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AIR FORCE } FORCE AÉRIENNE

Crew Brief

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Chief of the Air Staff Farewell

This will be my last opportunity to address you in *Crew Brief* as Chief of the Air Staff before my retirement later this month. Accordingly, I hope you won't begrudge me taking a bit of a tour 'down memory lane' in this, my last communiqué.

When I joined the RCAF in 1965, I planned to become a pilot and, as you know, eventually achieved my goal. I also planned to stay for only five years on a Short Service Commission, but that's another story. However, I did not start my career as a pilot and became an Air Navigator instead. To be truthful, I was initially disappointed with this turn of events ("What's a navigator," I asked the Flight Lieutenant at Aircrew Selection who gave me the news). However, in the long run, my selection as a Navigator turned out to be the first of many fortuitous 'happenings' in my life: first, it allowed me to meet my wife, with whom I've shared 36 wonderful years; second, it gave me experience in one of our key aircrew professions; third, it allowed me to serve two years at 437 Squadron, flying trips to Europe and around the world; and fourth, when I did go pilot training in 1969, I was much better equipped to succeed than I would have been had I started directly off 'civvy street'.

I've always considered the opportunity to fly high-performance military aircraft as being a tremendous privilege and was grateful for the excellent postings I had flying CF-104s and CF-5s in Europe and Canada. While all my assignments were challenging and fun — and the CF-104 clearly my favourite aircraft — the highlight of my flying days was the opportunity to command 419 Squadron in Cold Lake, training new fighter pilots. Why? Because it not only allowed me to do some really great flying on the CF-5, but also the chance to lead a superb bunch of airmen and women under fairly challenging



Lieutenant-General Lloyd Campbell will hand over the reigns during his Change of Command parade on July 18 after 35 years service.

circumstances. It also gave me the chance to meet (and hopefully positively influence) the careers of an outstanding cadre of young Canadians who being trained as fighter pilots under my command. Subsequent command opportunities at Wing, Air Division and Air Command levels have simply underlined what I first learned at 419: there is no greater honour than to serve the men and women of our Air Force as their commander.

Interspersed between flying and command tours, I also had my fair share

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of staff appointments: national and international, Air Force and 'joint'. Each of these offered unique challenges and every one of them provided an opportunity to learn and grow. They also allowed me to experience, first-hand, the dedication and talent that exists in the men and women who make up the Canadian Forces and DND: military and civilian; regular and reserve; land, sea and air.

A fair number of my appointments came with significant leadership challenges, as do most, I suppose. At 419 Squadron it was largely aircraft problems (with, at one point, only one aircraft out of 43 available for training). At 4 Wing it was closure of the base and return to Canada of our last European based fighter aircraft and everything associated with them. In NDHQ, it was the requirement, as Director General Force Development, to develop plans to respond to Government's Program Reviews (I and II). This activity eventually led to painful but necessary decisions by the senior leadership of the day to reduce infrastructure, equipment, people and activity levels, to live within the constrained defence budget. In all these, I learned that people actually cope quite well with adversity; they deal much less well with uncertainty. This led me to conclude that having a plan is a fundamentally important element for success and morale — hence my strong support for development of the Aerospace Capability Framework (or ACF) as CAS.

As I have mentioned previously in Crew Brief, there are three components to the Air Force's blueprint for the future. The first of these is the ACF, which will provide the road map to guide transformation and Air Force development over the next three decades (albeit, with regular updates to keep pace with defence policy, the geo-strategic situation, technology etc). The second component is Project Transform, which will identify capability gaps and outline how we'll transition from where we are to where the ACF tells us we want to go. The last element of the blueprint is creation of the Canadian Forces Aerospace Warfare Centre (CFAWC), which, once up and running, will produce aerospace doctrine, support modeling and simulation and carry out Concept Development and Experimentation. Viewed together, the ACF, Project Transform and the CFAWC will, I'm convinced, provide the means to achieve our vision: An Air Force based on excellence and professionalism, equipped, trained and ready to prevail in combat, with the reach and power to effectively contribute to national and international security.

The next several years will see considerable change. The Air Force is in the process of a significant transformation, one which will see the introduction of modernized and highly capable CF-18s (complete with



Meeting with deployed members has always been a priority for CAS, seen here chatting with OP Apollo personnel.

new missiles, PGMs, sensors etc); upgraded *Auroras*; a new strategic tanking capability; new maritime helicopters; and new support and maintenance concepts, to name but a few of our ongoing initiatives. This will allow the Air Force to continue to provide an unprecedented range of highly effective aerospace power capabilities to the Government and people of Canada, employable across the spectrum of conflict.

Of course, at the same time as we undertake modernization, we still have an Air Force to run, 24/7. Over the past several years, the Air Force has made a significant contribution to fulfilling Canada's domestic and foreign policy through deployments and operations in the Balkans, the Middle East, East Timor, Canada and elsewhere around the world. Every part of our force structure has played a role — including, I might add, our training establishments, which have been running 'full bore' to produce qualified personnel to bring our operational unit establishments back up to authorized strength.

Over the almost 38 years since I joined the Air Force, much has changed: the geo-strategic environment, the size of our forces, the society in which we live and the technology we employ. With transformation, we can expect many more things to change over the next decade and beyond. What hasn't changed — and won't, in my opinion — is the quality, dedication and self-sacrifice of the men and women, military and civilian, who serve our Air Force. It has been my honour and pleasure to serve with each one of them.

Sic Itur Ad Astra

L.C. Campbell
Lieutenant-General
Chief of the Air Staff



Tribute to CAS

It seems just a few months ago LGen Campbell was taking the reigns of Air Command from LGen Kinsman. Yet, it is already time to say goodbye — how time flies!

