|  |
| --- |
| Aerial Application Rating with Helicopter Firefighting Endorsement Training Course |
| Conducted IAW Ex 31/23 Flight Training and Flight Tests for Grant of Sling Operations, Winch and Rappelling Operations, and Firefighting Endorsements Approval 2023 |
|  |
| **Insert Date** |
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Table of Contents

[Amendment table 4](#_Toc468095148)

[Course overview 5](#_Toc468095149)

[Flight training and theory examination summary 8](#_Toc468095150)

[Planning Matrix 9](#_Toc468095151)

[Achievement record — Helicopter firefighting endorsement 11](#_Toc468095152)

[Syllabus lesson plans 15](#_Toc468095153)

[Lesson Plan AA-FF(H) 1: Revision and basic operations 15](#_Toc468095154)

[Lesson plan AA-FF(H) 2: Scenario training (1) 19](#_Toc468095155)

[Lesson plan AA-FF(H) 3: Scenario training (2) 23](#_Toc468095156)

[Lesson plan AA-FF(H) 4: Scenario training and emergencies 27](#_Toc468095157)

[Lesson plan AA-FF(H) 5: Abnormals and emergencies 31](#_Toc468095158)

[Training records 33](#_Toc468095159)

[Training record AA-FF(H) 1: Revision and basic operations 33](#_Toc468095160)

[Training record AA FF(H) 2: Scenario training (1) 35](#_Toc468095161)

[Training record AA FF(H) 3: Scenario training (2) 37](#_Toc468095162)

[Training record AA FF(H) 4: Scenario training and emergencies 39](#_Toc468095163)

[Training record AA FF(H) 5: Abnormals and emergencies 41](#_Toc468095164)

[Course Completion Certificate 43](#_Toc468095165)

# Amendment table

| **Date** | **Page** | **Change** |
| --- | --- | --- |
|  |  |  |
|  |  |  |

# Course overview

This course of training covers the aeronautical knowledge, practical flight skills and underpinning knowledge units and elements that are prescribed in the Part 61 Manual of Standards (Part 61 MOS) for the grant of the aerial application rating with helicopter firefighting endorsement in accordance with CASA 31/23 — Flight Training and Flight Tests for Grant of Sling Operations, Winch and Rappelling Operations, and Firefighting Endorsements Approval 2023.

Each course of training needs to be tailored to the individual needs of the trainee and depends on the trainee’s entry level competencies, knowledge and current level of skills. The training needs to be orientated to the practical application of the skills in the airborne environment, recognising the unique circumstances of the location of where the training is conducted, notwithstanding the need to address the core competencies that apply regardless of where the training is conducted.

Appropriate recognition of prior learning and current skills should be applied to the content of the training and notated accurately in the training records. Relevant previous training can be counted towards the minimum flight training requirements that are prescribed in Part 61 for the endorsement. Relevant training has to be identifiable in the applicable competency standards that are prescribed for the endorsement. The course shall contain a minimum of 3 sorties in the same type to be used post-training. A minimum of 5 water applications (drops) shall be conducted across the syllabus with a minimum of 1 application per sortie.

References to firebombing refer to the practical conduct of a firefighting operation that involves the application of water or fire retardant substances. Firebombing is the common term for firefighting operations of this kind. The term firefighting operations is often used to include mapping, spotting, incendiary dropping and other related operations.

Pilots completing this course and gaining the endorsement at the course completion are expected to be conducting operations under the close supervision of an operator as they gain experience conducting firebombing operations. Graduates need to carefully consider their limitations in the context of the hostile operating environment they are likely to flying in.

The course has the following components (note these are generic for all training courses):

### Flight training and theory examination summary

The summary table lists each training session with a reference, its description and the allocated time. The table also lists the aeronautical knowledge examination(s) that are required according to Schedule 4 of the Part 61 MOS.

Please note, there is no formal examination for the helicopter firefighting endorsement.

