ROYAL CANADIAN AIR CADETS

PROFICIENCY LEVEL THREE

INSTRUCTIONAL GUIDE

SECTION 6

EO C360.06 – EXPLAIN ASPECTS OF AIR TRAFFIC SERVICES (ATS)

Total Time: 30 min

PREPARATION

PRE-LESSON INSTRUCTIONS

Resources needed for the delivery of this lesson are listed in the lesson specification located in A-CR-CCP-803/PG-001, Chapter 4. Specific uses for said resources are identified throughout the instructional guide within the TP for which they are required.

Review the lesson content and become familiar with the material prior to delivering the lesson.

Photocopy the handouts located at Annexes J and K for each cadet.

PRE-LESSON ASSIGNMENT

N/A.

APPROACH

An interactive lecture was chosen for TPs 1 and 3 to clarify, emphasize and summarize aspects of ATS.

An in-class activity was chosen for TP 2 as this is an interactive way to reinforce the difference between ATC clearances and ATC instructions.

INTRODUCTION

REVIEW

N/A.

OBJECTIVES

By the end of this lesson the cadet shall have explained aspects of ATS.

IMPORTANCE

It is important for cadets to know that ATS is the provision of control and information services and that it is required to maintain a safe and efficient air transport system. Personnel working at an aerodrome need to be aware of the types of services provided at the aerodrome and to be prepared to communicate with the appropriate ATS unit to ensure smooth and safe operations.

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Teaching point 1 **Explain Types of ATS**

Time: 10 min Method: Interactive Lecture

AIR TRAFFIC SERVICES (ATS)

A wide variety of services are provided to pilots and aircraft. Control and information services are both included in this category.

Air Traffic Control (ATC)

ATC service has been established primarily for the prevention of collisions and the efficient flow of traffic. The provision of ATC service will take precedence over the provision of flight information services. ATC service ensures separation between aircraft, especially those that are operating under instrument meteorological conditions (IMC). ATC service is provided to aircraft during all phases of flight and on the ground at busy aerodromes.

Information Services

Information that could be relevant to the safety of a flight is provided to pilots as it becomes available. Sometimes, ATC service suggestions are included. It is up to the pilot to make decisions based on a suggestion. Information provided includes:

- severe weather conditions along the proposed route of flight,
- changes in the serviceability of navigation aids,
- weather conditions reported or forecasted at destination or alternate aerodromes,
- changes in the serviceability of navigation aids,
- condition of airports and associated facilities, and
- other items considered pertinent to the safety of the flight.

Advisory Services

At uncontrolled aerodromes, the information listed below is provided by advisory services (if appropriate) during initial aerodrome advisory communications:

- active or preferred runway,
- wind direction and speed,
- air traffic that warrants attention,
- vehicle traffic,
- wake turbulence cautionary,
- aerodrome conditions,
- weather conditions, and
- additional information of interest for the safety of flight.

Alerting Services

When an aircraft declares an emergency, alerting services notifies the appropriate agency to provide emergency standby services. If an aircraft becomes overdue, search and rescue (SAR) agencies can be

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notified. Alerting a responsible authority of any unlawful interference (hijack), bomb threat or inability to communicate is also included in this service.

Briefing Services

Briefing services, provided by flight service specialists, consult on meteorological and aeronautical information to assist pilots in pre-flight planning. The flight service specialist adapts meteorological information, including satellite and radar imagery, to fit the needs of flight crew members and operations personnel and provides consultation and advice on special weather problems.

Notice to Airmen (NOTAM) Services

NOTAM services collect information from pilots, aerodrome operators and aeronautical facilities operators and distribute as required and requested. This includes Runway Surface Condition (RSC) reports and Canadian Runway Friction Index (CRFI) information.



Distribute photocopies of Annex J to the cadets.

CONFIRMATION OF TEACHING POINT 1

QUESTIONS

Q1. What type of ATS has priority over provision of flight information services?

Q2. What type of service provides such information as active or preferred runway, wind direction and speed, air traffic and vehicle traffic?

Q3. What type of service assists pilots with flight planning?

ANTICIPATED ANSWERS

A1. ATC service.

A2. Advisory service.

A3. Briefing service.

Teaching point 2 **Explain the Difference Between an ATC Clearance and an ATC Instruction**

Time: 10 min Method: In-Class Activity

ACTIVITY

OBJECTIVE

The objective of this activity is to allow the cadets to explain the difference between an ATC clearance and an ATC instruction.

RESOURCES

- One sheet of paper for each cadet, and

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- Pens/pencils.

ACTIVITY LAYOUT

N/A.

ACTIVITY INSTRUCTIONS

1. Distribute one handout of Annex K to each cadet.
2. Organize the cadets into groups of four.
3. Explain to the cadets the following definitions:

   a. **ATC Clearance.** An authorization from ATC for a pilot to proceed with a specific action (eg, takeoff or landing) or along a specific route.



