

CANADIAN FORCES
AEROSPACE
COMMAND
DOCTRINE



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PREFACE

This manual provides the doctrine for the Command function of the Royal Canadian Air Force (RCAF). While intended primarily for the operational level, it describes fundamentals applicable at all levels. This manual has been designed for use by the following:

- a. Canadian Forces (CF) schools and academies that train, indoctrinate, and develop personnel in command and control (C2);
- b. CF aerospace units and headquarters; and
- c. other CF elements proposing to command or support CF aerospace forces.

This manual is presented in three chapters:

- a. **Chapter 1 – Defining Command.** An overview of the Command function, including the principles of command, the definitions of command and control, and the relationships of supporting and supported commanders for aerospace operations.
- b. **Chapter 2 – Command in the Aerospace Domain.** Focuses on RCAF structure, organization, roles, responsibilities, and relationships at all levels of aerospace activities. This chapter discusses the importance of centralized command and decentralized control of aerospace operations in component warfare, detailing the four distinct models for the employment of aerospace forces.
- c. **Chapter 3 – Elements of Command and Control.** Outlines the processes within which aerospace power is exercised to include the air operations centre, and line and staff organizations. It also discusses the importance of information management, communications management, and operational planning.

The manual is to be used in conjunction with:

- a. AJP-3.3, *NATO Joint Air and Space Operations*;
- b. B-GA-400-000/FP-000, *Canadian Forces Aerospace Doctrine*;
- c. B-GA-401-001/FP-001, *Canadian Forces Aerospace Command and Control Processes* (to be promulgated);
- d. B-GA-401-002/FP-001, *Canadian Forces Aerospace Operations Planning* (to be promulgated);

- e. B-GA-402-000/FP-001, *Canadian Forces Aerospace Sense Doctrine*;
- f. B-GA-403-000/FP-001, *Canadian Forces Aerospace Shape Doctrine* (to be promulgated);
- g. B-GA-404-000/FP-001, *Canadian Forces Aerospace Move Doctrine*;
- h. B-GA-405-000/FP-001, *Canadian Forces Aerospace Shield Doctrine*;
- i. B-GA-406-000/FP-001, *Canadian Forces Aerospace Sustain Doctrine*;
- j. B-GA-407-000/FP-001, *Canadian Forces Aerospace Generate Doctrine* (to be promulgated); and
- k. B-GJ-005-300/FP-001, *Canadian Forces Joint Publication, CFJP 3.0, Operations*.

Recommendations for amendments to this publication are welcomed and should be forwarded to the Canadian Forces Aerospace Warfare Centre (CFAWC), attention: Doctrine Development Branch.

The Commander 2 Canadian Air Division (Comd 2 Cdn Air Div) is the ratification authority for this doctrine.

KEYNOTES

These keynotes are the fundamental beliefs upon which Command doctrine publication is built.

- ✦ As an RCAF function, Command is the authority that monitors, assesses, plans, directs, and coordinates all of the other RCAF functions, previously known as Air Force functions (Sense, Act, Shield, Sustain and Generate), in order to accomplish assigned aerospace missions.
- ✦ Command is “the authority vested in an individual of the armed forces for the direction, coordination, and control of military forces.”¹
- ✦ Control involves lesser degrees of authority than command; it is a series of supporting activities to enable command and manage risk.
- ✦ “Centralized control and decentralized execution” is the fundamental tenet of aerospace operations because the speed, reach, impermanence, and span of control of aerospace forces allow for a relatively greater degree of centralization of control than seen in other environments.
- ✦ There are four areas of activity required by any sized aerospace force in order to be able to exert aerospace power: command, aerospace operations, operations support, and mission support.
- ✦ Fundamental to military operations is the distinction between line and staff; while staff outnumbers commanders, staff officers have no command authority in their own right.
- ✦ Due to volume, information management is critical, and will be accomplished by the mechanism of identifying the commander’s critical information requirements (CCIR).
- ✦ The operational planning process (OPP) is a logical sequenced approach to the development of an operational plan involving five stages: initiation, orientation, course of action development, plan development, and plan review.

¹ *Defence Terminology Bank* (here after cited as DTB) record 27866, <http://terminology.mil.ca/term-eng.asp>.

- ✦ A command and control system is made up of three constituent elements: people, infrastructure, and processes; equally important is the manner in which those elements are organizationally structured.
- ✦ Aerospace command and control systems are heavily reliant on effective communications and computer systems that are interoperable, agile, and trusted.
- ✦ Training, both individual and collective, in the specific skills required for command and control, should be conducted regularly, for both commanders and staffs.

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CHAPTER 1



DEFINING COMMAND

*To conquer the command of the air means victory;
to be beaten in the air means defeat and acceptance of
whatever terms the enemy may be pleased to impose.*

Giulio Douhet



INTRODUCTION

Air forces exist to exercise aerospace power on behalf of the nation. This is accomplished primarily through the exploitation of the air and space environments to achieve assigned objectives. A century of air warfare has demonstrated that all effective air forces, whether they are large or small, are capable of performing a number of specific functions.

These functions are influenced by the physical possibilities and limitations imposed by the environments and by each other. One cannot efficiently or effectively work without the other; however, it is the unique capabilities of each function that when integrated with the other functions ensure the proper application of aerospace power. Aligned with CF doctrine,¹ Canadian aerospace doctrine consists of the following six functions:

Command

The operational function that integrates all the operational functions into a single comprehensive strategic, operational or tactical level concept.

COMMAND – SENSE – ACT – SUSTAIN – SHIELD – GENERATE

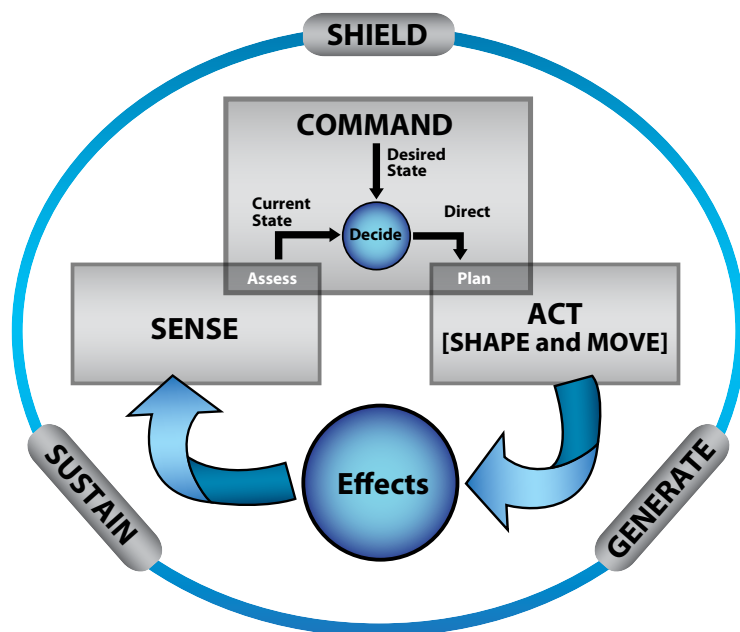


Figure 1-1. The Royal Canadian Air Force Functions ^{2,3}

1 See B-CJ-005-000/FP-001, *Canadian Forces Joint Doctrine (CFJP-01)*, *Canadian Military Doctrine*, April 2009, 1. http://dsp-psd.pwgsc.gc.ca/collection_2010/forces/D2-252-2009-eng.pdf (accessed February 9, 2012).

2 The Act Function comprises the two sub-functions of Shape and Move.

3 Refer to the keystone aerospace operational doctrine handbooks for a detailed discussion of the other RCAF functions or sub-functions.

In order to conduct aerospace operations and activities, the core functions of Command, Sense, and Act operate within a continuous cycle of activities. The outputs of the Sense activities are assessed during Command activities to determine the current state. After comparing the current and desired states, Command activities direct and plan actions. Act activities create effects that will achieve the desired state. Sense activities assess the results of these effects, and the cycle is repeated. This cycle of activities will influence, and can be influenced by, the ongoing function activities of Sustain, Shield, and Generate.

The Sustain, Shield, and Generate activities must be performed continuously in order to effectively maintain, protect, and develop CF aerospace forces and capabilities. Without the activities of these functions, the Command, Sense, and Act activities would be greatly affected. Consequently, a weakness in or failure of one function will negatively impact not only the other five functions but also the overall ability of the aerospace force to achieve a desired state.

The CF philosophy of command demands the highest standards of leadership, doctrine, training, effective decision making, and mutual trust between leaders and their subordinates. To be effective, command should normally be decentralized to the greatest degree practicable in order to cope with the uncertainty, the disorder, the complexity, and the confusion that are often present at the tactical level. Aerospace operations, encompassing challenges that differ in many respects from land and maritime environments, require a physical and operational structure that permits command and control to function effectively. It is with this in mind that we turn our attention to command in the aerospace domain.

PRINCIPLES OF COMMAND

Experience has shown that there exist certain fundamental principles in the command of forces that are formally articulated as the principles of command. These principles are outlined in Table 1-1.

| PRINCIPLE | APPLICATION |
|--------------------------------|--|
| Unity of Command | A single, clearly identified commander must be appointed for each operation. The commander has the authority to plan and direct operations and will be held responsible for an operation's success or failure. |
| Span of Control | Assigned resources and activities must be such that one person can exercise effective command or control of the formation or unit. |
| Chain of Command | The structure of the C2 process is hierarchical and must be respected. Bypassing the chain of command is justified only in the most exceptional circumstances. |
| Delegation of Authority | Commanders must be clear when delegating all or part of their authority. |
| Freedom of Action | Once the task or mission has been established and the necessary orders have been given, subordinate commanders must be permitted maximum freedom of action to take initiative and exercise their skills and knowledge of the local situation in the planning and conduct of the operation. |
| Continuity of Command | A clear and well understood succession of command is essential. |

Table 1-1. The principles of Command

COMMAND AND CONTROL DEFINED

Effective and efficient projection of aerospace power permits an air force to deliver aerospace effects. Fundamental to the success of this process is a well-defined command and control structure. Personnel at all levels must understand the fundamentals behind the terms command, control, and command and control (see Table 1-2.).

- a. **Command** is “the *authority vested in an individual* of the armed forces for the direction, coordination, and control of military forces.”⁴ All or part of this authority may be delegated.
- b. **Control** is “the *authority exercised by commanders* over part of the activities of subordinate organizations, or other organizations not normally under their command, which encompasses the responsibility for implementing orders or directives. All or part of this authority may be transferred or delegated.”⁵ Control provides a *means* of exercising effective command.
- c. **Command and control (C2)** is “the *exercise of authority and direction by a commander* over assigned, allocated and attached forces in the accomplishment of a mission.”⁶ In practice, the C2 process is performed through an arrangement of personnel, equipment, communications, facilities, and procedures employed by a commander in the planning, directing, coordinating, and controlling of forces and operations in the accomplishment of the mission.

Command is the overarching and driving “function that integrates all the functions into a single comprehensive, strategic, operational, or tactical level concept.”⁷ Of the six functions, it is universally recognized that Command is fundamental and of paramount importance to the military art. It provides for the vertical and horizontal integration of forces and activities to complete the mission.

| COMMAND: | CONTROL: |
|--|--|
| • constitutes formal authority | • derives by delegation from command |
| • provides oversight, unifying all action | • supports command in detail |
| • is focused on establishing common intent | • is focused upon the details of execution |
| Together as “C2” the following five activities are performed: | |
| MONITORING • ASSESSING • PLANNING • DIRECTING • COORDINATING | |

Table 1-2. Command, control, and C2

⁴ DTB record 27866.
⁵ DTB record 375.
⁶ DTB record 5950.
⁷ DTB record 26166.

COMMAND AND CONTROL ACTIVITIES

Effective C2 requires the ongoing coordination of both continuous and executive activities.

