

SECTION 16**PO 270A – DISCUSS AIRCRAFT MANUFACTURING AND MAINTENANCE**

1. **Performance:** Discuss Aircraft Manufacturing and Maintenance
2. **Conditions:**
 - a. Given:
 - (1) Supervision; and
 - (2) Assistance as required.
 - b. Denied: N/A.
 - c. Environmental: Any conditions.
3. **Standard:** In accordance with specified references, the cadet shall discuss aircraft manufacturing and maintenance and education and employment opportunities in the industry.
4. **Remarks:** N/A.
5. **Complementary Material:**
 - a. Complementary material associated with PO 270 is designed to enhance the cadet's knowledge of aircraft manufacturing and maintenance:
 - (1) EO C270.01 (Participate in a Presentation Given by an Employee in the Aircraft Manufacturing or Maintenance Industry).
 - (2) EO C270.02 (Identify Canadian Aviation Maintenance Council [CAMC] Interactive Multimedia Learning Tool (IMLT) Activities).
 - (3) EO C270.03 (Tour an Aircraft Manufacturing or Maintenance Facility).
 - (4) EO C270.04 (Watch *World's Biggest Airliner: The Airbus A380 – Coming Together*).
 - b. Complementary training associated with PO 270 is limited to a total of eight periods, which may be conducted during sessions or on a supported day. Squadrons are not required to use all eight periods.

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EO M270.01 – IDENTIFY ASPECTS OF AIRCRAFT MANUFACTURING

1. **Performance:** Identify Aspects of Aircraft Manufacturing
2. **Conditions:**
 - a. Given:
 - (1) Career information cards;
 - (2) Supervision; and
 - (3) Assistance as required.
 - b. Denied: N/A.
 - c. Environmental: Suitable classroom facilities or training area large enough to accommodate the entire group.
3. **Standard:** In accordance with specified references, the cadet shall identify aspects of aircraft manufacturing, to include:
 - a. aircraft systems;
 - b. the materials used in aircraft manufacturing; and
 - c. careers within the aircraft manufacturing industry.
4. **Teaching Points:**

TP	Description	Method	Time	Refs
TP1	Identify aircraft systems, to include: <ol style="list-style-type: none"> a. aircraft instrument systems; b. airframe electrical systems; c. hydraulic and pneumatic power systems; d. aircraft landing gear systems; and e. aircraft fuel systems. 	Interactive Lecture	15 min	C3-108 (p. 7-1, p. 8-1, p. 9-1, p. 11-1, p. 12-1, p. 15-1)
TP2	Identify the following materials used in aircraft manufacturing: <ol style="list-style-type: none"> a. non-ferrous metals, to include: <ol style="list-style-type: none"> (1) aluminum and its alloys; (2) titanium; (3) nickel; and (4) copper; and b. composite fibres, to include: <ol style="list-style-type: none"> (1) graphite; (2) kevlar; and (3) fibreglass. 	Interactive Lecture	15 min	C3-108 (p. 7-1)

TP	Description	Method	Time	Refs
TP3	Discuss careers within the aircraft manufacturing industry, to include: a. aircraft interior technician; b. aircraft maintenance engineer category "E" (avionics); c. aircraft maintenance engineer category "M" (maintenance); d. aircraft maintenance engineer category "S" (structures); e. aircraft mechanical component technician; and f. aircraft gas turbine technician.	Group Discussion	20 min	C3-107 C3-109

5. **Time:**

- | | |
|-------------------------------|--------|
| a. Introduction / Conclusion: | 10 min |
| b. Interactive Lecture: | 30 min |
| c. Group Discussion: | 20 min |
| d. Total: | 60 min |

6. **Substantiation:**

- An interactive lecture was chosen for TP1 and TP2 to introduce aircraft manufacturing and generate interest.
- A group discussion method was chosen for TP3 as it allows the cadets to interact with their peers and share their knowledge, experiences, opinions, and feelings about aircraft manufacturing.

7. **References:**

- C3-107 British Columbia Institute of Technology. (2007). *Programs and Courses*. Retrieved 8 February 2007, from <http://www.bcit.ca/study/programs/>.
- C3-108 (ISBN 0 88487 203 3) Jeppesen Sanderson Training Products. (2000). *A&P Technician: General*. Englewood, CO: Jeppesen Sanderson Inc.
- C3-109 (ISBN 1 894777 00 X) Canadian Aviation Maintenance Council (CAMC). (2002). *Aviation Maintenance Orientation Program*. Ottawa, ON: CAMC.

