realized he would be unable to stop the Vampire before over running the end of the runway, so he hit the "panic" button and selected the undercarriage up. "B" category crash damage resulted from this accident caused primarily by "Pilot Error", and secondly by "Briefing" charged against the formation leader.

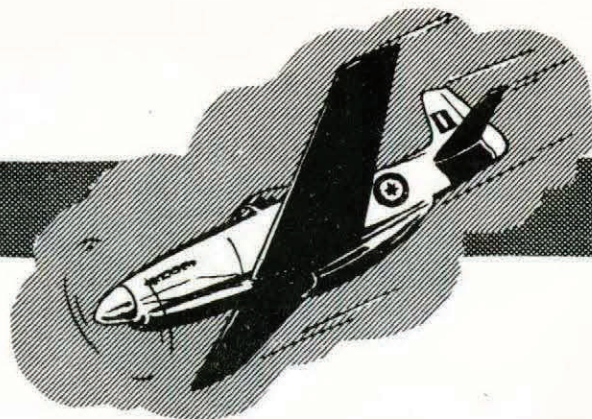
15 -- A FAMILIAR STORY

In addition to the many times this same type of accident has occurred and been recorded for all to read and remember, good airmanship indicates the necessity of reaching a safe height before raising the undercarriage of any aircraft. This Vampire pilot raised the undercarriage as soon as he became airborne. The aircraft sank back onto the runway damaging the bottom fuselage panels. The Vampire bounced into the air and the pilot completed a normal circuit.

16 -- HOT WEATHER STALL

The pilot had been briefed before flight on the increased mushing effect of jet aircraft in hot weather when on the final approach. Despite this warning the pilot made a low flat approach with insufficient power to maintain height and airspeed. His Vampire stalled in nearly 100 yards from the beginning of the runway. The undercarriage collapsed and major damage resulted to the airframe. This "B" category crash was caused by "Pilot Error".

MUSTANG

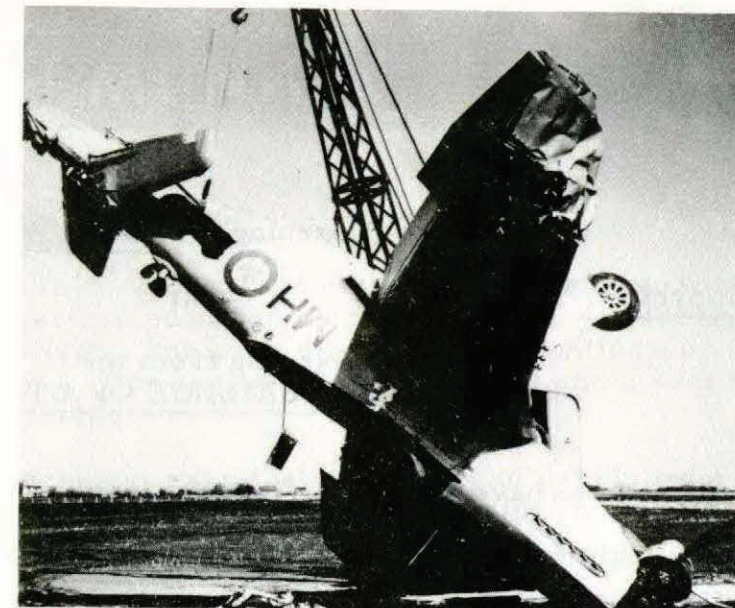


17 -- THIS WAS A MUSTANG!



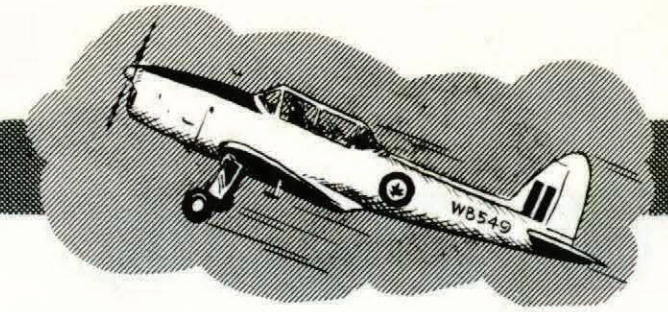
The pilot allowed his airspeed to drop dangerously low on the approach. The Mustang stalled and crashed on the beginning of the runway. The port wing struck the runway and folded upwards as it split. The undercarriage was sheared off, followed by fire which completely destroyed the aircraft. The pilot escaped without injuries. The cause of this accident was "Pilot Error". The pilot displayed extremely careless airmanship, in that he could not recall whether he used flap during the approach, and he failed to check his airspeed on final.

18 -- DISASTROUS TECHNIQUE



The pilot was inexperienced on the Mustang so when informed by the tower of a strong crosswind he made a "touch and go" to determine the aircraft's reaction. On the downwind leg the tower informed him the wind was 90 degrees to the runway and gusting to 35 mph. The pilot lowered full flap and made a three point landing. The inevitable ground loop followed only this swing had a serious ending. The port wheel dug into the soft shoulder of the runway causing the Mustang to cartwheel and crash in the inverted position. The aircraft was a complete "write-off". The pilot received only minor injuries.

CHIPMUNK



Learning the HARD WAY

Which do you prefer?

or

Learning from the
EXPERIENCE OF OTHERS

How many times have we been advised to always wear a helmet and goggles in single engine aircraft? Yes, at least a dozen times!

BUT

pilots are still suffering burns about the head resulting from crashes followed by fire,

BECAUSE

they were not wearing helmets and goggles. Why not be smart and play it safe?