The summary includes sufficient flight training to meet the requirements for the grant of the rating and endorsement in accordance with Part 61. It is a template and can be adjusted depending on the entry level of the applicant and the training he or she needs to satisfy the prescribed competency standards in Schedule 2 of the Part 61 MOS.

The training plan does not include training for the grant of the aerial application endorsement.

### Planning matrix

The Planning matrix sets out the order in which the units and elements of training are presented as well as the anticipated performance standards for each lesson. The matrix is a model plan and can be adjusted according to the needs of the trainee at the time the training is being conducted.

### Achievement record

The achievement record is a record of the trainee achieving the practical flight standards that are prescribed for the rating and endorsement. The record should be progressively completed when the trainee has satisfactorily demonstrated competency for the unit and element on at least two occasions.

Trainees must achieve competency at performance standard 1 in each element of each unit in this achievement record prior to attempting the flight test for the grant of the helicopter firefighting endorsement. The performance criteria for the elements are prescribed in Schedule 2 of the Part 61 MOS.

The trainee may demonstrate competency using a combination of training course assessments and assessments of current competency that was achieved through prior training and operational experience.

The instructor conducting the training and assessments must certify that competency has been achieved by entering the details in the table below entering their ARN, signature and the date when the applicant achieved the required competency performance standard.

### Syllabus lesson plans

A lesson plan is provided for each lesson listed in the planning matrix.

Each lesson plan includes details on the aeronautical knowledge topics that need to be covered as a precursor to the next practical flight training activity along with the associated underpinning knowledge topics that are to be addressed prior to commencing the flight training activity.

The lesson includes the agenda which is a breakdown of the estimated time required for the long briefing and pre-flight briefing.

The resources described in the lesson plan are based on a model and could be modified with suitable equivalent resources.

The underpinning knowledge topics are taken from the relevant sections of the units of competency in Schedule 2 of the Part 61 MOS.

The practical flight training section details the units and elements that need to be covered in the training lessons. The units and elements are prescribed in Schedule 2 of the Part 61 MOS.

### Training records

A training record is provided for each flight training lesson that is listed in the planning matrix and aligns with the associated syllabus lesson plan.

The record includes header details for the instructor, the date of the activity, the aircraft used, and the flight time. Space is provided for free text comments.

### Course completion certificate

A sample course completion certificate is provided.

### Trainee pilot prerequisites

Before commencing training under CASA Instrument 31/23 for the issue of AA(H) - Fire the applicant must have:

* 200 hours as pilot in command of a helicopter and
* low-level rating with helicopter endorsement.

### Training pilot qualifications

Before conducting training under CASA Instrument 31/23 for the issue of AA(H)-Fire the instructor must have:

* A CPL(H) or ATPL(H) and Aerial application Rating Firefighting endorsement
* 300 hours as pilot conducting firefighting operations.
* 50 hours as PIC helicopter
* 2 years operational experience (firefighting)
* Completed 5 hours dual flight training in a non-command seat.
* Completed Principles and methods of instruction training.
* Applied for and completed e-learning modules of the flight examiner rating course.
* A recurrent check every 2 years in conducting flight training, assessed by a Grade 1 flight instructor.
* Be registered with CASA FTM and use the FTM system as the method of flight test notification for the flight test.

**Part 138 HOO/HOTC Responsibilities**

The CASR Part 138 Aerial Work Certificate Head of Operations (HOO) or Head of Training and Checking (HOTC) shall:

* Manage the flight training operations.
* Assign the appropriate training pilot.
* Ensure copies of all training records are added to the trainee pilots personnel file and retained for 3 years.
* Assessing a training pilot as qualified and current to deliver training for the endorsement.

