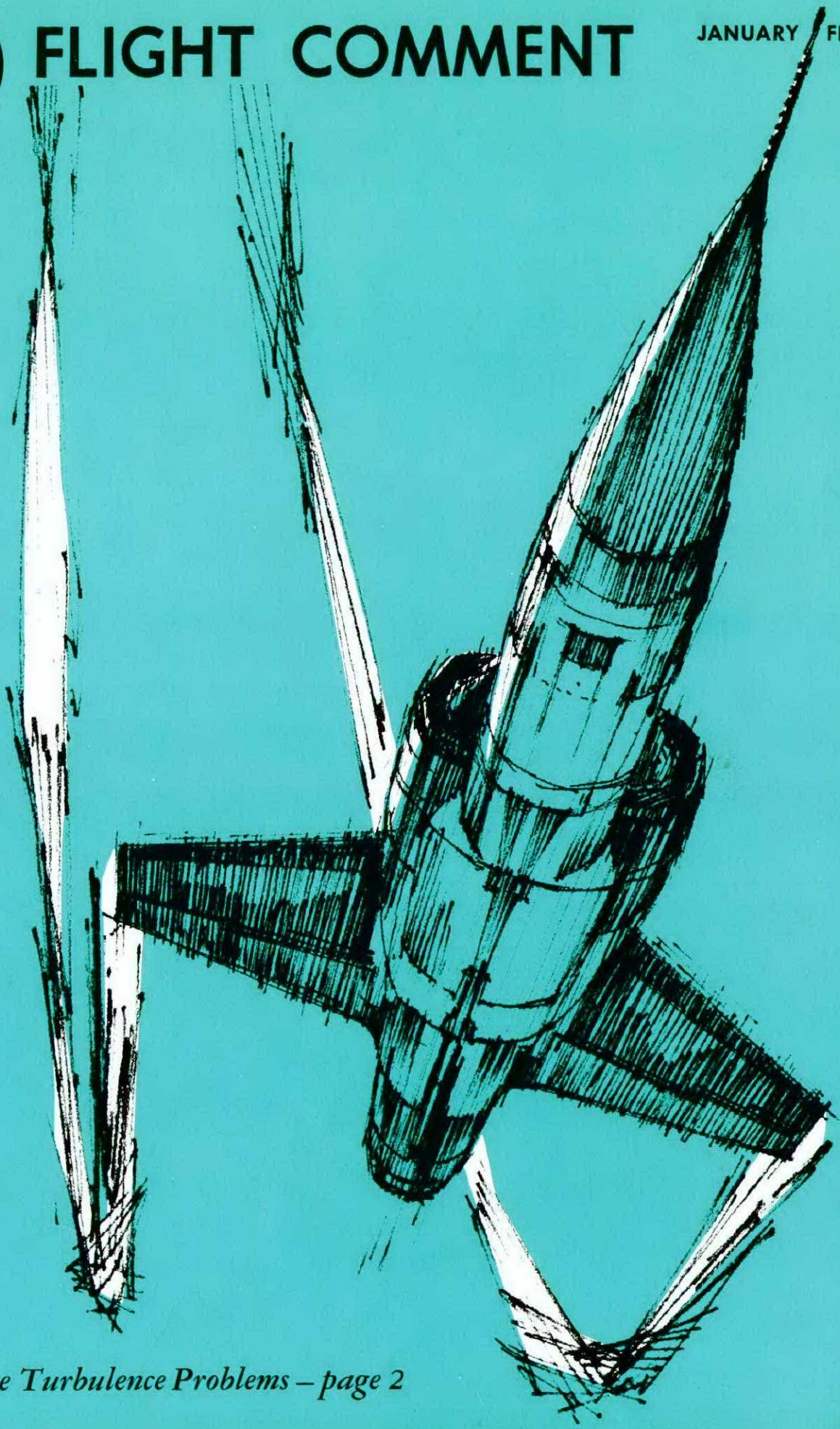
FLIGHT COMMENT

JANUARY / FEBRUARY
1973



Wake Turbulence Problems – page 2

Comments

A Musketeer pilot found out not long ago that not ensuring your flight plan has been closed at the completion of a cross-country flight, is an effective means of getting maximum attention. The pilot had flown a night VFR flight from London to Downsview and arrived at Downsview around 2200 local – after the field had closed. Toronto Tower had advised him earlier that Downsview was closed, and had then handed him over to Toronto Radio where he was instructed to phone the duty NCO if he landed at Downsview. Although there was no controller or servicing crew on duty and the runway lights were not on, the pilot nevertheless decided to land. He felt that there was adequate light from the surrounding area. His last recorded transmission of the flight was on final when he advised Toronto Tower that he had the runway in sight. After landing he taxied in, parked, and shut down. The duty NCO was on hand to provide him with a room, and he promptly flicked in for the night. Meanwhile... Toronto Centre had reported the aircraft overdue and when a communications check failed to locate it, the Rescue Co-ordination Centre at Trenton initiated a search and NDHQ was informed. The duty officer at Downsview, in response to a request from the pilot's home base, conducted a search and reported that there were no aircraft on the ramp. For reasons unknown, he failed to see either the Musketeer or two T33s parked beside it. A continuing adventure was beginning to develop, and doubtless the tale would be much longer had not Toronto Tower called Downsview Tower just after daybreak to ask what a CT134 was. The B-stand operator explained that this is CF designation for the Musketeer, and as an after-thought added that as a matter of fact there was one parked out on the ramp in front of him . . .

The CF Marshalling Signals poster which appears on the back cover of this issue may be obtained through normal supply channels by requesting CF749 – NSN 9905-21-851-3555.

NATIONAL DEFENCE HEADQUARTERS
DIRECTORATE OF FLIGHT SAFETY

COL R. D. SCHULTZ
DIRECTOR OF FLIGHT SAFETY

MAJ O. C. NEWPORT
Education and analysis

LCOL F. G. VILLENEUVE
Investigation and prevention

Editor Capt P. J. Barrett
Art and Layout NDHQ Graphic Arts

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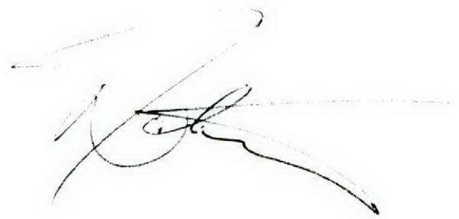
Don't Compromise the System

The purpose of the flight safety reporting system is to identify hazards in our air operations and to recommend appropriate corrective measures. The system is working extremely well, however there are two factors vital to continued effectiveness:

- One is strict adherence to the principle of priveleged status. This applies to information produced specifically within the terms of reference of the flight safety reporting system which would be detrimental to anyone concerned;
- The second is the assurance that there is no suggestion of involvement with the issues of blame and punishment.

The value of a flight safety investigation, whether formal or not, depends to a great extent on people's candidness and willingness to tell a complete story; including opinions when appropriate. How candid an individual is can depend on the degree of personal involvement and his understanding of the purpose of the system, but usually the overriding factor will be his conviction, or otherwise, that the information given will be used for flight safety purposes only.

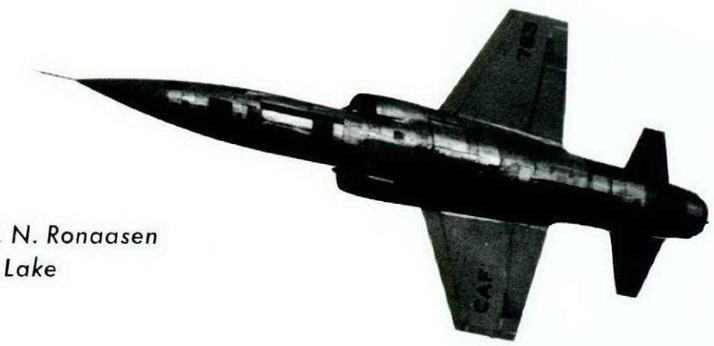
On those occasions when disciplinary or administrative measures appear necessary to maintain acceptable standards of conduct, extraordinary care must be taken to ensure that initiation of, or support for such action does not come from any portion of the accident/incident investigation. Compromise of this policy could result in a distrust of the system, with unacceptable consequences.



COL R. D. SCHULTZ
DIRECTOR OF FLIGHT SAFETY

air combat manoeuvres and...

Wake Turbulence Problems



by Maj E. N. Ronaasen
CFB Cold Lake

The Mirage III was rising to the bait. My contrail, carefully laid high above the Rhine, beckoned to the French fighter pilot. I had finished the test flight. My "clean-clean" CF104 with 1500 lb. of fuel and practically over my own base would give a good account of itself. High time we regained some of our esteem as fighter pilots. The *Strike* role, with its heavy ground-hugging and straight-ahead, no-nonsense task, had brought home a lot of silverware, but who wanted to be just a bomber pilot? A few remembered better days when we ruled the roost with our marvelous MK.6. The Mirage kept climbing to investigate.

My high quarter-attack put me through the contrail level again and alerted the Mirage pilot. He broke into me neatly, and I pulled up into a high barrel roll. This time! My mach meter showed that I was just subsonic and that I would have maximum performance without going to mach 1.4 or higher. Again the Mirage broke into me, but this time the angle off was lower and I would risk his game. That beautiful Mirage was going to be mine! My 104 was complaining but no sign of shaker yet, I was going to "wax" him. Suddenly the whole world rolled around and everything became unglued! The greatest fighter pilot had lost control ... "In Spin Aileron ... OPPOSITE RUDDER! " ... these thoughts flashed through my mind. Then as suddenly as it had started it stopped. The Mirage had again earned its name and disappeared, and I, more than a little shaken, descended and headed for home.

This kind of story gets better with time and the telling. The one thing that does stand out however, and is still very clear, was the aircraft's violent and uncontrollable roll. What had caused it? Wake turbulence? The Mirage was at its manoeuvring limits and the wake, with its counter rotating vortices, was like two twisting tornadoes. My aircraft was also at its limit and the wake encounter made me lose control.

Recently there have been many studies concerning the dangers of wake turbulence generated by large aircraft. The nature of this phenomenon, exactly where the vortices will be and how long they will last, is of particular concern to a light aircraft pilot. Fighter pilots have always known about the wild ride you get in someone's wake and how exaggerated this gets if he's pulling "G". Some have reported overstresses, while other encounters have resulted in damaged aircraft and cases of pitch-up and spins following air combat manoeuvres. The combination of "G" and wake turbulence was suspected as a possible cause of the in-flight break-up of one of our own 104s a couple of years ago. Further formal study into this kind of wake encounter is warranted.

The origin of the vortex as we all know, stems from the pressure differences between upper and lower wing surfaces. The high pressure air below the wing attempts to neutralize the lower pressure on top. Since it cannot go around the front or the back of the wing because of the momentum, it flows laterally along the span and slips up and around the tip. Factors which govern these characteristics are aspect ratio, wing tip shape, and angle of attack. The energy transmitted to the air gets very high indeed when high wing loadings and high "G" manoeuvres are involved. Transonic or supersonic speeds may modify these characteristics but surprisingly little is known in this area. Fig. 1 depicts flows astern of an aircraft from a theoretical point of view.

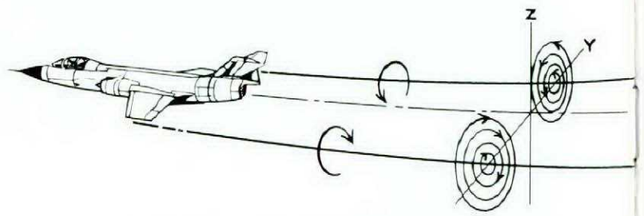


Fig. 1. An aircraft pulling "G" with a theroetical plot of flow in cross section, the velocity at the core being highest – and nasty.

