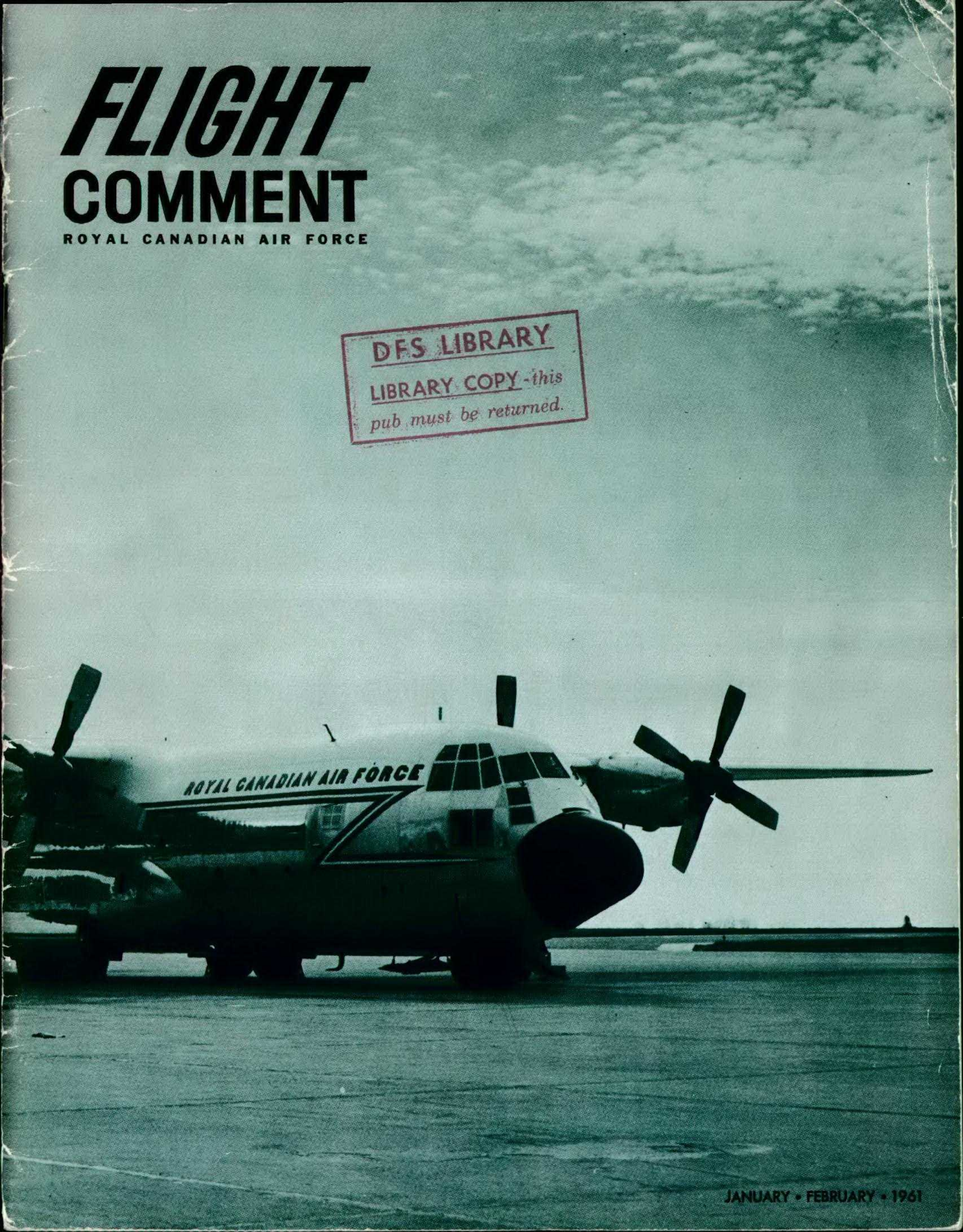
FLIGHT COMMENT

ROYAL CANADIAN AIR FORCE



JANUARY • FEBRUARY • 1961

A HANDFUL OF ACCIDENT POTENTIAL

Radiation from portable radios can cause serious interference to aircraft VOR and ILS equipment. VOR and ILS indicator needles can be deflected or caused to fluctuate erratically, making the equipment totally unsafe for navigational or approach purposes.

The operation of portable radio equipment during flight in RCAF aircraft is prohibited.

(CAP100: chapter 105.23.)

EDITORIAL

Traditionally, the end of the old year and the beginning of the new is a time for reviewing the past and planning for the future. It is the time for asking if one more year of "hind-sight" has provided the clues for great "forethought".

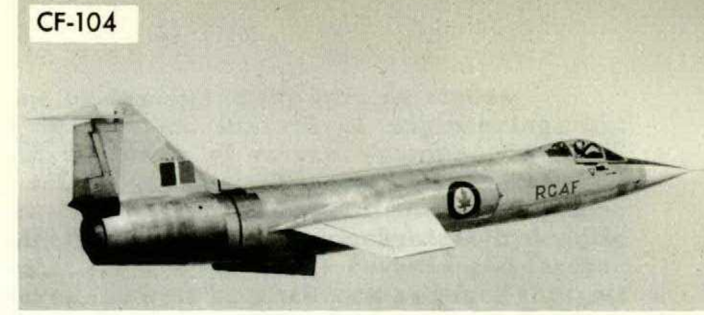
There have been accidents; but with experience, our accident rate has decreased steadily over the past five years. This satisfying decrease in flying accidents has in part been attributable to the efforts of personnel at all levels in eliminating the recurring causes of accidents.

At the same time, however, we should not forget that our relatively stable aircraft inventory has been a major factor in this accomplishment. This situation is rapidly changing. New Maritime, transport and fighter aircraft will soon join the RCAF inventory in substantial numbers. These aircraft are faster, more complicated, and very much more expensive, than those they are replacing. Consequently, they demand more of the crews who man them. Again, the earlier stages of an aircraft's life are known to be the most critical from an accident point of view. These are the reasons why the coming years will require SPECIAL FLIGHT SAFETY VIGILANCE.

This is why "forethought" will be of paramount importance in the future. In terms of dollars and cents, and in terms of efficiency, we can no longer afford to have accidents.

J. J. Jordan

J. J. JORDAN, GROUP CAPTAIN
DIRECTOR OF FLIGHT SAFETY



CF-104

CC106

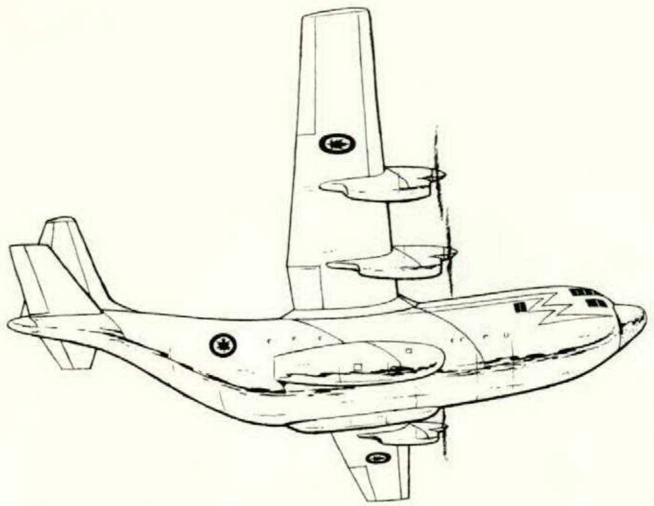
ALBATROSS

COSMOPOLITAN

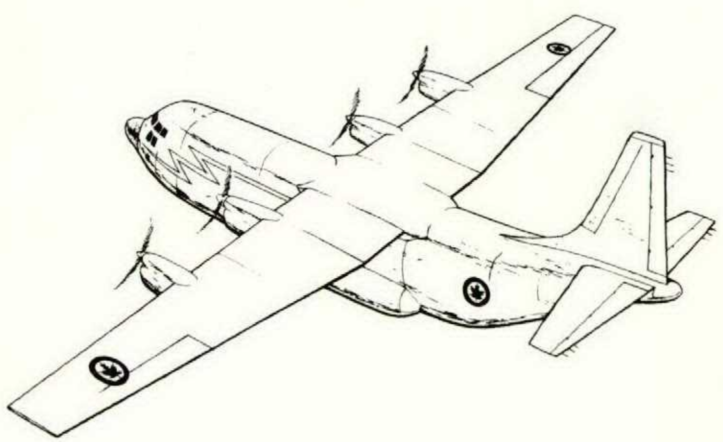
HERCULES

CARIBOU

Author's Note- An article by Lt Cmdr Vance K. Randle has recently been printed in the United States Coast Guard Flight Safety Bulletin on the SC-130B aircraft, which has just gone into Coast Guard service. The Coast Guard has kindly given permission to the RCAF to use this article and the following description of our new Hercules transports has borrowed liberally from it.



AN INTRODUCTION TO THE C-130 B LOCKHEED HERCULES



by W/C J. G. Showler, DTRO

A number of these large turbo-prop transports have been purchased and are being placed in service with ATC. Since it is a proven aircraft, lengthy shakedown flying will not be necessary and the aircraft should be operational early in 1961.

The acceptance of this plane marks the first step of the heavy freight transport units as participants in the jet age of aviation and it portends new operational capabilities for our heavy freight carriers. It assures operation at increased payload, range, and speed, at a reduced ton-mile cost. The C-130B meets these mission requirements while remaining inherently one of the safest multi-engine aircraft, with even single-engine performance possible at moderate loading.

This move into turbo-prop operations encompasses much more than simply the acceptance of a new model high-performance aircraft. It marks the entry of a heavy cargo transport squadron into high-altitude, high-speed operation; a transition complex with rules, procedures, maintenance, and training; and hazards new and different from its past experience.

The operational task has demanded this modernization, just as the new equipment will demand modernized and expanded concepts of handling. Operating procedures for jet and turbo-prop aircraft have been well proven by other operators, service and civilian alike. These must be followed to exploit properly the wide scale of capabilities of this new equipment —and to assure the degree of safety required, and which is established by these standardized procedures.

Most of these procedures will follow those established in operation of the C-5 and Comet aircraft and, more specifically, by the United States Air Force, which has been operating the C-130A aircraft for three years. We cannot afford to shortcut these proven procedures of training, maintenance, and operating limitations, without undue risk to personnel and equipment. This is a demanding, high performance, jet-powered aircraft, and many of the old rules just won't work and can't be stretched to fit.

A thorough training program for air and ground crews has been carried out at the Lockheed plant in Georgia. This has given the ground technicians an excellent background, but nevertheless the aircrew are still inexperienced in the operation of the C-130B. Extra caution and care will be necessary in flight planning and flight with the new machine until we reach the level of experience when we can claim to be competent operators of the aircraft.