Whenever an ATC clearance is received and accepted by the pilot, compliance shall be made with the clearance. If a clearance is not acceptable, the pilot should immediately inform ATC of this fact as acknowledgement of the clearance alone will be taken by a controller as indicating acceptance. A clearance will be identified by the use of the word “clear” in its contents. Example of clearances are:

“You are cleared to the circuit”.

“You are cleared for take off on runway two niner”.

   b. **ATC Instruction.** A directive from ATC to do something specific (eg, maintain 5 000 feet).



A pilot shall comply with an ATC instruction that is directed to and received by the pilot, provided the safety of the aircraft is not jeopardized. An instruction will always be worded in such a manner as to be readily identified, although the word “instruct” will seldom be included. Pilots shall comply with and acknowledge receipt of all ATC instructions directed to and received by them. An example of an instruction would be:

“Hold on taxiway”.

“Climb to and maintain one three thousand”.

4. Have each group write down examples of ATC clearances or an ATC instructions that might be given to a person operating an aircraft at an aerodrome.
5. Read out each group’s ATC clearance/instruction and have the class identify it as a clearance or instruction.
6. Continue until all of the ATC clearances/instructions have been read or time runs out.

SAFETY

N/A.

CONFIRMATION OF TEACHING POINT 2

The cadets’ participation in the ATC clearance and ATC instruction activity will serve as the confirmation of this TP.

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Teaching point 3 **Explain the Functions of ATC**

Time: 5 min Method: Interactive Lecture

AREA CONTROL CENTRES (ACCS)

Area control service is provided by ACCs to flights operating within specified control areas. These areas typically consist of high level airspace and serve aircraft operating in the en route phase of flight. Information and advisory services are provided when workloads permit.

TERMINAL CONTROL UNITS (TCUS)

Terminal control service is provided by TCUs to flights operating within specified control areas surrounding major aerodromes. The primary purpose is to provide arrival and departure control to aircraft as they transition from the takeoff or landing phase to the en route phase. This type of ATC unit is responsible for sequencing aircraft to ensure an efficient flow of traffic to and from an aerodrome.

CONTROL TOWERS

Control towers are located at busy aerodromes to provide ATC services to aircraft during takeoff and landing. Control of aircraft on the ground is also provided. Workloads in most control towers do not usually permit the provision of information and advisory services so aircraft will obtain the required information from another ATS unit on a different frequency or by telephone before making contact with the control tower.

FLIGHT SERVICE STATIONS (FSSS)

FSSs provide information, advisory, alerting, briefing and NOTAM services. FSSs are responsible for large areas and provide service for all of the aerodromes in their area. Remote communications systems allow flight service specialists to communicate via radio to aircraft and vehicles hundreds of kilometres away.

FSSs are the initial point of contact for pilots during the pre-flight planning stage. They play a key role in the collection and distribution of NOTAMs. FSSs can be contacted by pilots via radio when in the air (and on the ground where remote communications facilities exist) or by telephone.

Vehicle control service at uncontrolled aerodromes with a mandatory frequency is provided by a FSS. The FSS may be hundreds of kilometres away and providing this service to multiple aerodromes. Personnel operating vehicles at aerodromes in this situation must pay close attention to this fact and be very clear and concise about their intentions and location.

CONFIRMATION OF TEACHING POINT 3

QUESTIONS

Q1. Which unit provides control to aircraft and vehicles on the ground at busy aerodromes?

Q2. Which unit provides control services to aircraft arriving and departing a controlled aerodrome?

Q3. Which unit plays a key role in the provision of NOTAM services?

ANTICIPATED ANSWERS

A1. Control tower.

A2. TCU.

A3. FSS.

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END OF LESSON CONFIRMATION

QUESTIONS

Q1. What type of ATS has priority over the provision of flight information services?

Q2. Which ATC communication must a pilot obey provided the safety of the aircraft is not jeopardized?

Q3. What type of service assists pilots with flight planning?

ANTICIPATED ANSWERS

A1. ATC.

A2. An ATC instruction.

A3. Briefing service.

CONCLUSION

HOMEWORK/READING/PRACTICE

N/A.

METHOD OF EVALUATION

N/A.

CLOSING STATEMENT

ATS provides the control and information services that support safe operation at busy aerodromes. Personnel working at an aerodrome need to be aware of the types of services provided at the aerodrome and be prepared to communicate with the appropriate ATS unit.

INSTRUCTOR NOTES/REMARKS

N/A.

REFERENCES

C2-044 Transport Canada. (2007). *Aeronautical Information Manual*. Retrieved October 2, 2007, from http://www.tc.gc.ca/publications/EN/TP14371/PDF/HR/TP14371E.PDF.

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