When you enter this area at a relatively high angle you will probably feel a good bump. Your aircraft won't respond that much. At a shallow angle, however, the change in angle of attack (it could be in pitch, roll or yaw) will give your aircraft time to respond. It could pitch down for example, if the angle of attack was reduced – then it would pitch up, due to its natural stability. This oscillation could increase rapidly while you in the meantime, trying to sort it out, would probably be out of phase, aggravating things. In an aircraft like the 104 with its high tail, further complications are added with the possibility of the horizontal stabilizer entering the wake earlier or later than the wing. When we consider, in addition to the pitching plane, yaw and roll, the picture and the aircraft response gets very complex. The high frequency in which these diversions occur will probably make your efforts as a pilot ineffectual or even detrimental. The pilot induced oscillations referred to by some old tigers as the "J.C. manoeuvre", have made more than a few hurry back to the bar.

Can you overstress your aircraft in wake turbulence? Yes. And, as mentioned earlier, you can even break it. We normally think of exceeding limits in the normal positive "G" sense. Negative "G" limits are much lower and any high roll rate or high sideslip angle can very easily overstress other parts of the aircraft such as the tail.

How can the aggressive fighter pilot chase another aircraft around the sky and avoid that hazardous wake turbulence which can give him an out-of-control condition or an aircraft overstress, not to mention a possible structural failure? More easily said than done to be sure. However, consider the following remarks carefully. The simplest rule applies to all pilots – avoid the wake turbulence area. Not so easy, you say, when engaging in ACM where you go looking for another aircraft's tail. In this case, it is certainly a little more complex, but not impossible. In order to track aircraft flying straight and level, get some displacement first, then try some form of the old quarter attack. That way you will find tracking a lot easier than trying to sit in his wake. If the target is turning, then tracking requires a turn of smaller radius. Depending on speed and aircraft type this may be impossible. Whether your target is flying straight and level or turning, you will likely be faced ultimately with crossing his flight path. (Notice here I said path, not wake). When this occurs try to cross above or below the wake turbulence. If you have missed this opportunity and you are now faced with going through the target's wake, then at least make things as easy for yourself as possible by unloading the wings. Specifically, reduce your "G" load to 1 (one) "G", then, when on the other side of the turbulent area, resume your manoeuvre. Don't try to beat any oscillations which may start.

Our changing role in the last few years has brought us into the Air Combat game again. Aircraft limitations and the wake characteristics of modern aircraft make the problem a real one and it could become even more serious in the future. Can you make a S.A.M. pitch up with wake turbulence? I don't know.

A Change in Identity

If you have "self-briefed" in a weather office within Canada lately, you may have had trouble finding that Canadian weather report or terminal forecast because the station location identifier now consists of three letters. This change has been accomplished by simply adding a letter to the previously assigned two-letter identifier according to the following general rules:

a. prefix Y or Z if the weather station is co-located with a primary aerodrome. Z being used only where necessary to avoid conflict with American three-letter identifiers eg, MJ Moose Jaw becomes YMJ and UM Churchill Falls becomes ZUM.
b. prefix W if the weather station is not co-located with a primary aerodrome eg, GU Gypsumville becomes WGU.
c. prefix U if the weather station is co-located with an enroute NDB eg, BF Battle Harbour becomes UBF.

For further information consult your local Met Staff.

If it's a Hazard, Report it!

Several E category incident messages in recent weeks have described situations that posed a serious potential hazard. In each case the report referred to an identical situation having previously occurred on the aircraft *which was not reported.* Apparently some people think a problem is not worth reporting until it happens a second time!

CFP 135B (Art. 1501) states that "The prime purpose of flight safety reporting is to promptly bring to the attention of all concerned those circumstances which could lead to, or have resulted in, aircraft accidents or injuries to personnel."

Reporting that hazard is the best way to have something done about it.

Light on a Black Knight

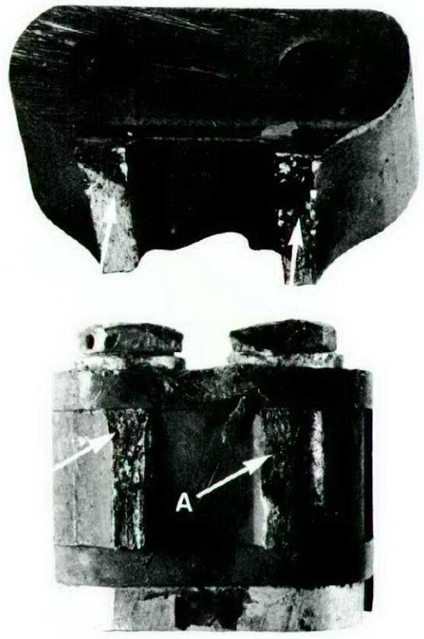
by Maj R.J. Kelly

In March last year a CF100 crashed. The crew ejected safely after fighting a control problem for about twelve minutes. The only clue the crew could supply was that the ailerons, especially the right one, were oscillating wildly, causing extreme vibration and making lateral control very difficult. Eventually the right aileron jammed full up and the aircraft entered a steep right spiral from which the pilot could not recover. After the crew ejected, the aircraft dove steeply into a hillside and exploded.

Arriving at the site, members of the Board of Inquiry and a DFS investigator were faced with about 6 feet of granular snow and sub-zero temperatures. No further adjectives will be used to describe living conditions there. The fire in the crater had thawed the hillside above, which then slid into the crater, over the wreckage, and froze. Wreckage blown out of the crater plunged back into the snow and disappeared leaving only a dimple on the surface of the crust as a marker. Extensive wreckage recovery effort netted only about one-third of the aircraft and nothing which supplied any clues. The Board made a valiant effort but had to report only conjecture due to lack of evidence. So ended phase one of the investigation.

In the spring, a recovery party returned to the site and collected about another third of the aircraft. Again the conditions of the site discouraged further efforts at crater salvage as there were springs on the uphill side which threatened to send enormous boulders thundering down into the crater if much excavation was attempted. We now had two-thirds of a CF100 lying on a hangar floor and phase two of the investigation began. A DFS investigator and an airframe technician from 414 Sqn then sifted through each and every piece of wreckage. This exercise isolated about 100 pounds of pertinent wreckage – and the muffler from an old truck. The wreckage (without the muffler) was sent to Quality Engineering Test Establishment (QETE) in Hull where phase three began.

The QETE staff and the DFS investigator carefully analysed each piece and eventually found inconsistancy in the aileron trimmer tab positions. Things fell into place rather quickly after that and the cause was found to be a failure in the trimmer tab linkage fitting due to stress corrosion and fatigue. Confirmation of the symptoms of trimmer tab failure was found in cases back in 1956 when unfaired rocket pods were putting extra stress in that area. As a result of the findings of this investigation, the entire linkage of the CF100 trimmer tab is considered critical and the inspection criteria has been modified to reflect this.



Arrows show fatigue zones on lugs of aileron trim tab.

If there is a moral to this story, it is this: Tenacity pays off in investigations. It would have been very easy to quit anywhere along the line on this one, but by sticking to it, all those involved can have the warm feeling that they may have prevented a future one-way mission.

On the Dials

In our travels we're often faced with "Hey you're an ICP, what about such-and-such?" "Usually, these questions cannot be answered out of hand; if it were that easy the question wouldn't have been asked in the first place. Questions, suggestions, or rebuttals will be happily entertained and if not answered in print we shall attempt to give a personal answer. Please direct any communication to: Base Commander CFB Winnipeg, Westwin, Man. Attn: ICPS.

Cross-check Technique

This article is aimed at you pilots who are about to return to the flying arena. The edge has probably been worn off your cross-check which has become entrapped in the cobwebs of non-usage. Our intent is to review the techniques to revitalize your cross-check. To begin with let us define cross-check.

Cross-check is the proper division of attention and interpretation of the flight instruments. The flight instruments can be divided into 3 groups: the control instruments, the performance instruments, and the navigation instruments. The control instruments display attitude and power (thrust) indications and the instruments are calibrated to permit attitude and power adjustment in definite amounts. These instruments include the attitude indicators, tachometers, EGT gages, manifold pressure etc. Performance instruments altimeters, airspeed indicators, vertical speed indicators, heading indicators etc. indicate the actual performance of the aircraft at any time, while navigation instruments indicate aircraft position in relation to a selected navigational aid. Now that we have defined the categories of the instruments how should they be used?

A procedure has been organized which includes the control and performance instruments. Following this concept, named ***Attitude Instrument Flying***, should ease the development of your cross-check:

1. Establish an attitude and/or power setting on the control instruments which you think will result in desired aircraft performance.

2. Trim the aircraft until control pressures are neutralized.

3. Monitor the performance instruments to determine if the inputs on the control instruments are indicating the desired performance.

4. Adjust the control instrument, i.e. power or pitch attitude if a correction is necessary. By cross-checking the instruments properly and in a logical, systematical manner you should be able to determine the adjustments required to maintain desired aircraft performance.

Two factors which are uncontrollable by the pilot but which effect his cross-check are instrument lag and instrument location. Instrument lag is due to inertia of the aircraft and the operating principles and mechanisms of performance instruments. Some lag must be accepted as an inherent factor and taken into consideration when cross-checking the instruments. This factor is negligible when power and attitude are controlled properly. Do not "chase" a lagging instrument; continue with the normal cross-check.

In some aircraft the flight instruments are scattered over a wide area of the instrument panel, thus requiring a faster cross-check than in an aircraft with advanced instrument systems. In aircraft equipped with a flight director system and/or integrated flight instrument systems the pilot can observe the attitude indicator and proper performance instruments in one quick scan.

In either case, the proper technique for cross-checking the instruments should result in the pilot focusing the largest percentage of his scan on the attitude indicator. The scan should go from the attitude indicator to a performance instrument or a pair of performance instruments, back to the attitude indicator, to another performance instrument, then back to the attitude indicator, and so forth. This cross-check technique can be compared to a wagon wheel: The hub represents the attitude indicator and the spokes represent the performance and navigation instruments.

A correct or incorrect cross-check can be recognized by analyzing the pilot's aircraft control. Insufficient reference to the control instruments is reflected by performance instruments fluctuating through the desired indications. Too much attention or staring at the control instruments usually results in smooth, positive, and continuous control over the indications of the control instruments, however large deviations occur slowly on the performance instruments.

Another factor affecting cross-check, is speed vs interpretation. A more experienced pilot can look at an instrument at a glance and remember the indications. The inexperienced pilot will often look rapidly from one instrument to another without interpreting. He then must recheck the instruments to determine desired information and as a result spends less time observing the control instruments. Aircraft control will then start to deteriorate. If you interpret and remember what you see on the instruments, more time can be spent on the control instruments, in particular the attitude indicator. This must result in an improved cross-check.

Finally, as has been mentioned, instruments systems and the location of flight instruments vary; therefore, the pilot must know his instrument panel "blindfolded". This may be achieved by "hangar flying", spending time in the simulator, and digging into the "AOI". ***Attitude Instrument Flying*** is the name of the cross-check concept.

The next time you fly, try it – you'll like it.

