



ETCAL Level 3 NVQ Diploma in Aeronautical Engineering
601/1821/0
Assessment

Diploma - Assessment Principles

Introduction

ETA qualifications are developed in conjunction with the industries and employers they service. They are designed to add value and deliver multidimensional outputs that provide impact for both learners and employers.

It is therefore important that the assessment requirements of ETA qualifications are robust whilst not containing unnecessary and over-burdensome challenges that detract from the intended outcomes and impact. These assessment principles are prepared with that in mind and are applicable to this qualification:

Level 3 NVQ Diploma in Aeronautical Engineering

Principles

There are four key principles to underpin assessment delivery:

1. Assessment should contribute to developing a learner's knowledge and/or skills and provide relevant and current development as the related industry requires.
2. Systems for capturing evidence of competence should be integrated and efficient. Assessment practices for both competence-based and knowledge-based aspects of qualifications should, where possible, be integrated with industry driven standards and requirements.
3. Assessment methods must be appropriate for the level and nature of the qualification units to be assessed. Methods of assessing achievement against learning outcomes and assessment principles must be accommodating and flexible, whilst remaining appropriate for both the level being assessed and industry expectations of learners at that level.
4. Evidence of knowledge and understanding must be recorded and be clearly attributable to the learner. This can be delivered using task based activity with questions and answer sessions, supported by assessor observation.

The choice and application of assessment methods must be consistent with these principles and will generally include:

- Direct Observation
- Written evidence (portfolio/workbook)
- Centre set assignment
- Centre set coursework
- Oral examination
- Professional/open discussion

Delivery Team Requirements

Tutors / Assessors

- Tutors / Assessors should have a detailed knowledge of, and be competent in, the occupational requirements of the units
- Tutors / Assessors should hold or be working towards the related professional qualifications for delivery and assessment as required
- This competence will have been acquired either in direct employment in the occupational role to which the unit relates, or in employment as a manager, supervisor or in-house trainer of employees carrying out the role
- It is unlikely that occupational competence will have been achieved in less than twelve months of employment but individuals with less experience could be considered as assessors if sufficiently occupationally competent

Internal Quality Assurers (IQAs)

- IQAs must have a thorough understanding of the structure, content and occupational requirements of the units that they are internally quality assuring. This understanding will have been acquired while either working directly within or delivering within the relevant occupational area in either an operational or a support function
- The level of understanding must be sufficient to allow the IQA to judge whether the assessor has fully assessed learners against all the principles within the unit
- It is unlikely that a person could have gained this level of understanding in less than twelve months of being employed but individuals with less experience could be considered as IQAs if they have the required level of experience, knowledge and understanding.

Technical / Expert Witness

Expert witnesses can be drawn from a wide range of people who can observe, 'measure and examine performance against the industry and qualification principles. These can include; line managers and experienced individuals within a related sector-based organisation. The Technical Expert Witnesses should have proven practical experience and knowledge relating to the content of the principles being assessed.

It is unlikely that someone could become an expert in their entire job role in less than twelve months of being employed in their industry. They could, however, very quickly become an expert in the content of a single unit if this was the focus of their job role. The assessor should make a

judgement as to the level of expertise held by a potential Technical Expert Witness and, where necessary, this should be confirmed with the awarding organisation.

Assessment Materials

ETC Awards Ltd. (ETA) Assessment Materials are protected by copyright and are supplied only to Approved Centres for use solely for the purpose of the assessment of ETA learners.

Instructions for Conducting Assessment

the Approved Centre must either:

- secure approval of in-house assessment material by ETA's External Quality Assurance team prior to use
- use ETA Assessment Materials
- we recognise that reasonable adjustments may be considered at the time of assessment, please refer to the ETA Reasonable adjustments and considerations policy

All approved centres must then handle and store securely all Assessment Materials in accordance with the following:

- Assessment Material must be accessible to learners only during their programme
- The Approved Centre must not make public in any format the contents of any materials either in part or in full.
- Materials must be securely handled and under no circumstances shared with third party organisations or individuals
- The Approved Centre must seek permission from ETA through the External Quality Assurance team if they want to convert Material for alternative storage, retrieval and delivery in electronic formats.

All centre based assessment material must be agreed with ETA prior to use and will be subject to robust monitored during sampling and verification activity.



Level 3 Unit – Complying with Statutory Regulations and Organisational Safety Requirements

Unit aim

This unit covers the skills and knowledge needed to prove the competences required to deal with statutory regulations and organisational safety requirements. It does not deal with specific safety regulations or detailed requirements, it does, however, cover the more general health and safety requirements that apply to working in an industrial environment.

The learner will be expected to comply with all relevant regulations that apply to their area of work, as well as their general responsibilities as defined in the Health and Safety at Work Act. The learner will need to be able to identify the relevant qualified first aiders and know the location of the first aid facilities. The learner will have a knowledge and understanding of the procedures to be adopted in the case of accidents involving injury and in situations where there are dangerous occurrences or hazardous malfunctions of equipment, processes or machinery. The learner will also need to be fully conversant with their organisation's procedures for fire alerts and the evacuation of premises.

The learner will also be required to identify the hazards and risks that are associated with their job. Typically, these will focus on their working environment, the tools and equipment that they use, the materials and substances that they use, any working practices that do not follow laid-down procedures, and manual lifting and carrying techniques.

Unit introduction

The learner's responsibilities will require them to comply with all relevant statutory and organisational policy and procedures for health and safety in the workplace. The learner must act in a responsible and safe manner at all times and present themselves in the workplace suitably prepared for the activities to be undertaken. The learner will be expected to report any problems with health and safety issues, to the relevant authority.

The learner's knowledge will provide a good understanding of the relevant statutory regulations and organisational requirements associated with their work and will provide an informed approach to the procedures used. The learner will need to understand their organisation's health and safety requirements and their application, in adequate depth to provide a sound basis for carrying out their activities in a safe and competent manner.

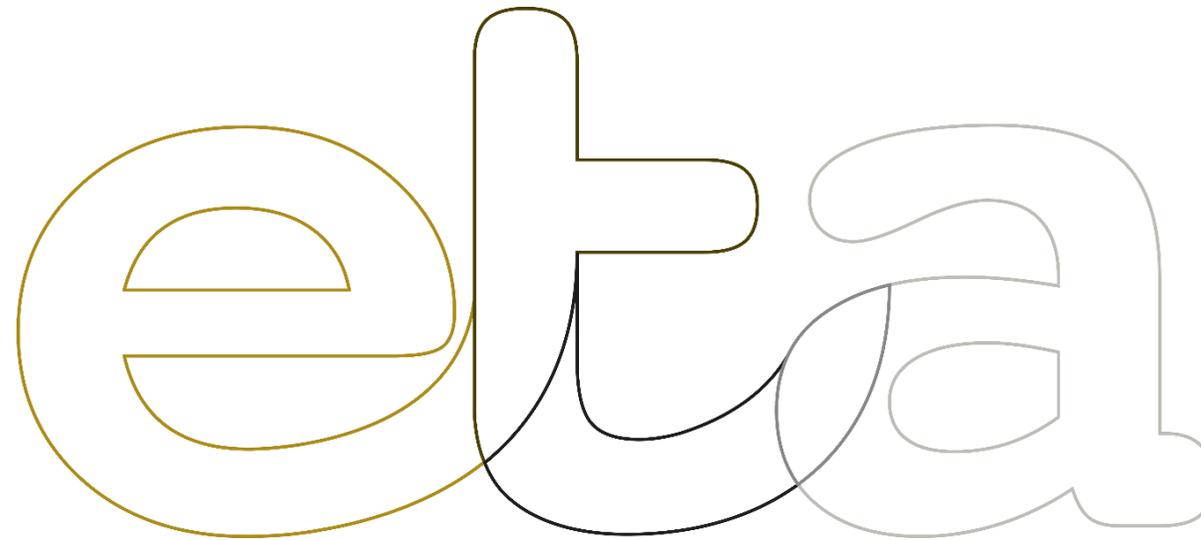
Assessment

To achieve this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit through a variety of assessment methods appropriate to the delivery environment.

