RCAF

FLIGHT COMMENT

FLIGHT SAFETY STARTS HERE

TRAINING COMMAND

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FLIGHT COMMENT

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ROYAL CANADIAN AIR FORCE
DIRECTORATE OF FLIGHT SAFETY

EDITORIAL

A/V/M H. M. Carscallen
Air Officer Commanding Training Command

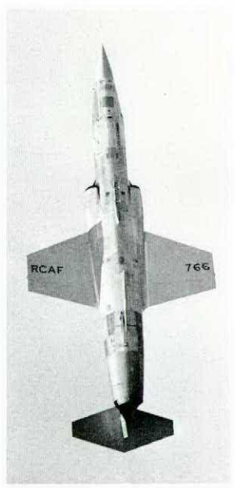
No one today need argue the merits of a strong flight safety programme. The RCAF has benefited significantly in manpower, materiel and money conserved by past programmes and personnel have been spared both mental and physical consequences of accidents. It is, clearly, our duty to accomplish the most from the resources available.

But the problems of flight safety are never finally resolved for they are always changing and exposed to human fallibility. With inevitable technological advances before us, the complexity of the Air Force environment will bring even more demanding challenges for both flying and ground personnel. Success in keeping our accident rate low cannot entertain relaxation of our individual and collective efforts. On both fronts these efforts must be sustained.

Concerning individuals, development should begin early in their careers and Training Command has a large share of this initial responsibility. We must give trainees both the current techniques of flight safety, and more important, a safety attitude that will serve them throughout their careers regardless of the equipment on which they are working or the situations confronting them.

Collectively, the flight safety programme should reflect a continuous overall process, the Training Command flight safety training providing a sound foundation and being compatible with requirements in every flying Command. Final success is strengthened by a vigorous and well oriented programme at the outset. This, Training Command recognizes as an essential and fundamental part of this programme.

FLIGHT SAFETY IN TRAINING COMMAND



by Staff Officers
Training Command

The Professional Approach

"TUMBLE!! CRIPES, WHAT DO I DO?!!" - This thought flashed through the pilot's mind as the gyration became more violent. Seconds earlier he had pushed slightly forward on the stick as he started through the top of the second loop. Now he was being hit by hammer-like blows on the head from being thrown about the cockpit.

After moments of panic, he remembered! "Centralize the controls. Throttle off. Now it's starting to spin! Opposite rudder. Stick forward. Now it's coming out. Oh, no! Now it's flamed out! Better head for the field in case the beast won't start. High pressure cock closed. Airspeed 165 Kts. Let's see if I can get this bird running! All switches on, circuit breakers in. TOE switch on, gangload, press air start ignition, high pressure cock open. No fire! Guess I'll make a May Day call to the tower and let them know my situation. Looks like I've plenty of altitude to make the field in case I don't get a relight. Rechecked everything for another start. Use the by-pass system this time. High pressure cock open again. Still no fire! Won't make another attempt. Altitude getting low. Have to make this from low key. PX to the tower and let them know I'll be making a forced landing! This looks like a good low key. Gear down. I'll hold flaps until I've got the field made. Won't use speed brakes. Start my final turn now. Must make sure I don't land short! Airspeed good. Flaps down. I'm down!! Still a little hot. Better get on the brakes! Whew! What a trip! Hope I don't have to wait too long to get towed in!"

This incident was handled with skill, sound judgement and professional ability. Many might argue that this type of performance is to be expected of all professional pilots. It is, but this pilot was not quite a professional. He was a student who had two more flights to make before he graduated and received his wings and commission.

However, the knowledge, professional ability and judgement—the knowledge of flight safety—shown by this pilot are not native attributes. They have to be taught and developed, and that is the job of Training Command.

It's not an easy task; in fact it is quite critical in terms of flight safety. But it is being done, and with a satisfying degree of success. And the instructors in Training Command are all too aware that the quality of their products, in terms of skill, knowledge and judgement, will ultimately be reflected in the flight safety records of every flying command in the Air Force.

Student pilots in Training Command are first introduced to Flight Safety, unbeknownst to them, at the Officers Selection Unit. It is the responsibility of this unit to classify the candidate's physical and mental potential for aircrew training. He is given an exhaustive medical examination and a battery of selection tests to measure his capabilities. The results of these tests reveal useful information about the individual, and whether he is suitable as a pilot, a radio officer or navigator. This is where flight safety begins. Those attributes that make a safe pilot - physical fitness, attitude, mental and physical reaction time, and so on - are the basic factors in pilot trainee selection.

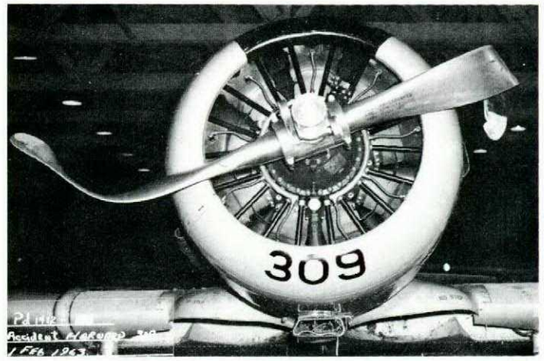
In the flying training phase of the operation, the Training Command approach to flight safety procedures is unique because student pilots with no experience must be treated differently from pilots who have a background of knowledge, skill and experience upon which to rely when difficulties arise.

The fledgling pilot has to be surrounded with a temporary protective padding to cushion him against emergencies until his "wings" are stronger. This is done partly by giving him experience in the safety of synthetic trainers, by constantly reminding him of the safety implications of everything he does. He is taught to be critical of weather. He must guard against ill health. He must have knowledge, and he must seek advice regardless of his wish to be independent.

On a training station there are comprehensive regulations imposed on flying operations to provide the student with a built-in safety guide to help him until his knowledge and experience develop into a personal flight safety consciousness.

All flying schools insist that the student know emergency procedures before he is allowed to go solo. On every dual flight the instructor simulates an emergency situation, which the student must analyze and correct. Slowly the knowledge builds. The experience and self-confidence accumulate and the "protective padding" can be gradually discarded as the pilot develops professionally.

To the pilot instructor, in addition to teaching the basic flying skills, falls the major responsibility of instilling in the abinitio student pilot, the need for a professional approach to flying.



In the role of the teacher, a pilot has many problems, problems that are most familiar to any instructor who has waited to be towed in from the boon-docks, or has sat near his aircraft which is resting on its nose with the propeller bent around the cowling.

Here lies the primary flight safety consideration for the flying instructor. How far can he permit a student to go before assuming control of the aircraft? If he takes control too soon, the value of the exercise may be lost; but, if he waits too long an accident may result.

To ensure that instructional accidents are kept to a minimum, the techniques and skills of the instructor pilots are instilled initially at the Flying Instructors School and are closely monitored by the unit Standards Flight, Central Flying School and the Command Air Staff.

To further reduce the accident possibilities at the flying schools, only the more experienced personnel are placed in supervisory positions, and tests such as the pre-solo test, probably the most important of the students' performance checks, are carried out by the more experienced instructors. This is not intended to reflect on the ability of the junior instructor but rather to relieve him of the responsibility for which he is not at present prepared to assume.

Mastering the many skills of flying is but one of the facets of the students' training. Equally important is the need to foster a professional approach to the job. Here again the flying instructor bears the brunt of the task aided by the Officer Development Programme. The student becomes a copy of his individual instructor and both good and bad traits can be absorbed in this close relationship. It is most important, then, that the instructor provide a good example, and in Training Command nothing less than his best performance is demanded.

To complete the air training picture, personnel selected as Radio Officers and Navigators undertake their training at Number 1 Air Navigation School, flying in Expeditor and Dakota aircraft.

Flight Safety is stressed at this school in the form of the crew co-operation techniques and emergency procedures that are used in Transport, Maritime, and Air Defence Commands.

To ensure that Radio Navigator training is of the highest calibre commensurate with RCAF requirements, instructors are trained by Central Navigation School, which also monitors all Radio Navigator training to ensure that high standards are maintained.

A good flight safety programme is the result of teamwork between air and ground crews, and our story would not be complete without mentioning the ground training programme. The ground trades such as maintenance, flying control, fire fighter, medical and administrative, are all trained in Training Command. It is our responsibility to ensure that these personnel are given sound training and, as with our student aircrew, safety is heavily stressed throughout their studies.

