ROYAL CANADIAN AIR CADETS

PROFICIENCY LEVEL THREE

INSTRUCTIONAL GUIDE

SECTION 4

EO C370.01 – IDENTIFY TASKS REQUIRED TO MAINTAIN AIRCRAFT

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 handouts located at Annexes K to M for each cadet.

PRE-LESSON ASSIGNMENT

N/A.

APPROACH

An interactive lecture was chosen for this lesson to review, clarify, emphasize and summarize the tasks required to maintain aircraft.

INTRODUCTION

REVIEW

N/A.

OBJECTIVES

By the end of this lesson the cadet shall have identified tasks required to maintain aircraft.

IMPORTANCE

It is important for cadets to identify tasks required to maintain aircraft so that they will have an appreciation for the aircraft maintenance industry, including an understanding of safety requirements.

Teaching point 1 **Discuss Aircraft Maintenance Work**

Time: 10 min Method: Interactive Lecture

During the early days of aviation it was discovered that flying posed safety hazards. As aviation matured, organizations were formed to develop and enforce safety procedures. Faster aircraft and increasing air traffic

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became essential parts of Canadian commerce and industry. Air regulations have developed to keep pace with technological and social changes. Each regulation has a purpose and was put in place with the intention of supporting safe aviation.

MAINTENANCE CERTIFICATION

Aircraft maintenance in Canada is regulated by the Canadian Aviation Regulations (CARs). CARs are a compilation of regulatory requirements designed to enhance both safety and the competitiveness of the Canadian aviation industry. Parts I–VIII of the CARs correspond to eight broad areas of aviation:

- Part I – General Provisions,
- Part II – Aircraft Identification and Registration,
- Part III – Aerodromes, Airports and Heliports,
- Part IV – Personnel Licensing and Training,
- Part V – Airworthiness,
- Part VI – General Operating and Flight Rules,
- Part VII – Commercial Air Services, and
- Part VIII – Air Navigation Services.

EXAMPLES OF MAINTENANCE REQUIRING CERTIFICATION

CARs Part V – Airworthiness and Part VI – General Operating and Flight Rules, include the regulations for aircraft maintenance and elementary work. Generally, maintenance done on an aircraft in Canada must be followed by a maintenance release signed by a licensed aircraft maintenance engineer (AME) before the aircraft can be flown. Certain routine tasks have been designated as elementary work and do not require an AME's signature. Instead, the aircraft owner or appointee must record the work done in the aircraft's technical record, such as the journey logbook and technical logbooks.

A maintenance release signed by an AME is required for activities such as:

- modifying, repairing or replacing structural airframe parts;
- overhauling the engine;
- re-contouring or straightening a propeller blade;
- repairing avionics; and
- welding fuel tanks.

CONFIRMATION OF TEACHING POINT 1

QUESTIONS

Q1. What does the acronym CARs mean in Canadian aviation?

Q2. What does the acronym AME mean in Canadian aviation?

Q3. Who must sign a maintenance release?

ANTICIPATED ANSWERS

A1. Canadian Aviation Regulations.

A2. Aircraft Maintenance Engineer.

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A3. An AME.

Teaching point 2 **Discuss Elementary Work**

Time: 15 min Method: Individual Activity

Although performing and recording elementary work is less restrictive by aviation standards, it is still very rigorous by typical standards in such fields as private automobile maintenance. To understand aviation maintenance, cadets must recognize the difference between flying at hundreds of km/h at thousands of feet above the ground and parking a stalled car on the shoulder of the road when a fan belt breaks.

SPECIFIC TASKS DESIGNATED AS ELEMENTARY WORK

The difference between maintenance requiring a maintenance release and elementary work has been made easy to recognize in CAR Part VI, Standard 625, Appendix A–Elementary Work.

Elementary work task listings include 29 specific items that cover many routine activities including, under specified circumstances, changing engine oil, changing spark plugs, removing and replacing glider wings and tail surfaces, checking and replacing batteries, changing light bulbs, repairing upholstery, etc.



Distribute a copy of Annex K to each cadet.



The CARs carefully limit the activities in elementary work. For example, checking tire pressures over 100 psi is not elementary work and will require a maintenance release.

RECORDING ELEMENTARY WORK

Elementary work performed on light aircraft is recorded in the aircraft's technical record. The entry in the technical record of the work performed must be signed by the person who performed the work. Since aviation maintenance is a safety consideration, the accurate recording of all maintenance is important. Aircraft logbooks are often the first documents to be collected by investigators in the event of an accident.



Transport Canada (TC) regulations stipulate that all maintenance must be logged before the aircraft is flown.



Distribute Annexes L and M to each cadet.

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ACTIVITY

Time: 5 min

OBJECTIVE

The objective of this activity is to familiarize the cadets with recording elementary work.

RESOURCES

Handouts of Annexes L and M.

ACTIVITY LAYOUT

N/A.

ACTIVITY INSTRUCTIONS

1. Demonstrate how to fill out the logbook pages as per the examples located at Annex M.

2. Have each cadet fill in the top line of their blank journey logbook flight record at Annex L to show a fictitious flight from CNT7 (Picton, Ont.) to CYSN (Welland, Ont.), establishing a history for an imaginary aircraft. Except for the date, the details of that data line should look similar to the 26 Aug 07 data line entered by M. Calvert and shown at Annex M.

3. Upon arrival at Welland, have each cadet record the addition of a litre of engine oil and adjustment of tire pressure in their logbook pages, as well as two other items of elementary work selected from the list located at Annex K.

4. If cadets do not complete all this work in the time, have them complete it after class. Ensure that the flight details and the engine oil addition are recorded correctly.

SAFETY

N/A.

CONFIRMATION OF TEACHING POINT 2

The cadets' participation in the activity will serve as the confirmation of this TP.

END OF LESSON CONFIRMATION

QUESTIONS

Q1. Who must sign a maintenance release?

Q2. What tasks may be performed on an aircraft without a maintenance release?

Q3. How many specific tasks has TC designated as elementary work?

ANTICIPATED ANSWERS

A1. An AME.

A2. Tasks designated as elementary work by the TC CARs.

A3. 29.

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CONCLUSION

HOMEWORK/READING/PRACTICE

N/A.

METHOD OF EVALUATION

N/A.

CLOSING STATEMENT

Aircraft maintenance is a critical part of aviation and of Canadian transportation, commerce and industry. Professionally performed, aircraft maintenance serves the requirements of both safety and efficiency.

INSTRUCTOR NOTES/REMARKS

N/A.

REFERENCES

C3-096 (ISBN 1715-7382) Transport Canada. (2006). *Aeronautical Information Manual*. Ottawa, ON: Her Majesty the Queen in Right of Canada.

C3-210 (ISBN 0-660-62327-7) Transport Canada. (2003). *Aircraft Journey Log*. Ottawa, ON: Her Majesty the Queen in Right of Canada.

C3-211 (ISBN 0-660-19017-6) Transport Canada. (2005). *Airframe Log*. Ottawa, ON.

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