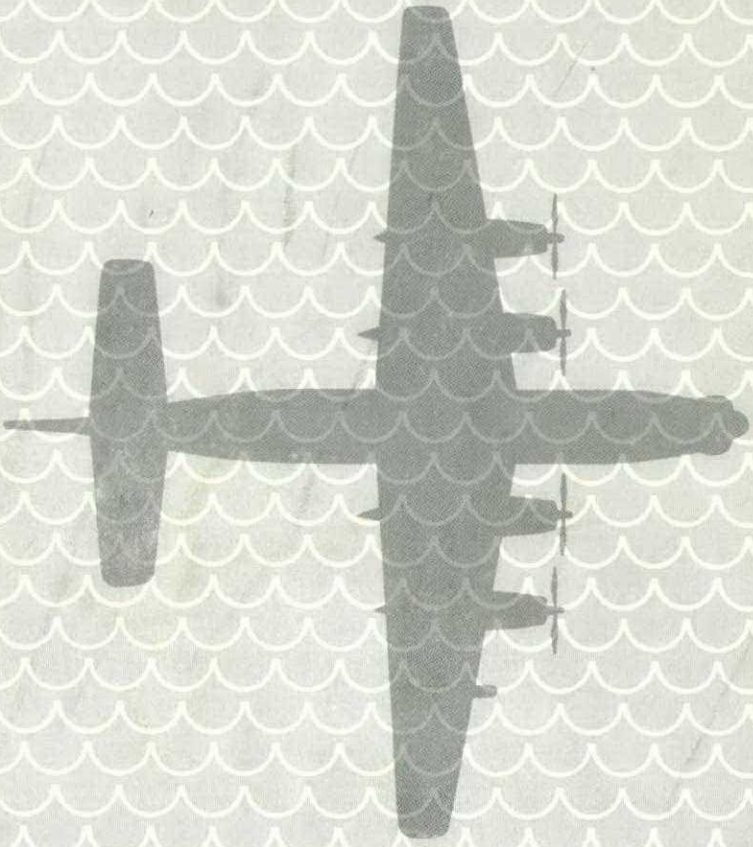
FLIGHT COMMENT

RCAF



FLIGHT SAFETY IN MAG

SEPTEMBER • OCTOBER • 1963

FLIGHT COMMENT

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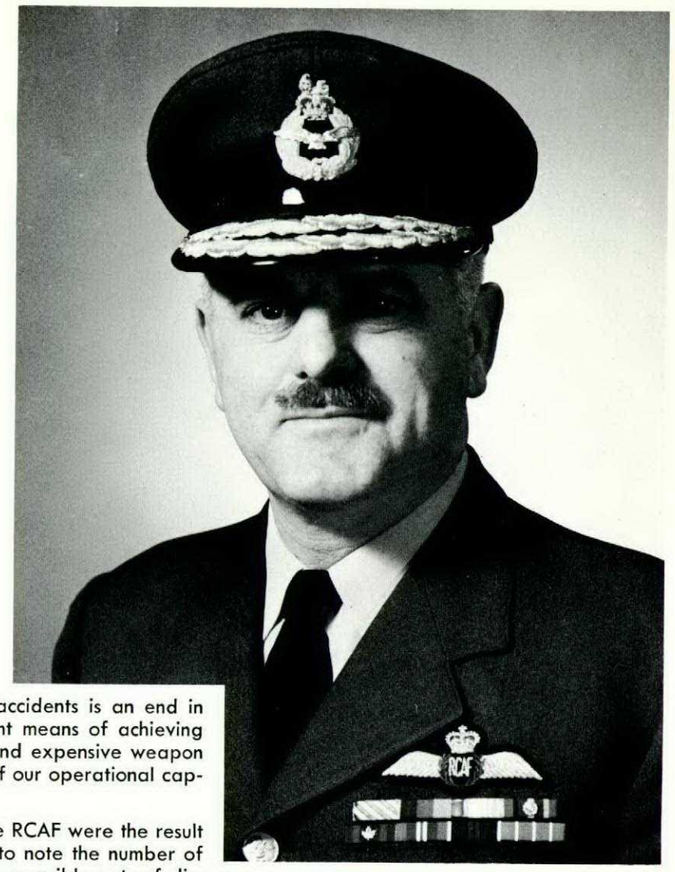


A/C FS Carpenter

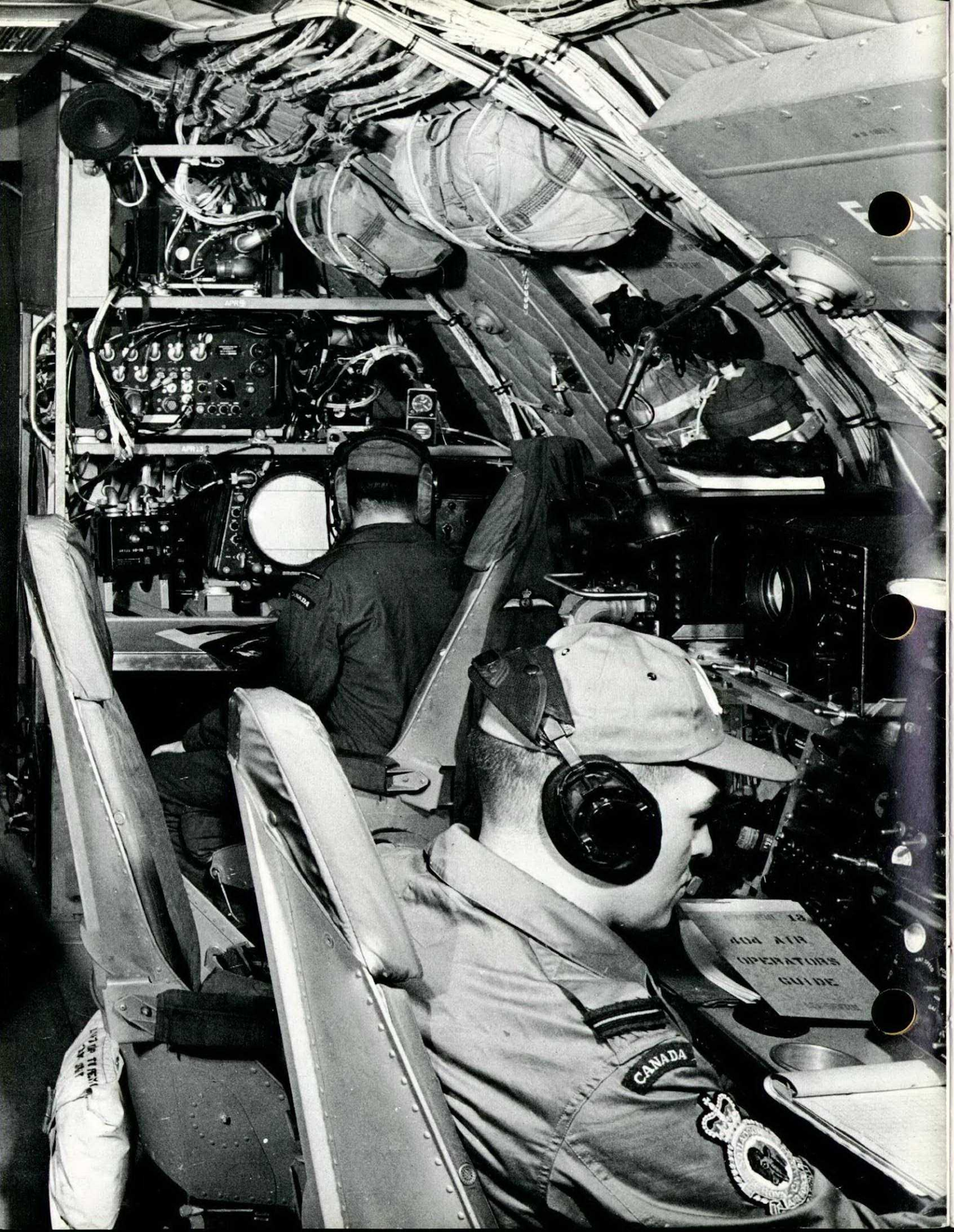
Air Officer Commanding
Maritime Air Command

No one would argue that the prevention of accidents is an end in itself. It is, however, one of the most important means of achieving our aim. In this age of increasingly complex and expensive weapon systems it is vital that we avoid the reduction of our operational capability caused by accidents.

Last year, sixty-nine per cent of accidents in the RCAF were the result of human error and it is especially disturbing to note the number of fatalities and destroyed aircraft caused by irresponsible acts of disobedience of orders. It is clear that we must constantly re-examine our effectiveness in the areas of supervision and discipline and that we must continue to emphasize these basic elements of successful military management.

So far the record has been good in Maritime operations but we can only be satisfied when our full potential is utilized. We in Maritime Air Command are in accord with the principle that a well trained crew with competent knowledge of equipment and what it will do for them is a positive approach to safety. Expert knowledge will give them the confidence and attitude to fully exploit the job ahead. If any member of the team, either aircrew or groundcrew, should fail, the whole project fails.

Operations and accident prevention go hand in hand. Our safety program teaches sound operating practises and thus assists in achieving the goal of maximum operational capability from the resources available. Thus, the prevention of accidents through a vigorous Flight Safety Program enables us to make the most effective use of our resources by helping to eliminate the unnecessary loss of our operational capability. For this reason our Flight Safety Program warrants the strongest support from all of us in Maritime Air Command.



