



Level 3 NVQ Extended Diploma in **Aeronautical Engineering**

ENGINEERING

Qualification Specification

Overview

This qualification involves the skills and knowledge to work effectively in a range of aeronautical engineering activities. It also includes L2 Performing Engineering Operations (PEO) units to provide essential basic engineering training for apprentices in England and Wales.

Typical Job

The qualification is applicable to a variety of aeronautical engineering occupations dependent on the pathway chosen.

Qualification code:	600/2083/0
Level:	3
Total qualification time:	1650 Hours
Guided learning hours:	492
Credits:	165
Minimum age	16

Purpose of the qualification

What does this qualification cover?

The skills and knowledge in one or more of a wide variety of aeronautical engineering activities including:

- performing engineering operations
- aircraft manufacture mechanical
- aircraft manufacture electrical
- aircraft power plant assembly, installation and testing
- installing aircraft interiors
- aircraft surface finishing
- survival equipment maintenance
- weapons maintenance
- avionics maintenance
- avionics maintenance
- aircraft mechanical maintenance
- aircraft engine overhaul
- aircraft mechanical component overhaul
- avionic component overhaul
- aircraft technical design and development
- on aircraft maintenance.

This qualification forms part of a Semta Apprenticeship.

Who supports this qualification?

Supported by the industry and Semta.

What could this qualification lead to?

Further study such as at Level 4, and greater employment prospects.

Entry Requirements

Learners must have the potential to achieve the assessment criteria set out in the units.

How is the qualification achieved?

The learner must present evidence (portfolio) which clearly shows they have met the assessment criteria and learning outcomes. The learner must achieve the mandatory and optional units relevant to their pathway (occupational role).

What will be assessed?

All evidence submitted by the learner against the assessment criteria.

How will it be assessed?

Evidence for this qualification will be assessed in accordance with the SEMTA engineering assessment strategy, which has been created from engagement with stakeholders (employers etc.) in the engineering sector.

The qualification is not graded and only a pass can be achieved – which indicates the learner's competence.

Structure

Structure of the EAL Level 3 NVQ Extended Diploma

The Extended Diploma is comprised of a Level 3 Engineering Qualification **extended** by inclusion of technically specific PEO Units as follows:-

Mandatory Units – A combination of Level 2 & 3

Group A - Level 2 PEO Units x 3

OR

Group B - Level 2 PEO Units x 5

And

Group C - One of the Aeronautical Engineering pathways

Delivery requirements

In the context of the Apprenticeship Framework, the technically specific level 2 PEO units **must** be delivered and assessed in a sheltered work environment **before** starting delivery and assessment of the level 3 components in the working environment.

PEO:

To support these basic engineering skills and techniques, the learner must be trained in, and continuously practice the relevant Health and Safety, engineering communication requirements along with all the other Mandatory Unit(s) listed within that qualification. The Learner cannot be signed off as being competent for these units in this period.

Level 3:

On completion of the PEO2 Units, the Learner moves on to the Units from the Level 3 qualification which can only be assessed within a workplace environment.

This qualification will be achieved when the learner has successfully completed the common mandatory Assessment route followed by the required number of optional Assessment route.

Mandatory assessment routes: All four assessment routes must be completed

EAL code	Assessment route title	Level	Credit value	Guided learning hours	Ofqual code
QAEE2/001	Complying with Statutory Regulations and Organisational Safety Requirements	2	5	35	A/601/5013
QAEE2/002	Using and Interpreting Engineering Data and Documentation	2	5	25	Y/601/5102
QAEE3/003	Working Efficiently and Effectively in Engineering	3	5	25	K/601/5055

Group A (Engineering practices)

Optional Units: Learners must complete **three** more units from the following

Notes:

Only one unit from **4, 32** and **61** may be included in the learner's choice of three units.

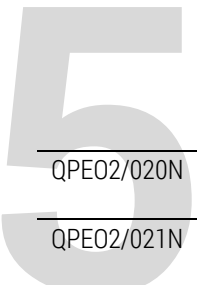
If unit **65** is selected units **5, 6, 8, 11, 12, 15, 16, 17** cannot be included in the learner's choice of three units.

If unit **66** is selected units **10, 22, 23, 25, 26, 27, 28, 29, 30, 34** cannot be included in the learner's choice of three units.

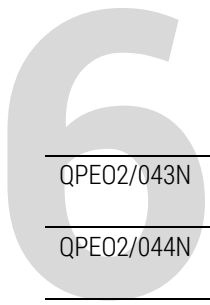
If unit **67** is selected units **33, 35, 36, 40** cannot be included in the learner's choice of three units.

If unit **68** is selected units **19, 21, 37, 38, 39, 40, 58, 59** cannot be included in the learner's choice of three units

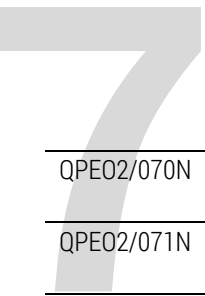
QPE02/004N	Producing Mechanical Engineering Drawings using a CAD System	2	11	61	F/504/6348
QPE02/005N	Producing Components using Hand Fitting Techniques	2	14	64	J/504/6349
QPE02/006N	Producing Mechanical Assemblies	2	15	68	F/504/6351
QPE02/007N	Forming and Assembling Pipework Systems	2	14	64	L/504/6353
QPE02/008N	Carrying Out Aircraft Detail Fitting Activities	2	14	64	R/504/6354
QPE02/009N	Installing Aircraft Mechanical Fasteners	2	11	61	L/504/6367
QPE02/010N	Producing Aircraft Detail Assemblies	2	14	65	L/504/6370
QPE02/011N	Preparing and Using Lathes for Turning Operations	2	15	68	Y/504/6372
QPE02/012N	Preparing and Using Milling Machines	2	15	68	K/504/6375
QPE02/013N	Preparing and Using Grinding Machines	2	15	68	T/504/6377
QPE02/014N	Preparing and Proving CNC Machine Tool Programs	2	14	64	F/504/6379
QPE02/015N	Preparing and Using CNC Turning Machines	2	14	64	F/504/6382
QPE02/016N	Preparing and Using CNC Milling Machines	2	14	64	L/504/6384
QPE02/017N	Preparing and Using CNC Machining Centres	2	14	64	D/504/6387
QPE02/018N	Preparing and Using Industrial Robots	2	14	64	D/504/6390
QPE02/019N	Maintaining Mechanical Devices and Equipment	2	14	64	T/504/6394