- a. **Continuous activities** are required throughout the execution of aerospace operations and include:
 - (1) **Monitoring:** the processes of observing and reporting on the full spectrum of factors within the operational space, in order to provide accurate situational awareness;
 - (2) **Assessing:** the process of estimating the capabilities and performance of organizations, individuals, materiel, or systems, in order to advise the commander; and
 - (3) **Planning:** the logical process by which command decisions are made.
- b. **Executive activities** regularly occur during the execution of aerospace operations and include:
 - (1) **Directing:** the act of command authority giving specific instructions to subordinates and supporting units. Commanders must provide all required guidance in order to maximize efficiency and effectiveness, and to reduce uncertainty throughout the spectrum of conflict. Directing should also ensure that subordinate commanders are given the opportunity to exercise initiative in order to capitalize on opportunities that present themselves in the tactical environment.
 - (2) **Coordinating:** the sharing of information to gain consensus and organize activities. Effective coordination should integrate, synchronize, and deconflict operations between different organizations. Normally, commanders at all levels delegate considerable authority to their staffs to accomplish the coordination of aerospace operations.

AUTHORITIES AND RELATIONSHIPS

Every air force commander (comd) and commanding officer (CO) is empowered with full command of their formation or unit in order to accomplish day-to-day force generation (FG) activities. Command and control relationships can differ greatly when forces change from FG to force employment (FE) operations. During FE operations, comds and COs are delegated their C2 authorities according to their appointment within the expeditionary chain of command. See Table 1-3.

| | Full Command | OPERATIONAL | | TACTICAL | |
|---|--------------|-----------------------------|-----------------------------|--------------------------|--------------------------|
| | | Operational Command (OPCOM) | Operational Control (OPCON) | Tactical Command (TACOM) | Tactical Control (TACON) |
| Assign separate employment of components of units/formations | X | X | | | |
| Assign missions | X | X | X | | |
| Assign tasks | X | X | X | X | |
| Delegate OPCOM | X | X | | | |
| Delegate TACOM | X | X | | X | |
| Delegate OPCON | X | X | X | | |
| Delegate TACON | X | X | X | X | X |
| Coordinate tactical positioning and flow, local movement and defence at installations | X | X | X | X | X |
| Plan and coordinate | X | X | X | X | X |
| Administrative responsibility | X | | | | |

Table 1-3. Command and control relationships

Command can be exercised at three different levels: full, operational, and tactical.

- a. **Full command** is “the military authority and responsibility of a commander to issue orders to subordinates. It covers every aspect of military operations and administration and exists only within national services.”⁸ It applies to all levels from the Chief

⁸ DTB record 4340. See also B-GJ-005-300/FP-001, *Canadian Forces Joint Publication, CFJP 3.0, Operations*.

of the Defence Staff (CDS) down to the unit commander. Since it is applicable to national service only, alliance or coalition commanders cannot have full command over forces of other nations.

- b. **Operational command (OPCOM)** is “the authority granted to a commander to assign missions or tasks to subordinate commanders, to deploy units, to reallocate forces, and to retain or delegate operational control [(OPCON), tactical command (TACOM)], and/or tactical control [TACON] as necessary.”⁹ It does not include responsibility for administration. While OPCOM allows a commander to assign separate employment to components of assigned units, it cannot be used to disrupt the basic organization of a unit to the extent that the unit cannot readily be given a new task or be redeployed. A commander will normally exercise OPCOM through commanders of subordinate components of a task force (TF).
- c. **Tactical command (TACOM)** is “the authority delegated to commanders to assign tasks to forces under their command for the accomplishment of missions assigned by higher authority.”¹⁰ TACOM is narrower in scope than OPCOM but includes the authority to delegate or retain TACOM/TACON.

Control can be exercised at the operational, tactical, or administrative levels.

- a. **Operational control (OPCON)** is “the authority delegated to a commander to direct allocated forces to accomplish specific missions or tasks that are usually limited by function, time, or location, to deploy units concerned, and to retain or delegate tactical control of those units.”¹¹ Commanders may further delegate OPCON and TACON of assigned forces. OPCON permits commanders to benefit from the immediate employment of assigned forces without further reference to a senior authority.
- b. **Tactical control (TACON)** permits effective “local direction and control of movements or manoeuvres necessary to accomplish missions or tasks assigned.”¹² In general, TACON is delegated when two or more units not under the same OPCON are combined to form a cohesive tactical unit for a specified period of time.

⁹ DTB record 19477.

¹⁰ DTB record 5491.

¹¹ DTB record 1056.

¹² DTB record 5493.

- c. **Administrative control (ADCON)** is defined as the “direction or exercise of authority over subordinate or other organizations in respect to administrative matters such as personnel management, supply, services, and other matters not included in the operational missions of the subordinate or other organizations.”¹³

Planning authority is the authority where there is a potential for a command relationship in the future. Planning authority gives units/formations the authority to liaise directly for planning purposes but does not constitute a change in either command or control of units/formations.

SUPPORTING AND SUPPORTED COMMANDERS

Support is defined as “the action of a force, or portion thereof, which aids, protects, complements, or sustains any other force.”¹⁴ There are four categories of support: general, direct, mutual, and close.

- a. **General support** is the action that is “given to the supported force as a whole rather than to any particular subdivision of it.”¹⁵
- b. **Direct support** is “the support provided by a unit not attached to or under the command of the supported unit or formation, but required to give priority to the support required by that unit or formation.”¹⁶
- c. **Mutual support** is the action that “units render each other against an enemy, because of their assigned tasks, their position relative to each other and to the enemy, and their inherent capabilities.”¹⁷
- d. **Close support** is the “action of the supporting force against targets or objectives which are sufficiently near the supported force as to require detailed integration or coordination of the supporting action with fire, movement, or other actions of the supported force.”¹⁸

Support relationships: A support relationship is established by a commander between subordinate commanders when one organization should aid, protect, complement, or sustain another force. The designation of supporting relationships is important as it conveys priorities to commanders and staffs that are planning or executing operations. The resulting command relationship is, by design, an unstructured but flexible

13 DTB record 3289.

14 DTB record 1362.

15 DTB record 657.

16 DTB record 483.

17 DTB record 4835.

18 DTB record 406. Also, see United States Marine Corps (USMC), *Aviation Operations (MCWP 3-2)*, http://www.fs.fed.us/fire/doctrine/genesis_and_evolution/source_materials/MCWP-3-2_aviation_operations.pdf (accessed February 9, 2012).

arrangement. Supported/supporting commanders and their commands are defined as:

- a. **Supported command** is “a command that receives forces or other support from another command and has primary responsibility for all aspects of an assigned task.”¹⁹
- b. **Supported commander** is the commander who has the primary responsibility for all aspects of a task assigned by either the strategic or the operational level command.²⁰
- c. **Supporting command** is “a command that provides forces or other support to another command.”²¹ Note: subordinate commands/commanders are not considered to be supporting the commands/commanders they are subordinate to.
- d. **Supporting commander** provides forces or capabilities to a supported commander.²² The supporting commander can perform this function regardless of rank in relation to the supported commander. Example: the joint force air component commander (JFACC) major-general (MGen) may be supporting a joint force commander (JFC) who may be of a lower rank.

Support responsibilities. The common superior commander is responsible for ensuring that both the supported and supporting commanders understand the degree of authority that the supported commander is granted. The commander can establish supporting/supported command relationships during any phase of an operation to direct units to work together without having to transfer command authority or formally assign another command relationship. This relationship is further defined as follows:

- a. **Supported commander.** The supported commander should ensure that the supporting commanders understand the assistance required. It is the supported commander’s responsibility to ensure that intent and requirements are clearly articulated to supporting commanders and that they are consulted to help shape the plan. This will ensure a clearly defined plan that has the greatest likelihood of mission accomplishment.
- b. **Supporting commander.** The supporting commander determines the forces, tactics, methods, procedures, and communications required to provide this support, which is based on the

¹⁹ DTB record 32319.

²⁰ See DTB record 37280.

²¹ DTB record 32320.

²² See DTB record 37281.

consultation process with the supported commander and other supporting commanders. The supporting commander will advise and coordinate with the supported commander on matters concerning the employment and limitations (e.g., logistics) of such support, assist in planning for the integration of such support into the supported commander's effort as a whole, and ensure that support requirements are appropriately communicated within the supporting commander's organization. A supporting relationship does not imply subordination to the supported commander. When a supporting commander cannot fulfill the needs of the supported commander, the superior commander will be notified by either the supported commander or a supporting commander. The superior commander is responsible for determining a solution.

MISSION AND TASK

Mission. In its simplest form, a mission is any activity assigned to an individual, unit, formation, or force. In aerospace operations, a mission is normally assigned by an authority with full command, OPCOM, or OPCON. Missions can be assigned via an air tasking order (ATO)²³ or by a similar order to ensure that the mission has been planned and developed through a recognized process and is coordinated with other missions during a given time frame and geographical location.

Task. A task is defined as any "activity which contributes to the achievement of a mission."²⁴ In aerospace operations, a task can be assigned by commanders at any level and can be directed or implied.

SUMMARY

It is critically important to understand the principles, definitions, and relationships associated with the command and control of aerospace forces. Once commanders and staffs at all levels appreciate the concepts of command, control, and support, they can effectively exercise their roles and responsibilities within the organizational structure of the RCAF and CF, leading to success in the employment of aerospace power in the joint operational environment.

²³ The ATO embodies command decisions that must be centrally controlled, but decentralized for the operators to execute effectively. It enables the aerospace commander to control theatre-wide aerospace forces in support of the JFC's intent. The ATO ensures the integration of aerospace operations theatre-wide to bring forces to bear at the time and location of the commander's choosing. The ATO is centrally planned and developed at the operational level, but its execution is decentralized to subordinate command and control nodes, and tactical level units.

²⁴ DTB record 20312.



CHAPTER 2



COMMAND IN THE AEROSPACE DOMAIN

Airpower has become predominant, both as a deterrent to war and—in the eventuality of war—as the devastating force to destroy an enemy’s potential and fatally undermine his will to wage war.

General Omar Bradley

Grouping units along functional lines greatly enhances the overall effect of command and control within the aerospace domain. Critical to the success of the mission is the understanding of both the chain of command and the function of commanders at various levels. It is through this structure that commanders exercise the command and control of complex aerospace operations.

ROYAL CANADIAN AIR FORCE ORGANIZATION

In order to ensure unity of command, an organizational structure must adopt a well-defined and logical chain of command. The organizational structure of CF aerospace forces consists of the following:

- a. **Royal Canadian Air Force (RCAF).** A single unified environment of the CF that provides air and space forces.
- b. **Air division (Air Div).** An air division is a formation of aerospace forces grouped together under an operational-level commander. Normally, an air division is comprised of two or more wings.
- c. **Wing (wg).** A wing is a tactical level formation of aerospace forces that conducts aerospace operations. A wing includes groupings of squadrons, units, sub-units, and staffs that perform the aerospace activities of command, aerospace operations, operations support, and mission support. A wing can either be established at a main operating base (MOB) or along functional lines with a headquarters and dispersed units. When deployed, a wing is called an air expeditionary wing (AEW).
- d. **Squadron (sqn) / unit.** A squadron is a tactical level unit of aerospace forces organized for the conduct of aerospace operations and activities. The RCAF organizes other units (schools, centres, establishments, etc.) to perform functions such as training, education, and research. A squadron/unit requires the support of a wing to function fully, whether at an MOB, other base, or while deployed. A squadron/unit consists of sub-units, known as flights, which perform specific duties to support the squadron/unit.
- e. **Flight (flt).** A flight is a tactical level sub-unit of aerospace forces that is organized for the conduct of aerospace operations and activities. A flight is normally a sub-unit of a squadron/unit and has a specific purpose such as operations, maintenance, standards, training, or support.
- f. **Sub-flight (sub-flt).** A sub-flight is a tactical level sub-sub-unit of aerospace forces, organized for the conduct of aerospace operations and activities. A sub-flight is the smallest element in

the RCAF and normally performs missions and tasks during the execution of aerospace power. A sub-flight is generally known as a crew, section, team, or by a similar name.