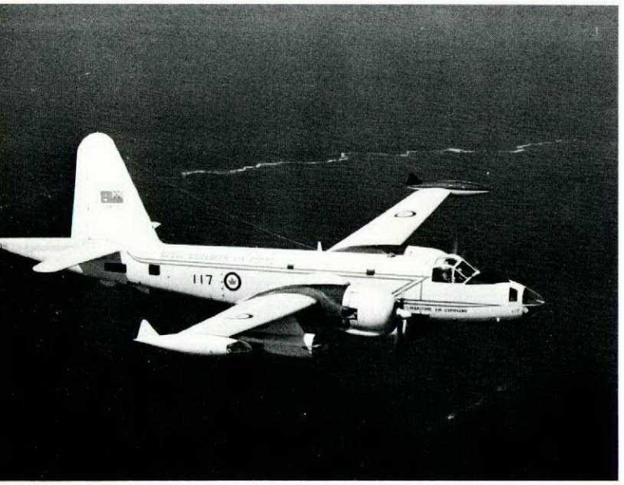
FLIGHT SAFETY IN MAC

by F/L GA Saull SOFS, MAC

Imagine yourself at the controls of a 74 ton aircraft in a 45 degree turn at 300 feet somewhere over the North Atlantic. The weather is grim as usual, turbulence jars you. Through a blinding rain you peer into the inky darkness to watch the red pin point glow from flame floats which mark your target position. For several hours you will fly around concentrating on your pattern; this is part of the operation in the Argus in the systematic search for subs in the mysterious ocean depths. It is easy to become disorientated and the sweep of the sea beneath you will appear pretty foreboding.

Combine this task with hours of grueling day and night low altitude flying in any weather and you get the picture of aircrew in anti-submarine warfare patrol which is part of Maritime Command operations. This is not for me, you say, especially if you have been flying jets for the last couple of years. This is true, it will be quite different. The ASW aircrew have not the excitement of fast flying nor spectacular exploits, but cope with hours of wearisome flying, listening and waiting. Hazardous? It can be if aircrew have not maintained their proficiency at a high level.

The Operational Training and Aircraft Conversion Unit at Summerside have a challenging job to mold aircrew into competent professional sub hunters. Their task is to operationally orientate experienced pilots to safe ASW mission accomplishment. Tactical procedures, best altitudes to fly for maximum radar effectiveness, and advantageous sonobuoy patterns, will be new to pilots training for anti submarine patrol. They will face problems of long range and endurance; aircraft are often on patrol 14 hours at low speed and at low search altitudes. Crews will have to spend many hours of study before they can hope to master the tons of sophisticated electronic equipment of the Argus.



Submarines operate in all weather conditions so must sub hunters. In most other commands aircrew can alter their flight plan to avoid "weather", not so in Maritime Command. Most operational flying must be done between 100 and 2000 feet right in whatever weather happens to be in the area. It has been justly said that the North Atlantic has some of th dirtiest weather in the world. It often include icing, turbulence, excessive static electricity and even the occasional waterspout. There is seldom a chance to fly through and leave it behind. Usually an ASW aircraft is committed to a specified area and must remain there, regardless. Aircrew are conscious of this safety hazard, and by anticipating, planning and training to meet the elements, they can cope safely with whatever is encountered. So far, although unpleasant, the dirty weather has not caused an accident.

Maritime Air Command integrated with NATO Atlantic Command has the responsibility for an enormous area of critical ocean between Europe and North America. The ASW patrol has the assignment of sweeping this vast area in search of the elusive sub target. During the 14 hours a crew are on operations they may search 60,000 square miles. To alleviate fatigue from these long hours on duty, a crew of 15 is carried in order to rotate positions. There are three pilots, allowing, each one to work on a cycle of four hours in the cockpit, two as co-pilot and two as pilot, and then two hours for rest and food. The co-pilot, as well as the pilot in the cockpit, must be keenly alert to monitor the flying closely, as a double check. The Neptune on the West Coast has only two pilots but their length of patrol is short and accommodation is limited. Although much has been done to minimize fatigue during the lengthy patrol there are still tiring problems to cope with. A critical time is the return to base phase when a weary crew are faced with let down and approach in marginal weather. However, the proficiency and understanding of the control tower and GCA personnel lessen this safety hazard considerably.

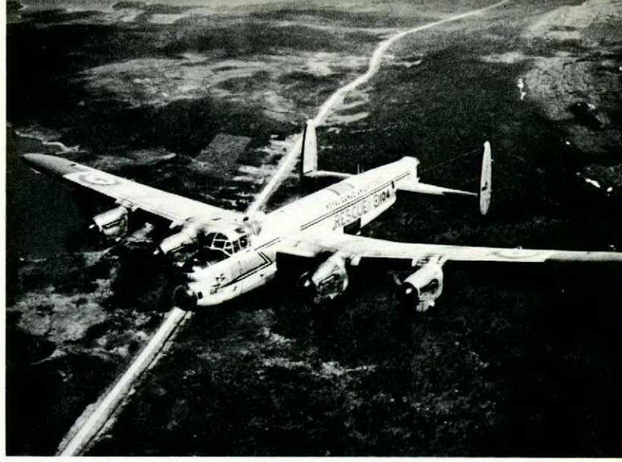
The efforts of many skilled men are required to get the maximum benefits from the Maritime combat resources. It requires technical a well as operational skill and much experienc is demanded to understand the complex Argus, and to keep it serviceable. Accidents caused through materiel failure have in several cases been traced to faulty design which although a hazard, were fortunately discovered by technicians before causing major accidents. The Maritime Proving and Evaluation Unit have made a significant contribution to our low accident rate by continually evaluating new equipment and correcting deficiencies. The maintenance men, likewise are part of a crew that help keep the ASW patrol at near maximum operational capability. A good safety record in he past is a stimulus to continue our efforts.

Flight safety and pilot proficiency are closely linked, but due to operational commitments in Maritime Command, flying hours are at a premium. Because of the length of patrols, the ratio of takeoffs, landings and approaches, to total flying time, is very low. For safety's sake hours allotted for pilot proficiency should not be reduced. This is one of our most valuable requirements.

The ocean sweeping ASW aircraft are relatively free from the congestion and rigid control of the civil airways. Nevertheless, there are control problems. With no pin point or radio aids in the areas of operation, the navigators must be very accurate at computing and maintaining their required tracks. Loran has limitations at low altitudes and in bad weather. Radar cannot be depended on to provide separation from other aircraft because during operations it is used in pre-determined cycles rather than continuously. The possibility of collision is avoided by separating the tracks by a wide margin or by assigning different altitudes to aircraft relieving one another, or forced to transit through the other's area. Liaison is necessary with all the other forces using the area and if the number of patrols are significantly increased, the present control may become inadequate. For this reason improved methods are constantly under study.

Maritime Air Command has also two Rescue Units and a Communications Flight. 107 "R" Unit operates Lancasters out of Torbay where wind and weather are also wicked. In spite of some adverse conditions the faithful "Lancs" can still do a good job. 103 Search and Rescue Unit at Greenwood carried out 40 searches and 125 airevacs last year without an accident. Similarly the Communications Flight at Shearwater flew nearly 5000 hours without an accident.

Maritime Air Command has flight hazards peculiar to its operations. We are pleased with our success in coping with them but we appreciate that we are up against a battle never ending. Our ultimate aim is to eliminate "preventable accidents" entirely, and thereby strengthen the Command's operational effectiveness.



CPL. TG O'DOWD

Corporal TG O'Dowd of 1 Wing Marville, was conducting a primary inspection on an engine installed in an F-86. While rotating the turbine assembly he detected a faint rattling noise which caused him to suspect the condition of the engine. It was removed from the aircraft and further investigation revealed a 7/16" nut trapped in the area between the 1st and 2nd stages of the turbine.

Corporal O'Dowd's vigilance and conscientiousness has possibly saved the RCAF an aircraft and the life of a pilot and is most deserving of a "GOOD SHOW" from Flight Comment.

LAC JW THORBURN

LAC JW Thorburn of 6RD Trenton was detailed to carry out a BFI on a transient C45. During the inspection, the airman discovered a small panel trapped between the trailing edge of the wing and leading edge of the flap. As no panels were missing on the aircraft, it was presumed to have been lost at some previous time.

He continued his inspection and noticed that two rivets on the underpart of the fuselage and adjacent to the tail wheel were extended approximately 1/8 of an inch. He carefully inspected and discovered a fracture in number 13 former and placed the aircraft unserviceable.

Further investigation of this area showed that former 13 was completely broken a buckled in two corners and cracked in a thi corner. One part of the "X" bar was broken near the weld and another part at the connecting point of "X" bar and former 13.

LAC Thorburn deserves a "GOOD SHOW" for his conscientious and thorough inspection which possibly prevented a serious accident.

Double-Cross Check

by F/L D Broadbent
Stn Comox

Looking down from thirty-one thousand feet the pilot of the T-33 admired the scene beneath him. The snow covered mountain peaks sparkled in the Spring sunshine as they jutted through the even brightness of the surrounding deck of cloud. A pretty good forecast he thought —upper winds seem "on the money" too. He reached Princeton a minute early.