QPE02/020N	Assembling and Testing Fluid Power Systems	2	14	64	J/504/6397
QPE02/021N	Maintaining Fluid Power Equipment	2	14	64	F/504/6401
QPE02/022N	Producing Sheet Metal Components and Assemblies	2	14	64	J/504/6402
QPE02/023N	Producing Platework Components and Assemblies	2	14	64	L/504/6403
QPE02/024N	Cutting and Shaping Materials using Thermal Cutting Equipment	2	14	64	R/504/6404
QPE02/025N	Preparing and Proving CNC Fabrication Machine Tool Programs	2	14	64	Y/504/6405
QPE02/026N	Preparing and Using CNC Fabrication Machinery	2	14	64	D/504/6406
QPE02/027N	Preparing and Using Manual Metal Arc Welding Equipment	2	15	68	K/504/6408
QPE02/028N	Preparing and Using Manual TIG or Plasma-arc Welding Equipment	2	15	68	M/504/6409
QPE02/029N	Preparing and Using Semi-automatic MIG, MAG and Flux cored arc Welding equipment	2	15	68	H/504/6410
QPE02/030N	Preparing and Using Manual Oxy/fuel Gas Welding Equipment	2	14	64	Y/504/6419
QPE02/031N	Preparing and Using Manual Flame Brazing and Braze Welding Equipment	2	11	61	L/504/6420
QPE02/032N	Producing Electrical or Electronic Engineering Drawings using a CAD System	2	11	61	R/504/6421
QPE02/033N	Wiring and Testing Electrical Equipment and Circuits	2	14	64	Y/504/6422
QPE02/034N	Forming and Assembling Electrical Cable Enclosure and Support Systems	2	13	65	D/504/6423
QPE02/035N	Assembling, Wiring and Testing Electrical Panels/Components Mounted in enclosures	2	14	64	H/504/6424
QPE02/036N	Assembling and Testing Electronic Circuits	2	14	64	K/504/6425
QPE02/037N	Maintaining Electrical Equipment/Systems	2	15	68	M/504/6426
QPE02/038N	Maintaining Electronic Equipment/Systems	2	15	68	T/504/6427
QPE02/039N	Maintaining and Testing Process Instrumentation and Control Devices	2	15	68	A/504/6428
QPE02/040N	Wiring and Testing Programmable Controller Based Systems	2	15	68	F/504/6429
QPE02/041N	Using Wood for Pattern, Modelmaking and Other Engineering Applications	2	15	68	T/504/6430
QPE02/042N	Assembling Pattern, Model and Engineering Woodwork Components	2	14	64	A/504/6431



QPE02/043N	Producing Composite Mouldings using Wet Lay-up Techniques	2	14	64	F/504/6432
QPE02/044N	Producing Composite Mouldings using Pre-Preg Laminating Techniques	2	14	64	L/504/6434
QPE02/045N	Producing Composite Mouldings using Resin Flow Infusion Techniques	2	14	64	R/504/6435
QPE02/046N	Producing Composite Assemblies	2	14	64	Y/504/6436
QPE02/047N	Producing Components by Rapid Prototyping Techniques	2	11	61	D/504/6437
QPE02/048N	Producing and Preparing Sand Moulds and Cores for Casting	2	14	64	H/504/6438
QPE02/049N	Producing and Preparing Molten Materials for Casting	2	14	64	K/504/6439
QPE02/050N	Producing Cast Components by Manual Means	2	13	65	D/504/6440
QPE02/051N	Fettling, Finishing and Checking Cast Components	2	11	61	H/504/6441
QPE02/052N	Finishing Surfaces by Applying Coatings or Coverings	2	9	41	M/504/6443
QPE02/053N	Finishing Surfaces by Applying Treatments	2	9	41	T/504/6444
QPE02/054N	Carrying Out Heat Treatment of Engineering Materials	2	9	41	A/504/6445
QPE02/055N	Carrying Out Hand Forging of Engineering Materials	2	9	41	F/504/6446
QPE02/056N	Stripping and Rebuilding Motorsport Vehicles (Pre-Competition)	2	14	64	J/504/6447
QPE02/057N	Inspecting a Motorsport Vehicle During Competition	2	14	64	L/504/6448
QPE02/058N	Diagnosing and Rectifying Faults on Motorsport Vehicle Systems (During a Competition)	2	15	68	R/504/6449
QPE02/059N	Carrying Out Maintenance Activities on Motor Vehicle Electrical Equipment	2	15	68	J/504/6450
QPE02/060N	Stripping and Rebuilding Motorsport Engines (Pre – Competition)	2	14	64	L/504/6451
QPE02/061N	Producing CAD Models (Drawings) using a CAD System	2	11	61	R/504/6452
QPE02/065N	General Machining, Fitting and Assembly Applications	2	12	55	K/504/6456
QPE02/066N	General Fabrication and Welding Applications	2	12	55	M/504/6457
QPE02/067N	General Electrical and Electronic Engineering Applications	2	12	55	T/504/6458
QPE02/068N	General Maintenance Engineering Applications	2	12	55	A/504/6459
QPE02/069N	Joining Public Service Vehicle Components by Mechanical Processes	2	11	61	L/503/4056



QPE02/070N	Assembling Structural Sub Assemblies to Produce a Public Service Vehicle	2	14	64	R/503/4057
QPE02/071N	Fitting Sub Assemblies and Components to Public Service Vehicles	2	14	64	Y/503/4058
QPE02/072N	Preparing and Manoeuvring Armoured Fighting Vehicles AFVs for Maintenance and Transportation	2	14	64	R/503/7198
QPE02/073N	Producing Composite Mouldings using Resin Film Infusion Techniques	2	14	64	J/504/3404