Aircrew proficiency in high-altitude operation will have to come by study and actual experience. The most obvious of the new procedures—jet instrument penetrations, holding patterns, and reduced speed requirements in congested areas—are being learned in training. The many other facets of high-altitude operations will be learned by the aircrew in actual operations. An understanding of the marked difference between piston and jet engine operation must be acquired. The aircrew will become accustomed to the use of new formulas and performance charts. These require pre-planning of optimum altitude for two-, three-, and four-engine operation under various weight conditions, and the acceptance and understanding that best specific range for turbo-prop operation is obtained by flying the fastest and highest that loading will allow, at normal-rated power.

The operators must also learn to consider the very marked changes in takeoff performance caused by changes in field pressure, altitude, and runway temperature. A crew may well follow a trip to Alert, Ellesmere Island, at 82° N, with one to Stanleyville in the Congo, on the Equator.

Our new aircraft is a high performance, four-engine turbo-prop landplane, capable of long range and high-altitude operation. It has been designed to operate on small and unprepared fields up to its maximum gross weight of 135,000 pounds. The entire plane, both cockpit and cabin, is pressurized, air-conditioned, and sound-proofed. Fuel carried will give from 10 to approximately 14 hours' endurance, dependent upon the flight altitude and loading.

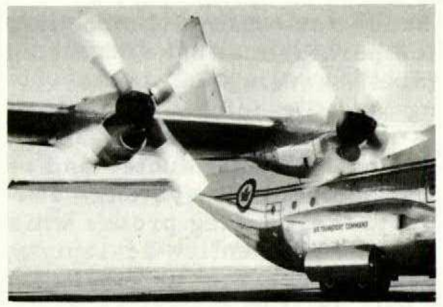
A word picture of some of the various systems comprising the C-130B will indicate the complexity of this new machine, compared to conventional piston aircraft.

Fuel System—A fine, simple system, refuelled from a single point refuelling "panel", at a convenient position for ground-level handling. Any fuel tank can furnish any or all engines. JP-4 fuel is normally used, but any jet fuel or even AVGAS is a suitable alternate. In a pinch, the aircraft will operate on commercial kerosene.

Power—Is turbo-prop, with 90 per cent propulsion gained from a constant-speed propeller geared to the turbine, and 10 per cent gained from jet exhaust thrust when at flight speeds. Each engine delivers the equivalent of 4050 SHP at takeoff. Engine power is measured by torque delivered to the propeller, and also indicated by Turbine Inlet Temperature (T.I.T.), the really critical gauge of engine behaviour. High T.I.T. is a critical limiting factor during engine operation, since overtemps for even a few seconds can ruin the engine by damage to the turbine blades.

Propeller—A marvel of engineering—but a baffling maze of valves, pumps, controls, and safety devices. The prop is operated by hydraulic pressure controlled by a balance of electrical-electronic-mechanical-hydraulic signals. It has the usual reverse and feather features, as well as pitch lock and fuel shut-off controls for overspeed protection, low pitch stops, negative torque and decoupling systems for protection against sudden engine stoppage, and an electronic synchro-phasing system between the different propellers.

Electrical—Four engine-driven AC generators (supplemented by an air turbine motor driving an auxiliary generator) supply four AC busses which provide the main source of electrical power. Transformer-rectifier units supply four DC busses, and a conventional battery is carried. The system is well protected by safety devices, reverse-current relays, warning lights, and over-under phase cut-outs. Any two generators will furnish all



AC busses, with an automatic shift to take loads. While the system is elaborate, it is logically and fairly simply laid out for cockpit panel control. Power to individual items is protected by circuit-breakers in the cockpit. The location of most of these must be known for quick isolation of equipment in emergency procedures.

Pneumatic System (Bleed Air System)—Is a high pressure (55 psi), high temperature (425° F), pneumatic system, supplied by bleeding off a portion of the compressed air being supplied to the combustion chamber of the jet engine. It has an elaborate manifold throughout the plane, and furnishes a power source to operate (a) engine starting turbine, (b) two air conditioning and pressurization systems, (c) wing, empennage, radome, and engine inlet duct anti-icing and de-icing systems, (d) emergency depressurization valve, and (e) the air turbine motor for auxiliary generator drive.

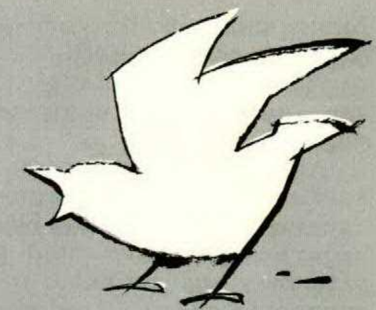
This system is again elaborate, but fairly simply depicted on the control panel. It needs, however, educated handling since it can easily get out of hand—for example, too high wing anti-icing temperature can bake out the integral fuel tank sealant, causing fuel leaks.

Anti-icing and De-icing—Propeller anti-icing and de-icing is by electric heating. The empennage, wing, air inlet ducts, and radome are heated by the bleed air system. The plane is equipped with ice-sensing probes which will automatically start the entire de-icing system if it has been pre-set for automatic action. NESA windshields provide heated glass to counter ice formation and fogging. Overtemping of the hot air anti-icing systems and the high electrical load require attentive handling.

Ground Handling—Although the C-130 is completely self-sufficient and requires no ground handling equipment that it cannot carry, day-to-day handling of the aircraft will require especial care. The pressurized hull of the aircraft creates a situation where any damage, even dents and scratches, become critical.

The C-130 can carry 36,400 pounds for 1500 miles or 25,000 pounds for 2500 miles, sufficient for non-stop trans-Atlantic operations. It can go 3900 miles, sufficient for the longest leg anywhere in the world, with a still-respectable payload. The basic design of the aircraft allows it to operate from secondary bases and unprepared ground. The aircraft has end-loading doors at truck-bed height, designed specifically for the carrying of bulky equipment; thus, it requires no special gear for loading or unloading. The ramp may be operated in the air, giving the aircraft a heavy drop capability.

The transition to full operational capability on this fine aircraft should entail little difficulty. It will be extremely suitable for tactical and strategic operations both domestically and overseas.



FOR THE BIRDS

An Argus, well-known for its sub-killing capabilities, took on another death-dealing role during a recent visit to the U.K.

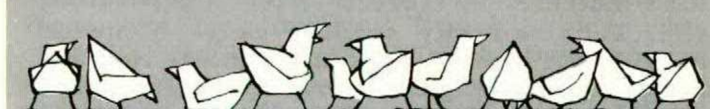
Shortly after taking off at night from a Scottish airfield, the aircraft was confronted by a large flock of birds, who were also taking off from the same airfield. Too late to take any avoiding action, the Argus flew through the flock, suffering numerous bird strikes. None of the aircrew was hurt, but the airframe was damaged and a slight loss of torque was noted on the two inner engines. After dumping fuel, the Argus was landed without further incident.

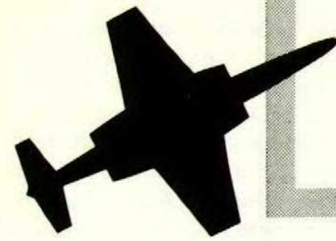
Some 160 dead birds were found on the runway, and a further 20 in and on the Argus. Bird strikes are dangerous and sometimes fatal. Statistics bear this out. This Argus and aircrew were lucky—as a recent commercial accident in the United States might indicate.

An interesting sidelight: At this airfield Shackletons and Valettas are flown. The birds which use this field for their takeoff activities are never frightened into flight by those types—they're used to them. The Argus, however, has a different sound—and the birds are disturbed, and take off at the same time—with the inevitable results.

Corroboration—another occurrence involving an Argus as a bird-killer has been reported.

If your field is also inhabited by the feathered ones, better make sure that transient aircraft with unfamiliar engine-noises don't frighten the birds into causing a similar accident.





NEAR MISS

THREE IN ONE

A T-33 trip to ferry a pilot to Wiarton and then proceed solo to North Bay was programmed by me recently.

The second pilot made up a flight log the day before, including three possible alternates (depending on the weather). The next morning, I checked the weather, and decided to use North Bay as my destination. The other pilot filed an F48, and gave me a flight log for the trip. Conditions were normal to Wiarton, on top of cloud at 36,000 feet. At Wiarton, an SJRA was carried out, and the second pilot dropped off.

The clearance from Wiarton to North Bay read, "Cleared to the North Bay range station; 1000 feet on top, above 25,000 feet. To climb on 060° M to 16,000 feet. Do not proceed above 7000 feet until three minutes northeast of the Wiarton range."

Climb instructions were followed; at 16,000 feet a 20° track correction to starboard was carried out, to make good a track of 107° M. Track was established around 35,000 feet; I topped all cloud at 36,000 feet. Here I tuned in the North Bay range, identified it, and selected the compass position. The compass indicated the range as being a few degrees off the nose.

North Bay approach was contacted nine minutes out. I was cleared to the beacon and told to stand by. Although the beacon was weak, the idents were readable. When the ARN6 was switched to the compass position, I had to make a heading change from 107° to 010°, to home to the beacon.

About five minutes later, I contacted North Bay and requested further clearance. I was told that they had been trying to contact me; so I assumed I had intermittent radios. Now, however, I was cleared to the beacon, to descend to and maintain 25,000 feet. At 30,000 feet the static was heavy enough to make the beacon idents unreadable. I slowed the aircraft to 220K to improve the readability, but had little success.

When I asked for an ADF steer on 137.7, approach advised me that my readability was strength one-half; but I was given a steer of 010°. When I requested an ADF approach, I was informed that there was no qualified controller on duty.

About four minutes later I was told to steer 195°. I decided to climb back to on-top conditions and head for the range, because it was the stronger of the two signals. When on top, the range indicated that a southbound heading was required, but the beacon indicated a northbound heading.

At this point, I went to GCA and tried to establish contact by IFF. This didn't work, so I advised approach that I intended to contact GCI on 141.66.

After many minutes I was in radio contact with GCI. IFF contact could not be made squawking all modes, including an emergency squawk. They advised, "No contact your squawk four".

During this time I was attempting to set myself up on a lost orientation on the range station. The quadrantal heading of 135° put the range station on the nose, but I couldn't get any significant volume change.

Here I lost contact with the GCI sight, and had only 100 gallons of fuel left. My last weather report from North Bay indicated a 4000 foot ceiling; I decided my best course would be to descend and orient myself.

Descending on a heading of 135° with the North Bay range indicating on the nose, I broke out at 4000 feet, over water. This, I hoped, would be Lake Nippissing, but a check on the let-down plate indicated it would have to be in another quadrant. Visibility was five to seven miles at 1100 feet under a scattered layer of cloud.

After continuing on 135° for sometime, I saw land. I had been trying to contact North Bay on 121.5 but when over the land I realized I must have passed over Lake Ontario, and was now on the American side.

At this point I declared a MAYDAY. I received answers from several stations; Griffiths advised their approach radar would try to make contact. I described my position—a small town, river, and highway, running about 130°.

The highway led to a four-lane highway; here I turned and followed traffic.

Syracuse tower said they thought I might be in their area, by my description of the terrain, and the power of my transmissions. Since I now had 45 gallons left, I considered landing on the highway, as westbound traffic was light.