The graduate airman or airwoman is the one on whom we must all depend to service and maintain our aircraft and associated equipment to ensure the safe return of every flight. Here, as with the air instructor, we provide the best personnel available both in skill and knowledge of their trade to teach our tradesmen and women. The operational commands provide Training Command with the requirements. It is our responsibility to ensure that only the most suitable personnel are employed in the instructional role and that syllabi and training aids are not just adequate, but the best available.

Flight safety then is not just the responsibility of the Flight Safety Officer, or of a given group; it is the individual responsibility of every officer and airman.

If everyone is aware of the dangers, familiar with the safety measures to obviate them, and on the alert, then a low accident rate can be expected. It is not surprising to find facets of the Flight Safety programme turning up in virtually every course in Training Command.

The increasing complexity of equipment, the language problems with NATO trainees, and the introduction of new equipment are a few of the difficulties that have been faced in the command in the past few years.

However, in spite of these problems the Training Command record is quite impressive. As outlined in the 1962 July-August Flight Comment, Number 3 Advanced Flying School went for over a year logging 22,000 accident-free hours, and as of 1 January 1963 the AFS completed its 29th month during which the unit has flown over 60,000 hours without an accident.

In September, 1962, Training Command did not record an accident. The Command flies an average of 180,000 hours a year and the accident rate has been reduced from 0.88 to 0.20 over the past ten years. This would not have been possible, and the student pilot mentioned in our opening incident would not have faired so well, if all personnel in Training Command did not support and stimulate flight Safety.

We shall continue to emphasize the professional approach to flying safety, for the student who learns to think for himself during his early training will be able to handle future situations for which there may be no prescribed procedure. It will be done, not only to maintain our own record, but as a contribution to Flight Safety in every other flying command in the RCAF.

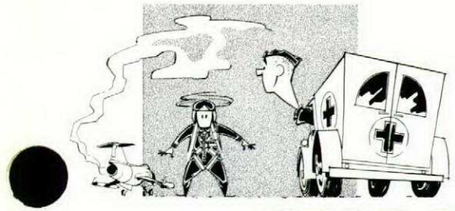
CPL F M KOLL

Corporal F.M. Koll was flight technician on a local air test of a C119. Everything was routine until after preparing for a landing, the nosegear would not indicate safe. An unserviceable micro-switch was at first thought to be the trouble so Cpl Koll entered the nosewheel compartment to install the nosegear down safety pin. The pin could not be inserted which meant the nosewheel was not fully locked down.

A closer examination by Cpl Koll revealed there was insufficient clearance on the striker plate to allow the nose mechanism to go to the locked position. The undercarriage was then selected up, Cpl Koll re-entered the nosewheel area, removed the striker plate, two brass shims from the striker surface and then reinstalled the striker plate. On the down selection, the nosewheel went to the fully locked position and indicated safe. The nose pin was installed as a precautionary measure and a safe landing followed.

The crew of this aircraft and in particular Cpl Koll displayed professional skill and knowledge in rectifying this nosegear situation. By his thorough understanding of the C119 undercarriage system, he was able to prevent an expensive accident to the aircraft and resulting cost to the Air Force. Flight Comment takes great pleasure in awarding Cpl Koll a "Good Show" for the competent manner in which he handled this emergency.

In a moment of time a photo
of a perfect low altitude ejection
is recorded.
A casual spectator watched a jet
hit a tree, the pilot eject, and the
aircraft crash land on the runway. He then
turned his camera to snap a picture of the
pilot descending and another of him disengaging
from his parachute just after landing.
The photographer was a wartime member of the RCAF
and no doubt appreciated the drama unfolding,
but it took some quick thinking to get his camera
out and take these pictures in the few
seconds available.
The pilot was a CF104 test pilot
at Canadair who through circumstances
of low fuel and poor visibility
struck a tree on the approach
and was forced to eject at very
low altitude.



NEAR MISS

HOW LUCKY CAN YOU GET

Two student pilots were on a night cross-country from Gimli to Calgary in a T33. Although the high-surface winds at Calgary gave cause for a little concern, the ceiling and visibility were good. One significant fact though, was an unusually low altimeter setting of 28.86" at Calgary. The student in the front seat was captain and he flew the letdown with the other student reading off the instructions from the letdown sheet. Prior to descent, the captain inadvertently set his altimeter at 29.86" instead of 28.86", which of course, made the instrument read 1,000 feet too high. The letdown seemed to be going normally when the captain felt a little judder and heard the other student shout "Overshoot, we're on the ground!"

It is almost unbelievable, but the aircraft did in fact hit the ground. Other than some superficial scratches, the only damage was two bent speed brakes and a dented tip tank. How lucky can you get! Under almost any other circumstances this would surely have been a fatal accident probably assessed as "Obscure".

Don't feel that this is a rare isolated incident that could not happen to you. On the very same night a near miss was reported from Cold Lake (where the unusually low pressure prevailed) and again the student set his altimeter incorrectly. In this case he had set 29.73" instead of 28.73". Fortunately the captain, a qualified pilot in this instance, noted the difference but the student did not realize the error until he was queried the second time. Undoubtedly, had the student been solo, he would have completed the letdown with the wrong altimeter setting and, possibly with fatal results.

This problem of altimeter setting has been with us for years. When we changed to the procedure of using the standard setting of 29.92" above 23,000 ft, it compounded the situation because now, if a pilot forgets to set his altimeter prior to descent, there is more likelihood that the error will be great enough to cause a serious accident.

The two examples cited above indicate that the chances of setting the altimeter incorrectly are greatest when the station pressure differs widely from the standard pressure. The worst case is when the station pressure is very much lower than standard because then the altimeter reads too high and the aircraft can be flown into the ground unexpectedly. However, the case where the station pressure is very much higher than standard is also potentially dangerous because then there is a similar risk of the pilot setting his altimeter so that it reads 1,000 ft. lower than the actual height. In the case of low ceilings, this could mean that the approach will be missed and fuel may become critical before the error is rectified. Also it can mean flying in cloud 1,000 ft. too high, and, in a situation where aircraft are "stacked" every 1,000 ft. there is risk of a mid-air collision.

Admittedly the altimeters presently in use are not as easy to read as they might be. It is especially difficult in some aircraft to read the altimeter pressure setting at night. Also, the altimeter hands can block the window so that it is impossible to read the pressure setting until the altitude is changed. So, until an improved version is available, it makes it all the more important to become very "altimeter-setting conscious" and develop a habit pattern which will ensure that this important little item is properly set before an approach is commenced. You may not be as lucky as the two students in the above examples!

THE LADY AND THE TIGER

Since today's our first wedding anniversary, I hope you'll pardon me for a few sentimental reminiscences.

I'm not the type that keeps old corsages pressed in books of poetry or collects swizzle sticks from every Officers' Mess we ever went to. Before we were married, Jim always used to say it was a darned good thing because how could I be an Air Force pilot's wife and hope to move around all that kind of baggage?

But I guess we all carry a few mementos from the day we were falling in love and saying "I do." Luckily, mine aren't the kind you can see, and that's better because those last forever, and old flowers have a way of crumbling into a handful of dust.

I'll never forget the night I met Jim, for instance. It was at a Flight Cadet dance at Moose Jaw just after Jim had started pilot training in Harvards. I really didn't want to go to the dance; but all my girl friends were going and I didn't have anything better to do that night anyway.

The Flight Cadet Mess had been decorated with dozens and dozens of balloons and the ceiling was draped with red, white, and blue streamers of crepe paper. There seemed to be hundreds of fellows dressed in their Air Force uniforms with white shirts and black bow ties, all of them looking vaguely alike with their crew cuts and their sunburned faces. Then all of a sudden, Ginnie Wyatt, my best friend and I were being introduced to two of them, and when I took a good look at Flight Cadet James O'Hara, it was a shock I felt clear down to my toes.

He had brown eyes that crinkled like he knew a secret joke he'd tell me sometime, and eyebrows—well, everybody's got eyebrows, but his were sort of wired for action. I mean they moved up and down when he talked, or when he grinned like he had a tiger by the tail—or maybe like he was a tiger with the world by the tail, I don't know. Anyway, the total effect was like a jolt of electricity—a couple of thousand volts.