BETTER TO BE A LIVE DRIVER
THAN A DEAD STATISTIC

19 -- ONE IN A MILLION

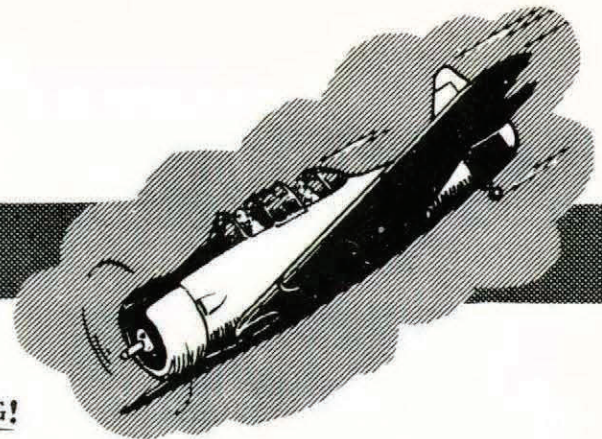
Two instructors were authorized to undergo mutual training. The engine performed satisfactorily on run up and for the first thirty minutes of flight. The pilot did some aerobatics and suddenly the engine stopped. The engine failed to respond and a successful forced landing was made.

On technical examination a piece of paper towel was found in the carburettor air intake. This obstruction in the intake caused the engine failure.

The captain of the Chipmunk stated that he had taken into the air a piece of hand towel paper about a foot long, with the intention of throwing this paper overboard and doing aerobatic manoeuvres around it. During the execution of the aerobatics the paper towel was sucked into the carburettor air intake resulting in the engine failure.

All statements concerning this type of "Pilot Error" have been discreetly omitted.

HARVARD



20 -- AN UNUSUAL LANDING!



The student pilot was attempting a three point landing. The Harvard ballooned badly with a very nose high attitude. The aircraft reached a height of about 30 feet and then stalled. The right wing struck the ground first and the resulting crash split the fuselage behind the rear cockpit. The aircraft was a "write-off". The pilot escaped injuries. The primary cause of this accident was "Pilot Error" because the pilot should have overshoot after the bad bounce rather than try to correct the landing. The secondary cause has

been assessed as "Briefing" because the student pilot was authorized to go solo when he had flown beyond the permissible solo time before having a dual check.

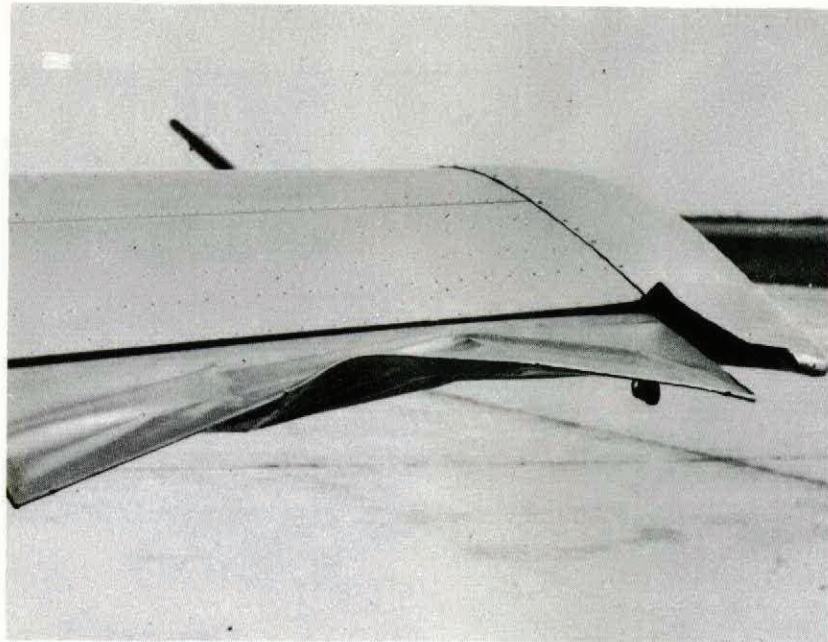
21 -- CROSSWIND CAPERS

This pilot attempted a full flap landing in gusty crosswind conditions. Need we describe the inevitable result? The Harvard groundlooped through 180 degrees into wind. The wind was 30 - 40 degrees off the runway and gusting to 20 knots, yet, rather than use correct crosswind landing technique this pilot lowered full flap which resulted in an uncontrolled swing.

22 -- FATAL VIOLATION OF ORDERS



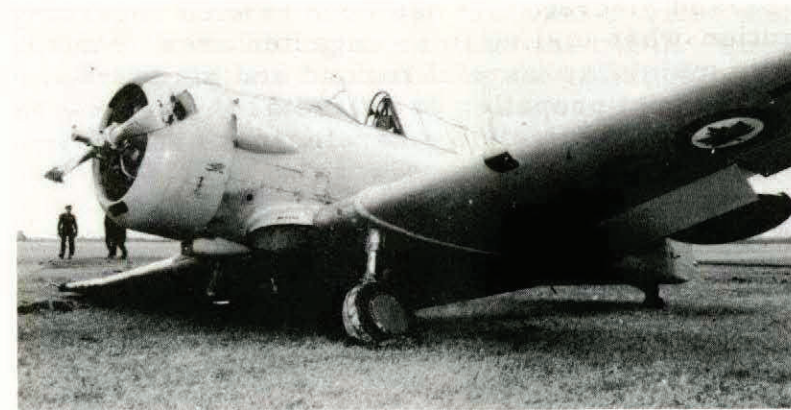
Two trainee pilots were authorized to practise mutual instrument flying. A half hour later both men were dead. Eye witnesses saw their Harvard do a series of consecutive loops. After one of these loops the Harvard descended out of control in either a spin or a spiral dive. The aircraft struck the ground at a very steep angle, instantly killing both pilots and completely destroying the aircraft. The pilots violated three separate orders by performing mutual aerobatics; the F17, a Command Instruction and CAP100 Chapter II, Section 35, subpara 3. For reasons which are obscure, the pilot was unable to regain control of the aircraft after an aerobatic manoeuvre.