# Flight training and theory examination summary

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Training session number** | **Training session description** | **Dual****day** | **Dual night** | **Solo night** | **Total night** | **IF** | **Total** **IF** | **Total flight time** |
| AA-FF(H)1 | Revision and basic operations | 1.0 |  |  |  |  |  | 1.0 |
| AA-FF(H)2 | Scenario training (1) | 1.0 |  |  |  |  |  | 2.0 |
| AA-FF(H)3 | Scenario training (2) | 1.0 |  |  |  |  |  | 3.0 |
| AA-FF(H)4 | Scenario training and emergencies | 1.0 |  |  |  |  |  | 4.0 |
| AA-FF(H)5 | Abnormal and emergencies | 1.0 |  |  |  |  |  | 5.0 |
| ***Aeronautical Knowledge examination*** |
|  | Not applicable |  |  |  |  |  |  |  |
| ***Flight test*** | **1.0** |  |  |  |  |  | **6.0** |

# Planning Matrix

|  |  |
| --- | --- |
| **Legend**D = Demonstration Di = DirectR = RevisionM = MonitorS = SoloA = Assessment T = Flight Test (independent assessment) | **Aerial application rating – Helicopter firefighting endorsement** |
| **1** | **2** | **3** | **4** | **5** | **6** |
| **Performance Standards** | Revision and basic operations | Scenario training (1) | Scenario training (2) | Scenario training & emergencies | Abnormals and emergencies | Flight Test |
| **3 =** Has received training in the element, however is not able to consistently demonstrate competency to the standard required for qualification issue.**2 =** Is able to achieve competency to the standard required for qualification issue on the majority of occasions, and is safe to operate solo under direct supervision.**1 =** Achieves competency to the standard required for qualification issue. |
|   | Dual day | **1** | **1** | **1** | **1** | **1** | **1** |
|   | Assessment | A |   |   |   | A | T |
|   | Exams | Nil |  |  |  |   |   |
| **Units and Elements** |   |   |   |   |   |   |
| **LL-H** | **Helicopter low-level operations** |   |   |   |   |   |   |
| LL-H.1 | Plan low-level operations | **1** | **1** | **1** | **1** | **1** | T |
| LL-H.2 | Flight component | **1** | **1** | **1** | **1** | **1** | T |
| LL-H.3 | Aircraft handling (at an altitude above 1,500 ft AGL) |  |  |  |  |  |  |
| LL-H.4 | Low-level handling (at an altitude of 200 ft AGL but not below 5 ft AGL) | **1** | **1** | **1** | **1** | **1** | T |
| LL-H.5 | Execute autorotative forced landing from below 500 feet AGL (S/E) | **1** | **1** | **1** | **1** | **1** | T |
| LL-H.6 | Execute engine failure from below 500 feet AGL (M/E) | **1** | **1** | **1** | **1** | **1** | T |
| LL-H.7 | Operate at low level in hilly terrain |  |  | **1** | **1** | **1** | T |