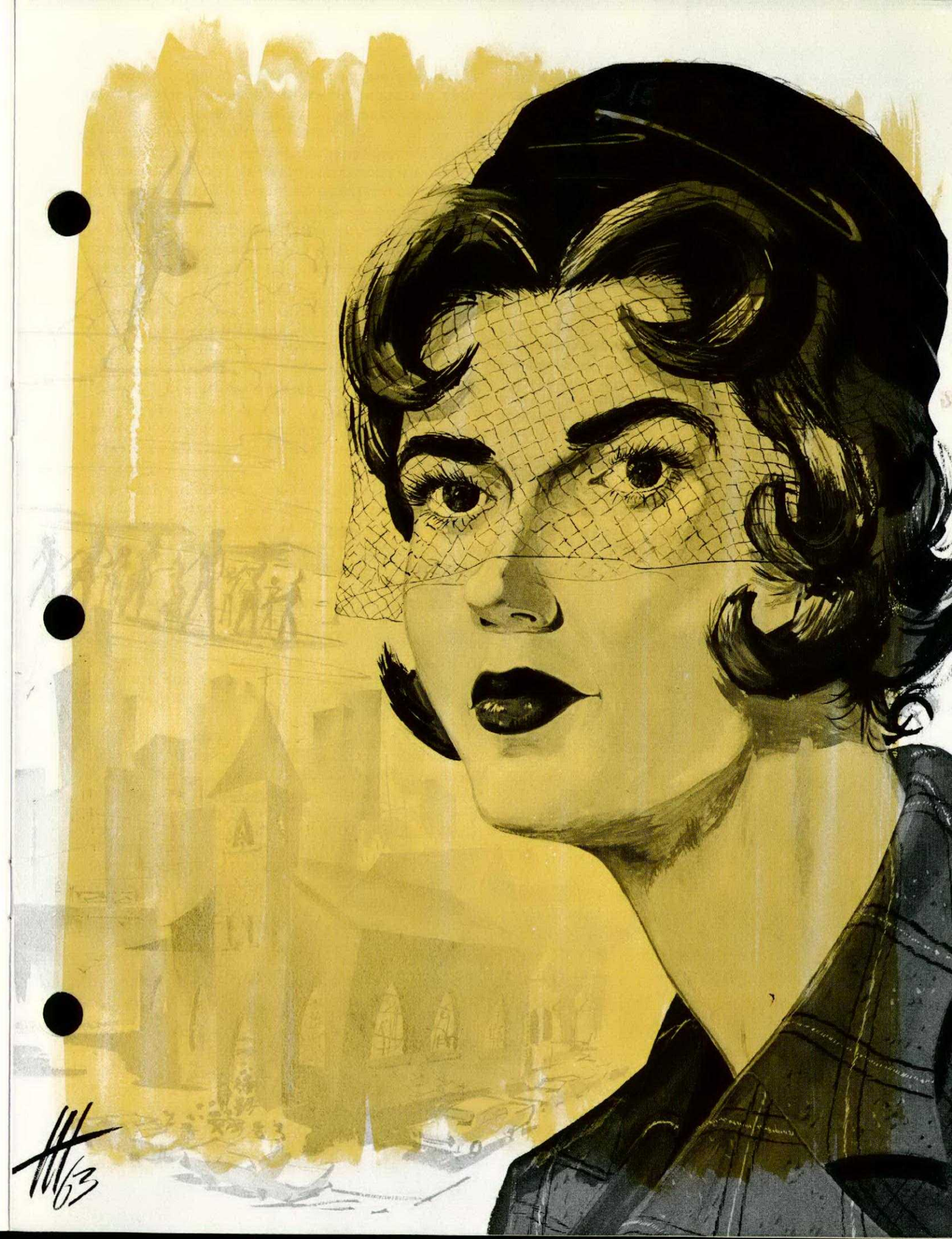
I was gone! Really gone! We had a number of dates while Jim was still in Moose Jaw, and I get dizzy just remembering them. We rode on the carnival rides while the fair was in town and sometimes just for the heck of it he'd undo the safety bar and just hold me in while I screamed and yelled like crazy. He had the use of a little black MG convertible with red leather upholstery, and he'd come tearing around the corner and stop at our house like he couldn't stand not seeing me for even the two more minutes it would have taken to drive there like anybody else, and I'd be out the door before he had the motor turned off.

It made my Dad pretty sore, as a matter of fact, because the neighbors complained about how fast he took that corner, but I'd kid him out of it.

"Gosh, Dad, "I'd say, "don't you remember when you were his age? You can't expect a future jet pilot to drive like an old fuddy duddy! Any man who's going to fly through the sound barrier has to use a little speed. Besides, Jim's the best driver in the world!"

"He may be the best driver in the world," Dad would grumble, "but only a damn fool would come around that corner on two wheels when there are little kids in this block that don't know a street from a sidewalk. You tell that young man to slow down!"

"O'kay," I'd grin, sitting down in his lap and tickling the bald spot on top of his head. "But



let's face it, Dad—it's love!" By this time I knew it was love myself, and Jim knew it, and Dad knew it really.

He'd give me a big hug and only pretend he was still mad. "All right, baby" he'd say. "But tell that wild jet jockey of yours that I love your little brothers, too, so he can't break the sound barrier around here!"

I might as well have tried to slow down a hurricane as Jim in those days. He drove like one, ate like one, made love like one. But that's what would make him the best darned jet pilot in the RCAF. He told me so himself, and I knew it was true. When he slept, I'll never know; but he didn't seem to need sleep. He was a human dynamo that ran on a mixture of energy and ambition and love and just being 21, I guess—but it added up to atomic power.

The next several months didn't go so fast. Jim had gone to Portage for T-Bird training and was studying so hard he didn't write very often and it was pretty far to come just for a weekend. He'd rather phone than write any day, though. I hate to think how much his phone bills ran up while he was at Portage. Finally it was over and I went to Portage to see Jim graduate and receive his commission. The Chief of the Air Staff himself pinned those wings on Jim's chest and I was just as proud as Jim.

We had two weeks leave before Jim had to go to Chatham for further training on Sabres. He was slated for CF104s eventually and I was thrilled at the prospect of going to Europe with him. In those two weeks we were fantastically happy. We got married in the station chapel at Moose Jaw and drove down to Chatham for our honeymoon. It was summertime and we rented a cottage on the beach near Chatham and lay on the sand for hours. It was the first time we'd ever slowed down that much.

Sometimes we just held hands and looked at the water until that old electricity ran from his fingers to mine so fast we had to do something, and then we'd jump up and race out to the float through those big blue and white waves and lie there panting to catch our breath. Jim always won—naturally!

Sometimes we'd talk about how it would be when we were older and Jim had command of a station, and I was a CO's wife. Or sometimes he'd say maybe by that time jet flying would be too tame for him, and he'd be in an astronaut program, blasting off for Venus or Mars or someplace like that. You know—silly stuff and yet we meant a lot of it too.

Sometimes I couldn't help acting like a woman just a little bit. I'd say, "But you'll be careful, won't you, Jim? You won't take any chances you don't have to?"

Those eyebrows of his would go up and down like a semaphore. "Me not take chances, baby? Who do you think you married, a hardware salesman like your old man? When I quit taking chances I'll be out of this man's Air Force!"

"I don't mean you should be an old fogey, Jim. After all, I married you because I love you the way you are—but you know, crazy stuff."

He'd just roll over and ruffle my hair and kiss my shoulder and say, "now don't be a worry wart. No pilot's wife can be a scaredy cat; and baby, are you ever a pilot's wife!" Then he'd kiss my ear and I'd be utterly undone, and before I knew it, I couldn't even remember what I'd been worrying about.

Our apartment wasn't ready yet in town, so we decided that I'd stay on at the cottage, which was about twenty miles down the beach from the base, and he'd go in and report for duty and then drive back each night for the next two weeks until we could move in.

The morning our leave was up I walked out to the car with him. "Kiss me goodbye, Mrs. James Michael O'Hara," he grinned. "You are now seeing your husband off to work for the first time. And by the way, slip out on the balcony in about two hours and if I can get a plane, I'll fly by and waggle my wings at you."

"Roger, Flying Officer O'Hara," I grinned, "but how'll I know it's not some other flyboy flirting with me?"

"You'll know," he said, "because I'm the best damned flyboy in the Air Force!"

Then he kissed me and it was a kiss to remember for a lifetime. Dreamily, I went back to our room to wait.

I heard the jet coming, and I stood out on our balcony and waved my red beach towel. Maybe he turned to look at that, I don't know, I'll never know. He waggled his wings, and I saw the kids and the old folks on the beach flatten out on the sand and I laughed for a second—they were like my Dad, always scared something would go wrong. Then he banked like crazy—he must have been doing the maximum that plane would fly. When his left wing dipped into the water and then sliced through that swimming float where we used to lie, my whole life blew up in a fountain of water and exploding metal and screams that wrenched out of me as though I were crashing too. . . .