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Or

Group B: (Technical Support)

Learners must complete one of the following PEO Level 2 assessment routes:

QPE02/004N	Producing Mechanical Engineering Drawings using a CAD System	2	11	61	F/504/6348
QPE02/032N	Producing Electrical or Electronic Engineering Drawings using a CAD System	2	11	61	R/504/6421
QPE02/061N	Producing CAD Models (Drawings) using a CAD System	2	11	61	R/504/6452

Plus two from the following PEO Level 2 assessment routes:

QPE02/062N	Producing Engineering Project Plans	2	8	37	Y/504/6453
QPE02/063N	Using Computer Software Packages to Assist with Engineering Activities	2	8	37	D/504/6454
QPE02/064N	Conducting Business Improvement Activities	2	8	41	H/504/6455

Plus two more from the following PEO Level 2 assessment routes:

QPE02/065N	General Machining, Fitting and Assembly Applications	2	12	55	K/504/6456
QPE02/066N	General Fabrication and Welding Applications	2	12	55	M/504/6457
QPE02/067N	General Electrical and Electronic Engineering Applications	2	12	55	T/504/6458
QPE02/068N	General Maintenance Engineering Applications	2	12	55	A/504/6459

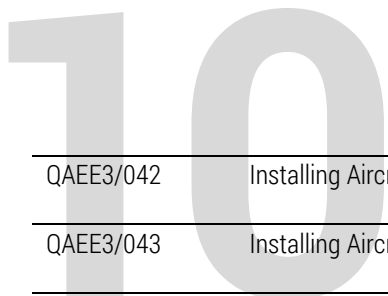
In addition to the PEO Level 2 unit requirement in Group A or B, learners must complete the unit requirements for one of the following Level 3 Aeronautical Engineering Pathways

Group C:

Pathway AEA: Aircraft Manufacture Mechanical

Optional assessment routes: Four of the following assessment routes must be taken:

EAL code	Assessment route title	Level	Credit value	Guided learning hours	Ofqual code
QAEE3/005	Marking Out Composite and/or Metallic Aircraft Components	3	28	52	A/601/4363
QAEE3/006	Cutting and Shaping Aircraft Components	3	48	126	J/601/4365
QAEE3/007	Bending and Forming Aircraft Components	3	48	126	R/601/4367
QAEE3/008	Installing Aircraft Mechanical Fasteners into Composite and/or Metallic Components	3	42	98	Y/601/4368
QAEE3/009	Producing Aircraft Detail Assemblies	3	71	140	D/601/4369
QAEE3/010	Producing Composite and/or Metallic Aircraft Sub-assemblies	3	71	140	Y/601/4371
QAEE3/011	Producing Composite and/or Metallic Aircraft Major Assemblies	3	70	140	D/601/4372
QAEE3/012	Installing Aircraft Mechanical Controls	3	86	210	H/601/4373
QAEE3/013	Repairing Airframes and Structures	3	62	133	A/601/4380
QAEE3/014	Modifying Airframes	3	60	126	F/601/4381
QAEE3/015	Modifying Aircraft Mechanical Systems	3	77	161	D/601/4386
QAEE3/016	Carrying Out Routine Servicing of Aircraft	3	42	105	M/601/4389
QAEE3/023	Moulding Acrylic Aircraft Components	3	50	105	D/601/4422
QAEE3/026	Producing Aircraft Composite Assemblies	3	86	210	J/601/4432
QAEE3/027	Vacuum Forming Aircraft Components	3	50	105	J/601/4446
QAEE3/028	Producing Aircraft Components by Plastic Injection Moulding	3	62	105	D/601/4453
QAEE3/030	Assembling Aircraft Transparencies	3	40	91	T/601/4474
QAEE3/039	Drilling and Finishing Holes in Composite and/or Metallic Aircraft Structures or Components	3	40	98	M/601/4506
QAEE3/041	Installing Aircraft Hydraulic Systems	3	86	210	A/601/4508



QAEE3/042	Installing Aircraft Pneumatic Systems	3	86	210	T/601/4510
QAEE3/043	Installing Aircraft De-Icing Systems	3	86	210	F/601/4512
QAEE3/044	Installing Aircraft Fuel Systems	3	86	210	R/504/8637
QAEE3/045	Installing Aircraft Environmental Systems	3	86	210	D/601/4517
QAEE3/046	Installing Flying Control Surfaces and Systems	3	86	210	Y/504/8638
QAEE3/047	Installing Aircraft Armament Systems	3	86	210	H/601/4521
QAEE3/048	Installing Aircraft Assisted Escape Mechanisms	3	70	140	T/601/4524
QAEE3/049	Installing Aircraft Main Engines	3	95	259	F/601/4526
QAEE3/050	Installing Aircraft Auxiliary Engines	3	89	210	R/601/4529
QAEE3/051	Installing Aircraft Power Transmission Systems	3	89	210	R/601/4532
QAEE3/052	Testing Installed Aircraft Engines	3	55	126	M/601/4537
QAEE3/053	Testing Aircraft Power Transmission Systems	3	55	126	A/601/4542
QAEE3/054	Testing Aircraft Hydraulic Systems	3	55	126	L/601/4545
QAEE3/055	Testing Aircraft Pneumatic Systems	3	55	126	Y/601/4547
QAEE3/056	Testing Aircraft Environmental Systems	3	55	126	Y/601/4550
QAEE3/057	Testing Aircraft De-Icing Systems	3	55	126	M/601/4554
QAEE3/058	Testing Aircraft Fuel Systems	3	55	126	F/601/4560
QAEE3/059	Testing Aircraft Flying Control Surfaces and Systems	3	55	126	T/601/4572
QAEE3/060	Testing Aircraft Armament Systems	3	50	105	R/601/4577
QAEE3/061	Testing Aircraft Assisted Escape Systems	3	50	105	D/601/4579
QAEE3/093	Applying Finishes to Aircraft Composite Mouldings	3	46	126	L/601/4707
QAEE3/202	Producing Aircraft Composite Mouldings using Pre-Preg Laminating Techniques	3	86	210	F/601/5188
QAEE3/203	Producing Aircraft Composite Mouldings using Wet Lay-Up Techniques	3	86	210	J/601/5192
QAEE3/204	Producing Aircraft Composite Mouldings using Resin Infusion Laminating Techniques	3	86	210	Y/601/5195
QAEE3/205	Trimming Aircraft Composite Mouldings using Hand Tools	3	46	105	H/601/5197