■

Recently we received a letter asking for clarification on the requirement to readback clearances in the United States. The following statement from July 1972 ***Aerospace Safety*** should answer any question. "There is no requirement that an ATC clearance be read back as an unsolicited or spontaneous action. Controllers may request that a clearance be read back whenever the complexity of the clearance or any other factors indicate a need. The pilot should read back the clearance if he feels the need for confirmation. He is also expected to request that the clearance be repeated or clarified if he does not understand it".

Good Show

SGT J.L.R. ATKINSON

Sgt Atkinson was on duty as a line servicing supervisor when he noticed a sheared-off bolt head on the parking ramp. Despite the fact that this bolt could have come from any of the numerous aircraft or vehicles using this area, Sgt Atkinson's suspicions were aroused and he was able to tentatively identify it as a brake bolt.

After comparing this piece of FOD with a new brake bolt and confirming the part number in the maintenance manual, he was able to positively identify it as part of a 707 brake unit. He immediately notified the sections concerned to initiate a local special inspection of the 707 fleet. His efforts were rewarded when it was discovered that one aircraft had two of these bolts missing, a defect that would not normally have been discovered until brake failure occurred, as the bolts are in an inaccessible area which is not subject to routine inspection.

Sgt Atkinson's alertness and the thoroughness of his investigation averted a potentially dangerous situation.

CPL D.E. BEWS

Cpl Bews was working at the Lahr Air Traffic Control Centre when radio contact was established with the pilot of a lost civilian aircraft. The pilot had advised that he was low on fuel and had an unserviceable compass.

In addition to being severely hampered by the aircraft's lack of navigation equipment and the poor radar returns, Cpl Bews was faced with a deteriorating weather situation which was causing distress to the pilot. Finally, he was able to firmly establish the aircraft's position and calm the nervous pilot. He then directed him through a no-compass radar approach to a successful landing, moments before the aircraft's fuel was exhausted.

Cpl Bews' competent handling of this difficult emergency averted the probable loss of a civilian aircraft.

CPL H.P. BEKOLAY

While performing an "A" check on a visiting Dakota, Cpl Bekolay noted what appeared to be excessive play in one of the propellers. When further investigation revealed a loose bearing, the engine was

Sgt J.L.R. Atkinson

Cpl D.E. Bews

removed. The contractor later reported that the outer race of the propeller shaft support roller bearing had not been installed during engine overhaul.

Cpl Bekolay's extra effort on a check which called for only a visual inspection, paid a large dividend. The missing bearing could have resulted in an engine failure.

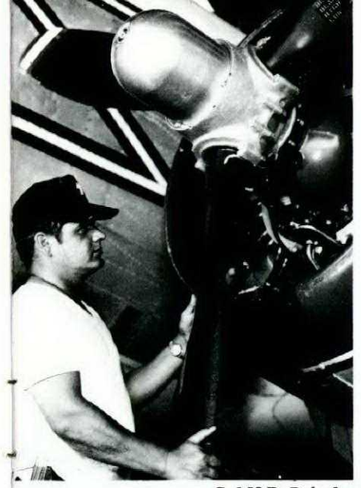
CPL G.D. SMALL

Cpl Small was replacing a starter on a CH113A helicopter. Before installing the new starter he carried out an inspection of the engine inlet area, during which he discovered FOD damage to the inlet guide vanes and compressor blades which could have eventually caused an engine failure.

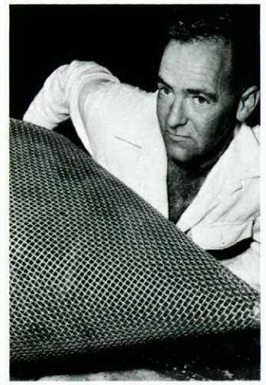
The damaged area is only visible when the starter is removed and would not necessarily be inspected during the component change. His thoroughness in inspecting the surrounding area prior to completing the task averted major damage to the engine.

MCPL T.A. KAFTAN, CPL F.M. SNELL AND CPL T.J. FOOT

MCpl Kaftan, Cpl Snell, and Cpl Foot were changing the main wheels on a CF5 when they detected a slight binding on the right main wheel. They re-torqued the wheel, but the binding remained, and although under pressure to complete the wheel



Cpl H.P. Bekolay



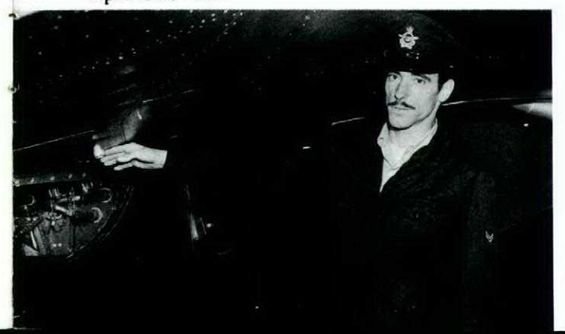
Cpl. G.D. Small

L to R Cpl Foot, MCpl Kaftan, Cpl Snell

Cpl D. Jacobson

Cpl A.R. Ford

Cpl D.W. Cox



change in minimum time, the airmen insisted on further investigation. They removed the wheel and on close examination found that the inner wheel bearing race was pitted and scored.

The professional approach shown by these NCOs while under pressure to "get the job done", prevented the development of a possible accident situation.

CPL D. JACOBSON

Cpl Jacobson was assigned the task of locating and repairing an oil leak on a CF104, a job which required the removal of the left-hand generator to facilitate the changing of a seal. While installing the seal, he noticed a series of small nicks in the female drive outer housing. After working his head and one shoulder through the left generator panel opening to get a close look, he found a failed plug which had been dislodged from its mounting. He then called the NCO i/c to investigate. Several pieces of failed plug were subsequently removed from the inside of the generator female drive shaft and the crew decided to remove the engine for further maintenance.

Cpl Jacobson's persistence in tracing the cause of the nicks prevented the possibility of a serious flight hazard developing.

CPL A.R. FORD

Cpl Ford was conducting a routine pre-flight on a Dakota when he heard an unfamiliar noise as the elevator was moved through full travel. Although none of the hinges appeared loose or broken, and he could not feel binding on subsequent movements of the elevator control, the faint noise persisted. Cpl Ford then asked the aircraft captain to move the elevator while he crawled underneath the horizontal stabilizer. This closer inspection revealed a broken elevator hinge bearing which was only visible at the bottom bolt.

As a result of the thorough inspection, Cpl Ford averted a possible in-flight elevator control problem.

CPL D.W. COX

Cpl Cox was proceeding to an aircraft parking spot to collect ground handling equipment when he noticed what looked like fuel leaking from a CF101 awaiting clearance near the button of the active runway, a distance of 1500 feet away. He immediately drove to a position to the left side of the aircraft for a closer look, and when his suspicion of a fuel leak was confirmed, signalled to the pilot to shut down. By the time the pilot completed the shutdown the aircraft was completely surrounded by JP4 which had leaked from the wing vents.

Cpl Cox's alertness and quick reaction averted what could possibly have developed into a serious aircraft fire.

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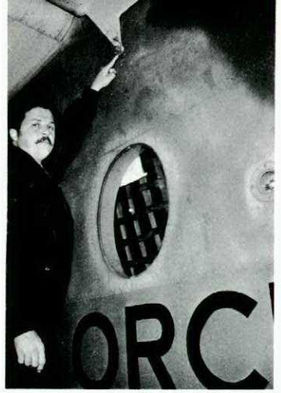
Sgt M.E. Bennett



MCpl L.H. Cote

Cpl J.A. Beauchesne

Pte W.E. Ettinger

SGT M.E. BENNETT

Sgt Bennett was assigned as Flight Engineer for a night pilot training flight on an Argus. As he was conducting the pre-flight inspection, in darkness, he discovered a hair-line crack in the left hand distributor of number 3 engine. Upon further investigation by ground crew personnel, the crack was found to be about 2½-inches long and isolating one of the corner bolts.

As a result of the thoroughness with which he conducted a routine pre-flight inspection, Sgt Bennett detected a weak point in an area difficult to inspect under the best of conditions. This averted the possibility of an in-flight engine failure.

MCPL L.H. COTE

During a pre-flight external check on a Buffalo aircraft, MCpl Cote noticed that both flap plate retainers had been installed incorrectly – they had been reversed, causing the root flap bearing to be ineffective. This condition could cause excessive wearing of the flap bearing and result in an eventual flap failure, a particularly hazardous condition on the Buffalo with its large, extended flap surface.

The aircraft, which belonged to another unit, had just undergone a 200-hour Periodic Inspection during which there had been no requirement to service the flaps. The incorrect installation of the flap plate retainer had apparently gone unnoticed for at least 200 flying hours.

MCpl Cote's thoroughness is an excellent example of attention to detail and professional competence.

CPL J.A. BEAUCHESNE

While carrying out an "A Check" on a Buffalo, Cpl Beauchesne noticed an abnormal condition at the outboard hinge arm of the left middle flap. On closer inspection he discovered that a wood fillet had become dislodged from the hinge arm and was riding on top of the servo tab control rod, between the aileron and flap hinge arms.

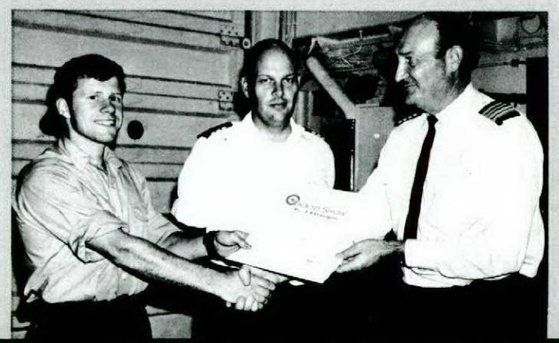
Cpl Beauchesne displayed alertness and dedication in his inspection. This situation could have resulted in jammed flight controls in the air, if it had not been detected.