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|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **AA5** | **Helicopter firefighting operation** |  |  |  |  |  |  |
| AA5.1 | Applies human factors | **1** | **1** | **1** | **1** |  | T |
| AA5.2 | Pre-flight actions | **3** | **2** | **2** | **1** | **1** | T |
| AA5.3 | Demonstrates understanding of generic fire agency procedures | **3** | **2** | **2** | **1** | **1** | T |
| AA5.4 | Fire traffic management and other aircraft separation | **3** | **2** | **2** | **1** | **1** | T |
| AA5.5 | Planning and risk management | **3** | **2** | **2** | **1** | **1** | T |
| AA5.6 | Fly to, assess, land and take-off from an operational HLS or pick-up point | **2** | **2** | **2** | **1** | **1** | T |
| AA5.7 | Fly between operational HLS and drop zone | **2** | **2** | **2** | **1** | **1** | T |
| AA5.8 | Conduct operations at a certified or registered aerodrome |  | **1** | **1** | **1** | **1** | T |
| AA5.9 | Conduct an aerial survey of a fire area |  | **2** | **1** | **1** | **1** | T |
| AA5.10 | Apply substances |  | **2** | **2** | **1** | **1** | **T** |
| AA5.11 | Reserved |  |  |  |  |  |  |
| AA5.12 | Replenish helicopter load with snorkel or bucket |  |  | **2** | **1** | **1** | T |
| AA5.13 | Operate helicopter at maximum permissible weights for fire operations |  |  | **2** | **1** | **1** | T |
| AA5.14 | Manage known helicopter risks during firefighting operations |  |  |  | **2** | **1** | **T** |
| AA5.15 | Low-visibility operations |  |  |  | **2** | **1** | **T** |
| AA5.16 | Operate at low level in hilly terrain |  |  |  | **2** | **1** | T |
| AA5.17 | Operate in high winds, high density altitude and high turbulence |  |  |  | **2** | **1** | T |
| AA5.18 | Manage abnormal and emergency situations during low-level operations on a fire ground |  |  |  | **2** | **1** | T |
| AA5.19 | Jettison load from fire gate |  |  |  | **2** | **1** | T |
| **NTS1** | **Non-technical skills 1** |  |  |  |  |  |  |
| NTS1.1 | Maintain effective lookout |  | **1** | **1** | **1** | **1** | **T** |
| NTS1.2 | Maintain situational awareness |  | **2** | **2** | **2** | **1** | **T** |
| NTS1.3 | Assess situations and make decisions |  | **2** | **2** | **2** | **1** | **T** |
| NTS1.4 | Set priorities and manage tasks |  | **2** | **2** | **2** | **1** | **T** |
| NTS1.5 | Maintain effective communications and interpersonal relationships |  | **1** | **1** | **1** | **1** | **T** |
| **NTS2** | **Non-technical skills 2** |  |  |  |  |  |  |
| NTS2.1 | Recognise and manage threats |  | **3** | **3** | **2** | **1** | **T** |
| NTS2.2 | Recognise and manage errors |  | **3** | **3** | **2** | **1** | **T** |
| NTS2.3 | Recognise and manage undesired aircraft state |  | **3** | **3** | **2** | **1** | **T** |
| \* Assessment conducted in VMC by day |  |  |  |  |  |  |  |  |

.

# Achievement record — Helicopter firefighting endorsement

|  |  |
| --- | --- |
| **Trainee’s name** |  |
| **Trainee’s ARN** |  |
| **Date commenced training** |  |
| **Date of assessment of prior learning and current competency (if applicable)** |  |

|  |
| --- |
| **Performance Standard** |
| **3** | **2** | **1** |
| Has received training in the element, however is not able to consistently demonstrate competency to the standard required for the grant of the authorisation | Is able to achieve competency to the standard required for the grant of the authorisation on the majority of occasions, and is safe to operate as pilot in command under direct supervision | Achieves competency to the standard required for the grant of the authorisation. |

|  |  |  |
| --- | --- | --- |
| **Aeronautical Knowledge Examination pass** | Date: | Not applicable |
| **Knowledge Deficiency Report assessment**  | Date: | Not applicable |

### Unit LL-H Helicopter low-level operations

| **ELEMENT** | **Date** | **Instructor’s ARN** | **Instructor’s signature** |
| --- | --- | --- | --- |
| LL-H.1 Plan low-level operations |  |  |  |
| LL-H.2 – Flight component |  |  |  |
| LL-H.3 – Aircraft handling (at an altitude above 1,500 ft AGL) |  |  |  |
| LL-H.4 – Low-level handling (at an altitude of 200 ft AGL but not below 5 ft AGL) |  |  |  |
| LL-H.5 – Execute autorotative forced landing (simulated) from below 500 ft AGL (single-engine helicopter only) |  |  |  |
| LL-H.6 – Execute engine failure (simulated) from below 500 ft AGL (multi-engine helicopter only) |  |  |  |
| LL-H.7 – Operate at low level in hilly terrain |  |  |  |