When we reflect on our accomplishments during these three “warp-like years”, its not hard to see how the personal touch of one man has shaped this fine organization, the positive results of which we will surely feel for many years to come. Strategic initiatives such as the Aerospace Capability Framework and the large transformational activities surrounding the implementation of the Aurora and CF-18 modernization projects are but a few of the significant initiatives that General Campbell will leave us well-placed to advance to their full promise and potential. While there is no doubt LGen Campbell has been a key corporate player and has provided visionary direction to the Air Force, I would like to share with you the other side of him, namely the warm and deeply human dimension of this very fine gentleman!

When I first met LGen Campbell, he was quick to point out a few nuances that we all needed to quickly grasp. First, he politely insisted when referring to that other fine organization in Winnipeg, “It is not the CAD, it is 1 CAD or the Air Division! The relationship between the Air Staff and the Air Division is simple — two HQs, one subordinate to the other, but only one Air Force. And he frowned on one sentence paragraphs or the excessive use the word “that” or the misplaced “comma”. He had a knack for clear, concise writing and I often think he humoured us with our staff submissions because in every respect he wrote so much more eloquently. Insofar as his management style, he told me that he ran an open door policy, wanted professionally staffed work, but hated over-staffing and expected an organization where it would always be fun to work. Well, I said to myself, “I may need to use this open door policy a few times myself to make sure I remain true to these simple, but important words of advice.” It turned out to be dead easy. He really meant what he said. He always made himself available to exchange views with the staff so as not to waste valuable staff effort, while always challenging them to improve on the product they were expected to deliver. When it came to communicating, as one Director General said to me, “General Campbell excels at translating complex issues into very simple language we can all understand”. He was the master of the clear message intent on always ensuring his audience got the right message!

Always proud and fully supportive of the work accomplished, he praised his team at every opportunity. On the issue of recognizing people, he pushed hard for a system that would quickly eliminate the backlog of awards and decorations in the Air Staff and see members get their just and timely recognition without needless delay. They deserved it and he owed it to them! Even when the Master of Ceremony had a few stumbles during the inaugural awards ceremony, he smiled and urged him on with quiet confidence. A gentleman he surely was! On a social note, he loved to mix, mingle and speak with everyone from Private to General during his visits, occasionally to the peril of his ADC and EA who reaped the fortunes of having to collect questions and research

answers the CAS always promised to return. And while staffs do staffing, this General did his equal share, if not more! On one occasion, he personally chased a PLD issue which affected members posted to Borden whose families remained in Toronto. It did not make sense to him, so he fixed it — plain and simple! On the topic of late-night Mess Dinners and CAS’s considerate nature, his CCWO, CWO Gilbert remembers vividly the time when CAS departed a Mess Dinner early to make sure the Chief, who never left such events before the CAS, had sufficient rest for a rapidly approaching 04:30 am flight departure. Lets say the catnap was just that — a quick 40 winks.

A champion of keeping good people in uniform and attracting former ones back to service, I watched how he personally helped break down barriers to recruiting that stymied efforts to enroll an exchange officer with CF-18 flying experience. While most could have very easily become disenchanted with the bureaucratic delay and the snail-pace of decisions, it was General Campbell whose motto “convincing them one at a time”, gave us the energy and impetus to open the right doors. Several other less-determined persons would have given up, but not LGen Campbell! He rallied CDS, DM and ADM(HR-Mil) support in solving what seemed insurmountable and now Marco is a proud CF pilot. The winter overcoat policy was another one of the issues that perplexed him, along with countless others. Patience and timing are great virtues. Today, we comfortably and happily wear the Gortex parkas over our uniform — what a warm feeling!

Well, I could go on and on with more stories, but let me end with a final note on the resilience of this remarkable individual. General Campbell clearly showed that while one is the CAS, one shouldn’t always take oneself too seriously — levity is permitted! A few teasers on his remarkable resilience, sense of humour and not sweating the small stuff are...please, if you wish more details, ask him the next time you see him. With a smile and momentary pause, I’m sure he’ll keep you captivated. By the way, I’m told the he desperately wanted to avoid crossing paths with CCWO during a Mess Dinner in GK decked out in flying suit...or the time when his baggage was misplaced and he had to improvise to keep up with the Hungarian flying program or the time he called his EA, 5 minutes before heading off for 10 days in Europe, to check if he had left a banana (he had forgotten to eat) in the desk drawer and to please remove it — surely a testament to how busy he was.

On a personal note, I have to admit how fortunate I have been to know General Campbell. He is the consummate professional, a person who has a gift for connecting with people and has a vision for the Air Force that is both far-reaching, but most importantly — very reachable. I understand his immediate plan is to improve his already “more than acceptable” golf game. We know he will be successful. On behalf of the entire Air Command team, we wish him and Sharron all the best and God speed. ■

*Major-General Richard Bastien
Assistant Chief of the Air Staff*



PERSONNEL

Retention / Re-enrolment

One Person at a Time

There is a lot of talk going around military, business and government circles about the new demographic reality facing our country and much of the world.

Phrases like *the shrinking skilled labour pool*, *the Nexus Generation*, *shifting moral centers of gravity* and *pre-act* instead of *re-act* are just a few examples of the myriad of expressions describing the challenges embodied by this so-called new demographic reality.

For our Air Force, these challenges are driving the retention/attrition debate and are proving to be particularly acute because of our highly-skilled, highly-trained and highly-marketable work force. These same traits, aside from being seen as a main cause of our retention concerns, also represent one of our greatest strengths by reinforcing the notion that our work force — our people — are here because they want to be. Our people, and how they serve while meeting the demands of the mission, have moved to the core of the emerging demographic challenge; they are also at the center of the solutions needed to overcome and excel in the new realities just over the horizon.

Fully understanding the people issues has taken some time. This is not because there hasn't been a continued desire to put people first; rather, because of a complex chain of events where we got much busier, we got much smaller and we evolved on a personal and social level: all at the same time. This is not to say that we couldn't have done a better job of keeping track ... the fact is, we saw ourselves as so involved in meeting the demands of the day that the intricacies of the evolving human dimension went largely unnoticed.