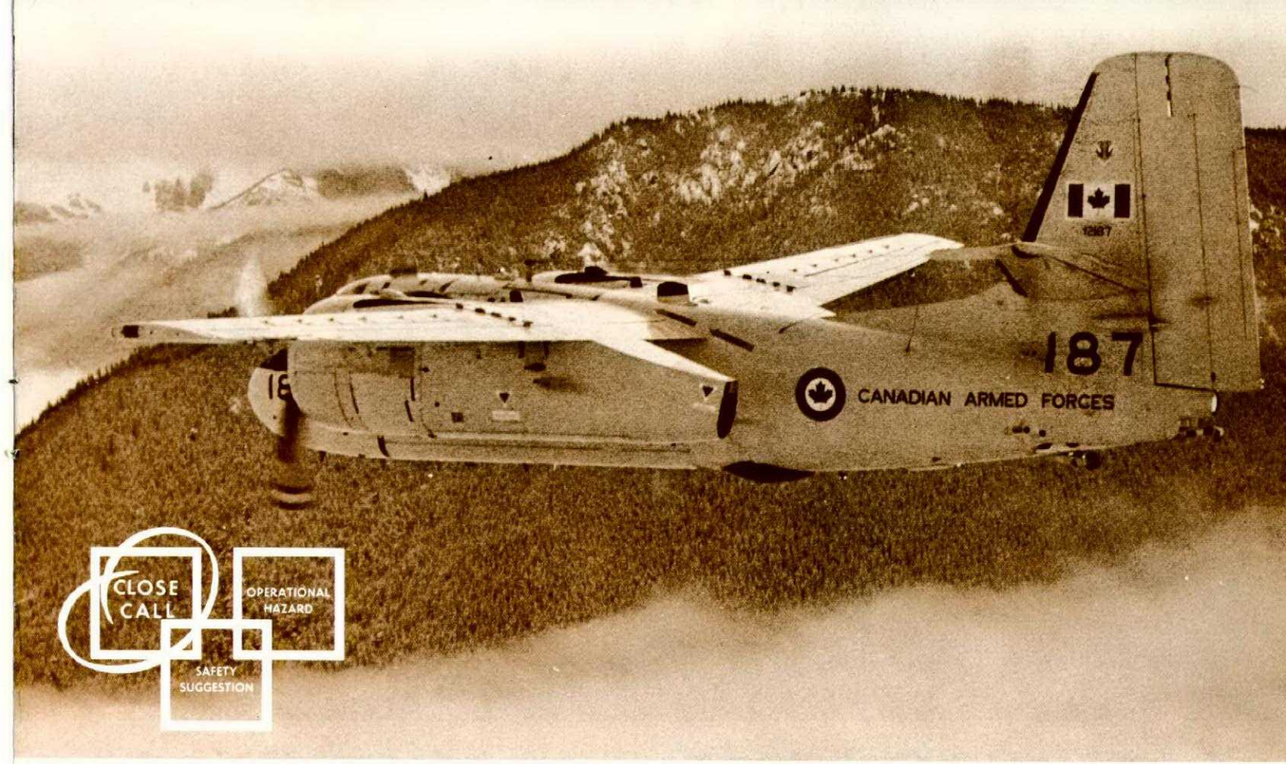
PTE W.E. ETTINGER

While carrying out a No. 5 Periodic Check on a Hercules engine, Pte Ettinger, an AE Tech, noticed some thread particles on the cooling screen of the AC generator. Although the requirement of the check was only for security of the generator and cooling tube, he was curious as to the origin of the thread particles, and reported his findings to two IE Techs. They removed the end housing from the generator and found a rag completely blocking the cooling air flow to the generator.

This persistance is typical of the conscientious approach Pte Ettinger has taken in all aspects of his job since completing the basic AE Tech course in 1971. In this case, he detected a situation which, had it gone undetected, could have led to an overheated generator and possibly an in-flight fire.

On a recent visit to Maritime Command, Col R.D. Schultz, Director of Flight Safety, personally presented a Good Show scroll to Pte J.P. Desnoyers. The award is in recognition of Pte Denoyers' discovery of a badly damaged Sea King engine. The presentation took place at sea on the hangar deck of HMCS Annapolis. Looking on is Commander John Drent, the ship's CO.





Wrong Altitude!

The Tracker's clearance from Vancouver Centre – through Victoria Tower – read, "cleared to the Portland Airport via V440 LOFALL V287 Portland to maintain 7000 feet. Cross Discovery at 6000 feet or above; contact Vancouver Centre 132.4." The takeoff and climb-out were normal with the pilot calling Centre to report level at 7000 feet. Approaching Discovery he was told to change to Seattle Centre, who in turn gave him a steer of 150°M for a radar vector to Portland. Approximately 5 minutes later he was switched to another Seattle Centre frequency.

Flying 150°M on top, it soon became apparent to the pilot that unless he altered course, the steer from Centre was going to take him straight into a mountain. It was not until after he had turned that Sector twigged and asked him to confirm his altitude as 12000 feet. When he replied that he was at "seven", he was immediately cleared to ten thousand, and given an explanation from Centre that he had been turned over to them at "twelve".

The subsequent investigation, while failing to pinpoint the exact reason for the breakdown in communications, spelled out clearly the need for pilots to ensure that they analyse clearances carefully, and for controllers to ensure that when coordinating the transfer of control between agencies, all required data, *particularly altitudes*, be given correctly and read back. Clearly this close call showed that neither pilots and their equipment nor controllers and their equipment are infallible. Continual monitoring of terrain clearance is essential whenever a pilot is forced to deviate from his planned route of flight. In addition, the incident demonstrated that by using non-standard R/T procedures, pilots leave themselves wide open to misunderstandings – in this case, the pilot departed from standard procedures in that he failed to report his altitude on initial contact with the two Seattle Sectors.

Slow Adjusting Sunglasses

Aircrew on flying operations were warned not to use light-adjusting sunglasses supplied by commercial outlets. Tests on these sunglasses have shown that they take as long as 30 minutes to adjust to light – a potential hazard when flying

The Flight Safety Committee

This Situation Might Deteriorate

It was, in retrospect, one of those days which was not exactly conducive to attaining our objective – IFR flight west.

The Ottawa weather was, to say the least, terrible, but then again, so was the weather in the rest of Ontario. It had rained solidly for 24 hours and now the temperature had dropped to a cool 36° and the wind was gusting to 35. We had delayed our departure for three hours because of a 700'-AGL ceiling and reduced visibility in light rain and fog, but now the ceiling was 1200' AGL topped at 14000 and the visibility up to 25 miles. We had a lot of luggage to pack into our T-Bird and when we finally accomplished that task, plus the external and strap-in, we were chilled to the bone and a little damp.

The cheese was beginning to bind!

Next, the TACAN wouldn't work! After exhausting all attempts at quick-fix, we decided to continue as a "slash Tango" and informed ATC of the fact. The next few phases of flight were uneventful. As the Nene burned, the Bird climbed, the sun appeared, and the cockpit filled with delicious heat, we cast off our tribulations and began to look forward to the trip ahead.

We were climbing through FL220, approximately 40NM North West of Ottawa, when the generator-fail light reared its ugly yellow head. "Oh dear", we thought – *"the cheese is beginning to set!"*

We made an immediate decision to split our talents, so while the captain flew the beast, I commenced to gather my thoughts and take corrective action. My first impulse was to advise ATC of our difficulty and its possible consequences, but when I pressed the mike button, no sidetone, no nothing! (a new snag unrelated to the electrical problem). I informed the captain of this and told him that he would have to do all the R/T, as well as fly. He advised ATC of the problem and the fact that we could probably expect complete electrical failure in short order. He requested immediate clearance back to Ottawa, and emphasized that we had to get below cloud ASAP.

We were cleared to descend to 5000 MSL immediately. In the interim we had turned off everything electrical in the cockpit except the pitot heat, intercom, emergency UHF, fuselage tank, and tip-tanks. Down we went, following what can only be described as excellent vectoring from Ottawa ATC who were obviously taking us a little south in anticipation of avoiding hills and the high minimum quadrantal altitude in the N.W. sector.

As we approached 5000 MSL, we were aware that our compasses and attitude indicators were beginning to give questionable indications. The captain explained this to ATC and re-iterated his desire for lowest possible altitude. We were cleared to 3000 MSL and continued a partial-panel descent to that altitude.

As we motored along in the murk at 3000, the fuselage tank and generator lights began to dim appreciably and the intercom became very fuzzy. We elected to lower landing gear, flaps and speed brakes before complete failure occurred in order to best prepare for landing in the event that we broke out of cloud, and because we realized we had plenty of fuel still available for flight at a high power setting. We advised ATC that we were still in cloud and that unless we could have immediate clearance to 3000 MSL we would be unable to continue. While awaiting his reply, we realized that ejection could be imminent and that hand signals would be necessary to ensure we were both ready to go at the same time. *The cheese was beginning to stink!*

We heard a voice at strength one – "22 miles west, now cleared to 2000". We eased the aircraft down, levelled at 2000, still in the murk, and motored along for what seemed like years, but what was probably seconds. The realization was now upon us. We were going to be forced to jump. *Holy *!*!, why me?*

And then, out of the murk, it came – a sucker hole! We *gently* nursed the bird down and glory be . . . the world was spread before us like manna from heaven. A short time later we had made our way to Uplands. After yelling cautions to each other – with masks off, since the intercom was gone – we were ready to make an approach, knowing that we were heavy weight and prepared to compensate.

The thump of rubber on concrete was never more greatly appreciated by two pilots. The rest was a piece of cake! After a reasonable length of time exercising elbows to quell the adrenalin syndrome, we decided to write this very subjective, and regrettably lengthy narrative to share our experience with the rest of you.

- Some of the lessons to be learned:
  Have a healthy respect for the environment – it may put you in a box! Had we taken off when the ceiling was 700' AGL we would probably have had to eject.

- If you have an emergency – tell somebody. And spare no details. The reactions of Ottawa ATC were most commendable but were supported by the fact that we outlined exactly what was wrong and how serious it could be. The controller knew our predicament and endeavoured to vector us to an area where he could clear us to the lowest possible altitude without fear of inadequate terrain avoidance.

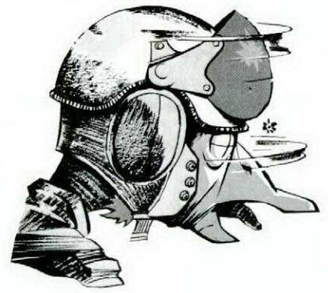
- Know your emergency procedures cold! Immediate corrective reaction may give you the one precious thing you need – time! In this case, our batteries lasted approximately 16 minutes, but would have packed it in much sooner had we not immediately turned off *all* non-essential electrics.

- Don't be too optimistic – brief yourself, and your crew of the alternatives.

- Remember that cheese belongs in a trap, and traps go off quickly – Don't get caught! ! !

Our thanks to Maj T.R. Thompson and Capt A.B. Lamoureux for passing along the account of their experience. Maj Thompson is OC Standards at CFB Moose Jaw and Capt Lamoureux is the Base Flight Safety Officer.

Who needs breakfast?



(or lunch)?

A near tragedy in one act –

Dramatis Personae: A young jet pilot and a totally inexperienced non-flying type.

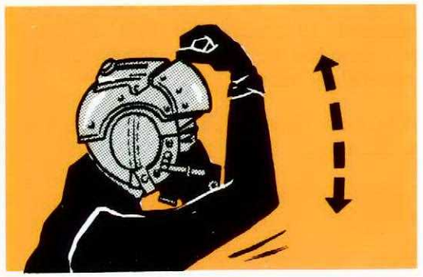
Scene One: Jet trainer cockpit, climbing through 8000, mid-afternoon. (Pilot notices a flickering of his vision followed by hot flushes and cold chills. He is, throughout this experience, gripped with a feeling of elation and euphoria. Puzzled at first the pilot regains his composure and notifies tower that he is in a descent. The light-headed dizziness continues for a short time after landing.)

Scene Two: MO's office
Doctor: Well?
Pilot: As you know, I reported sick for a cold a week ago and two days later was returned to flying. I noticed a popping in the left ear and slight sniffles; however, I didn't report this as it wasn't serious. I think the problem really stems from what happened to me last night and earlier today. I was unable to get to sleep until 4:30 this morning which left me somewhat tired. I had no difficulty with the first two trips; it was just this third trip that really got to me.
Doctor: Why would this be so?
Pilot: I topped that few hours sleep with a couple of cups of coffee for breakfast.
Doctor: And lunch?
Pilot: A sandwich and a coke.
Doctor: Hm–m–m... (doctor performs several tests and finds all is normal.)
Pilot: (walks out of office – a wiser man.)
Doctor: (writing) Pilots should be reminded of the importance of adequate sleep and nourishment prior to flying. Any problem of a medical nature, no matter how minor, should be reported to the Flight Surgeon. This is particularly important when flying alone or with another unable to assume control of the aircraft should an emergency arise.