8. **Training Aids:**

- Presentation aids (e.g. whiteboard/flipchart/OHP) appropriate for the classroom/training area; and
- Career information sheets.

9. **Learning Aids:** Career information sheets.10. **Test Details:** N/A.11. **Remarks:** N/A.

EO M270.02 – IDENTIFY REQUIREMENTS FOR AIRCRAFT MAINTENANCE

1. **Performance:** Identify Requirements for Aircraft Maintenance
2. **Conditions:**
 - a. Given:
 - (1) Supervision; and
 - (2) Assistance as required.
 - b. Denied: N/A.
 - c. Environmental: Suitable classroom or training facility large enough to accommodate the entire group.
3. **Standard:** In accordance with specified references, the cadet shall identify requirements for aircraft maintenance, to include:
 - a. maintaining aircraft systems; and
 - b. aircraft system maintenance, repair and overhaul employers.
4. **Teaching Points:**

TP	Description	Method	Time	Refs
TP1	Introduce aircraft maintenance, overhaul and repair, to include: <ol style="list-style-type: none"> a. aircraft instrument systems; b. airframe electrical systems; c. hydraulic and pneumatic power systems; d. aircraft landing gear systems; and e. aircraft fuel systems. 	Interactive Lecture	10 min	C3-109
TP2	Discuss the maintenance of aircraft instruments, to include: <ol style="list-style-type: none"> a. the altimeter; b. the air speed indicator; c. the gyroscope; d. the heading indicator; e. the attitude indicator; f. the vertical speed indicator; and g. the radar altimeter. 	Interactive Lecture	20 min	C3-116 (pp. 39–50)
TP3	Discuss landing gear maintenance, to include: <ol style="list-style-type: none"> a. fixed undercarriage; b. retractable gear; c. nose wheel; and d. tail wheel. 	Interactive Lecture	20 min	C3-116 (pp. 12–14)

5. **Time:**
 - a. Introduction / Conclusion: 10 min
 - b. Interactive Lecture: 50 min
 - c. Total: 60 min

6. **Substantiation:** An interactive lecture was chosen for this lesson to orient the cadets to aircraft maintenance, generate an interest and present basic material.

7. **References:**
 - a. C3-109 (ISBN 1-894777-00-X) Canadian Aviation Maintenance Council (CAMC). (2002). *Aviation Maintenance Orientation Program*. Ottawa, ON: CAMC.
 - b. C3-116 A-CR-CCP-263/PT-001 (ISBN 0-9680390-5-7) MacDonald, A. F. and Peppler, I. L. (2000). *From the Ground Up: Millennium Edition*. Ottawa, ON: Aviation Publishers Co. Ltd.

8. **Training Aids:** Presentation aids (e.g. whiteboard/flipchart/OHP) appropriate for the classroom/training area.

9. **Learning Aids:** N/A.

10. **Test Details:** N/A.

11. **Remarks:** N/A.

EO M270.03 – DISCUSS EDUCATION AND EMPLOYMENT OPPORTUNITIES IN AIRCRAFT MANUFACTURING AND MAINTENANCE

1. **Performance:** Discuss Education and Employment Opportunities in Aircraft Manufacturing and Maintenance
2. **Conditions:**
 - a. Given:
 - (1) Supervision; and
 - (2) Assistance as required.
 - b. Denied: N/A.
 - c. Environmental: Suitable classroom facilities or training area large enough to accommodate the entire group.
3. **Standard:** In accordance with with the specified references, the cadet shall discuss education and employment opportunities in the aircraft manufacturing and maintenance industry, to include:
 - a. employers in Canada;
 - b. career options; and
 - c. education and training institutions in Canada.
4. **Teaching Points:**

TP	Description	Method	Time	Refs
TP1	Conduct an in-class activity where cadets are introduced to the aircraft manufacturing and maintenance industry, to include: <ol style="list-style-type: none"> a. employers in Canada; b. careers options; and c. education and training institutions. 	In-Class Activity	50 min	C3-101 C3-102

5. **Time:**
 - a. Introduction / Conclusion: 10 min
 - b. In-Class Activity: 50 min
 - c. Total: 60 min
6. **Substantiation:** An in-class activity was chosen for this lesson as it is an interactive way to present education and employment opportunities in the aircraft manufacturing and maintenance industry and to stimulate an interest among cadets.
7. **References:**
 - a. C3-101 Canadian Aviation Maintenance Council. (2006). *Careers in Aviation and Aerospace*. Ottawa, ON: Government of Canada's Sector Council Program.
 - b. C3-102 Canadian Aviation Maintenance Council. (2007). Index of Corporate Profiles. Retrieved 23 February 2007, from <http://www.camc.ca/en/CorporateProfiles/>.

