

May 9th, 2:10 PM - 3:10 PM

Workshop G: English for Aircraft Maintenance Professionals: the Role of Online Learning

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Scholarly Commons Citation

O'dwyer, John and Coates, Christopher, "Workshop G: English for Aircraft Maintenance Professionals: the Role of Online Learning" (2019). *International Civil Aviation English Association*. 14.
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Brainstorming



Brainstorming about technical errors

EXPLORE YOUR MIND AND HELP US WITH INNOVATIVE IDEAS TO HELP
IN DEALING WITH
THE TECHNICAL DIFFICULTIES OF AN AIRLINE COMPANY

Technical delays can affect punctuality for Airline companies; How can we decrease the number of delays and become a more on-time company?

- ▶ In April the company counted 50 delays
- ▶ 25% of these delays were caused by technical errors during maintenance
- ▶ 10% of these delays were caused by misunderstandings during AMT's and Pilot briefings
- ▶ 50% of these delays were caused due a lack of communication during a job transfer
- ▶ 15% of these delays were caused by AMT's that were unable to find the applicable manual to the related fault

Activating ideas

- ▶ Do all mechanics have the appropriate aircraft training and courses?
- ▶ Does the company have an adequate amount of training for mechanics?
- ▶ Do mechanics have the correct tools to perform the maintenance?
- ▶ Are the mechanics following the instructions available in the maintenance manual?
- ▶ How much time are AMT's and pilots spending on the briefings?
- ▶ Why are mechanics making so many mistakes?
- ▶ At what time and where are they performing the briefings?
- ▶ Is there a comprehensive briefing during a job transfer?
- ▶ Did the mechanics have a course explaining how to use the aircraft manual?
- ▶ Do mechanics have the necessary reading skills to use the manual?

Vocabulary Activity



Vocabulary

TEST YOUR TECHNICAL VOCABULARY KNOWLEDGE WITH
THE FOLLOWING IMAGES

AIRFRAME

What can you see in this picture?

(A) Horizontal Stabilizer

(B) Rudder

(C) Elevator



What can you see in this picture?

(A) Brake Accumulator

(B) Anti-Skid

(C) Brake



What can you see in
this picture?

(A) Windblocks

(B) Windows

(C) Windshield



POWER PLANT

What can you see in this picture?

(A) Turbine

(B) Engine

(C) Reciprocating Engine



What can you see in
this picture?

(A) Fan Blades

(B) Propeller

(C) Bearings

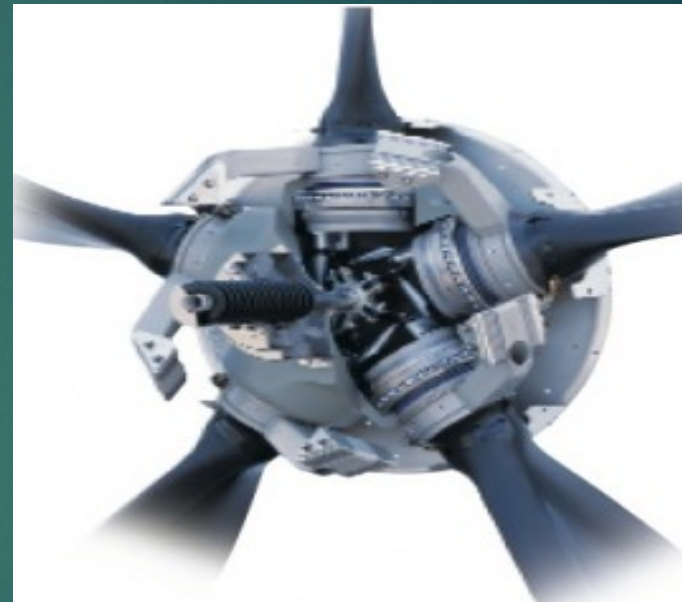


What can you see in
this picture?

(A) Spinner

(B) HUB

(C) Bearing



AVIONICS

What can you see in this picture?

(A) Pitot

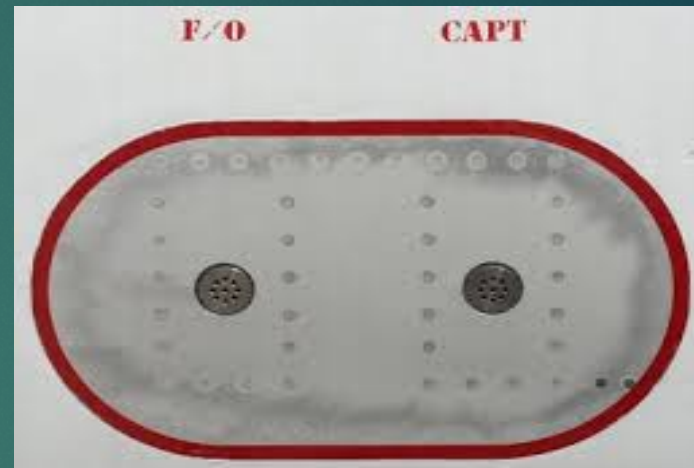
(B) Ice Detector

(C) Total air temperature probe



What can you see in this picture?