A slight frown of concentration crossed his brow as he revised his estimate for Comox. Vancouver ATC acknowledged his PX and soon released him to Comox Terminal as there was little traffic on this quiet Sunday afternoon. He was offered a radar approach and gladly accepted—should get home for supper with the ids after all, he reflected.

Radar came through loud and clear. The confident voice checked the T-Bird's heading, gave its position as twenty-five miles north-east of Comox, and cleared the pilot to descend to six thousand feet.

The pilot sighed - ten minutes to ETA and they say I'm only twenty-five miles away - and asked for a check on his position. IP Mode was selected and the given position confirmed. The pilot swore gently and began the descent a trifle humbled and determined to flight plan more accurately next time. He was on the dials before entering cloud and probably never felt a thing as the T-Bird smashed into the mountain-side.

This accident didn't happen. But before you turn the page in disgust, let's say it didn't quite happen. The time and the place are immaterial, but under similar circumstances the T-Bird id start to descend after its position had been confirmed by radar. Then the pilot rechecked his own estimate, was puzzled and confused for radar now had him twenty miles out and he reckoned on another nine minutes. Something or someone was in error. He broke off the radar approach, climbed to the range station, and arrived there on ETA. The rest of the trip was, as they say on D14s, routine.

What was wrong? Radar had made an error. How? An electronic quirk. A misplaced IFF return which responded to all challenges as if it were a true return. All challenges that is except comparison with the skin paint which in this case would have been seen along the same radial about fifty miles further out in range.

Such false radar returns are fortunately rare. Sometimes the IFF return may be misplaced in azimuth; sometimes, as in this case, in range. Even more infrequently false skin paints appear on the scope. It should be stressed that a radar controller must not take lightly his decision to order an aircraft to descend, particularly when the radar position varies considerably with the pilot's estimated position. Chances are that the radar is right and the pilot wrong but maybe this time .... Every available procedure (comparison of skin paint and IFF strobe would be one such procedure) should be used to eliminate any possibility of deception or ambiguity. But you've heard of Murphy's Law.

Generations of aircrew have learned about the errors of a range leg and have seen back-bearing errors on ADF. The present generation has added TACAN 135 cycle azimuth error to the list. We should also be aware of the possibility of error with ground radar - generally so infallible that excessive trust and dependence may develop. We should beware of both trust and humility - in excess.

When complete trust is placed in any one aid when back-up aids are available, discretion has been discarded. The secondary aid may be only FTS type mental DR, but it is a double check on position. A double-cross check if you like.

Humility has its place. Mental DR for most of us is by no means error free. But one can be too self-effacing. Re-checked DR in this cautionary tale prevented an accident. One can be fatally humble.

COLD DISTURBANCE

by F/O MS Joyce
RU Saint John, N.B.

F/O MS Joyce joined the RCAF on the ROTP plan in September 1957 and after training at Portage, Man. and Chatham, N.B. was posted to #4 Wing and is now stationed at Recruiting Unit in Saint John, N.B.

I had completed an airtest on the engine limiter operation of an F86 and was doing a beacon let down followed by a GCA approach. The weather was partially obscured, visibility 0.9 of a mile in haze and smoke—a very common condition at 4 Wing.

I had a slight cold but considered my ears and sinuses were O.K. as I had given them my own personal check out before taking off, holding my nose and blowing, thereby "cracking my ears and feeling air passing into my sinuses." I had also flown a mission earlier the same day without incident.

Just after I had established contact with GCA in a penetration turn at about 12,000 feet, I noticed a slight pressure building up in my left cheekbone, which was followed by a pain in a back upper tooth on the same side. By the time I had reached 7,000 feet in my descent the pain was excruciating and I could no longer see my instruments. I attempted to transmit to GCA but could only manage a groan. I put on full power, closed the speed brakes and pulled back on the stick. By 12,000 feet the pain was bearable again and I could see clearly once more. The GCA operator thought I was blacking out and advised me to check my oxygen equipment. I explained that I was under control again, changed frequency and advised the tower of my emergency.

I tried to assess the situation but could not readily understand how the increasing pressure of a descent could have such an effect on a tooth. I had heard of aircrew having trouble with poorly filled teeth on a climb but never on a let down. I had about 20 minutes fuel remaining so I decided to make a visual descent and landing. I requested medical advice but this was not immediately available. I commenced letting down and as the pain increased

I levelled off at successively lower altitudes. At each level I would have to re-adjust to the pain intensities and force myself to see clearly. The pressure seemed to relieve itself slightly as I was able to maintain visual contact with the runway and make a successful landing, but with extreme pain in my tooth and cheek.

I had over 1000 jet hours at the time of this accident and felt that I understood the symptoms of sinus trouble, but this one really had me perplexed. It was the fact that the pain was in a tooth, and actually felt that the tooth had split in two or three pieces with somebody jamming a screwdriver in the opening. If I had known for sure it was a blocked sinus I would have spent more time trying to clear it, using the recognized method of holding the nose and blowing (I have since discovered that the roots of the molars extend into the cheek sinuses hence the pain in the tooth).

I was 'grounded' for two weeks, due to the left cheekbone sinus being full of blood. This cleared up and I have had no after effects. I therefore feel that I got off lightly. However, if weather conditions had prevented a visual approach, I don't think I would have seen the instruments clearly enough to carry out an instrument procedure. I was prepared, and advised by the COpsO, on my visual descent to turn toward an unpopulated area and bail out if I could not see clearly in the circuit.

Editor's Note:

'Assessing the risk of ear or sinus baratrauma in cases of mild colds is not simple for the pilot or the MO. The MO must depend, in part, on the pilot's experience and understanding of the risk. Nor is the 'nose-blowing' test a very reliable indication of ear or sinus ventilation expecially the latter. In cases of mild nasal congestion extra care in clearing the ears and sinuses is advisable using gentle nose blowing (Valsalva manoeuvre) promptly if necessary. Pain from ear or sinus baratrauma may be referred to adjacent parts such as jaw, teeth, eye or neck. The increase of pain with pressure change (especially on descent) and the lessening of the pain with a reversal of the pressure change are more significant diagnostic clues than the precise pain location.'

REGULATION ROUNDUP

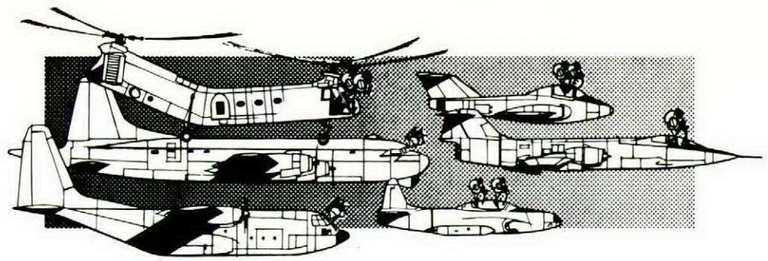
In this column we intend to acquaint readers with current changes in flying orders and air regulations along with some background information on the reasons for these changes.

CAP 100 "The Pilot's Bible" is soon to be retired. Replacing it will be a brand new pub to be known as CFP 100 - Flying Orders for the Canadian Armed Forces, the first of a series of Tri-service publications.

Each regulation was reviewed and, if necessary, rewritten to give it Tri-service application. Only in rare instances was it necessary to modify existing regulations extensibly, or make them apply to one Service only. An example of this was the order restricting low flying in prescribed low flying areas to 50 feet above all obstacles. Canadian Army pilots engaged in operational or practice tactical flying are permitted to conduct such flights "clear of obstacles and terrain"!!!

Flying orders, like aircraft, seem to be no sooner off the drafting board than they are on their way to obsolescence or extensive modification. CFP 100 has been no exception. The ink is still wet on the presses and already an impressive list of revisions has been compiled.

Readers are encouraged to comment on these new "Flying Orders" or other flying regulations. Any correspondence should be addressed to the Editor-in-Chief Flight Comment. Every attempt will be made to answer these letters either personally or via this column in the "Dear Abby" fashion.



HEADS-UP

LAC JL HEBERT

"Heads-Up" to LAC JL Hebert of Station Gimli for alertness on the job which in all probability averted a serious accident.

LAC Hebert was standing by as an Expeditor was started up in preparation for a flight. He noticed a leak from the port engine and signalled the captain who then shut down the aircraft.

Subsequent investigation revealed a failed fuel pump which could easily have resulted in an engine failure or a fire after takeoff.

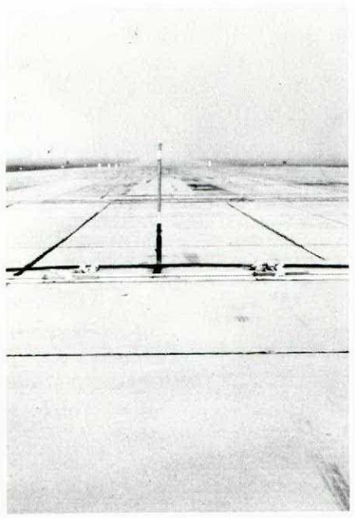
LAC Hebert has shown professional attitude to his work and Flight Comment is pleased to rank him in the "Heads-Up" category.

