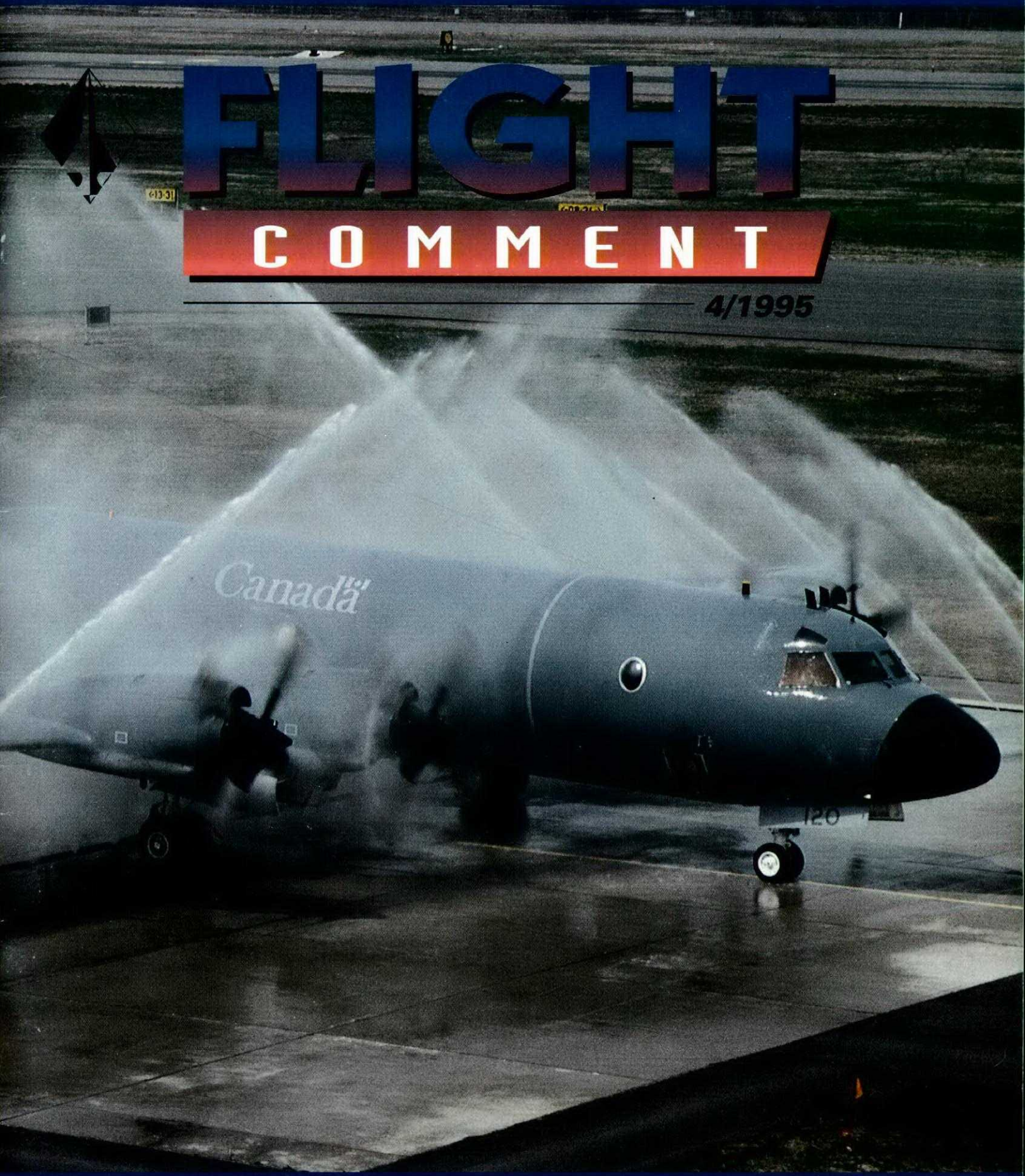
National Defence / Défense nationale

FLIGHT COMMENT

4/1995



Canada

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Flight Safety Magazine

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AS I SEE IT

by BGen E. Morin • Director General Aerospace Equipment Program Management

Airworthiness Equals Operational Capability

Airworthiness is not just aircraft serviceability or availability; it is a concept that is directly related to assurance of Air Force operational capability. Airworthiness is not the exclusive domain of engineers and maintainers; it does and must include operators, aspects of materiel procurement, airfield facilities, aircraft design and performance, personnel education and training, to name a few. Flight Safety and Airworthiness programs are vital, complementary elements that assess risk and aid in the conservation of resources, both personnel and materiel, critical to mission accomplishment.

The need to embrace airworthiness is not optional, it is a legal responsibility stemming directly from the Aeronautics Act, which specifies that the Minister of National Defence is responsible for, amongst other things, the Airworthiness of military aeronautical entities. While airworthiness has always been a primary concern of military air operations, there remains a requirement to more clearly articulate the policy and management framework necessary to fulfil all obligations associated with the Aeronautics Act.

The need to embrace airworthiness is not optional,

The current CF Airworthiness Program has been subjected to an independent audit and is generally considered effective, but its scope is limited. The published policy dealing strictly with airworthiness is technically focussed. The applicable order (CFTO C-05-005-001/AG-001) addresses primarily the need to demonstrate a fleet's initial and continuing airworthiness. An annual certification requires that documented evidence of conformity with the design specifications be presented to the Airworthiness Review Board (ARB) for approval. Operations, flight safety, engineering and maintenance staffs make presentations to the ARB which is co-chaired by DGAEPM and COS Ops (Air Command). Satisfactory compliance results in the issuance or renewal of a Canadian Military Aircraft Type Certificate (CMATC).

I have recently established a team that is working to improve and redefine the full range of Airworthiness related documentation and processes. While I appreciate terms like "re-structure, downsize, delayer, re-engineer, process improvement" may have become too "popular", they do not depict the truly massive amount of change the Air Force is undergoing. Some of these cannot be avoided in terms of their impact on CF Airworthiness Policy. There is opportunity for improvement and we must take advantage. I firmly believe that our engineering, maintenance and operation activities are governed by applicable and appropriate orders which have been developed using sound airworthiness principles. However, as in all things, some orders cannot be supported by today's changing world. Even Transport Canada is performing a fundamental review of their aviation regulatory framework.

As a combined regulator, owner, operator and maintainer of aircraft as well as our own accident investigator, it behooves us (DND/CF) to ensure all aspects of aviation safety are covered and that a level of independence be clearly maintained between these various aspects. We must review our philosophy on centralized fleet controls as opposed to individual aircraft or organizational entities. We must focus on striking the right balance between operational precedence and aviation safety, including clear delineation of authority for the decisions which might have to be made. The MOC 500 restructure and Operation Excelerate initiatives are introducing greater devolution of responsibility with appropriate authority and accountability. This adjustment involves technicians, engineers, operators, suppliers and trainers; those internal to DND/CF and those external to DND/CF as represented by our aerospace industry partners.