QAEE3/206	Identifying Defects in Aircraft Composite Mouldings	3	30	52	Y/601/5200
QAEE3/207	Repairing Aircraft Composite Mouldings	3	77	161	D/601/5201
QAEE3/208	Bonding Aircraft Composite Mouldings	3	30	52	K/601/5203
QAEE3/211	Setting Plastic Injection Moulding Machines for the Production of Aircraft Components	3	70	140	K/601/6111
QAEE3/215	Installing, Testing and Modifying Aircraft Cableforms/Looms in a Mechanical Structure	3	71	140	T/504/8646

Pathway AEB: Aircraft Manufacture Electrical

Optional assessment routes: Four of the following assessment routes must be taken:

EAL code	Assessment route title	Level	Credit value	Guided learning hours	Ofqual code
QAEE3/062	Installing Aircraft Cableforms/Looms	3	77	161	M/601/4585
QAEE3/063	Installing Aircraft Instrument Panels and Meters	3	86	210	A/601/4587
QAEE3/064	Installing Aircraft Visual Display Units and Computer Systems	3	86	210	A/601/4590
QAEE3/065	Installing Aircraft Engine Control Units	3	77	161	H/601/4597
QAEE3/066	Installing Aircraft Power Supplies	3	77	161	L/601/4609
QAEE3/067	Installing Aircraft Communication Systems	3	86	210	L/601/4612
QAEE3/068	Installing Aircraft Flight Guidance and Control Systems	3	86	210	T/601/4622
QAEE3/069	Installing Aircraft Navigational Systems	3	86	210	R/601/4630
QAEE3/070	Installing Aircraft Radar Systems	3	86	210	Y/601/4659
QAEE3/071	Installing Aircraft Countermeasure Systems	3	86	210	R/601/4661
QAEE3/072	Installing Aircraft Electro-Optical and Infrared Systems	3	86	210	Y/601/4662
QAEE3/073	Installing Aircraft Instrumentation Systems	3	86	210	H/601/4664
QAEE3/074	Modifying Aircraft Electrical Systems	3	77	161	D/504/8639
QAEE3/075	Modifying Aircraft Avionics Systems	3	77	161	H/601/4681
QAEE3/076	Testing Aircraft Cableforms/Looms	3	77	161	D/504/8642

QAEE3/077	Testing Aircraft Visual Display Units and Computer Systems	3	55	126	M/601/4683
QAEE3/078	Testing Aircraft Engine Control Units	3	55	126	T/601/4684
QAEE3/079	Testing Aircraft Communication Systems	3	55	126	A/601/4685
QAEE3/080	Testing Aircraft Flight Guidance and Control Systems	3	55	126	J/601/4687
QAEE3/081	Testing Aircraft Navigational Systems	3	55	126	R/601/4689
QAEE3/082	Testing Aircraft Radar Systems	3	55	126	L/601/4691
QAEE3/083	Testing Aircraft Countermeasure Systems	3	55	126	R/601/4692
QAEE3/084	Testing Aircraft Electro-Optical and Infrared Systems	3	55	126	D/601/4694
QAEE3/085	Testing Aircraft Instrumentation Systems	3	55	126	H/601/4695
QAEE3/086	Producing Aircraft Wiring Layouts and Routeings	3	35	77	K/601/4696
QAEE3/087	Producing Aircraft Electrical Sub-Assemblies, Cableforms and Looms	3	86	210	T/601/4698
QAEE3/088	Modifying Aircraft Cableforms and Looms	3	77	161	H/601/4700

Pathway AEC: Aircraft Power Plant Assembly, Installation and Testing

Optional assessment routes: Two of the following assessment routes must be taken:

EAL code	Assessment route title	Level	Credit value	Guided learning hours	Ofqual code
QAEE3/031	Producing Aircraft Engine Compressor Assemblies	3	95	259	F/6014476
QAEE3/032	Producing Aircraft Engine Combustion Assemblies	3	126	315	R/601/4479
QAEE3/033	Producing Aircraft Engine Turbine Assemblies	3	84	231	R/601/4482
QAEE3/034	Producing Aircraft Engine Gearbox Assemblies	3	95	259	T/601/4488
QAEE3/035	Producing Aircraft Piston Engine Assemblies	3	95	259	Y/601/4497
QAEE3/036	Producing Aircraft Engine Major Assemblies	3	147	350	Y/601/4502

QAEE3/037	Dressing Aircraft Engines	3	63	133	K/601/4505
QAEE3/049	Installing Aircraft Main Engines	3	95	259	F/601/4526
QAEE3/052	Testing Installed Aircraft Engines	3	55	126	M/601/4537
QAEE3/161	Carrying Out Test Bed Runs on Aircraft Engines (Uninstalled)	3	150	357	K/601/4889

Pathway AED: Installing Aircraft Interiors

Optional assessment routes: Four of the following assessment routes must be taken:

EAL code	Assessment route title	Level	Credit value	Guided learning hours	Ofqual code
QAEE3/017	Installing Aircraft Domestic Equipment	3	71	140	H/601/4390
QAEE3/018	Installing Aircraft Lockers and Storage Units	3	35	52	F/601/4395
QAEE3/019	Installing Aircraft Interior Panels and Soft Furnishings	3	30	52	A/601/4413
QAEE3/020	Installing Aircraft Seating and Furniture	3	30	52	R/601/4417
QAEE3/021	Cutting and Shaping Soft Furnishing Materials	3	25	52	R/6014420