F/O RN PEVERIL

F/O RN Peveril, 2 Wing, was captain of a T33 on a routine instrument training flight. During GCA, the pilot in the back seat, who was flying on instruments, checked the brakes OK as part of his normal pre-landing cockpit check. At GCA minimum, the captain took control and prior to touchdown again checked the brakes as serviceable. Touchdown was at the normal point, on the centre line.

On the first application of brakes, the left brake pedal went completely forward, and it was immediately apparent that there was no left brake whatsoever. The aircraft was flamed out and the captain steered down the centre line with rudder control until it became ineffective at approximately 40 knots. The aircraft continued on the runway until approximately 15 knots, which was slower than the minimum barrier engagement speed. He then applied right brake to bring the aircraft to a stop, without damage, on the grass to the right of the runway.

Investigation later revealed that the hydraulic reservoir was empty and that hydraulic fluid was leaking from the left-hand brake assembly where a bleed screw was broken out. The unit had been damaged when the aircraft struck an aluminum support stanchion on the runway barrier just prior to touchdown. The accident was assessed as 'Ground' because a design failure had allowed the stanchion to erect when it shouldn't have. It was not reasonable to expect the pilot to notice it while on his approach. Only one other unit in 1 Air Division is equipped with this kind of barrier and they have been advised of the potential hazard. Replacement of all arrestor gear of this type should be completed this fall.



For the cool, competent, and professional manner in which F/O Peveril completed the landing with no left brake, and avoided damaging the aircraft, Flight Comment is pleased to award him a "Heads-Up" commendation.

CPL. N MICHAUD

"Heads-Up" to Cpl N Michaud of North Bay for the conscientious attitude to his work which eliminated a very hazardous condition.

Cpl Michaud was performing a between flight inspection on a T33 when he discovered an oxygen leak at the quick disconnect fitting where the seat adjoins the floor of the aircraft. On further examination he found the buckle from the pilot's seat harness jammed under the armrest. This jamming caused the armrest bracket to lift which in turn caused the oxygen connection to separate.

Cpl Michaud raised an Unsatisfactory Condition Report on this subject and suggested the fitting of a bracket to prevent the buckle from jamming under the armrest.

Cpl Michaud's diligent attention to duty and prompt corrective action has earned him a "Heads-Up" in Flight Comment.

F/O MB LAPOINTE

F/O MB Lapointe, a pilot instructor was giving night instruction in circuits and landings in a Harvard. He had completed an hour and fifteen minutes and had returned to base to change students. No abnormalities were noticed on this trip.

The second student, while giving a taxiing demonstration, commented that the rudder response seemed sloppy. The instructor took control but could not notice any malfunction. The student took off and carried out a successful touch and go landing. The instructor then took control with the intention of playing the part of an FTS student. A normal circuit and landing were carried out and on the after-landing roll the aircraft made a decided swing to starboard. The pilot immediately applied full left rudder but it had no effect. Brake and overshoot power succeeded in straightening out the aircraft while still on the runway and a successful overshoot was carried out.

At this time F/O Lapointe was not sure if the student had contributed to the initial swing or if there was something wrong with the aircraft. The student was briefed not to touch the controls on the next landing. On the after-landing roll, the aircraft went into a violent swing to starboard and could not be controlled by immediate application of full left rudder and left brake. He applied power and finally brought the aircraft under control about 60 degrees off runway heading. The shear pin in the tail wheel knuckle assembly had been sheared allowing the tail wheel to castor freely in the locked position.

F/O Lapointe displayed a high standard of professional ability in maintaining sufficient control of the aircraft at night to prevent the incident from becoming an accident. Flight Comment is pleased to include this pilot in the "Heads-UP" category.

SGT. AG LOWRY

Sgt AG Lowry and his crew consisting of Cpl JAT Cousineau and LAC JH McKinnon were performing a Post Inspection run following the installation of Number 3 engine in an Argus. Some thirty minutes after start-up LAC McKinnon who was acting as ground observer heard a 'dull thud' and reported it to Sgt Lowry. Immediately the fire indicators showed a fire in zones 2 and 3 of Number 3 engine. Without hesitation the crew performed the correct drill, and extinguished the fire.

The fire was caused by a leaking Fuel Master Control Unit and it can be appreciated that a moment's inaction or indecision could conceivably have caused the loss of an entire aircraft. The quick and proper reaction by this run-up crew is very commendable and Flight Comment is pleased to cite this example of Heads-Up professionalism.

We are changing the name of the column "Heads-Up Flying" to simply "Heads-Up" to recognize professional maintenance by groundcrew. There are many cases in which their prompt and correct action in handling emergencies, have saved thousands of dollars for the Air Force. There are also many examples in which groundcrew through diligent performance of their duties have averted serious accidents by noticing a malfunction which might otherwise have gone undetected.

A very high standard of fitness must be maintained by aircrew engaged in flying duties. One of the prices they must pay for the privilege of being accepted as aircrew is to treat their health with the respect that such a role demands. Physical exercise, good eating habits, recreation and relaxation, including temperate drinking, contribute to meeting the standards demanded. The latter item, however is one which sometimes worries supervisors when they read from Boards of Inquiry such excerpts as:

"It seems certain that the pilot was not primarily affected by the aftermath of too much drinking but it is not so certain that the culmination of late nights, coupled with a moderate amount of beer drinking, could not have affected his usual high standard of mental alertness."

Also, "It is known that the pilot had consumed some champagne during the day, particularly in the hour or so before takeoff. Although the Board does not wish to over-emphasize this point, and is quite convinced that he had not drunk an excessive amount by a normal standard, it is of the opinion that he may well have had sufficient to make him less cautious than usual in the air. It might also have been enough to slow down his reaction time and cause some confusion at a time of emergency."

"Prior to takeoff the pilot had consumed not less than six half-pints of lager-type beer and from the evidence there can be no doubt that his powers of co-ordination and mental reactions had thereby been affected. There can be little doubt that he was quite unfit to undertake the flight."

"A contributory cause of the accident was the physical and mental condition of the pilot which in the opinion of the Board, must have been impaired as a result of activities during the preceding 24 hours."

While the above quotations do not indicate inordinate drinking, the facts speak for themselves in respect to the extra discipline aircrew must subject themselves, to meet the demands of their rigorous profession. Perhaps the following article by Group Captain Brown from the Institute of Aviation Medicine will shed some light on how alcohol generally affects mental and physical health.

HH63

C_2H_5OH

The DRINKING of alcoholic beverages is a genial custom, the origins of which are buried in antiquity. It is naturally open to conjecture whether this is due simply to remoteness in time, or whether it may be related more specifically to the effects of alcohol on the unaccustomed heads of the inventors. It is reasonable to assume that these pre-historic vintners produced their initial brews by accident rather than by design, and also that the results of their labours remained somewhat crude in character for a long time afterwards.

Happily for most people, the idea caught on, and over the centuries a steady improvement has been effected in manufacturing techniques and in the resulting products. We have long passed the stage at which certain wiseacres undoubtedly remarked: "Alcohol has come to stay."

The consumption of alcoholic drinks has become a necessary and perfectly respectable part of the social scene in all civilized communities, but although fine art, music, and literature have, on occasion, been favourably influenced by the effects of alcohol, it would obviously be foolish to consider intoxicating drinks as having been a major factor in the evolution of the world's more advanced civilizations.

One of the more interesting characteristics of alcoholic drink is that the mere contemplation of such beverages inspires some writers and speakers to emotional outbursts of exaggerated praise, and others to equally intemperate condemnation. The truth must lie somewhere between, but, surprisingly enough, one seldom finds a balanced and objective assessment of the situation.

One possible explanation of this is that moderate drinkers contentedly consume their alcohol quite un-selfconsciously and seldom

have reason to give serious thought to something which, to them, is neither an inspiration nor a problem. While considering myself to be within the meaning of the term "moderate drinker", I have nevertheless felt for a long time that there is some loose thinking on the subject among my fellow moderate drinkers, and that some of this loose thinking has almost achieved the status of folklore! It is for this reason that I have written the following brief, but essentially factual, account of some of the effects of alcoholic drinks on the human body. There are, of course, many aspects of the subject that I have not mentioned.

Since human beings continue to spend vast sums of money on alcoholic refreshment, it is reasonable to suppose that they are actuated in this by well defined motives. The following may be regarded as the principal reasons for drinking, but it should be realized that in any one drinker, it is more than likely that several of these factors will be working simultaneously: The aesthetic enjoyment of the flavour and bouquet of certain types of drink; to stimulate a sense of wellbeing; as the friendly accompaniment of social occasions, both formal and informal; as an aperitif; as a "night cap"; merely to fall in line with one's friends; to give the impression of being "a bit of a lad"; to achieve drunkenness, either as a means of forgetting worries, or because the complete removal of inhibitions is amusing to the individual concerned and the compulsive drinking of the true dipsomaniac.

If one neglects compulsive drinking, which is in a category of its own, frequently repeated drinking (whatever its reason) can result in the development of habit. However, it is not of the same nature as that which one associates with drug addiction, and, with normal people, it is not a difficult habit to break. A possible exception to this assertion is in the case of some lonely, elderly people who, for one reason or another, seem only able to find congenial company around bar counters.