Fortunately, we are now putting a huge effort into better understanding and meeting the needs of our people in spite of, or perhaps because of, the unabated pace of operations and training.

As CAS, I have always said that personnel retention is my number one priority. In addressing that priority we have had to discover the issues at the heart of our people's decisions to continue to serve or leave the Air Force. What we now know and understand may surprise you.

NCM YEARLY RATES					
Rank	Pay Level	Incentive Pay Category	MARCH 2003		
			TRADE GROUP		
			Standard	Specialist 1	Specialist 1
Private	1	1	26616
		2	32544
		3	39096
Corporal	5A	Basic	44736	48216	51060
		1	45384	49068	52080
		2	46044	49896	53100
		3	46680	50736	54132
Corporal	5B	Basic	46608	50064	52920
		1	47244	50928	53952
		2	47868	51792	54960
		3	48540	52596	55980
Sergeant	6A	Basic	51384	55440	58752
		1	51888	55956	59304
		2	52416	56520	59832
		3	52992	57060	60360
Warrant Officer	6B	Basic	57252	60036	62328
		1	57780	60552	62856
		2	58284	61104	63384
		3	58872	61644	63948
Master Warrant Officer	7	Basic	63180	64908	66240
		1	63816	65544	66876
		2	64464	66216	67524
		3	65100	66840	68160
Chief Warrant Officer	7	Basic	70128	70128	70128
		1	70884	70884	70884
		2	71640	71640	71640
		3	72360	72360	72360
Chief Warrant Officer	7	Basic	73068	73068	73068
		1	73068	73068	73068
		2	73068	73068	73068
		3	73068	73068	73068

Early assumptions that attrition cycles simply followed economic cycles have proven to be only a very narrow segment of the overall picture. In fact, an individual's propensity to stay or leave the Air Force can also depend on their age, gender, occupation, geographical location, family situation, years of service, career aspirations and education to name a few more. The point here is that there are very few issues that span the entire spectrum of attrition/retention drivers; the implication being that there are absolutely no one-size-fits-all solutions.

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Retention / Re-enrolment...

For the Air Force this means that we must first identify and mitigate the relatively few number of issues that do span much of the spectrum for most people — all the while, and perhaps more importantly, striving to better meet the varied and individual needs of our personnel. Through surveys, focus groups and a lot of one-on-one discussions, members of our Air Force have identified the following (in order of priority) as significantly contributing to their decision of staying or leaving: Quality of Life, Effect of Work on Home Life, Job Satisfaction, Lack of Control Over One's Future, Choice of Postings, Pay, Secondary Duties and Taskings, Excessive Workload, Work Schedule and Ops Tempo.

In addition to being a road map of the items that we are currently working on, this list yields an important and interesting observation. The first half of the list identifies items that are, for the most part, of greatest importance to the individual; the second half identifies items that are more organizational in nature; in the middle is pay.

Before discussing the main point of this observation, a word about pay is needed. Although pay is not the

most important decision driver, it is an important factor that is easier to influence from a timeline perspective than most of the other items on the list; as such, it can be a significant tool in meeting some of our personnel's needs while affording us the time to develop and implement solutions for some of the more complex and time consuming issues (you will note in the sidebar the rates of pay for all Air Force members — although one can always argue for more pay, current pay levels are significantly more competitive than they were 10 years ago).

The main point this observation generates is that, from a retention perspective, the needs of the individual are more important than organizational commitment. All this to say that while we follow our road map, we must consciously and deliberately strive to better meet the personal needs of our individual personnel, intervening whenever and at whatever level is necessary, while we collectively deliver the air power our mission demands. In so doing, we will meet the coming demographic challenges head on by making retention a state of mind where our future is assured one person at a time. ■

GENERAL SERVICE OFFICERS

INCENTIVE PAY CATEGORY MARCH 2003												
Rank	Pay Level	Basic	1	2	3	4	5	6	7	8	9	10
Officer Cadet	A	15072	15384	15732	16020							
	B	27228	28356	32784	34056							
	C	27228	28356	32688	39300	44940	45612	46260	46896	47532	49908	52404
Second- Lieutenant	A	43176	43800									
	B	34332	36336	39804	43296							
	C	36924	40044	43176	46368	49752	52752	55908				
	D	47124	48540	49992	51492	53040	54624	56256	57960	59688	61476	63336
	E	47688	49116	50592	52104	53676	55284	56940	58644	60420	62220	64080
Lieutenant	A	47052	50244	53460	56628							
	B	36336	39804	43296	47136	51060						
	C	40596	43800	45420	47052	48648	50244	51852	53460	55056	56628	
	D	48384	50328	52332	54444	56616	58884	61224	63672	66240	68880	71640
	E	50280	52284	54384	56556	58824	61176	63624	66180	68820	71568	74436

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GENERAL SERVICE OFFICERS

INCENTIVE PAY CATEGORY MARCH 2003												
Rank	Pay Level	Basic	1	2	3	4	5	6	7	8	9	10
Captain		59652	61944	64176	66456	68640	70776	72876	75060	76296	77568	78852
Major		80652	82080	83484	84888	86280	87672	89064	90456	91552		
Lieutenant-Colonel		93492	95004	96468	98004	99492						

PILOTS

INCENTIVE PAY CATEGORY MARCH 2003												
Rank	Pay Level	Basic	1	2	3	4	5	6	7	8	9	10
Second Lieutenant	A	45696	46320									
	B	36840	38856	40284	41712							
	C	39432	42564	45696								
	D	48780	50244	51744	53304	54900	56544	58236	59988	61788	63648	65556
Lieutenant	A	51156	54336	57576	60744							
	B	43908	47388	51240	55164							
	C	43104	46320	47916	51156	54336	57576	50620				
	D	50052	52056	54144	56292	58548	60900	52780	65868	68496	71232	74088
Captain		60480	64296	69900	76368	80448	83592	07134	87780	89502	89556	89916
Major		90864	91776	92448	93156	94068	95028	07950	95964			
Lieutenant-Colonel		96924	98076	99204	100164	101160						

MEDICAL/DENTAL OFFICERS

INCENTIVE PAY CATEGORY MARCH 2003												
Rank	Pay Level	Basic	1	2	3	4	5	6	7	8	9	10
Second Lieutenant		40044	43176	46368								
Lieutenant		49572	52752									
Captain			88716	92508	96324	100128	120480	124008	127536			
Major			124008	127536	131064	134592	138120					
Major Specialist			133872	137400	140928	144456	147984					



OPERATIONS

Griffons test their mettle in Wainwright



Flight engineer Corporal Brad Hiscock from 408 Tactical Helicopter Squadron (Edmonton) keeps vigilant watch outside as the CH146 Griffon takes off for a mission.