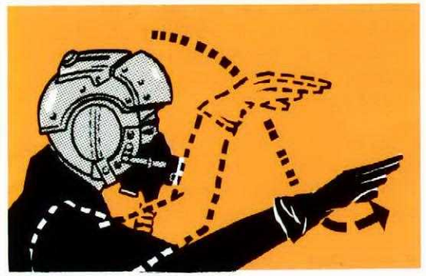
– CURTAINS (gulp!) –

EMERGENCY COMMUNICATIONS PROCEDURES .. In-flight visual hand signals (GPH 205 Page B69)

DAY EMERGENCY

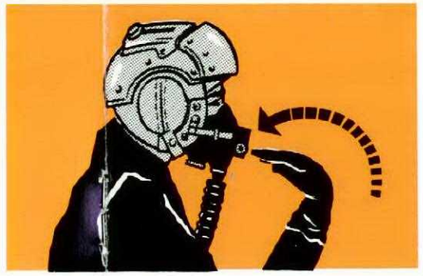


BAILING OUT
One or both clenched fists pulled downward across the face to simulate pulling the ejection blind.

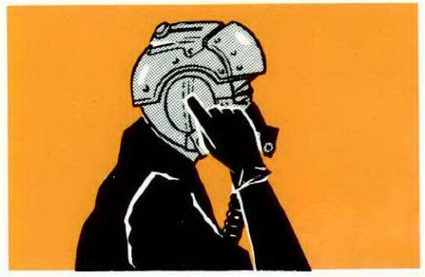


DESIRE TO LAND
Alternatively, lower the landing gear

TRANSMITTER FAILURE



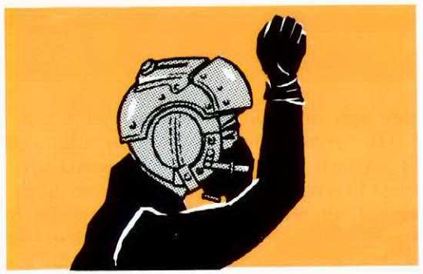
RECEIVER FAILURE



SATISFACTION

DISSATISFACTION

RADIO FAILURE- Tap microphone or earphone and signal as appropriate, thumbs up or thumbs down. The signals will indicate satisfaction or dissatisfaction.

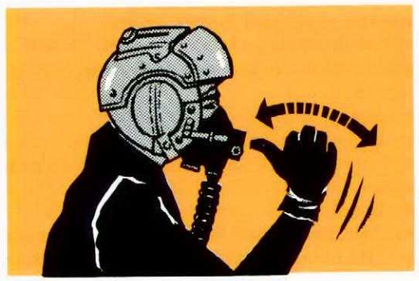


HEFOE signals to be used only when radio contact not possible. Pilot will clench fist and hold it to top of canopy, then he will show required number of fingers to indicate which system is malfunctioning. Pilot receiving signal will repeat it to show acknowledgement.

SYSTEMS FAILURES (HEFOE)

HYDRAULICS ***ELECTRICAL*** ***FUEL*** ***OXYGEN*** ***ENGINE***

INFORMATION SIGNALS



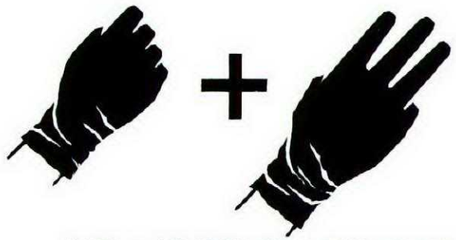
FUEL STATUS

10 MIN.
FUEL REMAINING

20 MIN.
FUEL REMAINING

50 MIN.
FUEL REMAINING

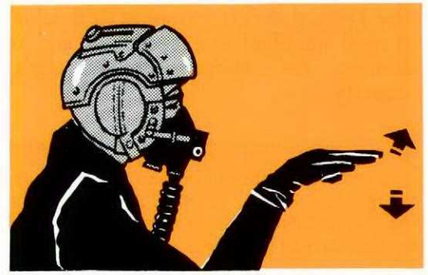
1 HR.
FUEL REMAINING



1 HR. + 30 MIN. FUEL REMAINING

AIRBRAKES IN OR OUT
Biting motion with hand; fingers and thumbs meeting and opening alternately. Execution signal-nod of head.

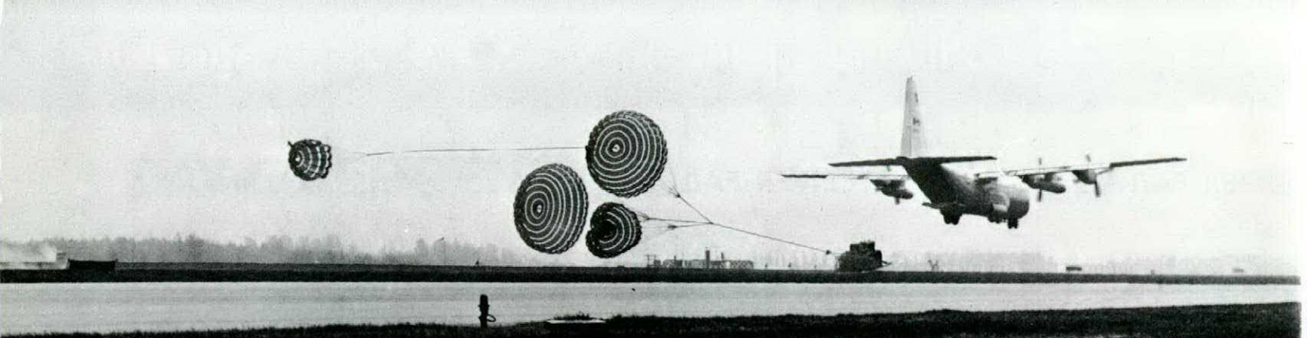
FLAPS UP OR DOWN



Downward motion of hand from wrist to lower flaps - upward to raise flaps; Execution signal - nod of head.

UNDERCARRIAGE UP OR DOWN

Up or down - rotary movement of fist as though cranking wheels. Execution signal - nod of head.



Total Involvement

...the tactical loadmaster and flight safety

by WO P. J. Graves
Tactical Airlift School
CFB Edmonton

Tactical loadmasters are part of a specialized team. Along with the pilot, co-pilot, navigator, and flight engineer, they make up the crew of Hercules and Buffalo aircraft. Their job has immediate relevance to the safety of the flight. If the aircraft is overloaded or the C of G is out of limits, the next takeoff may become a disaster. The loadmaster is the final link in a chain of loading specialists who provide a safely loaded aircraft. The author, who is a staff member at the Tactical Airlift School at CFB Edmonton, is well qualified by experience and role to address the Hercules loadmaster's role directly.

During flight, other crew members manage to occupy their time with switch flicking, knob twisting and admiring the nice, straight lines on the HOWGOZIT chart. The loadmaster, however, is gainfully employed checking tie-down chains for security, vehicle fuel tanks for venting and the aircraft floor for mis-appropriation of hydraulic fluid (which really is required elsewhere). Through his mind flash pleasant thoughts, not common earthy thoughts, but rather thoughts of his last Weight and Balance clearance. What a work of art! So neatly, accurately and conscientiously done up – why, the whole crew had stood by with bated breath until he proved that both weight and aircraft C of G were "within limits" and safe for flight. Good thing he had checked the cargo waybills carefully, too – that innocent-looking power unit had not been authorized for airlift and could prove mighty dangerous if not properly prepared for flight. Sound like we're stretching the point? Not really. Much of the loadmaster's job is to ensure flight safety. The pre-flight checking of loads, paperwork and aircraft are safe-guards against the unexpected. But it hasn't always been that way.

The author (centre) with MCpl J.L.C. Bouchard (left) and MCpl R.G. Bowman, all instructors at 435 Sqn's Tactical Airlift School, Namao, inspecting extraction system rigging.

MCpl Bouchard (left) and MCpl Bowman checking rigging for an air drop.

If ever a trade or trade specialty had humble beginnings, surely it was that of Loadmaster. Initial employment was much akin to that of a stevedore – cargo loading and off-loading and nothing more. Later, weight and balance control and the processing of aircraft papers were added. Still later, as aircraft became larger, better equipped and more complex, the operation of auxiliary, ancillary and aerial delivery systems were added: and the words *flight safety* took on new and more personal meaning. After some years of being concerned solely with happenings within the main cabin, he now also finds himself concerned with things that dangle outside. The computing of the extraction force exerted by various parachutes, and pondering the consequences if a lack of attention to detail causes a malfunction of an aerial delivery system, is serious business!

Cargo loads of up to 35,000 pounds used to be quite passive. Now with ever-increasing frequency, they are seen exiting the Herc – in flight – with all the agility (and controllability) of an angry bull. And with the latest methods of aerial delivery employing extraction parachutes that develop up to 80,000 pounds of extraction force, neither the aircraft structure, nor the restraint system, nor the combined prayers of a careless crew will impede the progress of a launched load. Unless the most painstaking care is taken in checking and double checking these systems, the loadmaster may well find himself in deep (and possibly very lasting) difficulties. It's like the farm boy who filled his hands and pockets with eggs and then had his suspenders break – there isn't much you can do at the time, and something is going to get broken!

Just as pilots are inclined to discuss the weird control problems they encounter, and engineers expound on the strange belch and erratic behaviour of their last engine snag, loadmasters are wont to describe in detail their latest, inexplicable malfunction. And while their problems may not be in your interest area, bear with them; such discussions are indicative of the interest and enthusiasm of a professional in his field. Who knows? You might even find them interesting.

ROTORWASH

The drag of a fixed-wing aircraft may be considered in two separate elements, whereas drag in a helicopter can be broken down into three parts. What are the three elements that make up the total drag in a helicopter? INDUCED, PARASITE and PROFILE.

Induced drag acts on the rotor blades and is produced as a result of developing lift or thrust to support the weight of the aircraft. Parasite drag or "barn door drag", acts on the fuselage and rotor head and is a combination of skin friction and pressure. It increases with velocity. The third type of drag confronting the helicopter is profile drag. This drag acts on the rotor blades and is again a combination of pressure and skin friction. It varies with the angle of attack of the blades, and velocity.

Cyclic FOD Problems

The cyclic characteristics of the common FOD problems are difficult to explain, but they just may indicate our "human-ness". We writers campaign for awhile on prevention of FOD. You become FOD-conscious, the unscheduled maintenance rate drops, and we attack another problem. You hit that one hard, put FOD in the back of your mind, and the next thing you know the FOD rate is up again.

Then there's personnel turnover. The old hands move out and new ones come in. They're busy learning their jobs, and there's not yet time to be concerned about the refinements, and hats and streamers are sucked into engine inlets, or bolts are removed from the wrong flange of a check valve, or B-nuts are overtorqued to stop a leak.

We can steel ourselves to the fact that these problems fall into the category with death and taxes – we can't do anything about them.

Or we can recognize that these and some others are primarily people problems: You introduce foreign objects; You overtorque; You ignore T.O.s; You don't check clearances between hoses and other engine parts; and You can prevent all of them most of the time merely by knowing that they can happen if You get sloppy in your work.

Jet Service News

Toiling Helicopters

The helicopter does with great labour only what the balloon does without any labour at all.