About this time, I saw the outskirts of a city, and an airstrip. With 40 gallons of fuel remaining, I decided to land there. I let down to 400 feet to check the runway surface, when Syracuse tower advised that they had me in sight. I pitched and landed down wind (10K) with 40 gallons on board.

In summation, I made the following errors:

1. As captain of the aircraft, I did not check the flight log for accuracy. At the same time, I was not familiar with the route, and still didn't pick up a 65° heading error when consulting GPH 240.

2. I declared my MAYDAY much too late. It is well known that jet navigation is accurate within a few miles and minutes; when an error of more than five minutes exists on a 20 minute leg, there is a mistake somewhere. A PAN call would have given me all the assistance possible, as I was in the Toronto - Trenton area.

3. By letting down blindly, I ran a great risk of running into high terrain—plus the considerable cut in my endurance and VHF range.

My recommendations are very simple:

1. Do NOT accept another man's flight log without first checking it yourself.

2. Be familiar with your route and nearby aids.

3. Let people know you are in trouble. Don't be proud! They are there to help you.

THOSE NOTAMS AGAIN!

(The November-December issue of Flight Comment included a pilot's Near Miss report, entitled "Nostalgia". The following account of the same incident emanates from the station at which the pilot experienced his Near Miss. —Ed.)

A transient T-33 on its landing roll overran the end of the serviceable portion of a runway under construction, and passed over approximately 1000 feet of gravel. Fortunately, no damage was sustained by the aircraft, since the overshoot area had been cleared of construction equipment, and the surface, though gravelled, was relatively smooth.

The pilot admitted ignorance of NOTAMS, which had been issued to describe the runway length and aerodrome status. The situation was aggravated by a frosted windscreen, which hampered a visual check on runway length.

The tower had adopted a practice of passing a description of the runway to all transient aircraft. At approximately the same time that the T-33 arrived, however, a local flight of seven Sabres also appeared. The Sabre pilots were aware of the shortened runway. During the time in which the tower controller's attention was diverted to the Sabres, he inadvertently omitted to give runway information to the T-33 pilot.

This experience should be a warning to flying control officers that reliance on the NOTAM system for the conveying of pertinent aerodrome information, is unwise. Any unusual aerodrome condition should be passed on to the pilot as landing information. Pilots might overlook NOTAMS; furthermore, the system itself could break down through delays in transmission, or lost or outdated NOTAMS.

Pilots should know that the practice of checking NOTAMS before departure is much better than relying on the controller to give the information on the aircraft's arrival. Neglecting to check NOTAMS is simply poor airmanship.

FUEL CHECK

Two pilots took off on a week-end cross-country flight in a T-33. When safely airborne, the captain began his post-takeoff check and noticed fuel venting from the top of the port main wing fuel tank.

He turned on the main wing tank and placed the fuselage tank switch in the by-pass position. Climbing was continued to 38,000 feet.

The pilots realized that all the fuel in the port main wing tank would be lost—and, possibly, the fuel in the port leading edge tank, too (if the fuel return valve did not function properly).

The captain, however, calculated that if the flight continued direct to destination, there would be 100 gallons remaining over destination, even though a possible 107 gallons had been lost.

Before undertaking flight, the captain had requested a full fuel load. The L14T had been checked, and read 677 gallons; moreover, the fuel totalizer in both front and rear cockpits read 677 gallons.

The tip tanks, however, ran dry when the totalizers read 450 gallons—160 or 170 gallons too soon. The captain assumed that the tip tanks hadn't been completely filled before departure.

Since weather was CAVU when the tip tanks dried, the flight plan was cancelled immediately, and a landing effected.

It was found that the port main wing fuel cap had not been screwed on, although the flap above it had been secured flush with the top of the wing. When a full fuel load was put in, 481 gallons were required to fill the T-33. The fuel totalizer, however, was still reading slightly below 400 gallons.

The station flight safety officer, in his remarks on the Near Miss report, questioned the airmanship involved. The command flight safety officer also emphasized that "nothing will replace a pilot's visual check of fuel contents, especially when operating away from base".

JUST FOOLING AROUND

An Expeditor, returning to Winnipeg from a week-end training flight, landed at Lakehead for fuel. Before starting up again, the pilot carried out a normal cabin check, which included the variation setting of the C2 compass. Just after turning over Graham (from a heading of about 314° to 282°), the pilot's C2 stopped enunciating and began to display a plus sign.

The compass needle was moved back and forth manually, with no results. A check of the circuit breakers and switches revealed no irregularities.

The compass was then switched off for a few minutes, then turned back on. This procedure was repeated twice, with longer periods off, but to no avail. An attempt to use the stand-by compass was useless, owing to moderate to heavy turbulence.

Weather was broken cloud at 6000 feet; tops at 7500; and only 4-6 miles forward visibility. An altitude change from 4000 to 8000 permitted use of the stand-by compass. A no-compass GCA at Winnipeg completed the approach.

A check with servicing the following morning revealed that 95° Var was registering on the 1st navigator's table repeater, where a passenger had been sitting. This passenger, when located, finally admitted "fooling around" with the knobs and switches.

The SFSO in his comments stated that steps are now being taken to ensure that pilots give comprehensive pre-flight briefings to passengers. Briefings, he said, will include reference to the compass control panel and the radio compass.

THIS FLASH SHED NO LIGHT

During a recent Air Fighting exercise, a Sabre rolled out of a tight turn at about 250 knots. Forward pressure on the control column and nosedown trim had no effect on the aircraft. After further pressure was applied, it became evident that control column movement was very restricted, and that the aircraft could not be controlled in the vertical plane.

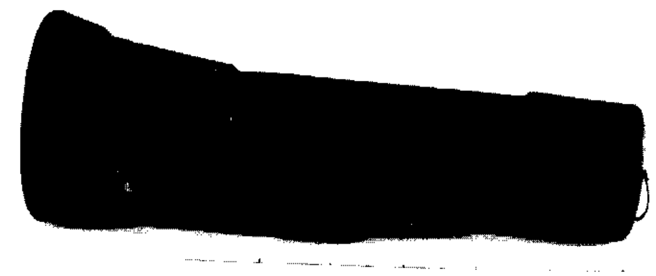
Since back-pressure had been applied to the control column during the turn, the aircraft rolled out nose-high, and began to climb at about a 30° angle, with the airspeed dropping off rapidly.

To prevent a stall, the Sabre was rolled over past the 90° position. Level flight was regained, although the elevator controls were still jammed.

An emergency call on VHF brought a response from another section leader close by, who closed in to accompany the aircraft. Harsh pressures were now being applied to the control column, which finally moved forward 4-5 inches, but then jammed again. Strong pressure was applied; the control column moved back—this time apparently freeing itself. Control returned to normal.

The No. 2 of the section took over from the lead of the other section, and a normal flight to base was accomplished. While No. 2 checked the Sabre for elevator damage, the pilot reviewed his ejection procedures. A high straight-in approach was made, with the aircraft in the landing configuration from 5000 feet. At 2000 feet the lanyard was connected and the aircraft landed safely.

On inspection, a flashlight was found loose in the tail section. 'Nuff sed?



A "NORMAL" LANDING?

A large majority of aircraft accidents in the RCAF happen during the landing phase. This can be expected because setting the bird on the concrete is, in fact, the trickiest part of the flying business. It calls for skill, knowledge, and a fine sense of judgement. Because this is so, we expect our aircrew to be on the ball and particularly alert when landing an aircraft.

This is not always the case. A pilot of a Neptune, after completing a tactical sortie, decided to practise the landing with a simulated piston engine failure. In the accident report he stated that he started the two jet engines, and a normal three-engine approach and landing was carried out.

Let us examine this "normal" approach and landing—perhaps there is a lesson to be learned. On final approach at approximately 200 feet and slightly high, an excessive ground speed was noted at an indicated airspeed of 115 knots. The runway heading was 30 and the wind was reported at 330° at 12-15 knots. The pilot pulled off all power, and aimed the aircraft short of the button. The aircraft was flared and crossed the button at 105 knots. A long float period occurred.

On touchdown, braking action was initiated. After braking the speed was excessive and reversing was initiated. The No.2 engine was heard to cough and back-fire. The aircraft swung violently to starboard and the tendency to swing prevailed as long as reversing was being used. The engines were selected out of reverse and an attempt was made to aline the aircraft on the runway with port brake, rudder, and nosewheel steering.

As the aircraft seemed to be at the mid-point of the runway, with what appeared to be an excessive speed, the pilot decided that a go-around was necessary. Before giving the order to overshoot, and not quite lined up on the runway, the port tire blew. The go-around attempt was cancelled.

As the end of the runway was approaching, maximum brake was used on the starboard wheel to blow the tire deliberately, to prevent the aircraft from going into the overrun area. The aircraft was stopped approximately 500 feet from the end of the runway slightly port of the centre line. Both tires were blown. The pilot stated after shutdown that the wind-sock appeared to be such that a tail-wind component was possible at the time of landing.

The technical investigation revealed that the No.1 reciprocating engine would not go into reverse pitch. The reverse pitch solenoid valve in the constant speed control unit did not operate when energized. It was agreed that the primary cause of the accident was the failure of the port reciprocating engine to reverse.

There is no argument against this because if the engine reversing mechanism had operated, the pilot could have regained control and stopped the aircraft. The term "regain control" is used because up to this point, the aircraft was flying the pilot. To go back to the pilot's statement: "On final approach at 200 feet the aircraft was high"; to quote further from the report, "An excessive ground speed was noted". The pilot pulled off all power and aimed short of the runway.

First things first. When the pilot noticed a high ground speed—(how he arrived at this is problematical)—he cut power and aimed short. An aircraft doesn't stay in the air by ground speed and by cutting power—because of a high ground speed is just the surest way of landing short of the runway. To top it off, this pilot aimed short of the button!

If we are to assume that the speeds he stated he had at 200 feet are correct, we would expect the aircraft to land short; but after cutting the power and gliding to the runway, the aircraft floated for a long period. This could happen only if the airspeed was too high. Bear in mind that this pilot was practising a three-engine landing and did not plan on using reverse pitch to stop the landing roll. After putting the aircraft in the critical position of touching down, well down the runway at a high rate of knots, he found himself in a situation where he must rely on reverse pitch. When this fails, the result is an accident.

The landing of a large heavy aircraft is an art in itself. The use of power to control the aircraft to the point of touchdown is just common sense. When this pilot felt that he was high and fast, he should have increased the power and overshot, instead of cutting off all power in an effort to salvage the poor approach.

The Drastic Importance of CHECK-LISTS

The importance of following check lists is part of knowing your aircraft—and all its mods—thoroughly. This has been stressed again and again, but some pilots just don't seem to realize the essential nature of this basic attribute of a professional flyer. Take, for example, this recent Near Miss report by an experienced pilot.