WAINWRIGHT, Alberta — 19 CH-146 *Griffon* helicopters descended en masse as part of the Air Force contribution to *Exercise RESOLUTE WARRIOR* this Spring. It was the first major Army training exercise of the 21st Century, and it took place from April 7 to May 2 in Wainwright, Alberta.

Between 150 and 300 Air Force personnel — including *Griffon* air-crew, maintainers and support trades such as supply technicians, drivers, cooks, med aids, and orderly room clerks — participated in the Tactical Helicopter (TAC Hel) component of the exercise.

It was the first real major exercise for one of our members, Corporal Brad Hiscock, a Flight Engineer with 408 Squadron, Edmonton. He found it quite interesting to see all the elements coming together, particularly when viewed from the air.

The Deputy Commanding Officer of 408 Squadron, Major Robert Bayes, has been flying TAC Hel for 25 years and could not recall an exercise of that size and scope ever before.



Major Robert Bayes of 408 Tactical Helicopter Squadron (Edmonton) performs a pre-flight check on his CH-146 Griffon Helicopter prior to taking off on a mission.

“It’s been a good exercise, a good opportunity to get this many aircraft together all in one location and get everyone involved in flying multi-plane missions which you don’t normally get to do.”

The TAC Hel involvement included 408 Squadron and augmentees from other CH-146 *Griffon* squadrons.

Approximately 4,600 Canadian Forces soldiers participated in *Exercise RESOLUTE WARRIOR*. Four-teen combat and support units trained together in a multi-element combat environment in preparation for potential and upcoming high readiness tasks here and abroad.

This exercise was designed to confirm the skills and cohesion of the units involved and be similar to an actual deployment. ■



Master Corporal Richard Lachance, a flight engineer with 408 Tactical Helicopter Squadron (Edmonton), tops up the CH-146 Griffon Helicopter during refuelling operations.

PHOTOS: MCPL PAUL
MACGREGOR CANADIAN
FORCES COMBAT CAMERA



Members from the First Battalion Royal Canadian Regiment (1 RCR) (Petawawa, Ontario) provide security for the CH-146 Griffon Helicopter from 408 Tactical Helicopter Squadron (Edmonton) that was dropping them off.



EQUIPMENT

Milestones set for Aurora upgrade

The CP-140 *Aurora*, Canada's only strategic airborne land and sea surveillance aircraft, is undergoing its most comprehensive upgrade in 20 years. The first phase of the upgrade will lay the foundation for all other upgrades still to come. It is expected to be introduced within the coming weeks at 14 Wing Greenwood.

By way of background, in the late 1990s, obsolescence issues regarding the *Aurora*'s original, 1970s mission suite technology and diminishing operational capability highlighted the pressing need for fleet refurbishment. Instead of bringing forward the modernization as one project, the Department chose to pursue a more flexible incremental approach through an omnibus project. The *Aurora* upgrade was approved under the Aurora Incremental Modernization Project (AIMP) with the aim of restoring the *Aurora*'s operational capability through incremental replacement of existing avionics systems with modern avionics systems". The result will be a highly capable, interoperable 21st Century platform.

To simplify the AIMP's staged introduction of new systems into the fleet, an implementation plan was developed which amalgamated sub-projects into four Capability Groups. The implementation minimizes the number of aircraft out of service, thereby reducing AIMP's impact on operations as it progresses. While this strategy mitigates operational impacts, it also introduces significant challenges for the management of AIMP.

The incremental approach to modernizing the CP140 *Aurora* has been recognized as an ambitious undertaking due to the number of parallel processes required to implement the separate projects. In effect, DND (PMO Aurora) became the prime contractor and is now responsible for a number of functions that would normally be carried out by a prime contractor.

It was decided to group AIMP sub-projects into four Production Blocks in order to minimize the impact on operations and to reduce the integration and configuration management risks. The first block or, Production Block I — Legacy Systems, is a group consisting of essential Operating and Maintenance



Navigator-Communicator Captain Jeff Fenske and Tactical-Navigator Captain Glen Engebretson at work in the *Aurora*'s tactical compartment.

Aurora project activities that were already underway, plus a minor modernization element. It includes HF radio modification, permanent installation of a replacement sonobuoy receiver, replacement of the aircraft Crash Position Indicator (CPI) and Cockpit Voice Recorder (CVR), replacement of the teleprinter, and incorporation of a modification to the Flight Director Indicator (Attitude Indicator) to address flight safety concerns. This block is in production, with work being completed at IMP Group Halifax. Production should be complete in early 2004.

AIMP is an ambitious but manageable project requiring coordinated effort from all concerned parties. The end result will be a robust, highly capable ISR platform that will be able to support joint and combined operations for both national and coalition aims well into the future.

In the meantime, while the Air Force is anxiously looking forward to the arrival of the first Phase I upgraded CP-140, *Aurora* crews continue to do a superb job operationally, at home and abroad. Whether operating against illegal migrants off the Pacific coast, conducting reconnaissance missions or carrying out patrol missions over the Arabian Sea as part of Op APOLLO in 2002, Canada's long range patrol aircraft — and those who fly and support her — are proving their worth! ■



CC-130 Hercules engineering — *what comes down must go back up!*

While it is certainly true that our fleet of CC-130 *Hercules* are aging and that our air and ground crews are feeling the ripple effects of grounded aircraft due to maintenance, spare parts and hangar space issues, there is some tremendous work being done on the part of our engineers to rise above the challenges.