In summary, I believe we must evolve toward an even more formal approach to airworthiness management, while enhancing its flexibility and responsiveness to operational requirements without compromising our legal obligations. Both the Airworthiness and Flight Safety Programs are integral parts of Aviation Safety; both contribute to the preservation of limited Air Force resources. To paraphrase an Australian colleague, "while Flight Safety and Airworthiness are everybody's business, unless they know about it, it might as well be nobody's business." ◆

ACCIDENT RESUME

Type: CF188714
Date: 5 July 1995
Location: 4 Wing, Cold Lake

Circumstances

The mishap aircraft was involved in a 2 v 1 air combat training mission that was being conducted on the Cold Lake Weapons Range. The formation completed four defensive setups prior to the mishap engagement. After the fourth defensive engagement, the #3 aircraft was cleared to return to base while the Lead and his wingman continued with a pre-briefed 1 v 1 scenario.

Following a standard butterfly split, the two aircraft turned head-on and established a left-to-left pass, with the #2 aircraft approaching from above. Just prior to the merge, Lead lost visual contact with his wingman and made the required safety call of "Blind". This was acknowledged with a transmission of "Continue, visual" by the wingman, who continued with his attack in accordance with the training rules.

Aircraft impact crater.

A 6.4G "Split-S" turn from above the Lead aircraft was initiated, with a G loading in excess of 6G being maintained for slightly greater than three seconds. On the back side of this turn, the G load and the pitch attitude decreased while the aircraft began a simultaneous roll to the right which placed it in an inverted attitude. The aircraft then continued to accelerate as the pitch angle continued to steepen. At the time of impact, the aircraft was inverted with a pitch attitude approaching the vertical and an airspeed in excess of 700 KIAS or MACH 1.12.

Carbon fibre protection gear - low density zone.

At the time of the mishap, the visibility in the air-to-air range was good with a clear and definite horizon. There was a layer of low clouds covering the western portions of the range area; however, this layer became scattered as the flight proceeded into the eastern portion of the range. As such, weather is not considered a factor in this mishap. In addition, the technical investigator indicated that up to the point of impact, the engines were producing thrust, electrical power was being supplied, and the aircraft appeared to be responding to control inputs.

DFS Comments

It is fortunate that this training mission was conducted on the Air Combat Manoeuvring Range and that a recording of the mishap was available for use in the investigation. Considering the severity of the impact, the various recording devices on board the aircraft, (i.e. MSDRS tape, HUD tape, etc), did not survive and thus provided no usable evidence. At present, it is considered probable that shortly after the initiation of the Split-S manoeuvre the pilot became incapacitated due to a G-induced loss of consciousness (G-LOC); however, the investigation is ongoing. ◆

Protection gear - confined area.

MUSINGS FROM THE EDITOR

As with a vintage forty-one year old home, Flight Comment has undergone some renovations. Most obvious are the physical changes - revamped cover design, tumble format, three column layout and type change. My many thanks to the professionals at DCA 2-6, Graphic Arts, for their suggestions.

These are not arbitrary changes for the sake of change but a concentrated effort to capture our readers attention and have them want to read our publication. The tumble format is the industry norm for government publications. The three column spread gives us more options in our layout and provides greater flexibility in the use of photos and cutouts. Type change was at the suggestion of some of our veteran readers who have shorter arms than was required to decipher our scrawl.

Change that is not as easily noticeable is the philosophy behind Flight Comment which is to provide you - the readers - with a quality aviation flight safety magazine. We have taken a concentrated effort to provide short, sharp articles that are directed to our readership base - technicians on the floor, aircrew on Squadron, controllers in the Tower etc. The success in maintaining Flight Comment as a first rate publication is dependant upon our readers who provide us with relevant articles. Most of our readers do not want to read about the musings of a Headquarters Staff Officer (particularly a semi-functional editor) but are more interested in what is happening at the front lines.

An editorial apology to our readers of edition 2/95 as the photo captions of the immersion suits in the Survival in Cold Water article should be reversed.

Enjoy the new look - we welcome your comments. ◆

PITFALLS OF POPPING PRESCRIPTION PILLS

by LCdr M.E.C. Courchesne, DFS 3-5

Recent flight safety incidents have been the cause of raised eyebrows, numerous telephone calls and a certain degree of anxiety for some aircrew. In the end the dust settled and all was resolved but as is often the case it was an opportunity for lessons learned. The subject is aircrew and medication.

One case in point. A CF aircraft encountered some difficulty and sustained damage. No one was hurt. The aircrew in accordance with ACOs reported to the local MIR for bloodletting. (I must open brackets here and add that toxicological analysis performed is for the purpose of ruling out drugs, alcohol or controlled substances as the cause of the occurrence and not for legal purposes such as prosecution, etc . . . And in all the years of testing for flight safety the CF has held true to its word. When we do find such substances, we must correlate it with the individual's history. For example if someone was administered pain killers in the course of a rescue before blood or urine samples were taken then we would expect "positive" findings). Back to our story. The toxicological analysis came back with a positive for morphine. Now that catches your attention. I know that some aircrew experience real highs while flying but that's endorphins not "morphins". Next we had images of aircrew shooting up morphine through their veins before a flight . . . but that didn't really make sense. The aircrew in question had revealed at the time of the incident that he had taken a Tylenol the prior evening for a headache. What Tylenol? Well it wasn't really his. He got it from a fellow aircrew that was grounded for an injury and had been prescribed Tylenol #3 and then #1. The fog was lifting. Tylenol #1 and #3 contain, other than just plain Tylenol (acetaminophen), codeine a pain killer of the opiate family (related to opium). After it is absorbed, codeine is partly transformed into morphine (that's why it is such a good pain killer). It will have maximum effect 2 to 6 hours after ingestion and then will be passed through the urine for the next 48 hours. So at the time of flight the effect of the pill was long gone. That was the answer to our puzzle.

But that's not really the issue. The issue here is taking other people's prescription drugs. Is it reasonable to think that if you are grounded on the basis of an injury and the drugs you are taking for it that your fellow aircrew are safe to fly with them; or that it's not OK for the other individual to fly with these drugs but it's OK for you? Well maybe they thought a

Continued on page 16

FOR PROFESSIONALISM

CORPORAL
DENIS PLOURDE

During a routine primary inspection on a CH136 which had recently been modified by adding an airframe mounted fuel filter, Cpl Plourde questioned why the "press to test" button is never activated during any of the first line inspections. This led him to functionally check the system, and the filter by-pass light did not illuminate in the cockpit. Suspecting a possible fleet wide problem he promptly inspected other aircraft and the stock held in the squadron's supply section. Three systems failed the functional check.