Two student pilots led by an instructor were practising formation flying. On a turn to port in echelon starboard number 3 lost sight of number 2. Instead of following his briefing orders, number 3 continued turning port, descending at the same time. The inevitable resulted. Number 3's port wing collided with the starboard wing of number 2. Once again there must have been no available accommodation in the Great Beyond because both pilots landed safely at base.

24 -- A UNIQUE GROUNDLOOP

The student made a successful three point flapless landing. In attempting to clear the runway quickly he applied power too soon after touchdown and the Harvard swung to the right. The student took corrective action and stopped the swing. However, his left foot became caught in the left rudder pedal when he took corrective action because his flying boots were much too big for him. The Harvard groundlooped to port when the pilot was unable to take his foot off the left brake. The pilot erred in attempting to clear the runway before his landing run was complete and in wearing flying boots that were not his size.



After making a wheel landing the "Hazard" swung to starboard. The pilot overcorrected and the aircraft swung to port. Along with his overcorrection the pilot applied full power. The result is obvious. A vicious swing to port which the pilot could not overcome. Considerable replacement damage resulted.

THE SCORE FOR APR - JUN 53

33

HARVARD GROUNDLOOPS

CAUSED BY PILOT ERROR

26 -- TOO TIGHT A SQUEEZE

The student pilot was taxiing along the tarmac between two rows of parked aircraft. He had been briefed regarding the use of extra caution when taxiing in a congested area. Nevertheless, the pilot failed to maintain a careful lookout and his starboard wing collided with the port propeller of a Dakota. Again, we have another taxi accident caused entirely by carelessness and laxity on the part of the pilot.

27 -- WHAT RED LIGHTS?????

While taxiing at night the student pilot failed to see the red lights marking a cement runway sewer curbing. He taxied the Harvard into the curbing causing the aircraft to flip forward on its nose. Considerable damage resulted to the engine and undercarriage. The curbing was clearly marked with red lights so again there is a taxi accident caused solely by "Pilot Error". For inexcusable carelessness in not maintaining an adequate lookout the student pilot was awarded a \$50.00 fine.

28 -- OUT OF CONTROL



The pilot made a flapless wheel landing under crosswind conditions. As the tail of the Harvard lowered it swung to the right. The pilot overcorrected and then appeared to lose control. The aircraft zigzagged down the runway until it eventually ran off the side into the soft infield and flipped upon its nose. The cause of this accident has been assessed "Pilot Error".

29 -- THE INVISIBLE AXE

A student pilot was undergoing instruction. He taxied out to the position for his pre-take-off check. Both the student and instructor noted another Harvard doing a pre-take-off check. They attempted to park beside this second Harvard but the tailwheel did not swivel on first application of left brake. The instructor lost sight of the neighboring Harvard until it was too late to avoid a collision. The propeller chewed into the port wing of the stationary Harvard. Inadequate lookout and careless parking on the part of both student and instructor contributed to another taxi accident.

IN THE SECOND QUARTER 1953 THERE WERE

22

TAXI ACCIDENTS IN THE RCAF CAUSED BY
PILOT ERROR

30 -- WRONG LEVER

The student pilot in a Harvard MK4 received clearance to make a 360 degree overhead approach. He selected undercarriage down and lowered 15 degrees of flap. On final approach the pilot selected full flap and proceeded to land on the runway with the wheels in the UP position. He negligently selected "undercarriage up" instead of "flaps down" on the final approach. The pilot states he did not hear the horn blow, nor did he see the green light go out. The \$75.00 fine awarded by his CO should assist this pilot in the future to distinguish between the flap and undercarriage lever before making a selection.



The pilot failed to use crosswind landing technique despite the fact he realized the wind was 35 degrees off the runway at a strength of 20 mph. He lowered full flap and made a three point landing. The Harvard swung to the right and the pilot's corrective action was insufficient to prevent a vicious groundloop. The port undercarriage collapsed destroying the port wing tip, aileron and flap.

32 -- PORT WING STALLS

The pilot rounded out too high at a low speed and allowed the Harvard to stall. The port wing struck the runway, damaging the wing tip, aileron and mainplane. The cause of this accident was "Pilot Error".

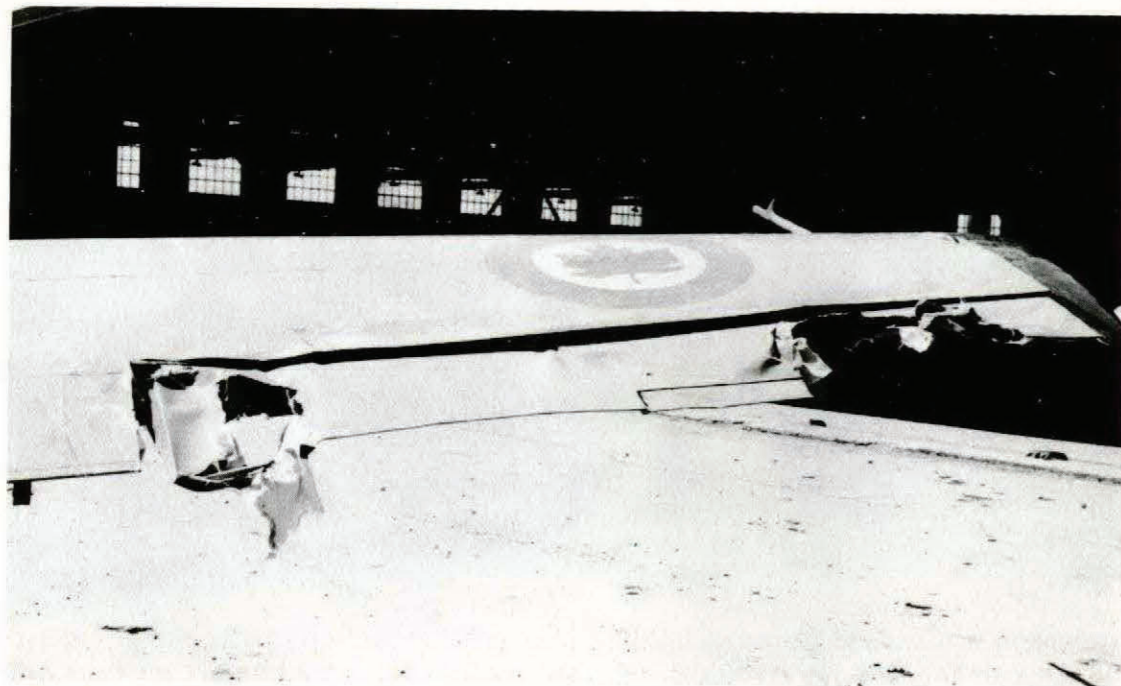
THERE WERE *16* SIMILAR HARVARD
STALL LANDING ACCIDENTS FROM
APR - JUN 53 CAUSED BY PILOT ERROR