Unit Reference Number		A/601/5013
Qualification Framework		RQF
Title		Complying with statutory regulations and organisational safety requirements
Unit Level		Level 3
Guided Learning Hours		35
Unit Credit Value		5
Unit Grading Structure		Pass / Fail

Learning Outcome		Assessment Criteria - The learner can	
1.	Complying with statutory regulations and organisational safety requirements	1.01	Comply with their duties and obligations as defined in the Health and Safety at Work Act
		1.02	Demonstrate their understanding of their duties and obligations to health and safety by: <ul style="list-style-type: none"> • applying in principle their duties and responsibilities as an individual under the Health and Safety at Work Act • identifying, within their organisation, appropriate sources of information and guidance on health and safety issues, such as: <ul style="list-style-type: none"> • eye protection and personal protective equipment (PPE) • COSHH regulations • Risk assessments • identifying the warning signs and labels of the main groups of hazardous or dangerous substances • complying with the appropriate statutory regulations at all times
		1.03	Present themselves in the workplace suitably prepared for the activities to be undertaken
		1.04	Follow organisational accident and emergency procedures
		1.05	Comply with emergency requirements, to include: <ul style="list-style-type: none"> • identifying the appropriate qualified first aiders and the location of first aid facilities • identifying the procedures to be followed in the event of injury to themselves or others • following organisational procedures in the event of fire and the evacuation of premises • identifying the procedures to be followed in the event of dangerous occurrences or hazardous malfunctions of equipment
		1.06	Recognise and control hazards in the workplace

	1.07	Identify the hazards and risks that are associated with the following: <ul style="list-style-type: none">• their working environment• the equipment that they use• materials and substances (where appropriate) that they use• working practices that do not follow laid down procedures
	1.08	Use correct manual lifting and carrying techniques
	1.09	Demonstrate one of the following methods of manual lifting and carrying: <ul style="list-style-type: none">• lifting alone• with assistance of others• with mechanical assistance
	1.10	Apply safe working practices and procedures to include: <ul style="list-style-type: none">• maintaining a tidy workplace, with exits and gangways free from obstruction• using equipment safely and only for the purpose intended• observing organisational safety rules, signs and hazard warnings• taking measures to protect others from any harm resulting from the work that they are carrying out



Level 3 Unit – Using and Interpreting Engineering Data and Documentation

Unit aim

This unit covers the skills and knowledge needed to prove the competences required to make effective use of text, numeric and graphical information, by interpreting and using technical information extracted from documents such as engineering drawings, technical manuals, reference tables, specifications, technical sales/marketing documentation, charts or electronic displays, in accordance with approved procedures. The learner will be required to extract the necessary information from the various documents, in order to establish and carry out the work requirements, and to make valid decisions about the work activities based on the information extracted.

Unit introduction

The learner's responsibilities will require them to comply with organisational policy and procedures for obtaining and using the documentation applicable to the activity. They will be expected to report any problems with the use and interpretation of the documents that they cannot personally resolve, or are outside their permitted authority, to the relevant people. They will be expected to work to instructions if necessary, with an appropriate level of supervision or as a member of a team and take personal responsibility for their own actions and for the quality and accuracy of the work that they carry out.

The learner's underpinning knowledge will provide a good understanding of the types of documentation used and will provide an informed approach to applying instructions and procedures. They will be able to read and interpret the documentation used and will know about the conventions, symbols and abbreviations, in adequate depth to provide a sound basis for carrying out the activities to the required specification.

Assessment

To achieve this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit through a variety of assessment methods appropriate to the delivery environment.

Unit Reference Number		Y/601/5012
Qualification Framework		RQF
Title		Using and interpreting engineering data and documentation
Unit Level		Level 3
Guided Learning Hours		25
Unit Credit Value		5
Unit Grading Structure		Pass / Fail

Learning Outcome		Assessment Criteria - The learner can	
1.	Using and interpreting engineering data and documentation	1.01	Use the approved source to obtain the required data and documentation
		1.02	Use the data and documentation and carry out all of the following: <ul style="list-style-type: none"> • check the currency and validity of the data and documentation used • exercise care and control over the documents at all times • correctly extract all necessary data in order to carry out the required tasks • seek out additional information where there are gaps or deficiencies in the information obtained • deal with or report any problems found with the data and documentation • make valid decisions based on the evaluation of the engineering information extracted from the documents • return all documents to the approved location on completion of the work • complete all necessary work related documentation such as production documentation, installation documentation, maintenance documentation, planning documentation
		1.03	Correctly identify, interpret and extract the required information
		1.04	Extract information that includes three of the following: <ul style="list-style-type: none"> • materials or components required • dimensions • tolerances • build quality • installation requirements • customer requirements • time scales • financial information • operating parameters

		<ul style="list-style-type: none"> • surface texture requirements • location/orientation of parts • process or treatments required • dismantling/assembly sequence • inspection/testing requirements • number/volumes required • repair/service methods • method of manufacture • weld type and size • operations required • connections to be made • surface finish required • shape or profiles • fault finding procedures • safety/risk factors • environmental controls • specific data (such as component data, maintenance data, electrical data, fluid data) • resources (such as tools, equipment, personnel) • utility supply details (such as electricity, water, gas, air) • location of services, including standby and emergency backup systems • circuit characteristics (such as pressure, flow, current, voltage, speed) • protective arrangements and equipment (such as containment, environmental controls, warning and evacuation systems and equipment) • other specific related information
	1.05	Use the information obtained to ensure that work output meets the specification
	1.06	<p>Use information extracted from documents to include one from the following:</p> <ul style="list-style-type: none"> • drawings (such as component drawings, assembly drawings, modification drawings, repair drawings, welding/fabrication drawings, distribution and installation drawings) • diagrams (such as schematic, fluid power diagrams, piping, wiring/circuit diagrams) • manufacturers manuals/drawings • approved sketches • technical illustrations • photographic representations • visual display screen information • technical sales/marketing documentation • contractual documentation

		<ul style="list-style-type: none">• other specific drawings/documents
	1.07	Use information extracted from related documentation, to include two from the following: <ul style="list-style-type: none">• instructions (such as job instructions, drawing instructions, manufacturers instructions)• specifications (such as material, finish, process, contractual, calibration)• reference materials (such as manuals, tables, charts, guides, notes)• schedules• operation sheets• service/test information• planning documentation• quality control documents• company specific technical instructions• national, international and organisational standards• health and safety standards relating to the activity (such as COSHH)• other specific related documentation
	1.08	Deal promptly and effectively with any problems within their control and report those which cannot be solved
	1.09	Report any inaccuracies or discrepancies in documentation and specifications



Level 3 Unit – Working Efficiently and Effectively in Engineering

Unit aim

This unit covers the skills and knowledge needed to prove the competences required to work efficiently and effectively in the workplace, in accordance with approved procedures and practices. Prior to undertaking the engineering activity, the learner will be required to carry out all necessary preparations within the scope of their responsibility. This may include preparing the work area and ensuring that it is in a safe condition to carry out the intended activities, ensuring they have the appropriate job specifications and instructions and that any tools, equipment, materials and other resources required are available and in a safe and usable condition.