It was a sultry August afternoon with little wind and good visibility as pilot and crewman walked out to the Dakota for an air test after maintenance inspection. The pilot had about 2400 hours on type; the crewman had flown very little in the past three years. This Dakota differed from those with which the pilot was familiar, in that it had an overload tank containing 20-30 gallons of fuel. The starboard main tank had only 65 gallons; the others were three-quarters full. The pilot planned to take off on the mains; since he knew little about the overload tank, he intended to leave it strictly alone.

The check lists used were those in TC10 Pilots' Operating and Emergency Procedures. The flight was uneventful until the port engine cut while the auto pilot was being checked at 6000 feet. The engine immediately returned to normal, but five minutes later the fuel pressure dropped. The booster pump restored it to normal. The air test was hurriedly completed; when a short time later the fuel pressure dropped once more, it was restored again by using the booster pump.

The pilot requested a straight-in approach with no overshoot. Since circuit traffic was very dense, the pilot did not feel justified in declaring an emergency, because both engines were now operating normally. He could not, however, trust the port engine if there was to be an overshoot from low level. The tower cleared him for a straight-in, to call crossing the ILS outer marker.

The landing check was started, but was interrupted by the tower calling to ask about the nature of the difficulty. The starboard main tank, now indicating 50 gallons, was switched to the auxiliary. The pilot selected gear down and locked, and one-quarter flap. Because of traffic density, the tower still didn't give landing clearance. At 600 feet the port fuel pressure began to fall. The booster pump was turned on and off several times, and the throttle moved full travel several times. Since no improvement was noted the engine was feathered—but at the same time the starboard engine cut out. The pilot called for the crewman to give him gear and flap up. Height was being lost extremely rapidly. The GMS check was started. The selector to starboard auxiliary tank was found to be slightly past the "ON" position. It was quickly centralized.

The old Gooney was now at about 100 feet and 85 knots. A few more precious seconds were lost while the engine picked up and smoothed out at full power. The runway button was now 30° starboard and about three-quarters of a mile. The airport infield is cut by two deep ditches or gullies at right angles to this approach, and is unsafe except for narrow strips parallel to each runway. Height was about 40 feet and airspeed 90 knots when a gentle S turn was started for the runway. Touchdown was made about two-thirds of the way down a 6400 foot runway, and the aircraft was taxied clear.

The first thing apparent to the pilot was the difference in his interpretation of the request for a straight-in approach with no overshoot, and the tower operator's interpretation. The pilot expected to be handled as an aircraft in distress, but felt that no crash equipment was necessary. The tower, in allowing circuit traffic to continue, forced him to "elbow in" on the approach—and this distracted his attention during the landing check.

Investigation revealed that the cause of the fluctuating fuel pressure on the port engine was that the overload tank cock, located beneath a small door in the forward main cabin, was "ON". Again, another cock which directs the fuel left, right, or both, was indicating "LEFT". The overload tank had run dry and had created an air lock in the port engine fuel lines.

The pilot had assumed that he was accepting a "safe" aircraft from maintenance, and that all equipment would be turned "OFF". The pilot didn't check the fuel selector for the overload tank during his internal check—perhaps because he didn't intend to check the fuel flow from the overload tank. He didn't know that fuel lines open to a dry overload tank, and also open to a fuel wing tank, will suck air from the overload tank, and cause an air lock.

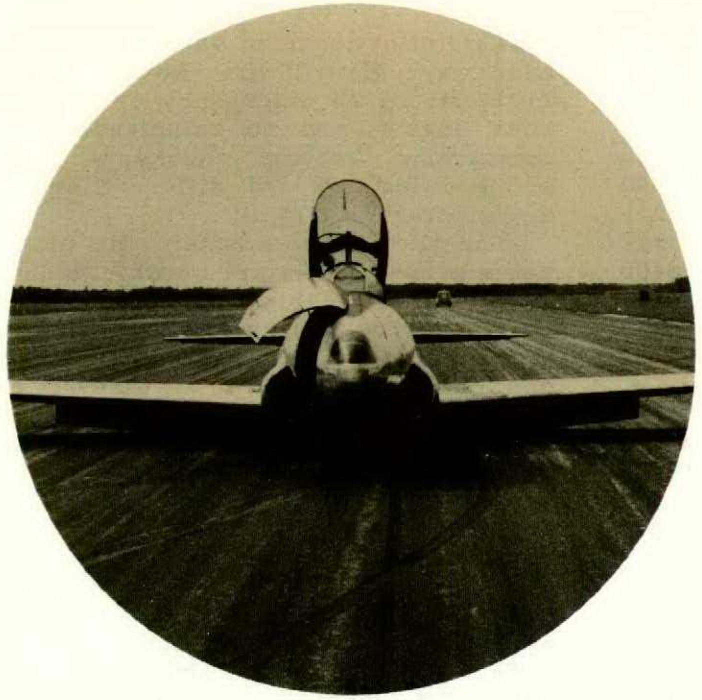
This pilot acquired valuable experience the hard way. He will now show little reluctance in declaring an emergency or in feathering a sour engine—and no reluctance whatever in performing thorough checks, or in learning and knowing new and different equipment on any aircraft he may fly.

The pilot pulled a boner. He did not carry out a proper pre-start check, which calls for a check of the cabin tank valve in the "OFF" position. This particular valve has given some trouble in the past, with the result that the line has been disconnected in all aircraft except the ones that are fitted with overload tanks.

In this case, the aircraft was equipped with overload tanks, and had two valves to control the fuel flow from the overload tanks to the engines. One of these valves is the main ON-OFF valve; the other is the engine selector valve. The ON-OFF valve was in the "ON" position, and the engine selector valve was selected to the port engine. Had this valve been selected to both, then both engines would have been sucking air—with dire results!

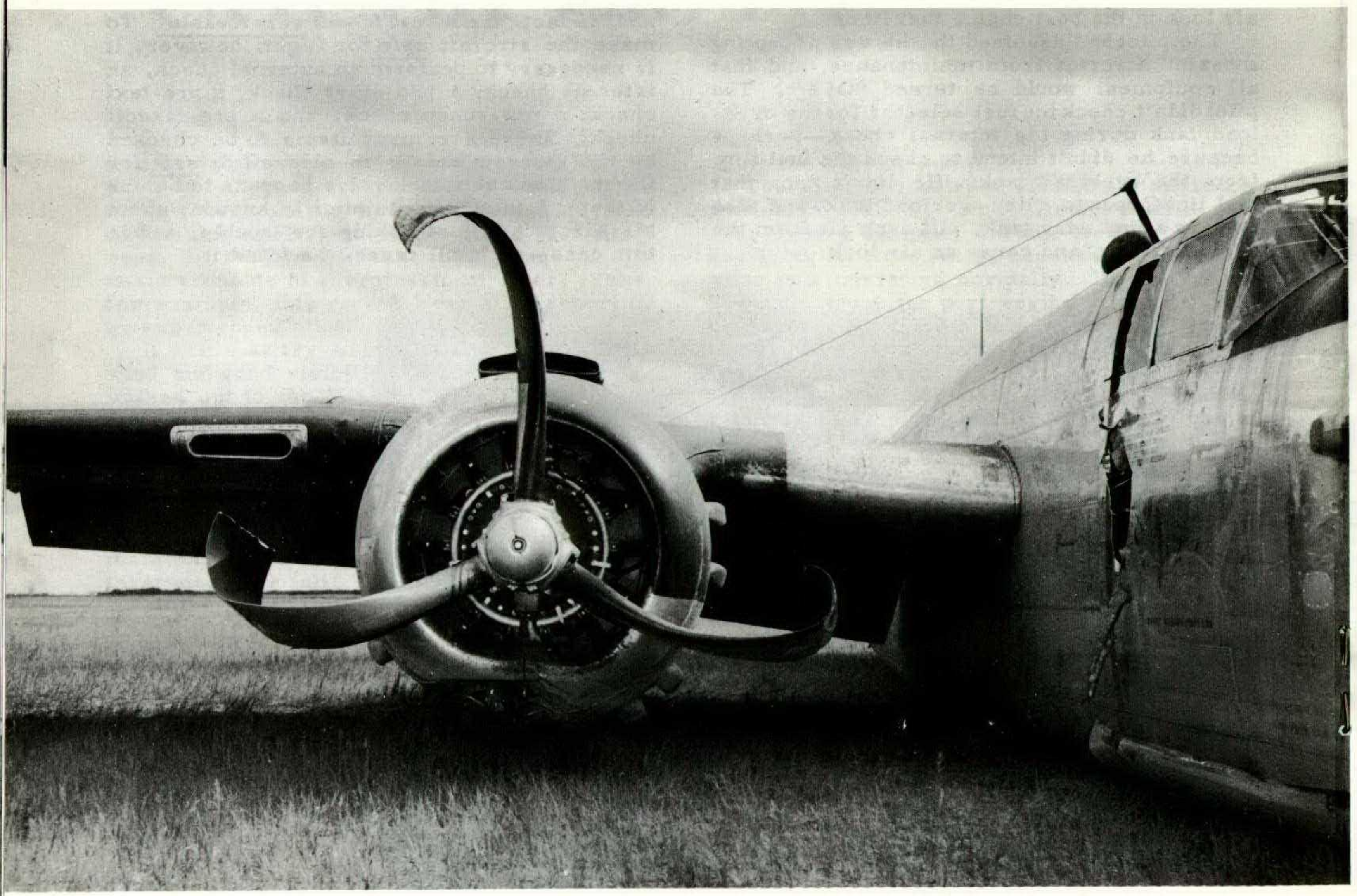
Now, to get back to the Near Miss. The pilot assumed that he was accepting a "safe" aircraft because it came out of maintenance—and, in fact, the aircraft was serviceable. To make the aircraft safe for flight, however, it is necessary to perform an external check, an internal check, a pre-start check, a pre-taxi check, a pre-runup check, and a pre-takeoff check. There are many items to be checked by the aircrew before an aircraft is safe for flight. The cabin tank valve happens to be one of them. A pilot's assumption of knowing about his aircraft is just asking for trouble, and in this case—as in all cases—he found it.

posed photograph



WHEELS UP WHEN ? ? ?

by H. G. Howith



Ed. Note—The following article is based on a recently-submitted Near Miss report, and on an article, "Wheels Up", which appeared in Flight Comment, May-June, 1958.

It's a beautiful day for flying, and I'm scheduled to take off as lead in a two-plane formation. My pre-flight check shows everything okay, so I strap into the driver's seat, give a thumbs-up to the line crew, and watch the needles start to move.

When my radios are checked, I get taxi clearance, and start, the roll from the line. (...remember...they're working on the runway...only single takeoffs allowed today....) Line up, power on, TOE-switch on--my T-bird is quivering to get upstairs. Brakes off, and away we go—roaring down the runway on the takeoff roll. Take off at 93 per cent...No.2 at 97 per cent...three second separation.

Airspeed 70, nosewheel coming off the ground...(Say—there they are...those types working on the runway...wonder what it's like to work on the ground, instead of flying...?) Airspeed increasing nicely...now it's up to 100...105...wheels UP....