Take, for example, the manner in which our folks responded to the recent problem we encountered with fatigue cracking on some of our Hercs. The fix that was initiated by engineering folks is certainly a good news story worth sharing.

In terms of context, remember that most of our CC-130 *Hercules* aircraft were manufactured in 1964. Although the fleet has undergone significant enhancements to its operating systems i.e. avionics upgrades, structurally the aircraft are feeling the effects of “old age.”

The maintenance program, logistics support and airworthiness of the aircraft are the responsibility of the Weapons System Manager (WSM) within Director-General of Aerospace Engineering and Program Management (DGAEPM). Specialist Technical Support for the aircraft is provided to the WSM by the Directorate of Technical Airworthiness (DTA).

One of the principal difficulties in maintaining an aging aircraft is managing the onset of structural fatigue. Fatigue is the phenomena where repeated load cycles cause gradual accumulation of damage, which eventually results in cracking or, ultimately, structural failures. The Aluminum Alloys in use at the time of the CC-130's manufacture are prone to fatigue, so our CC-130 engineering team is often faced with new and challenging structural problems. To assist them, the team relies on experience, specialist training, communication with United States Air Force and Lockheed counterparts, and detailed structural studies. This permits a quick reaction to fatigue cracking situations when they occur, in order to preserve airworthiness and flight safety, while maximizing operational availability.

This happened recently with the CC-130 E Model Center Wing Structure. In November 2002, based on



The CC-130 Hercules.

DTA advice, the WSM elected to carry out a detailed Center Wing structural survey on aircraft 314. This is the E Model aircraft with the highest Center Wing usage. This decision was taken in consultation with 1 CAD as it involved transferring an essentially serviceable aircraft to Spar Aerospace's Edmonton facility for up to six months.

During the inspection, fatigue-related cracking was found in the Center Wing Lower Forward Spar Cap of aircraft 314. Although the extent of the cracking would not have immediately threatened the safety of the aircraft, it provided an indication of the amount of fatigue accumulation in the E Model fleet. Its presence in 314, occurring before the theoretical prediction, suggested a degree of urgency to rectify the problem might be required. As the evidence to support the possibility of the existence of a larger fatigue crack increased, so did the risk associated with continued operation of the E Model fleet.

It is the responsibility of the WSM to present this level of risk to the staff and Commander of 1 CAD, who in turn balance this risk against the operational necessity of their current taskings. In this case the coordinated decision was made on 11 April 03 to ground the affected CC-130 aircraft pending further inspection.

(continued on page 11)



(from page 10)

CC-130 Hercules engineering...

At the point the aircraft became grounded, the activity level within the engineering support organizations reached fever pitch. From the grounding of the aircraft on a Friday evening it took only until Sunday evening to design, develop and release a detailed inspection technique for the grounded aircraft. This work involved WSM and DTA staff (Maj James Gaerke and Sqn Ldr Jamie Johnson) working on site at 8 Wing Trenton with unit staff and Non-Destructive Inspection (NDI) specialists from the Aerospace and Telecommunication Engineering Support Squadron (ATESS). Within one week, the aircraft fleet had been returned to service.

Although this inspection was adequate to ensure the continued safe operation of the aircraft in the short term, it could not detect smaller cracks. From a maintenance perspective, cracks detected early can

be rectified easily (conversely, longer cracks require more extensive repairs, costs, and downtime). No sooner had the initial inspection been completed, than a more detailed and intrusive (from inside the wings) inspection had to be developed to detect lesser damage. This detailed inspection is now being completed across the E Model fleet.

An inspection for the cracking of the CW spar cap has subsequently been released as a Lockheed Martin Service Bulletin. In this instance the CF had identified and rectified the problem ahead of other operators. As the CC-130 approaches its 40th year in CF service, operators can rest assured that CC-130 team, the WSM, DTA, Unit Maintenance Engineers, and ATESS, continue to monitor and react magnificently to airworthiness episodes. ■

Challenger



PHOTO: JEFF CHARTER, 412 SQUADRON

The Air Force has proudly rolled out its two newly-painted CC-144 Challengers. 412 Squadron operates six Challengers altogether, four of which are white (used for Government of Canada Administrative Flight Service) and two are now blue (used as CF utility airlift, medevac).



Signed, sealed and delivered

A Beautiful Site! The 20th anniversary CF-18 Hornet, painted by Cold Lake member Jim Belliveau.



CREDIT: RICK WEBBER,
AVIATIONPHOTO@MAC.COM

The Minister of National Defence and Major-General Richard Bastien, Assistant Chief of the Air Staff, accepted the first “Phase I” modernized CF-18 Hornet from Boeing International at a ceremony held on May 14 at the Canada Reception Centre.

The \$880-million contract with Boeing, awarded in 2001, includes procurement and installation of a sophisticated technical upgrade package that will help extend the life of the CF-18 until at least 2017. Bombardier is doing the installation at its Mirabel plant outside Montréal under a sub-contract.

“While there is no doubt the CF18 is a top notch, robust fighter aircraft, the fact is its systems technology needed updating,” said John McCallum. “With the help of a dedicated team that worked many long hours several pieces of new equipment have been installed. This equipment will allow us to operate more seamlessly with our allies and it will provide the Canadian Forces with greater flexibility in meeting the challenges of the future. It will extend the operational viability by 15 years and it means we avoid the expense of acquiring a new fleet of fighter aircraft.”

“This is truly a great day for the Air Force,” said MGen Bastien. “The new on-board systems, along with new associated projects in the future will allow the Air Force to bridge the interoperability gap with our allies’ Air Forces while increasing our survivability margin over potential threats.