- (A) Pitot
- (B) Static Port
- (C) Relief Valve



Reading Activity



Reading the task card

THE EXERCISE THAT FOLLOWS IS A ROUTINE EXAMPLE
REPORTED BY AIRCRAFT MAINTENANCE PERSONNEL AT
THE AIRPORT

Flight crew oxygen pressure check

- ▶ **An AIRBUS A320Neo was parked at an airport, and the pilot contacted the aircraft maintenance technician, explaining that the cockpit oxygen pressure for him and the cockpit 3rd occupant are over the limits, indicating 800 PSI on the system display.**
- ▶ **You are the aircraft maintenance technician; use the oxygen task sheet that follows to determine if the cockpit oxygen pressure is really over the limit.**

Temperature References

- ▶ Outside air temperature (OAT): 30°C
- ▶ Cockpit temperature: 30°C

A320Neo Oxygen Task Sheet



Airbus Maintenance Manual

A320NEO

1. General

This procedure contains the following tasks:

(1) Check of the High Pressure of the Crew Oxygen-Storage Cylinders

2. Procedure

(1) Do a check of the oxygen pressure on the cabin system display

(a) Record the oxygen pressure of the crew oxygen-storage cylinder 5750HM1 on the system display and record that this value is related to the Captain system.

(b) Record the oxygen pressure of the crew oxygen-storage cylinder 5750HM2 on the system display and record that this value is related to the First Officer system.

(2) Measure the Outside Air Temperature (OAT) and the temperature in the cockpit with a THERMOMETER.

(3) Calculate the reference temperature with this formula:

⁽¹⁾ REF Temperature :

- On ground : $REF\ Temperature = (OAT + Cockpit\ TEMP) / 2$
- In flight : $REF\ Temperature = CAB\ TEMP\ (^{\circ}C) - 10\ ^{\circ}C$, or
 $REF\ Temperature = CAB\ TEMP\ (^{\circ}F) - 18\ ^{\circ}F$

(4) Record the reference temperature.

(5) Check if the oxygen pressure(s) recorded at Step 4 is (are) less than the minimum oxygen pressure(s) found in the table:

REF Temperature ⁽¹⁾		°C							
		-10	0	10	20	30	40	50	
MIN CAPT Indication (PSI) ⁽²⁾	CAPT	460	480	500	520	540	550	570	
	CAPT + 3rd Occ.	650	680	700	730	750	780	800	
MIN F/O Indication (PSI) ⁽²⁾	F/O	460	480	500	520	540	550	570	
	F/O + 4th Occ.	650	680	700	730	750	780	800	

Video Activity



Language Errors

THE COMMON LANGUAGE ERRORS, AND THE ACTIONS WE
CAN USE TO MITIGATE THEM

Language errors that arise during routine maintenance

Factors

- ▶ Task complexity
- ▶ Limitations of a communication channel, communication device: e.g. radio, PA
- ▶ Time pressure prevents AMT's from querying others
- ▶ Inadequate English reading ability
- ▶ Inadequate English listening ability

Mitigating factors

- ▶ Document translation
- ▶ Use of aircraft as a communication channel device "show me"
- ▶ Providing enough time to accomplish the maintenance
- ▶ Reading comprehension tests for AMT'S
- ▶ Listening Comprehension tests for AMT's



English Level Tests

AIRCRAFT MAINTENANCE TECHNICIANS WERE TESTED TO CHECK
THEIR ENGLISH LEVEL

English accuracy level tests were applied to the AMT's and frequency measures were collected for each of the following scenarios:

- ▶ Scenario 1: “The Mechanic (Aircraft Maintenance Technician, AMT) or Inspector was not able to communicate verbally to the level required for adequate performance.”
- ▶ Scenario 2: “The Mechanic (AMT) or Inspector and the person to whom they were speaking did not realize that the other had limited English ability.”
- ▶ Scenario 3: “Native English speakers with different regional accents did not understand each others’ communications.”
- ▶ Scenario 4: “The Mechanic (AMT) or Inspector did not understand a safety announcement over the Public Address (PA) system.”
- ▶ Scenario 5: “The Mechanic (AMT) or Inspector did not fully understand a safety placard.” Scenario
- ▶ Scenario 6: “The Mechanic (AMT) or Inspector did not fully understand documentation in English, for example a Work Card or a Manual.”
- ▶ Scenario 7: “The Mechanic (AMT) or Inspector did not fully understand a document translated from another language into their native language.”

Low cost instead of safety?



What is your opinion?

WATCH THE VIDEO AND ANSWER THE FOLLOWING QUESTIONS



About the previous video

(1)

Why are some companies still deciding on low cost instead of high safety?

(2)

How can we mitigate errors that still happen?

(3)

What is your opinion about online English training to improve AMT linguistic skills and technical knowledge?

Conclusion:

- ▶ The maintenance personnel routine is very dynamic, where you can see different situations everyday and no procedure deviations are allowed.
- ▶ Therefore, the reading, listening, speaking and written language skills of these personnel must be of an appropriate level for them to deal effectively with the seriousness of their function.
- ▶ Invest in yourself.

Presenters

John O'Dwyer

- ▶ **Partner of icalearning**
- ▶ **TEFL Qualified language teacher**
- ▶ **Aviation English Teacher**
- ▶ **Experience in stage acting and presentations**
- ▶ John is an English aviation instructor in Brazil with a focus on grammar structures helping students to speak more like a native speaker of English and helping them to express technical terms in a direct and clear manner. He is the co-founder of the icalearning web platform and app. John has acted in many stage plays and has taken on the role as MC for charity events.

Christopher Coates

- ▶ **Company owner of Icalearning, Brazil**
- ▶ **TEFL Qualified language teacher**
- ▶ **Former ANAC ICAO English Examiner**
- ▶ Chris is a fully qualified Aviation English instructor, having started out as an ICAO Aviation English examiner in Brazil. He is the founder and developer of a state of the art distance learning web platform, also available on the Apple store and Google play store for pilots, cabin crew and maintenance staff. It features hundreds of hours of interactive exercises and all the necessary grammar and instruction to bring students to a fluent level of English sufficient to achieve ICAO level 4 or above.

Supported By

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Thank you for your participation