On completion of the engineering activity, the learner will be required to return their immediate work area to an acceptable condition before recommencing further work requirements. This may involve placing completed work in the correct location, returning and/or storing any tools and equipment in the correct area, identifying any waste and/or scrapped materials and arranging for their disposal, and reporting any defects or damage to tools and equipment used.

In order to be efficient and effective in the workplace, the learner will also be required to demonstrate that they can create and maintain effective working relationships with colleagues and line management. The learner will also be expected to review objectives and targets for their personal development and make recommendations to, and communicate any opportunities for, improvements that could be made to working practices and procedures.

Unit introduction

The learner's responsibilities will require them to comply with organisational policy and procedures for the engineering activities undertaken, and to report any problems with the activities, or the tools and equipment that are used that they cannot personally resolve, or are outside their permitted authority, to the relevant people. The learner will be expected to take personal responsibility for their own actions and for the quality and accuracy of the work that they carry out.

The learner's knowledge will provide a good understanding of their work and will provide an informed approach to working efficiently and effectively in an engineering environment. The learner will understand the need to work efficiently and effectively, and will know about the areas they need to consider when preparing and tidying up the work area, how to contribute to improvements, deal with problems, maintain effective working relationships and agree their development objectives and targets, in adequate depth to provide a sound basis for carrying out the activities safely and correctly.

The learner will understand the safety precautions required when carrying out engineering activities. The learner will be required to demonstrate safe working practices throughout and will understand the responsibility they owe to themselves and others in the workplace.

Assessment

To achieve this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit through a variety of assessment methods appropriate to the delivery environment.

Unit Reference Number		K/601/5055
Qualification Framework		RQF
Title		Working Efficiently and Effectively in Engineering
Unit Level		Level 3
Guided Learning Hours		25
Unit Credit Value		5
Unit Grading Structure		Pass / Fail

Learning Outcome		Assessment Criteria - The learner can	
1.	Working Efficiently and Effectively in Engineering	1.01	Work safely at all times, complying with health and safety and other relevant regulations and guidelines
		1.02	Prepare the work area to carry out the engineering activity
		1.03	Prepare to carry out the engineering activity, taking into consideration all of the following, as applicable to the work to be undertaken: <ul style="list-style-type: none"> the work area is free from hazards and is suitably prepared for the activities to be undertaken any required safety procedures are implemented any necessary personal protection equipment is obtained and is in a usable condition tools and equipment required are obtained and checked that they are in a safe and useable condition all necessary drawings, specifications and associated documentation is obtained job instructions are obtained and understood the correct materials or components are obtained storage arrangements for work are appropriate appropriate authorisation to carry out the work is obtained
		1.04	Check that there are sufficient supplies of materials and/or consumables and that they meet work requirements
		1.05	Ensure that completed products or resources are stored in the appropriate location on completion of the activities
		1.06	Complete work activities, to include all of the following: <ul style="list-style-type: none"> completing all necessary documentation accurately and legibly returning tools and equipment returning drawings and work instructions identifying, where appropriate, any unusable tools, equipment or components arranging for disposal of waste materials

	1.07	Tidy up the work area on completion of the engineering activity
	1.08	Deal promptly and effectively with problems within their control and report those that cannot be resolved
	1.09	Deal with problems affecting the engineering process, to include two of the following: <ul style="list-style-type: none"> • materials • tools and equipment • drawings • job specification • quality • people • timescales • safety • activities or procedures
	1.10	Contribute to and communicate opportunities for improvement to working practices and procedures
	1.11	Make recommendations for improvement to two of the following: <ul style="list-style-type: none"> • working practices • working methods • quality • safety • tools and equipment • supplier relationships • internal communication • customer service • training and development • teamwork • other
	1.12	Maintain effective working relationships with colleagues to include two of the following: <ul style="list-style-type: none"> • colleagues within own working group • colleagues outside normal working group • line management • external contacts
	1.13	Review personal training and development as appropriate to the job role
	1.14	Review personal development objectives and targets to include one of the following: <ul style="list-style-type: none"> • dual or multi-skilling • training on new equipment / technology • increased responsibility • understanding of company working practices, procedures, plans and policies • other specific requirements



Level 3 Unit – Reinstating the Work Area on Completion
of Activities

Unit aim

This unit covers the skills and knowledge needed to prove the competences required to reinstate the work area, in accordance with approved procedures. The learner will be required to follow the correct procedures for the safe storage of finished products and surplus materials, and to correctly identify and separate all waste materials and ensure that they are removed to their designated locations. The learner will also need to ensure that all tools, equipment and documents used are accounted for and returned to the appropriate places. Tidying of the work area will be of prime importance and includes office and clean working area environments, workshops, staging and platforms, internal areas of aircraft such as wings, tanks and fuselage sections, and areas that are airside.

Unit introduction

The learner's responsibilities will require them to comply with organisational policy and procedures for the activities undertaken, and to report any problems with the reinstatement activities that they cannot personally resolve, or that are outside their permitted authority, to the relevant people. The learner will be expected to work with a minimum of supervision, taking personal responsibility for their own actions and for the quality of the work they carry out.

The learner's knowledge will provide a good understanding of their work and provide an informed approach to applying the required procedures. The learner will understand the need for reinstating the work areas, and will know about the storage requirements of the products, equipment, materials, documentation and consumables, in adequate depth to provide a sound basis for carrying out the activities to the required standard and ensuring that the work area is reinstated satisfactorily.

The learner will understand the safety precautions required when reinstating the work area. The learner will be required to demonstrate safe working practices throughout and will understand the responsibility they owe to themselves and others in the workplace.

Assessment

To achieve this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit through a variety of assessment methods appropriate to the delivery environment.