Although this fatal accident occurred in the first quarter 1953, the lessons to be learned from the results of the prolonged investigation are worthy of inclusion in this issue of Crash Comment.

The student pilot took off in the first morning detail to practise solo aerobatics. The weather briefing was given by another student who in turn had been briefed by the weather forecaster on duty. This briefing was not supervised by either the weather forecaster nor an instructor even though the forecast warned of possible fog conditions throughout the area during the morning. An hour after take-off a heavy fog bank moved into the area lowering the visibility to 500 feet. The top of the fog bank was 2500 feet. It is believed the pilot tried to remain visual while attempting to find the station. The Harvard struck the ground and the pilot was instantly killed. It would appear the pilot flew into the ground while attempting to remain visual because the wheels and flaps were in the "Up" position and the engine was in normal cruising power.

The primary cause of this accident has been assessed as "Pilot Error". The pilot did not attempt to use his radio aids to find the station and he did not attempt to climb above the fog and go to an alternate airport. The secondary cause has been assessed as "Briefing" because the student had not been briefed as to the procedure to follow in case weather closed his home station.



The number four pilot in a four plane Harvard formation was moving into position in echelon starboard. As he was throttling back he heard his engine over-rev. The pilot looked inside the cockpit at his RPM indicator. When he looked out again his port wing was nearly touching the trailing edge of number three's starboard wing. The pilot banked sharply to starboard and the two wings collided. Fortunately both pilots made successful emergency landings at base. The starboard mainplane, flap and aileron of the Harvard which was struck had to be replaced and the port mainplane of the ramming Harvard had to be replaced. This accident was caused by "Pilot Error". A tragic accident can result from a pilot failing to maintain a constant lookout while flying in close formation.

THE FINAL LOOK BEFORE THE TURN IS NOTHING MORE THAN
THE FINAL LOOK BEFORE YOU LEAP.



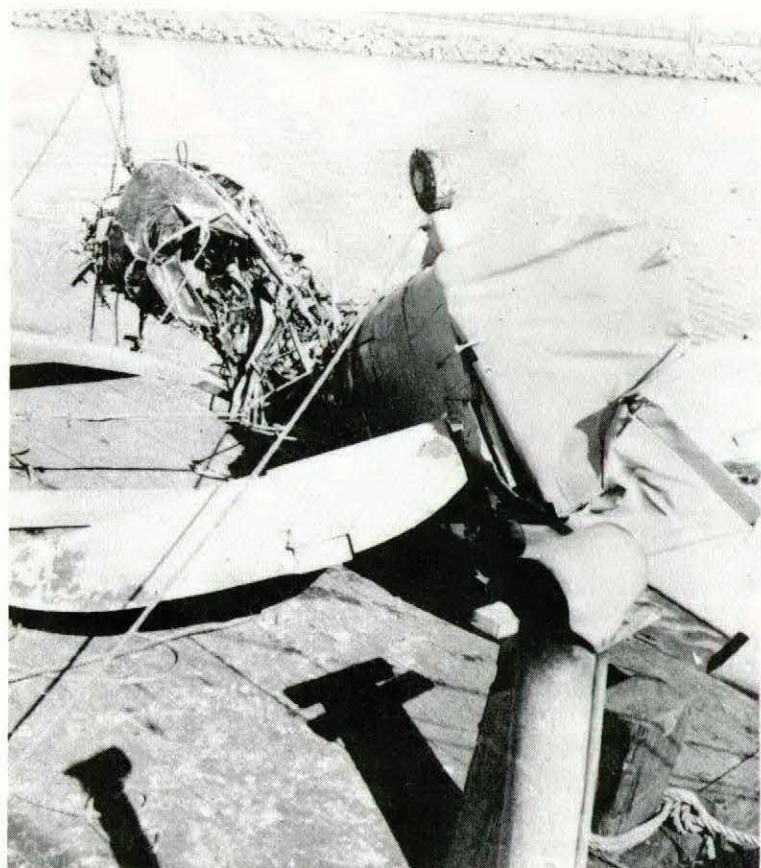
This pilot had 4,000 feet of runway in which to land a Harvard, but the accompanying photo shows his aircraft imitating an ostrich at the end of the runway. The pilot made a wheel landing with no flaps about a third of the way down the runway. He ran off the end of the runway onto the extension which was under construction. The starboard wheel struck a pile of gravel and the Harvard went up on its nose. The port wing and propeller were damaged beyond repair. The accident was caused by "Pilot Error".