“While it’s visually the same aircraft as before, what you see sitting behind me today is a totally transformed, robust, fighter aircraft that will allow us to better serve Canadians at home and abroad, not only today but well into the future.”

The upgrade is based on the US Navy’s own F-18 Hornet upgrade program and was found to be the most cost-effective and lowest risk solution for Canada’s CF-18 modernization requirements.

Some components of Phase I are being acquired separately, but installed by Boeing. Phase I constitutes the greater portion of the two-phased modernization program and is being conducted in parallel with several other upgrades, from new infrared sensors to new air-to-air missiles.

The upgrade package, which has been extensively tested and flown operationally by the US Navy, includes: a new radar; “Have-Quick” jam-resistant radios; a combined interrogator-transponder; stores management systems; mission computers; and embedded global positioning and inertial navigation systems.

A total of 92 aircraft will be kept operational until the 80 Phase I modernized CF-18s come into full service in 2006. Scheduled to begin in 2006, Phase II projects are still in the developmental and planning stages.

Canadian CF-18 fighter pilots and ground crews conducted combat missions alongside our allies in 1999 during the Kosovo crisis and, as part of NORAD, continue to defend North American airspace following the events of Sept. 11, 2001. These operations highlight the need to equip CF-18s with systems to ensure interoperability with allies, survivability against modern weapons, and advanced operational capabilities.

Major Scott Ferguson, System Engineering Manager, with the Directorate of Aerospace Equipment Program Management Fighters and Trainers, says the rollout ceremony was the highlight of his staff tour working on the Phase I project.

“We’ve gone through the highs and lows and this is certainly a high to see it out on the ramp and ready to jump into the air. This has got to be the best without a doubt; it’s actually the first time that I’ve managed to be at a project at the right time to see the results of it coming out.” ■



TRAINING

Maple Flag modernized

4 Wing Cold Lake was once again the site this Spring for what fighter pilots agree is the finest tactical fighter exercise in the world — Exercise Maple Flag.

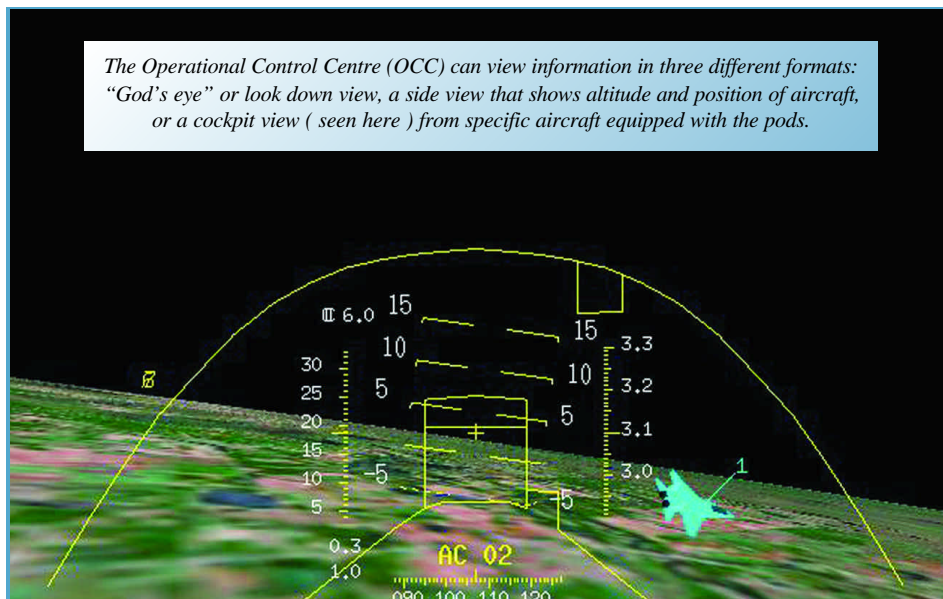
With unlimited airspace and our modernized, state-of-the-art mission de-briefing package — the Air Combat Manoeuvring Instrumentation System (ACMI) — fighter pilots from Canada and around the world got their clearest picture ever of what went well and what did not.

Some may remember the old days of Maple Flag where we used magic markers and a white board to de-brief our missions and sometimes it was the best storyteller who won! Now, there is no massaging the truth with the modernized ACMI. In today's high-tech training environment, Maple Flag pilots gather around a large theatre-size screen and watch the computer tell the real story!

Under the old ACMI, pilots relied on line of sight for transmission of data, whereas the new system can be used anywhere in the world to record mission data of all equipped aircraft for later use.

The system consists of an aircraft mounted pod, similar in size and shape to an AIM-9 missile; it's equipped with a Global Positioning System (GPS) unit capable of transmitting a live feed from the aircraft to a base station, as well as a Data Transfer Device cartridge that records the inertial data of all aircraft equipped with the pods.

The cartridge uses software that records Time Space Position Information (TSPI). The TSPI data is updated 10 times per second so the cartridge contains accurate information about where it has been and what it has done (turns, speed, altitude). For Maple Flag the system incorporates unclassified information about weapons capabilities and exact GPS positioning.



The live feed from the pod and TSPI is beamed back to the Operational Control Centre (OCC) located at the AFTTC and is projected on to two computer screens as CGI representations of airspace, ground and combatants, essentially a map of the entire training area with small computer representations of aircraft involved in various missions. The OCC can view the information in three different formats: “God’s eye” or look down view, a side view that shows altitude and position of aircraft, or a cockpit (Heads Up Display) view from specific aircraft equipped with the pods.

The images can also be projected on large theatre screens for mass debriefs. At the click of a mouse a technician can call up a particular mission or individual aircraft stats (speed, distance from other aircraft).

ACMI takes the guesswork out of post mission analysis and shaves hours off the process as well. As one pilot told us, “The ACMI enhances your ability to realize lessons learned and make improvements in a lot less time.