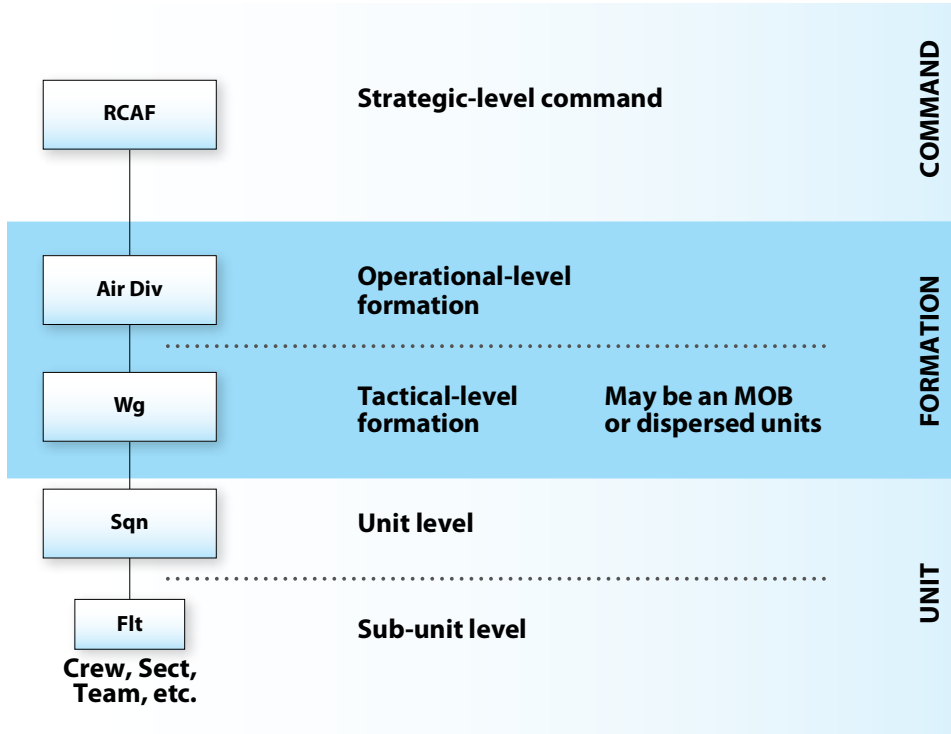


Figure 2-1. Hierarchical organization of aerospace forces

ORGANIZATION OF AEROSPACE FORCES BY ACTIVITY

Activities. Aerospace forces can be organized by one of four activities that they perform.

- Command** is both an RCAF function and an activity. Command activities include the monitoring, assessing, planning, directing, and coordinating of all the other aerospace functions in order to accomplish assigned missions. The activity of Command constitutes an essential area of activity.
- Aerospace operation** refers to “an activity, or series of activities, related to the planning and application of aerospace power to achieve assigned objectives.”¹ Aerospace operations normally involve more than one mission or type of mission. This includes, but is not necessarily limited to

¹ DTB record 37248.

- (1) strategic attack;
 - (2) offensive and defensive counter-air;
 - (3) active and passive air defence;
 - (4) offensive and defensive space;
 - (5) air interdiction;
 - (6) close air support;
 - (7) antisurface and antisubmarine warfare;
 - (8) airlift;
 - (9) air-to-air refueling;
 - (10) electronic warfare;
 - (11) collection operations; and
 - (12) search and rescue.
- c. **Operations support** is an activity that includes “the provision of assistance that directly supports aerospace operations.”² This includes, but is not necessarily limited to
- (1) operations planning and coordination;
 - (2) intelligence;
 - (3) aerospace management and control services;
 - (4) meteorology;
 - (5) aircraft maintenance;
 - (6) force protection;
 - (7) police and security services;
 - (8) chemical, biological, radiological and nuclear (CBRN) detection; and
 - (9) explosive ordnance disposal (EOD) / improvised explosive device disposal (IEDD).

² DTB record 34914.

- d. **Mission support** is an activity that provides “logistical, technical and administrative support to operations.”³ This includes, but is not necessarily limited to
- (1) construction engineering;
 - (2) communication and information systems (CIS);
 - (3) supply;
 - (4) transport;
 - (5) electrical and mechanical engineering;
 - (6) food services;
 - (7) human resources; and
 - (8) finance services.



CF Photo: Cpl Katie Hodges

³ DTB record 34911.

Organizing aerospace forces by their activity. This grouping into four areas of activity is flexible and provides a coherent organizing principle for aerospace forces. It is scalable, from large MOBs down to a small detachment. This grouping is used as an organizing principle at different levels as follows:

- a. **Higher headquarters.** These same categories may be used at higher headquarters (HQ) levels for organizing a large staff. For example, commanders may choose to appoint deputy commanders or chiefs of staff for the categories of FE, operations support, and mission support.
- b. **Main operating bases.** A wing organization at an MOB will normally reflect this grouping as follows:
 - (1) **Command.** At MOBs, the command element includes the wing commanders, their immediate staff, and those branch heads and key personnel from wing organizations that commanders employ as advisors and staff. Wing commanders employ a wing operations centre (WOC) in order to exercise effective C2 of their assigned forces.
 - (2) **Aerospace operations.** Squadrons and units responsible for aerospace operations constitute this grouping within a wing.
 - (3) **Operations support.** At MOBs, the operations support function is performed by the wing operations branch and an air maintenance squadron.
 - (4) **Mission support.** At MOBs, the mission support function is performed by the wing administrative and wing logistics/engineering branches.
- c. **Expeditionary operations.** An AEW employs the same structure as an MOB. The construct of an AEW is scaled to fit the needs of a given operation.
 - (1) **Command.** An AEW commander employs the wing staff and WOC to command assigned forces.
 - (2) **Aerospace operations.** Squadrons, units, detachments, and sub-units responsible for aerospace operations constitute this grouping within an AEW.

- (3) **Operations support.** An operations support flight will be constituted to include all necessary operations support functions.
 - (4) **Mission support.** A mission support flight will be constituted to include all necessary mission support functions.
- d. **Detachments.** Small, temporary groupings of deployed tactical-level aerospace forces, such as aircraft, C2, and support personnel and equipment designed to perform aerospace operations. Detachments are usually formed at established locations with significant support available, and when the scope of the operation does not warrant the deployment of an AEW. Detachments can be simple (for example, 2 x CC130 operating at an established, allied military airfield) or complex to include support from several wings with different types of aircraft and support requirements. A detachment is commanded by a detachment commander (DETCO) who is supported by sufficient personnel to perform required duties.

COMMAND IN THE ROYAL CANADIAN AIR FORCE

The Commander of the Royal Canadian Air Force (Comd RCAF), who also fills the position of the Chief of the Air Force Staff (C Air Force), commands and provides strategic direction for the RCAF. As the senior RCAF officer in the CF, the Comd RCAF is directly responsible to the CDS and acts as an advisor on strategic Air Force issues. Comd RCAF is also responsible for generating and sustaining a combat-capable, multi-purpose Air Force to meet Canada's defence objectives. Comd RCAF exercises full command over the RCAF. Two commanders report to the Comd RCAF, namely Commander 1 Canadian Air Division (Comd 1 Cdn Air Div) and Comd 2 Cdn Air Div / Air Force Doctrine and Training Division (AFDT Div).

The Commander 1 Canadian Air Division is accountable to Comd RCAF and exercises full command over most RCAF formations and units. Comd 1 Cdn Air Div retains residual authorities, including operational airworthiness and flight safety for all CF aerospace forces. The generation of forces for immediate operational employment, including operational training unit / flight oversight and collective training, remain the purview of Comd 1 Cdn Air Div. Comd 1 Cdn Air Div is also the JFACC for CF operations and exercises operational control over CF aerospace operations. The JFACC is accountable to the designated supported force employment commander (FE Comd) for FE of aerospace forces. The Comd 1 Cdn Air Div is also

Commander Canadian North American Aerospace Defence Command (NORAD) Region (Comd CANR), and is accountable to Commander NORAD (CDRNORAD) to exercise operational control over all forces allocated or made available for air defence in the region.

The Commander 2 Canadian Air Division / Air Force Doctrine and Training Division (Comd 2 Cdn Air Div / AFDT Div) is accountable to Comd RCAF and has oversight of RCAF individual training and education (AF IT&E), to include ab initio training for most RCAF occupations, core RCAF developmental coursing and related support. The 2 Cdn Air Div / AFDT Div is an RCAF operational-level headquarters, designed to reduce the span of control of Comd 1 Cdn Air Div and focus efforts on doctrine, training, and education. The 2 Cdn Air Div / AFDT Div HQ and Canadian Forces Aerospace Warfare Centre (CFAWC) support the overall RCAF training management and doctrinal development.

AIR FORCE COMMAND AND CONTROL

“Centralized control and decentralized execution” is the fundamental tenet of aerospace power as it relates to C2. Aerospace forces are organized based on sound command and control principles with the purpose of achieving operational effectiveness across the spectrum of conflict. Centralized control is required to ensure the most efficient use of limited aerospace assets.

To best accomplish overall objectives, aerospace forces are coordinated and directed at the operational level by a single air commander. Centralized control also allows aerospace activities to be refocused quickly to exploit fleeting opportunities, to respond to the changing demands of the operational situation, and to be concentrated at the critical place and time to achieve decisive results. Decentralized execution fosters initiative and situational responsiveness, and provides subordinate commanders with the authority to apply their expertise and understanding of local conditions to accomplish the mission within the guidelines and overall intent of the commander.

CENTRALIZED CONTROL AND DECENTRALIZED EXECUTION

Centralized control gives coherence, guidance, and organization to the employment of aerospace power. It is achieved through a single aerospace commander, referred to as air component commander (ACC)⁴ who, having a theatre-wide perspective, has the authority to assign available forces to

⁴ The term air component commander (ACC) can be adapted for different command situations. In a joint environment, the duties and responsibilities of an ACC are normally assumed by a joint force air component commander (JFACC). In a multi-national operation, a combined force air component commander (CFACC) is normally designated. Ultimately, a combined joint forces air component commander (C/JFACC) could potentially be designated. In all cases, these commanders have, at a minimum, the same responsibilities as an ACC.

best achieve objectives. The ACC is responsible for the control (to include planning, direction, prioritization, allocation, synchronization, integration, and deconfliction) of all aerospace assets.

Centralized control ensures the most efficient use of limited aerospace forces and permits one commander to confirm, assign, or reassign forces to specific missions, based on changing circumstances and priorities. Decentralized execution, the delegation of authority to subordinate commanders to execute assigned missions, is subject to the commander's intent, the rules of engagement, and the other parameters established by higher command. Importantly, decentralized execution allows commanders at all levels to apply their expertise and understanding of local conditions for mission accomplishment, while also fostering initiative and situational responsiveness in a dynamic environment.

An ACC must determine two related but distinct factors: the degree to which control will be centralized or decentralized, and the degree to which execution will be centralized or decentralized.

- a. **Control.** *Centralized control* means that the ACC retains control of the aerospace assets made available in the area of responsibility (AOR) and tasks are assigned at the ACC level of command. *Decentralized control* means that the ACC delegates forces, by a change of command relationship, to subordinate commanders. Missions and tasks are then assigned by those subordinate commanders, rather than at the level of the ACC.
- b. **Execution.** *Centralized execution* means that decisions as to the tactical execution of missions are determined at the ACC level of command. *Decentralized execution* may be achieved by providing general guidance to tactical commanders, permitting planning and execution to be accomplished at the tactical level.

FACTORS INFLUENCING CENTRALIZATION OF CONTROL

For any military force, a spectrum of control styles is possible, ranging from centralization to decentralization. A commander must consider a number of factors when deciding the degree of centralization or decentralization of control. These factors are:

- a. **Unity of command.** According to this principle of command, it is always desirable to achieve the maximum possible unity of effort through unity of command.

