

FIELD ENGINEERING AND TECHNOLOGY**Review of *Aeronautical Engineering* unit standards**

| Subfield | Domain | Id |
|--------------------------|---|---|
| Aeronautical Engineering | Aircraft Mechanical Maintenance | 3918-3920, 3922, 3924-3928 |
| | Aircraft Mechanical Repair and Overhaul | 3931-3942 |
| | Aircraft Powerplant Maintenance | 3401, 3403-3409, 3411, 3412, 4001, 7241 |
| | Aircraft Powerplant Repair and Overhaul | 3402, 3414-3425, 7240 |
| | Aircraft Servicing | 3905 |

The Aviation, Tourism and Travel Training Organisation (ATTTO) has completed the review of the unit standards listed above.

Date new versions published

September 2006

Planned review date

December 2011

Summary of review and consultation process

The ATTTO carried out the review following indications from industry that, as there had been no formal review of the unit standards carried out since their original registration, they might not be current. These unit standards had passed their expiry date and required review to consider their relevance and fitness for purpose. Therefore, in conjunction with consultative groups, a review was initiated by the ATTTO. Expert panels, drawn from representatives from Air New Zealand, Air New Zealand Gas Turbines, the Royal New Zealand Air Force, Christchurch Engine Centre, and Nelson Marlborough Institute of Technology, were selected to determine the skills and knowledge required for the Aircraft Mechanical Maintenance, Aircraft Mechanical Repair and Overhaul, Aircraft Powerplant Maintenance, Aircraft Powerplant Repair and Overhaul, and Aircraft Servicing domains; to discuss whether the existing unit standards would still be fit for purpose; and to identify any gaps where further unit standards would need to be developed due to technological advances in the industry.

Drafts of new and reviewed unit standards were circulated, through the expert panel, to wider industry for feedback. All feedback was considered, and where appropriate, incorporated into the unit standards. Several drafts were developed in order to accommodate the needs of as many stakeholders as possible; the Aeronautical Engineering Advisory Group then endorsed these. The review was used to address issues of currency, accuracy, and changes in technology.

Please note that this is the fifth stage of several to review all of the unit standards in the Aeronautical Engineering subfield.

Main changes resulting from the review

The review process has resulted in the following changes to the unit standards:

- Unit standard 23159 has been developed to allow for application of a broader range of skills.
- Unit standards 23161-23164 have been developed to replace unit standard 3423, to better represent industry requirements.
- Unit standards 21360, 20635-20637 have been developed to replace unit standard 3425, to better represent industry requirements, allowing for more detailed assessment across the knowledge and skills base.
- Unit standards 23165-23167 have been developed to replace unit standard 3905, allowing for more detailed assessment across the knowledge and skills base.
- Amendments have been made to elements, performance criteria, and special notes.
- The titles of unit standards 3409, 3412, 3414, and 3421 have been changed to better reflect their content.
- Unit standards have been updated to incorporate industry and technological advances.

Unit standards categorised as category C expire at the end of December 2008.

Impact on existing qualifications

Qualifications that contain the reviewed standards or classifications are tabled below.

| | |
|--------------------------------|--|
| Affected | The qualification lists a reviewed classification (domain or subfield) in an elective set The qualification lists a standard that has changes to level or credits The qualification lists a C or D category standard |
| Not materially affected | The qualification lists a standard that has a new title The qualification lists a standard that has a new classification |

The following Aviation, Tourism and Travel Training Organisation qualification is affected by the outcome of this review and will be reviewed in 2006 following the completion of the review of the unit standards in the Aeronautical Engineering subfield.

| Qualification title | Classification or standard in the qualification |
|--|---|
| National Certificate in Aircraft Servicing [Ref: 0171] | 3905 |

Summary of main changes

All changes are in **bold**.

| | |
|-------------------------------|---|
| Key to review category | |
| A | Dates changed, but no other changes are made - the new version of the standard carries the same Id and a new version number |
| B | Changes made, but the overall outcome remains the same - the new version of the standard carries the same Id and a new version number |
| C | Major changes that necessitate the registration of a replacement standard with a new Id |
| D | Standard will expire and not be replaced |

Subfield Aeronautical Engineering
Domain Aircraft Mechanical Maintenance

| Id | Title | Level | Credit | Review Category |
|------|---|-------|--------|-----------------|
| 3918 | Maintain aircraft air conditioning and pressurisation systems | 4 | 12 | B |

| Id | Title | Level | Credit | Review Category |
|-----------|--|--------------|---------------|------------------------|
| 3919 | Maintain aircraft mechanical flight control systems | 4 | 12 | B |
| 3920 | Maintain aircraft fuel storage and distribution systems | 4 | 12 | B |
| 3922 | Maintain aircraft hydraulic systems | 4 | 12 | B |
| 3924 | Maintain aircraft pneumatic systems | 4 | 10 | B |
| 3925 | Maintain aircraft mechanical ice and rain protection systems | 4 | 4 | B |
| 3926 | Maintain aircraft in storage | 3 | 6 | B |
| 3927 | Maintain aircraft water and waste systems | 4 | 8 | B |
| 3928 | Maintain aircraft windows | 3 | 4 | B |

