ROYAL CANADIAN AIR CADETS

PROFICIENCY LEVEL TWO

INSTRUCTIONAL GUIDE

SECTION 5

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

Total Time: 60 min

PREPARATION

PRE-LESSON INSTRUCTIONS

Resources needed for the delivery of this lesson are listed in the lesson specification located in A-CR-CCP-802/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.

Copy the handout located at Annex A for each cadet.

PRE-LESSON ASSIGNMENT

N/A.

APPROACH

An in-class activity was chosen for TP1 as it is an interactive way to provoke thought and stimulate an interest among cadets.

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 aircraft manufacturing.

INTRODUCTION

REVIEW

N/A.

OBJECTIVES

By the end of this lesson the cadet shall have watched the *World's Biggest Airliner: The Airbus A380*, participated in a discussion on aircraft assembly and to stimulate an interest in the aircraft manufacturing industry.

IMPORTANCE

It is important for cadets to develop an interest in how aircraft are manufactured because this lesson will lead to future summer training opportunities in aircraft manufacturing and maintenance. This EO will assist in stimulating an interest in aircraft manufacturing and maintenance in the Air Cadet Program.

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Teaching point 1 **Watch and Discuss the *World's Biggest Airliner: The Airbus A380 – Coming Together***

Time: 45 min Method: In-Class Activity



The *World's Biggest Airliner: The Airbus A380* is a three-part DVD series. The cadet is required to watch the second DVD of the three-part series in order to complete this EO.



The following is a summary of the scenes included in this DVD. Do not stop the DVD to review each scene.

Scene: Toulouse, France. The process of assembling the major components of this aircraft is five weeks. The fuselage is assembled and the wing is attached to the fuselage.

Scene: Guided Tour. The tour takes place at the Airbus headquarters in France and takes the viewer through a realistic mock-up of the interior of the Airbus A380. There is also a focus on the horizontal tail plane and the materials used to construct it. The landing gear installation and testing is addressed. The landing gear is tested at the Goodrich Corporation outside of Toronto in Oakville, Ontario.

Scene: First Fully Assembled A380. The Airbus A380 leaves the main assembly station, where it is moved to another hangar and prepared for its unveiling. The fly-by-wire technology used in the aircraft and how it performs when the pilot manipulates the controls is mentioned. The vertical tail plane and new camera technology are installed in the fin. The viewer observes the performance of the aircraft in a flight simulator as it is taken through a worst-case scenario test.

Scene: Another Test Engine. The new Trent 900 engine custom made for the Airbus A380 is tested. The outcome of turbine fan blade failure is tested.

Scene: The Airbus A380 Goes Public. The Airbus A380 is unveiled to the stakeholders and heads of state involved in the construction of the aircraft.

ACTIVITY

OBJECTIVE

The objective of this activity is to familiarize the cadet with the aircraft manufacturing industry by presenting this DVD to develop an interest and understanding of the many occupations involved in designing and manufacturing an aircraft.

RESOURCES

- *World's Biggest Airliner: The Airbus A380* (second DVD of the series),
- TV, and
- DVD player.

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ACTIVITY LAYOUT

N/A.

ACTIVITY INSTRUCTIONS

1. Provide each cadet with a copy of the handout located at Annex A to be completed as they watch the DVD.
2. Watch the DVD.
3. After viewing the DVD confirm the correct answers to the handout located at Annex A.

SAFETY

N/A.

CONFIRMATION OF TEACHING POINT 1

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

Teaching point 2 **Conduct a Group Discussion on the *World's Biggest Airliner***

Time: 10 min Method: Group Discussion

BACKGROUND KNOWLEDGE



TIPS FOR ANSWERING/FACILITATING DISCUSSION

- Ask questions that help facilitate discussion; in other words, avoid questions with yes or no answers.
- Prepare question ahead of time.
- Be flexible (you are not bound to only the prepared questions).
- Encourage cadets to participate by using praise such as "great idea" or "excellent response, can anyone add to that?"
- Try to involve everyone by directing questions to non-participants.

SUGGESTED QUESTIONS

Q1. How did this DVD help you to understand more about how an aircraft is assembled?

Q2. What did you like most about this segment of the Airbus A380?

Q3. What careers interested you in this DVD and why?



Other questions and answers will develop throughout the discussion stage. The discussion should not be limited to only those suggested.

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SAFETY

N/A.

END OF LESSON CONFIRMATION

The cadets' participation in the group discussion will serve as the confirmation of this lesson.

CONCLUSION

HOMEWORK/READING/PRACTICE

N/A.

METHOD OF EVALUATION

N/A.

CLOSING STATEMENT

Watching the *World's Biggest Airliner: Airbus A380* will develop the cadets' interest in how aircraft are manufactured and introduce the cadet to future summer training opportunities in aircraft manufacturing and maintenance. The knowledge gained in this lesson will assist in stimulating an interest in the aircraft manufacturing and maintenance field in the Air Cadet Program.

INSTRUCTOR NOTES/REMARKS

N/A.

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.

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WORLD'S BIGGEST AIRLINER: AIRBUS A380 **HANDOUT**

Q1. WHAT ARE SOME OF THE CHARACTERISTICS OF THE AIRBUS A380?

_____

_____

_____

_____

_____

Q2. WHAT WERE THE TWO MAJOR COMPONENTS TESTED?

1. _____
2. _____

Q3. THE _____ IS THE MANUFACTURER OF THE LANDING GEAR FOR THE AIRBUS A380 AND THEY ARE LOCATED IN _____.

Q4. _____ IS THE MANUFACTURER OF THE TURBINE ENGINE FOR THE AIRBUS A380.

Q5. WHAT WERE SOME OF THE MATERIALS USED IN THE CONSTRUCTION OF THIS AIRCRAFT?

1. _____
2. _____

Q6. NAME A PROFESSION MENTIONED THAT CONTRIBUTED TO THE MANUFACTURING OF THE AIRCRAFT.

_____

_____

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WORLD'S BIGGEST AIRLINER: AIRBUS A380 ANSWER KEY

A1. The characteristics of the Airbus A380 are:

- It is a 555 seat double-decker aircraft (It has the capacity to hold just over 800 seats if they were all economy class).
- It can fly non-stop one-third around the globe.
- It uses state-of-the-art methods and materials for its construction.
- It was the largest airliner ever built at the time of it's unveiling.

A2. The two major components tested?

(1) the landing gear, and

(2) the engine.

A3. The Goodrich Corporation is the manufacturer of the landing gear for the Airbus A380 and they are located outside of Toronto in Oakville, Ontario.

A4. Rolls-Royce is the manufacturer of the turbine engine for the Airbus A380.

A5. Some of the materials used in the construction of this aircraft are:

(1) titanium, and

(2) carbon fibre.

A6. The professions mentioned that contributed to the manufacturing of the Airbus A380 are:

- structural assembler – operation leader,
- senior test engineer (landing gear),
- head of fan engineer (engine),
- vertical tail plane engineer,
- head of equipping,
- chief flight test pilot, and
- flight test pilot director.

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