36 -- PARKING IS THE PILOT'S RESPONSIBILITY

The student pilot failed to see an improperly parked battery cart as he taxied into parking position on the tarmac. The marshaller did not see the battery cart because the Harvard blocked his line of vision. The student who was concentrating on the marshaller's signals struck the battery cart with his rudder as he swung the aircraft into the parking line. The primary cause of this taxi accident has been assessed as "Pilot Error" because the pilot was not maintaining a safe lookout. Even though the pilot was being marshalled

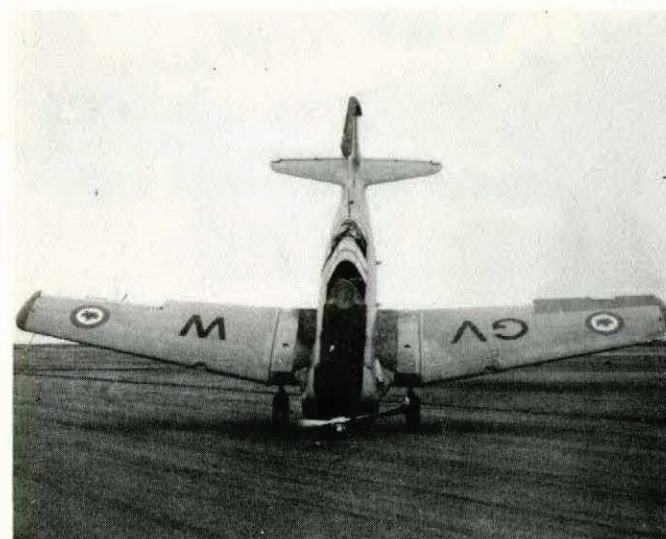
into position by a linesman, the final responsibility for the safety of the aircraft always rests with the pilot. The secondary cause of the accident has been charged against the groundcrew, because the battery cart should not have been left on the tarmac and the marshaller should have opened his eyes while directing the parking operation.

37 -- FATAL DISOBEDIENCE



The pilot was authorized to practise circuits, and forced landing procedures. He deliberately disobeyed these instructions and proceeded to make quarter attacks on another Harvard flying at 2500 feet. After one pass the pilot rolled out of a dive and flicked to the right into a spin. The pilot flicked into the spin at approximately 1500 feet. The Harvard spun or spiral dived into 12 feet of water. The pilot was instantly killed. The cause of this accident was "Pilot Error" in that the pilot lost control of his aircraft at a low altitude and crashed. Contributing factors were his disobedience of flying orders, his relative inexperience as a pilot, and lack of airmanship in indulging in fighter tactics at such a low attitude.

38 -- TOO MANY COOKS, ETC --



A student pilot was being given a circuit check. After touchdown the Harvard swung to port. The student took corrective action but the instructor overrode his control, without informing the student, and applied harsh starboard brake. The aircraft then developed a swing to starboard and it seems both pilots applied harsh port brake which caused the Harvard to flip up on its nose. This is the old story of neither pilot knowing who had control.

When either pilot takes control he should state the fact and receive confirmation from the other pilot.

FROM APR - JUN 53 THERE WERE **17**
SIMILAR HARVARD NOSE-UP ACCIDENTS,
CAUSED BY PILOT ERROR

39 -- BAD MEMORY

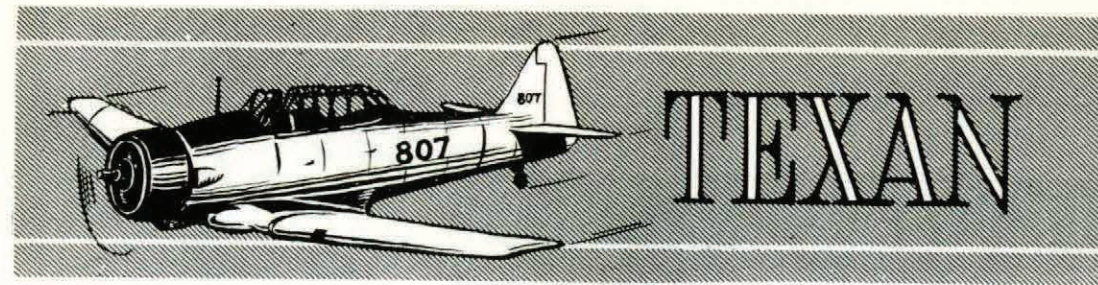
All flying personnel had been adequately briefed that a dangerous ground condition existed at this station. There was a 7 - 10 inch drop from the concrete tarmac to a graded gravel strip at the back of the tarmac. The student pilot on returning to the tarmac forgot the briefing and taxied onto the gravel section. When he turned to taxi onto the concrete tarmac his wheels hit the edge of the concrete and tipped the Harvard forward. The propeller and port undercarriage had to be replaced.

40 -- EXPENSIVE VIOLATION

The pilot was authorized to practise aerobatics for one hour. Instead of carrying out his order, he flew to the low flying area where he flew so low his port wing struck a power line. The port wing and aileron and the propeller spinner were badly damaged. The pilot's low flying was intentional and unauthorized. The weather at the time was CAVU. For his disobedience of orders, the pilot was awarded a severe reprimand and fined \$100.00.



The pilot of the above heap of scrap metal, which before the crash was a serviceable Harvard, violated flying orders. He is now convalescing from serious injuries. Two pilots pre-arranged to carry out unauthorized flying in Harvards. At about 5000 feet the two pilots engaged in a dog fight which gradually lowered to an estimated 50 to 100 feet above ground level. One pilot made an overhead pass at the other and made a descending left turn to about 50 feet above the ground and then climbed away. The second pilot followed the first down in the turn and then one of two things happened (a) he encountered the slipstream of the first Harvard and lost control or (b) he levelled off too close to the ground and the aircraft mushed. The Harvard struck the ground and was totally destroyed. The pilot was seriously injured. The ripe wheat about the wreckage bears mute testimony to the passage in the Bible-----"AS YE SOW, SO SHALL YE REAP".



42 -- ANYTHING CAN HAPPEN IN FLYING

Two advanced student pilots were authorized to practise mutual instrument flying. The control tender cleared them for an ITO on the narrow runway. At the same time the tender cleared a Dakota for take-off on the wide runway. During the ITO the Texan developed a swing to the right. The pilot under the hood overcorrected and the aircraft swung to the left. The safety pilot took control when the Texan was heading across the grass on a 90 degree collision course with the Dakota. The safety pilot used hard left brake to groundloop the Texan through 180 degrees to the left. The starboard wing of the Texan collided with the starboard wing of the Dakota. The Dakota pilot was unable to avoid the collision as he had nearly reached take-off speed at the time of collision. The cause of this accident has been assessed as "Pilot Error" against the safety pilot of the Texan. He did not take control soon enough to prevent a groundloop and subsequent collision with the Dakota taking off on a parallel runway.