Unit Reference Number		K/601/4228
Qualification Framework		RQF
Title		Reinstating the Work Area on Completion of Activities
Unit Level		Level 3
Guided Learning Hours		25
Unit Credit Value		5
Unit Grading Structure		Pass / Fail

Learning Outcome		Assessment Criteria - The learner can	
1.	Reinstating the Work Area on Completion of Activities	1.1	Work safely at all times, complying with health and safety and other relevant regulations and guidelines
		1.2	Carry out all of the following activities during reinstatement of the work area: <ul style="list-style-type: none"> • work to current schedules • adhere to procedures or systems in place for risk assessment, COSHH, personal protective equipment and other relevant safety regulations and procedures to realise a safe system of work • report any loss or damage to equipment • report any identified hazards within the work area • return all consumables and materials to their correct location • complete any documentation as required
		1.3	Separate equipment, components, and materials for re-use from waste items and materials
		1.4	Store reusable materials and equipment in an appropriate location
		1.5	Correctly label and store for the following resources: <ul style="list-style-type: none"> • finished products/components • components requiring overhaul/repair • surplus materials/components • tooling, jigs, fixtures or other equipment used • drawings requiring actioning/adjusting • scrap components • measuring and test instruments • finished drawings • finished documentation • documentation requiring actioning/adjusting
		1.6	Dispose of waste materials in line with organisational and environmental safety procedures
		1.7	Deal with waste materials, in line with company and environmental regulations, to include two of the following: <ul style="list-style-type: none"> • correctly segregating waste materials • correctly dispose of waste materials

		<ul style="list-style-type: none"> • disposing of joining compounds, sealants and adhesives • disposing of other chemical products • removing non-hazardous materials disposing of fluid waste (such as oil, hydraulic fluids, fuel)
		1.8 Restore the work areas to a safe condition in accordance with agreed requirements and schedules
		1.9 Carry out reinstatement activities on two work areas from: <ul style="list-style-type: none"> • workshops/hangers • airside • areas at height (such as platforms, staging, lifts) • internal areas of aircraft (such as wings, tanks, fuselage sections) • office environment • computer aided design (CAD) environment • technical/clean room environment • other appropriate environment
		1.10 Deal promptly and effectively with problems within their control and report those that cannot be solved
2.	Know how to Reinstatement the Work Area on Completion of Activities	2.1 Explain the specific safety practices and procedures they need to observe when reinstating the work area (such as any specific legislation, regulations/codes of practice for the activities, equipment or materials)
		2.2 Explain the health and safety requirements of the work area where they are carrying out the activities, and the responsibility these requirements place on them
		2.3 Describe the hazards associated with reinstating the work area, and explain how to minimise them and reduce any risks
		2.4 Explain the safe working practices and procedures to be followed when carrying out the various activities (such as lifting and handling techniques)
		2.5 Explain what personal protective clothing and equipment needs to be worn, and where this can be obtained
		2.6 Explain why work areas need to be restored to a set standard, and what these requirements are
		2.7 Describe the types of work area that will need to be restored (such as office environments, computer aided design (CAD) environment, technical/clean room environment, workshops, test areas, stages and platforms and aircraft areas such as wing, tank, fuselage, airside section areas)
		2.8 Explain the importance of tool and equipment control, and why this is critical within the aerospace industry
		2.9 Explain the meaning of 'foreign object debris', and why it is vital to ensure that this does not occur or is removed
		2.10 Describe the stores procedures for tools and equipment, documentation and surplus or waste materials
		2.11 Explain what materials will need to be stored and disposed of, and why they need to be segregated, correctly identified and labelled
		2.14 Explain what documentation needs to be used on completion of the reinstatement activities
		2.15 Describe the extent of their own responsibility and explain to whom they should report if they have problems that they cannot resolve
		2.12 Explain how the various disposal bins can be identified (such as colour coded, labelled)
		2.13 Explain the procedures for disposing of hazardous materials (such as chemicals, adhesives, oil, hydraulic fluids, fuel)



Level 3 Unit – Installing Aircraft Mechanical Fasteners into
Composite and/or Metallic Components

Unit aim

This unit covers the skills and knowledge needed to prove the competences required to install aircraft mechanical fasteners into composite and/or metallic components, in accordance with approved procedures. The learner will be required to select the appropriate tools and equipment to use, based on the operations to be performed and the types of mechanical fastener to be installed. The mechanical fasteners to be installed will include hollow and solid rivets, threaded fasteners, anchor nuts, pins and other locking devices. The learner will need to use a range of different techniques to prepare, install and check that the mechanical fasteners are installed to the required specification.

Unit introduction

The learner's responsibilities will require them to comply with organisational policy and procedures for the activities undertaken, and to report any problems with the installation activities, materials or equipment used that they cannot personally resolve, or that are outside their personal authority, to the relevant people and, where appropriate, to seek approval to rectify any faults in the installation of the fasteners. The learner must also ensure that all tools, equipment and materials are correctly accounted for on completion of the activities and must complete all necessary job/task documentation accurately and legibly. The learner will be expected to work with a minimum of supervision, taking personal responsibility for their own actions and for the quality and accuracy of the work that they carry out.

The learner's knowledge will provide a good understanding of their work and will provide an informed approach to applying installation techniques and procedures. The learner will understand the mechanical fasteners being installed, and their application, and will know about the equipment, tooling and relevant materials, in adequate depth to provide a sound basis for carrying out the activities, correcting faults and ensuring that the fasteners are installed to the required specification.

The learner will understand the safety precautions required when installing the fasteners, and when using the installation equipment. The learner will be required to demonstrate safe working practices throughout and will understand the responsibility they owe to themselves and others in the workplace.

Assessment

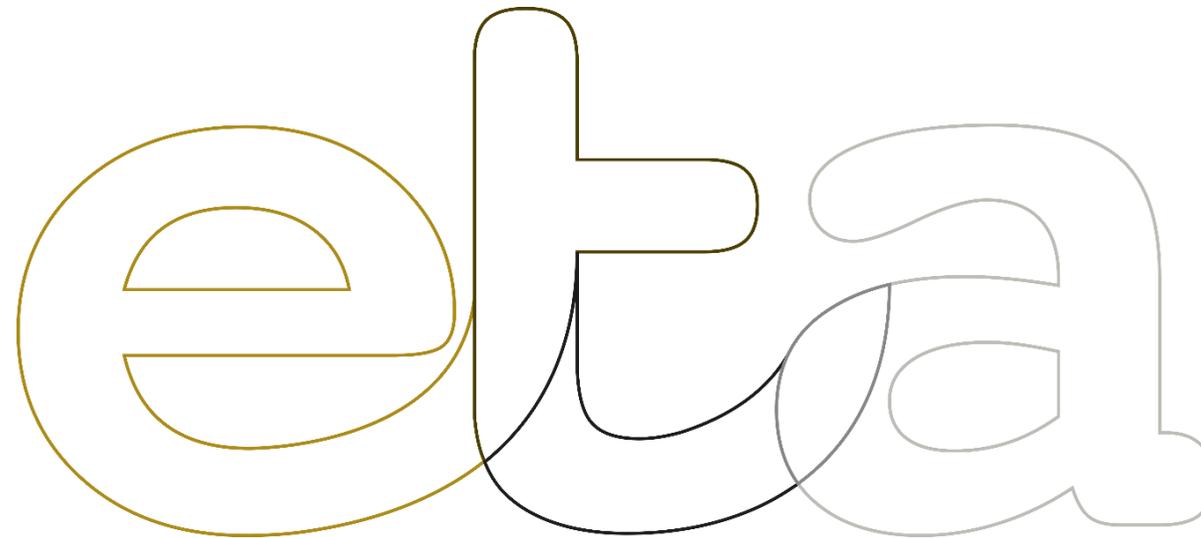
To achieve this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit through a variety of assessment methods appropriate to the delivery environment.