- b. **Concentration of force.** According to this principle of war, it is desirable to focus effort at decisive points, rather than scatter resources widely. This can be facilitated by centralizing control.
- c. **Economy of effort.** This principle of war is a corollary to concentration of force. If there is to be concentration at decisive points, economy of effort must be practised elsewhere.
- d. **Reach.** Since aircraft are capable of ranging widely within a given theatre during a single mission, they add flexibility to the application of aerospace power. In order to optimize the employment of aerospace forces, centralized control can permit the execution of missions that involve considerable distance from operating bases.
- e. **Speed.** The high speed typical of most aircraft contributes to their ability to reach any point within a theatre or between theatres in a relatively short time. Centralization of control enhances the ability of commanders to exploit the speed of aerospace forces by ensuring joint operations are properly coordinated.
- f. **Impermanence.** This characteristic of aerospace power strongly affects the degree of centralization possible. Most aircraft cannot remain in a local area, committed to a local commander, for extended periods of time. They must return to bases to refuel and reload, which argues for centralization of their control. However, some aircraft types (notably rotary wing) can work effectively from dispersed forward locations, which allows for greater decentralization of the control of those aircraft types.
- g. **Span of control.** This principle of command affects how many forces can be effectively grouped under the control of one commander or agency. Commanders must carefully consider how many forces they can effectively control given their ability to communicate, plan, coordinate, deconflict, and assess mission success from their established location. For example, when an ACC is supported by an aerospace operations centre (AOC) to perform these functions, the span of control for the ACC can be theatre-wide.

FACTORS INFLUENCING DECENTRALIZATION OF EXECUTION

Similarly, the critical factors in the aerospace domain influencing the degree of centralization or decentralization of execution are:

- a. **Freedom of action.** This principle of command makes a decided case against an overly centralized control structure. It is desirable to decentralize the execution of operations to the greatest extent possible in order to maximize flexibility and encourage initiative by tactical commanders.
- b. **Flexibility.** This principle of war tends to argue against centralization, as speed of response to local circumstances and fleeting opportunities can be facilitated by a wider delegation of authority to local commanders.
- c. **Mission command.** The CF philosophy of mission command, which emphasizes that only the requisite amount of control should be imposed on subordinates, argues in general for a greater decentralization of execution.⁵

Commanders must analyse the situation, giving due consideration to the above, and then centralize or decentralize their control measures as appropriate to the circumstances. Principles of command and principles of wars, as well as the characteristics of aerospace power, support centralized control and decentralized execution.

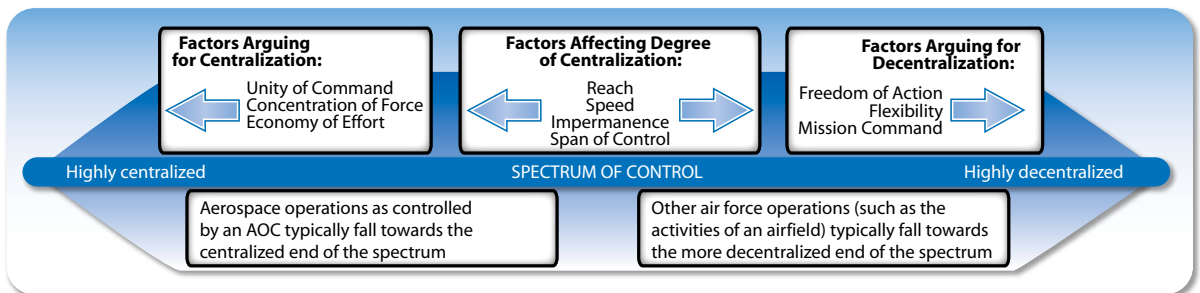


Figure 2-2. Spectrum of centralization/decentralization in C2

THEATRE AIR CONTROL SYSTEM

Air operations are controlled through an overarching theatre air control system (TACS). In North Atlantic Treaty Organization (NATO) doctrine, this system is known as the air command and control system (ACCS). The TACS is centred on the Combined Aerospace Operations Centre (CAOC) and includes the organizations, units, personnel, equipment,

⁵ See *CFJP 01, Doctrine*.

and procedures necessary to plan, direct, and control air operations, and to coordinate air operations with other components in the joint environment. The Canadian TACS includes the following elements of the air C2 chain that provides operational and tactical C2 for forces executing aerospace missions.

- a. **Combined Aerospace Operations Centre (CAOC)** is the principal centre from which air operations are directed, monitored, controlled, and coordinated with the other components. In Canada, the CAOC also fulfils the role of NORAD Region Headquarters (CANR HQ), and is co-located with 1 Cdn Air Div HQ at 17 Wg.⁶
- b. **Air component headquarters (ACHQ)** is the operational-level element that supports an ACC when not physically located at the CAOC. The ACHQ provides the ACC with situational awareness and performs coordination and planning between the ACC, the Joint Task Force Headquarters (JTF HQ), and the CAOC, employing reachback. The ACHQ is a critical requirement that permits the ACC to integrate air effects into joint operations.
- c. **Control and reporting centre (CRC)** is a ground-based, integrated C2 element that may be static, mobile, or deployable. The CRC manages all defensive air, offensive air, and airspace management activities within an assigned area through surveillance, identification, weapons control, positive and procedural airspace control, and link management. The CRC produces a recognized air picture (RAP) that contributes to the overall common operating picture (COP). A CRC may delegate control, surveillance, and battle management to a subordinate unit capable of better interoperability, radar, and radio coverage to include a tactical control radar unit and airborne warning and control system (AWACS). In Canada, the CRC function is performed by the Canadian Aerospace Defence Sector (CADS), located at 22 Wg.
- d. **Wing Operations Centre (WOC)** performs continuous coordination between the wing and the CAOC and between the wing and subordinate squadrons. Feasibility of assigned

⁶ The term air operations centre (AOC) can be adapted for different operational situations. In a joint environment, the duties and responsibilities of an AOC can be assumed by a joint air operations center (JAOC) led by a joint force air component commander (JFACC). In a multi-national operation, a CAOC, led by a combined force air component commander (CFACC) is normally designated. Ultimately, a combined/joint air operations centre (C/JAOC), led by a C/JFACC could potentially be designated. In Canada, the AOC has been designated as a CAOC in order to recognize the combined nature of the bi-national, NORAD agreement, as the CAOC also serves the Canadian NORAD Region HQ. This CAOC is led by a JFACC, a title that recognizes that this RCAF officer is responsible for aerospace forces that support all CF joint operations. In all cases, these operations centres have, at a minimum, the same responsibilities as an AOC.

missions and tasks is verified by the WOC and then assigned to individual squadrons. The WOC monitors and ensures mission result reporting and provides continuous near real-time status of information to the CAOC.

- e. **Squadron Operations Centre (SQOC)** performs continuous coordination with the WOC for mission preparation. The SQOC is responsible for the preparation of assigned missions and tasks, their timely execution, and the reporting of mission results through the WOC to the CAOC.
- f. **Combat operations centre (COC)** performs the role of C2 link between the CRC and Alert Force Commander or DETCO for NORAD operations. The COC provides the CRC with continuous reporting and status of NORAD-assigned resources while providing the AF Comd / DETCO with situational awareness updates and secure connectivity. The COC represents the vital, last link in the C2 chain between JFACC- and NORAD-assigned aircraft captains prior to take-off. In Canada, COCs are located at 3 and 4 Wg, and normally at locations where NORAD-assigned assets are deployed.
- g. **Liaison officer (LO)** is a tactical level officer assigned to a unit or headquarters for the purpose of coordinating and advising on tactical operational matters. Any RCAF tactical-level commander may deploy an LO to a tactical- or operational-level unit or headquarters to facilitate the integration of air effects.
- h. **Air support operations centre (ASOC)** is the air liaison element co-located with the senior fielded land formation (usually corps or division). The ASOC coordinates assigned missions with the CAOC and subordinate TACPs within its assigned area of control. The ACC can delegate limited OPCON of assigned forces to the ASOC director so that ATO missions can be tactically re-tasked as required to meet land force requirements in a fluid battle situation.
- i. **Tactical air control party (TACP)** is the principal liaison and control element aligned with land force manoeuvre units from battalion to corps. The primary mission of a TACP is to advise the respective ground commanders on the capabilities and limitations of air power and assist the ground commander in planning, requesting, coordinating, and controlling air effects. The TACP is designed to leverage the maximum combined effect of the aerospace capability while at the same time minimizing any

restriction to the freedom of action of the commander's organic fire-support assets. Additionally, the plan must allow for the potential integration of stand-off weapons and guided missiles.

- j. **Forward air controller (FAC)** is “a qualified individual who, from forward position on the ground or in the air, directs the action of combat aircraft engaged in close air support of land forces.”⁷ A FAC operating from an airborne platform is known as a FAC(A).

CF aerospace forces are arranged in accordance with the TACS system. This structure is described in Table 2-1.

| As force generators, every unit commanding officer and formation commander has full command of assigned forces, as per CFJP 3.0; this chart depicts the force employment model. | | | | |
|---|-----------------|---------------|-------------------------------------|--|
| Appointment | C2 Relationship | Staff Support | Liaison/Coord | Focus |
| JFACC or ACC | OPCON* | CAOC or ACHQ | Sends ACCE Receives Liaison Elms | <ul style="list-style-type: none"> Operational level of warfare and campaign planning Assigns mission and tasks |
| WComd or AEW Comd | TACOM and ADCON | WOC | Liaison Officer(s) (LO) | <ul style="list-style-type: none"> Tactical level of warfare and tasked mission planning Executes mission |
| Tactical Control Units CRC ASOC TACP | TACON | Unit Pers | LO | <ul style="list-style-type: none"> Coordinates tactical positioning and flow, local movement and defence at installations |

*The JFACC can seek OPCOM of specific aerospace forces from the FE comd.

Table 2-1. CF aerospace forces C2 structure

DEFINITIONS, ROLES, AND RESPONSIBILITIES

The CF commanders at all levels have the inherent responsibility to effectively lead the forces assigned to them and successfully accomplish their missions. Understanding the definitions and roles of operational- and tactical-level commanders, and how they integrate, helps to define their responsibilities.

- a. **Force employment commander (FE comd).** The FE comd is the designated, operational-level commander who organizes assigned/attached forces to best accomplish the mission based on their vision and concept of operations. An FE comd normally exercises OPCOM of assigned forces. The FE comd provides direction and guidance on command and control relationships. The FE comd

⁷ DTB record 552.

normally gives the JFACC authority to accomplish assigned missions and tasks, including OPCON of assigned forces and TACON of other forces made available. Normally, the JFACC employs an air component coordination element (ACCE) to facilitate operational-level coordination and planning with the FE comd.

- b. **Joint force air component commander (JFACC).** The JFACC is the designated commander responsible for making recommendations to the FE comd on the proper employment of all assigned, attached, and made-available aerospace forces. A JFACC normally exercises OPCON of assigned forces. The JFACC is responsible for all aspects of the conduct of the air campaign, including the performing of command and staff functions, conducting joint and component planning, tasking, executing, and overseeing joint aerospace operations, and assessing the effectiveness of their operations and effects. To accomplish these responsibilities, the JFACC is supported by the CAOC. Depending on the scale of a given operation, the JFACC will recommend to the FE comd that C2 of aerospace forces remain with the JFACC or be delegated to an independent ACC or to another component commander (e.g., maritime helicopter OPCON to maritime component commander [MCC] or tactical helicopter to land component commander [LCC]) under the command of a joint task force commander (JTFC). The JFACC may deploy an ACCE to represent the JFACC at the JTF HQ / MCC / LCC / special operations component command (SOCC). In Canada, the JFACC is also the Comd CANR and is accountable to CDRNORAD to exercise C2 of all forces assigned or made available to the NORAD mission in the region.
- c. **Air component commander (ACC).** An ACC is the designated commander responsible for making recommendations to the JTFC on the proper employment of all assigned, attached, and made-available aerospace forces. An ACC normally exercises OPCON of assigned forces. The ACC is responsible for all aspects of the conduct of the air campaign, including the performing of command and staff functions, conducting joint and component planning, tasking, executing, and overseeing of joint aerospace operations, and assessing the effectiveness of their operations and effects. To accomplish these responsibilities, an ACC is supported by an ACHQ and a CAOC (either directly, or through reachback when the ACC is deployed forward with the ACHQ). An ACHQ

is comprised of a relatively small group of key personnel to aid the ACC in coordinating, planning, and liaising with the CAOC. An ACC may deploy an ACCE to represent the ACC at the JTF HQ/ MCC / LCC / SOCC when the ACC is physically separated.