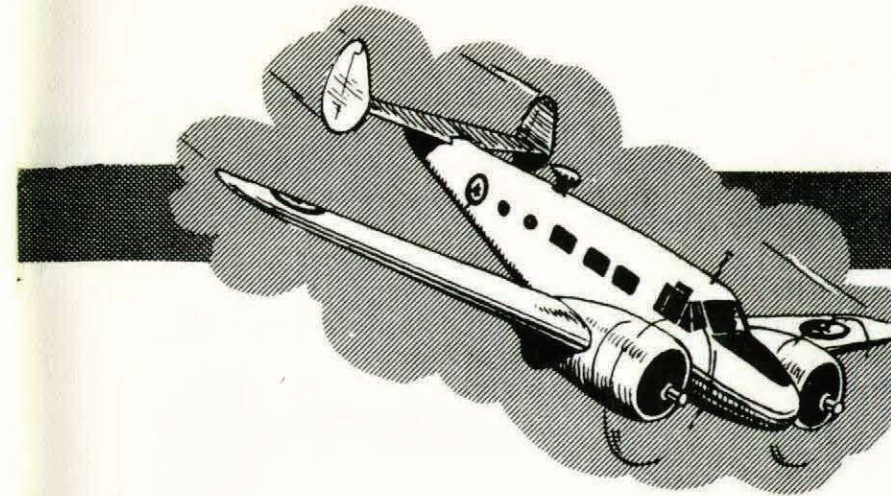
As a result of this accident the CO informed Flying Control that only the wide runways were to be used for ITOs. Also, when parallel runways are in use, simultaneous take-offs be prohibited when one aircraft is making an ITO.

SOME PILOTS WILL NEVER GROW OLD.

A LIFE IS AT STAKE

One recommendation that occurs frequently in boards of inquiry should be actioned immediately. This hypothetical case is quite common. An aircraft has crash landed somewhere near the airfield. The crash truck and ambulance roar across the airfield in the direction of the prang, only to screech to a stop at a LOCKED GATE of the boundary fence. Life-saving minutes are lost while the crash truck crew either batter down the gate or everybody does a 180 and drives miles out of their way back to the main gate and around the perimeter of the airfield.

Men have died as a result of this unnecessary waste of time. The solution is simple. Keys to all boundary fence gates should be issued and kept in the ambulance and the crash truck at all times.



EXPEDITOR

43 -- WATER IN THE FUEL

A Communications Flight Expeditor took-off with one pilot, a navigator, and four passengers. Five minutes after take-off at approximately 1500 feet the port engine failed. Thirty seconds later the starboard engine failed. The pilot had very little time to prepare for a forced landing in hilly terrain. The pilot stalled the Expeditor into a pancake landing on the top of a hill. The aircraft bounced and the starboard engine struck a tree. All passenger seats were broken loose on impact. The occupants were all in-



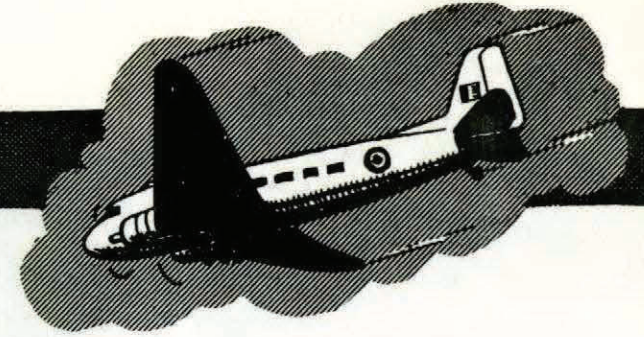
jured, three of them seriously. The aircraft was extensively damaged. The cause of the double engine failure was determined to be water in the fuel. An investigation is now under way to determine the source of the water found in the fuel. It has been recommended that all RCAF refuelling tenders have water strippers installed.

44 -- POOR LOOKOUT

The captain of an Expeditor was parking his aircraft under the direction of a groundcrew marshaller. As he swung the aircraft into the parking line the right rudder was penetrated by the handle of a battery cart. Neither the pilot, co-pilot nor marshaller saw the battery cart which had been carelessly left on the tarmac by the linecrew. The cause of this accident has been assessed as "Pilot Error". Even though the pilot was taxiing under a marshaller's guidance, CAP 100, Section II, Chapter 2, paragraph 23, states, "he (a captain) is to be entirely responsible for the safety of the aircraft and its occupants while the aircraft is in the air, on land or water, etc.....".

YOU MAY SMILE AT SAFETY BUT YOU CAN'T LAUGH OFF AN ACCIDENT.

DAKOTA

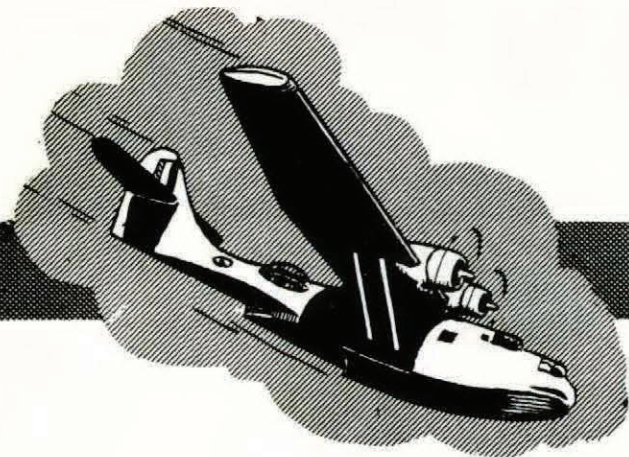


45 -- ANOTHER TAXI ACCIDENT

The co-pilot of this Dakota was occupying the left hand seat. After completing the tarmac check the co-pilot released the brakes without ensuring the taxi area was clear. He tested the brakes as soon as the aircraft began rolling but he applied more starboard brake than port. This swung the Dakota to the right causing the port tip of the tailplane to strike a parked vehicle. Negligence and insufficient lookout claimed another victim.