Unit Reference Number		Y/601/4368
Qualification Framework		RQF
Title		Installing Aircraft Mechanical Fasteners into Composite and/or Metallic Components
Unit Level		Level 3
Guided Learning Hours		98
Unit Credit Value		42
Unit Grading Structure		Pass / Fail

Learning Outcome		Assessment Criteria - The learner can	
1.	Installing Aircraft Mechanical Fasteners into Composite and/or Metallic Components	1.1	Work safely at all times, complying with health and safety and other relevant regulations and guidelines
		1.2	Carry out all of the following during the installation activities: <ul style="list-style-type: none"> • obtain and use the appropriate documentation (such as job instructions, installation drawings, planning and quality control documentation, specifications) • adhere to procedures or systems in place for risk assessment, COSHH, personal protective equipment and other relevant safety regulations and procedures to realise a safe system of work • provide and maintain a safe working environment for the installation activities • obtain the correct tools and equipment for the activity, and check that they are in a safe and usable condition and within current calibration date • follow safe practice/approved installation techniques and procedures at all times • return all tools and equipment to the correct location on completion of the installation activities • dispose of waste materials in accordance with approved procedures • leave the work area in a safe and appropriate condition, free from foreign object debris on completion of the activities
		1.3	Follow all relevant drawings and specifications for the installation being carried out
		1.4	Use the correct tools and equipment for the installation operations and check that they are in a safe and usable condition
		1.5	Use four types of equipment from the following: <ul style="list-style-type: none"> • gauges for intrusions • drills and tools with attachments • redline templates • fastener installation tool • jigs • gripping pins and location dowels • clamps
		1.6	Install, position and secure the equipment and components in accordance with the specification

		<p>1.7 Install mechanical fasteners, to include four of the following:</p> <ul style="list-style-type: none"> • hollow rivets • solid rivets • collared fasteners • threaded fasteners • split pins • NAPP pins • pin clips • PIT pins • wire locks • anchor nuts • bonded fasteners • other locking devices
		<p>1.8 Use five of the following installation methods and techniques:</p> <ul style="list-style-type: none"> • countersinking • milling fasteners • wire locking • installing fasteners with a clearance fit • installing fasteners with an interference fit • bonded fasteners • solid riveting (single and double handed) squeeze, percussion, reaction • blind riveting • through-hole • taperlok
		<p>1.9 Make three types of connection from:</p> <ul style="list-style-type: none"> • wet assembly • dry assembly • panels • skins • structures • repairs
		<p>1.10 Check that all necessary connections to the equipment are complete</p>
		<p>1.11 Install fasteners in compliance with one of the following:</p> <ul style="list-style-type: none"> • Civil Aviation Authority (CAA)/European Aviation Safety Agency (EASA) • Ministry of Defence (MoD) • Federal Aviation Authority (FAA) • BS, ISO or BSEN standards and procedures • customer standards and requirements • company standards and procedures

		1.12	Deal promptly and effectively with problems within their control and report those that cannot be solved
		1.13	Check that the installation is complete and that all components are free from damage
		1.14	Complete the relevant paperwork, to include one from the following, and pass it to the appropriate people: <ul style="list-style-type: none"> • build records • log cards • job cards • aircraft log
2.	Know how to Install Aircraft Mechanical Fasteners into Composite and/or Metallic Components	2.1	Explain the specific safety precautions to be taken whilst installing the mechanical fasteners (including any specific legislation, regulations or codes of practice relating to the activities, equipment or materials)
		2.2	Explain the health and safety requirements of the work area in which they are carrying out the installation activities, and the responsibility these requirements place on them
		2.3	Describe the hazards associated with installing mechanical fasteners in aerospace structures, and with the tools and equipment used, and explain how to minimise them and reduce any risks
		2.4	Explain what protective equipment they need to wear for both personal protection and protection of the aircraft
		2.5	Explain the need to work to the installation instructions and appropriate specifications
		2.6	Explain why they must obtain design approval before removing and replacing faulty fasteners
		2.7	Explain the purpose and use of joint sealing agents and anti-electrolysis barriers, and the precautions to be taken when using them
		2.8	Explain the regulations concerning electrical bonding and anti-electrolysis barriers
		2.9	Describe the various types and range of screwed fasteners used on aircraft, and methods of installing them
		2.10	Describe the types and applications of aircraft rivets, and explain the advantages of hollow rivets over solid rivets
		2.11	Describe the methods of installing rivets (such as blind rivets, squeeze, percussion and reaction riveting)
		2.12	Explain the reasons for using screw fastenings rather than rivets
		2.13	Explain the purpose and use of a countersink cage
		2.14	Explain the various locking devices used with fastenings
		2.15	Explain the purpose and use of locating dowels, gripping pins and gauges when carrying out fastening operations
		2.16	Explain the procedures to be adopted when removing rivets and other fasteners
		2.17	Explain the term 'quilting', its occurrence and avoidance
		2.18	Explain 'Bolt break-offs', and where they occur
		2.19	Explain how to check that riveting guns, power tools and attachments are in a safe and usable condition, and the action to be taken in the event of identifying defective equipment
		2.20	Describe the types of gauge used to measure angles, depths, countersinks and torque
		2.21	Explain how and why tools are calibrated, and how to check that the tools they are using are within calibration dates
		2.22	Describe the extent of their own responsibility and explain to whom they should report if they have problems that they cannot resolve



Level 3 Unit – Producing Aircraft Detail Assemblies

Unit aim

This unit covers the skills and knowledge needed to prove the competences required to assemble components to produce aircraft detail assemblies, in accordance with approved procedures. The learner will be required to select the appropriate tools and equipment to use, based on the assembly operations required, and to check that they are in a safe and usable condition. In carrying out the assembly operations, the learner will be required to follow laid-down procedures and specific assembly techniques, in order to assemble the various components into detail assemblies. Typical assemblies to be produced will include stringers, frames, panels, trays, skins, ribs, tanks and other small assemblies, as appropriate.

Unit introduction

The learner's responsibilities will require them to comply with organisational policy and procedures for the activities undertaken, and to report any problems with the assembly activities, materials or equipment that they cannot personally resolve, or that are outside their permitted authority, to the relevant people. The learner will need to ensure that all tools, equipment and materials used in the assembly are correctly accounted for on completion of the activities, and they must complete all necessary job/task documentation accurately and legibly. The learner will be expected to work with a minimum of supervision, taking personal responsibility for their own actions and for the quality and accuracy of the work that they carry out.

The learner's knowledge will provide a good understanding of their work and will provide an informed approach to applying assembly techniques and procedures. The learner will understand the structure being assembled, and its application, and will know about the relevant materials and fastening devices, in adequate depth to provide a sound basis for carrying out the activities, correcting faults and ensuring that the work is to the required specification.

The learner will understand the safety precautions required when carrying out the assembly activities. The learner will be required to demonstrate safe working practices throughout and will understand the responsibility they owe to themselves and others in the workplace.

Assessment

To achieve this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit through a variety of assessment methods appropriate to the delivery environment.

