

**Qualification title:****Level 3 Certificate in Aircraft Manufacture (Electrical and Avionics Manufacture)****Qualification number:****4597-33****Guidance relating to all centre devised units for this qualification**

The following guidance applies to all of the centre devised units listed. Where individual units require specific guidance, this is provided in the next section; Unit specific guidance.

**Generic guidance for units: 010, 011, 012****Task Setting:**

Each task will consist of:

- planning and preparation
- execution of the activity
- inspection of the finished work
- recording and reporting on the completed task
- carrying out tests, calculations and measurements where appropriate.

Specific guidance for each unit is given below.

In order to ensure all the knowledge requirements are covered, additional questions may need to be completed by the candidate. These should be treated as a separate assessment task and the standard forms used (i.e. fronted by GF2/3 if written or GF1 or alternative if oral).

**Forms of Evidence:**

It is expected that the following forms of evidence will be produced for these units:

- candidate report (fronted by GF2/3) and discussion with assessor (recorded on GF1).
- inspection report and/or test report including marked up diagrams, test data and conclusions where appropriate (centre devised form or GF1).
- report, either on pre-prepared pro forma supplied by the assessor, or a written report and assessor checklist (fronted by GF2/3)
- written report to include planning of the task, annotated illustrations of the process (e.g. drawings, photographs). (Any illustrations must clearly state what the candidate is doing/did) and completed job card and/or inspection report (fronted by GF2/3)
- photographic evidence or actual work piece (fronted by GF2/3).

All candidate produced material should be fronted by GF2/3 and any evidence recorded by the assessor should be on GF1 or where appropriate a centre devised alternative, or media recording. Audio or video recordings must be securely saved as evidence, clearly identified as relating to the candidate in



question and accessible to the I&EV)

**Conditions:****Practical tasks**

The practical tasks must take place in an appropriately equipped area in the centre, this may be an on site aircraft hangar if available or other similar area.

**Underpinning knowledge questions**

The short answer underpinning knowledge questions must all be taken under supervised conditions as closed-book tests and must not be completed as homework.

This means that all the activities will be completed with the assessor, or other designated supervisor, present. Strict exam regulations (e.g. JCQ ICE) do not apply; it is envisaged that most candidates will take the short answer questions in their normal learning environment with their own tutor present. Alternatively, assessors may ask the questions orally and record individual candidate's responses on the assignment evidence recording form.

**Marking and grading****Grading criteria to be applied to these units:**

Please refer to the Generic Grading Criteria (GM2) for the detailed descriptors for pass, merit and distinction. The following descriptors apply to these units.

**PT** (Performance of techniques, methods/skills) – these descriptors will apply to any tasks where candidates are carrying out practical activities

**AKU** (Practical application of knowledge and understanding) – these will apply where candidates may be demonstrating some of the knowledge and understanding outcomes through practical activities or planning to carry out practical activities.

**U** (Understanding): these will apply where candidates are being asked specific questions to show their understanding e.g. through oral or short answer questions.

**K** (Knowledge): these will apply where candidates are being asked specific questions to show their understanding e.g. through oral or short answer questions.

**The assessment grading criteria grid (AD2) must be completed in all cases. All tasks should be weighted equally.**



**Unit specific guidance**

This guidance relates to the individual unit only and is in addition to any generic guidance specified for it above.

| Unit | Unit details  |                                       |                               |
|------|---|---------------------------------------|-------------------------------|
| 010  | <b>Title:</b> Electronic and Further Electrical Fundamentals  | <b>Graded:</b> Pass/Merit/Distinction | <b>Sample assessment:</b> N/A |
|      | <p><b>Task Setting:</b><br/>                     Candidates will be tasked with:</p> <ol style="list-style-type: none"> <li>i. constructing electronic circuits</li> <li>ii. testing the circuits</li> <li>iii. demonstrating by experiment a number of electrical principles.</li> </ol> <p>Appropriate tasks will include:</p> <ul style="list-style-type: none"> <li>• Interpreting circuit diagrams and work instructions</li> <li>• Selecting appropriate components</li> <li>• Using techniques such as soldering</li> <li>• Using test equipment such as oscilloscope, multi-meter, voltmeter, ammeter.</li> </ul> <p>Learning outcomes 1.1- 1.4, 2.1 – 2.3 contain knowledge and understanding assessment criteria. It must be clear in the assignment composition grid and the evidence, that the candidate has covered all of the knowledge requirements. Some of these assessment criteria will be covered naturally through candidate reports etc, however it may be necessary to ask the candidate additional questions.</p> |                                       |                               |



| Unit   | Unit details                              |                                       |                               |
|--|---|---------------------------------------|-------------------------------|
| 011  | <b>Title: Aircraft Electrical Systems</b> | <b>Graded:</b> Pass/Merit/Distinction | <b>Sample assessment:</b> N/A |
| <p><b>Task Setting:</b><br/>           Appropriate tasks will include:</p> <ul style="list-style-type: none"> <li>• Identifying aircraft instrumentation.</li> <li>• Performing and documenting a Pitot-Static system test on an aircraft.</li> <li>• Identifying autopilot system components.</li> <li>• Testing and documenting aircraft electrical systems.</li> <li>• Fault finding on an aircraft electrical system( e.g. Lighting system)</li> <li>• Continuity testing, insulation resistance testing and bond testing electrical circuits.</li> <li>• Identifying aircraft electrical system components.</li> <li>• Function testing aircraft flying control systems.</li> </ul> <p>Learning outcomes 1-7 contain knowledge and understanding assessment criteria. It must be clear in the assignment composition grid and the evidence, that the candidate has covered all of the knowledge requirements. Some of these assessment criteria will be covered naturally through candidate reports etc, however it may be necessary to ask the candidate additional questions.</p> |   |                                       |                               |



| Unit   | Unit details  |                                       |                               |
|--|---|---------------------------------------|-------------------------------|
| 012  | <b>Title: Installing Aircraft Electrical Cables</b> | <b>Graded:</b> Pass/Merit/Distinction | <b>Sample assessment:</b> N/A |
| <p><b>Task Setting:</b><br/>Appropriate tasks will include:</p> <ul style="list-style-type: none"> <li>• preparing and installing aircraft electrical cables</li> <li>• repairing damage to aircraft electrical cables</li> <li>• testing wiring installations and equipment</li> <li>• installing and testing electrical bonding</li> <li>• functionally testing avionic equipment.</li> </ul> <p>Learning outcomes 1-7 contain knowledge and understanding assessment criteria. It must be clear in the assignment composition grid and the evidence, that the candidate has covered all of the knowledge requirements. Some of these assessment criteria will be covered naturally through candidate reports etc, however it may be necessary to ask the candidate additional questions.</p>  |   |                                       |                               |
| <p><b>Conditions</b></p> <p>Since the acquisition of a complete airframe is not always possible for a centre, this assignment should be carried out in an environment that is as realistic as possible, but that environment need not include an airframe. Any enclosed space having similar features such as a skinned framework with bulkhead-like structures and similar access issues will suffice. Reasonably-sized sections of fuselage or wing may also be used. Materials and techniques of installing and securing sections of cable should be to the appropriate aircraft standard.</p> <p>Avionic equipment need not be installed in an airframe, but must be operating correctly. Flight simulator hardware and simulated inputs may be used so long as standard test procedures are used. The purpose of this part of the assessment is to establish general competence and awareness when using generic avionic functional testing methods. The only test equipment that might be required is pitot-static, in order to create realistic operating conditions.</p> |   |                                       |                               |