46 -- CIRCULAR PROP TIPS

The co-pilot was in control of the Dakota. On the final approach for landing the captain of the aircraft observed they were too low and were in danger of striking a boundary fence. Instead of assuming positive control of the Dakota when he realized they were in danger, the captain eased back on the control column. The aircraft ballooned and touched down hard. The Dakota bounced and the captain checked forward on the controls. The second bounce was more severe so the co-pilot applied boost. The captain checked forward again and the propeller tips struck the runway. The cause of this accident has been assessed as "Pilot Error" charged against the captain of the aircraft. Only one pilot should be in control of an aircraft on landing. In this particular accident the captain did not inform the co-pilot that he was taking control nor that he would be assisting him with the landing. Furthermore, on two occasions the captain misjudged the height of the aircraft above ground and applied forward corrective action when such was unnecessary.



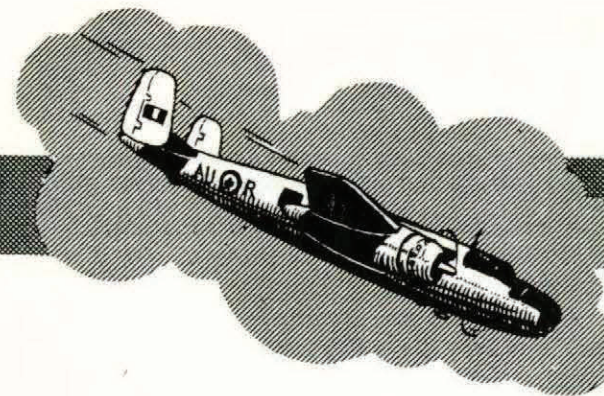
CANSO

47 -- ROUGH WATER MOORING

The pilot moored his Canso in rough water. He lowered the undercarriage by use of the hand-pump to prevent possible damage to the hull in the rough water. However, he did not fully extend the undercarriage. The partial weight of the aircraft on the unlocked landing gear caused the V strut pin to shear. The primary cause of this accident was "Materiel" because the V strut pin showed signs of gradual long term failure. The secondary cause was "Pilot Error" because the pilot hastened the failure of the V strut pin by neglecting to fully extend the undercarriage.

48 -- GUSTY DOCKING

The pilot was docking his Canso under gusty wind conditions. As he was making a mercy flight he was docking as fast as possible. The pilot approached the dock crosswind instead of upwind. He was taxiing at a faster than normal speed and just as he was about to receive assistance from the docking crew the Canso weather-cocked. The nose struck the corner of the dock, causing a minor break in the hull skin about six inches above the water line. The cause of this accident has been assessed as "Pilot Error".



MITCHELL

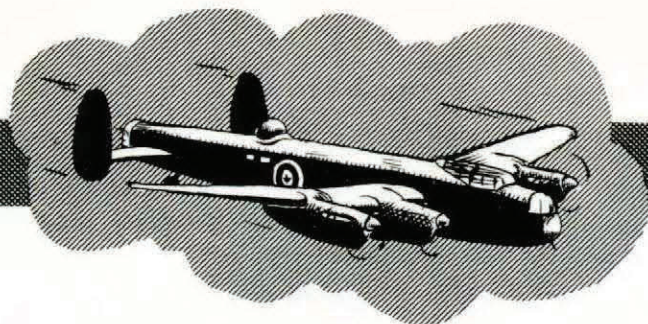
49 -- FATAL ERROR



With a crew of three and five passengers, a Mitchell pilot filed an IFR flight plan. Enroute at night he revised his flight plan and gave his new destination as a closer airfield than his former destination. The pilot reported over his revised destination and received clearance for a standard range approach. On his first attempt at landing the pilot made an overshoot and was cleared for another SRA with the alternative of remaining visual

if he wished. The aircraft was next seen heading across the field on what was assumed to be a runway procedure. The Mitchell crashed a few minutes later about two miles from the aerodrome while apparently turning to the left onto the final approach leg. The eight occupants were killed and the aircraft almost completely destroyed.

The subsequent investigations proved there was no indication of fire or structural failure prior to the crash. Although this accident is still under consideration the cause has tentatively been assessed as "Pilot Error". The crewman made an incorrect fuel entry in the L.14, showing the aircraft as having 120 gallons more than it actually carried. The port tanks contained 49 gallons less than the starboard tanks. The pilot grossly under-estimated his fuel consumption and was therefore compelled to revise his flight plan and land at the nearest aerodrome for the purpose of refuelling. It is believed the pilot lost control of his aircraft for one, or a combination of the following reasons: (a) failure of the port engine through fuel starvation; (b) the pilot encountered cloud at 400 feet while turning to port and while attempting to remain below the cloud he allowed the port wing to strike trees.



LANCASTER

50 -- FATAL ERROR

The Lancaster with a crew of seven was returning to base after a seven hour search mission. The captain flew IFR to the search area. His position reports during the return journey indicated he was flying VFR. The weather forecast for the pilot's base at the time of his return was given as a ceiling of 700 - 800 feet with the cloud base touching the tops of the hills. This weather data was proved accurate by witnesses. The aircraft was observed near base flying very low in and out of the base of the cloud. The Lancaster crashed and burned in a wooded area at a height of approximately 700 feet. Six of the crew were killed and the remaining crew member was seriously injured. It would appear from the investigation that the captain was attempting to reach base while remaining VFR and thus avoid the necessity of filing an IFR flight plan enroute and the subsequent radio range let down at base. The cause of this accident has been assessed as "Pilot Error", because the captain of the aircraft violated CAP 100 para 542 and attempted to maintain VFR flight during IFR conditions.