YE GODS! What's the matter? Main gear on the runway when I selected UP! (Didn't hear the gear cycle, so something's wrong!) Undercarriage still indicates DOWN...speed now going through 115 knots. Undercarriage starts to cycle now...what's that slight sink?—CRUNCH!?!?

I was just plain lucky that there wasn't that sickening "CRUNCH"—but everything else happened just that way. By the time I'd realized what had happened, and I thought of putting on power, I was airborne, and didn't need it. But Dame Fortune was just smiling at me that day. She might frown next time—if I permit a "next time" to happen. And I won't!

I darned near found out "what it's like to work on the ground, instead of flying"! I was day-dreaming, all right—raising undercarriage and flap had become such a habit that I was doing it almost unconsciously...without thinking.

Just think back: Have you ever looked suddenly at your u/c and flap when you're going through 2000 or 3000 feet, because you can't remember if you've selected them UP?

* * * * *

The foregoing is an adaptation of a recent Near Miss report. It raises two important questions: day-dreaming, and premature undercarriage UP selection.

Now, day-dreaming's bad enough. It just reflects an unprofessional approach to your flying. On the other hand, let's look at this business of raising the wheels. It's important—as well as a great risk to valuable personnel, a premature selection can cause an average of the price of ten Cadillacs. There were seven such cases over a recent two and one-half year period—four T-birds, a Sabre, a Mitchell, and a Harvard. The cost to the RCAF and John Q. Public is prohibitive. While the rate for this type of accident is decreasing, these occurrences might be eliminated—if.

This brings us back to our basic question—when are wheels to be raised? The "good book" (POIs) and common sense say, when the aircraft is safely airborne. Safe flying speeds are outlined in the dash-1, so on the surface there would appear to be no problem.

Well, how do you know when you're airborne? Airspeed! That's it; the EO states that, at all-up weight, the aircraft will leave the ground at 122 knots.

Okay, so we had 122 knots on the clock; but the bucket of bolts still refused to climb and settled down to the concrete. Why? On a long runway, a change of temperature could be the cause—or a change in wind velocity, or a small instrument error in the ASI, or a combination of all three. What chance has a driver got with the cards stacked against him that way?

I think most jockeys feel that on takeoff the wheels must be raised immediately. This has been drummed into all of us since flying training days. With the advent of high-speed, high-powered aircraft, we are constantly reminded that excess speed causes damage to the hydraulic lines—so we are urged to get them up out of the way.

This is all very true, but let's have a second look at "excess speed". For example, take the T-33. The EOs state that at maximum all-up weight the takeoff speed is 122 knots. They also state that the maximum speed for lowering the undercarriage is 195 knots. It follows that if it is safe to lower the wheels at 195 knots, it is also safe to raise them if the airspeed is anywhere between 122 and 195 knots. But we also have takeoff flap, and as the flaps have a lower maximum speed than the wheels, we can use the flap speeds to figure out a logical and safe takeoff speed at which to raise the undercarriage. The flap speed is 174 knots.

Now to review our procedure for selecting gear up. Instead of using the 122 knots for takeoff, let's say the wheels must be selected up at a speed somewhere sufficiently below 174 knots to give the gear time for retraction and the pilot time to select flaps up before 174 knots.

Now, to get back to that takeoff. It's still a beautiful day for flying—the T-bird is 100 per cent...quivering to get upstairs...brakes off...accelerating nicely...70 knots, nosewheel up...100 knots...120 knots, and airborne...check...climbing nicely...135 knots, wheels up...checked up...flaps coming up. Man, what a day for flying!

CONFIDENTIALLY . . .

I've got news for you...CONFIDENTIALLY, accidents don't chase people!

Did you ever see...

a flight of steps jump up and hit someone in the shins?

a saw chase a man to cut off his hand?

a switch-box reach out and turn on the current while mechanics work on the machine?

a hammer or wrench sneak along a girder looking for someone to fall on?

a splash of oil slide under a person's foot?

a swarm of chips circling around a man's head to put out his eyes?

a piece of loose clothing grabbing at machinery?

No; what causes most accidents isn't THINGS but people.

—Accident Prevention
NAD Earle MISSILE

Non-Skid Ice

Here is a method which has proved successful for sticking sand to ice when heated trucks were not available for distributing it on runways and taxiways during extreme cold temperature. Sand was spread on the ice with a normal sand distributing truck followed by a fire truck spraying water on the sand with a fog nozzle. The minute amount of water was just enough to freeze the sand on the ice and gave a good non-skid surface.

APPROACH

Consider the Risk

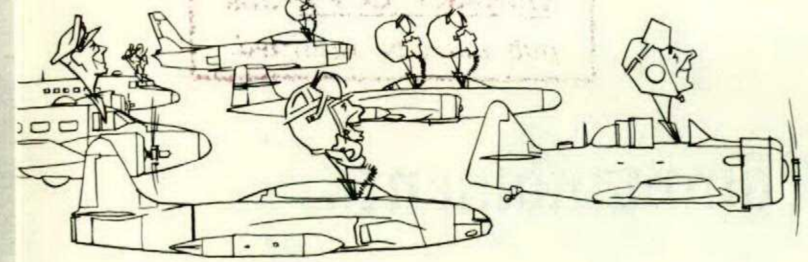
The question of just what discrepancies on an aircraft should be considered "safety of flight" gripes and cause to "down" the aircraft has long been a matter of discussion. No doubt this discussion will continue because individual opinions are bound to vary. However each pilot should carefully consider both the known and possible requirements of his flight prior to accepting an aircraft with known discrepancies.

Investigation of a recent fatal aircraft accident indicated that the pilot attempted a cross-country flight with his Tacan equipment, compass, and fuel transfer system inoperative. Obviously, this placed great additional demands upon the pilot even before takeoff.

Many modern aircraft are designed with multiple systems, one to back up the other in case of trouble; therefore the question of exactly which systems are considered primary flight systems is largely dependent upon the type aircraft and mission to be flown. Again however, careful consideration of the possible demands of the planned flight will often offer logical guidelines. A sound understanding of the aircraft's systems is as necessary to thorough flight planning as an adequate weather briefing.

Altogether too often personal pride plays a large role in deciding just what discrepancies a pilot will accept. With the advent of our more complex modern aircraft, the often quoted phrase, "I can handle it" is out of date. The professional pilot of today, with his aircraft's limitations and capabilities, and a sound flight plan before him has revised it to read, "Can I handle it?"

APPROACH



HEADS-UP FLYING

CENTRE BEARING FAILURE

The attitude and skills which make a professional flyer are illustrated in the following narrative by Golden Hawk pilot F/L R.H. Annis:

"...I was authorized to fly...from Cold Lake to Saskatoon. I took off from Cold Lake at 1630 MST with two wingmen and proceeded VFR low level toward Saskatoon. Approximately 15 minutes from Saskatoon, power was increased and I began to climb to check the cloud base for the evening air display at Saskatoon. At about 6000 feet and 95% power, I noticed the oil pressure dropping rapidly. I began to level off and retained power, when I heard a muffled noise resembling a small explosion. There was a rapid loss of power resembling a flameout.

"I instructed the No.2 and 3 in the section to proceed on their own, and switched to tower frequency to carry out a forced landing on the field. I informed the tower I was having difficulties, and requested that the circuit be cleared.

"I then observed that the engine had not flamed out, and that some power still remained, although the engine was running very rough and hot. There were strong fumes in the cockpit.

"Although there was no oil pressure, and a danger of engine seizure, I was convinced that I should try to circle the field and land into wind—because of my favourable altitude, the fairly strong westerly wind, and the partial engine power.

"An uneventful landing was carried out; the engine was shut down during the landing roll to prevent further damage. I cleared the runway and completed the shutdown check while waiting for transport back to the flight line."

Technical investigation revealed that the engine suffered a centre bearing failure, which caused extensive damage to the engine compressor. The engine was replaced.

The unit commander noted that, had F/L Annis not throttled back when the centre bearing failed, the engine might well have seized shortly afterwards. Both the unit commander and the CO recommended commendation for F/L Annis' immediate action and display of above-average airmanship. Flight Comment joins these officers in praising this example of professional flying.

BROKEN BLADE

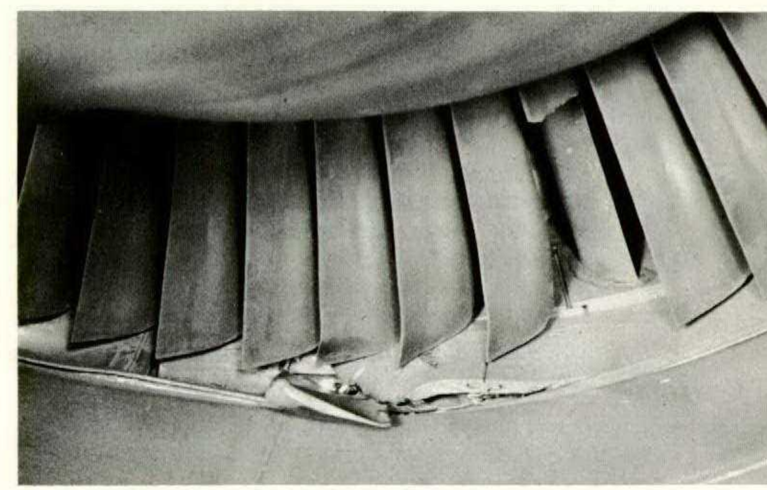
A Sabre was checked serviceable for a local training flight planned for IFR at 1000 feet on top. JPT and oil pressure were normal at takeoff, but when climbing through 26,000 feet at 95% power, the aircraft suddenly began to rumble and vibrate. The pilot, F/L H. Jenkins, reduced power and requested a clearance for an IFR approach.

With reduced power, the vibration lessened considerably, although the rumbling persisted. JPT and other engine instruments continued to give normal readings and the pilot utilized minimum power to effect an IFR approach to the airport. On landing, F/L Jenkins shut down the engine.

Subsequent investigation revealed that one blade had broken off about 1-1/2 inches from its base on the rear turbine rotor. This broken blade penetrated the bottom front portion of the exhaust cone and jammed in the cone after partial penetration. Six turbine blades were bent from contact with the broken blade. The broken and bent blades resulted in turbine imbalance, which caused severe rumbling.

Failure of the blade was termed obscure by the detachment commander, but was subsequently assessed Materiel pending a strip report on the Orenda 14 engine.

Flight Comment joins the detachment commander in commending F/L Jenkin's "excellent airmanship in making the landing under these conditions."



Cold Weather Commandments

1. Fill not thy tanks completely outdoors if thy machine is to be hangared, lest thy fuel expand and overflow, creating great tribulation unto the department of fire.

2. Prepare not for takeoff ere thou hast removed all ice, frost, slush, and mud from thy wings, lest thou learn painfully how they destroy thy lift.

3. Guard thyself carefully against carbon monoxide fumes which sneak up on thee unheralded and cause thee to fly most unprofessionally.

4. Save thy battery, for cold weather doth indeed reduce its poop.

5. Change thou periodically the pitch on thy reciprocator, lest it should become frozen ere thou pusheth it full forward on thy final.