- d. **2 Air Component Coordination Element (2 ACCE).** The 2 ACCE is the liaison and coordination organization that generates the capability to support the JFACC/ACC/CNC by performing operational-level coordination and planning at a deployed location. The 2 ACCE deploys an ACCE, led by an ACCE director, (designated by the JFACC), to support the JFACC/ACC/CNC as required. The 2 W Comd recommends to the JFACC the composition of each ACCE, based on operational requirements. The 2 ACCE represents a unique, deployable capability within the RCAF that supports the expeditionary mission.
- e. **Air Component Coordination Element (ACCE).** An ACCE is a liaison and coordination team assigned by the JFACC/ACC to support various commanders, capable of conducting operational-level coordination and planning, leveraging the capabilities of a CAOC to integrate air effects into the joint operations. Deploying an ACCE is an option when the JFACC/ACC/CNC is physically separated from the CAOC/AOC/JHQ. Tailored by the JFACC/ACC who defines their responsibilities, an ACCE is scalable in size and function. An ACCE performs operational-level planning and coordination in three specific instances at the following locations:
 - (1) **JTFHQ.** When the JFACC/ACC remains at the CAOC in Winnipeg, an ACCE deploys to the JTF HQ to liaise with the JTFC and other component commanders as required;
 - (2) **ACHQ.** An ACCE deploys to an ACHQ to support a deployed ACC;
 - (3) **allied/coalition CAOC and national command element (NCE).** An ACCE deploys to an allied/coalition CAOC and the Canadian NCE to support the deployed CNC.
- f. **ACCE director.** An ACCE is led by an ACCE director, whose role is to represent the JFACC/ACC/CNC throughout the planning and execution of joint operations. The ACCE director is delegated authority to recommend courses of action, and to ensure that assigned aerospace forces are employed effectively in accordance with JFACC/ACC/CNC guidance. The ACCE

director also performs the function of national representative at an allied/coalition CAOC on behalf of the CNC. The JFACC/ACC/CNC provides the air component coordination element (ACCE) director with specific guidance, clear expectations and the limits of their responsibilities. When deemed necessary to ensure timely tasking of assigned forces, the JFACC/ACC may delegate OPCON over assigned forces to an ACCE director.

- g. **Wing Commander (W Comd).** A tactical-level commander, the W Comd is subordinate to the JFACC and is assigned forces to enable the execution of assigned missions and tasks. A W Comd normally exercises TACOM of assigned forces. The W Comd is responsible for coordination between assigned forces and the CAOC, adjusting missions and tasks in coordination with the CAOC, and assigning tasks to assigned forces to support missions as required. The W Comd is supported by a WOC.
- h. **Air expeditionary wing commander (AEW comd).** When deployed on an expeditionary operation, a formation is commanded by an AEW comd. A tactical-level commander, the AEW comd is subordinate to the JFACC/ACC/CNC/JTFC and is assigned forces to enable the execution of assigned missions and tasks. An AEW comd normally exercises TACOM of assigned forces. The AEW comd is responsible for coordination between assigned forces and the CAOC, adjusting missions and tasks in coordination with the CAOC, and assigning tasks to assigned forces to support missions as required. The AEW comd is supported by a WOC.
- i. **Squadron commanding officer (sqn CO).** A tactical-level commander, subordinate to the W Comd or AEW comd, the sqn CO commands assigned forces, and plans and executes assigned missions and tasks. A sqn CO normally exercises TACOM of assigned forces during force employment operations.
- j. **Flight commander (flt comd).** A tactical-level commander, subordinate to the sqn CO, the Flt comd commands assigned forces, and plans and executes assigned missions and tasks. The authority and responsibility exercised by Flt comds are at the discretion of the sqn CO.
- k. **Sub-flight commander (sub-flt comd).** In aerospace operations, a sub-flight is commonly referred to as a section, team, crew, or by another similar name. A tactical-level commander, subordinate to the flt comd, the sub-flt comd commands assigned forces, and

plans and executes assigned missions and tasks. The authority and responsibility exercised by sub-flt comds are at the discretion of the sqn CO.

1. **Detachment commander (DETCO).** A tactical-level commander who commands a detachment. A DETCO normally exercises TACOM of assigned forces. A DETCO is subordinate to either a JFACC/ACC/CNC/JTFC or W Comd / AEW comd. A DETCO is supported by personnel to ensure coordination with assigned forces and the CAOC/ACHQ/WOC in order to execute the assigned mission.

| Appointment | C2 Authority | Supporting Staff | Liaison | Focus |
|-------------------------------|--------------------------------------|-------------------------------|--|---|
| JTF Comd | OPCOM | JTF Staff | Coordinates broadly theatre-wide Receives ACCE/LO | <ul style="list-style-type: none"> • Command the joint force • Operational planning of joint effects |
| JFACC or ACC | OPCON* | CAOC/AOC | Deploys ACCE/LO Receives LOs | <ul style="list-style-type: none"> • Commands air component • Operational-level integration of air effects into joint warfare • Assigns missions and tasks |
| ACCE Director | OPCON only if delegated by JFACC/ACC | ACCE or reachback to CAOC/AOC | Functions as the JFACC/ACC Liaison | <ul style="list-style-type: none"> • Operational-level integration of air effects into joint warfare in a defined theatre • Assigns missions and tasks |
| W Comd / AEW Comd / DETCO | TACOM | WOC | LO | <ul style="list-style-type: none"> • Commands assigned forces • Tactical-level planning and execution of missions and tasks |
| Squadron Commanding Officer | TACOM | Unit Personnel | LO | <ul style="list-style-type: none"> • Command unit • Tactical-level planning and execution of assigned missions and tasks |
| TACON Unit Commanding Officer | TACON | Unit Personnel | LO | <ul style="list-style-type: none"> • Tactical-level warfare • Controls assigned forces • Coordinates battlespace |

*The JFACC can seek OPCOM of specific aerospace forces from the FE comd.

Table 2-2. CF aerospace forces C2 structure in joint force employment

Considerations. The following factors must be carefully considered when determining the C2 construct of any operation.

- a. **Aerospace requirements for the FE comd and/or JTFC.** At all times, it is the responsibility of the JFACC to recommend the most appropriate organization of aerospace forces that meets the supported commander's priorities by optimizing aerospace effects, while respecting the tenets of aerospace power and the principles of war.
- b. **Span of control.** The ability to effectively manage the actions of subordinates is based on the number of subordinates, the number of activities, the range of weapon systems, and the size/complexity of the AOR.
- c. **Expertise.** The availability of both personnel expertise and C2 equipment and processes necessary to plan and prosecute the aerospace campaign. This factor includes the requirement to deploy the aerospace expertise forward.
- d. **Complexity and scope of operation.** There must be balance allowed between the overall campaign focus and the directing of air operations based on the complexity and the scope of joint aerospace operations.
- e. **Authority, responsibility, accountability and C2 relationships.** Commanders must have clearly articulated assigned authorities, responsibilities, and accountabilities. Clarity is required at all levels of command and must be enunciated by all commanders in guidance to subordinate commanders. The effective employment of available/assigned aerospace forces/capabilities must be optimized at all levels. Ultimately, the JFACC remains the authority to recommend the best application of aerospace forces with consideration for mission type, joint operations, and unique C2 relationships that might be required.
- f. **Ability to reachback.** Depending upon the scale of an operation, it may not be practical to deploy an AOC with the ACC. Reachback leverages the capabilities of the AOC/CAOC to support the ACC. A deployed ACC or other commander employs the concept of reachback when they rely upon an AOC or CAOC to provide for aspects of the conduct of the air campaign. Reachback support can include performing staff functions, conducting joint and component planning, tasking, executing and overseeing joint aerospace operations, and assessing the effectiveness of operations and effects.

- g. **Duration.** The length of the operations is important as far as sustaining FG commitments.

RCAF COMMAND AND CONTROL STRUCTURE

The FE comds organize forces to accomplish the mission based on their vision and CONOPS and provide direction and guidance on command relationships. Aerospace forces should be organized for coordinated action with the internationally accepted best air force C2 practices, as well as being in concert with CF principles of command, and the CF tenets of aerospace power.

There are two basic organizational structures that can be selected by the FE comd to bring to bear the optimal aerospace power effects while retaining the key aerospace tenet of centralized control / decentralized execution. Throughout both options, Comd 1 Cdn Air Div retains residual authorities, including operational airworthiness and flight safety. In the capacity as JFACC, the Comd 1 Cdn Air Div recommends the air C2 structure for CF operations to the FE comd. At the tactical level, it should be noted that each of the two constructs requires the establishment of a formation with the mandate to focus on the tactical level of warfare, which is the execution of assigned tasks. The TACOM of assigned forces therefore resides with the W Comd, AEW comd, or DETCO.

The JFACC is normally delegated OPCOM of high demand / low density (HD/LD) assets such as inter-theatre air mobility and strategic intelligence, surveillance and reconnaissance (ISR), as well as air sovereignty assets. For such assets, specific relationships with the FE comd and ultimately with the JTFC will be established as required. For example, TACOM of HD/LD assets may be made available by the JFACC to the JTFC via the ACC/ACCE director. The JFACC can also delegate command and control authority to land and maritime component commanders when practical.

Each of these structures is described below with respect to organizing authorities, C2 architecture, and subordinate force C2 relationships.

- a. **JFACC roles and responsibilities are delegated to a deployed ACC.** The first option is to assign the roles and responsibilities to develop the operational-level plan (air campaign plan) to an ACC assigned to a JTFC. The operational-level C2 is exercised by the ACC assigned to a JTFC.
 - (1) **Organizing authority.** Within the parameters established by the CDS, the Comd RCAF transfers OPCOM of forces to the FE comd who then appoints an ACC. In this option, the JFACC recommends to the FE comd the designation of

an ACC who is responsible to plan and assign missions and tasks, and to execute, monitor, and assess air operations.

- (2) **C2 architecture.** This C2 structure will be determined by the FE comd upon advice from the JFACC. In this C2 structure, the ACC reports directly to the JTFC. The ACC is supported by the CAOC either directly (ACC located with CAOC) or through reachback (ACC deployed forward). The ACC can employ reachback, as required, for the full spectrum of capabilities associated with the CAOC. In order to better integrate air effects into the overall operation, the ACC should send ACCEs as required to other HQs, including the JTF HQ and those of the MCC, LCC, SOCC, and support component commander. When employing reachback, a deployed ACC will be supported by an ACHQ.
- (3) **Subordinate force C2 relationships.** The ACC normally exercises OPCON of assigned aerospace forces.

