

# Basic Engineering Training using competency and evidence based methodology



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# ABOUT AVIATION AUSTRALIA

- Established by Queensland Government in 2001
- Registered Training Organisation
- Provides training in:
  - Aviation Mechanical Engineering
  - Pilot
  - Cabin Crew
- First approved EASA 147 provider outside of Europe (since 2006)
- Provide practical training on actual aircraft with experienced instructors from civil / military background
- Partner to over 60 airlines and aerospace companies, governments, defence forces and regulatory authorities
- Over 3000 graduates working worldwide





# KEY STRENGTHS

Only training provider in Australia to provide qualifications recognised by CASA, EASA, and GCAA regulators

## Airworthiness Approvals:

### Australian Civil

- CASA Part 147
- CASA Part 142
- CASA CAR 30

### European

- EASA Part 147

### Gulf

- GCAA Part 147



# AIRCRAFT MAINTENANCE ENGINEERING

## Basic - Aircraft Maintenance Engineering

- Mechanical fixed/rotary wing – Avionic fixed/rotary wing CASA basic courses. Certificate IV and Diploma outcomes
- Mechanical or Avionics (2400 hours EASA/GCAA approved) approx. 18 months – Diploma outcomes
- Instructor led short courses
- Bespoke and turnkey delivery options available
- Articulation options to University degree<sup>s</sup>

## Upskill Training for Certifying Engineers

- Specialist Maintenance – Boroscope, Advanced Composites, NDT
- EWIS, Fuel Tank Safety, HF (initial & recurrent), EASA/CASA awareness
- Type Courses on request i.e. B737-8, B777, A330 etc





# RECENT INTERNATIONAL TRENDS

- In the last few years we have seen an ongoing trend toward globalisation in aircraft maintenance training (EASA,FAA,CAAC)
- 2011 Australia (Civil Aviation Safety Authority) predominantly aligned its maintenance and training regulations with EASA introducing the regulatory suite Part 42 (M), 145, 147, 66, 21 etc
  - Large RPT operators had approximately two years to transition across and comply
  - Smaller maintenance organisations are still in transition – however all new trainees are following Part 66 licencing
  - South East Asia/Middle East is the major forecasted area of growth and also the major transitional area



# THE TRANSITION PROCESS HOW?

- Identify the gap between where you are now and where you need to be by using a sound and proven Training Needs Analysis process
- This will identify several areas of difference such as:
  1. Training material (courseware)
  2. Practical equipment requirements
  3. Staff Qualifications
  4. Competency assessment requirements
  5. Quality processes and oversight procedures





# TRAINING MATERIAL - COURSEWARE

- The regulations are prescriptive via the provision of the Part 66 syllabus
- It identifies the subjects required to be taught and examined
- It also identifies the level of learning that is required for each topic usually defined as Level 1, 2 or 3
- These levels are also of important relevance in the assessment of practical training. With CASA there are also specific vocational competencies required for each sub-category B1.1, 1.2, 1.3, 1.4 and B2



# TRAINING MATERIAL – COURSEWARE

(cont)

Sample Extract - CASA Part 66 Syllabus

	Level of knowledge for the category		
	A	B1	B2
<b>7.5 Engineering drawings, diagrams and standards</b>	1	2	2
Drawing types and diagrams, their symbols, dimensions, tolerances and projections;			





# TRAINING MATERIAL – COURSEWARE (cont)

Sample Extract - EASA Part 66 Syllabus

## 7.5 Engineering Drawings, Diagrams and Standards

Drawing types and diagrams, their symbols, dimensions, tolerances and projections;

Level		
A	B1	B2
1	2	2



# TRAINING MATERIAL – COURSEWARE (cont)

For Category A, B1, B2, B3 and C Aircraft Maintenance Licence knowledge level indicators are defined on 3 levels as follows:

## LEVEL 1

A familiarisation with the principal elements of the subject

## LEVEL 2

A general knowledge of the theoretical and practical aspects of the subject and an ability to apply that knowledge

## LEVEL 3

A detailed knowledge of the theoretical and practical aspects of the subject and a capacity to combine and apply the separate elements of knowledge in a logical and comprehensive manner.





# COMPETENCY ASSESSMENT

## How is Competency Defined in Aviation?

### KNOWLEDGE

The ability to successfully pass a theoretical examination at 75% or greater for the subjects required at the learning level indicated in the syllabus

### SKILL

The ability to achieve every aspect of the practical requirements of the task at the level of complexity including the appropriate use of documentation, tooling and equipment required to perform the task

### ATTITUDE

The overall way in which the student approaches aviation training - the safe and responsible performance of tasks in respect of flight safety and airworthiness.



# COMPETENCY ASSESSMENT (cont)

## Journal of Experience (JOE)

Ongoing accumulation of practical assessments is best completed in a journal of experience or schedule of experience.

In this case the amount and types of tasks recorded in the journal should be representative of all ATA chapters relevant to the stream (Mechanical or Avionic) and ensure they have the complexity required by the Part 66 syllabus where required.

In Australia we provide our graduates with journals broadly outlining what they need to achieve in the next few years.

These journals are assessed by a Part 147 qualified assessor and once completed form part of the requirements for the application of a Part 66 category licence.