Unit Reference Number		D/601/4369
Qualification Framework		RQF
Title		Producing Aircraft Detail Assemblies
Unit Level		Level 3
Guided Learning Hours		140
Unit Credit Value		71
Unit Grading Structure		Pass / Fail

Learning Outcome		Assessment Criteria - The learner can	
1.	Producing Aircraft Detail Assemblies	1.1	Work safely at all times, complying with health and safety and other relevant regulations and guidelines
		1.2	Carry out all of the following activities during assembly: <ul style="list-style-type: none"> • obtain and use the appropriate documentation (such as job instructions, aircraft assembly drawings, planning and quality control documentation, specifications) • adhere to procedures or systems in place for risk assessment, COSHH, personal protective equipment and other relevant safety regulations and procedures to realise a safe system of work • provide and maintain a safe working environment for the assembly activities • obtain the correct tools and equipment for the activity, and check that they are in a safe and usable condition and within current calibration date • follow safe practice/approved assembly techniques and procedures at all times • return all tools and equipment to the correct location on completion of the activities • dispose of waste materials in accordance with approved procedures • leave the work area in a safe and appropriate condition, free from foreign object debris on completion of the activities
		1.3	Follow the relevant instructions, assembly drawings and any other specifications
		1.4	Check that the specified components are available and that they are in a usable condition
		1.5	Assemble components which include four of the following: <ul style="list-style-type: none"> • cleats • brackets • angles • skins • stringers • ribs • pipes, unions and joints • jumper braids, bonding clips, earthing straps • aircraft general supplies

		1.6	Use the appropriate methods and techniques to assemble the components in their correct positions
		1.7	Apply all of the following assembly methods and techniques: <ul style="list-style-type: none"> • welding (if appropriate) • drilling and riveting • applying sealants/adhesives • electrical bonding of components • ensuring that correct part numbers are used • ensuring that correct hand of components used (left or right handed) • positioning and aligning components for cosmetic appearance and skin lines • securing components, using mechanical fasteners and threaded devices • applying bolt locking methods (split pins, wire locking, lock nuts, stiff nuts)
		1.8	Produce aircraft detail assemblies which include three of the following: <ul style="list-style-type: none"> • skins • stringers • frames • panels • ribs • trays • tanks • other small assemblies as applicable
		1.9	Secure the components using the specified connectors and securing devices
		1.10	Check the completed assembly to ensure that all operations have been completed and the finished assembly meets the required specification
		1.11	Carry out quality and accuracy checks which include three from: <ul style="list-style-type: none"> • cosmetic appearance • accuracy of skin lines • freedom from damage • torque loading checks • electrical bonding and continuity
		1.12	Produce assemblies which comply with one of the following standards: <ul style="list-style-type: none"> • Civil Aviation Authority (CAA)/European Aviation Safety Agency (EASA) • Ministry of Defence (MoD) • Federal Aviation Authority (FAA) • BS, ISO or BSEN standards and procedures • customer standards and requirements • company standards and procedures
		1.13	Deal promptly and effectively with problems within their control and report those that cannot be solved
		1.14	Complete the relevant paperwork, to include one from the following, and pass it to the appropriate people: <ul style="list-style-type: none"> • build records

			<ul style="list-style-type: none"> • log cards • job cards • aircraft log
2.	Know how to Produce Aircraft Detail Assemblies	2.1	Explain the specific safety precautions to be taken whilst carrying out the detail assembly operations (including any specific legislation, regulations or codes of practice relating to the activities, equipment or materials)
		2.2	Explain the health and safety requirements of the work area in which they are carrying out the detail assembly activities, and the responsibility these requirements place on them
		2.3	Explain what personal protective equipment and protective clothing needs to be worn during the detail assembly activities
		2.4	Describe the hazards associated with producing aircraft assemblies, and with the tools and equipment used, and explain how to minimise them and reduce any risks
		2.5	Explain how to identify the components to be used; component identification systems; codes used and component orientation indicators
		2.6	Explain what preparations need to be undertaken on the components prior to fitting them into the assembly
		2.7	Describe the assembly methods and procedures to be used, and explain the importance of adhering to these procedures
		2.8	Explain how the components are to be aligned and positioned, and the tools and equipment that are used (including jigs and fixtures)
		2.9	Describe the methods used to hold the components in their correct position prior to securing them with the appropriate fasteners
		2.10	Describe the various mechanical fasteners that will be used, and explain their method of installation (such as open and blind rivets, threaded fasteners, special securing devices)
		2.11	Explain the importance of using the specified fasteners for the particular assembly, and why they must not substitute others.
		2.12	Explain what to do if the components or fastening devices are not assembled correctly, are damaged, or have other faults
		2.13	Explain the application of sealants and adhesives within the assembly activities, and the precautions that must be taken when working with the various adhesives and sealants
		2.14	Describe the quality control procedures to be followed during the assembly operations
		2.15	Explain how to conduct any necessary checks to ensure the accuracy and quality of the assemblies produced
		2.16	Explain how to check that the tools and equipment to be used are correctly calibrated and are in a safe and useable condition
		2.17	Explain the importance of using all tools in the correct manner and within their permitted operating range
		2.18	Explain the importance of ensuring that the completed assembly is free from dirt, swarf and foreign objects
		2.19	Describe the problems that can occur with the assembly operations and explain how these can be overcome
		2.20	Describe the extent of their own authority within the assembly activities and explain to whom to report if they have problems that they cannot resolve



Level 3 Unit – Producing Composite and/or Metallic Aircraft
Sub-Assemblies

Unit aim

This unit covers the skills and knowledge needed to prove the competences required to produce composite and/or metallic aircraft sub-assemblies, in accordance with approved procedures. The learner will be required to select the appropriate tools and equipment to use, based on the operations to be performed and type of components to be installed, and to check that they are in a safe and serviceable condition. In carrying out the sub-assembly operations, the learner will be required to follow laid-down procedures and specific assembly techniques in order to assemble the various components into sub-assemblies, such as flaps, ailerons, under-floor structures, side structures, cabin roof, avionics cabinets, mission consoles, engine nacelle, windows, galleys, hatches, doors, stairs, trunking/ducting, and bulkheads. The sub-assembly activities will also include making all necessary checks and adjustments to ensure that components are correctly positioned and, where appropriate, have accurate skin lines, that fasteners are tightened to the correct torque and function as per specification, and that the sub-assembly is free from damage and has an appropriate cosmetic appearance.

Unit introduction

The learner's responsibilities will require them to comply with organisational policy and procedures for the sub-assembly activities undertaken, and to report any problems with the sub-assembly activities that they cannot personally resolve, or that are outside their permitted authority, to the relevant people. The learner must ensure that all tools, equipment, and materials used in the sub-assembly are correctly accounted for on completion of the activities, and they must complete all necessary job/task documentation accurately and legibly. The learner will be expected to work with a minimum of supervision, taking personal responsibility for their own actions and for the quality and accuracy of the work that they carry out.

The learner's knowledge will provide a good understanding of their work and will provide an informed approach to applying sub-assembly techniques and procedures. The learner will understand the structure being assembled, and its application, and will know about the production techniques, components, equipment, relevant materials and fastening devices, in adequate depth to provide a sound basis for carrying out the activities, correcting faults and ensuring that the finished work is to the required specification.