It's been 49 weeks now, 6 days, and 13 hours, but I can see it as though it were yesterday, and I always will. I keep thinking, "Maybe he would have been the best damned jet pilot in the Air Force, but how will they ever know?"

This story was adapted from an article by Joanne B. Young, a pilot's wife, and originally published in "Approach". She based her story on the experience of several friends who were military pilots' wives.

We read the D14 on a Harvard which crashed into a farm near Moose Jaw and were struck by the similarity. The setting was a little different, but the lesson the same—a case of the pilot trying to impress someone.

In this case the pilots decided to deviate from their scheduled exercise and do a low-level roll over the farmhouse where one of the pilot's girlfriend was living. Miraculously they were not killed, but they came about as close to "buying the farm" as you can get. Is it really worth it? I'm sure your wife or girlfriend doesn't think so.—Ed.

THE WORD THE BOOK AND THE YIK

F/O J W Faulds
Unit Test Pilot
2 Wing

Each year, the Air Works wastes beaucoup man-hours, and sees its birds needlessly kept out of commission due to a sad lack of the Word. The Word is inscribed indelibly on the rosy-hued pages of RCAF Form L-14/1B, i.e., the major unserviceability and rectification sheet of an aircraft log, henceforth referred to as the Book. When used correctly, the Word wields great power. Drivers-airfram can make it known of the lack of poop in the power plant, complete silence of the oracle called wireless, paralysis in the little black pole which waggles the wings, and many other sicknesses which afflict their fliegenmaschinen during flight. The technical fixers, unbenders, and adjusters can record for posterity the wonders waxed by their medicines and spells in curing the sick charges, and open the eyes of the great witch doctor, the Seniorizing NCO, to the extent of their magic. These things, and many more, are wrought through the workings of the Word.

As you can see, the Word is an excellent communicator and is even more effective when used in conjunction with the Yik. The Yik is a small session which should take place between the aircraft jockey and the aircraft keepers whenever either one has occasion to put the Word in the Book. It is invaluable in opening the eyes of the blind and piercing the ears of the deaf. Happenstance, he doesn't dig the Word - the baffled technician can beget a crystal-clear image of the bird's ailment from the illiterate pilot by means of the Yik. By the same token, many a happy pilot has bored his way through the ozone supremely confident in the tenacity of the technical bubble gum holding the thing together, because just prior to leaping off, his crew chief had passed that info along through the medium of the Yik.

If the Word plus the Yik are so effective, how come the wasted man-hour bit? Like every other part of the system; the Word is subject to many illnesses; all of them are human-induced. Many words can be seen in the Book suffering from acute attacks of Illegibility or Common Chicken Scratch. Other Words suffer from frequent bouts of that dread tropical disease "Vaguey-Waguey" which in recent years has shown signs of affecting the Yik also. Yik symptoms can be recognized by cries of: "I'm not sure, but it just doesn't feel right"; or "I don't know, but I think I fixed it"; or, "I can't remember, but I must have checked it". These symptoms are repeatedly accompanied by sheepish grins or shrugged shoulders and nothing further can be gained.

Word symptoms include such goodies as: something loose in back - controls feel funny - a/c flies like a truck - patch put where crack was - something loose tightened, ad idiotum. The only known cure is the swift application of the RCAF standard, boot, leather, black to the centre of the empennage of the disease carrier.

Form L-14/1B entry: something loose in back, controls feel funny, a/c flies like a truck

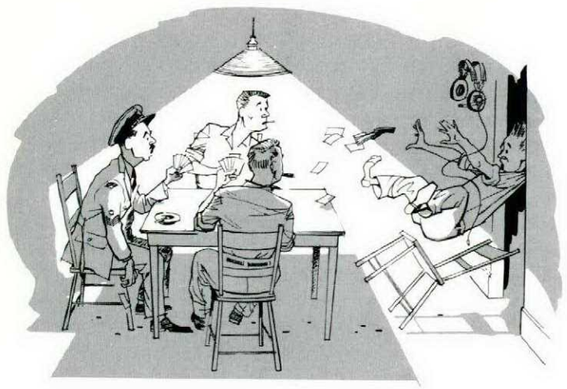
Galloping Hot Rock Tigerism is a plague which preys constantly on the Word, and which will be explored at some length in order to show the horrifying results of a deteriorated Word. The disease is most often spread by some transient sweeper of the skies who dashes off a careless scribble in the Book while flexing his G-suit, spitting in his hard hat, and snarling at the assembled beetle-bashers about cons, and breaks, and six o'clock and other unintelligible items. He usually foregoes a Yik and disappears in a cloud of dust toward the nearest watering place, leaving the fixers and unbenders puzzling over such juicy morsels as: "bird dog sick, parrot sour, binders weak." This normally happens on a Friday afternoon, and by the time the disciples of all trades have had a bash at deciphering this menagerie, and finally seek aircrew aid, they find their own birdmen thundering over the horizon towards the oasis, waving thirsty "au revoirs". In desperation, for the weekend is rapidly shrinking before their eyes, our boys root around in the darkest recesses of the canteen until they unearth some grizzled old flight sergeant who secreted himself there three years before after suffering through a similar situation. When he has been dusted off, the grizzled one will duly translate "bird dog" into "automatic radio compass", and 83.4% of the time will succumb to the strain and quietly fling himself under the wheels of the nearest fuel bowser. Now that the problem has been narrowed down, our stalwart gang reaches once again into the coffee shop, and unceremoniously snatches LAC AE Neuman, Telecom Tech, from the floating bridge game (otherwise known as pontoon). Our worthy wirelessman, without much of a diagnosis to work on, will cast voltage spells and mutter incantations into the atmosphere, but when his bag of tricks has been exhausted, he can do no more than counter this evil scourge of the Word with another equally slimy and distasteful disease.

Enter now the dread GCS, a ravager of the Word that causes aircrew to weep and AMSups to cry out in anguish. In neat printed hand, our telecom man makes "ground checked serviceable" opposite the sick-hound report. He may have checked every bone in the bird dog's body or he may have had equipment enough only to check certain parts, but with such an entry, the next radio man to investigate the

The jockey disappears in a cloud of dust toward the nearest watering place

next snag will have to start at the beginning again. The BFI boys on Monday mornings will have nothing special to look for, and the pilot will probably make like our hero.

At this point, we will endeavour to show the necessity for believing in the Word from the pilot's standpoint, and for ensuring that the Word is indeed true when entered in the Book



LAC AE Neuman unceremoniously snatched from the floating bridge game (otherwise known as pontoon).

from the ground troops standpoint. The original instigator of the problem usually arrives back from the gaiety and light of the neighbouring Metropolis at the crack of dawn on Monday anxious to get his beast back to the home patch because they need it for Zulu, or a fly-by, or something equally minor. Diverting a nervous glance from the murky atmosphere wherein not even the feathered jobs are flying, he notes the rectification to his nav aid and immediately constructs a purple snit of great magnitude whilst casting dispersions upon the ancestry of radio men, since the days of Marconi. He is so enraged that he roars off without consulting the rest of the Words in the Book or having a quiet Yik with the troops who worked all day Saturday in the rain to make sure that everything actually was O.K.

Twenty minutes later, our fire-eater will be choking in his mask as he notes his oxygen needle pegged at the empty mark. A leak? No, our little man didn't check the Oxygen Word, which wasn't there anyway because someone had lost the adaptor. On the other hand, that harassed old sergeant at the desk had signed the Word indicating the kite as ready for the air, along with the other two dozen from his own outfit which his boys were getting unplugged and unchocked in preparation for the early morning frag order, while the EO was riding him on account of the Unimog batteries were dead, etc., etc!

What the entire parable boils down to is that the Word is only as good as its man. Concise Words are indeed admirable, but they must get the picture across, so if you can't be concise, take all the paper you need to be clear and comprehensive.

Pilots, just consider that two minutes of thought prior to one minute's writing might put the bird back in the air three hours faster.