6. Attempt not to judge the depth of snow from thy lofty perch, for snow is deceiving, and thy faulty estimate may indeed cause the overworked COpsO to be plagued with D14s.

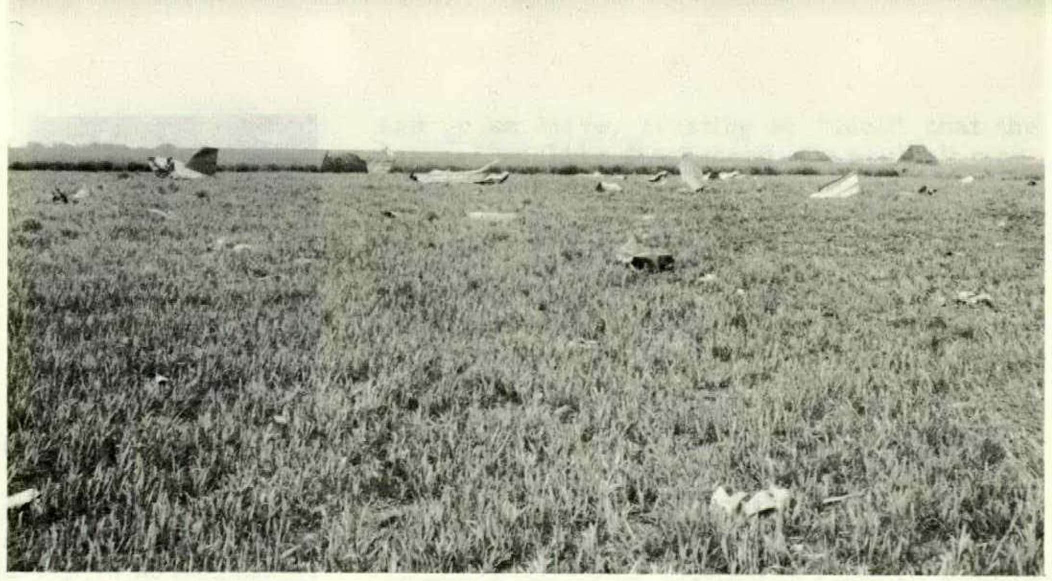
7. Know thy oil dilution procedures, for hydraulicing and piston scuffing do verily consign thy set of engines to the everlasting scrap heap.

8. Keep not thy cowl flaps closed when running up on the ground, for it is thy oil temp which thou art striving to increase, and not thy cylinder head temp.

9. Provide thou adequate cover for thine aircraft ere retiring to the mess, for 'tis far easier to remove a snow-covered canopy from thy windscreen than to remove the snow. And the morning duty servicing crew will sing thy praises around the line shack for thy foresight.

10. Plan thy taxiing well, keeping icy taxiways in thy mind, lest thou dash thy wheel against an obstruction light or wind up in the boondocks.

EVIDENCE



"A crash! Where? Let's have a look". This is the first reaction of most people, both service and civilian, when they hear of a crash. There's the airman who had a look and picked up a souvenir—(they all want a souvenir)—for his mantelpiece—which turned out to be a "live" rocket head. Fortunately it was discovered while he still had a mantelpiece. Or the farmer who had a canopy for his souvenir. After he returned it, the reason why the pilot did not eject could then be deduced. Or take the time much valuable evidence was destroyed when a crane was used to move the wreckage before the inspectors arrived.

There are two aspects to the wreckage-evidence picture—missing evidence and destroyed evidence.

Missing Evidence—In most cases missing evidence can be laid at the door of the souvenir-hunter. No matter what brings him to the crash scene, once he's there he just has to have a souvenir. It would, in most cases, be thrown away on his way home or shortly after he arrived home.

This loss of evidence cannot be treated lightly. The unit responsible for guarding wreckage must make every effort to have a guard established as quickly as possible. If necessary, local police should be used for an interim period, but this period should be kept to an absolute minimum. In addition, service personnel, and, if possible, local police guarding an accident must be briefed thoroughly on their responsibilities and told that NO ONE, other than the authorized investigator, is to touch the wreckage.

This may sound like an elementary briefing-point but it is, in fact, the one rule most often broken. Just convince the adamant souvenir hunter that if he'll only wait, he will be given a much bigger and better piece than the one he already has. Spectators wandering around the scene often destroy evidence such as ground marks that are used in determining impact angles, etc.

Destroyed Evidence—Destroyed evidence is more directly concerned with service personnel than with civilian. It is realized and accepted that a certain amount of wreckage disturbance has to take place to remove survivors or fatalities. When there are survivors, the disturbance of the scene has to take second priority. In all other cases, however, there is no great need to hurry, and time can be taken to keep the disturbance to an absolute minimum.

Disturbing parts of the wreckage breaks control cables, changes flying control settings, alters cockpit control settings, affects switches, gives false break indications, and spills fuel and oil—to mention only a few of the ways in which evidence may be destroyed. If it is absolutely essential to move wreckage, responsible personnel should have photographs taken from as many angles as possible. Photographs, however, can never duplicate a visual inspection.

There is one other vital aspect of wreckage disturbance that must be considered practically all of our modern aircraft carry explosive charges of some sort—either ammunition or ejection cartridges, or both. This equipment presents a real hazard in the hands of the inexperienced. This should be considered by personnel engaged in accident investigation.

In summary, the following points are emphasized.

1. The personnel guarding the scene of an accident should be properly briefed.
2. The guard should be established at the scene in the shortest possible time.
3. If wreckage must be disturbed before investigators arrive, ensure that photographs are taken of all parts from different angles.
4. When explosives are present, they should be safetied or removed by qualified personnel before others approach the scene.

ARRIVALS and DEPARTURES

HOLE IN THE GROUND

An Expeditor, landing after a cross-country flight, was being directed to the Expeditor parking area by a marshaller. On his signal, the aircraft was turned to the starboard to swing it into line. After turning about 45 degrees, the tail dropped and the aircraft came to a shuddering stop. The crew shut down the engines, and left the plane to investigate.

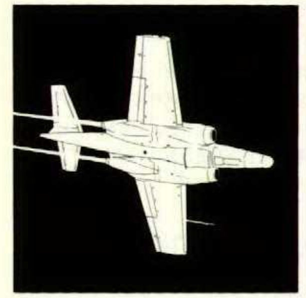
The tailwheel had dropped into a thirteen-inch hole in the ground about two feet off the tarmac, causing the port rudder and the starboard fin to buckle along their lower edges.

Further investigation revealed that a CE section civilian electrician had dug the hole that afternoon, in an attempt to locate a short circuit in the taxiway system.

The servicing crew was not aware of the hole—in fact, the hole hadn't even been marked! In other words, the lack of liaison between the CE section and Flying Control caused an accident.

This type of accident is on the increase. Now is the time to put a stop to it. Review your station set up—if you aren't working closely with the CE section, now is the right time to start.

The port rudder and the starboard fin were buckled



DIVE BRAKE FAILURE

A pilot was air testing a CF100 Mk IVA, 30 miles from base. Following a Mach run at 10,000 feet the dive brakes were selected out in preparation for a de-boost at 200 knots. When the desired speed was reached the dive brakes were selected in but failed to retract. All gauges were normal, and no amount of circuit-breaker re-setting would induce the dive brakes to retract. As fuel was down to 2400 pounds, the pilot returned to base and made a straight-in approach to a successful landing.

The cause was traced to an internal failure of the dive brake selector switch, pt. No. 8905K774. This switch failed in a way which allowed current to be supplied continuously to the solenoid-operated control valve which, in turn, kept the valve open and dive brakes out.

The unit concerned has taken UCR action to have the solenoid circuit made fail safe.

One of the hazards of jet flying is having the dive brakes refuse to retract. If the circuit-breaker is pulled out all power is cut off, (including, of course, power to the solenoid); thus air brakes should retract.

In this case, the pilot was fortunate that he had enough fuel to return to base.

TIME BOMB

Would you saunter away from an aircraft, leaving a deadly time bomb ticking in the fuselage?

"Do you think I'm going ape?", you might well reply.

Very well, then, would you damage an aircraft by over-speeding its flaps, and, instead of reporting the incident, walk off the station and go on leave, trusting to "luck" that the damage would be discovered—or wouldn't matter?

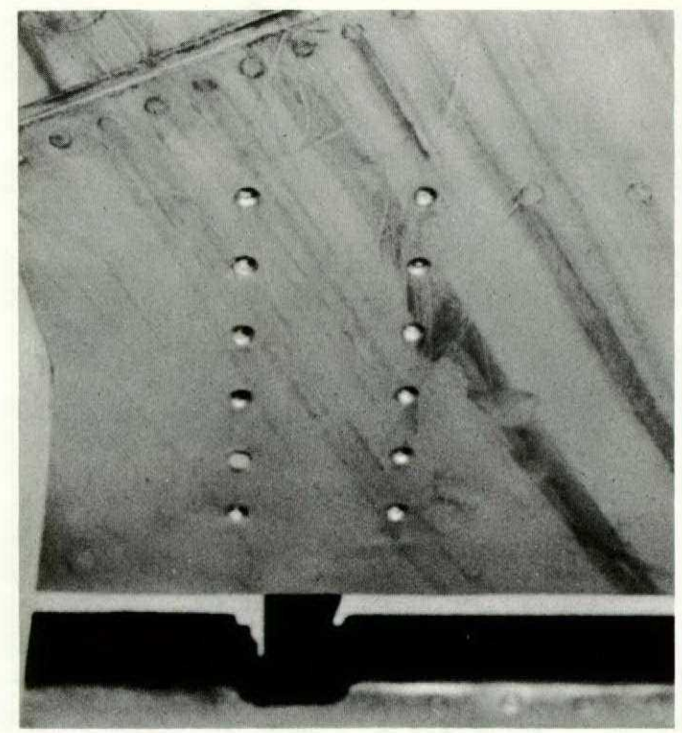
One Sabre pilot did just that. He might as well have left a time bomb in the aircraft! Luckily, the damaged flaps were discovered during a BFI. Even more incredibly lucky was the subsequent discovery that the Sabre had been flown once since the damage had been inflicted.

To quote from the D14, "The port flap had numerous rivets loose along the trailing edge, and both (flaps) had rivets missing from the brackets supporting the inboard tracks. There were also small dents in the flap edges nearest the ailerons, indicating that the flaps had shifted outwards owing to airloads, and had rubbed against the ailerons in flight.

"These dents were located in such a position that they could have been made only with the flaps in the takeoff position. Since the pilot of the last flight stated that he had used flaps only normally during takeoff and landing, there was reason to suspect that the flaps had been oversped on the trip previous to the last."

The captain on the previous trip had gone on leave immediately and wasn't available—but his No.2 stated that the No.1 had been engaged in a slow speed scissors, in which the opposing aircraft had rolled over and pulled through, followed by the lead.

On return to base, the lead slowed his aircraft and lowered. then raised his flaps. During de-briefing the lead mentioned that he might have oversped his flaps during the pull-through. But no unserviceability was entered



Pilot didn't enter these oversped flaps on the L14 by the pilot in the L14!