Domain Aircraft Mechanical Repair and Overhaul

| Id | Title | Level | Credit | Review Category |
|-----------|---|--------------|---------------|------------------------|
| 3931 | Repair and/or overhaul aircraft oxygen system components | 4 | 25 | B |
| 3932 | Repair and/or overhaul aircraft brake units | 4 | 8 | B |
| 3933 | Repair and/or overhaul aircraft hydraulic system components | 4 | 15 | B |
| 3934 | Repair and/or overhaul aircraft liquid oxygen system components | 4 | 25 | B |
| 3935 | Repair and/or overhaul aircraft mechanical ice and rain protection system components | 4 | 10 | B |
| 3936 | Repair and/or overhaul aircraft wheel assemblies | 4 | 6 | B |
| 3937 | Repair and/or overhaul aircraft mechanical air conditioning and pressurisation components | 4 | 15 | B |
| 3938 | Repair and/or overhaul aircraft fuel distribution system components | 4 | 15 | B |
| 3939 | Repair and/or overhaul aircraft landing gear system components | 4 | 15 | B |
| 3940 | Repair and/or overhaul aircraft pneumatic power supply system components | 4 | 15 | B |
| 3941 | Repair and/or overhaul aircraft water and waste system components | 4 | 10 | B |
| 3942 | Repair aircraft flexible fuel tanks | 4 | 10 | B |

Domain Aircraft Powerplant Maintenance

| Id | Title | Level | Credit | Review Category |
|-----------|---|--------------|---------------|------------------------|
| 3401 | Assemble aircraft propellers after shipment | 4 | 3 | B |
| 3403 | Inspect aircraft engines | 4 | 6 | B |
| 3404 | Maintain aircraft gas turbine auxiliary power units | 4 | 15 | B |
| 3405 | Maintain aircraft engine fuel systems | 4 | 8 | B |
| 3406 | Maintain aircraft engine lubrication systems | 4 | 4 | B |
| 3407 | Maintain aircraft fire protection systems | 4 | 4 | B |
| 3408 | Maintain aircraft gearboxes and/or transmissions | 4 | 15 | B |

| Id | Title | Level | Credit | Review Category |
|--------------|--|----------|----------|-----------------|
| 3409 | Maintain aircraft propellers and propeller systems Maintain aircraft variable pitch propellers and propeller systems | 4 | 10 | B |
| 3411 | Maintain aircraft gas turbine engine power augmentation or restoration systems | 4 | 4 | B |
| 3412 | Maintain gas turbine engine thrust reverser systems Maintain aircraft gas turbine engine thrust reverser systems | 4 | 4 | B |
| 4001 | Maintain aircraft engine ignition systems | 4 | 4 | B |
| 7241 | Demonstrate knowledge of aircraft powerplant maintenance practices | 3 | 6 | B |
| 23159 | Maintain aircraft fixed pitch and/or ground adjustable propellers | 4 | 5 | New |

Domain Aircraft Powerplant Repair and Overhaul

| Id | Title | Level | Credit | Review Category |
|------|--|-------|--------|-----------------|
| 3402 | Balance aeronautical rotating assemblies | 3 | 4 | B |
| 3414 | Repair and/or overhaul aircraft fixed pitch propellers Repair and/or overhaul aircraft fixed pitch propeller assemblies | 4 | 12 | B |
| 3415 | Repair and/or overhaul aircraft gas turbine engine fuel system components | 4 | 12 | B |
| 3416 | Repair and/or overhaul aircraft reciprocating engine fuel system components | 4 | 12 | B |
| 3417 | Repair and/or overhaul aircraft gas turbine engine fuel control units | 4 | 12 | B |
| 3418 | Repair and/or overhaul aircraft gearboxes and transmissions | 4 | 15 | B |
| 3419 | Repair and/or overhaul aircraft engine lubrication system components | 4 | 8 | B |
| 3420 | Repair and/or overhaul aircraft reciprocating engines | 4 | 25 | B |
| 3421 | Repair and/or overhaul gas turbine engine power augmentation or restoration system components Repair and/or overhaul aircraft gas turbine engine power augmentation or restoration system components | 4 | 4 | B |
| 3422 | Repair and/or overhaul aircraft gas turbine engine thrust reverser system components | 4 | 4 | B |

| Id | Title | Level | Credit | Review Category |
|--------------|--|--------------|---------------|------------------------|
| 3423 | Repair and/or overhaul aircraft gas turbine engines | 4 | 25 | C |
| 23161 | Repair and/or overhaul aircraft gas turbine compressor sections | 4 | 20 | |
| 23162 | Repair and/or overhaul aircraft gas turbine combustion sections | 4 | 20 | |
| 23163 | Repair and/or overhaul aircraft powerplant turbine sections | 4 | 20 | |
| 23164 | Disassemble and assemble aircraft gas turbine engines | 4 | 15 | |
| 3424 | Repair and/or overhaul aircraft variable pitch propeller assemblies | 4 | 20 | B |
| 3425 | Test aircraft engines on a test bed | 4 | 6 | C |
| 23160 | Install, operate and remove aircraft powerplants from a test bed | 4 | 8 | |
| 20635 | Test aircraft reciprocating powerplants on a test bed | 5 | 6 | |
| 20636 | Test aircraft turbo-prop or turbo-shaft powerplants on a test bed | 5 | 24 | |
| 20637 | Test aircraft turbo-fan or turbo-jet powerplants on a test bed | 5 | 20 | |
| 7240 | Demonstrate knowledge of aircraft powerplant repair and overhaul practices | 3 | 6 | B |

Domain Aircraft Servicing

| Id | Title | Level | Credit | Review Category |
|--------------|---|--------------|---------------|------------------------|
| 3905 | Ground run aircraft engines | 4 | 4 | C |
| 23165 | Ground run propeller driven aircraft engines up to 300 horsepower (hp) or equivalent | 4 | 5 | |
| 23166 | Ground run propeller driven aircraft engines over 300 horsepower (hp) or equivalent | 5 | 10 | |
| 23167 | Ground run turbo-jet or turbo-fan aircraft engines | 5 | 10 | |