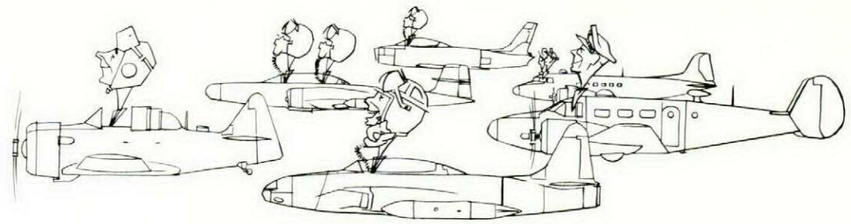
Techs, remember that if more info is required on the next flight, it can be requested via the Word, and a short list of what's been done makes more sense to the next man working on the snag than GCS.

NCO's, don't forget that aircrew have faith in the Word and they're counting on you to guarantee it.

Above all, on both sides, we've got to have more Yik!

F/O J W FAULDS

F/O J W Faulds is a Unit Test Pilot with 421 Squadron at 2 Wing in Grostenquin, France. He joined the RCAF in 1957 and received his wings at Gimli in May 1958. After further training at Chatham, N.B. he was posted to 2 Wing.



HEADS-UP FLYING

COMPLETE ELECTRICAL FAILURE

F/O D.L. Work was number two in a two-plane section of Sabres with F/L J.E. Booth leading. While climbing out in close formation, F/O Work felt a severe engine vibration. As they were "on top", he moved out, throttled back and did a cockpit check. The vibration ceased at 80% but the generator warning light was on and the generator switch would not reset. Just then, the cockpit started to fill with fumes and F/O Work quickly turned the battery master switch off and selected 100% oxygen. He waggled his wings and when his leader joined up in close formation indicated complete electrical failure by hand signals. F/L Booth then took over, declared an emergency, and returned to base positioning his wingman so that a flameout pattern could be carried out if the need arose. Fortunately the engine kept going and due to his favourable position, F/O Work was able to land without using more than 80% power.

Subsequent investigation revealed that the starter-generator had failed mechanically and large pieces of copper windings had been torn off and ingested in the engine so that complete engine failure was imminent at any time.

This extremely critical situation was handled very capably and for this display of professional airmanship, Flight Comment is pleased to award Heads-Up Flying to both F/O Work and F/L Booth.

TOUCH AN GO

F/L ND Hull departed on a clear-hood mission in a T33 with a student in the front seat. The aircraft developed the usual 15% increase in RPM when the takeoff and emergency switch was activated. Maximum RPM available on takeoff was 97.5% on the rear tachometer. Three or four minutes after takeoff a simulated flameout was executed which was terminated with a low approach and overshoot. The pilot then climbed to 33,000 for commencement of the exercise which included maximum rate descent, stalls and aerobatics. After being airborne approximately 50 minutes another simulated flameout was executed and was terminated by a low approach. Three-touch-and-go landings were completed on the inner runway. Engine JPT and oil pressure were in normal operating ranges, but RPM on overshoot was a low but acceptable 97%.

On the fourth overshoot just at lift-off, reduction of thrust and decreasing RPM was noted despite full throttle advancement. Quick calculation by the pilot indicated there was sufficient runway to stop so he immediately closed the throttle and the aircraft braked to a stop before resorting to use of the takeoff and emergency switches. It was subsequently found that the lower engine fuel pump had failed.

F/L Hull handled this mechanical failure in a very professional manner. He is to be commended for his quick decision and action in this emergency, and Flight Comment is pleased to award "Heads-Up Flying" to this pilot.

While instructing in the S2F (Tracker) a few years ago, I gave a single engine to a student as he was practicing a turn pattern. Seconds later, with the aircraft on its back, I managed to turn the fuel selector on again. We recovered from the manoeuver after losing 4000 feet and I vowed to refrain from giving a single engine while in a steep turn.

Some months later, while practicing stalls and slow flight, I gave a routine single engine. In just a few seconds we stalled and fell off in a flat spin. I turned the fuel selector back on and by use of the rudder assist and full power from the engine on the inside of the spin, we recovered after losing 5500 feet. That was the last single engine I've ever given in slow flight.

The next Spring, while flying along straight and level at 7000 feet, I reached up and turned off the right engine fuel selector. My student unhesitatingly carried out single engine procedures. After agreeing that the right engine was dead, he reached up and feathered the left engine. I immediately turned the right engine fuel selector on, reduced power and unfeathered number one. We lost 2000 feet. I then decided to give single engines by securing the fuel selector to the port engine so I could protect the right engine feather button.

Later in the Spring, I initiated a single engine practice by securing the port engine fuel selector. My student carried out the procedures perfectly until it came down to turning off the mag. He reached up and turned off the mag to the good engine. With cat-like alacrity, I reduced the throttle and turned the mag back on. We lost 1000 feet. From that time on, I have protected the right engine and associated controls like a watchdog.

Summertime was upon us as I gave a bright prospect a routine single engine. I sat there and marvelled as he methodically carried out the checklist with professional adroitness. When it came time to return the engine to the line, things went to pot. The feather button had not popped out after the engine was secured and all the oil had been pumped into the engine from the tank. My bright prospect took us home single engine. Thereafter, I checked to see that the feather button returned to neutral within 10 seconds of being actuated.

Came the Fall and on a climbout from the night bounce pattern, backfiring and associated swerves, served notice that everything was not normal. As the rudder assist was turned on and the props shoved forward, the backfiring ceased. The student pilot, certain that backfiring had come from my engine, added full throttle to number one. I looked at the gauges, saw 50 inches on number one and 30 inches on number two and asked the pilot if he was holding left rudder. He confirmed that he was holding left rudder and I announced, "I'll feather number two!!" Home field was four miles ahead and we started a straight-in to the duty runway. Over the threshold, number one engine froze from oil starvation. We glided to a landing and a short while later discovered we had made it with the aid of an eight-cylinder engine after feathering the good number two engine.

In early December, while flying along in very cold air, I was demonstrating the use of the de-icing equipment. With all systems going, I gave the pilot a single engine. He secured the port engine with great skill. Suddenly, the ICS and all radios went dead. I had put all that electrical load on the starboard D.C. generator and it had sheared a shaft. We had a dead battery, too. After landing single engine I decided to check the electrical load before giving single engines.

I then went on Christmas leave. When I returned, I was made a ground training instructor (and just when I had learned all the angles to giving a single engine!).

APPROACH

A FAST WHIRL

The problems of high-speed autorotation entry experienced by pilots of HSS-IN (H34) helicopters in the USA appear to be solved. As a result of flight tests conducted by Sikorsky Aircraft Company and the United States Navy it is believed a recent accident from loss of control during high-speed autorotation was caused by a retreating blade stall.

In this accident a HSS-IN experienced a throttle control malfunction and the power stabilized at 2700 RPM, 52" MP. The pilot remained in level flight at 800 feet, picked up 120-130 Knots, and announced that he was cutting the mixture at a point some distance from the field. Moments later the aircraft pitched up violently and fell off to the left. The rotor blades were observed to be turning very slowly. The aircraft crashed out of control short of the field; there were no survivors.

It became apparent shortly after the accident that there wasn't too much information readily available in regard to high-speed autorotation characteristics and techniques. The flight tests subsequent to the accident revealed that when the throttle is chopped with the collective in the UP position (simulating engine failure) the rotor RPM decay rate increases as airspeed at the time of chop increases. In order to prevent an unacceptable rotor RPM loss at higher airspeeds, less time is available to the pilot to unload the rotor upon engine failure or planned autorotation. It is then reasonable to assume that even a slight aft cyclic input as the rotor RPM is decaying rapidly at higher airspeeds could easily induce a whopping blade stall situation.

Calculations made after the accident indicated that the pilot cut the mixture at such a distance from the field that it is doubtful if he would have made the field had airspeed been around 80 knots instead of 120. This supports the contention that because of the high speed, the mixture was purposely cut further out than normal with the idea of coming in with aft cyclic to kill off the excess airspeed, entering autorotation at about 60 knots and after stretching the glide sufficiently, landing somewhere on the field. It can be assumed too that the pilot was not aware of decreased time available to unload the rotor when mixture was cut at 120-130 knots.

Prior to this accident there were a number of pilots who would have considered that a healthy airspeed upon entry into autorotation was like money in the bank—money that could be readily traded for rotor turns in a pinch. Under similar circumstances, it is believed that many pilots would not have been in any great hurry to get their collective down upon engine failure or planned mixture chop.

So it appears in this case that the pilot, in order to kill off airspeed, attempted to stretch his glide after the mixture was cut by coming in with some aft cyclic, while at the same time not being in any great hurry to bottom collective. When the engine died the unusually high rate of rotor RPM loss due to high speed coupled with the increasing angle of attack on the rotor blades, brought on by aft cyclic and changing air flow through the rotor, induced retreating blade stall. The rotor RPM loss was too great to regain and normal blade stall recovery efforts were to no avail.