Wilbur Wright

Front Row, Left to Right: Capt WG Sundman; Lt DA Granger; Capt BB Reid, BFSO Petawawa; Maj WB Allen, SOFS MOBCOM; Maj DA Davidson, Maj OC Newport, LCol FG Villeneuve, Col RD Schultz, DFS; Maj RW Slaughter, SOFS Training Command (Course Director); Capt MS Joyce, Training Command, (Instructor); Maj G Fosberg, SOFS ATC; Maj JW McDermott, SOFS MARCOM; Lt AB Rider; Capt MJ MacDonald; Capt DL Nattress; Capt DP Chambers.
Middle Row, L to R: Capt R Maltais; Capt EJ Jackson; Capt CG Ferguson; Maj GH Herbert; Lt SR Thompson; Capt GD Morris; Capt MJ Rozon; Capt TD Bailey; Lt P Whittingham, Jamaican Defence Force; Lt AJ Davidson; Capt RT Linton; Capt BE Woods; Capt DW Rozon; Maj DE Anderson, SOFS ADC; Lt DC Dunn; Capt RP Ford; Capt GW Scott.
Rear Row, L to R: Capt BC Bernet, BFSO, Bagotville; Capt RG Hawes; Capt AG Niles; Capt JJ Doyle; Capt IG Sanford, BFSO, Chatham; Capt RG Parks; Capt TR Forman; Capt CK McCrea; Lt RH Tomyk; Capt MD Branter; Capt JW Stewart; Capt LS Gagnon; Lt JH Girard; Capt PJ Beaulieu; Capt TM Stobbs; Capt TM Kemp; Capt FK Lawlor; Capt JR Delaney.

Canadian Forces' Flight Safety Officers Course 1972

The annual Canadian Forces FSO Course, sponsored by the Directorate of Flight Safety, was held at CFB Trenton in late October. Forty-one officers, representing all CF Commands, attended, as well as one officer from the Jamaican Defence Force. The candidates are normally pilots who will be employed as FSOs on course completion.

The instructional staff was provided by SOFS Training Command and was supplemented by guest lecturers from both CF and non-CF organizations. The following organizations were represented:

Directorate of Flight Safety
Col R.D. Schultz, DFS, summarized the accident/incident experience of the past two years and explained the rationale of many of the flight safety regulations. As part of a simulated occurrence exercise being done by the candidates, a DFS investigator gave a detailed account of the investigation of an accident. Other members of the DFS staff covered such subjects as "Flight Safety and the Engineer" and available communications media such as *Flight Comment*.

Directorate of Air Requirements
Major O.M. Aller discussed CF procurement procedures and described the latest developments in Aircrew Life Support Equipment.

Canadian Wildlife Service
Dr. V.E.F. Solman, chairman-designate of the NRC Associate Committee on Bird Hazards to Aircraft, spoke on the history and latest developments in the program to reduce the birdstrike hazard.

Canadian Airline Pilots Association
Mr. R.M. "Bill" Kidd, described the approach to accident prevention in commercial aviation and the role played by CALPA.

Canadian Forces Commands
Staff Officers Flight Safety from four of the commands described their flight safety programs and how they meet the unique requirements of their operation.

Defence and Civil Institute of Environmental Medicine
LCol W.D. MacNamara described the development of DCIEM and the key role it plays in aviation in Canada.

University of Southern California – Institute of Aerospace Safety and Management
Two speakers from USC (see box) gave 12 hours of lectures. Mr. W.J. Geiger's topic was crash survivability and the relationship between accident prevention and mission effectiveness. Dr. R.O. Besco discussed Aviation Psychology.

Mr W.J. Geiger

Mr. Geiger is the Commanding Officer of a Marine Corps Reserve helicopter squadron as well as being a lecturer at the University of Southern California. He is a graduate of the US Navy Test Pilot School and was a candidate in the Gemini Astronaut selection. He flew 102 combat missions as an F4 pilot in Vietnam, and has estensive experience in both military and civilian test flying. He attended the Aviation Safety Officers Course at USC in 1958 and now instructs that course.

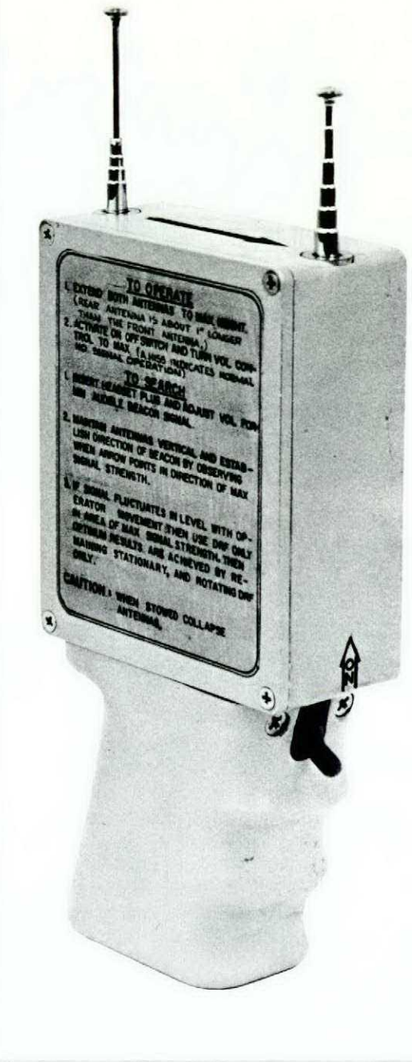
Dr R.O. Besco

Dr. Besco is a lecturer in Aviation Psychology at the University of Southern California. He is also a pilot with American Airlines and has experience as a fighter pilot with USAF and the Air National Guard. In addition to his teaching and airline work, he is a consultant to aerospace industries in Flight Crew Systems Development, Aviation Psychology, and Human Factors Engineering of aircraft and manned spacecraft, and is the author of numerous papers on Human Factors, Aviation Psychology and Display Systems. He holds a PhD in Psychology from Purdue University and has lectured to the last four CF Flight Safety Officers Courses.

FOD Control

Approximately 87% of tires removed from 707s were removed for reasons such as cuts, bruises, etc., which probably resulted from FOD on runways and taxiways. Of 95 tires recently replaced, 85 were removed because of bruises, cuts and flat spots, while only 10 were "worn to limits". The 85 prematurely removed tires averaged approximately 135 landings each, whereas the remaining 10 averaged 200 to 350 landings each, depending on the position in which they were installed. It is noteworthy that a "FOD" campaign which could reduce premature removals by 10% would save as much as $10,000 per year on 707 tires alone.

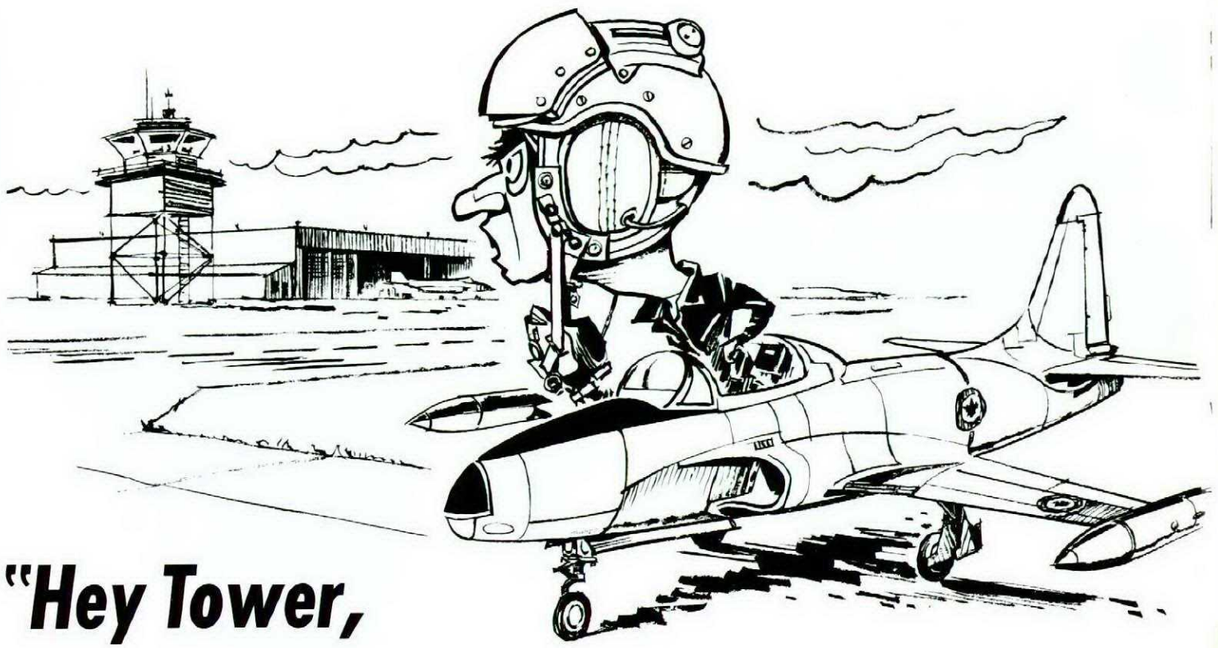
The Flight Safety Committee



What's a DRF-2?

The DRF-2 is a hand-held radio direction finder, pre-set at 243.0 MHz, and designed specifically for short-range search to locate a Crash Position Indicator (CPI) in the event of an aircraft crash or of a CPI being inadvertently jettisoned from an aircraft in flight. Operating instructions are printed on the unit. DRF-2s have been supplied to Search and Rescue bases and bases that have CPI-fitted aircraft on strength (Comox, Namao, Trenton, Ottawa, Summerside and Lahr).

BFSOs and UFSOs can obtain further information on the instrument's operation from their Ground Avionics Section.



"Hey Tower, Haven't You Got My Clearance Yet?"

by Col Robert E. Darlington

Not too many years ago, there were a few outfits which required sort of a cross-training program for air traffic controllers and aviators. The idea was to strap a young tower or GCA controller into the back seat of a Hun and let him enjoy the thrill of a dwindling fuel supply while trying to work into the landing sequence. The pilots, on the other hand, were required to visit tower, GCA, or RAPCON on a recurring basis so they could see how much fun it was to handle a mix of fast airplanes, slow airplanes, IFR traffic and VFR traffic with only one or two runways to play with and no less than a million people talking at the same time.

The result of the program was a healthy respect for the other fellow's problems. Unfortunately, the decrease in available cockpit/flying hours and the increase in recurring ground training duties make it tough to keep that kind of program alive.

The need for mutual respect within the air traffic control/aviator team hasn't decreased at all.

There seems to be a natural law which demands that the growth of air traffic shall always outpace the supply of modern equipment and experienced controllers. Given this fact, the best thing the pilot can do is to help ease the situation with some plain, old-fashioned radio discipline well tempered with courtesy, consideration, and composure.

When I hear a pilot arguing with an air traffic controller, it always prints out in my mind as "adolescent aviator". If an airborne pilot has a valid reason for not accepting a clearance or lack of same, there are procedures, such as declaring an emergency, for seeking resolution.

If safety considerations are not involved, the only place to pursue an air traffic disagreement is ON THE GROUND, not over the radio.

There are two major reasons for this. First, the pilot is usually tuned in on only one frequency. Thus, he may not have as great an awareness of the total traffic situation as the controller who is listening in on several frequencies plus a couple of landlines. Lacking this appreciation, the wrong chatter, argument, or delay at the wrong time could very well be putting another aviator in a bigger pinch than the first aircrew thinks he's in.

Secondly, if a situation is getting so sporty that a crusty old aviator of 5 or 6 (or more) years experience blows his cool with a blast at the controller, consider this: If the pilot is THAT rattled, how will his blast affect the rattle-factor of the first term controller who possesses limited experience in aviation?

Good radio discipline is not entirely a matter of composure and minimum verbiage. It also includes waiting until you're sure the frequency is clear before transmitting after a channel change, and it includes letting the arrival controller know your complete intentions without making him play "20 Questions".