The learner will understand the safety precautions required when carrying out the assembly operations. The learner will be required to demonstrate safe working practices throughout and will understand the responsibility they owe to themselves and others in the workplace.

Assessment

To achieve this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit through a variety of assessment methods appropriate to the delivery environment.

Unit Reference Number		Y/601/4371
Qualification Framework		RQF
Title		Producing Composite and/or Metallic Aircraft Sub-Assemblies
Unit Level		Level 3
Guided Learning Hours		140
Unit Credit Value		71
Unit Grading Structure		Pass / Fail

Learning Outcome		Assessment Criteria - The learner can	
1.	Producing Composite and/or Metallic Aircraft Sub-Assemblies	1.1	Work safely at all times, complying with health and safety and other relevant regulations and guidelines
		1.2	Carry out all of the following during the assembly activities: <ul style="list-style-type: none"> • obtain and use the appropriate documentation (such as job instructions, aircraft assembly drawings, planning and quality control documentation, aircraft procedures and specifications) • adhere to procedures or systems in place for risk assessment, COSHH, personal protective equipment and other relevant safety regulations and procedures to realise a safe system of work • provide and maintain a safe working environment for the assembly activities • obtain the correct tools and equipment for the activity, and check that they are in a safe and usable condition and within current calibration date • follow safe practice/approved assembly techniques and procedures at all times • return all tools and equipment to the correct location on completion of the assembly activities • dispose of waste materials in accordance with approved procedures • leave the work area and assembly in a safe and appropriate condition, free from foreign object debris on completion of the activities
		1.3	Follow the relevant instructions, assembly drawings and any other specifications
		1.4	Check that the specified components are available and that they are in a usable condition
		1.5	Use four of the following types of component in the sub-assemblies: <ul style="list-style-type: none"> • details • brackets • skins/covers • angles • ribs • levers, linkages • packers • frames

	<ul style="list-style-type: none"> • spars • stringers • doublers • pipes, unions and joints • jumper braids, bonding clips, earthing straps
1.6	Use the appropriate methods and techniques to assemble the components in their correct positions
1.7	<p>Apply all of the following sub-assembly methods and techniques:</p> <ul style="list-style-type: none"> • applying sealants/adhesives • ensuring correct part numbers are used • drilling holes • finishing holes (such as countersinking, deburring, spot facing) • electrical bonding of components • ensuring that the correct hand of components is used (left or right-handed) • positioning and aligning components for cosmetic appearance and skin lines to drawing requirements, as appropriate • securing components using mechanical fasteners, threaded devices, liquid shimming, riveting, taperlok, interference/clearance fit and bonding to drawing requirements, as appropriate • applying bolt locking methods (such as split pins, wire locking, lock nuts, stiff nuts)
1.8	<p>Produce aircraft sub-assemblies which include one of the following:</p> <ul style="list-style-type: none"> • flaps • ailerons • under-floor structures • side structures • stringer to skin/cover • windows • galleys • bulk heads • avionics cabinets • rib to spar • mission consoles • hatches • doors • cabin roof • rib and spar to skin/cover • stairs • trunking/ducting • engine nacelle/pylons • wing box sections
1.9	Secure the components using the specified connectors and securing devices

		1.10	Check the completed assembly to ensure that all operations have been completed and the finished assembly meets the required specification
		1.11	Carry out quality and accuracy checks to drawing requirements and/or manufacturers' instructions, which include three of the following: <ul style="list-style-type: none"> • cosmetic appearance • accuracy of skin lines • freedom from damage • torque loading checks • electrical bonding and continuity
		1.12	Produce sub-assemblies which comply with one of the following standards: <ul style="list-style-type: none"> • Civil Aviation Authority (CAA)/European Aviation Safety Agency (EASA) • Ministry of Defence (MoD) • Federal Aviation Authority (FAA) • BS, ISO or BSEN standards and procedures • customer standards and requirements • company standards and procedures
		1.13	Deal promptly and effectively with problems within their control and report those that cannot be solved
		1.14	Complete the relevant paperwork, to include one from the following, and pass it to the appropriate people: <ul style="list-style-type: none"> • build records • job cards • log cards • aircraft log
2.	Know how to Produce Composite and/or Metallic Aircraft Sub-Assemblies	2.1	Explain the specific safety precautions to be taken whilst carrying out the assembly (including any specific legislation, regulations or codes of practice relating to the activities, equipment or materials)
		2.2	Explain the health and safety requirements of the work area in which they are carrying out the assembly activities, and the responsibility these requirements place on them
		2.3	Explain what personal protective equipment and clothing needs to be worn during the assembly activities
		2.4	Describe the hazards associated with producing composite and metallic aircraft sub-assemblies, and explain how to minimise them and reduce any risks
		2.5	Describe the various types of drawing and specification that are used during the assembly
		2.6	Explain how to identify the components to be used; component identification systems (such as codes and component orientation indicators)
		2.7	Explain what preparations need to be undertaken on the components prior to fitting them into the assembly
		2.8	Describe the assembly methods and procedures to be used, and explain the importance of adhering to the procedures
		2.9	Explain how the components are to be aligned and positioned prior to securing, and the tools and equipment that are used (including jigs and fixtures)

	2.10	Describe the various mechanical fasteners that will be used, and explain their method of installation (such as open and blind rivets, threaded fasteners, special securing devices)
	2.11	Explain the importance of using the specified fasteners for the assembly, and why they must not use substitutes
	2.12	Explain how to deal with components or fastening devices incorrectly assembled, damaged or having other faults
	2.13	Explain the application of sealants and adhesives within the assembly activities, and the precautions that must be taken when working with them
	2.14	Describe the quality control procedures to be followed during the assembly operations
	2.15	Explain how to conduct any necessary checks to ensure the accuracy and quality of the assemblies produced
	2.16	Explain how to recognise defects (such as skin blemishes, poor skin lines, ineffective fasteners, and foreign object damage)
	2.17	Describe the methods and equipment used to transport, handle and lift the components into position, and explain how to check that the equipment is within its current certification dates
	2.18	Explain how to check that the tools and equipment to be used are correctly calibrated and are in a safe and serviceable condition
	2.19	Explain the importance of ensuring that all tools are used correctly and within their permitted operating range
	2.20	Explain the importance of ensuring that the completed assembly is free from dirt, swarf and foreign objects
	2.21	Describe the problems that can occur with the assembly operations, and explain the importance of informing appropriate people of non-conformances
	2.22	Describe the extent of their own responsibility and explain to whom they should report if they have problems that they cannot resolve



Level 3 Unit – Producing Composite and/or Metallic Aircraft
Major Assemblies

Unit aim

This unit covers the skills and knowledge needed to prove the competences required to assemble major aircraft composite and metallic assemblies, in accordance with approved procedures. The learner will be required to select the appropriate tools and equipment to use, based on the assembly operations required, and to check that they are in a safe and serviceable condition. In carrying out the assembly operations, the learner will be required to follow laid-down procedures and specific assembly techniques, in order to assemble the various components into major assemblies that make up front, rear and centre fuselage sections, floors, wings, fin and tail sections, nose sections, cabins or cockpits. The assembly activities will also include making all necessary checks and adjustments to ensure that components are correctly positioned and have accurate skin lines, that fasteners are tightened to the correct torque and function as per the specification, and that the assembly is free from damage and has an appropriate cosmetic appearance.