An example of the Part 66 relationship to the competency package

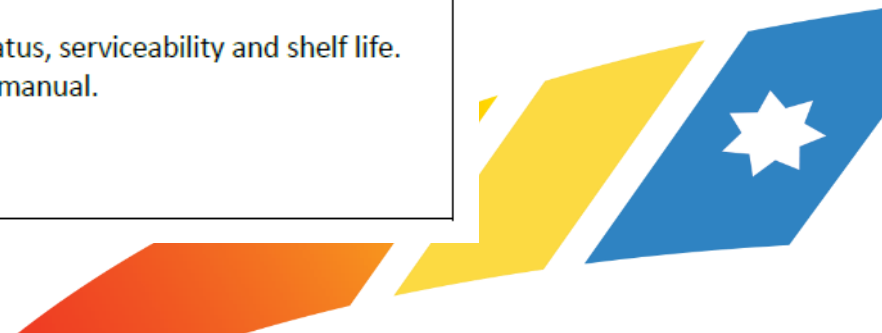
11.4.3 Pressurisation	1	3	—
Pressurisation systems; Control and indication including control and safety valves; Cabin pressure controllers; Heating systems.			
11.4.4 Safety and warning devices	1	3	—
Protection and warning devices.			




	<h2 style="margin: 0;">Trade Unit Certification Sheets</h2>
<b>Name of Assessed Person:</b>	<b>Registration:</b>

UNIT MEA208: Remove and Install Aircraft Pressurisation Control Systems						
<b>1.</b> Remove pressurisation control system components.	a. On a representative range of components of a specific aircraft type pressurisation control system.	No. of Entries	1	2	3	
		Tail / Job No.				
		LAME Sign.				
		Date				
		Simulated	Yes   No	Yes   No	Yes   No	
		Work Ref.				
<b>Performance Criteria:</b> 1.1 System is rendered safe and prepared in accordance with the applicable maintenance manual and isolation tags are fitted, where necessary, to ensure personnel safety. 1.2 Pressurisation control system component removal is carried out in accordance with the applicable maintenance manual while observing all relevant work health and safety (WHS) requirements 1.3 Required maintenance documentation is completed and processed in accordance with standard enterprise procedures 1.4 Removed components are tagged and packaged in accordance with specified procedures						

UNIT MEA208: Remove and Install Aircraft Pressurisation Control Systems						
<b>2.</b> Install pressurisation control system components.	a. On a representative range of components of a specific aircraft type pressurisation control system.	No. of Entries	1	2	3	
		Tail / Job No.				
		LAME Sign.				
		Date				
		Simulated	Yes   No	Yes   No	Yes   No	
		Work Ref.				
<b>Performance Criteria:</b> 2.1 Pressurisation control system components to be installed are checked to confirm correct part numbers, modification status, serviceability and shelf life. 2.2 Physical installation of pressurisation control components is performed in accordance with the applicable maintenance manual. 2.3 System is reinstated to correct operational condition in preparation for testing, as necessary 2.4 Required maintenance documentation is completed and processed in accordance with standard enterprise procedures						





	<b>Trade Unit Certification Sheets</b>
<b>Name of Assessed Person:</b>	<b>Registration:</b>

### Certification of Underpinning Knowledge and Skills to Remove and Install Aircraft Pressurisation Control Systems

A person cannot be assessed as competent until it can be demonstrated to the satisfaction of the workplace assessor that the relevant elements of this unit of competency are being achieved under routine supervision on the flight servicing listed in the assessment conditions a) that are applicable to the enterprise. This shall be established via the records in the Log of Industrial Experience or, where appropriate, an equivalent Industry Evidence Guide.

UNIT MEA208: Remove and Install Aircraft Pressurisation Control Systems	Date/ MTO Stamp
Evidence has been confirmed of the attainment of the following pre-requisite units of competency (as they are related to attainment of the elements of competency specified in this unit).  <div style="text-align: center;"><b>201</b></div>	
Evidence has been confirmed of the knowledge requirements for this unit as delivered by a CASR 147 Approved Organisation.  <div style="text-align: center;"><b>OR</b></div>	
Assessment has been conducted to determine that the underpinning knowledge and skills have been achieved in accordance with the Competency Unit.	

### Certification of Unit Completion

I certify that I have reviewed the certification of the elements for this competency unit and that all of the competency unit requirements have been met.

**Signed:** \_\_\_\_\_ **Assessor No.** \_\_\_\_\_ **MTO:** \_\_\_\_\_ **Date:** \_\_\_\_\_



Elements describe the essential outcomes.		Performance criteria describe the performance needed to demonstrate achievement of the element.	
1.	Remove pressurisation control system components	1.1	System is rendered safe and prepared in accordance with the applicable maintenance manual and isolation tags are fitted, where necessary, to ensure personnel safety
		1.2	Pressurisation control system component removal is carried out in accordance with the applicable maintenance manual while observing all relevant work health and safety (WHS) requirements
		1.3	Required maintenance documentation is completed and processed in accordance with standard enterprise procedures
		1.4	Removed components are tagged and packaged in accordance with specified procedures
2.	Install aircraft pressurisation control system components	2.1	Pressurisation control system components to be installed are checked to confirm correct part numbers, modification status, serviceability and shelf life
		2.2	Physical installation of pressurisation control components is performed in accordance with the applicable maintenance manual
		2.3	System is reinstated to correct operational condition in preparation for testing, as necessary
		2.4	Required maintenance documentation is completed and processed in accordance with standard enterprise procedures





# QUESTIONS?