8. **Training Aids:**

- a. Presentation aids (e.g. whiteboard/flipchart/OHP) appropriate for the classroom/training area; and
- b. Career reference sheets.

9. **Learning Aids:** N/A.

10. **Test Details:** N/A.

11. **Remarks:** N/A.

EO C270.01 – PARTICIPATE IN A PRESENTATION GIVEN BY AN EMPLOYEE IN THE AIRCRAFT MANUFACTURING OR MAINTENANCE INDUSTRY

1. **Performance:** Participate in a Presentation Given by an Employee in the Aircraft Manufacturing or Maintenance Industry
2. **Conditions:**
 - a. Given:
 - (1) Supervision; and
 - (2) Assistance as required.
 - b. Denied: N/A.
 - c. Environmental: Suitable classroom facilities or training area large enough for the entire group.
3. **Standard:** The cadet shall participate in a presentation given by an employee in the aircraft manufacturing or maintenance industry to gain an awareness of the various occupational opportunities.
4. **Teaching Points:** The guest speaker is asked to:
 - a. familiarize the cadets with the occupational opportunities within the aircraft manufacturing and maintenance industry, to include:
 - (1) identifying the various occupations;
 - (2) explaining the duties and responsibilities of the various occupations; and
 - (3) identifying educational institutions that provide training for the various occupations; and
 - b. facilitate a question and answer period.
5. **Time:**
 - a. Introduction / Conclusion: 10 min
 - b. Presentation: 50 min
 - c. Total: 60 min

6. **Substantiation:** An interactive lecture was chosen for this lesson to review, emphasize and summarize the teaching points.
7. **References:** N/A.
8. **Training Aids:** Presentation aids (e.g. whiteboard/flipchart/OHP) appropriate for the classroom/training area.
9. **Learning Aids:** N/A.
10. **Test Details:** N/A.
11. **Remarks:**
 - a. Required training aids should be determined by contacting the guest speaker prior to the presentation.
 - b. If the instructor cannot complete all teaching points in 4a for the various occupations, they can focus on their own occupation to complete the lesson.
 - c. There is no instructional guide for this EO.

EO C270.02 – IDENTIFY CANADIAN AVIATION MAINTENANCE COUNCIL (CAMC) INTERACTIVE MULTIMEDIA LEARNING TOOL (IMLT) ACTIVITIES

1. **Performance:** Identify Canadian Aviation Maintenance Council (CAMC) Interactive Multimedia Learning Tool (IMLT) Activities
2. **Conditions:**
 - a. Given:
 - (1) PowerPoint presentation/handouts;
 - (2) CAMC IMLT log-on;
 - (3) Supervision; and
 - (4) Assistance as required.
 - b. Denied: N/A.
 - c. Environmental: The squadron Commanding Officer will determine the conditions suitable for this training.
3. **Standard:** In accordance with *CAMC Interactive Multimedia Learning Tool*, the cadet shall identify online interactive activities, to include:
 - a. aircraft; and
 - b. aircraft components.
4. **Teaching Points:**

TP	Description	Method	Time	Refs
TP1	Explain the following: <ol style="list-style-type: none"> a. what is CAMC; b. what is Aviation Maintenance Orientation Program (AMOP); and c. what is IMLT. 	Interactive Lecture	10 min	C3-115
TP2	Explain the IMLT modules, to include: <ol style="list-style-type: none"> a. Module 1 – Theory of Flight; b. Module 2 – Power Plants; and c. Module 3 – Aircraft Structures. 	Interactive Lecture	15 min	C3-115

5. **Time:**
 - a. Introduction / Conclusion: 5 min
 - b. Interactive Lecture: 25 min
 - c. Total: 30 min

6. **Substantiation:** An interactive lecture method was chosen for this lesson to review, clarify, emphasize and summarize the teaching points. An on-line visit to the IMLT will provide an overview of and promote interest in CAMC activities.
7. **References:** C3-115 Canadian Aviation Maintenance Council (CAMC). (2007). *CAMC Interactive Multimedia Learning Tool (IMLT)*. Retrieved 6 March 2007, from <http://3da.com/imlt/>.
8. **Training Aids:**
 - a. Presentation aids (e.g. whiteboard/flipchart/OHP) appropriate for the classroom/training area; and
 - b. PowerPoint presentation/handout.
9. **Learning Aids:** PowerPoint presentation/handout.
10. **Test Details:** N/A.
11. **Remarks:**
 - a. Contact your Area Cadet Officer (ACO) to receive a log-on user ID and password.
 - b. Current instructions for exploring the IMLT are provided at <http://3da.com/imlt/>.
 - c. Before proceeding with this lesson, the instructor must become familiar with the procedures involved. The following procedures are to be researched in advance:
 - (1) accessing the internet;
 - (2) logging onto the CAMC IMLT; and
 - (3) operating the IMLT.