Unit introduction

The learner's responsibilities will require them to comply with organisational policy and procedures for the assembly activities undertaken, and to report any problems with the assembly activities, materials or equipment that they cannot personally resolve, or that are outside their permitted authority, to the relevant people. The learner will be expected to work with minimal supervision, taking personal responsibility for their own actions and for the quality and accuracy of the work that they carry out.

The learner's knowledge will provide a good understanding of their work and will provide an informed approach to applying the assembly techniques and procedures. The learner will understand the structure being assembled, and its application, and will know about the equipment, relevant materials and fastening devices, in adequate depth to provide a sound basis for carrying out the activities to the required specification.

The learner will understand the safety precautions required when carrying out the assembly activities. The learner will be required to demonstrate safe working practices throughout and will understand the responsibility they owe to themselves and others in the workplace.

Assessment

To achieve this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit through a variety of assessment methods appropriate to the delivery environment.

Unit Reference Number		D/601/4372
Qualification Framework		RQF
Title		Producing Composite and/or Metallic Aircraft Major Assemblies
Unit Level		Level 3
Guided Learning Hours		140
Unit Credit Value		70
Unit Grading Structure		Pass / Fail

Learning Outcome		Assessment Criteria - The learner can	
1.	Producing Composite and/or Metallic Aircraft Major Assemblies	1.1	Work safely at all times, complying with health and safety and other relevant regulations and guidelines
		1.2	Carry out all of the following activities during the installation: <ul style="list-style-type: none"> • obtain and use the appropriate documentation (such as job instructions, aircraft assembly drawings, planning and quality control documentation, aircraft procedures and specifications) • adhere to procedures or systems in place for risk assessment, COSHH, personal protective equipment and other relevant safety regulations and procedures to realise a safe system of work • provide and maintain a safe working environment for the assembly activities • obtain the correct tools and equipment for the activity, and check that they are in a safe and usable condition and within current calibration date • follow safe practice/approved assembly techniques and procedures at all times • ensure that correct part numbers are used, including (where appropriate) left or right handed parts • return all tools and equipment to the correct location on completion of the assembly activities • dispose of waste materials in accordance with approved procedures • leave the work area and assembly in a safe and appropriate condition, free from foreign object debris on completion of the activities
		1.3	Follow the relevant instructions, assembly drawings and any other specifications
		1.4	Check that the specified components are available and that they are in a usable condition
		1.5	Assemble components which include four of the following: <ul style="list-style-type: none"> • ribs • spars • skins/covers • brackets • packers

		<ul style="list-style-type: none"> • frames • jumper braids • stringers • bonding clips • doublers • earthing straps • pipes, unions/joints
	1.6	Use the appropriate methods and techniques to assemble the components in their correct positions
	1.7	<p>Apply all of the following assembly methods and techniques:</p> <ul style="list-style-type: none"> • positioning and aligning components for cosmetic appearance and skin lines to drawing requirements, as appropriate • applying sealant/adhesives • drilling and finishing holes (such as countersinking, deburring, spot facing) • securing components, using mechanical fasteners (such as threaded devices, liquid shimming, riveting, taperlok, interference/clearance fit and bonding) to drawing requirements, as appropriate • applying bolt locking methods (split pins, wire locking, lock nuts, stiff nuts) • electrical bonding of components
	1.8	<p>Produce one of the following aircraft major assemblies:</p> <ul style="list-style-type: none"> • front fuselage section • centre fuselage section • rear fuselage section • floor • cockpit/cabin • wing • fin • nose • side structures • tail plane • cabin roof • flying control surfaces
	1.9	Secure the components using the specified connectors and securing devices
	1.10	Check the completed assembly to ensure that all operations have been completed and the finished assembly meets the required specification
	1.11	<p>Carry out quality and accuracy checks which include three from:</p> <ul style="list-style-type: none"> • cosmetic appearance • accuracy of skin lines • freedom from damage • torque loading checks • electrical bonding and continuity

		1.12	Produce assemblies which comply with one of the following standards: <ul style="list-style-type: none"> • Civil Aviation Authority (CAA)/European Aviation Safety Agency (EASA) • Ministry of Defence (MoD) • Federal Aviation Authority (FAA) • BS, ISO or BSEN standards and procedures • customer standards and requirements • company standards and procedures
		1.13	Deal promptly and effectively with problems within their control and report those that cannot be solved
		1.14	Complete the relevant paperwork, to include one from the following, and pass it to the appropriate people: <ul style="list-style-type: none"> • build records • log cards • job cards • aircraft flight log
2.	Know how to Produce Composite and/or Metallic Aircraft Major Assemblies	2.1	Explain the specific safety precautions to be taken whilst carrying out the assembly (including any specific legislation, regulations or codes of practice relating to the activities, equipment or materials)
		2.2	Explain the health and safety requirements of the work area in which they are carrying out the assembly activities, and the responsibility these requirements place on them
		2.3	Describe the hazards associated with producing major aircraft assemblies, and with the tools and equipment that are used, and explain how to minimise them and reduce any risks
		2.4	Explain what personal protective equipment and clothing needs to be worn during the assembly activities
		2.5	Describe the various types of drawing and specifications that are used during the assembly.
		2.6	Explain how to identify the components to be used; component identification systems (such as codes and component orientation indicators)
		2.7	Explain what preparations need to be undertaken on the components prior to fitting them into the assembly
		2.8	Describe the assembly methods and procedures to be used, and explain the importance of adhering to the procedures
		2.9	Explain how the components are to be aligned and positioned prior to securing, and the tools and equipment that are used, including jigs and fixtures
		2.10	Describe the various mechanical fasteners that will be used and explain their method of installation (such as open and blind rivets, threaded fasteners, special securing devices)
		2.11	Explain the importance of using the specified fasteners for the assembly, and why they must not use substitutes
		2.12	Explain how to deal with components or fastening devices that are incorrectly assembled, damaged or having other faults
		2.13	Explain the application of sealants and adhesives within the assembly activities, and the precautions that must be taken when working with them
		2.14	Describe the quality control procedures to be followed during the assembly operations
		2.15	Explain how to conduct any necessary checks to ensure the accuracy and quality of the assemblies produced

	2.16	Explain how to recognise defects (such as skin blemishes, poor skin lines, ineffective fasteners, foreign object damage)
	2.17	Describe the methods and equipment used to transport, handle and lift the components into position, and explain how to check that the equipment is within its current certification dates
	2.18	Explain how to check that the tools and equipment to be used are correctly calibrated and are in a safe and serviceable condition
	2.19	Explain the importance of ensuring that all tools are used correctly and within their permitted operating range
	2.20	Explain the importance of ensuring that the completed assembly is free from dirt, swarf and foreign objects
	2.21	Describe the problems that can occur with the assembly operations, and explain the importance of informing appropriate people of non-conformances
	2.22	Describe the extent of their own responsibility and explain to whom they should report if they have problems that they cannot resolve