The well-known effects of 'drink' result principally from the absorption of ethyl alcohol (C_2H_5OH), but it would at the same time be very misleading to suggest that that is the only factor involved. The chemistry of alcoholic drinks is extraordinarily complicated, and it varies between different types of drink, and even between drinks of the same type, but produced by different manufacturers.

The importance of chemical substances other than ethyl alcohol, may be appreciated by reflecting on the emotional and constitutional differences between people who have spent an evening drinking gin, and those who have been fortunate enough to spend the same period drinking champagne. Again, many people have observed that, whereas an evening spent drinking one brand of whisky has been without retribution on the following morning, a similar amount of another whisky consumed on a different occasion has given rise to unpleasant effects next day. The following are examples of the sort of thing we find in our drinks, besides ethyl alcohol: higher alcohols (C_3H_7OH, C_4H_9OH, etc.), esters, volatile oils, organic acids, and tannins. Some of these compounds can produce quite specific effects of their own.

A further point is that, in the normal oxidation of ethyl alcohol within the human body, acetic acid and certain aldehydes are formed as intermediate products in the ultimate conversion of alcohol to water and carbon dioxide. Where large amounts of alcohol have been consumed, these intermediate substances can be present in the body in amounts sufficient to cause unpleasant toxic effects.

All the available literature concerning experimental work on this subject, is, unfortunately, restricted to assessing the effects on the body of ethyl alcohol alone, and there would appear to be scope for further investigation into the actions of some of the other substances involved. Of necessity, therefore, the following discourse largely concerns the effects of ingesting ethyl alcohol, and for convenience, these effects are considered under the headings: Acute Effects, 'Hangover' Effects and Chronic Effects. Finally, the implications of alcohol consumption in relation to aircrew duties are also discussed. It is convenient to consider that the principal factors concerned in the production of the acute effects are absorption, oxidation within the body, blood alcohol levels and the over-all effect on human performance.

Alcohol is rapidly absorbed from the stomach and the intestines - on the average, 20 per cent passing to the blood stream through the stomach walls, and 80 per cent via the walls of the small intestine. In both cases, alcohol reaches the blood in its original chemical form - that is, it is not subjected to any digestive chemistry, while in the stomach or intestines.

Generally speaking, the absorption of alcohol is complete within about 2-1/2 hours of taking the last drink, but it must be understood that the simultaneous intake of food or water can make a considerable difference to the rate of absorption.

The following table shows the amounts of some drinks equal to nine fluid ounces of whisky:

Brandy	50 per cent alcohol 7 measures (1 oz each)
Gin	40 per cent alcohol 9 measures (1 oz each)
Port or Sherry	15 per cent alcohol 12 Glasses (2 oz each)
Wine	10 per cent alcohol 9 Glasses (4 oz each)
Beer	4 per cent alcohol 4-1/2 pints

Thus, alcohol well diluted with water is absorbed more slowly than are stronger drinks, and alcohol taken with food is, similarly, absorbed more slowly than alcohol taken on an empty stomach. Experiment has, however, shown that a ten per cent solution of alcohol is probably the strength at which the most rapid absorption takes place.

Depending on the amount of alcohol swallowed, 90-99 per cent of it is oxidized in the body, the remainder being excreted unaltered in the urine, the breath and the sweat. However, when small quantities are drunk, the alcohol is almost all burnt up in the tissues. Since absorption is usually complete within 2 - 2-1/2 hours of the last drink, this marks the point in time when - under average conditions - the percentage of alcohol in the blood reaches its maximum value. From then on, the body disposes of it by oxidation, at a rate of roughly 30 ccs of pure alcohol or one fluid ounce of whisky per hour, so it follows that three double whiskies, six fluid ounces, could take 2-1/2 + 6 = 8-1/2 hours for elimination from the body. Similarly, two normal whiskies two fluid ounces, might not finally disappear until 2-1/2 + 2 = 4-1/2 hours following the emptying of the last glass. In both cases an ultimate blood alcohol of virtually zero is assumed. It might be argued however, that some slightly higher figure would be tolerable from most practical points of view, and if this were so, it would be reasonable to accept that normal function would return one hour less than those quoted.

The rate at which the human body oxidizes alcohol remains remarkably constant, irrespective of the initial percentage level that is achieved in the blood stream. However, some variation has been noted between different types of alcoholic beverage. There is one authority who even remarks on differences in oxidation rate between two equally potent brands of whisky. In spite of that, it is obvious that the time taken for complete elimination of alcohol from the body, must depend very largely on the maximum concentration which was reached in the blood stream.

The maximum concentration of alcohol achieved in the blood depends on the mass of the subject, the total amount of alcohol drunk, the rate of absorption, and the degree of practice which the subject has in the consumption of alcoholic beverages. In the last-mentioned point, it must be remembered that if we take a total abstainer and an experienced toper, and administer the same amount of alcohol to each, there will be a significant difference in the results.

To quote one example: the drinking of 102 ccs of alcohol by an abstainer raised his blood alcohol to a maximum of nearly 0.14 per cent in two hours, whereas when a heavy drinker of the same weight was given 105 ccs of alcohol, the concentration in his blood reached a maximum value of 0.06 per cent in one and a half hours. In each case the rate of oxidation was approximately the same, and from this it naturally followed that, whereas the habitual drinker was back to a negligible blood alcohol level in about six hours from taking the test drink, the abstainer required a period of about 11-1/2 hours to arrive at the same degree of sobriety. Therefore, both in terms of the level of blood alcohol reached, and of the time to recovery, the habitual drinker was very much better placed than was the abstainer.

In the average case, a peak blood alcohol level of 0.15 per cent is attained when nine fluid ounces of whisky are administered to a 140 lb. man. This works out at 1.5 ccs of pure alcohol per kilogram of body weight. Taking whisky as containing 40 per cent of pure ethyl alcohol, a similar degree of intoxication could be produced, - theoretically, at any rate - by the amounts of other drinks shown in the table.

In each of the examples it would - again theoretically - take about nine hours for the alcohol to be removed from the body, and - very roughly - about 4-1/2 hours if the doses were halved. That is, assuming a subject is only a moderate drinker.

Certain experiments have shown that relatively small doses of alcohol, 2 ounces of whisky or one pint of beer have no demonstr-

able effect on the performance of non-skilled work. In the case of semi-automatic tasks like writing and reading, such doses of alcohol have actually caused a slight increase in the speed of performance.

By doubling the dose, this favourable effect lasted for only half an hour, and was then followed by a marked depression in efficiency. Some workers have failed to show any deterioration in the performance of discrimination, co-ordination and control test, when their subjects were given the equivalent of 2 ounces of whisky, but this almost certainly means that the tests were not sufficiently sensitive.

There is no doubt that functions such as judgement, memory and attention are adversely affected by very small quantities of alcohol, in spite of a popular but quite mistaken belief that drink can stimulate and sharpen one's mental faculties. The delightful buzz of animated conversation at cocktail parties, and the brilliant shafts of wit which may emanate from normally dull people on those occasions, are more logically explained by the fact that conversational inhibitions are removed. The listeners have also similarly become less critical in their judgement of the spoken word.

It is within the experience of most people that if large amounts of alcoholic drink are consumed, malaise and impaired physical and mental function are experienced, even after the body has been ridden of all its alcohol. The nature and degree of a 'hangover' vary enormously according to the total amount of drink consumed, the rate of consumption, the nature of the drink, whether or not a variety of types of drink have been injudiciously 'mixed', whether or not drinking has been accompanied by the consumption of food, and whether or not there has been a simultaneous excess in the use of tobacco.

For a given set of circumstances there are, of course, variations among different people, and even for any one person on different occasions. In the last mentioned point, the main factors involved are recent practices in drinking and the state of the individual's general health. As can be appreciated, the variables are enormous, and when referring to the term 'hangover' we are not considering one circumscribed bodily defect, but rather a whole catalogue of conditions, any or all of which may be present. As far as the human frame is concerned, each one adversely affects human performance, and taken together they may be regarded as additive. Broadly speaking, these separate conditions are:

Sustained high blood alcohol as the result of a very considerable intake of liquor. This gives rise to what is frequently referred to as a 'carry-over' - the feeling of still being under the influence of drink.

Dehydration. This means an excessive loss of water from the body, and it accounts for the very active thirst which can follow alcohol over-indulgence.

Gastritis and enteritis due to irritation of the lining of the stomach and intestines. Heavy beer and the reinforced wines are particularly prone to cause gastritis, but much must obviously also depend on the inherent sensitivity of the victim's stomach. Nausea, vomiting, and a disinclination for food are the main symptoms of alcoholic gastritis, while irration of the intestines gives rise to varying degrees of diarrhoea - a symptom must frequently associated with overindulgence in certain brands of beer.

Nasal and pharyngeal catarrh. A sore throat and nasal or sinus catarrh frequently follow alcohol excess, but there is little doubt that a badly ventilated environment and too many cigarettes are potent contributory factors.

Toxaemia. This probably provides the greatest single contribution to the whole condition. Expressed simply, it refers to the general adverse effects on the body of a variety of chemical substances normally contained in alcoholic drinks, of substances formed by the interaction of certain constituents in non-compatible drinks, and of poisonous intermediate by-products resulting from the break down of these substances and the oxidation of ethyl alcohol.