The courtesy and consideration part of the formula doesn't necessarily pertain to the use of "yes sir", "thank you", and "good evening". These are good phrases if you happen to be calling Salt Lake Center around midnight; but definitely out of order at 1100 hours local in the Washington Terminal Control area.

The increase in air traffic and corresponding radio traffic, as you know, has resulted in reduced mandatory reporting and clearance read-back requirements. But occasionally, radio discipline means talking a bit more than required by the rules.

Now I realize that a simple "Roger" will suffice to acknowledge understanding of a new altitude clearance under the new rules. However, when it's obvious that a center controller is straining to sandwich other traffic into airspace I'm vacating, it's just good common courtesy to read-back the altitude clearance. It's also a good idea to put yourself in the shoes of the tower controller who, in an effort to expedite traffic, clears an aircraft to "Taxi into position and hold". While a simple "Roger" will do (WILCO would be more appropriate), an "active AND HOLD" acknowledgment would be better and will significantly reduce the air traffic control pucker factor. (I also acknowledge "holding short", when appropriate.)

One more pet peeve. There is no control tower in existence that can manufacture an ATC flight clearance, and probably darn few which would intentionally conceal or withhold a valid clearance. When a pilot is strapped into a 115 degree Fahrenheit cockpit, waiting to start engines, he can be excused for making an occasional query on the status of a clearance delay. On the other hand, I've heard aircraft commanders translate their embarrassment for late takeoffs by getting tough with ground control. The reaction simply means that the tower crew has to discontinue supervision of the younger controllers while he tries to reduce the noise from the irate aircraft commander. If a real problem is developing in the traffic pattern, cross off one pair of experienced eyes that could be helping to resolve a more pressing problem.

To this point, I've been painting the aviator as the villain of the radio discipline team, but it works the other way, too. Someday, I'd like to disabuse that fellow in RAPCON of the idea that I possess a photographic memory. I refer to the scene where I'm in the soup, in a descending turn, and I'm handed-off from center to approach control. Initial contact is made and, in one mouthful, I'm given a new altitude clearance, a new vector, altimeter setting, active runway, ceiling, visibility, winds, remarks, and missed approach procedure. It would be nice to claim that I'm smart enough to consistently assimilate all that. But to be honest, 8.4 flying hours per month just doesn't equip some people with that ability. WHEN TIME PERMITS, friend controller, please give me all those numbers a few at a time.

TAC ATTACK

Comments to the editor

Mountain Flying

The article, *Helicopter Mountain Flying,* in the May-Jun 72 issue of Flight Comment deserves some comment. Unfortunately, most of my comments are negative.

The article is well written and easy to read but I think this is its major failing because by its very tone it suggests that mountain flying is simple and straight forward when such is definitely not the case. Figure 2, *Figure 8 Recce,* I think, abundantly illustrates this criticism in that it suggests an impossible method of determining wind strength and gives a best approach path that does not allow for wind direction change.

In my estimation, the most important lesson of the Mountain Course is that mountain flying is a chancy, difficult art, filled with constant changing sets of conditions. Success will be in direct proportion to the awareness of the pilot to his situation and his healthy respect for the risks involved.

One last comment. I believe credit should be given to Mr. Bud Tillotson of Okanagan Helicopters as a major source of information contained in the article.

Capt J.W. Randle
442 Transport & Rescue Sqn.
CFB Comox

The author's intention was to make the article easy to read and absorb; it was not an attempt to encompass the month long Mountain Course in a two-page article. The point being made with the figure 8 recce illustration is that while it doesn't give an accurate estimate of wind speed, it allows the aircraft to remain in up-flowing air and can be used in all instances.

Okanagan Helicopters and Mr. Tillotson were indeed a major source – the author is a graduate of the Mountain Course.

Slip-Ons Out

At the risk of nit-picking, I wish to comment on the photograph of LCol Garner and LCol Villeneuve on page 24 of the Sep–Oct 72 issue.

The photograph shows both officers wearing slip-ons on the shoulder straps of their flying clothing. This is a questionable practice at best, and may in fact be contrary to regulations. In any case, I would have hoped that officers associated with the flight safety business at so senior a level would set a better example.

In addition to the foregoing, a remark on the mixture of RCAF and CF items of kit worn by LCol Villeneuve is in order. Is this "battle" not yet over in the CF?

I greatly appreciate your fine magazine, especially here in the USA where it acts as yet another link with the CF for me.

Major Andrew Kossack
CF Exchange Officer
Eglin AFB, Florida.

The regulation governing rank braid on flying clothing states that it shall be "sewn on shoulder straps or sleeves as applicable" (CANFORGEN 271 DC 1109

cont'd on page 23

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cont'd from page 19

31 Dec 71). One of the simplest means of conforming with this regulation is to stitch slip-ons in place.

As to the mixing of colours and items of kit (RCAF and CF), it is likely to continue for some time. For example, we know of one CF supply section that was out of CF pilot wings not long ago. Furthermore, as the old stock has to be used up first, it will not be possible to field a complete team of "greenies" until the supply system's stock of blue flying suits is exhausted.

Murphied Message Muddled?

Going through the "Murphied Messages" in your September October issue I found one that sounded familiar; the one that starts: "THE CAPTAIN ORDERED THE AIRCRAFT EVACUATED." Unless somebody else had an identical incident I was on board for that one.

Now, maybe Maritimers are a bit slow and can't keep up with you smart-alecky Upper Canadians but I haven't found anybody here at Greenwood who could see the funny side of your quote. There were 12 SOB. Don't towers anywhere else use the expression "Souls On Board"? Have you ever exited (past tense of the verb "to exit") an Argus through the cargo door without the benefit of the escape rope or a set of stairs? At the time the stairs had been moved clear of the aircraft and that first step is a long one. There was a degree of urgency in the exercise and that is why 4 SOB used the rope and the other 8 SOB exited through the aft entrance hatch, which we call the camera hatch because it has nothing to do with a camera. Why the urgency? Well there was this little 115-145 bonfire trying to eat the starboard wing just after we got two engines started, and.....

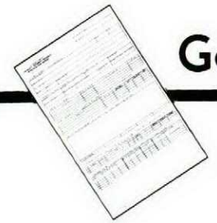
Please enlighten us, Sir. Our sense of humour is nearly all we've got left and if that goes, we're in trouble.

Capt G.B. Bennett
449 Maritime Training Sqn.
CFB, Greenwood

One of our problems with these message extracts is to print enough of the message to set the scene for our readers. In this case it appears that more was quoted than was really necessary. It could have stopped at the funny point, "SOB". In any event, although we see this troublesome abbreviation often enough – roughly 4000 messages come into DFS annually – nevertheless, most people still think that SOB means SOB – at least on first glance.

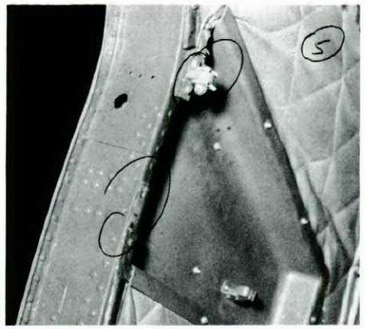
Promises, Promises "Cancel all those promises God, I'm VFR again".
Anonymous

Gen from Two-Ten



ARGUS, ESCAPE ROPE FAILURE Practising for an emergency has proved an embarrasing experience for some in the past – often because they injected too much realism into the exercise. Damaged aircraft and injuries to personnel have frequently been the result. But sometimes, as in this case, you just can't win. Here's what happened:

The Argus had landed following a 7-hour training flight and the crew were running through their aircraft abandoning drill. All went well until the third man using the right beam lookout hatch as an escape route, came through the opening. At that point the mounting bracket for the escape rope gave way,



When the upper hinge of the swing arm assembly broke, the two screws retaining the lower lug sheared.

allowing him to fall to the runway 12 feet below. Fortunately his injuries were not serious.

Tests conducted subsequent to the incident showed that it was possible

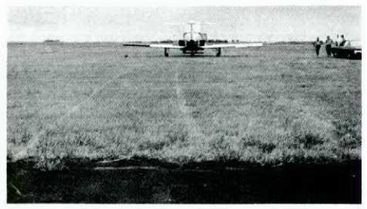
The problem has been corrected by attaching the escape rope to the aircraft structure above the swing arm asembly.

for the swivel arm assembly (see photos) to be swung into position but not locked, in which case, with weight applied to the rope, the upper hinge mounting bolt is forced towards the weakest position of the upper hinge. But even with the swivel arm locked properly in place, severe strain was evident on the mounting bracket.

The problem is being corrected by permanent attachment of the escape rope to a structural part of the aircraft.

TUTOR, MUDDLED MESSAGE The student pilot (solo) had been cleared for a touch and go following a flapless approach. On final, as he neared the runway, he sensed that he was too close to the aircraft ahead of him – a dual which had called for a touch and go – and he decided to overshoot. But when he applied power the aircraft seemed to respond slowly, so he decided to continue with the touch and go after all.

After touching down and applying brakes momentarily to establish separation from the other aircraft on the runway, the student pilot was surprised to find that the other aircraft was in fact doing a full stop and that his separation was rapidly vanishing as the aircraft slowed to take an early turn-off. Suddenly realizing the significance of the situation developing in front of him, (due



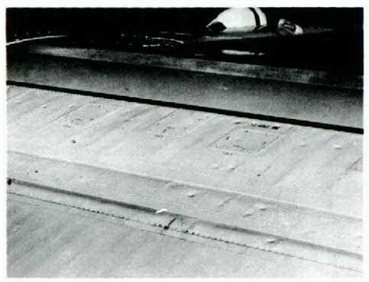
partly to the other aircraft braking and partly to the burst of power on final) the student turned to one side and passed the other aircraft just as it was turning off. He was still planning to continue with the touch and go when, as he was about to apply power for his takeoff, the tower controller asked him if he was aborting, at which point the student replied in the affirmative and began braking. He finally brought the aircraft to a stop approximately 125 feet beyond the end of the runway.

The investigation revealed that the entire episode stemmed largely from an inadvertent transmission made by the instructor in the aircraft making the full stop. Although on two occasions in the course of his closed pattern prior to landing the instructor had called for a stop, for some unexplained reason he called for and was cleared, a "go right" during final turn. Thus the student behind him assumed he was following a touch-and-go. The situation was compounded by improper braking technique on the student's part which contributed to the aircraft overrunning the runway.