Once again, with the use of technology, the Air Force is providing world-class training here at home for the benefit of all. ■



Ready, set, train

Aircraft technicians are an integral and important part of our Air Force, maintaining aircraft at Wings and Bases across the country and abroad, on everything from the CF-18 *Hornet* to the CH-124 *Sea King*. Aircraft maintenance is a highly specialized field, one that requires years of training and apprenticeship and the utmost in professionalism, skill, dedication and attention to detail.

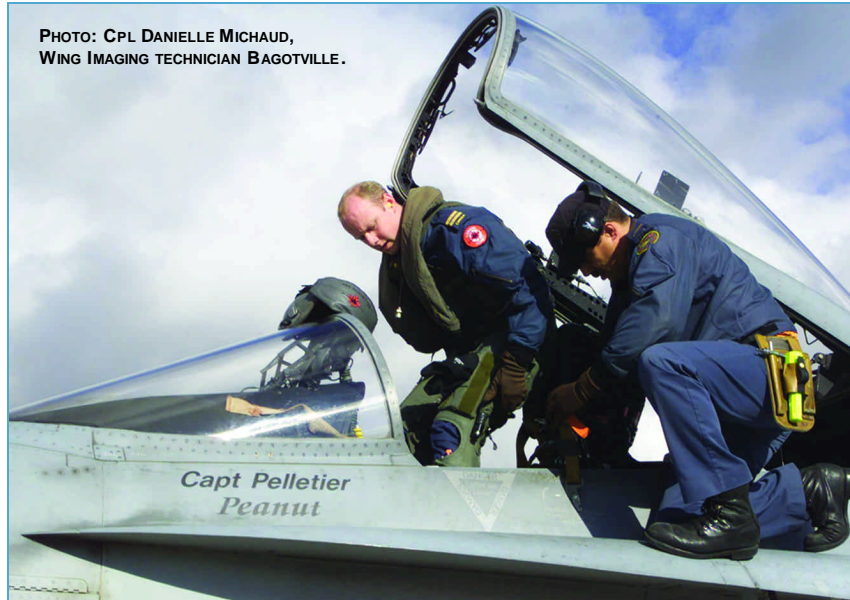
After years of downsizing, increased recruitment by the civilian sector, Alternate Service Delivery of maintenance of certain non-core fleets such as the new CH-149

Cormorant, and a temporarily expanded workload as a result of the 1997 Aircraft Technician Restructure, this specialty is facing some challenges.

To ensure success in the future, the Air force is attempting to rectify the situation through various means, not the least of which is an MOC 500 Series Training initiative.

An aircraft technician Occupational Analysis conducted in the 2000 timeframe revealed that technician experience levels were eroding, a situation forecasted to get worse given that almost three quarters of our technicians force rest within five years of retirement. In addition, some of the training designed to phase-in the amalgamation requires adjustments to better reflect the reality that the technicians face. Finally, the 2003 Annual Military

Occupational Review (AMOR), conducted in February 2003, highlighted the requirement to increase AVN and AVS technicians' production by 25% and 66% respectively, from the target numbers of just two years past.



Captain Paul Doyle of 433 Squadron is helped to get into a CF-18 by Corporal Jasmin Binette, Avionics Technician..

To ensure success in the future, the Air force is attempting to rectify the situation through various means, not the least of which is an MOC 500 Series Training initiative. The Canadian Forces School of Aerospace Technology & Training (CFSATE) is attempting to regenerate the MOC 500 Series

trades by devising new training modules and associated logistical considerations, which we hope, will help overcome most of the problems.

The challenge, as with any regeneration effort, will be to sustain operations while at the same time making technicians available so they can complete their professional development. The Air Force will need to achieve a careful balance between "force generation" and "force employment" to ensure that our aircraft maintenance organizations at the Wing level will be capable of sustaining operations while taking on an increased involvement for new technician development.

Early indications are that although the development of training and lesson plans is still underway, the length of the MOC 514 Aviation (AVN) course could increase significantly. An assessment of MOC 526 Avionics (AVS) QL3 course is planned and could also result in the expansion of the course's length. Little change is anticipated for the MOC 565 Aircraft Structures (ACS). ■