After he repaired the aircraft, Cpl Plourde continued his investigation and discovered that the "press to test" button in the housing became seized when not regularly depressed. Realizing that if the system became defective, the pilots would never know if they are experiencing fuel related problems, he drafted an Aircraft Inspection Change Proposal to functionally check the "press to test" button every Primary Inspection.

Cpl Plourde's high degree of professionalism averted a potential flight safety hazard. ◆

WARRANT OFFICER
TONY MARTIN

WO Tony Martin was the AESOP aboard a Sea King about to depart for an extended overwater mission. The normal pre-taxi check calls for the AESOP to close the cargo door. In addition to this procedure, although it is not called for in any checklist, WO Martin has adopted a personal practice of leaning out of the door and inspecting the side and underneath the aircraft for anything unusual.

On this mission, WO Martin detected an oil leak that was not noticed by ground personnel. Advising the AC, he had the aircraft stopped and investigated the problem further. It was later determined that the leak was caused by a main gearbox strainer that had blown out under pressure on start up. Such a condition could have resulted in gearbox oil starvation.

WO Martin's professionalism and attention to detail possibly prevented the loss of an aircraft and/or crew. ◆

CORPORAL
JIM ALBERT

While carrying out a repair on the number one pylon of a B707, Cpl Albert, a machinist, discovered a cracked pulley on the engine throttle cable assembly. The repair Cpl Albert was conducting did not require any inspection of the engine controls and it was through his initiative that the defect was discovered. Left undetected, this fault could have resulted in the failure of the pulley and subsequent loss of engine control. Recognizing the potential hazard, Cpl Albert immediately notified his supervisor and the inspection crew chief.

Cpl Albert is commended for his alertness and professional attitude. ◆

LIEUTENANT
JENNIFER GRAHAM

Lt Graham, an instructor with the Gimli Gliding Centre, was conducting a daily inspection on a Schweizer 2-22 glider when she discovered a frayed spoiler control cable. Upon closer inspection, it was determined that half of the cable wire strands had broken. She discovered this condition despite that the area where the spoiler cables run is difficult to examine visually and the inspection was being conducted in a poorly lit hangar.

Lt Graham's alertness and attention to detail prevented the use of an aircraft in an unsafe condition and possibly prevented a serious flight safety occurrence. ◆

FOR PROFESSIONALISM

MASTER CORPORAL
SCOTT MCCARTHY

MCpl McCarthy, an Aero-Engine Tech on Labrador's was reviewing the Automated Oil Analysis Program (AOAP) records of a newly arrived helicopter and detected irregularities in AOAP reading data.

Further investigation revealed critically high readings on the number two engine nickel and chromium levels. These levels had been rising over a two month period and necessary corrective maintenance action had been missed. MCpl McCarthy realized that this flight essential component was on the verge of catastrophic failure. He immediately informed his supervisor, had the aircraft grounded and recommended engine removal. Ferrography and engine tear-down confirmed his suspicions. The number two gas generator thrust bearing (the engine's main load bearing) had been improperly installed allowing the outer race to rotate and the bearing to move forward and aft.

MCpl McCarthy displayed uncommon professionalism and dedication in discovering and correcting a previously undetected component breakdown that could have resulted in an engine failure. ◆

CAPTAIN
HENRY RAFFEL

While enroute between Montreal and Toronto in a T33, Capt Raffel experienced a power loss with the aircraft's electrical system. All attempts to correct the electrical problem were unsuccessful. Flying in cloud at night, Capt Raffel faced a very challenging partial instrument panel situation. He quickly adapted to "partial panel" flying and with the help of Toronto Centre controllers descended out of cloud and conducted an uneventful landing at Toronto.

Capt Raffel's quick and effective action, despite his relative inexperience on this aircraft and the congested nature of air traffic in southern Ontario, resulted in a safe conclusion to a potentially dangerous situation. ◆

CAPTAIN
BRUCE DUGGAN

While awaiting clearance at the button of the runway, Capt Duggan observed two CF5s carrying out a formation take-off. When the formation was approximately 1000 feet down the runway, he noticed the second fighter's rear canopy come open. Recognizing the high potential for disaster, Capt Duggan quickly called the second CF5 to abort the take-off. The aircraft carried out a successful abort, stopping well short of the end of the runway.

In the event the CF5 had made it airborne, there was a very real possibility that the canopy could have departed the aircraft and damaged a flight control surface. Capt Duggan's heads up situational awareness and quick action ensured that the pilot of the aircraft could handle the incident before it became serious. ◆

CORPORAL
DAVID MULLIN

While investigating a landing gear retraction failure on a CF5, Cpl Mullin noticed that the tires on an adjacent aircraft seemed smaller. Through further investigation, he discovered that a complete batch of recapped (retreaded) tires were larger than allowable design specifications. Cpl Mullin's exceptional dedication and professional attitude prevented further tire failures and potential accidents due to tire failure. ◆

Aircraft **Environment**

Situation

Operation **Personnel**

"The actual risk is usually greater than the sum of the risk elements"

AIRCRAFT: The CT142 Dash 8 (a.k.a. Gonzo) was unserviceable but was soon to have its navigation gear repaired. Winds were "in and out" of aircraft limits for runway in use. Aircraft required deicing for winter conditions. Fuel available was "close" to fuel required due to high enroute winds.

ENVIRONMENT: Blowing snow with wind rows on the runway. Departure weather forecast same for return and alternate with only slight improvement. Possible high cirrus enroute (not favourable for astro mission).

OPERATION: The trip was a student training night astro navigation mission Winnipeg-Churchill-Winnipeg. The course was on schedule. This was not an operational mission.

PERSONNEL: Crew consisted of 2 pilots, 2 instructor and 4 student navigators. Last minute route change required an extra 45 minutes planning by students. Time of revised departure would be close to student nav "duty day" limits.

SITUATION: Weather was being repeatedly checked for limits during pre-flight planning. No rules would be broken if the trip was flown. A lot of "little things" were not going quite right. Discussion ensued with the pilots and instructor navs. Were the students going to get good training value? Maybe. Did we go flying? No! Was I, the Aircraft Commander, questioned for not completing the mission? Yes! Did I do the right thing? I believe so. ◆

STRANDED IN THE COLD

I can't count the number of times that I've looked at that flight safety poster on the South door. You know the one I'm talking about - "DRESS FOR THE WEATHER". Just going outside to catch a cold while having a smoke, I must have seen that poster a billion times. I've spent enough time standing in the rain, heaving on a soggy cigarette that you'd think I'd have a good appreciation for what it's like to be stuck outdoors (SURGEON GENERAL WARNS THAT SMOKING IS THE LEADING CAUSE OF HYPOTHERMIA). Like Pavlov's dog, I've been forced to learn over the years that when outside in the cold, it is better to put on a warm jacket when the temperature drops.