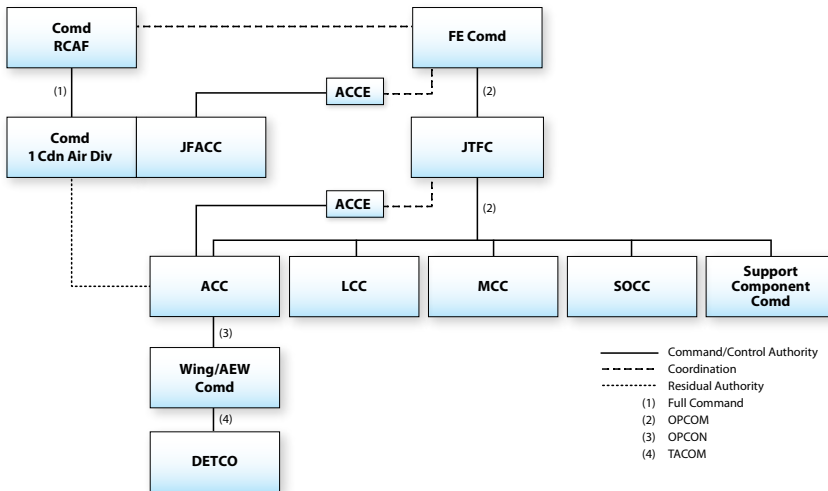


Figure 2-3. C2 structure employing an air component commander^{8,9,10}

- b. **JFACC performs ACC roles and responsibilities.** In order to better integrate air effect into the overall operation, the JFACC should send ACCEs as required to other HQs, including the

⁸ The ACC is responsible to plan, task, execute, monitor, and assess aerospace operations, and reports directly to the JTFC.

⁹ The FE comd, upon advice from JFACC, delegates command and control authority to component commanders as required (e.g., maritime helicopters OPCON to MCC / naval mission element [msn elm] or tactical helicopters OPCON to LCC / land msn elm).

¹⁰ During certain C2 arrangements recommended by the JFACC and approved by the FE comd, a DETCO can be directly responsible to the JFACC/ACC. Such a situation can exist when a DETCO performs a C2 function on behalf of the JFACC/ACC and is not subordinate to a W Comd / AEW comd, or when an AEW comd is not deployed and a DETCO assumes TACOM of assigned forces.

JTF HQ and those of the MCC, LCC, SOCC, and support component. The operational level C2 is exercised by the JFACC in support of a supported commander.

- (1) **Organizing authority.** Within the parameters established by the CDS, the Comd RCAF transfers OPCOM of forces to the FE comd. In this option, the JFACC recommends to the FE comd that the JFACC be responsible to plan and assign missions and tasks, execute, monitor, and assess air operations.
- (2) **C2 architecture.** The JFACC should establish one or more ACCEs with other comds' HQs to better integrate aerospace operations with joint operations. Although always responsible to the FE comd for all Canadian aerospace operations (domestic or expeditionary), in this construct the JFACC is given a supporting relationship to the supported commander and must ensure the aerospace campaign plan is not only coordinated but also complimentary to that of the supported commander. The requirement for reachback to the CAOC is a critical consideration since the C2 of aerospace forces is executed from a geographically separated location.
- (3) **Subordinate force C2 relationships.** The JFACC normally exercises OPCON of all aerospace forces. The responsibility of the ACCE is tailored by the JFACC to address the requirements of the JTFC and the level of C2 authorities, if any. The W Comd / AEW comd are responsive to the missions and tasks assigned by the JFACC.



CF Photo: Sgt Matthew McGregor

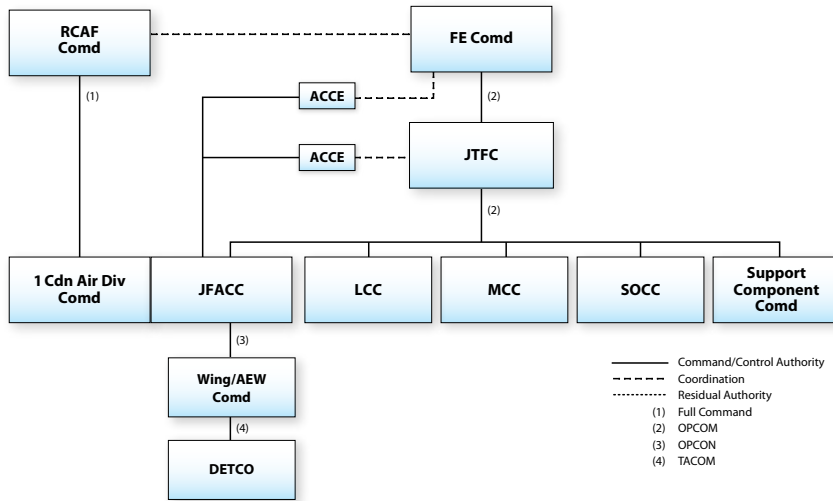


Figure 2-4. C2 structure employing the JFACC^{11,12,13,14}

RCAF COMMAND AND CONTROL IN AN EXPEDITIONARY COMBINED ENVIRONMENT

Canadian aerospace forces provide the operational flexibility needed to accomplish missions across a broad range of expeditionary military operations. This flexibility extends the operational reach of the FE comd and enables the accomplishment of operational objectives designed to meet strategic goals. Canadian aerospace forces facilitate integrated command and control (Command function); provide fires (Shape); enhance mobility and manoeuvre (Move); provide surveillance, reconnaissance, and intelligence collection, processing and dissemination (Sense); provide force protection (Shield); and, support and resupply (Sustain). Canadian aerospace forces are generated with an expeditionary character in that they are designed to conduct aerospace operations far from MOBs, and to operate effectively in an integrated nature within national, allied, or coalition force structures. Canadian Forces aerospace operations offer deployed commanders significant capability and flexibility during expeditionary operations. The C2 organizational structure that ensures mission accomplishment across a range of expeditionary operations is aligned with the CF C2 doctrinal model. This C2 structure and its relationships are similar to those of our traditional allies, namely the United States (US) and NATO member countries. The CF contributes to two different types of expeditionary operations: allied and coalition operations.

11 The JFACC and all aerospace forces are in a support relationship with the supported commander.

12 Responsibility of ACCE is tailored by JFACC to the supported commander's needs (e.g., level of C2 authorities).

13 The FE comd, upon advice from JFACC, delegates command and control authority to component commanders as required (e.g., maritime helicopters OPCON to MCC, or tactical helicopters OPCON to LCC).

14 See footnote 10 (Figure 2-3).

- a. **Allied operations** are normally joint, combined operations based on previously existing formal agreements,¹⁵ procedures, and standards. Allied operations are those that are performed with NATO, the US, Australia, and New Zealand. Operation ALLIED FORCE is an example of an allied operation.
- b. **Coalition operations** are normally joint, “combined operations based on ad hoc agreements, standards and procedures.”¹⁶ The International Security Assistance Force (ISAF) is an example of a coalition operation.

CANADIAN AEROSPACE FORCES AS PART OF AN ALLIANCE/ COALITION THEATRE AIR COMPONENT

The task force concept as per *CFJP 3.0*¹⁷ is a temporary grouping of units under one commander formed for the purpose of carrying out a specific operation, mission, or task. In this construct, the Canadian national command authority is delegated by the CDS to the FE comd, who normally delegates OPCOM of all assigned CF aerospace, land, maritime, and special operations forces to the CNC/JTFC. The CNC/JTFC is supported by an NCE which will normally include an ACCE, who will advise on all CF aerospace operations. The CNC/JTFC delegates OPCON of assigned CF aerospace, land, maritime, and special operation forces to the allied/coalition joint force commander (CJTFC). The JFACC in Canada retains the role of senior air advisor to the FE comd. The Comd 1 Cdn Air Div retains residual authorities, including operational airworthiness and flight safety, for all CF aerospace forces.



CF Photo: Cpl Darcy Lefebvre

¹⁵ See DTB record 35677.

¹⁶ DTB record 35678.

¹⁷ *CFJP 3.0, Operations.*

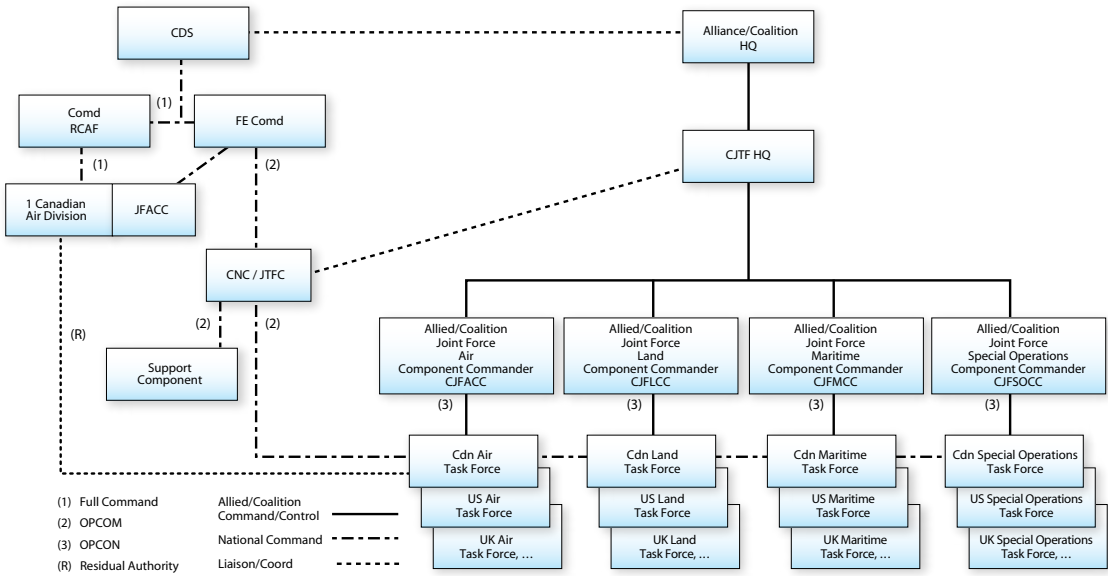


Figure 2-5. Canadian aerospace forces as part of an alliance/coalition theatre air component

CANADIAN AEROSPACE FORCES AS PART OF A CANADIAN JOINT TASK FORCE

The C2 structure of a Canadian JTF must be designed to best suit the operation. Normally, the FE comd will delegate OPCOM of assigned forces to the CNC/JTFC, who will delegate OPCON of aerospace forces to the JFACC/ACC, using the component command method as detailed in Figures 2-3 and 2-4. Alternatively, the FE comd may elect to employ the direct command method, where the CNC/JTFC retains both OPCOM and OPCON of assigned forces. In this construct, the integration of air effects into the joint environment will be performed by an ACCE generated by the JFACC.

In the direct command method, the CNC/JTFC will exercise OPCOM of the ACCE. The ACCE director will advise the CNC/JTFC of the best employment of assigned aerospace forces to accomplish required missions/tasks. The ACCE team will support the ACCE director in four distinct roles as applicable: planning and coordinating the employment of assigned aerospace forces; liaising with the Canadian CAOC through reachback; liaising with the allied/coalition CAOC to ensure Canadian missions/tasks are coordinated at the theatre level; and liaising/coordinating with subordinate tactical-level commanders such as an AEW comd / DETCO to ensure clarity of assigned missions/tasks.

NORAD AND THE COMMAND AND CONTROL OF AEROSPACE FORCES

In addition, the CF conducts operational planning and executes continental operations in conjunction with the US through NORAD. The C2 of aerospace forces assigned to the NORAD mission is executed through distinct agreements and procedures. The CDRNORAD is responsible to both the President of the United States and the Prime Minister of Canada, and exercises command and control of HQ NORAD and the three NORAD regions.

As the Comd CANR, Comd 1 Cdn Air Div is accountable to CDRNORAD to exercise operational control over all forces assigned or made available for air defence in the region. The Comd CANR executes the control of assigned aerospace forces through the CAOC at 17 Wg Winnipeg and the CADS at 22 Wg North Bay.