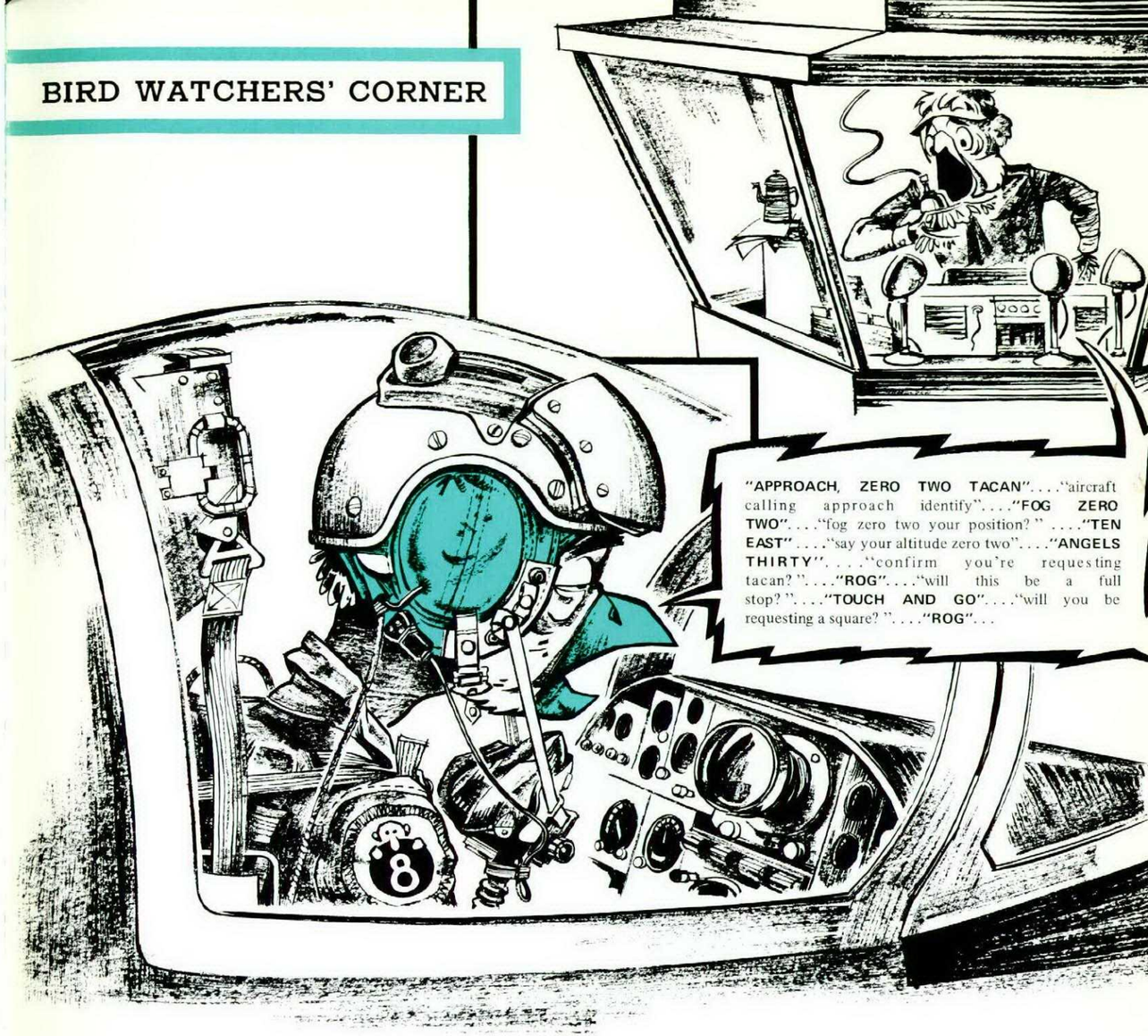
In this mishap the importance of using proper R/T again comes to the fore. It's the old story – think before you push the button. Every time!

BUFFALO, DE-ICING DAMAGE Prior to takeoff from their search base during a SAR operation, the crew were faced with the problem of removing thick ice and snow from the wings and other aircraft surfaces. (AMO 05-1-2/7 contains the approved procedures for snow and ice removal). The tools on hand for the job were corn brooms, but unfortunately – as it turned out – the brooms were not accompanied by detailed instructions specifying the "business end". You guessed it. Someone used the other end – with the predictable results shown in the accompanying photo.

The de-icing job was eventually completed by civilians using de-icing fluid. Then the damage was found: approximately forty dents in the upper surface of the wings. The dents were one inch in diameter and as much as one-half inch in depth.



BIRD WATCHERS' CORNER



AR-TEE BAFFLER

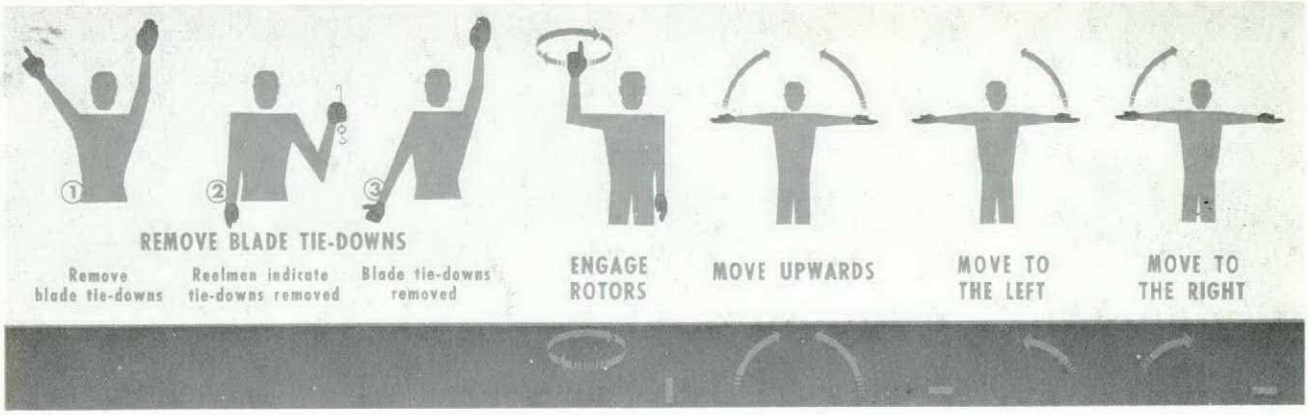
The impending arrival of this imprecise communicator at a transient bird drome is heralded by a significant increase in radio transmissions. Most of the excess chatter stems from the Baffler's propensity to veil vital information in a welter of abbreviated verbiage. Thus, in order to unravel his true intentions from the befuddling birdsong, controllers must engage him in a frequency-cluttering game of 20 questions. Experienced birdwatchers attribute this behaviour to an excessive adherence to the principle that transmissions should be brief and to the point. But when highly abbreviated local R/T phraseology is employed during visits to other nesting areas, it tends to be interpreted as lack of planning and lack of thinking. While the babbling sometimes creates amusing exchanges, it can be a definite hazard. To someone already in a bind, it could trigger the decisive break in a strained logic chain. Following each perplexing PX the Baffler sounds his characteristic call:

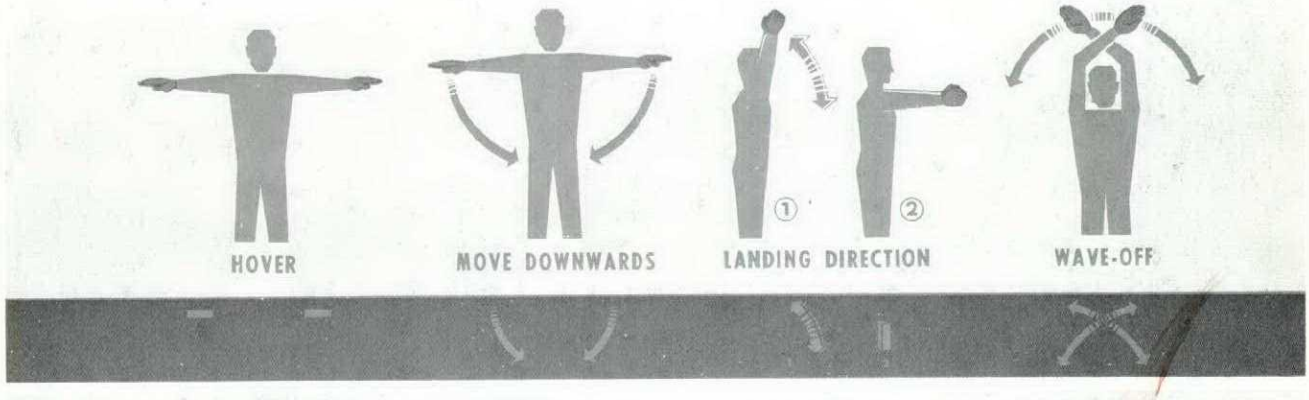
I-CAN-FLY-A-WHOLE-YEAR
AND-NOT-MAKE-MYSELF-CLEAR

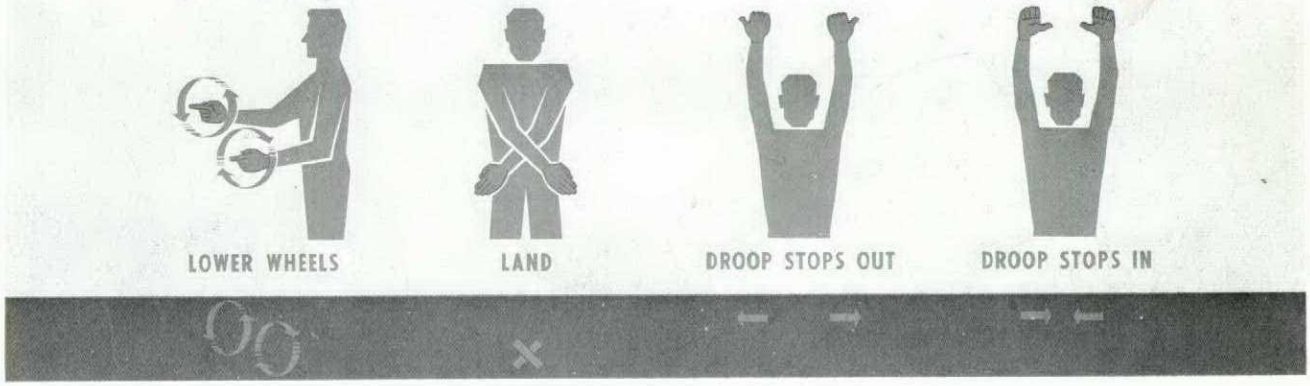
CANADIAN FORCES

MARSHALLING SIGNALS – rotary wing aircraft

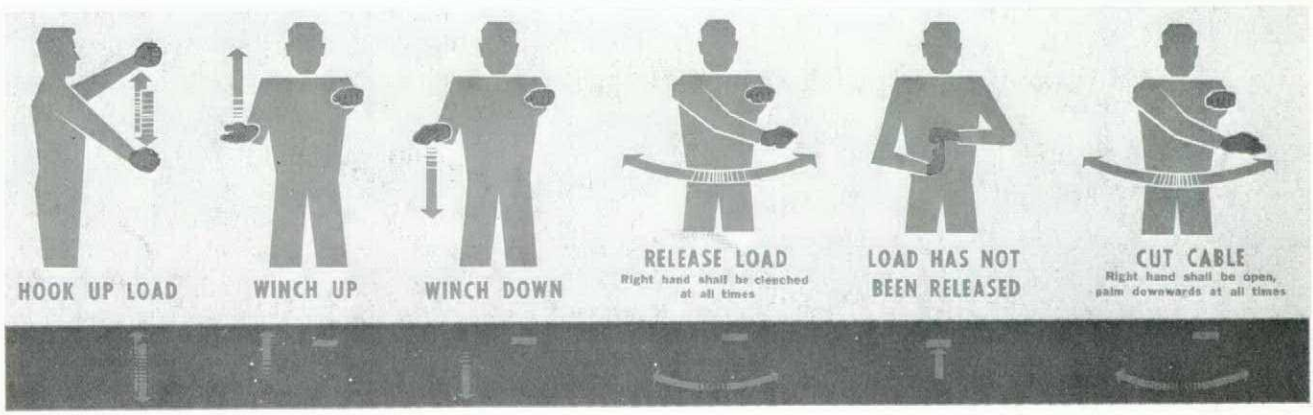
(These signals are in addition to those on poster CF748)







WINCHING SIGNALS



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