In saying this though, I wonder how many times I've gone flying and not been prepared for an unexpected stopover in the countryside.

A couple of weeks ago, I jumped at the chance to do a test flight. Pathetic I know, but as it was a new year and I had not flown in a while, it would be nice (so I thought) to get up in the air again. A forty five minute test flight, partially over water . . . Nah, don't need my personal survival gear; come to think of it, I don't think I even need to wear my liner underneath my poopy suit. I've been flying these things for a while and nothing has ever happened. . .

Needless to say, a half hour later as I was standing beside my trusty (but broken) steed, out at Chebucto Head - a delightful three hour hike or three minute flight from home; I was cursing my stupidity. "What I wouldn't give for a pair of mitts and a warm hat" I thought. "It's not fair" I said to myself, "Floggy looks nice and warm over there in his winter gear. They must have put this knife in my poppy suit for a reason. Now, if I can only distract him for a moment . . ."

Too bad, so sad. I was faced with the facts: I was stranded in the cold and the only person to blame for not being prepared was me! There was a happy ending however. We did get home four and a half hours later and we were close enough to Halifax that there were a few doors that we could have banged on had things been worse.

Obviously I have learned my lesson. The next day the temperature dropped to -29 (wind chill) and had I gone flying I would have been ready. Would you?

Anonymous ◆

ACCIDENT RESUME

Type: **Beechcraft King Air (C90A) C-GMBG**
Date: **16 May 1995**
Location: **Southport, Manitoba**

Circumstances

The Beechcraft King Air was on a training mission from the Southport airport. Upon returning the crew completed an instrument approach to Runway 31L and prepared for a touch-and-go landing. Shortly after a normal touch-down the landing gear retracted, the aircraft settled onto the runway and skidded to a stop near the 4000 foot marker.

Front view, final resting place.

Investigation

The Aircraft Captain (AC) was conducting a Standards upgrading check on the pilot sitting in the jump seat. The copilot, a recently qualified King Air pilot was performing normal right seat duties and was not participating in the check ride scenario. On touch-down the copilot did the touch-and-go check but omitted raising the flaps. When reminded by the AC, he reached up and raised the landing gear lever. He immediately recognized his mistake and moved the lever down but it was too late. Sufficient lift was being generated by the 70-80 knot airspeed and full flap configuration to deactivate the weight-on-wheels switches, thus allowing the landing gear to begin the retraction cycle. The AC saw what had occurred and applied power in an attempt to overshoot. The airspeed was still too low for take-off and as the right propeller struck the runway the AC chose to abort. The aircraft settled onto the runway and skidded for approximately 800 feet. The crew carried out the emergency procedures and exited the aircraft unassisted.

Cockpit controls of CC145903.

Close up of left side view.

DFS Comments

Despite all safeguards, the mind usually finds ways of defeating the system in new and innovative ways. Incidents such as these are rare and difficult to anticipate. Until a practical solution is found our best countermeasures are awareness and attention to details. Aircrew must maintain full concentration on the task at hand; a lapse in even a very routine duty can have costly if not disastrous consequences. ◆

FLIGHT SAFETY AWARD

440 Transport and Rescue Sqn based in Yellowknife NWT has been identified by SICOFAA as the Canadian Air Force Squadron most deserving of recognition in view of the Sqn's outstanding Flight Safety record.

SICOFAA is a Spanish acronym for the System of Cooperation Between American Air Forces. SICOFAA was established to enhance the exchange of information and expertise among all of its member Air Forces in North and South America. Currently, full membership is held by the Air Force of 18 countries. The member Air Forces of North America use activities of SICOFAA to maintain professional contacts throughout Latin America. Canada has been a full member of SICOFAA since May 1992 and participates in many of its committees.

This year's SICOFFA Flight Safety Award acknowledges 440 T&R Sqn for

their unparalleled flight safety record in operating Twin Otters in the far north. Seasonally flying in three different configurations (wheels, skiis and floats), 440 T&R Sqn has consistently demonstrated outstanding professionalism and a "safety first" attitude during operations in the rigorous far north environment.

Previous Air Force Squadrons that have received the SICOFAA Flight Safety Award include 437 Sqn, Trenton for the Sqn's professionalism displayed during the operation of different transport aircraft around the world; and, 103 RU, Gander for their often heroic helicopter rescue flying over the North Atlantic.

Well done to 440 T&R Squadron and all past recipients. ◆

SLIPPERY RAMP

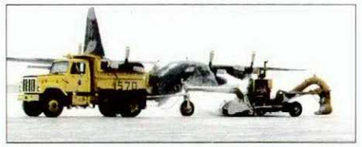
The following incident came within two inches of becoming a catastrophic accident. All personnel who operate vehicles in the vicinity of aircraft should take note of this occurrence and learn that:

a. Do not assume that urea is spread to all areas of the aerodrome; and

b. Proceed around the line of parked aircraft versus between them, especially in conditions where traction is poor.

The ramp was covered with approximately a quarter inch of ice following a freezing rain shower. Because aircraft were parked on the ramp, heavy equipment could spread urea on only two thirds of the ramp and none was spread in close proximity to the aircraft.

A fuel tender was called to replenish CH135106. The tender entered the ramp on the urea side of the ramp and after carrying out a brake check, the driver felt that the ramp was not as slippery as he expected. He did notice that a tow crew had difficulty walking due to slippery conditions. The driver continued towards the parked aircraft which were facing outward towards the field. When he realized where CH135106 was located, he elected to drive between the last two helos rather than driving past the last one, then turning around and approach his destination from the front. This route led the driver off the area where urea had been applied and onto the hard ice surface. When he attempted to direct the tender



Snow Clearing Ops Winnipeg
photo by Cpl J.C. Marcoux

between the aircraft, the tender entered a skid which hurled the tender towards the last aircraft. Brakes were applied with a pumping action, but the tender would not respond to attempts to change direction. The vehicle skidded for approximately 60 feet and came to a rest with the front tire two inches from the aircraft left skid. Fortunately there was no damage to the aircraft, tender or driver. ◆

JET RANGER BIRDSTRIKE

Southport, Manitoba

The crew was on a final clearhood test for the student. Weather conditions were good, visibility 15 miles and ceiling greater than 20,000 feet. The aircraft was proceeding to Grabber Green for practice forced landings. After the student received clearance to enter Grabber Green, the standards officer initiated a simulated "tail rotor pedal locked in flight". Shortly thereafter, a flock of approximately 20 birds appeared in the windscreen. The aircraft was in level flight at 85 KIAS and 500 ft AGL. One bird struck and broke out the upper half of the right windscreen. About a quarter

Student Stunned - Duck Dead

portion of the bird entered the cockpit, passed over the head of the student and ended up in the right rear seat. Windshield plexiglass fragments were all over the cockpit. The standards officer took control and determined the engine and controls were functioning normally. A precautionary landing was carried out in the nearest available field without further incident. The remaining portion of the duck had bounced off the snow deflector installed in front of the engine intake.