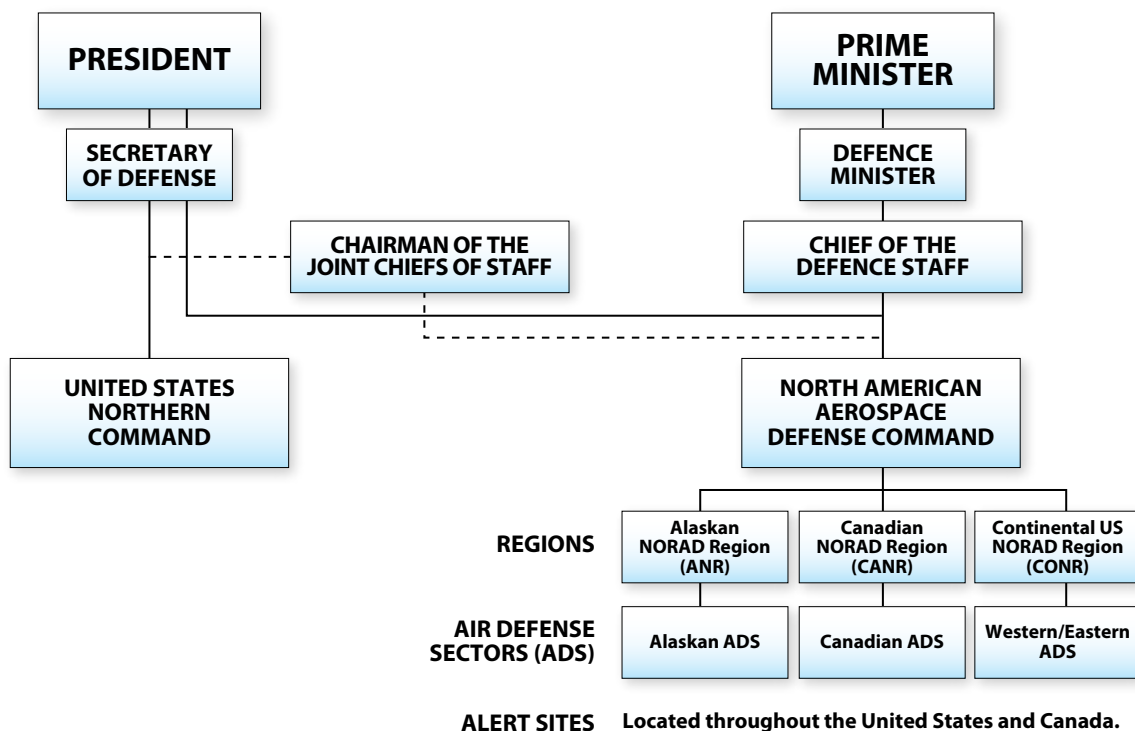


Figure 2-6. Canadian aerospace forces as part of NORAD

CHAIN OF COMMAND

The chain of command always has absolute priority and as the only source of command authority is the only reporting chain that may be referred to by the term “chain of command.”

- a. **Operational chain of command.** The chain of command for FE purposes is as depicted in Figures 2-3, 2-4, and 2-5 above. In all cases, the CDS directs that aerospace forces be assigned to the FE comd for operational employment. The Comd RCAF directs the Comd 1 Cdn Air Div to transfer OPCOM of specified forces to the FE comd. The JFACC always supports the FE comd by acting as the senior advisor for the employment of aerospace forces. Further:
 - (1) **Domestic operations.** The JFACC/ACC will exercise OPCON of all assigned CF aerospace forces during domestic FE operations in order to support the objectives of the JTFC.
 - (2) **Coalition operations.** When operating within a multinational coalition, the RCAF will follow two distinct command relationships. At all times, RCAF personnel are under the OPCOM of the CNC. OPCON will be exercised over RCAF personnel by the individual designated as the coalition C/JFACC.
- b. **Institutional chain of command.** This chain of command is similar to the operational chain of command but is used for FG. The main difference between the two chains of command is at the higher headquarters where the Comd 1 Cdn Air Div is accountable to the Comd RCAF for FG. In addition, there is no FG done by an AEW comd.
- c. **NORAD chain of command.** The NORAD Agreement establishes that CDRNORAD is responsible to the Government of the United States, communicating through the Chairman of the Joint Chiefs of Staff of the United States, and to the Government of Canada through the CDS.¹⁸ As mentioned earlier, Comd 1 Cdn Air Div is also Comd CANR, and is accountable to CDRNORAD to exercise operational control over all forces allocated or made available for air defence in the region.

¹⁸ Chief of the Defence Staff, “Interim Directive on CF Command and Control and Delegation of Authority for Force Employment,” 9 July 2009, <http://vcds.mil.ca/cas/dmcs2005/FilesO/DMCS-22197.pdf> (accessed 9 February 2012).

SUMMARY

How aerospace forces are grouped, and in particular how they interrelate, powerfully affect the operation of C2. Command relationships must be clearly articulated and adhered to in order to regulate the interaction of all entities in the system. Likewise, the different roles and responsibilities of the various reporting chains must be clearly understood so as not to blur command relationship



CF Photo: Lt Jennifer Jackson

CHAPTER 3

ELEMENTS OF COMMAND AND CONTROL

*If our air forces are never used,
they have achieved their finest goal.*

General Nathan F. Twining

COMMAND AND CONTROL SYSTEMS

Effective C2 requires a range of capabilities, both technical and—even more importantly—human. The C2 systems are made up of the following three constituent elements:

- a. **People.** As C2 is a process practiced by people, they become the most important component in the C2 system. In particular, properly trained and qualified personnel are critical to handling the complex tasks involved in the operation of the C2 system itself.
- b. **Infrastructure.** Equipment, in particular in information technology, is the most obvious element of a C2 system. Infrastructure requirements also include the lodgings and necessary utilities for headquarters and operations centres.
- c. **Processes.** Many specific processes have been developed to enable effective C2. These are intended to facilitate the flow of information and to support command decision making. The operational planning process (OPP) is one example of a C2 process.

AEROSPACE OPERATIONS CENTRE

Aerospace operations centre. An AOC is the entity upon which the ACC relies to provide situational awareness, control of aerospace forces, and the planning process to execute successful operations. An AOC cannot simply be an ad hoc grouping of personnel and communications systems, but should be treated as a synergistic whole, and

- a. equipping, manning, and training the AOC should be standardized;
- b. operational procedures should be formally controlled;
- c. a deliberate approach to equipping and supporting the AOC should be pursued; and
- d. the ACC must approve of changes and improvements pertaining to the AOC and its processes.

INFORMATION MANAGEMENT

Information flow is a critical component of an effective C2 process. Examples include information about the situation acquired via the Sense function, and the processing of that information within a headquarters to produce understanding, decisions, and ultimately, plans, and the dissemination of those plans. Indeed, plans themselves take the form of information that constitutes direction and coordination. Because information is so central to

C2, and because modern information processing capabilities can produce a large volume of information, people can easily become overwhelmed with data, causing them to potentially miss critical items. Management of this mass of information is critical to effective C2. Information during aerospace operations is managed through the establishment of a battle rhythm. The battle rhythm fixes a standard flow of information and products on a cycle, defined by the commander. This rhythm permits all participants to synchronize their efforts with that of the commander.

In order to better manage the large volume of information present in C2 systems, it is important to distinguish between two fundamentally different purposes for which information can be utilized:

- a. **Direction.** The most important use to which information can be put is to direct and coordinate actions in the execution of the decision.
- b. **Understanding.** Comprehending the situation is the basis for sound and timely decision making.

The first purpose (direction) is executive. The second purpose (understanding) is a continuous background activity to maintain situational awareness. The basic category into which any piece of information falls will heavily influence how it is managed, and in many cases how it is processed, transmitted, and stored by information systems. For instance, much information for understanding will be generated and used by staff and is rarely seen by a commander. Directive information, on the other hand, requires command authority, and in most cases must be appropriately highlighted and preserved for the record.

COMMUNICATION SYSTEMS

The following three principles apply to the design and operation of communication systems for C2:

- a. **Interoperable.** In contemporary operations, which are almost always undertaken in a coalition and feature a comprehensive approach, interoperability with other entities is critical. Communication systems must be capable of accommodating this challenging requirement while maintaining protection.
- b. **Agile.** Agility is a fundamental principle of aerospace mission support in general, and applies especially to communication systems, which must be responsive and flexible to meet operational requirements.

- c. **Trusted.** Commanders, staffs, and other users must be able to rely on communication systems both to protect the information they contain and to continue effective operations even under austere conditions and stress.

Effective C2 requires protecting information and information systems from destruction, disruption, and corruption, as well as safeguarding from intrusion and exploitation. All users must ensure that they adequately protect their information and information systems, or operational security may be compromised. Inevitably, this will involve trade-offs between ease of use of the system and security. Such trade-offs should be made as thoughtful command decisions, which are then articulated as an information protection plan and enforced across the system.

HEADQUARTERS AND STAFF SYSTEMS

Because a commander as an individual could not possibly cope with the myriad of details and technicalities attending aerospace operations, headquarters are established to provide the machinery for effective C2 at all levels above the very lowest. Headquarters can take various forms, from the headquarters of a small detachment with very few people (who are possibly employed only part-time in the headquarters function) using little more equipment than a telephone, radio, or laptop, to large organizations with complex operations centres at the higher formation level. Regardless, the role of a headquarters is to provide the machinery for effective C2 by the commander in question.

In general, headquarters will consist of a staff and a dedicated operations centre or command post. At the operational level, the staff is organized under the continental system as an A-staff, and the operations centre is constituted as an AOC. The AOCs are the dedicated organizations with the C2 systems necessary to control the execution of aerospace operations in detail. At lower tactical levels, small operations centres (or command posts) are often established at squadron and wing level. Regardless of the level of command or their size and complexity, operations centres are sufficiently unique and important that they should be treated as a distinct entity from the staff within a headquarters. Greater detail on headquarters, command, and staff systems, and AOCs will be provided within B-GA-401-002/FP-001, *Canadian Forces Aerospace Command and Control Processes*.

LINE AND STAFF DISTINCTION

There is a fundamental distinction between line and staff personnel and their functions. The term “line officer” is used to refer to “an officer with

command authority.”¹ In practical terms, this means a line officer is engaged in or directly supervising the actual conduct of aerospace operations.

Staff officers, regardless of rank, have no inherent authority over the staffs of subordinate headquarters or the line officers of squadrons and units. Executive orders should always be issued down the chain of command, not by staff officers. Although many (or even most) routine matters may be mediated by staffs, commanders always have the right of direct access to their immediately superior commander. Subordinate commanders may utilize this privileged command relationship to challenge the work of higher headquarters staffs with their commander.

Administrative or logistic responsibilities may follow a different channel from the chain of command, in particular, the administrative control relationships. It should be noted that when administrative relationships do not follow the operational chain of command, the operational chain of command retains primacy.

Many technical networks have their own independent reporting chains. For example, many air maintenance issues are dealt with between air maintenance staffs at different levels, and there is useful routine coordination by staff parallelism; such as staffs coordinating with their opposite numbers at higher and lower levels J3 to A3. Technical chains are particularly prominent in aerospace operations for issues such as airworthiness and flight safety. These relationships are indispensable for coordination of the myriad technical issues involved in aerospace operations, but it must be understood that they do not have executive authority and shall never supersede the operational chain of command. Commanders may delegate authority for controls to be exercised through a technical chain, but should never delegate command authority to a technical chain. (Note: because J3s/A3s are staff officers and not commanders or deputy commanders, the J3/A3 chain is a staff chain, and should not be confused with the operational chain of command.)

DECISIONS AND PLANNING PROCEDURES

Various procedures have been developed to assist commanders and staff in their work to produce an air operations plan by providing logical, comprehensive, step-by-step approaches to command and staff work. The OPP is such a procedure and is primarily applicable at the operational level, although it can be used at all levels (strategic, operational, and tactical) in order to integrate the results of individual commanders and their respective staff estimates. It concerns the internal activities of a

¹ DTB record 41466.

headquarters to generate a plan that takes into account the resources and functions required to meet the operational objectives. Authoritative CF doctrine for OPP may be found in the *Canadian Forces Joint Publication (CFJP) 5.0*, which is fully applicable in the air and space environment. Higher headquarters such as 1 Cdn Air Div utilize the OPP.² The purpose of this section is to introduce the concept of the OPP, but as mentioned above, the *CFJP 5.0* provides the details of OPP for aerospace operations.³

OPERATIONAL PLANNING PROCESS

The OPP enables the commander to translate strategy and goals into a unified operational plan by describing how operations and logistics will be used to achieve success within a given space and time. The planning process consists of five stages, leading from the initiation of planning through to plan review. It is cyclical, as necessary, to keep a plan current. The five stages of the OPP are as follows: initiation, orientation, course of action (COA) development, plan development, and plan review.