USAF FSO Kit

IT DOESN'T TAKE MUCH

While on GCA after a routine flight in a Voodoo, the pilot found that the control column could not be moved to the left far enough to give more than 3° left bank. By no means a happy situation, it was, however, sufficient for him to complete a normal landing. On the ground, and using considerable force, the stick suddenly broke free, but extra force was still required to move it to the left. Further experimentation revealed the fact that this situation occurred only while the seat was in its full-down position and stick aft.

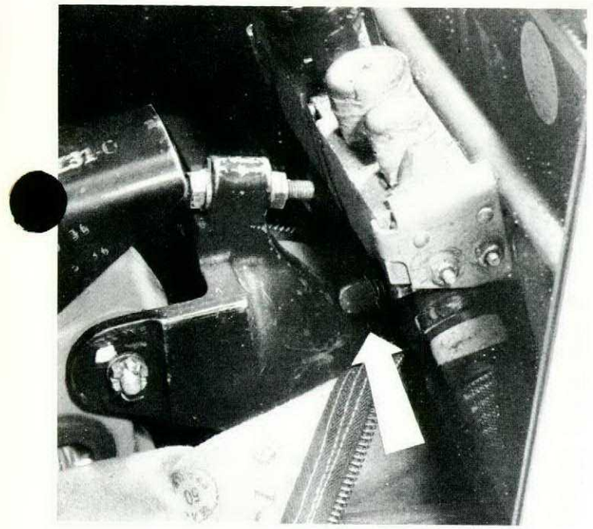
A check by groundcrew personnel followed and it was discovered that a hose clamp on the anti "G" system hose at the seat quick disconnect was improperly installed with the tab forward, causing jamming. The tab on the clamp interfered with the lateral control stick movement by contacting the control stick yoke assembly.

A new clamp was installed and rotated to put the tab aft of the hose. A special inspection was initiated and all other aircraft checked for correct positioning and tightening of the clamp.

All aircraft were found serviceable except one. The clamp had loosened and started to rotate and could easily have set up a similar situation in the future. The clamp was repositioned and tightened with the tab turned in

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



tight against the seat. This leaves the area near the stick free of obstruction.

A further development from this report was the recommendation that a thumb screw type clamp be replaced by a screwdriver operated clasp to eliminate possibility of binding if the clamp is improperly installed or loosens and turns, and that 05-185A-4 be amended accordingly.

This small error in the positioning of a clamp on a hose could have resulted in the loss of an expensive aircraft. Modern aircraft leave no latitude for error—it doesn't take much to cause an accident.

AN EYE FOR SAFETY

During takeoff in a CF101B, the pilot experienced moderate vibration similar to nosewheel shimming. However, nothing serious was indicated and the takeoff and climbout were continued as planned.

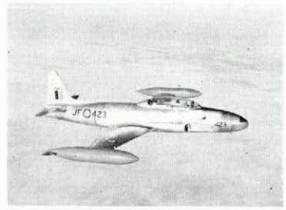
In the meantime, two DOT workmen, who were near the runway during takeoff roll observed a piece fly off the aircraft tire and immediately reported it. The pilot was then contacted by RT and advised that he probably had a tire failure and that it would be prudent to return and land while it was still daylight.

Mindful of the hazard, the pilot was able to review his emergency procedures for landing with a blown tire and use extra caution on landing. The aircraft was landed with little directional control problem and only a minimum of braking was required.

Since this highly commendable action by the two DOT workmen had given the pilot fore-

warning, he was able to land his aircraft without even blowing a tire which had all of its tread missing. The pilot is also commended for the professional manner in which he handled the situation.

This again points out how all personnel can assist in preventing accidents. If you observe something that doesn't appear just right on an aircraft about to take off, report it — it might save someone's life.



THE BLAST OFF

A T33 was parked on the main ramp and had received taxi-clearance. A Dakota on air evac was in front and was being started, with a groundcrew man stationed nearby. The T33 pilot held his position until the Dak started to taxi, to avoid blasting the crewman. He then taxied behind the Dak along the parallel taxiway proceeding to the run-up area for runway 30. This area was blocked by a Yukon waiting ATC clearance so that the Dak and T33 stopped on the taxiway.

After a few minutes the tower asked the T33 pilot if he could make a 180° turn to a cut-off and then backtrack up the active to the

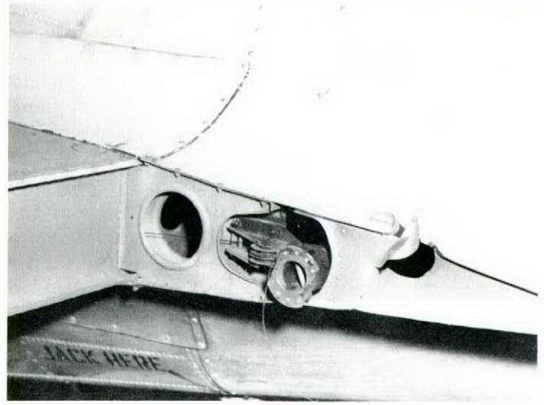
button for takeoff. The pilot replied he could if the Dak moved forward a bit to give more space and reduce jet blast. The Dak pilot replied he could not move for fear of the Yukon's prop wash. The T33 pilot thinking the Dak which was air evac might be boxed in waiting ATC clearance for the Yukon, decided he would make the turn.

The pilot applied 75% power and turned the aircraft to the right about 40° then cocked the nosewheel to the left so he could turn approx 250° to the left as quickly as possible to have the tailpipe in the direction of the Dak for a minimum of time. After the turn was initiated he reduced power, but not soon enough, as the RPM was decelerated down thru 65-60% as the tailpipe swung by the Dak. As he turned back to the cut-off the Dak pilot reported he thought the T-bird had struck him. The T33 pilot realized this was impossible as he had at least 30-40 feet clearance but concluded it must be the jet blast which he had been so concerned about right along and had taken such pains to ensure it would cause no damage. He then looked back and noticed the port elevator of the Dak had been torn from the a/c at the hinges.

Although this accident was assessed as aircrew error, it was not considered a case of negligence or carelessness but rather one of misjudgement. In the first place the pilot should have stuck to his original decision in the situation. That the pilot was aware of the effects of the jet blast is evidenced by his care in departure from the line and the method he set about turning the T33 around on the taxiway and was conscientiously attempting to minimize the effect of the jet blast!

It is reasonable to suppose, however, that very few pilots would have realized the little blast that is required to tear off an elevator when the blast is directed from the rear and causes severe whip. The pilot made an error in timing also, although the throttle was well back as the tailpipe swung past the Dak, the engine had not run down and there was still considerable blast.

If in doubt, don't!



SYMPTOMS?

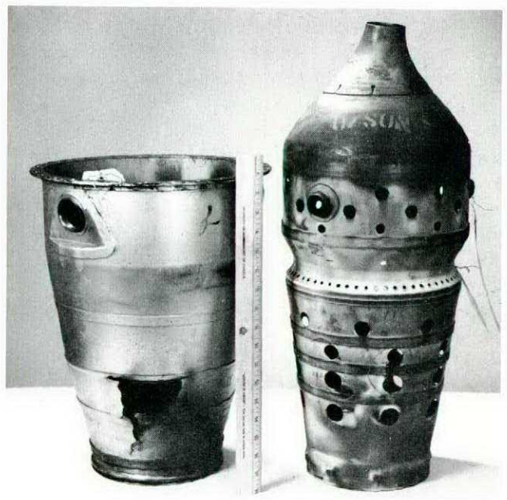
A pilot took off in a T33. During the procedure climb through 15,000 ft at 98% power, the JPT stabilized at about 710. RPM was reduced to 96% to keep the temperature within limits. The pilot continued the flight despite the abnormal condition of JPT and sluggishness of the aircraft. After completing the mission the aircraft was placed unserviceable.

Three days previous to the flight there was a major unserviceability entry in the L14B: "Excessive solder on rear screen and #1 pot". The following day after a visual inspection the aircraft was certified serviceable for flying by the WO in charge of servicing. After a further eight sorties, the above incident occurred.

The problem of split-air casing is well known and has been the subject of considerable correspondence and study in recent months. The cause of this problem, the symptoms to be expected (e.g. abnormally high JPT and solder spatters on screens or casings) and the actions to be taken have been well publicized, through flight safety bulletins and maintenance briefs.