The environment conditions were favourable for bird migration. The helicopter returned to base on a trailer. The crew were examined at the hospital. They had no injuries. The importance of wearing a helmet with the visor down was again stressed to all crews. ◆

DUMB BOMBS DO DUMB THINGS

by Capt J.P.S. Fortier, DFS 4-2

This CF18 was doing some bombing work over the Petawawa range. Time being up, the pilot elected to selective jettison the MK82 Snakeye bomb on his station 8 pylon that at this point had become extra baggage. The thing would drop "safe", and the EOD crew on the ground would have a new toy.

A few eyebrows were raised when the bomb came off, deployed its retarding fins, and proceeded to blow up real good when it hit the ground. Bummer for the EOD folks, but see, that wasn't supposed to happen.

It was not finger problems with the pilot, and the aircraft worked as advertized. Everything should have gone according to plan. Yet that dumb bomb pulled a Murphy on everyone. Why?

What happened was that the fin release wire snagged on one of the pylon sway braces, functioning the bomb as per normal high-drag "pickle". Now these war stories are all supposed to have a moral or a least a snappy antidote. Here goes:

Imagine if the fuse arming wire had snagged instead. You would have an armed, low drag, 500 lb bomb proceeding towards the ground while flying formation with the underside of the jet. If you are sitting in the jet, trust me on this one, you would like to be at some altitude when the bomb hits. It would be advisable to stay out of frag/blast envelope on selective jettison. Just in case what happened . . . happens. Just because you set yourself up for a safe jettison doesn't mean it will happen that way.

In this case, emergency jettison could have resulted in the same incident.

Another nugget of trivia is that if the tritonal filler of the MK82 contains a bubble, a good impact can set it off, even with an unarmed fuse. Quality control is pretty good nowadays. But if you own a car that was

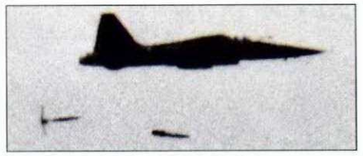


photo by OCdt Paul Scott

made on a Friday afternoon, you know a few lemons make it off the assembly line once in a while.

This is not just a fighter jock story; armament is armament, and arming wire is as common as patches on a flight suit.

The bottom line is caution. It does not cost anything to jettison in a safe envelope. Assuming everything will work just fine will not cost you anything either - in 99% of all cases. That 1%, however, is a real bruiser.

Dumb bombs do dumb things. And they do not have friends. ◆

ACCIDENT RESUME

Type: CH136213
Date: 15 June 1995
Location: Cook's Bay, Lake Simcoe, Ontario

Circumstances

The purpose of the flight was to conduct Night Vision Goggle (NVG) float landings. Following the first pilot's approach/landing, the aircraft captain took control and elected to fly a right-hand circuit using a reciprocal final approach heading facing towards the lake centre with the calm water as his sole final reference. On short final, the tail contacted the water with right drift and the helicopter immediately rolled to the right. The aircraft came to rest inverted in 5 feet of water. The crew egressed with minor difficulty and only one minor injury.

Wreckage as found.

CH136213 being recovered.

Investigation

The helicopter sustained considerable damage during the crash sequence. The upper roof support assembly and transmission were almost completely torn free. The tailboom was bent to the left during initial contact. Damage to the right aft tube assembly suggests that the right float contacted the water as the helicopter was in a slightly nose-high attitude, banked approximately 40° to the right, and moving laterally to the right.

Damage to the main rotor blades suggests that they both contacted the water lightly with the white blade eventually causing a sudden deceleration as it was advancing. The white blade was bent around the mast and it entered the cockpit and contacted the instrument panel. It also sheared off the upper Wire Strike Protection System (WSPS), VHF-FM antenna, and damaged the upper hinge assembly of the right pilot's door causing it to depart the aircraft.

DFS Comments

This flight represented the first attempt to perform a NVG landing on water. Direction as to the proper techniques and, more importantly, approval should have been sought from 10 TAG HQ prior to the flight. New flight manoeuvres require testing and validation by a qualified test establishment before they are performed by the line units.

Visual limitations contributed to the crash since the crew's vision was degraded by the use of NVG. Properly maintained NVGs can, under ideal lighting conditions, provide only 20/40 acuity with optimal focusing and adjustment. Any lack of maintenance, error in adjustment or degradation of lighting conditions vastly reduces the visual capabilities of the NVG system.

The crew was well prepared for their underwater egress having recently completed the course at Survival Systems. It is essential that personnel receive this training as soon as fiscally possible following their arrival at the unit. ◆

Recovery of CH136213.

HELO AFTERBURNER

It was cold. I knew it was cold because when I took the battery out of my helicopter that night, I froze more than my fingers and nose fighting the 35 knot winds and minus 45°C temperatures. Wading through the sometimes thigh deep snow drifts carrying the ever increasing heavy battery to my car was not particularly my idea of fun in Southern Manitoba.

The wind had subsided by the morning of departure. It was surprising what a hair drier, block heater, booster cables, tow rope, gas line antifreeze and patience can do to coax a frigid car into serviceability.

The foremost problem of the morning was the sun's ability to sufficiently increase the temperature of my helo for a start. A phone search revealed a heavy equipment operator with propane Herman Nelson type heaters. For a scant $20 cash, an individual was willing to come out and melt the thick frost off my airplane. However, I would have to wait because the heaters were being used to thaw frozen water lines in the local laundry mat. Two hours later, a smile swept across my face as a 4X4 ploughed through my footprints along the snow drifted roadway to the aircraft. Hick #1 busily set up the heater as I diligently erected tarps around the aircraft to duct the heat through the engine and transmission compartments. Half an hour later, I became suspicious of Hick #1's ability to operate the heater as he crouched around it displaying a rather large portion of his personal anatomy with his verbose profanity constantly increasing. He finally called for help.

Hick#2 arrived quickly adorned in his baseball cap and thin gloves. In a flash he had the heater's pilot light aflame. The heater was stationed on the right side of the helo with the nozzle pointed at the ten o'clock position five feet from the helo.