The initiation stage commences when direction to begin the planning process is received from higher headquarters, often in the form a warning order, which should also indicate whether a rapid response or deliberate planning is required. The orientation stages comprise a detailed mission analysis, the development of a mission statement, and finally, the commander's planning guidance. The course of action development is based on the direction contained in the commander's planning guidance that will lead the staff to the development of COAs. During crisis action planning, there could possibly be only one COA presented to the commander, but in general there are a number of COAs developed. The various COAs developed are presented to the commander during a decision brief for the selection of a preferred COA. Following the decision on the commander's preferred COA, a plan is developed. To ensure the plan remains current, periodic review should be carried out. The first three stages of the OPP—initiation, orientation, and COA development—are also known as the estimate process.

² Note that there is a NORAD variant of OPP followed by NORAD Headquarters. Similarly, a NATO variant exists, but the principles are essentially the same.

³ For a detailed explanation of RCAF OPP, see B-GA-401-002.

OTHER NECESSARY CAPABILITIES

Aerospace forces may use the concept of reachback to support forces deployed or operating in place from multiple locations. Reachback is “the means by which a deployed force receives support from [its own national] organizations external to the area of responsibility.”⁴ Communication and information systems should provide a seamless information flow to and from forward and rear locations. The intent of reachback is to give the forward deployed commander the support necessary to conduct operations while maintaining a smaller deployed footprint, so as to support forces forward, not to command operations from the rear.

Effective reachback for C2 requires robust connectivity from the forward location and an available staff in the rear location to provide the support. There may also be a need to carefully manage command relationships, as the forward deployed aerospace forces may not be under the same command as the supporting rearward elements.



4 DTB record 37303.

CF Photo: Cpl Marc-André Gaudreault

COMMAND AND CONTROL TRAINING

As stressed earlier in this chapter, C2 is more a question of human interaction than of technical systems. Therefore, proper training of personnel employed in C2 is critical. This will not simply happen—it must be planned for and emphasis placed upon it. Continual training is crucial to maintain proficiency; the exercise of sound C2 principles and processes by commanders and their HQ/AOC staffs take as much practice as good flying skills. Commanders should ensure that sufficient quantities of the following types of training are conducted:

- a. **Individual training.** Personnel employed in C2 systems (such as the battle staff of an AOC) require specific qualification training and continuation training in order to be proficient in their duties. Additionally, supplemental training may be required when warranted by new procedures, hardware, or software affecting operational equipment.
- b. **Collective training.** Regular exercises should be held to practice these C2 skills in as realistic a fashion as possible. Command-post exercises and computer-assisted exercises can often be utilized for collective training in C2.



SUMMARY

Commanders and their supporting staffs at all levels require an appreciation for the elements of command and control in order to effectively exercise C2 of aerospace forces. The people, organizations, equipment, and processes that constitute the C2 structure, although unique to aerospace operations, are fundamental to the successful integration of air effects in the joint operations environment.

GLOSSARY

All the definitions contained in this glossary are derived from the *Defence Terminology Bank* (DTB), <http://terminology.mil.ca/>.

administrative control (ADCON)

Direction or exercise of authority over subordinate or other organizations in respect to administrative matters such as personnel management, supplies, services, and other matters not included in the operational missions of the subordinate or other organizations. (DTB record 3289)

aerospace operation

An activity, or series of activities, related to the planning and application of aerospace power to achieve assigned objectives. (DTB record 37248)

aerospace power

That element of military power that is applied within or from the air and space environments to achieve effects above, on, and below the surface of the Earth. (DTB record 34078)

campaign

A set of military operations planned and conducted to achieve a strategic objective within a given time and geographical area, which normally involves maritime, land and air forces. (DTB record 18743)

close support (CS)

That action of the supporting force against targets or objectives which are sufficiently near the supported force as to require detailed integration or coordination of the supporting action with the fire, movement, or other actions of the supported force. (DTB record 406)

coalition

An ad hoc agreement between two or more nations for a common action. (DTB record 21755)

coalition operation

A combined operation based on ad hoc agreements, standards and procedures. (DTB record 35678)

combat operation

A military operation where the use or threatened use of force, including lethal force, is essential to impose will on an armed opponent or to accomplish a mission. The actual level of force used will be in accordance with specified rules of engagement. (DTB record 21754)

combined

Adjective used to describe activities, operations and organizations, in which elements of more than one nation participate. (DTB record 18750)

Command

The operational function that integrates all the operational functions into a single comprehensive strategic, operational or tactical level concept. (DTB record 26166)

command

The authority vested in an individual of the armed forces for the direction, coordination, and control of military forces. (DTB record 27866)

command and control (C2)

The exercise of authority and direction by a commander over assigned, allocated and attached forces in the accomplishment of a mission. (DTB record 5950)

commander (comd)

An officer appointed to command a military organization such as a command, formation or a base.

Note: this term could also apply to an officer or non-commissioned member appointed to command a sub-unit, a section or a detachment. (DTB record 350)

commander's intent

The expressed rationale, method and desired end state of an operation or campaign that assures unity of purpose. (DTB record 32716)

control (con)

The authority exercised by commanders over part of the activities of subordinate organizations, or other organizations not normally under their command, which encompasses the responsibility for implementing orders or directives.

Note: All or part of this authority may be transferred or delegated. (DTB record 375)

doctrine

Fundamental principles by which the military forces guide their actions in support of objectives. Note: It is authoritative but requires judgment in application. (DTB record 1761)

force employment (FE)

1. At the strategic level, the application of military means in support of strategic objectives.
2. At the operational level, the command, control and sustainment of allocated forces. (DTB record 32173)

force generation (FG)

The process of organizing, training and equipping forces for force employment. (DTB record 32171)

full command

The military authority and responsibility of a commander to issue orders to subordinates. It covers every aspect of military operations and administration and exists only within national services. Note: The term “command,” as used internationally, implies a lesser degree of authority than when it is used in a purely national sense. No NATO or coalition commander has full command over the forces assigned to him since in assigning forces to NATO, nations will delegate only operational command or operational control. (DTB record 4340)

integrated

Said of activities, operations and organizations in which military and non-military elements combine to achieve goal through coordinated and complementary efforts. (DTB record 41415)

joint

Said of activities, operations and organizations in which elements of at least two components participate.

Note: The components are maritime, land, air and special operations. (DTB record 35248)

line officer

An officer with command authority. (DTB record 41466)

operational command (OPCOM)

The authority granted to a commander to assign missions or tasks to subordinate commanders, to deploy units, to reassign forces, and to retain or delegate operational and/or tactical control as the commander deems necessary.

Notes:

1. Operational command does not include responsibility for administration.
2. In the NATO definition, the expression “to reassign forces” is used rather than “to allocate forces.” (DTB record 19477)

operational control (OPCON)

The authority delegated to a commander to direct allocated forces to accomplish specific missions or tasks that are usually limited by function, time, or location, to deploy units concerned, and to retain or delegate tactical control of those units.

Notes:

1. Operational control does not include authority to assign separate employment of components of the units concerned, neither does it, of itself, include administrative or logistic control.
2. In the NATO definition, the expression “forces assigned” is used rather than “allocated forces.” (DTB record 1056)

reachback

The means by which a deployed force receives support from organizations external to the area of responsibility. (DTB record 37303)

spectrum of conflict

The full range of relationships between states or groups, reflecting the frequency and intensity of violence. (DTB record 35238)

staff officer (SO)

A person assisting a commander, or senior officer, or filling a specific position within the staff. (DTB record 1349)

supported command

A command that receives forces or other support from another command and has primary responsibility for all aspects of an assigned task. (DTB record 32319)

supported commander

A commander who has the primary responsibility for all aspects of an assigned military task and has the authority to give general direction for supporting efforts.

Note: The relationship between supported and supporting commanders does not constitute a formal command relationship. (DTB record 37280)

supporting command

A command that provides forces or other support to another command. (DTB record 32320)

supporting commander

A commander who provides a supported commander with forces, capabilities or other support and/or who develops a supporting plan. Note: The relationship between supported and supporting commanders does not constitute a formal command relationship. (DTB record 37281)

tactical command (TACOM)

The authority delegated to a commander to assign tasks to forces under his command for the accomplishment of the mission assigned by higher authority. (DTB record 5491)

tactical control (TACON)

The detailed and, usually, local direction and control of movements or manoeuvres necessary to accomplish missions or tasks assigned. (DTB record 5493)

task force (TF)

A temporary grouping of units, under one commander, formed for the purpose of carrying out a specific operation or mission. (DTB record 1457)

LIST OF ABBREVIATIONS

| | |
|---------------|---|
| 1 Cdn Air Div | 1 Canadian Air Division |
| 2 ACCE | 2 Air Component Coordination Element |
| 2 Cdn Air Div | 2 Canadian Air Division |
| ACC | air component commander |
| ACCE | air component coordination element |
| ACHQ | air component headquarters |
| ADCON | administrative control |
| ADS | air defence sector |
| AEW | air expeditionary wing |
| AEW Comd | air expeditionary wing commander |
| AFDT Div | Air Force Doctrine and Training Division |
| Air Div | air division |
| AOC | aerospace operations centre |
| AOR | area of responsibility |
| ASOC | air support operations centre |
| ATO | air tasking order |
| C/JFACC | combined joint forces air component commander |
| C2 | command and control |
| CADS | Canadian Aerospace Defence Sector |
| CAOC | Combined Aerospace Operations Centre |
| Cdn | Canadian |
| CDRNORAD | Commander NORAD |
| CDS | Chief of the Defence Staff |
| CF | Canadian Forces |
| CFAWC | Canadian Forces Aerospace Warfare Centre |
| CFJP | Canadian Forces Joint Publication |
| CJTF HQ | combined joint task force headquarters |
| CNC | Canadian national commander |
| CO | commanding officer |
| COA | course of action |
| COC | combat operations centre |

| | |
|--------------------|--------------------------------------|
| comd | commander |
| Comd 1 Cdn Air Div | Commander 1 Canadian Air Division |
| Comd 2 Cdn Air Div | Commander 2 Canadian Air Division |
| Comd CANR | Commander NORAD Region |
| Comd RCAF | Commander Royal Canadian Air Force |
| CONOPS | concept of operations |
| CRC | control and reporting centre |
| DETCO | detachment commander |
| elm | element |
| FAC | forward air controller |
| FE | force employment |
| FE comd | force employment commander |
| FG | force generation |
| flt | flight |
| flt comd | flight commander |
| HD | high demand |
| HQ | headquarters |
| JAOC | joint air operations centre |
| JFACC | joint forces air component commander |
| JTF | joint task force |
| JTFC | joint task force commander |
| JTF HQ | Joint Task Force Headquarters |
| LCC | land component commander |
| LD | low density |
| LO | liaison officer |
| MCC | maritime component commander |
| MOB | main operating base |
| NATO | North Atlantic Treaty Organization |

| | |
|---------|--|
| NCE | national command element |
| NORAD | North American Aerospace Defence Command |
| OPCOM | operational command |
| OPCON | operational control |
| OPP | operational planning process |
| RCAF | Royal Canadian Air Force |
| sect | section |
| SQOC | squadron operations centre |
| SOCC | special operations component command |
| Sqn/sqn | squadron |
| sqn CO | squadron commanding officer |
| TACOM | tactical command |
| TACON | tactical control |
| TACP | tactical air control party |
| TACS | theatre air control system |
| UK | United Kingdom |
| US | United States |
| W Comd | wing commander |
| Wg | wing |
| WOC | wing operations centre |

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