### Unit AA5 Helicopter firefighting endorsement

| **ELEMENT** | **Date** | **Instructor’s ARN** | **Instructor’s signature** |
| --- | --- | --- | --- |
| AA5.1 Applies human factors |  |  |  |
| AA5.2 Pre-flight actions |  |  |  |
| AA5.3 Demonstrates understanding of generic fire agency procedures |  |  |  |
| AA5.4 Fire traffic management and other aircraft separation |  |  |  |
| AA5.5 Planning and risk management |  |  |  |
| AA5.6 Fly to, assess, land and take-off from an operational airstrip |  |  |  |
| AA5.7 – Fly between operational HLS and drop zone |  |  |  |
| AA5.8 Conduct operations at a certified or registered aerodrome |  |  |  |
| AA5.9 Conduct an aerial survey of a fire area |  |  |  |
| AA5.10 Apply substances |  |  |  |
| AA5.11 Reserved |  |  |  |
| AA5.12 – Replenish helicopter load with snorkel or bucket |  |  |  |
| AA5.13 – Operate helicopter at maximum permissible weights for fire operations |  |  |  |
| AA5.14 – Manage known helicopter risks during firefighting operations |  |  |  |
| AA5.15 – Low-visibility operations |  |  |  |
| AA5.16 – Operate at low level in hilly terrain |  |  |  |
| AA5.17 – Operate in high winds, high density altitude and high turbulence |  |  |  |
| AA5.18 – Manage abnormal and emergency situations during low-level operations on a fire ground |  |  |  |
| AA5.19 – Jettison load from fire gate |  |  |  |

### Unit NTS1 Non-technical skills

| **ELEMENT** | **Date** | **Instructor’s ARN** | **Instructor’s signature** |
| --- | --- | --- | --- |
| NTS1.1 Maintain effective lookout  |  |  |  |
| NTS1.2 Maintain situational awareness |  |  |  |
| NTS1.3 Assess situations and make decisions |  |  |  |
| NTS1.4 Set priorities and manage tasks |  |  |  |
| NTS1.5 Maintain effective communications and interpersonal relationships |  |  |  |

### Unit NTS2 Non-technical skills

| **ELEMENT** | **Date** | **Instructor’s ARN** | **Instructor’s signature** |
| --- | --- | --- | --- |
| NTS2.1 Recognise and manage threats |  |  |  |
| NTS2.2 Recognise and manage errors |  |  |  |
| NTS2.3 Recognise and manage undesired aircraft state |  |  |  |

### Trainee’s confirmation

|  |
| --- |
| I have received the training specified in the elements, which have been certified on this competency achievement record. |
| Trainee’s signature | Date: \_\_\_\_/\_\_\_\_/201\_\_ |

# Syllabus lesson plans

## Syllabus Lesson Plan – AA-FF(H)1: Revision and basic operations

### Aeronautical knowledge training for AA-FF(H)1

|  |  |
| --- | --- |
| Agenda | * Long briefing 1.0 hour
* Underpinning knowledge as detailed
 |
| Resources | * Briefing room with white board and white board markers
* Notebook with powerpoint and projector
* Aircraft model and other relevant visual aids as required
* Aircraft flight manual and checklist
* Company standard instructor briefing notes
 |

| **Content – aeronautical knowledge AA-FF(H)1** | **Teaching technique** | **Trainee activity** |
| --- | --- | --- |
| Long Briefing * Low flying revision and introduction to firefighting operations
* Apply Human Factors
* Pre-flight actions
* Generic fire agency procedures
* Fire traffic management and separation
* Planning and risk management
* Fly to, assess, land and take-off from operational airstrip
* Fly between operational airstrip and drop zone
 | * Long briefing
 | * Take notes
* Ask/answer questions
* Interact
 |
| Underpinning knowledge topics – unit AA5(a) applicable regulations that relate to the conduct of safe operations(c) relevant aerodynamics and helicopter performance(d) helicopter flight manual, performance, engine and systems(e) human factors(f) safety hazards and risks of flight at low level(z) basic wildfires and bushfiresUnderpinning knowledge topics – unit NTS1(H) effective communication under normal and non-normal circumstances | * Discuss/
* ask questions
* Include in long briefing
 | * Take notes
* Ask/answer questions
* Interact
 |

