

Higher National Unit Specification

General information for centres

Unit title: Aircraft Inspection and Repair

Unit code: F0M7 35

Unit purpose: This Unit is designed to allow candidates to acquire a knowledge and understanding of basic aircraft inspection and repair procedures. The candidate will gain practical knowledge in the investigation, evaluation and repair of various aircraft defects. In addition candidates will also achieve knowledge of aircraft maintenance manual usage, workshop practices and safety procedures. This Unit also provides partial coverage of EASA 66 Module 7.18.

On completion of this Unit the candidate should be able to:

- 1 Carry out aircraft inspection in accordance with an approved maintenance schedule.
- 2 Disassemble various aircraft components in accordance with an approved maintenance manual.
- 3 Carry out aircraft repair in accordance with the manual and/or schedule procedures.
- 4 Carry out aircraft re-assembly and return to service.

Credit points and level: 1 HN Credit at SCQF level 8: (8 SCQF credit points at SCQF level 8*)

**SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

Recommended prior knowledge and skills: Access to this Unit is at the discretion of the centre. The Unit has no pre-requisites, however, it would be beneficial if the candidate has a basic knowledge of aircraft and/or engineering theory, which may be evidenced by possession of the HNC Aircraft Engineering certificate.

Core Skills: There are opportunities to develop the Core Skills of:

Problem Solving (Critical Thinking) at SCQF level 5
Problem Solving (Planning and Organising) at SCQF level 5
Problem Solving (Reviewing and Evaluating) at SCQF level 5
Working with Others at SCQF level 5
Written Communication (Reading and Writing) at SCQF level 5
Numeracy (Using Graphical Information) at SCQF level 5

in this Unit, although there is no automatic certification of Core Skills or Core Skills components.

Context for delivery: If this Unit is delivered as part of a Group Award, it is recommended that it should be taught and assessed within the subject area of the Group Award to which it contributes.

General information for centres (cont)

Assessment: Evidence of practical performance could be used to verify the candidates' capabilities. A log book and check list for the Outcomes could be used to verify candidates' knowledge and/or skills items in these Outcomes. The assessor could then sign-off the completed check list.

Higher National Unit specification: statement of standards

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The sections of the Unit stating the Outcomes, knowledge and/or skills, and Evidence Requirements are mandatory.

Where evidence for Outcomes is assessed on a sample basis, the whole of the content listed in the knowledge and/or skills section must be taught and available for assessment. Candidates should not know in advance the items on which they will be assessed and different items should be sampled on each assessment occasion.

Outcome 1

Carry out aircraft inspection in accordance with an approved maintenance schedule

Knowledge and/or skills

- ◆ Compliance with agreed aircraft maintenance schedule
- ◆ Aircraft and/or component inspection using visual inspection and NDI techniques
- ◆ Assessment and evaluation of aircraft and/or component defect/s
- ◆ Identification of proper defect rectification procedure

Outcome 2

Disassemble various aircraft components in accordance with the approved maintenance manual

Knowledge and/or skills

- ◆ Investigation the appropriate manual for disassembly
- ◆ Adherence to the identified procedure
- ◆ Identification and proper use of the necessary tools
- ◆ Correct disassembly of the component and/or structure

Outcome 3

Carry out aircraft repair in accordance with the manual and/or schedule procedures

Knowledge and/or skills

- ◆ Identification and compliance with appropriate repair procedures
- ◆ Repair of the aircraft component and/or structure

Higher National Unit specification: statement of standards (cont)

Unit title: Aircraft Inspection and Repair

Outcome 4

Carry out aircraft re-assembly and return to service

Knowledge and/or skills

- ◆ Re-assembly of aircraft, structure, and/or component
- ◆ Functional test of repaired item in accordance with the appropriate manual
- ◆ Completion of logbook write-ups

Evidence Requirements for the Unit

These are practical skill based Outcomes and all of the knowledge and/or skills items above should be demonstrated. Each candidate will need to demonstrate competence and understanding of aircraft inspection and repair.

A candidate's response can be judged to be satisfactory where evidence provided in the candidate's log book and/or checklist is sufficient to meet all the knowledge and/or skills requirements for each Outcome.

Assessment guidelines for the Unit

The evidence of practical performance could be demonstrated with the use of a log book and/or checklist to verify the candidates' capabilities. The assessor could then sign-off the completed log book and/or checklist.

The logbook write-ups could follow a standardised format and include the following aspects for each task performed:

- ◆ Task description
- ◆ Drawings/sketches and/or relevant technical information
- ◆ Manual reference
- ◆ Defect evaluation and assessment
- ◆ Repair procedures
- ◆ Functional test
- ◆ Health and Safety
- ◆ Equipment and or tool list

Administrative Information

Unit code: F0M7 35

Unit title: Aircraft Inspection and Repair

Superclass category: XP

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History of Changes:

Version	Description of change	Date

Source: SQA

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Higher National Unit specification: support notes

Unit title: Aircraft Inspection and Repair

This part of the Unit specification is offered as guidance. The support notes are not mandatory.

While the exact time allocated to this Unit is at the discretion of the centre, the notional design length is 40 hours.

Guidance on the content and context for this Unit

This Unit has been written in order to allow candidates to develop knowledge and understanding of aircraft inspection and repair:

On completion of this Unit the candidate should be able to:

- 1 Carry out aircraft inspection in accordance with an approved maintenance schedule.
- 2 Disassemble various aircraft components in accordance with an approved maintenance manual.
- 3 Carry out aircraft repair in accordance with the manual and/or schedule procedures.
- 4 Carry out aircraft re-assembly and return to service.

The candidate could complete typical scheduled and unscheduled aircraft maintenance and inspections in accordance with an approved manual and/or procedures. The candidate should investigate, analyse, evaluate and repair typical aircraft defects in accordance with approved manuals and/or repair procedures.