In assessing the accident aircrew-carelessness, the CO remarked that the pilot's failure to report the occurrence "...is certainly an indication that he lacks a professional attitude toward his flying—and this type of negligence, if such is the case, will not be tolerated."

TOUGH BRAKE

Despite continued briefings, even experienced pilots apparently will still land too close and too hot to other aircraft in the formation, and consequently use excessive brake. This of course, often results in blown tires on aircraft and blown tops on superior officers.

A recent D14 is a typical illustration. Landing as No.4 in a gunnery section, a Sabre pilot touched down about 1500 feet behind No.3, at what the erring pilot termed "normal" touchdown speed. He didn't keep the nosewheel in the air; but raised flaps immediately because the runway was wet.

Since the aircraft was starting to overtake the No.3, the pilot applied what he called "moderate" brake, and told Nos.2 and 3 to keep rolling. Shortly after, the aircraft began to swing to the right: the tire had blown.

The unit commander reported that the accident had undoubtedly started right at the break. Normal break at his unit—and the one this section was briefed to use—is three seconds. The formation ended with No.4 too close to No.3—and No.4 "hot" over the end of the runway.

Pilots should overshoot if they've made a poor approach, or if they're too hot and too close to other aircraft. This has been stressed again and again, yet incidents of excessive brake still seem to occur. End result of this particular incident: one ruined tire, one damaged flap, and one re-briefed pilot. Don't let a bad break cause a tough brake!

SHOT WITH HIS OWN PISTOL

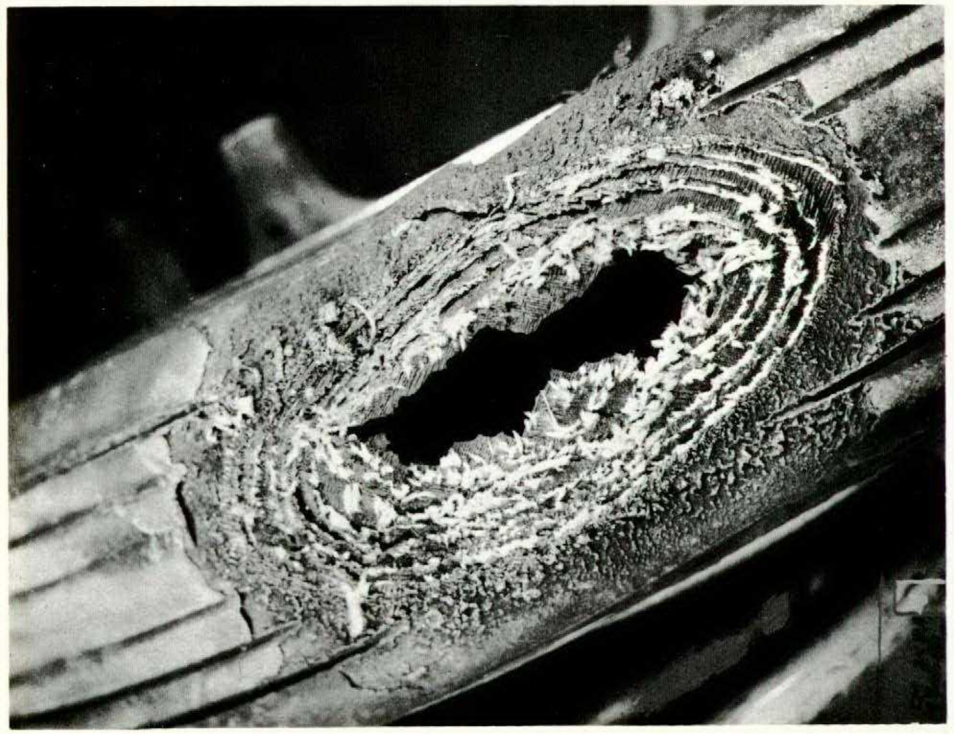
The pilot of a Sabre was making his eighth pass at the flag when he noticed that he had lost both his airspeed indicator and his Mach meter. He stayed with his formation and made a successful formation landing with No. 3 leading him in.

Investigation revealed that a spring had been left out of the front trunnion block lock assembly of the lower port gun. During firing the trunnion block lock loosened and allowed the trunnion block to twist. The gun was then misaligned and the bullets tore the blast tube. Pieces of bullet jackets and of the blast tube cut two pitot static lines and the P1 line. An oxygen line, and a wire bundle in the port side of the radar compartment, were also damaged.

This accident was assessed "Materiel (Contractor Maintenance)".

DON'T DRIVE IT

During a local training flight in a Sabre, a PFL and a square pattern GCA were carried out. On the overshoot, the speed brakes and undercarriage were selected up, but nothing happened. Airspeed was kept below 185 knots.



Excessive brake blows a/c tires and COs' tops!

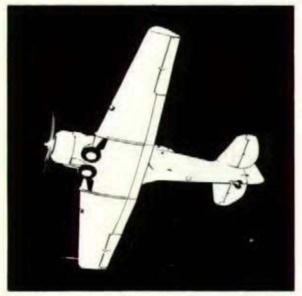
A cockpit check indicated that a utility hydraulic pressure was reading zero.

The pilot asked for a straight-in approach. On touchdown the hydraulic pressure went up to between 2500 and 3300 PSI. Braking action was normal. Just before shutdown in the DISPERSAL, the hydraulic pressure fell off to zero.

The pilot was just plain lucky that he retained braking action until shutdown. He was aware of a malfunction in the hydraulic system, which should have prompted him to shut down immediately after clearing the runway.

The pilot was briefed by his OC and CO on his exhibition of poor airmanship. It's good policy to keep clear of any congested area, such as dispersal, after you suspect hydraulic trouble.

It doesn't cost anything to tow an aircraft to the line.



RESTRICTED VISION

A student at an FTS was authorized to carry out solo stalls, spins, chandelles, and lazy eights, for the first time.

After completing a number of these manoeuvres, he noticed a few drops of oil on the windscreen. The student checked his engine instruments. Everything appeared normal, except for a slightly high oil temperature reading, which he attributed to the very hot day. As a result of his check, and because the oil seemed to have stopped flowing onto the windscreen, he decided to continue with his exercise.

On recovery from a spin the wind shield and canopy became covered with oil. Visibility from the cockpit was seriously reduced. Quickly checking instruments again, the student opened the canopy to increase his visibility, headed the aircraft for base, and informed the tower of his difficulty.

His approach was good but poor visibility prevented him from judging his height and position, and he overshot. His second approach resulted in a safe landing—and a successful conclusion to a serious situation for a student at this stage of training.

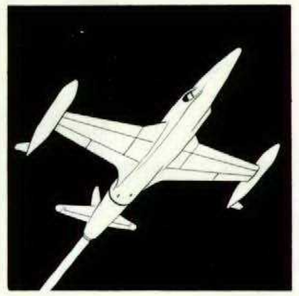
Subsequent investigation revealed that the Constant Speed Unit rubber mounting gasket, Sec. 28/MS 100009, had failed, allowing oil to leak out around the base of the CSU.

FROZEN THROTTLE

A pilot of a Harvard experienced a complete power loss and landed his aircraft undamaged in a grain field. In commenting on this accident the CO wrote, "The fact that a very experienced and capable flying instructor was caught by this hazard emphasizes the importance of constant attention to this aspect of flying."

This is how it happened. Weather was CAVU, temperature 65°F, wind 250 at 36, when the instructor took the student up for some instrument practice. After the student had practised timed turns, the instructor took over to demonstrate slow speed loops. On completion of the fourth loop the instructor could not move the throttle lever. Various procedures were tried, but the throttle lever refused to move out of the idle position. This condition eventually led to the forced landing.

A thorough investigation revealed no malfunction or damage of any kind in the throttle linkage or carburettor. The "frozen throttle" could be explained only by an accumulation of ice in the carburettor. This accident is supported by reports of "slight carburettor icing" by pilots flying in the same area.



TOWER SPOTS FUEL LEAK

The pilot of a T-33 returning from a long-range training flight landed at Winnipeg to refuel. The aircraft was refuelled and BFI carried out. After an IFR flight plan was filed the T-33 was taxied to takeoff position. Just before the takeoff roll was commenced, the tower noticed fuel venting from the rear of the aircraft. The pilot returned the plane to the ramp.

The cause of the venting was a ruptured fuselage tank interconnector leading from the main wing group. The damaged part was replaced, but within five hours had ruptured again. A thorough investigation is in progress.

The alertness of Winnipeg Tower prevented what would have been a most serious situation, because the first indication of failure for the T-33's crew would have been its discovery that fuel was short by 128 gallons.

The energizer was jet-blasted into a parked T-bird

EXPERIENCE ALONE NOT ENOUGH

It happens to the best of them. Don't let it happen to you.

Two very experienced pilots planned a flight in a T-33. After startup, the throttle was advanced to 65% to taxi from the line. When brakes were applied, the port brake seemed to grab, and the aircraft swung to port, causing the nosewheel to cock. The throttle was opened further, and the starboard brake pumped, in an effort to straighten the nosewheel.

This action, however, had no effect. The aircraft swung through 360° in what was termed a "controlled" turn. Finally, an airman was called to straighten the nosewheel, and the aircraft was taxied from the line.

While taxiing out, the T-bird was recalled. After shutdown, it was found that an energizer had been blasted into another T-33. The energizer had been moved approximately 25 feet to the starboard and rear of the first T-bird after it had been started up. Although the energizer handbrake had been set, the towing/brake panel retaining pawls disengaged when the energizer was struck by the jet blast of the turning aircraft.

Disengagement of the retaining pawls allowed the brakes to be released, and the energizer pranged the other T-bird.

In the accident report, there was no statement about the condition of the brake mechanism on the energizer, nor was there mention of the condition of the brake retaining pawls.

Notwithstanding the condition of the energizer's braking equipment, the turning of a T-33 through 360°, "controlled" or otherwise, in an attempt to straighten the nosewheel, is just poor airmanship. It would appear that experience alone is not enough—you have to be with it at all times!

HOW NOT TO TOW

A four-man crew was towing a T-33 from a hangar to the flight line when the port tip tank collided with another T-bird's tail section.

The parked aircraft was damaged considerably. The T-33 under tow required replacement of the nose section of the tip tank. Weather was fine; the tarmac dry.