POOF! ! Imagine my surprise to see the heater backfire. Hick#2 looked pretty stupid void of his eyelashes and eyebrows. His once straight collar length hair was now tightly curled up around the rim of his hat. POOF AGAIN! ! This heater now decided to work overtime . . . about 20 times over. My concern for the crown's property was aroused as a small mass of flame erupted from the heater nozzle up through the tarps, through the engine compartment, and another ten feet past the closed engine panel on the other side.

Luckily the "fight or flight" response kicked into fight and I along with the short-haired Hick#2 literally threw the heater away from the aircraft. It flamed out immediately on its second bounce. Knocking my eyeballs back into their sockets, I carried out a through inspection of the aircraft. Amazingly, even the threads of the hoses were not affected. Starting the heater AWAY from the aircraft worked considerably better. An hour later the aircraft started as if it had been on the beach in the Caribbean.

Flying home that day, I thought often how I would have broken the new to my boss had the outcome been different. ◆

BUCKING MULE

It was a cold windy winter night in the wee hours of the morning. I was the mule driver assigned to tow an Aurora from one side to the other side of a hangar via a taxiway. After passing through the congested ramp area onto the taxiway, the tow crew leader asked me to stop the mule to allow the walking crew to ride on the mule for the taxiway portion of the trip. After everyone was safely on board., we continued towards our destination.

It was pitch black and we were facing into a bitterly cold wind. The crew on the mule started to turn their backs into the wind for comfort. As one individual turned, he inadvertently kicked the transmission gear lever from D1 (drive) through neutral and directly into R1 (reverse). The mule immediately lurched into the air, made a large noise, and started backwards. The Aurora continued forward. Someone yelled "Brakes!" The brakemen on the airplane slammed the brakes on causing the aircraft nose to dip down and hit the mule. The impact resulted in a six inch puncture in the RADOME.

The investigation recommended that tow vehicles be prevented from shifting directly from drive to reverse. All mules were modified accordingly. I learned not to allow people to move around on a moving mule. ◆

FOR PROFESSIONALISM

CORPORAL
REGINA HANNON

As a member of1AMS tasked to quickly boresight all 4 Wing Fighter aircraft, Cpl Hannon discovered that the gun gas purge duct manifold assembly on one CF18 was improperly positioned. Cpl Hannon notified her supervisor and upon further investigation it was discovered that the manifold assembly was damaged beyond repair.

Had this damage not been found and the aircraft proceeded on a gun firing mission, the consequences could have been serious. Although the gun gas sensing system provides safety protection, a malfunction could result in an explosion of accumulated gases in the nose wheel area resulting in severe aircraft damage, possibly endangering the pilot.

Cpl Hannon was not required as a part of the boresighting operation to look at the gun gas purge duct manifold assembly, nor was this particular area readily visible from her vantage point. Her professionalism and attention to detail averted a serious flight safety incident. ◆

CORPORAL
ALAN MACISAAC

Cpl MacIsaac had just completed the retermination of the wing root strain gauge wiring on a CF18 aircraft. Prior to closing panel 113L and 34L he carried out a security check of the hydraulic drive unit (HDU) mounting area. Cpl MacIsaac extended his check to include the HDU, mechanical linkages, related wiring and clamps. While inspecting the upper portion of the HDU, he noticed that the paint on the leading edge flap crossover shaft was scored. He immediately asked a qualified Airframe Tech to look at this problem. Subsequent investigation revealed that the wing fold cable had been improperly routed through a clamp causing the cable to chafe against and deeply score the cross over shaft. Had this shaft failed in flight a serious flight control condition would undoubtedly have occurred. ◆

CORPORAL
DAVE SHORE

While performing pre-flight checks on two CF18s, Cpl Shore detected broken backshells on electric plugs connected to the fuselage CSEDs (Command Signal Encoder Decoder). On one aircraft, this was an especially important discovery as the backshell was broken in such a way that it may have caused failure to the CSED on weapons station six. This could have prevented the jettisoning of the external fuel tank on station number five.

The checking of fuselage CSEDs is not normally part of the pre-flight checks. As a result of Cpl Shore's detection, the checking of CESDs in pre-flight checks has become common practise. Cpl Shore is commended for his professionalism and attention to detail. ◆

CORPORAL
RICK PILON

During a scheduled Tutor aero engine periodic inspection, Cpl Pilon detected what appeared to be a crack on the main spar bulkhead. Although not in his field of expertise, he suspected that there could be a safety impact, thus reporting his discovery to his supervisor. He continued to investigate by researching unfamiliar technical orders and surveying other available aircraft. Cpl Pilon discovered four of the eight aircraft undergoing periodic inspection displayed similar symptoms.

Cpl Pilon is commended for his professional attitude and high standard of technical excellence. ◆

FOR PROFESSIONALISM

SERGEANT
RON SEABROOK

Sgt Seabrook, a Flight Engineer, was carrying out a pre-flight inspection of an Aurora when he found an electrical clamp hanging on the left aileron trim cable. The clamp was jammed against the pulley located at the wing fillet area. He immediately quarantined the aircraft and arranged for photos to be taken. The investigation revealed that a contracted technician had used the cable as a storage place for materials during a recent wiring modifications program. The clamp had been forgotten by the contractor, missed by the independent inspection and was not noticed during the "B" (before flight) check.

Although the aileron trim system is a secondary control, the potential for a serious airborne incident was averted. As a result of this incident and a similar incident two weeks later, all aircraft which had completed the wiring modification were inspected for FOD in this area. ◆

MASTER
CORPORAL
RY GROGAN

MASTER
CORPORAL
DON WILSON

MCpl Grogan and MCpl Wilson, Air Weapons Techs, were convoying a load of rocket pods when MCpl Grogan noticed smoke coming from the back of the lead trailer. They immediately ceased the towing operation and confirmed that there was smoke coming from one of the tires; but fortunately no flames. MCpl Wilson proceeded to disconnect the remaining trailers while MCpl Grogan informed the Tower and 410 Sqn Weapons Controller of the situation. The lead trailer was disconnected from the tow vehicle, pushed off the convoy route and pointed in a safe direction. They waited with the disabled trailer until they briefed the firefighters arriving on the scene.

MCpl Grogan's and MCpl Wilson's quick thinking averted a dangerous and potentially dangerous situation. ◆

CORPORAL
DOUG HUMBER

While performing maintenance on a CF5, Cpl Humber heard an unusual noise coming from the right hand wheel assembly of another aircraft while it was being towed. After bringing his observation to the attention of the tow crew, he was told it was a normal condition. Not totally convinced of its serviceability, he obtained permission from his supervisor to investigate further.

Cpl Humber removed the wheel assembly to find that the brake rotors had been badly overheated and extensively warped. Had this condition gone undetected the potential for a right hand main landing gear brake failure was significant.