Pathway AEE: Aircraft Surface Finishing

Optional assessment routes: Four of the following assessment routes must be taken:

EAL code	Assessment route title	Level	Credit value	Guided learning hours	Ofqual code
QAEE3/089	Applying Aircraft Paint Finishes by Hand	3	46	52	K/601/4701
QAEE3/090	Applying Aircraft Paint Finishes by Spray Guns	3	46	52	T/601/4703
QAEE3/091	Applying Transfers, Decals and Livery to Aircraft	3	20	52	A/601/4704
QAEE3/092	Stripping and Removing Aircraft Finishes	3	20	52	J/601/4706
QAEE3/093	Applying Finishes to Aircraft Composite Mouldings	3	46	126	L/601/4707

Pathway AEF: Survival Equipment Maintenance

Optional assessment routes: Five of the following assessment routes must be taken:

EAL code	Assessment route title	Level	Credit value	Guided learning hours	Ofqual code
QAEE3/094	Carrying Out Maintenance of Aircrew Protective Helmets and Electrical Headsets	3	28	52	L/601/4710

QAEE3/095	Carrying Out Maintenance of Aircrew Protective Clothing	3	28	52	M/601/4716
QAEE3/096	Carrying Out Maintenance of Aircrew Nuclear, Biological and Chemical (NBC) Respirators and Equipment	3	30	52	F/601/4719
QAEE3/097	Carrying Out Maintenance of Aircrew Life Preserver Equipment	3	30	52	F/601/4722
QAEE3/098	Carrying Out Maintenance of Aircrew Inertia Reels and Restraint Harnesses	3	28	52	J/601/4723
QAEE3/099	Carrying Out Maintenance of Aircraft Multi-Seat Life Rafts and Emergency Packs	3	30	52	R/601/4725
QAEE3/100	Carrying Out Maintenance of Aircrew Oxygen Masks	3	30	52	D/601/4727
QAEE3/101	Carrying Out Maintenance of Aircrew Personal Survival Packs (PSP)	3	28	52	M/601/4733
QAEE3/102	Carrying Out Maintenance of Aircrew Quick-Release Fasteners (QRF)	3	28	52	T/601/4734
QAEE3/103	Carrying Out Maintenance of Ejection Seat Headbox Parachute Assemblies	3	39	52	A/601/4735
QAEE3/198	Carrying Out Maintenance of Free Fall Parachute Assemblies	3	30	52	J/601/5175
QAEE3/199	Carrying Out Maintenance of Static Line Parachute Assemblies	3	30	52	R/601/5177
QAEE3/200	Carrying Out Maintenance of Brake Parachute Assemblies	3	30	52	H/601/5183
QAEE3/201	Carrying Out Maintenance of Night Vision Goggles	3	28	52	A/601/5187

Pathway AEG: Weapons Maintenance

Optional assessment routes: Four assessment routes must be taken as follows:

Two of the following assessment routes must be taken:

EAL code	Assessment route title	Level	Credit value	Guided learning hours	Ofqual code
QAEE3/104	Testing Uninstalled Aircraft Assisted Escape System (AAES) Components	3	53	126	F/601/4736
QAEE3/105	Testing Installed Aircraft Armament Systems	3	53	126	J/601/4737
QAEE3/106	Testing Uninstalled Aircraft Armament System Components	3	53	126	L/601/4738
QAEE3/107	Undertaking Fault Diagnosis on Installed Aircraft Armament Systems	3	50	105	R/601/4739
QAEE3/108	Undertaking Fault Diagnosis on Uninstalled Aircraft Armament System Components	3	50	105	J/601/4740

QAEE3/109	Modifying Aircraft Armament Systems and Components	3	50	105	L/601/4741
QAEE3/110	Testing Installed Aircraft Assisted Escape Systems (AAES)	3	53	126	Y/601/4743

Plus either:

Two of the following assessment routes must be taken:

QAEE3/111	Overhauling Aircraft Gun Systems	3	83	168	D/601/4744
QAEE3/112	Overhauling Aircraft Assisted Escape Systems (AAES)	3	83	168	H/601/4745
QAEE3/113	Overhauling Aircraft Armament Release Systems	3	83	168	K/601/4746

Or:

One of the following assessment routes must be taken:

QAEE3/114	Removing Aircraft Armament System Components	3	50	105	M/601/4747
QAEE3/115	Removing Aircraft Assisted Escape Systems (AAES)	3	50	105	T/601/4748
QAEE3/116	Removing Aircraft Armament Expendable Stores	3	55	126	A/601/4749
QAEE3/209	Dismantling Aircraft Armament Expendable Stores	3	55	126	R/601/6104

And one of the following assessment routes must be taken:

QAEE3/117	Installing Aircraft Armament System Components	3	83	168	M/601/4750
QAEE3/118	Installing Aircraft Assisted Escape Systems (AAES)	3	83	168	T/601/4751
QAEE3/119	Installing Aircraft Armament Expendable Stores	3	83	168	A/601/4752
QAEE3/210	Assembling Aircraft Armament Expendable Stores	3	83	168	H/601/6107

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Pathway AEH: Avionics Maintenance

Optional assessment routes: Both of the following assessment routes must be taken:

EAL code	Assessment route title	Level	Credit value	Guided learning hours	Ofqual code
QAEE3/120	Carrying Out Fault Diagnosis on Aircraft Avionics Components or Systems	3	53	126	F/601/4753
QAEE3/121	Undertaking Scheduled Maintenance of Aircraft Avionics Equipment/Systems	3	40	98	J/601/4754

Plus two of the following assessment routes must be taken:

QAEE3/122	Removing and Replacing Avionic Indication and Gauging Components in Aircraft Systems	3	86	175	R/601/4756
QAEE3/123	Removing and Replacing Components of Aircraft Electrical Power Control, Distribution and Protection Systems	3	86	175	H/601/4759
QAEE3/124	Removing and Replacing Components of Aircraft Pitot Static Systems	3	86	175	D/601/4761
QAEE3/125	Removing and Replacing Components of Aircraft Armament Systems	3	86	175	H/601/4762
QAEE3/126	Removing and Replacing Components of Aircraft Communication Systems	3	86	175	K/601/4763
QAEE3/127	Removing and Replacing Components of Aircraft Passive Warning and Optical/Surveillance Systems	3	86	175	T/601/4765
QAEE3/128	Removing and Replacing Components of Aircraft Radar Systems	3	86	175	F/601/4767
QAEE3/129	Removing and Replacing Components of Aircraft Navigational and Computing Systems	3	86	175	L/601/4769
QAEE3/130	Removing and Replacing Components of Aircraft Flight Guidance and Control Systems	3	86	175	J/601/4771
QAEE3/131	Removing and Replacing Components of Aircraft Internal and External Lighting Systems	3	84	175	L/601/4772
QAEE3/132	Modifying Aircraft Avionic Systems	3	77	175	R/601/4773

Plus two of the following test assessment routes must be taken:

QAEE3/133	Carrying Out Tests on Avionic Indication and Gauging Components of Aircraft Systems	3	53	119	Y/601/4774
QAEE3/134	Carrying Out Tests on Aircraft Electrical Power Control, Distribution and Protection Systems	3	53	119	H/601/4776
QAEE3/135	Carrying Out Tests on Aircraft Pitot Static Systems	3	53	119	M/601/4781
QAEE3/136	Carrying Out Tests on Aircraft Communication Systems	3	53	119	A/601/4783

QAEE3/137	Carrying Out Tests on Aircraft Passive Warning and Optical/Surveillance Systems	3	53	119	F/061/4784
QAEE3/138	Carrying Out Tests on Aircraft Radar Systems	3	53	119	R/601/4787
QAEE3/139	Carrying Out Tests on Aircraft Navigational and Computing Systems	3	53	119	D/601/4789
QAEE3/140	Carrying Out Tests on Aircraft Flight Guidance and Control Systems	3	53	119	Y/601/4791

Pathway AEI: Aircraft Mechanical Maintenance

Optional assessment routes: Both of the following assessment routes must be taken:

EAL code	Assessment route title	Level	Credit value	Guided learning hours	Ofqual code
QAEE3/141	Carrying Out Fault Diagnosis on Aircraft Airframe, Mechanical Components and Systems	3	53	119	Y/601/4807
QAEE3/142	Undertaking Scheduled Maintenance of Aircraft Airframe and Mechanical Equipment	3	40	91	H/601/4809

Plus two of the following assessment routes must be taken:

QAEE3/013	Repairing Airframes and Structures	3	62	133	A/601/4380
QAEE3/014	Modifying Airframes	3	60	126	F/601/4381
QAEE3/143	Removing and Replacing Aircraft Power Plant and Components	3	89	175	H/601/4812
QAEE3/144	Removing and Replacing Components of Aircraft Control Systems	3	89	175	M/601/4814
QAEE3/145	Removing and Replacing Components of Aircraft Fuel and Lubrication Systems	3	89	175	A/601/4816
QAEE3/146	Removing and Replacing Components of Aircraft Hydraulic Systems	3	89	175	J/601/4818
QAEE3/147	Removing and Replacing Components of Aircraft Pneumatic and Vacuum Systems	3	89	175	J/601/4821
QAEE3/148	Removing and Replacing Components of Aircraft Environmental Systems	3	89	175	R/601/4823
QAEE3/149	Removing and Replacing Components of Aircraft Power Transmission Systems	3	89	175	D/601/4825
QAEE3/150	Removing and Replacing Components of Aircraft Cabin Systems, Equipment and Furnishings	3	77	161	M/601/4828
QAEE3/151	Removing and Replacing Major Assemblies of Aircraft Airframes	3	89	175	M/601/4831

QAEE3/152	Modifying Aircraft Propulsion Equipment and Systems	3	77	161	T/601/4832
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Pathway AEI: Aircraft Mechanical Maintenance (cont)

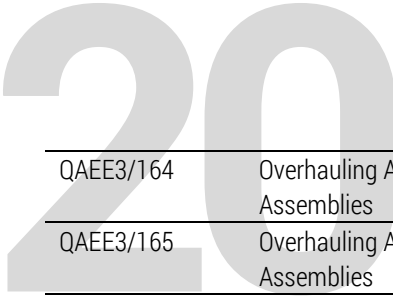
Plus two of the following test assessment routes must be taken:

QAEE3/153	Carrying Out Tests on Aircraft Engines and Systems	3	55	133	L/601/4836
QAEE3/154	Carrying Out Tests on Aircraft Control Systems	3	53	126	Y/601/4841
QAEE3/155	Carrying Out Tests on Aircraft Fuel and Storage Systems	3	55	133	H/601/4857
QAEE3/156	Carrying Out Tests on Aircraft Hydraulic Systems	3	55	133	L/601/4870
QAEE3/157	Carrying Out Tests on Aircraft Pneumatic and Vacuum Systems	3	55	133	Y/601/4872
QAEE3/158	Carrying Out Tests on Aircraft Environmental Systems	3	55	133	A/601/4878
QAEE3/159	Carrying Out Tests on Aircraft Power Transmission Systems	3	55	133	J/6014883
QAEE3/160	Carrying Out Checks and Tests on Replaced Airframe Major Assemblies	3	53	126	H/601/4888

Pathway AEJ: Aircraft Engine Overhaul

Optional assessment routes: Two of the following assessment routes must be taken:

EAL code	Assessment route title	Level	Credit value	Guided learning hours	Ofqual code
QAEE3/037	Dressing Aircraft Engines	3	63	133	K/601/4505
QAEE3/161	Carrying Out Test Bed Runs on Aircraft Engines (Uninstalled)	3	150	357	K/601/4889
QAEE3/162	Overhauling Aircraft Gas Turbine Engines by Module Replacement	3	150	357	J/601/4902
QAEE3/163	Overhauling Aircraft Gas Turbine Engine Compressor Assemblies	3	135	322	J/601/4916



QAEE3/164	Overhauling Aircraft Gas Turbine Engine Combustion Assemblies	3	150	357	Y/601/4919
QAEE3/165	Overhauling Aircraft Gas Turbine Engine Turbine Assemblies	3	125	315	Y/601/4970
QAEE3/166	Overhauling Aircraft Gas Turbine Engine Gearbox Assemblies	3	125	315	H/601/4972
QAEE3/167	Overhauling Aircraft Piston Engines	3	125	315	J/601/4981
QAEE3/212	Dismantling Aircraft Gas Turbine Engines to Module/Unit Level	3	80	168	A/601/6114
QAEE3/213	Rebuilding Aircraft Gas Turbine Engines Assemblies after Overhaul	3	150	357	T/601/6127

Pathway AEK: Aircraft Mechanical Component Overhaul

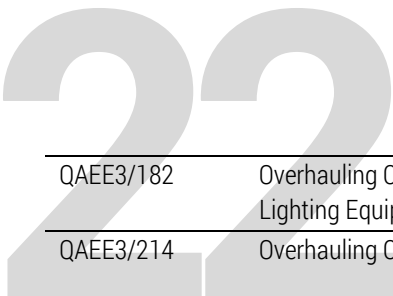
Optional assessment routes: One of the following assessment routes must be taken:

EAL code	Assessment route title	Level	Credit value	Guided learning hours	Ofqual code
QAEE3/168	Overhauling Components of Aircraft Rotor Heads, Blades and Power Transmission Equipment	3	135	371	K/601/4987
QAEE3/169	Overhauling Components of Aircraft Hydraulic Equipment	3	135	371	M/601/4988
QAEE3/170	Overhauling Components of Aircraft Pneumatic, Vacuum and Environmental Equipment	3	135	371	R/601/5034
QAEE3/171	Overhauling Components of Aircraft Oxygen Equipment	3	135	371	Y/601/5035
QAEE3/172	Overhauling Components of Aircraft Fuel and Lubrication Equipment	3	135	371	A/601/5044
QAEE3/173	Overhauling Major Components of Aircraft Airframes	3	125	336	D/601/5053

Pathway AEL: Avionic Component Overhaul

Optional assessment routes: One of the following assessment routes must be taken:

EAL code	Assessment route title	Level	Credit value	Guided learning hours	Ofqual code
QAEE3/174	Overhauling Components of Aircraft Navigational and Computing Equipment	3	125	336	J/601/5113
QAEE3/175	Overhauling Components of Aircraft Communication Equipment	3	125	336	T/601/5138
QAEE3/176	Overhauling Components of Aircraft Radar Equipment	3	125	336	A/601/5139
QAEE3/177	Overhauling Components of Aircraft Indication and Gauging Equipment	3	125	336	M/601/5140
QAEE3/178	Overhauling Components of Aircraft Electrical Equipment	3	125	336	T/601/5141
QAEE3/179	Overhauling Components of Aircraft Pitot Static Equipment	3	125	336	F/601/5143
QAEE3/180	Overhauling Components of Aircraft Passive Warning and Optical/Surveillance Systems	3	125	336	R/601/5146
QAEE3/181	Overhauling Components of Aircraft Flight Guidance and Control Equipment	3	125	336	Y/601/5147



QAEE3/182	Overhauling Components of Aircraft Internal and External Lighting Equipment	3	120	315	D/601/5148
QAEE3/214	Overhauling Components of Aircraft Avionic Equipment	3	125	336	T/601/6130

Pathway AEM: Aircraft Technical Design and Development

Optional assessment routes: One of the following assessment routes must be taken:

EAL code	Assessment route title	Level	Credit value	Guided learning hours	Ofqual code
QAEE3/183	Producing Aeronautical Electrical Engineering Drawings using Computer Aided Techniques	3	150	329	Y/601/5150
QAEE3/184	Producing Aeronautical Electronic Engineering Drawings using Computer Aided Techniques	3	150	329	H/601/5152
QAEE3/185	Producing Aeronautical Mechanical Engineering Drawings using Computer Aided Techniques	3	150	329	K/601/5153
QAEE3/186	Producing Aeronautical Engineering Drawings/Models using 3D Computer Aided Techniques	3	150	329	M/601/5154
QAEE3/187	Development Testing Aeronautical Electronic Equipment	3	53	105	T/601/5155

Plus four of the following assessment routes must be taken:

QAEE3/188	Monitoring Aeronautical Engineering Activities	3	40	91	A/601/5156
QAEE3/189	Planning Aeronautical Engineering Activities	3	40	91	F/601/5157
QAEE3/190	Producing Technical Details for Aeronautical Engineering Activities	3	40	91	J/601/5158
QAEE3/191	Obtaining Resources for Aeronautical Engineering Activities	3	40	91	L/601/5159
QAEE3/192	Implementing Aeronautical Engineering Activities	3	40	91	L/601/5162
QAEE3/193	Implementing Quality Assurance Systems in an Aeronautical Engineering Environment	3	40	91	Y/601/5164
QAEE3/194	Rectifying Aeronautical Engineering Problems	3	40	91	H/601/5166
QAEE3/195	Providing Technical Guidance on Aeronautical Engineering Activities	3	40	91	T/601/5169
QAEE3/196	Carrying Out Project Management of Aeronautical Engineering Activities	3	40	91	K/601/5170

Pathway AEN: On Aircraft Maintenance

Optional assessment routes: One of the following assessment routes must be taken:

EAL code	Assessment route title	Level	Credit value	Guided learning hours	Ofqual code
QAEE3/301	Lifting and Trestling/Shoring Aircraft for Maintenance/Repair Operations	3	15	56	Y/601/6136
QAEE3/302	Levelling and Weighing Aircraft	3	15	56	K/601/6142
QAEE3/303	Towing, Marshalling and Parking Aircraft	3	15	56	F/601/6146
QAEE3/304	Carrying Out Flight Servicing and Routine Maintenance of Aircraft	3	40	105	R/601/6152

Plus four of the following assessment routes must be taken:

QAEE3/305	Maintaining Air Conditioning Systems on Aircraft (ATA 21)	3	86	168	K/601/6156
QAEE3/306	Maintaining Auto Flight Systems on Aircraft (ATA 22)	3	86	168	A/601/6159
QAEE3/307	Maintaining Communication Systems on Aircraft (ATA 23)	3	86	168	F/601/6163
QAEE3/308	Maintaining Electrical Power Systems on Aircraft (ATA 24)	3	86	168	L/601/6165
QAEE3/309	Maintaining Equipment and Furnishings on Aircraft (ATA 25)	3	77	154	D/601/6168
QAEE3/310	Maintaining Fire Protection Systems on Aircraft (ATA 26)	3	77	154	H/601/6172
QAEE3/311	Maintaining Flight Control Systems on Aircraft (ATA 27)	3	86	168	F/601/6177
QAEE3/312	Maintaining Fuel Systems on Aircraft (ATA 28)	3	86	168	L/601/6182
QAEE3/313	Maintaining Hydraulic Systems on Aircraft (ATA 29)	3	86	168	H/601/6186
QAEE3/314	Maintaining Ice and Rain Protection Systems on Aircraft (ATA 30)	3	86	168	M/601/6188
QAEE3/315	Maintaining Indicating and Recording Systems on Aircraft (ATA 31)	3	86	168	A/601/6193
QAEE3/316	Maintaining Landing Gear on Aircraft (ATA 32)	3	86	168	J/601/6195
QAEE3/317	Maintaining Lighting Systems on Aircraft (ATA 33)	3	86	168	L/601/6201
QAEE3/318	Maintaining Navigation Systems on Aircraft (ATA 34)	3	86	168	R/601/6202

QAEE3/319	Maintaining Oxygen Systems on Aircraft (ATA 35)	3	86	168	M/601/6210
QAEE3/320	Maintaining Pneumatic Systems on Aircraft (ATA 36)	3	86	168	L/601/6215
QAEE3/321	Maintaining Vacuum Systems on Aircraft (ATA 37)	3	86	168	D/601/6221
QAEE3/322	Maintaining Water and Waste Systems on Aircraft (ATA 38)	3	86	168	T/601/6225
QAEE3/323	Maintaining Cabin Systems on Aircraft (ATA 44)	3	86	168	L/601/6232
QAEE3/324	Maintaining Airborne Auxiliary Power Systems on Aircraft (ATA 49)	3	86	168	M/601/6238
QAEE3/325	Maintaining Cargo and Accessory Compartments on Aircraft (ATA 50)	3	55	133	L/601/6246
QAEE3/326	Maintaining Doors on Aircraft (ATA 52)	3	86	168	K/601/6254
QAEE3/327	Maintaining Fuselage, Nacelles and Pylons on Aircraft (ATA 53 & 54)	3	71	147	J/601/6259
QAEE3/328	Maintaining Stabilisers on Aircraft (ATA 55)	3	77	154	R/601/6264
QAEE3/329	Maintaining Windows on Aircraft (ATA 56)	3	77	154	K/601/6268
QAEE3/330	Maintaining Wings on Aircraft (ATA 57)	3	86	168	K/601/6271
QAEE3/331	Maintaining Propeller/Propulsor Systems on Aircraft (ATA 61)	3	86	168	F/601/6275
QAEE3/332	Maintaining Rotor Systems on Rotorcraft (ATA 62 & 64)	3	86	168	H/601/6284
QAEE3/333	Maintaining Rotor Drives Systems on Rotorcraft (ATA 63 & 65)	3	86	168	A/601/6288
QAEE3/334	Maintaining Rotor Blade and Tail Pylon Folding Systems on Rotorcraft (ATA 66)	3	86	168	F/601/6292
QAEE3/335	Maintaining Flight Control Systems on Rotorcraft (ATA 67)	3	86	168	L/601/6294
QAEE3/336	Maintaining Power Plant on Aircraft (ATA 71)	3	86	168	H/601/6298
QAEE3/337	Maintaining Turbine Engines on Aircraft (ATA 72)	3	86	168	K/601/6299
QAEE3/338	Maintaining Reciprocating Engines on Aircraft (ATA 72)	3	86	168	M/601/6336
QAEE3/339	Maintaining Engine Fuel and Control Systems on Aircraft (ATA 73)	3	86	168	F/601/6339
QAEE3/340	Maintaining Ignition Systems on Aircraft (ATA 74)	3	71	147	T/601/6340
QAEE3/341	Maintaining Bleed Air Systems on Aircraft (ATA 75)	3	77	154	F/601/6342

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QAEE3/342	Maintaining Engine Controls on Aircraft (ATA 76)	3	86	168	R/601/6345
QAEE3/343	Maintaining Engine Indicating Systems on Aircraft (ATA 77)	3	86	168	H/601/6348

QAEE3/344	Maintaining Engine Exhaust Systems on Aircraft (ATA 78)	3	77	154	D/601/6350
QAEE3/345	Maintaining Lubricating Oil Systems on Aircraft (ATA 79)	3	77	154	T/601/6354
QAEE3/346	Maintaining Engine Starting Systems on Aircraft (ATA 80)	3	77	154	L/601/6358
QAEE3/347	Maintaining Reciprocating Engine Turbo-Supercharging Systems on Aircraft (ATA 81)	3	77	154	Y/601/6363
QAEE3/348	Maintaining Engine Water Injection Systems on Aircraft (ATA 82)	3	77	154	M/601/6370
QAEE3/349	Maintaining Radar Systems on Aircraft (ATA 34)	3	86	168	A/601/6372