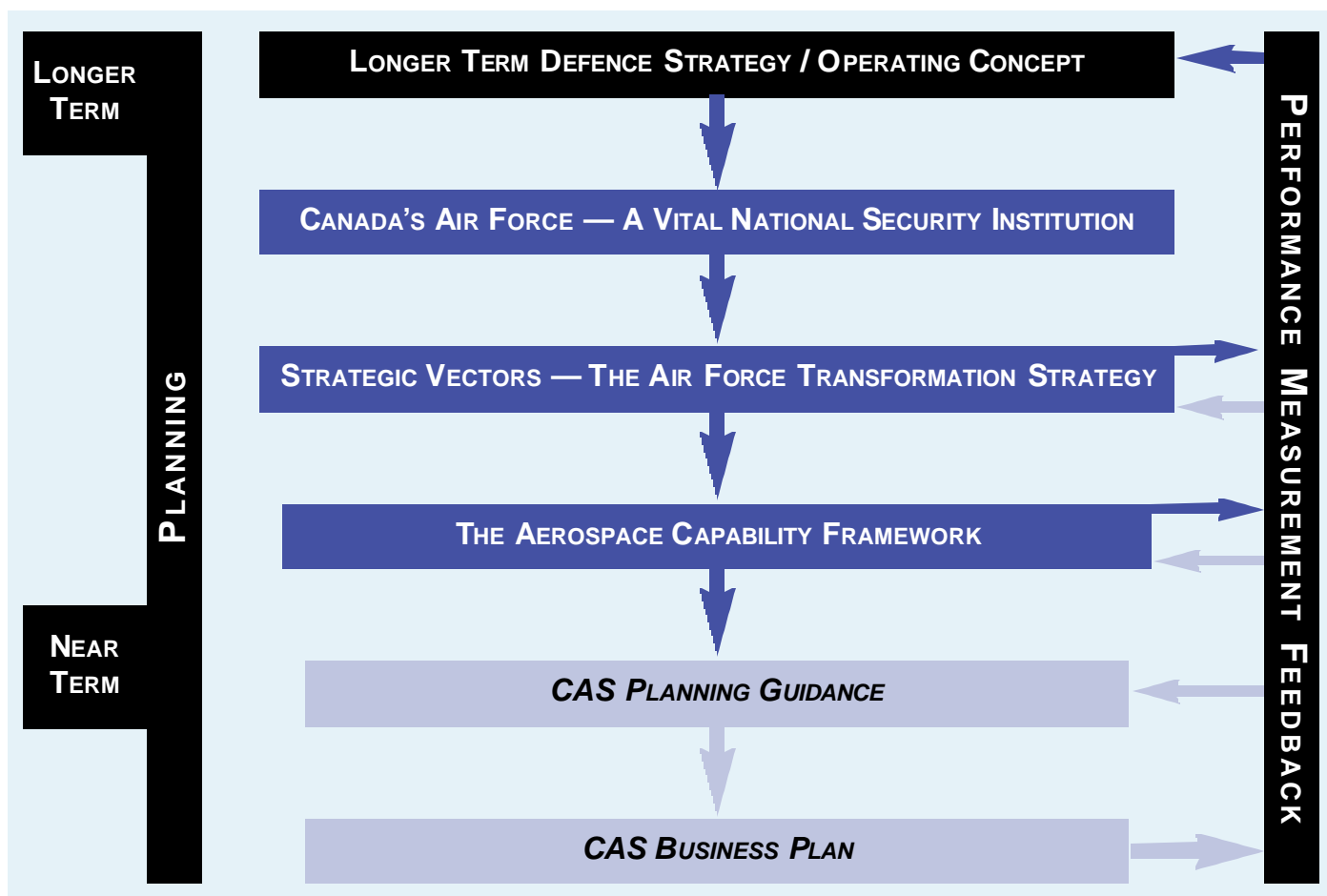
PROJECTS

The Big Picture

The development of the Aerospace Capability Framework (ACF) was discussed in *Crew Brief* as an indication of the work being done to plan for future of the Air Force. The ACF, when published, will exist within a hierarchy of strategic documents that includes:

- **Canada's Air Force — A Vital National Security Institution** — a strategic document that explains how the Air Force contributes to the security of Canada and Canadians and to the projection of Canadian values and peace and security interests abroad;
- **Strategic Vectors** — an Air Force strategy document created to articulate a clear, strategic vision over the near, mid and longer-term in response to the 21st Century security environment;
- **The Aerospace Capability Framework (ACF)** — an Air Force strategic planning document containing implementation details for the Air Force vision and strategy over the near, mid and longer-term;
- **CAS Planning Guidance (PG)** — an Air Force strategic direction document that provides guidance to subordinate units and staffs over a five-year period. The ACF is a source from which CAS PG is prepared; and
- **CAS Business Plan** — an Air Force strategic resource document that allocates resources over the short term. CAS PG is expressed in the CAS Business Plan.

The following illustration shows the general relationship between the above-mentioned documents.





MEMBER PROFILE

A distinguished career

Lieutenant-General Lloyd Campbell was born in Sioux Lookout, Ontario in September 1947. He joined the RCAF in November 1965 and, following training at Centralia Ontario and Winnipeg Manitoba, was awarded his wings as an air navigator in December 1966.

Following further training at 4 (Transport) OTU, he joined 437 Squadron at Trenton, Ontario, for a two-year operational flying tour on long-range transport aircraft. In 1969, he was selected for pilot training and, after attending courses at Camp Borden and Gimli, received his pilot's wings in May 1970. Following operational training on the CF-5 and CF-104 aircraft at Cold Lake, he was posted to 421 Tactical Fighter Squadron at Baden-Soellingen, West Germany, where he served as a strike/attack pilot and flight commander. In September 1974, he was reassigned to HQ 4th ATAF at Ramstein, West Germany, as Executive Assistant to the Deputy Chief of Staff — Operations. He returned to Canada in August 1976, serving as a flying instructor and flight commander on the CF-104 at 417 Tactical Fighter Operational Training Squadron at Cold Lake, Alberta.

In August 1978 he was promoted to the rank of major and, in 1979, was selected to attend the Canadian Forces Command and Staff College at Toronto. After graduating in June 1980, he was posted to 1 Canadian Air Group in Lahr, West Germany, as Staff Officer Air, responsible for operations, plans and training.

Promoted to Lieutenant-Colonel in July 1984, he undertook French language training in Ottawa before being assigned as Commanding Officer 419 Tactical Fighter Training Squadron at Cold Lake, an appointment he held until August 1987. Following a brief tour at National Defence Headquarters, he was promoted to colonel in July 1988 and posted to Ramstein, as Assistant Chief of Staff, Plans and Policy Division, Allied Air Forces Central Europe. He completed his tour with NATO in July 1991 and, subsequently, returned to Canada to attend National Defence College in Kingston, Ontario.

After graduating from NDC in June 1992, he took command of CFB Baden-Soellingen and 4 (F) Wing, the last officer to command these two units before



Captain Lloyd Campbell, age 29, CF-104 pilot flying with 417 Squadron in Cold Lake, Alberta.

their disbandment on July 31, 1993. In August 1993, he was reassigned to National Defence Headquarters Ottawa as Director, J3 Operations and later promoted to brigadier-general in February 1994, to become Director General Force Development. On promotion to Major-General on June 22, 1996, he assumed the position of Chief Force Development (CFD) and then Director General Strategic Planning the following October. During the period 9 April to 24 October 1997, Lieutenant-General Campbell was appointed the Acting Vice-Chief of the Defence Staff. On 6 April 1998 he became Commander of 1 Canadian Air Division/Canadian NORAD Region.

Promoted to his present rank and appointed Chief of the Air Staff in July 2000. His Change of Command will take place on July 18, 2003. ■