Cpl Humber's professional attitude and persistence led to the discovery of a potentially dangerous situation. ◆

MASTER CORPORAL
DAVE LAMARRE

While performing a routine inspection on a Twin Huey, MCpl Lamarre, a Flight Engineer, noticed a slightly greater than normal amount of residual oil in the main transmission mount area. Concerned, he chose to conduct a more thorough inspection than normal and discovered that a transmission mounting bolt was loose and had actually failed. Had this condition gone undetected, the stress on the remaining three bolt would have been unacceptably high - possibly leading to a catastrophic failure.

MCpl Lamarre's professionalism and attention to detail possibly prevented the loss of an aircraft and/or crew. ◆

TAKING OUT THE GARBAGE

by Lt(USN) D.C. Irwin

Your point of view depends upon where you sit. From Flight Safety's viewpoint, our goal is to preserve resources and prevent injury.

With the increase in changes being discussed or implemented everyday, many of the measures to promote efficiency and safety should be originated, or at the very least, always supported by the end user. With the aim of improving flight safety, we offer our concerns and recommendations, but not everyone takes time to heed them.

A hallmark of the Flight Safety system is honest and open reporting of hazardous conditions or occurrences. The mandate for Flight Safety is to deal with these reports in a non-punitive manner. So with that edict, we sometimes question how to best express our concerns in effecting a change for safety. In some cases, recommending a procedural change can be a step in the right direction, but not always. Remember, it is always you in the field who must remain conscious and alert for the situations which can result in damage or injury. When you are being pressured by time constraints, fiscal cutbacks, over tasking or even threats to your career, if safety should be viewed as a hinderance, what will it take to refocus your thoughts?

This is analogous to taking out the garbage. We all generate waste, and its disposal is a job that must be done. In most cases it's not your job title, but you share a responsibility in the process. The same can be said for flight safety, as long as there is no damage or injury, then everyone must be doing their part, right? WRONG! Suppose the garbage is your responsibility and on garbage day you forget it in your haste to leave the house. For a while, you don't see any problems in waiting another week. But in a few days small insects begin to swarm. After a few more days, cockroaches begin to crawl around. Given the right environment and enough time, even rats and mice find a few scraps for a meal. If allowed to fester long enough, the only way to eliminate the problem is by calling in an exterminator.

For flight operations, this might be likened to having a Board of Inquiry convened to investigate an accident. There comes a point when the stench of a problem is obvious to everyone, but what can the first person to "smell" a problem do when his caution goes unheeded?

As you rush to get one more jet serviceable or try to squeeze one more task into the flight, are you paying attention to all of your senses? Does something not feel right? Maybe you're in a position to see a problem developing. When work becomes overwhelming, pause to evaluate the priorities and risks to ensure things are done the best way possible.

Flight operations can be just like garbage. Handled with proper respect in a timely manner, the risks are minimal. But when proper practices are not followed, you better know the risks and be ready to accept the consequences.

Lt(USN) Irwin retired from the USN Jul 95 after having completed his last billet as the CF18 desk officer at DFS. ◆

SURVIVAL EQUIPMENT - HEAT DAMAGED

While the equipment was being stowed following a sea deployment, the Safety Systems Tech noticed the helmet inner shell was extremely loose. Upon closer inspection the liner, top plate and helmet had been exposed to high temperatures and had melted.

Although it was only the helmet that was found damaged at the time the initial message was generated, shortly afterwards the contents of the survival vest were inspected. AWST inspected the condition of the flares and two of them showed signs of heat damage as the plastic housing had bulged. Removal of the plastic cap confirmed that they had been exposed to extreme heat. The exact source for the heat damage can not be confirmed but it is believed that it was due to the gear being stowed in the aircraft near a heater difuser.

Passenger transfer during ship-borne operations is a routine evolution and life vests/helmets are stowed onboard as a result. They are often stowed aside the reeling machine on the starboard side where the aft cabin heater difuser is located. This is where it is believed the gear was stowed for an extended period of time. The temperature at the difuser outlet is 140 °C. The damage inflicted upon the helmet rendered it unserviceable and a dangerous situation could have resulted had the flares ignited.

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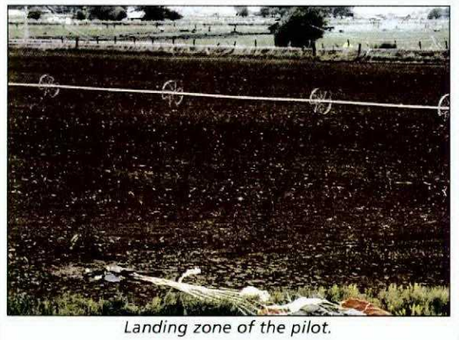
ACCIDENT RESUME

Type: **CF188713**
Date: **15 June 1995**
Location: **Klamath Falls, Oregon**

Circumstances

The aircraft "Hornet 2" was number 2 of a two-ship formation scheduled for a 2v2 Defensive Air Combat Training Mission with USAF F16s. Approximately one and a half minutes after a formation takeoff on Rwy 14 and just prior to entering cloud the aircraft experienced a loss of all AC power. The pilot separated from lead, remained below cloud, then rejoined lead approximately fourteen miles southeast of the field. Lead coordinated with Seattle Center to orbit below cloud while planning the approach. As they began their straight-in approach to Rwy 32, approximately seven and a half minutes into the flight, "Hornet 2" lost all battery power and the aircraft flight controls reverted to mechanical (MECH) mode. At one and a half miles on final at 250 feet the aircraft departed controlled flight and the pilot ejected. The aircraft crashed in a farmer's wheat field and sustained "A" category damage. The pilot received minor injuries during the parachute landing.



Landing zone of the pilot.

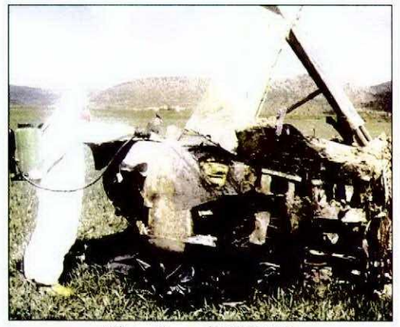
Investigation

From the initial investigation, the Board determined that a technical failure of the AC electrical system had occurred, a subsequent failure of the emergency DC power system then caused a reversion to the MECH mode, and that an uncontrolled roll to the right had resulted in the pilot's decision to eject. Investigation into the cause of total AC power failure was limited due to the lack of obvious indications in the wreckage. All electrical components that may provide information are undergoing lab analysis. The Board was certain that a depletion of battery power was the cause of the reversion to MECH-OFF-OFF mode and controllability was undoubtedly affected by the degraded Flight Control System. In addition, the flaps would not cycle without battery power leaving the pilot no option but to perform a flapless approach for which there are no recommended speeds in the CF18 AOIs or the checklist. It is estimated that the aircraft was 50 to 60 knots below the required speed for a flapless configuration during the final stages of the approach. Since the aircraft was well outside the predicted envelope for this configuration, it is reasonable to conclude that the flight controls became aerodynamically limited and the aircraft could not be recovered.