Neither the aircraft captain nor the maintenance staff concerned took the proper action in this case.

The WO i/c Servicing should have taken positive action to determine the cause of the excessive solder splatter when it was first discovered and the pilot, on detecting abnormal symptoms during his climb-out, used poor judgement in electing to continue with the mission.



It is the duty and responsibility of all tradesmen in maintenance to ensure airworthiness of aircraft and should there be any indications to suspect otherwise, a full investigation and inspection should be carried out to remove entirely any doubt which may have existed. The lesson to be learned here is that the appearance of solder splattering on the rear screen must be assessed as a sure symptom of air casing failure, necessitating engine removal for thorough inspections.

Early detection of this unserviceability may prevent an air incident and also prevent the engine from receiving further damage which may be beyond unit resources to repair. This is surely better than a nylon letdown following an in-flight fire.

The ARO and ASO should instill the importance of proper maintenance practices at all times, and pilots observing abnormal indications should abort the mission. That's what the gauges are for.

NO "DEAD MAN'S SWITCH"

After loading the last pallet on a Bristol from a fork lift, the driver dismounted and supervised the placing of the load in the aircraft. When he climbed back on the fork lift to drive it away, he accidentally hit the lever which controls the upward and downward movement of the forks. The fork raised, and damage to the aircraft requiring 36 manhours to rectify was the result.

Using a fork lift that was not equipped with a "dead-man's switch" and being short handed were given as factors causing this accident. These may have been factors, but there is no excuse. What is this but another example of carelessness? Again we must emphasize that one cannot be too careful when working around aircraft.

PUZZLE

A Sabre and a T-Bird fly from A to B along the same flight path. The Sabre with a TAS of 480 knots flies 208 nautical air miles to get to B while the T33 with a TAS of 400 knots flies only 200 air miles to get to B. How far is A from B?

The answer appears elsewhere in this issue.

Letters to and from the Editor are not official RCAF correspondence, and need not be directed through official channels. Unless otherwise stated, statements in letters and replies should not be construed as regulations, orders or directives.

A letter to our readers:

FROM THE NEW EDITOR-IN-CHIEF

It's a far cry from piloting T-Birds or Sabres to sitting at this desk groping for dynamic ideas to inspire eager readers of Flight Comment. Everyday is Mayday, a call for help, from where I sit I need it badly—your help to make this magazine do the job it should: to influence personnel to think safety.

Would you like to take an active part in your magazine? You can--by submitting ideas and suggestions. We can also use articles, in draft, or final form; typewritten or longhand. Don't worry about the mechanics of writing. We have a civilian editor, trained in the art of rewriting and capable of turning a rough draft into a finished product. You will receive credit for the article, unless, of course, you do not wish it.

I remember the lively discussions on the flight line and even in the mess. Some of the ideas so spiritedly expounded would surely have formed the basis for some good articles

on safety. Don't confine your ideas to those within earshot; let us all benefit from them through the pages of Flight Comment.

If you have criticism, constructive preferred, or wish to take issue with an article in Flight Comment, use the "Letters to the Editor" column to air your opinions. We like to hear about them. A controversy is good if it sets other people thinking or creates interest.

You can strengthen our program here as well as improve the usefullness of our magazine by letting us know if, and how, we are getting across to you. A good relationship between editor and reader is desirable. Let us share your problems and hear your ideas on flight safety so we can realize our objective—an accident-free Air Force.

W A Smith
Squadron Leader
Editor-in-Chief, Flight Comment

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Understand to be Understood

Dear Sir:

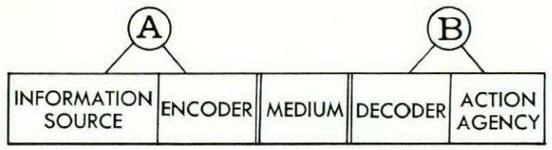
There are still a few of us left who used the TR-9 transmitter-receiver for air-ground radio telephony and we have the scars on our larynx to prove it. The combination of noises generated by carbon microphones, "pinging" triodes, loose oxygen masks and the ever present HF static made each effort at communication an adventure, and the most used procedural phrase was "I say again". The years that have brought the gray to our sideburns, heightened our foreheads and forced us to buy longer belts, have also produced immensely superior A/G/A communication systems. An airline pilot landing at Paris can speak to New York using his Single Side Band Radio equipment; a supersonic interceptor flying from Vancouver to Montreal remains in constant communication through a network of ground stations.

Improved electronic technology and the employment of higher frequencies have resulted in better signal-to-noise ratios and improved speech quality. For some applications such as the control of interceptors, speech is no longer necessary. Instructions are transmitted in a binary number code over an air-ground data link. Knowing this, it was a surprise to me to read the statements on lack of R/T clarity in the article with the ungrammatical title "On Getting Understood" in the Nov-Dec 62 issue of Flight Comment. I don't know if the author ever "gets understood", but by the time I had read the fourth paragraph I had "got lost", and it wasn't until I reached the conclusion that I gained an inkling of what he was attempting to communicate.

My comprehension of the written word is, I believe, at least average, so when I had re-read the article for the third time without a proportionate increase in understanding I resorted to Dr. Flesch's Yardstick, Interest and Readability formulae. Scores of 4, 19 and 14 revealed that the article might be understood by most Grade 13 graduates, is mildly interesting and is very difficult to read. The lift of spirits engendered by this scientific confirmation of my instinctive assessments emboldened me to have another go. On the fifth reading the light shone - the devilish subtlety of the author hit me. To start by bemoaning the lack of clarity in R/T and end by urging the adherence to standard phraseology, filling the intervening space with apocryphal anecdotes, unrelated theories and abstruse phrases verges on genius. What could be better calculated to impress the need for clear speech to communicate thoughts than phrases like "redundant relative to the information transferred", or "situational restraints". And just when you are beginning to think the problem can be solved by avoiding polysyllabic words the mind is boggled by a statement like "Since the number of possible messages of R/T conversation is less than the set of possible messages of the parent language, less information per word is actually transferred with this sub-language; its redundancy is 75%". I imagine if Einstein had to comment on that one he could only utter a fervent "$e = mc^2$".

Unfortunately, among the wide circle of readers of Flight Comment there are many innocent blue-eyed young men who, despite the warning on the title page, believe that any publication authorized by the Minister of National Defence and printed on expensive glossy paper must be the undiluted truth. So before the queues at the local "head-shrinkers" office get out-of-hand, someone should sort out the bits about information theory, redundancy and sub-languages (whatever they may be). Furthermore, before a joint suit is launched in civil court by IBM, Burroughs and the Amalgamated Union of Computers and Programmers, a complete retraction should be made of the loose and libellous accusations in the anecdote.

Let's start by having a look at Information Theory. The mathematics are formidable and the units used verge on the obscene. One textbook boldly states that "information is measured in bits, hartleys or nits depending on the logarithm base used", so for the sake of the aforementioned innocent blue-eyed types we will eschew such dubious phrases. Information Theory is briefly, a mathematical statement of the process of communication. Not necessarily radio or electrical communication nor the spoken word; it is the process of conveying intelligence from A to B, and whether A is a pilot and B an Air Traffic Controller, or A is a Data Processor and B is a Computer is immaterial.



In an A/G/A Voice Link, A is the pilot's brain (Information Source) and his vocal chords (Encoder). The Medium is the communication system, and B comprises the ears (Decoder) and brain (Action) of the Air Traffic Controller.

Assuming that the medium or channel of communication is efficient, there are three requirements for successful communication. They are:

(a) The existence of an agreed set of symbols or elements, a number of which are selected to express the idea.
(b) Encoding the elements for transmission.
(c) Receiving and resolving the elements.

The AUTHOR

S/L D A Reid is Chief Telecommunications Officer of 31 Radar Squadron (SAGE), RCAF Edgar. He served with the RAF during World War II and joined the RCAF in 1953. He has had postings at AMC HQ, AFHQ and NORAD HQ, Colorado Springs.

In A/G/A communication, the elements are the words used in standard R/T phraseology. To satisfy (a), the pilot must select the minimum number of correct phrases and place them in the proper sequence to convey his information unambiguously. To satisfy (b), he should speak into the microphone at a rate which allows each syllable to be enunciated clearly. The third requirement is satisfied if the message is received in the form in which it was sent and the meaning given to it is that which the sender wished to communicate. This can be translated by three maxims.