I referred earlier to the existence of poisons other than ethyl alcohol. Headache, depression, and mental and physical lethargy are examples of 'hangover' symptoms which can be explained on this basis. Different drinks contain different chemical substances and we know, for example, that certain beers tend to produce violent headaches whereas the consumption of the same amount of other beers of similar alcoholic content causes relatively mild after effects. In the same way the drinking of pure ethyl alcohol suitably diluted with water is known to produce fewer unpleasant after effects than the drinking of more palatable conventional beverages.

The steady mental and physical deterioration which results from continuous long-term addiction to the bottle is fairly generally known and, naturally, it is rather too rare with practising aircrew to merit any very special consideration here. There should never be any question of aircrew reaching the chronic stage without someone in authority having taken appropriate action at an intermediate stage.

The very existence of the condition is generally accepted as indicating an underlying defect; mental or physical, hereditary or acquired in the sufferer. The diagnosis and treatment of such causal factors is regarded as a primary principle in the treatment of chronic alcoholism. The cause and the effect of chronic alcoholism could each be regarded as sufficient reason for marking a man as unfit for aircrew duties.

It is necessary to draw a sharp distinction between the true chronic alcoholic, and the young man who gets into the habit of taking too much too often, even though the youthful reprobate will assuredly suffer from mental and physical deterioration if he maintains too consistent an interest in the bottle.

The latter is susceptible to reason and the total withdrawal of alcohol will produce no serious effects, whilst in the case of the true chronic an appeal to reason is unlikely to be successful and in addition, during his acute phases, the complete withdrawal of alcohol can cause trouble. One is a disciplinary matter, the other medical.

There is some rather circumstantial evidence which suggests that 'hangovers' may have played a significant part in the occurrence of certain flying accidents, but there has not been a serious indication of acute alcoholic effects as a salient feature in any accident so far reported. That is not to suggest that lunch-time 'sessions' are harmless as a prelude to an afternoon flying programme, but rather that we must keep things in their proper perspective, concentrating on those circumstances which seem to be of major significance in causing aircraft accidents.

I feel that this reasoning applied in the case of 'hangovers' which, in the aviation context, can be regarded as the most important of the alcoholic effects which I have mentioned. Apart from anything else, it has been quite clearly established that a hangover of any sort will increase susceptibility to airsickness, reduce tolerance to g, and impair mental functions generally. In addition, as we very well know, there are some 'hangovers' which still have not completely disappeared even two days after the party.

All the above may seem somewhat long-winded, but I am sure that the background information which I have given is necessary to illustrate the extraordinary complexity of the whole subject. From this it can be appreciated that difficulties lie in the path of anyone attempting to evolve legislation which can effectively be applied and which will not be unduly irksome to aircrew to ensure that alcohol shall not adversely influence flight safety. It would, for example, be easy to produce harsh regulations which might, in turn encourage secret drinking.

In short, it seems that the major hope of success lies in explaining the whole situation to aircrew and placing reliance in their appreciation of the practical importance of abiding by such rules and advice as may be put forward. There are of course, limitations to the effectiveness of any 'Gestapo' observation which can be applied by station commanders and others in authority.

It is certain that the great majority of us will continue to look forward to relaxation over the occasional convivial glass, and that there will be times when we will consume more alcoholic refreshment than we should. It is also equally certain that boys will continue to be boys. However, even accepting these situations as inevitable and quite beyond legislation, I am still sure that we can all do much to ensure that flying and drinking of alcohol are not mixed. Remember, the effects of such a mixture are likely to be far more drastic than those of, say, a mixture of absinthe and Scotch whisky.

Wave-Off

Instrument Landing Systems

Although the Instrument Landing System has been used by RCAF pilots for many years, observation by the staff of the Unit Instrument Check Pilots' course has disclosed that some of our pilots have been blithely performing ILS letdowns with the glidepath inoperative, in such an unsafe manner as to raise the wrath of the most stoical flight safety officer.

With the glide path inoperative, it has been noted that many pilots descend to the altimeter check altitude immediately after completing the procedure turn. To refresh your memory, the altimeter check altitude is that altitude published on an ILS letdown sheet where the glide path intersects the vertical radiation pattern of the outer marker. When the aircraft is on the glide path over the outer marker, the indicated altitude should be approximately the same as the altimeter check altitude if the current altimeter setting is used. The difference between the indicated altitude and the altimeter check altitude can be considerable because of altimeter error and glide path error. The altimeter check altitude is not a magic figure that guarantees obstruction clearance over the entire letdown area; it is simply a check on the aircraft's altimeter.

To recognize the fallacy of descending to the altimeter check altitude when the glide path is inoperative, examine the Lakehead low altitude ILS runway 07 letdown plate. Take careful note that a pilot descending without the aid of the glide path to the altimeter check altitude of 1820 feet would only have a vertical clearance of 155 feet over the 1665 feet obstruction shown on the localizer. This clearance could be considerably reduced if the errors associated with altimeters are considered.

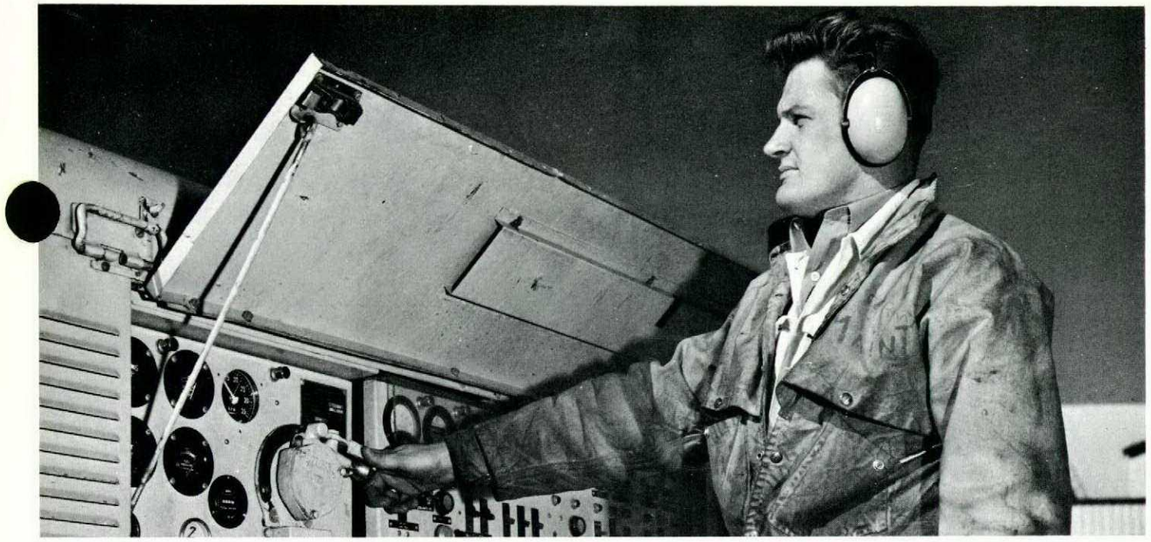
Lakehead is not an isolated example. The ILS approach to runway 05 at Toronto International is another instance where a pilot would endanger his life by descending to the altimeter check altitude prior to reach the outer marker. From these two examples, it can be readily seen that descending to the altimeter check altitude when the glide path is inoperative can be an extremely hazardous procedure.

What is the solution? The most obvious answer is to maintain the procedure turn altitude until over the outer marker inbound and then descend to the "glide path off" minimum. At certain aerodromes this method has the disadvantage of requiring a high rate of descent to achieve the minimum altitude a reasonable distance from the airport. For example, approximately a 1000 feet a minute rate of descent would be necessary at Lakehead if the procedure turn altitude was maintained until over the outer marker inbound.

Another possible solution is to descend to an altitude 500 feet lower than the procedure turn altitude after the procedure turn has been completed at the published altitude and the aircraft is aligned on the localizer. To understand the reasoning behind this suggested procedure, we should be familiar with the "Manual of Criteria for the Development of Standard Instrument Approach Procedures and Holding Area", a joint Department of Transport and Department of National Defence publication. This manual stipulates that the procedure turn altitude must be 1000 feet above the highest obstruction within that portion of the procedure turn area which extends 10 statute miles along the prescribed track from the outer marker with a width of 10 statute miles on the manoeuvring side and 5 statute miles on the non-manoeuvring side. By descending 500 feet after the procedure turn, the pilot is assured of 500 feet obstruction clearance if the procedure turn is completed within 10 miles of the outer marker. This reduction of 500 feet would make possible a more acceptable rate of descent and still guarantee 500 feet clearance above all obstructions from completion of procedure turn to the outer marker. Five hundred feet is the normal obstruction clearance during this portion of a letdown whether it is a range, ADF, VOR, or ILS approach.

Choose one of these solutions, but never blindly descend to the altimeter check altitude without first ensuring that this altitude will provide 500 feet above all obstructions in the area from completion of procedure turn to the outer marker.

by F/L J Simpson
UICP Flight
CFS Gimli



DING-DONG DECIBELS have you any drums...

by S/L J Regan
DFS, AFHQ

.....ear drums that is, and the chances are that you have two very good ones. And because you are a likeable sort of character who goes for nice sounds like sweet music, running streams, the swish of a beer can being opened, and the laughter of your lady love, we'd be happy to invest a few minutes of your time to talk about how you can go on enjoying these treasures.