An example of this may be the completion of the Light Aircraft Maintenance Schedule (LAMS) 50 hour check. The candidate could investigate, evaluate, and repair aircraft defects. Then upon completion of the inspection and repair, the candidate could write-up and sign-off the aircraft logbooks.

The candidate could also have the opportunity to develop sheetmetal working skills. This could be done through a typical sheetmetal repair, where the candidate must research the appropriate manual, assess the damage and formulate best possible repair procedure. The repair would be based on standard aviation sheetmetal repair procedures and the aircraft maintenance manual.

A more detailed component based task may be the overhaul of an engine assembly or brake assembly where the candidate will be required to:

- ◆ disassemble the aircraft components
- ◆ evaluate and assess the components and/or damage using various NDI techniques
- ◆ investigate and adhere to the appropriate manuals for repair and assembly
- ◆ carry out a functional test and return the repaired component to service
- ◆ complete and sign-off all logbook entries

While doing these tasks the candidate will demonstrate their ability to adhere to workshop procedures, use precision measuring tools as well as the proper completion of aircraft maintenance logbooks. The above tasks are only a guide and any aircraft related task could be completed as long as the candidate has the opportunity to demonstrate the Knowledge and/or Skills for each Outcome.

Higher National Unit specification: support notes (cont)

Unit title: Aircraft Inspection and Repair

Guidance on the delivery and assessment of this Unit

Candidates could be assessed by demonstration, evaluation and observation of practical tasks. A log book and/or check list could be used and signed off by candidates and assessor encompassing all of the Knowledge and/or skills for each Outcome. A 100% completion for each knowledge and/or skill in the Outcomes is necessary to achieve the Unit.

With the complexity of this Unit and Facility logistics the candidate could be required to complete more than one task. It is recommended that a series of tasks be established and candidates work in groups to complete each task then rotate onto the next task.

As the candidates rotate, the logbooks could be completed and check sheet signed-off by the assessor. Notes could be made to identify any shortcomings while monitoring progress by candidate and assessor.

Opportunities for developing Core Skills

Candidates will have opportunities to develop the Core Skills of Problem Solving (Critical Thinking, Planning and organising, Reviewing and Evaluating); Working with Others; Written Communication (Reading and Writing); and Numeracy (Using Graphical Information), at SCQF level 5 in this Unit, although there is no automatic certification of Core Skills or Core Skills components.

Problem Solving (Critical Thinking): This can be achieved by the candidates demonstrating their ability to assess and evaluate the aircraft and/or component defect/s then selecting an approach to repair.

Problem Solving (Planning and Organising): This could be achieved with the candidate completing a typical sheetmetal repair, where the candidate would develop a plan; identify and obtain resources to carry out the plan; and carry out the task.

Problem Solving (Reviewing and Evaluating): This could be achieved by identifying the strengths and weaknesses of the different repair or inspection procedures then drawing a conclusion.

Working with Others: This could be achieved if the candidates work in groups for the various tasks. They could agree the allocation of tasks, taking into account their own preferences; seek and provide information from/to others as required; and identify strengths and/or weaknesses of own contribution to group activity.

Written Communication (Reading): This could be achieved through an accurate account of the important ideas or significant information from the aircraft maintenance manuals then making a basic evaluation of the communication supported by evidence.

Higher National Unit specification: support notes (cont)

Unit title: Aircraft Inspection and Repair

Written Communication (Writing): This could be achieved through logbook write-ups, where all essential ideas/information with some supporting detail are appropriately presented in a logical order. These entries would use a structure and/or conventions mainly appropriate to purpose and audience; and use spelling, punctuation and sentence structures which are mainly accurate.

Numeracy (Using Graphical Information): this could be achieved by interpreting aircraft drawings, where the candidate would read and use a straightforward scale; extract information from straightforward tables, graphs, charts or diagrams; communicate information in straightforward tables, graphs, charts or diagrams as appropriate.

Open learning

This Unit could be delivered by distance learning, which may incorporate some degree of on-line support. However, with regard to assessment, planning would be required by the centre concerned to ensure the sufficiency and authenticity of candidate evidence. Arrangement would be required to be put in place to ensure that the assessment papers for all Outcomes were conducted under controlled, supervised conditions.

For information on normal open learning arrangements, please refer to the SQA guide *Assessment and Quality Assurance of Open and Distance Learning* (SQA 2000).

Candidates with disabilities and/or additional support needs

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments or considering alternative Outcomes for Units. For information on these, please refer to the SQA document *Guidance on Alternative Assessment Arrangements for Candidates with Disabilities and/or Additional Support Needs*, which is available on SQA's website: www.sqa.org.uk.

General information for candidates

Unit title: Aircraft Inspection and Repair

This Unit is designed to introduce you to aircraft inspection and repair. It will allow you to gain a practical working knowledge of aircraft maintenance procedures. In addition you will also achieve knowledge of workshop practices and safety procedures.

On completion of this Unit you should be capable of aircraft:

- ◆ Inspection
- ◆ Disassembly
- ◆ Repair
- ◆ Re-assembly

You will be assessed by demonstrating a series of aircraft maintenance tasks. A log book and/or check list could be used to verify your ability to inspect and repair aircraft. The logbook write-ups would replicate actual aircraft logbook write-ups. A 100% completion for each knowledge and/or skills item in the four Outcomes is necessary to complete this Unit.

The Unit may be of particular interest to candidates who are interested in pursuing a career in aircraft maintenance engineering as it partially covers the knowledge requirements for module 7.18 (*Maintenance Practices*) of EASA IR part 66 aircraft licensing requirements for both mechanical and avionics engineers.