1. Don't start speaking until you know what you want to convey and how you are going to say it.
2. Speak clearly and at a normal rate.
3. Don't try to fore-guess the message being received or attach meanings to it which weren't intended.

Now what about this business of the English language being "60% redundant relative to the information transferred"? The very word "redundant" is ominous, breathing portents of establishment cuts and premature retirement, but to the probability and information theory experts it indicates superfluity. (This is the point at which some joker with a Master's degree in English pops up with a piece of pendantry reminding us that it can also connote 'Pleonasm'. He may be nearer the mark than he thinks). How then, can it be claimed that the English language is 60% redundant? Most certainly, there are a lot of people who use more words than are needed to express a thought; this is more verbal superfluity, than redundancy. But if every letter in the alphabet is given a specific, independent value or meaning, then 40 letters could be so arranged to give the same meaning as 100 letters would if they were made into words. Experiments made in predicting sentences from a given vocabulary produce a redundancy figure of 75%. If we were to use English as a language for computers this would be serious. That's why you can't pop simple questions like, "Will there be a war"? at a computer—you have to qualify them. And any self-respecting computer—digital or analogue—would ignore a question like "Yes, what", whether from a 2nd Lieutenant or a four-star General.

In the operation of A/G/A voice links we use English or a reasonable facsimile thereof, so we have to include words which, while they have no separate importance, help to qualify the meanings of other words. For example, look at the sentence "THE QUICK BROWN FOX

JUMPS OVER THE LAZY DOG". If we eliminate the "redundancies" we end up with "FOX JUMPS DOG". The reader has to put a meaning to this which will depend on his type of mind or his acquaintance with Nature. We can improve things a bit by adding a word to give us "FOX JUMPS OVER DOG", but although this would make a good headline, it still doesn't tell us whether all foxes will jump over all dogs or a specific fox jumped over a particular dog at a stated time. So we go on adding words and if we want to give the sentence it's intended meaning we end up with one word more than the original to produce the generalization "THE QUICK BROWN FOX CAN JUMP OVER THE LAZY DOG". So we get right back to pleonasm and maxim 1 - use only the minimum amount of words needed to convey the sense unambiguously.

The standard R/T phraseology and the ICAO phonetic code were designed to prevent ambiguity, but only if the thought to be conveyed is unambiguous and the message is spoken clearly. Here is where a lot of clarity is lost - speaking too rapidly. The answer - maxim 2, and if in doubt, spell it out. As for sub-languages and, worse still, sub-sub-languages, - I will impose a "situational restraint" and withhold comment. The only sub-language that can and is improving A/G/A is the binary code used in Time Division Data Link (TDDL) equipment.

There it is - the engineers have removed most of the confusion factor from the communications system; the procedure experts have produced a phraseology intended to eliminate ambiguity; so if any confusion remains, most of it must be between the ears or in the mouths of the users. The auto-pilot works - perhaps we need A/G/A TDDL, the auto-communicator, to solve the rest of the problem.

D A Reid
Squadron Leader
31 Radar Squadron (SAGE)

Editor's Comment:

We leave it up to you to decide which article is the easier to understand, this letter to the Editor "Understand to be Understood", or F/L Poulsen's, "On Getting Understood" in the Nov/Dec 62 issue. Anyway both authors are in agreement that clarity in RT is important and we think its worth a little thought by all of us.

✓

Dear Sir:

In reading the "Good Show" column in the Jan-Feb 63 issue of Flight Comment, it strikes me that another and equally successful story exists but which has been overlooked under the circumstances.

In reading of F/L H.A. Rose's unfortunate incident, and while extending my congratulations to him for his successful accomplishment, I can't help but dwell on this rather insignificant sentence in the write-up, "The ground organization and equipment then moved in, the aircraft removed, and the runway cleared and the other aircraft recovered just twelve minutes after touchdown of the disabled Sabre".

An ungainly Sabre laying barefaced on a wing tip and a wheel, completely disabled and immobile, might normally require an hour to vacate an active runway surface if no further damage is to occur to the aircraft, and even this operation would require a certain amount of preplanning, positioning of equipment and personnel, etc. To have this operation, which happened on the spur of the moment, in the midst of a normal work day, under the stress of the overriding time factor, accomplished during the time period of twelve minutes is really an achievement.

I think the Chatham ground personnel deserve a "Good Show" of their own for their quick response, skilled performance and successful accomplishment.

R Morris
Squadron Leader

Editor's Comment:

The same thought occurred to us and so we included a Good Show for Station Chatham, page 5 in our Mar-Apr issue. We agree it certainly was well deserved.

✓

Dear Sir:

Reference your bird "The Lackadaisical FOD Spreader" in the Jan-Feb 63 issue, you seem to have forgotten a few things that records show are very applicable. His call should include "LOSTMEPARACHUTE, LOSTME-PENCIL, LOSTMELIGHTER, ETC."

G L Ward
Squadron Leader
AFHQ

Editor's Comment:

Yes, we agree. Another one is LOSTME-FLASHLIGHT.

✓

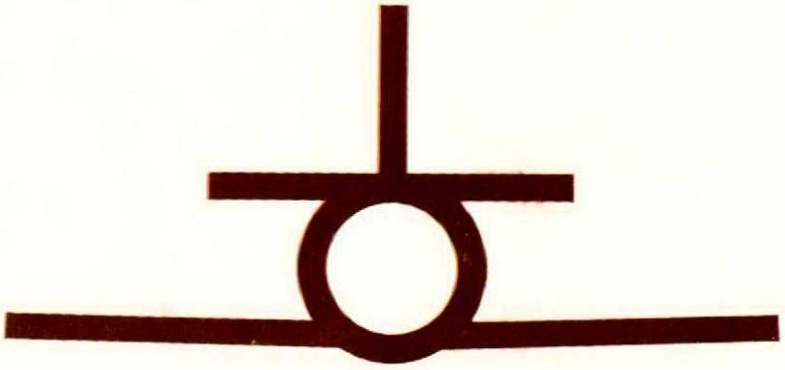
Puzzle Answer . . . 260 nautical miles.

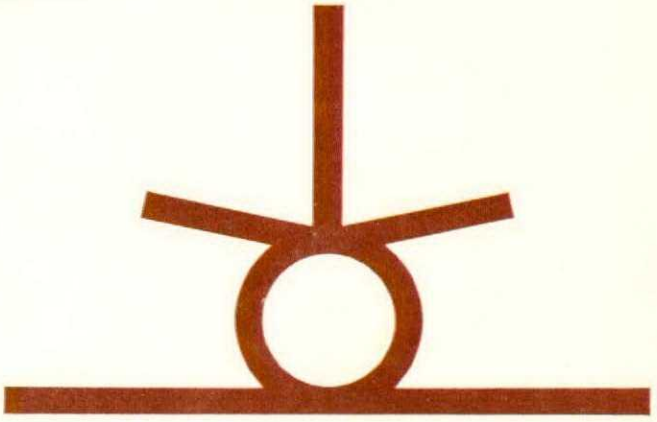
THE HOLE-SEEKING SAP-SUCKER

This common species is found in the vicinity of most airfields although is more rare around mountainous and hilly terrain due to self destruction. Is a comparatively small, fast, bird which frequently flies in flocks of two or four.

Can be identified by its reluctance to do a proper IFR letdown and will go to extreme lengths to find a hole in the clouds through which it hopes to let down visually. Is not too discriminating in the choice of holes and sometimes is unable to level off at the bottom before striking the ground. Often, it will lead fledglings through the hole and the resulting high G vertical spirals have a tendency to break the wings of the young birds.

CALL: A somewhat doubtful: ITSBIGENOUGH ITSBIGENOUGH ITSBIG





An attitude change of 1° per second per second is too small to be detected by human senses. If the pilot of a high-speed low-level aircraft is distracted, the following table shows how long it would take to hit the ground without his being aware of the aircraft's changing attitude.

RATE OF DESCENT DURING HIGH AIRSPEED AT 1° PER SECOND PER SECOND CHANGE OF A/C ATTITUDE				
AIRSPEED	ALTITUDE LOSS IN SECONDS			
	100 FT.	300 FT.	500 FT.	1000 FT.
300 KTS	4.08 SEC.	5.9 SEC.	7.01 SEC.	8.89 SEC.
400 KTS	3.71 SEC.	5.35 SEC.	6.34 SEC.	8.05 SEC.
500 KTS	3.44 SEC.	4.96 SEC.	5.9 SEC.	7.46 SEC.

NOTE: Figures do not include reaction time.