By the way, a lot of other good people who like listening to the same things you do also don't mind a very different kind of noise: the roar or whine of a powerful engine, for example. The noise of power sort of gets you. Too bad really, that it can bring on deafness. Not all at once, mind you, but gradually. Often so gradually that you might not be aware of it for days, weeks, or even months.

That feminine laughter we agree is good to hear, is nice enough to be counted in decibels, and according to how much fun, and of what kind, you are having together, those decibels may total anywhere from about 20 to 60. This kind of exposure will do you more good than harm, so by all means listen to her go.

"Listen to her go!? It's hardly fair to switch scenes so fast on you, but since you're here you might stay with it for a bit. We are "listening to her go" down on the flight line now, and those 20 to 60 decibels are being completely drowned out. "She" might be a jet or a piston job and she can make enough noise to damage your hearing before you can say permanent impairment. Pity, because you can handle this gal just as well as you handled the first one. In both cases all you need is the proper equipment. For the big gal use whatever is in vogue at your place of work: ear defenders, ear plugs—your boss can put you right. For the little gal, well, you're a skilled operator so you don't need any advice there.

"Would you please repeat the Question?"

Er-uh oh yes, facts. (Never fails, as soon as you get a nice friendly chat going some egghead wants facts. Let's keep him quiet with these).

More accidents happen in noisy places than in quiet ones. Noise makes you tired, so you're

not as sharp as you need to be. Some maintenance accidents have been hooked up with these links—

NOISE FATIGUE

POOR WORKMANSHIP CRASH

Although the sound level of 120 decibels is usually where you start to feel discomfort, even the 90 decibel level can cause loss of hearing if you have to put up with it for long periods of time.

Stand by one, he wants more. For long time exposure, 85 decibels is thought to be the maximum safe level.

Now we'll throw him the door prize.

Aircraft at idle power can ring out 110 - 120 decibels.

NOW HEAR THIS!

ENGINES AT FULL POWER

CAN CLANG OUT

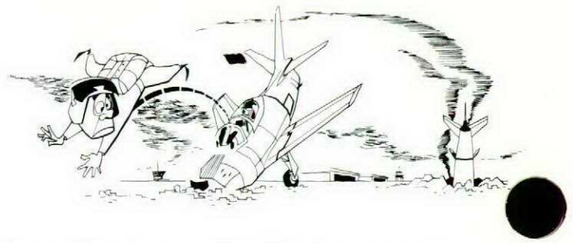
140 DECIBELS, PLUS

You just overshot the maximum safe level by 55 decibels. Do not pass "GO", but do collect $200 from Community Chest. You'll need it.

It looks as if we have impressed the egghead. He's travelling at a high rate of knots to pick up some proper ear protectors. And we were all warmed up to round it off with some wishy-washy stuff that seems to comfort some types. "If you can get away from it all to let your ears recover between periods of high exposure there is a chance that you won't suffer any ill effects." But it's only a chance, so you are still doing the right thing by taking the proper precautions—just like you've been doing all along, you and the other smart ones — using the equipment that is yours for the asking, and playing it safe.

DING-DONG DECIBELS
HAVE YOU ANY DRUMS?
YES, SIR! YES, SIR!
WELL PROTECTED ONES.

PROTECT 'EM ON A PROP JOB,
PROTECT 'EM ON A JET.
BUT WHEN YOU'RE WITH YOUR LADY LOVE
NO SWEAT!



Resumes of accidents are selected for their interest and the lessons which they contain. The time required to complete the accident investigation and the additional time necessary for publication generally totals six months.

ARRIVALS AND DEPARTURES

OOPS!

On completion of a mutual IF trip in a T33, the pilot made a normal touchdown. He held the nose high for maximum aerodynamic braking and, as the nose began to settle, decided to raise the flaps to make wheel braking more effective. However, instead of the flap lever he raised the undercarriage lever! He immediately realized the error and put it back down but too late—the aircraft came to rest with the nose gear up, although the main gear did remain down.

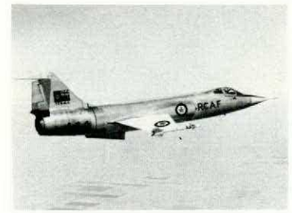
When questioned later, the pilot could not really explain why. He was well aware of which lever was which and there is no similarity between them. He, like many others before him, was just another victim of complacency or preoccupation. This pilot's misfortune serves as a reminder that it could happen to any of us. Flying an airplane is no time to be complacent.

SURPRISE!

An instructor and a student on a routine instrument training trip had completed the exercise and landed at base with the instructor flying the aircraft. During the landing roll, the instructor heard the control tower clear another aircraft for a full stop landing on the same runway. In an attempt to facilitate traffic, the instructor who had done a 'short field' landing decided to turn off at an intersection. During the last portion of the roll on the runway the instructor, who was wearing a seat pack parachute, disconnected his lanyard. In attempting to make his decision to turn off the runway known to the tower, he dropped the parachute lanyard to push the "press to transmit" button. After initiating the turn, he reached down to retrieve the disconnected lanyard and when lifting it up, was surprised to see the nose of the aircraft starting down. He 'jumped' on the brakes and since the aircraft was moving very slowly, stopped with only the nose gear retracted. The heavy lanyard had caught under the undercarriage handle and caused an up selection.

The assessment, of course, was pilot error because the instructor did not follow prescribed procedures when disconnecting his parachute lanyard on the runway, rather than at "shut-down."

But why did the device, that is designed to prevent the lever from being selected UP when the weight of the aircraft is on its wheels, not work? In this instance it was checked and found to be within the tolerance specified in the EO. It didn't work in this case because the aircraft was light and being in a left turn, the left oleo (where the micro switch is located) extended sufficiently to de-activate the switch. However, this is the third time this year that T33 undercarriages have collapsed without this device performing its intended function. Perhaps it's time to have another look at the specified tolerance. And pilots are you in the habit of checking this device for proper function before start-up on every flight?



HYPOXIA

A pilot was carrying out an airtest on an CF104, a full card after engine change. Prior to start all oxygen checks had been made as per procedures.

After getting airborne and climbing to 35,000 feet, cabin altitude was noted to be 17,000 feet and oxygen content four litres. The pilot did not check blinker action at this time but oxygen system appeared to be working normally. Initial portions of the airtest were executed and then a Mach run was commenced. At approximately Mach 1.85 he noticed a restriction to his breathing and suffered the first symptoms of hypoxia. He immediately checked the blinker, noted that it did not close on inhalation and then selected emergency oxygen position and 100% oxygen but once again the blinker did not function. Realizing that hypoxia was imminent, he selected the emergency oxygen bottle, decelerated and commenced descent.

During this time the pilot checked normal oxygen hose connections at least three times and found the connection was secure and mask hose anchored to the parachute strap by dome fasteners. He descended to 7000 feet cabin altitude where the symptoms of hypoxia disappeared. He notified the control tower of his problem and requested a medical officer to meet the aircraft. The landing was routine.

After landing, the oxygen regulator was removed and sent to the safety equipment lab where it was revealed that the regulator failed the pressure breathing indicator test. Failure of the aneroid assembly was suspected. The MO confirmed that the pilot had indeed experienced acute hypoxia. His prompt and

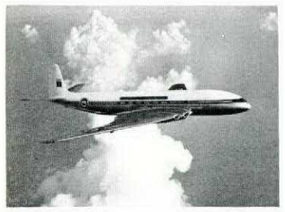
correct action saved both himself and his aircraft.

To date there have been few serious hypoxia incidents but the hazard is ever with us. Both ground servicing and aircrew must increase vigilance in this regard and use extra caution. We must not become careless now.

BANG!

An airman was towing a CF104 out of the hangar. In trying to adjust the brake pedal which is on the left hand side of the instrument panel, he reached down on the right hand and pulled out the canopy jettison handle by mistake. As it was in the open position at the time, it fired and fell to the floor.

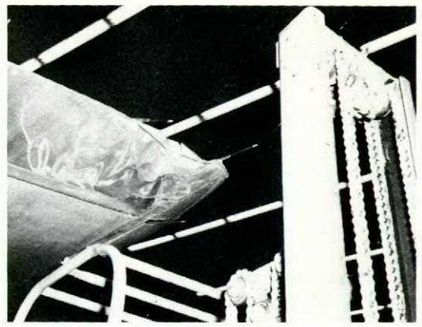
The accident was assessed as carelessness on the part of the airman. There are mitigating circumstances, however. The canopy initiator is safe-tied by means of a maintenance safety pin located on the right side of the cockpit behind the seat but it was not installed at the time the canopy was jettisoned. Because difficulty had been experienced in installation, a modification had been ordered to enlarge the hole in the cover. This had not been embodied in this aircraft although action has since been taken to have all 104s modified according to EOs.



TOO CLOSELY PARKED

An AMU crew had just finished loading a C119 which was parked in a hangar in close proximity to a Comet. The corporal in charge announced that he was going to double check the load in the C119 and instructed one of the airmen to take the forklift outside. The airman started the forklift and carefully avoided the booms of the C119. However he forgot about the Comet until just before he hit it. Out of the corner of his eye he caught a glimpse of the Comet wing, but it was too late, and a valuable aileron was severely damaged.