51 -- FATAL NAVIGATION ERROR

The Lancaster was on a night training flight. The crew consisted of captain and co-pilot, two navigators, three radio officers and three crewmen. They were briefed to fly VFR at a height of 1500 - 2000 feet on a coast crawl proceeding south along a coastline. For

reasons unknown the captain disobeyed his orders and climbed to 4000 feet. Again, for unknown reasons the navigator permitted the aircraft to drift some 40 miles off track to the port. The Lancaster drifted over mountainous territory with the pilot flying in cloud. The aircraft flew into a 4100 foot mountain while flying at an estimated speed of 175 knots. The ten occupants were instantly killed and the Lancaster disintegrated. This accident is still under investigation but a provisional assessment resulting from available evidence as to the cause of the crash indicates both pilot and navigational error. The pilot disobeyed his briefing orders in not remaining VFR and in climbing beyond the prescribed height. The first navigator appears to have been lax in his duties in permitting the aircraft to drift so far off track. Possibly all navigational aids were not used because the crew apparently did not realize they were over land.

ACCIDENTS ARE DANGEROUS.
CAN YOU IMAGINE ANYTHING AS MONOTONOUS AS PLAYING A HARP FOREVER?

PHYSICAL FATIGUE

Many aircraft accidents occur in which aircrew fatigue plays an indirect or even a direct role. The pilot or members of his crew may not have obtained adequate rest before the flight. The after-effects of alcohol may have reared its ugly head. The board of inquiry investigating a recent RCAF fatal accident could not determine that the pilot had eaten for many hours before his last flight. The effects of fatigue are of course difficult to assess. Lapses of memory, inco-ordination, and dulled reactions are some of the factors which may lead to human error. The results of these factors may be seen in wheels-up landings, taxi accidents, and even stall-spin crashes. The cause of many accidents is assessed as "Pilot Error", but possibly the error was committed by the pilot before he entered the aircraft. To think sharp and fly sharp make sure you have eliminated fatigue before you fly.

GOOD SHOW

Our congratulations are extended to

33425 F/O H.C. Miller

who safely landed his Dakota despite structural failure over mountainous terrain under IFR conditions.

On the 27 Jun 53, F/O Miller was authorized to fly IFR from Vancouver to Kimberley. His Dakota was fully loaded with nineteen passengers on board. Enroute, over the mountains, the pilot heard a muffled explosion in the vicinity of the starboard engine. The starboard manifold pressure dropped to 20 inches and the fuel pressure indicators on both engines dropped to zero. Emergency power was applied and the booster pumps put on both engines. The fuel pressure returned and F/O Miller began to climb for altitude in the event of engine failure. His instruments began to fluctuate unreliably. The hydraulic pressure dropped rapidly and hydraulic fluid fumes along with gasoline fumes were filling the aircraft. F/O Miller ordered no smoking and all excess electrical equipment turned off. The flight became visual at 14,000 feet between the Crescent Valley radio range station and Nelson, B.C. The pilot cancelled IFR and proceeded to make a visual let down through broken cloud to the Castlegar airstrip. The undercarriage was lowered by the emergency method and a successful landing was made on the airstrip despite loss of brakes.

Examination on the ground revealed the Rebecca transmitting antennae had broken at its base and had fallen into the starboard propeller. The propeller threw the antennae into the fuselage in the area of the fuselage tunnel. The steel antennae rod broke the fuel pressure lines, hydraulic lines, vacuum lines and electrical cables contained in the tunnel. All the hydraulic fluid had escaped and approximately 160 gallons of fuel had vented into the atmosphere. During the descent the gasoline fumes became so severe the crew and passengers were in danger of asphyxiation.

F/O Miller is to be commended for his display of ability and good airmanship. His skill in overcoming a series of dangerous factors is certainly worthy of praise.

We also congratulate

32527 F/O R.A. Coneen

who made a successful single engine
let down and landing in a Dakota des-
pite adverse weather conditions.

On the afternoon of 15 May 53, F/O Coneen was flying a Dakota IFR from Greenwood, N.S., to Chatham, N.B. He was cleared to fly at 4,000 feet along Amber 3 - Amber 8 to Moncton, N.B., and direct to Chatham, N.B. Approximately five minutes south of Moncton at 4,000 feet the port engine suddenly lost power. Excessive vibration, back firing, and smoke from around the gills made immediate feathering necessary. (The cause of the engine failure was due to the improper fit by maintenance personnel, of the number two cylinder push rod into the socket of the tappet). F/O Coneen contacted Moncton ATC and requested an emergency single engine letdown on Moncton. He did not become visual until the final approach as the ceiling at Moncton was only 600 feet. F/O Coneen is commended for his ability and airmanship in successfully completing a single engine let down and landing with a ceiling of only 600 feet.

Congratulations to

85325 F/C F. Carson

who made a wheels-up forced landing
in a Harvard over rough topography
with minimum damage to the aircraft.

On 5 May 53, F/C Carson was practising aerobatics over unfamiliar terrain some distance from his home station. During the exercise smoke and oil started to pour out of the engine cowlings. F/C Carson made a "Fire in the Air" check but he left the fuel and switches "on" in the event he could use power to reach a field. Oil completely covered his windshield. F/C Carson "S" turned into a field. As he neared the ground he noticed the ground ahead was rising as though he were approaching a hill. His forward visibility was nil because of the oil on the windscreen and the smoke. F/C Carson lowered full flap and cut in his engine with a little power. He cleared the hill with this extra lift. He landed wheels up in an adjacent field. The Harvard was only slightly damaged. Technical examination determined a heavy oil leak through the propeller seals. F/C Carson displayed excellent airmanship, when, with only 30 hours solo flying, he executed a very successful forced landing on irregular topography, under adverse conditions.

DFS LIBRARY

LIBRARY COPY - *this*

pub must be returned.