EO C270.03 – TOUR AN AIRCRAFT MANUFACTURING OR MAINTENANCE FACILITY

1. **Performance:** Tour an Aircraft Manufacturing or Maintenance Facility
2. **Conditions:**
 - a. Given:
 - (1) Supervision; and
 - (2) Assistance as required.
 - b. Denied: N/A.
 - c. Environmental: The squadron Commanding Officer will determine the conditions suitable for this training.
3. **Standard:** The cadet shall tour an aircraft manufacturing or maintenance facility, to identify aspects of:
 - a. aircraft manufacturing systems;
 - b. aircraft systems maintenance; and
 - c. materials used in manufacturing.
4. **Teaching Points:** The tour guide is asked to explain:
 - a. aircraft manufacturing systems;
 - b. avionics;
 - c. aircraft systems maintenance; and
 - d. materials used in manufacturing.
5. **Time:**

a. Introduction / Conclusion:	10 min
b. Field Trip :	80 min
c. Total:	90 min
6. **Substantiation:** A field trip was chosen for this lesson as it will reinforce the cadet's knowledge of material previously taught in EO M270.01 (Identify Aspects of Aircraft Manufacturing), EO M270.02 (Identify Requirements for Aircraft Maintenance) and EO M270.03 (Discuss Education and Employment Opportunities in Aircraft Manufacturing and Maintenance) through participation in a tour.
7. **References:** N/A.
8. **Training Aids:** N/A.
9. **Learning Aids:** N/A.
10. **Test Details:** N/A.
11. **Remarks:**
 - a. This field trip can be completed on a supported day or during a complementary session.
 - b. There is no instructional guide for this EO.

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EO C270.04 – WATCH WORLD’S BIGGEST AIRLINER: THE AIRBUS A380 – COMING TOGETHER

1. **Performance:** Watch *World’s Biggest Airliner: The Airbus A380 – Coming Together*
2. **Conditions:**
 - a. Given:
 - (1) Supervision; and
 - (2) Assistance as required.
 - b. Denied: N/A.
 - c. Environmental: Suitable classroom or training facility large enough to accommodate the entire group.
3. **Standard:** In accordance with *World’s Biggest Airliner: The Airbus A380 – Coming Together*, the cadet shall watch the *World’s Biggest Airliner: The Airbus A380 – Coming Together*, to stimulate an interest in the aircraft manufacturing industry.
4. **Teaching Points:**

TP	Description	Method	Time	Refs
TP1	Watch and discuss the <i>World’s Biggest Airliner: The Airbus A380 – Coming Together</i> DVD, to include: <ol style="list-style-type: none"> a. what is involved in manufacturing an aircraft; and b. what occupations contribute to the manufacturing of an aircraft. 	In-Class Activity	45 min	C3-105
TP2	Conduct a group discussion on The Airbus A380.	Group Discussion	10 min	

5. **Time:**
 - a. Introduction / Conclusion: 5 min
 - b. In-Class Activity: 45 min
 - c. Group Discussion: 10 min
 - d. Total: 60 min
6. **Substantiation:**
 - a. An in-class activity was chosen for TP1 as it is an interactive way to provoke thought and stimulate interest among cadets.
 - b. A group discussion was chosen for TP2 as it allows the cadet to interact with their peers and share their knowledge, experience, opinions and feelings about the topic.

7. **References:** C3-105 Brisley, T. Pascaud, S. (Executive Producer), and Bowie, B. (Writer/Director), (2003). *World's Biggest Airliner: The Airbus A380* [Motion Picture]. United States: The Learning Channel.
8. **Training Aids:**
 - a. Presentation aids (e.g. whiteboard/flipchart/OHP) appropriate for the classroom/training area;
 - b. *World's Biggest Airliner: The Airbus A380 – Coming Together* DVD;
 - c. TV; and
 - d. DVD player.
9. **Learning Aids:** Handout for each cadet.
10. **Test Details:** N/A.
11. **Remarks:** N/A.