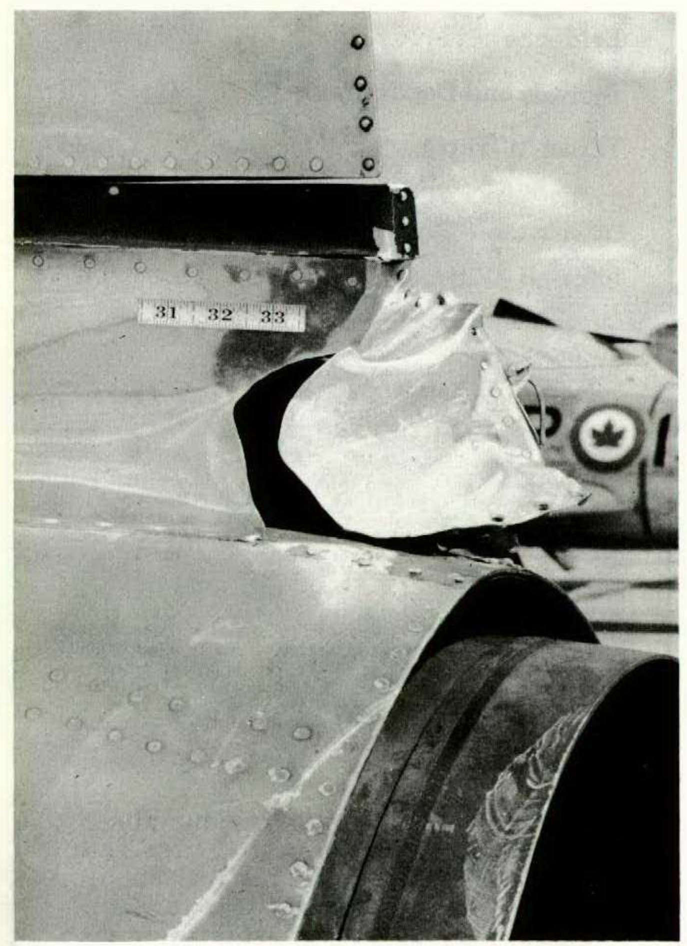
Investigation revealed poor judgment by the mule driver for failing to maintain a safe distance between aircraft. Again, the man on the brakes was a radar technician with little experience in towing aircraft.

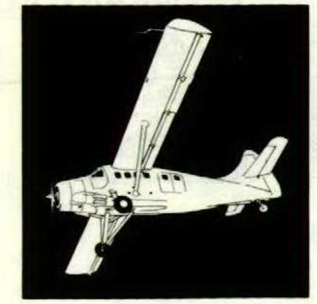
This man didn't apply the brakes as soon as he could have, because he thought sudden brake application might cause serious damage to the nose gear. He was not aware that a shear pin is incorporated in the tow bar.

This poor show was aggravated by the Corporal i/c of the duty crew failing to ensure that his crew was briefed, and that each man was familiar with the requirements of the position assigned to him.

Disciplinary action was taken against the mule driver; positive action was also brought in to ensure that all duty crews are adequately briefed—after the accident had happened.

The lesson is crystal clear. Are YOUR tow crews briefed and up to scratch?





CIVILIAN HAZARD

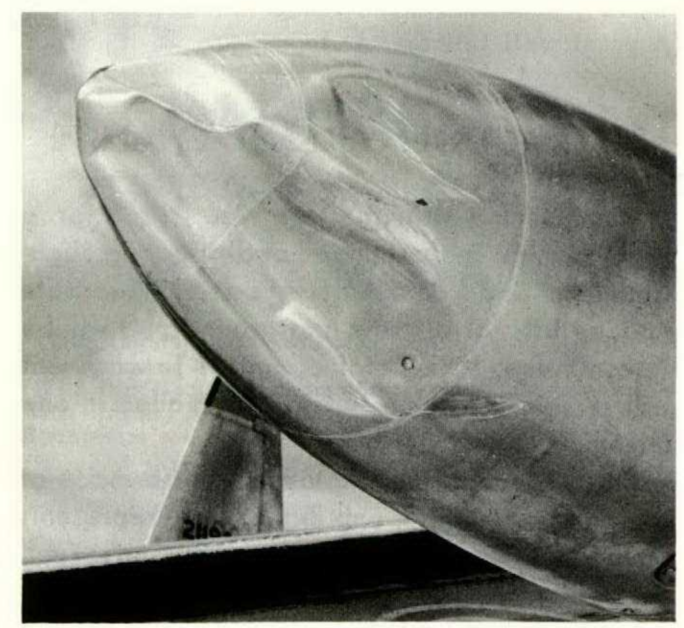
An Otter was leaving a beach on a training flight when some unwanted and unasked-for "help" from civilian personnel led to an accident. Here's what happened:

As the aircraft was clearing the beach, the pilot noticed that his plane was swinging to starboard, and heading directly for a boat moored to a dock about 40 or 50 feet away. Although the pilot took all action possible to avoid a collision, the Otter hit the boat, damaging the starboard float rim on the starboard side just below the front bumper. The boat was unharmed.

Unknown to the pilot, three civilians had run up to the Otter and pushed on the ventral fin from starboard to port while the aircraft was clearing the beach. The crew hadn't asked for this civilian "help".

The pilot must keep a sharp lookout ahead for possible obstructions in this area, and once clear of the beach, can't be expected to watch rearward for unexpected incidents. But the inherent danger in a situation of this sort is clear. This beach is near a resort area.

An aircraft is an attraction for civilians under almost all circumstances. If civilians are near, better warn them away from the aircraft before taking off or taxiing.



LETTERS TO THE EDITOR

EOs, Advance Revisions

Does reading of an Engineering Order come under the heading of Flight Safety?

If so, surely an adequate definition of the purpose of a specific EO would be "to inform and instruct personnel on the flying and maintenance of aircraft." To read and to retain information, material should be well written. This is certainly the case with the majority of EOs.

In some cases, however, one might well ask if the useful purpose of Advance Revisions has been undermined by too frequent use.

A case in point would be EO 05-25E-1 for the CF100 Mk 4. The basic copy of this EO contains 118 pages, but there are now 91 pages of relevant Advance Revisions in this order. Some pages have TWELVE facing pages (page 20) concerning paragraphs on the basic page. To extract information from this EO one must display tenacity of the highest order, since one reads a paragraph and flips pages searching for the Advance Revision concerning that particular paragraph.

Often massive -4's are reprinted within a few months. Slim -1's, however, just assume a more jaundiced air from the addition of more yellow pages.

It may well be that information hard to find is also hard to remember, or may be even completely overlooked.

J. E. Brown, Cpl
CEPE Uplands

(A point well taken. —Ed.)

DISTRIBUTION—SLIGHT CHANGE

Commencing with the new year, look for a slight change in the method of distributing Flight Comment and Flight Safety Posters. Separate mailing lists for aircrew and groundcrew will be discontinued. The total allotment to each unit will remain the same but will be mailed in one envelope.

Since no separate allotment will be made at the point of mailing, unit flight safety representatives must ensure that maintenance personnel, as well as aircrew, receive their fair share of magazines and posters.

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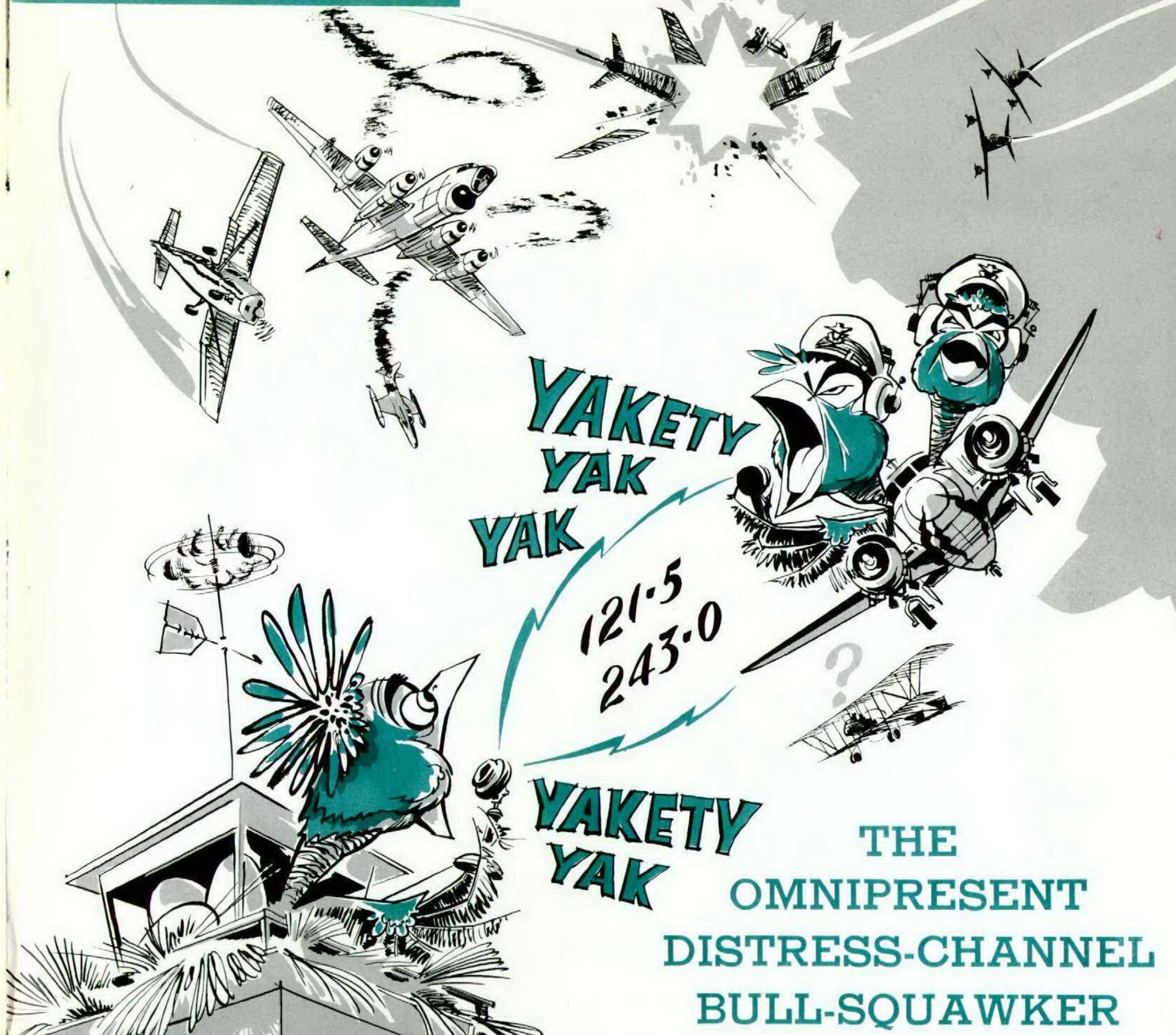
BIRD WATCHERS' CORNER



THE OMNIPRESENT DISTRESS-CHANNEL BULL-SQUAWKER

This mysterious menace is rarely seen, but may be heard passing the time of day on the distress frequencies (121.5 and 243.0). Jabbers about everything and nothing with other featherbrained specimens. Some Bull-Squawkers are airborne; others roost in control towers, etc. The great variety of calls prevents others of the flock from using these channels to squawk about days in May or pots and pans.

CALL: WHAT'STHERUNWAYWHAT'STHEWIND WHAT'STHEHOCKEYSCORESHOW'STHE STOCKMARKETWHAT'STHESWEAT

PEST CONTROL MEASURES:
AN OPEN SEASON PREVAILS. STRANGLING IS RECOMMENDED