Crash site looking North, destination aerodrome in background.

DFS Comments

McDonnell Douglas designed the MECH mode to allow the pilots to return to the carrier in a severely damaged aircraft. However, their simulations suggest that landing in MECH-OFF-OFF is feasible on a suitable runway. The aircraft may have been successfully recovered had the appropriate speeds been maintained in the flapless configuration; nevertheless, the probability of a successful recovery is certainly diminished given an emergency landing gear extension speed of 180 kts, tire speed limitations of 190/210 kts, a high landing weight and no available nose wheel steering or anti-skid braking. The decision to land in the MECH mode remains with the pilot; nonetheless, it is imperative that they be well informed and highly trained in order that they are able to make that crucial decision. ◆



Aft section of CF188713.

LOCKHEED P-2H NEPTUNE 117

artist: Ron E. Lowry

The Neptune entered RCAF service in 1955 and was retired in 1968. Of the 25 airframes to enter service 117 was the only one to be equipped with smoke generators. The Neptune was powered by two Wright R-3350-32W two-row radial engines rated at 3,500 hp each and two Westinghouse J34 turbojets each rated at 3,400 lb s.t. The Neptune had a max gross weight of 79,895 lbs and a service ceiling of 22,000 ft.

The Neptune is part of the CANAV collection donated to Air Command by Larry Milberry. ◆

Continued from page 3

Tylenol is a Tylenol right? Well ask rower Silken Lauman, is a sinus medication just a sinus medication? She learned a hard lesson. When you take medication make sure you know exactly what you are taking and what for and the possible side effects. The problem with taking another person's medication is that you don't know how it will affect you and you might also be unaware of any allergic reactions. Many prescription drugs are now available in over the counter strength. That does not mean that they are safe to fly with. Tylenol #1 preparations are now available without a prescription. As well many other over the counter drugs contain substances which affect the central nervous system. You realize that this can jeopardize flight safety. The bottom line is except for the occasional plain Tylenol which contains only acetaminophen your best bet is to consult your flight surgeon. This way you will both be aware of the exact nature of the medication and its compatibility with flight operations. ◆

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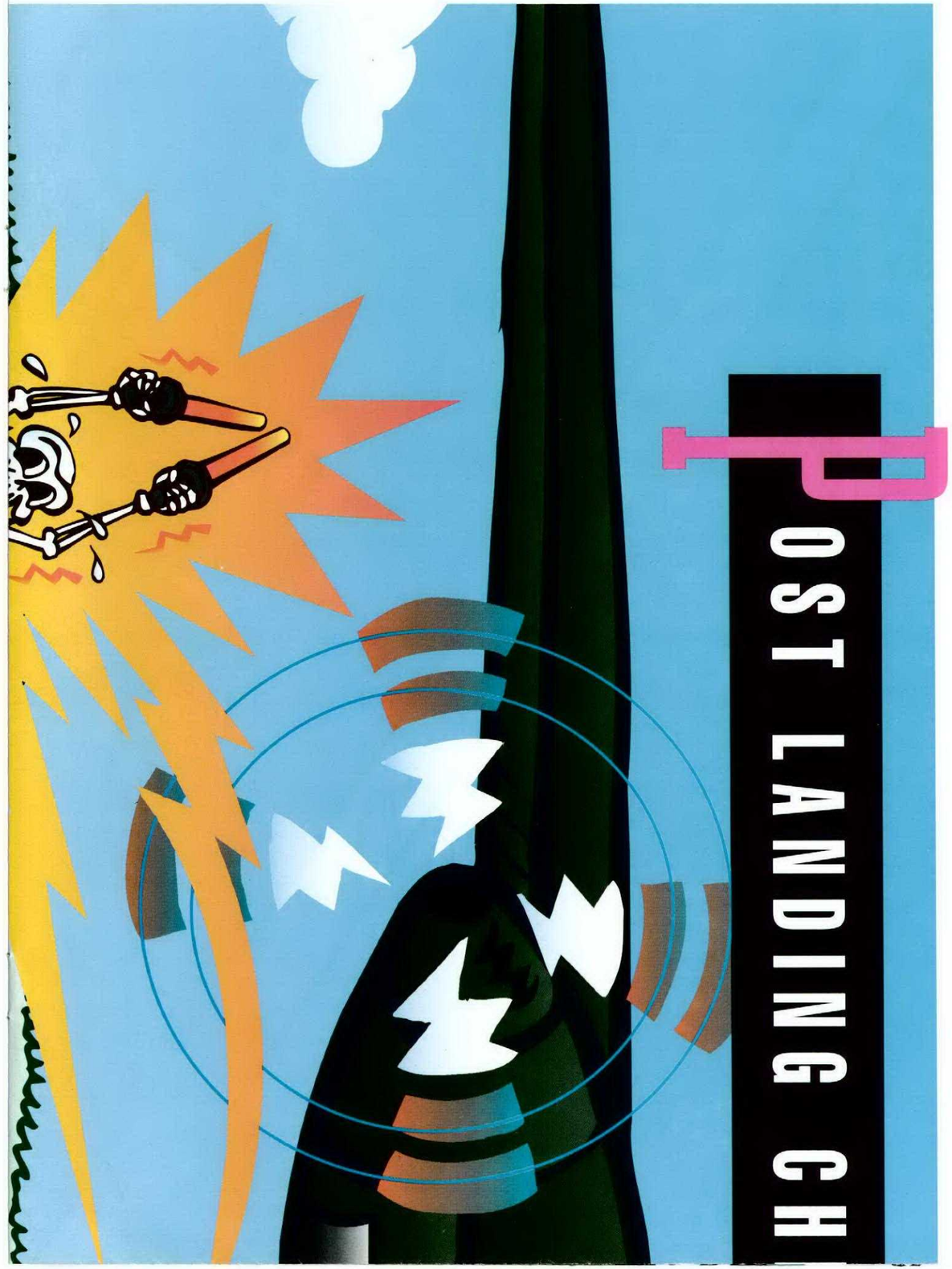
Comments from DFS 3-2, Maj E.C. Ukrainetz

This incident could have resulted in an interesting situation within the aircraft had either a fire started or the flares gone off. All aircrew must be vigilant as to where flying gear is placed or temporarily stored in an aircraft, especially near a heat source.

We were lucky this time and it is imperative that all sources of heat within an aircraft, direct or indirect, are identified and known by all crew members. ◆



Concept: Scott Case

Canada