This accident was caused by operator error and lack of adequate supervision by the shift NCO. The operator and shift NCO should have recognized a potential hazard when the aircraft were parked so close together, and had the



Comet removed. Other contributing factors were lack of proper loading area to allow free movement of loading vehicles and lack of a senior NCO as shift supervisor. Provision for a safe loading area should be of paramount concern.

GROUND LOOP

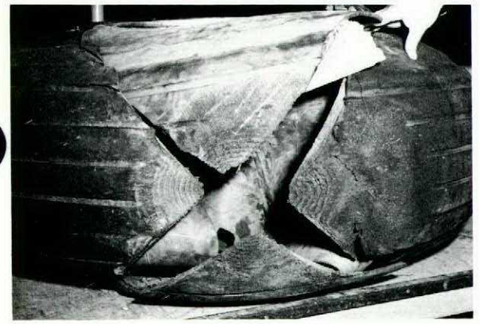
The student pilot was on his third solo exercise in a Harvard. He had been airborne for about forty-five minutes and had completed several "circuits and bumps." This one seemed to be going normally like all the rest when, just after touchdown, the aircraft started to swing left. Since the commencement of flight training he had been instructed that the first action to correct a swing was rudder and no brake. He accordingly applied right rudder and no brake, but it didn't seem to help much, so he applied power and backward pressure on the control column. The Harvard became airborne, the tail wheel dragged and the right wing stalled. First the right wing, and then

the left struck the ground and the aircraft sustained major damage.

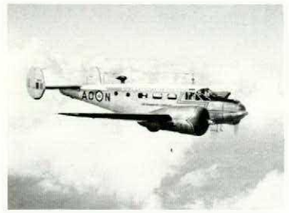
Obviously this accident was due to inexperience and is something we will probably never be able to eliminate. However it brings up the question of which is the better initial action to correct a developing ground loop—brake or rudder. Possibly a little application of right brake in the early stage of the swing would have immediately corrected the situation and a 'no sweat' landing roll would have been completed. In any case, we must be constantly on the alert to catch any flaw in our instructing technique. What do some of you old Harvard Instructors think?

BLOW OUT

After an eight-hour operational exercise ending at night, a Neptune pilot was diverted to land on a 5000 foot runway covered with pools of water. The pilot made a normal approach and touched down in a good position. After about 1500 feet on the landing roll, because of a shorter than usual runway, he applied brakes. In doing this so soon after touchdown, before he had slowed enough to allow sufficient weight on the wheels, the port tire locked, causing skidding and the port tire to blow. As the Neptune skidded over the pools of water, the buffeting of the rudder during reverse, and the intermittent hydroplaning led the pilot to believe he was releasing sufficient pressure from the brakes. In being so fooled, he did not realize the port tire was skidding.



This incident should help pilots realize how necessary it is to be cautious on shorter than usual runways when landing aircraft such as the Neptune not equipped with anti-skid brakes. Pilots should be aware of the accepted approach speed and length of runway required, to preclude any undue anxiety and haste in landing.



DOUBLE TROUBLE

Would you believe it? Two similar accidents under similar circumstances to the same pilot within an interval of a week—landing with gear up!

The pilot was an instructor with nearly 5000 hours flying. On both occasions the student pilot and instructor were on a final circuit of a three-hour dual night flying practice simulating a single engine landing, in an Expeditor. In both situations the pre-landing check was carried out at the proper position and the undercarriage was left in the UP position as per single engine procedure, to be lowered later on crosswind or final. The downwind leg in both flights had been extended further than normal to conform with circuit traffic ahead. In the distraction of checking the other traffic and observing the procedures of the student pilot, the instructor neglected to closely monitor the student in the important undercarriage check.

In both accidents the control tower tapes attest to the fact that the tower had broadcast the usual cautionary about checking the undercarriage down and locked just prior to landing. In both cases acknowledgement was received. However the pilots did not remember that they had given the proper response. Could this be so routine that pilots do not even think of what they are saying and consequently not a very effective procedure? Perhaps the tower controller, on the odd occasion, could change the words around. Instead of the usual "check gear down and locked" he might say "how many wheels have you got." Maybe this would shake the odd pilot out of his lethargy and ensure that he physically checks the gear rather than just making the correct automatic response.

APRIL FOOL'S DAY

A Chipmunk instructor requested and received permission to proceed to the satellite field to practice some circuits. Since there were no tower facilities or crash equipment, landings were not permitted. However, he briefed his student to do a 'touch and go' landing. The student landed long and was just starting to apply power for takeoff when the instructor decided there was insufficient runway remaining. He retarded the throttle and applied brakes, but the tail started to rise. He applied more back pressure on the control column, but

it was too late—the Chipmunk ended up on its nose.

The fact that the instructor did not overshoot before it was too late is obviously an error in judgement.

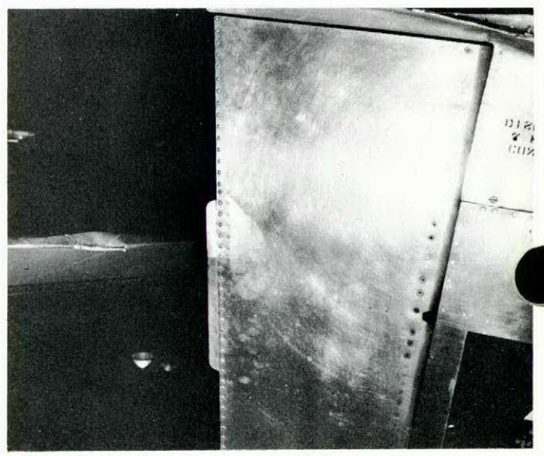
But more serious than this is the disregard of orders in attempting to land where he was well aware he should not. Reading between the lines, it makes one wonder how many times this had been done before by this pilot and perhaps many others. Also, of perhaps even more serious consequence is the effect this can have on the student's sense of air discipline. Had nothing happened this time, later, when solo, the student would probably see nothing wrong with doing the same thing even though he also was well aware that this was contrary to regulations. If this philosophy should become general, our Air Force could become saturated with aircrew who regard flying orders and regulations as something which must be tolerated but can be ignored as long as you don't get caught.

This accident happened on April Fool's Day—maybe it was just a joke?

GROUND COLLISION

A Dak was being towed into a hangar. The corporal in charge was riding the brakes in the cockpit. An LAC was operating the hangar doors, another was watching the wing tips and a third was driving the mule. The towed aircraft had proceeded well inside the hangar when, by coincidence, the driver stopped just before the Dak wing came in contact with the tail of a T33 which was also in the hangar. All assumed that the driver had seen the T33 and that was why he stopped. Actually the driver stopped to have a piece of ground equipment moved out of his way and, once that was done, started to move again. A sergeant who was not part of the towing crew, but happened to be in the hangar, yelled but it was too late; the Dak struck the T33 causing damage to the starboard aileron of the Dak and the rudder of the T33.

The assessment states that this ground accident was the direct result of contravening the requirements of the EO 00-50-19 in that too few airmen were employed and that the NCO in charge was not properly positioned to supervise the operation. This coupled with the fact that the area was not cleared of GSE prior to commencing the operation, indicates a "poor show" all around.



BIRD WATCHER'S CORNER

Contributed by: F/L GA Saull SOFS, MAC

THE CLOUD-HOPPING HEMSTITCHER

The Cloud Hopping Hemstitcher is closely related to the Ground Loving Variety. Its most distinguishing habit is an unexplicable desire to remain in the "Clear" regardless of clearance altitude. It has been encountered where least expected, mostly at other birds' altitudes with disastrous results. It is very shy and will dip down or up to its cleared altitude when observed too closely. Both varieties are very dangerous especially when poor visibility prevails.

Open season prevails year round—should be reported on sight.

CALL: IMONTOP IMONTOP ITSMOOTHERHERE

ROGER DUHAMEL, F.R.S.C., Queen's Printer and Controller of Stationery, Ottawa, 1963

Starting his final approach at about 1500 feet, a pilot finds himself heading into a stiff wind. Because the wind provides a substantial part of the necessary airspeed, he throttles back his engines. Suddenly, a few hundred feet above the ground, the wind dies. Only a fast increase in power prevents the airplane from stalling and crashing. Right?

Or is this right? Starting final into a stiff wind the pilot finds he has to carry extra power to bring his plane up to the runway. Suddenly, a few hundred feet from the ground, the head wind dies out. Only a fast decrease in power prevents the aircraft from overshooting.

Or how about this version! Starting final into a stiff wind the pilot finds he has to carry extra power to maintain a normal glide path toward the runway. Suddenly, a few hundred feet from the ground, the wind dies. Only a fast increase in power prevents the airplane from stalling and crashing.

IF THERE IS ANY DOUBT IN YOUR MIND AS TO WHICH OF THE THREE CASES ABOVE IS CORRECT (OR IF THERE IS NO DOUBT? BUT YOU WERE WRONG), THEN READ THE NEXT ISSUE OF FLIGHT COMMENT (NOV-DEC) WHICH WILL CONTAIN THE ARTICLE "SEEING THE SHEAR".