### Practical flight training for AA-FF(H)1

|  |  |
| --- | --- |
| Agenda | * Pre-flight briefing 0.3 hour
* Underpinning knowledge as detailed
* Flight time 1.0 hour dual
 |
| Content summary | * Revision of helicopter low-level operations
* Introduction to basic helicopter firefighting operations
 |
| Resources | * Suitable training helicopter
* Role equipment
* Area map
* Aircraft flight manual and checklist
* Headsets and helmets
 |

| **Content – practical flight training AA-FF(H)1** | **Teaching technique** | **Trainee activity** |
| --- | --- | --- |
| Pre-flight Briefing* Review flight sequences, what to expect, see & do
* Check essential knowledge
* Reinforce threat & error management
* Reinforce significant airmanship points
 | * Pre-flight briefing
 | * Take notes
* Ask/answer questions
* Interact
 |
| LL-H Helicopter low-level operations* Manoeuvre helicopter at low-level
* Execute a forced landing from 500 feet AGL
 | * Monitor
 | * Perform tasks with guidance
* Perform tasks with monitoring
 |
| AA5 Helicopter firefighting operation |  |  |
| AA5.1 – Applies human factors (a) demonstrate knowledge of and employ appropriate management strategies in response to human factors particularly relevant to fire operations, including:  (i) high workload;  (ii) distraction and radios;  (iii) dehydration; (iv) fatigue;  (v) CRM  (vi) time critical operational requirements;  (vii) external factors. | * Direct
* Monitor
 | * Perform tasks with guidance
* Perform tasks with monitoring
 |
| AA5.2 – Pre-flight actions (a) conduct self-assessment fit for flight and planned operation; (b) determine suitability of helicopter for type of operation; (c) conduct a thorough pre-flight of helicopter and role equipment to determine serviceability for planned operations; (d) check and correctly complete required maintenance documentation as applicable; (e) confirm minimum equipment and minimum crew and instrumentation requirements for planned operations are met; (f) apply TEM and risk management considerations, including human error; (g) check safe operation of role equipment; (h) confirm communication plan with fire agency and serviceability of communication equipment. | * Direct
* Monitor
 | * Perform tasks with guidance
* Perform tasks with monitoring
 |
| AA5.3 – Demonstrate understanding of generic fire agency procedures (a) demonstrate awareness of fire agency briefing processes; (b) demonstrate awareness of fire agency incident control systems; (c) able to explain the role and responsibilities of Air Attack Supervisor. | * Simulation
* Monitor
 | * Perform tasks with guidance
* Perform tasks with monitoring
 |
| AA5.4 – Fire traffic management and other aircraft separation (a) demonstrate strong situational awareness of other aircraft and remotely piloted vehicles; (b) demonstrate awareness of correct radio procedures and fire agency traffic management procedures; (c) manage correct frequencies dependant on operational requirements; (d) use appropriate techniques and communication procedures when arriving at and departing from fire ground, refuelling site or replenishment points. | * Simulation
* Monitor
 | * Perform tasks with guidance
* Perform tasks with monitoring
 |
| AA5.5 – Planning and risk management (a) determine the requirement to operate at low level, analyse the risk and implement a decision to safely conduct low-level operations; (b) adequately identify potential hazards and operational requirements, assess risks and apply appropriate risk controls; (c) demonstrate an ability to make a command decision on the safety or otherwise of the proposed application, including refusing to undertake an application where the risks are considered to be too high; (d) demonstrate consideration of avoidance and escape techniques;(e) determine the suitability of the current and forecast weather; (f) make appropriate selection of application pattern and direction of treatment taking into consideration safety, efficiency, hazards and terrain; (g) carefully plans fuel requirements; (h) confirms acceptable aircraft performance for conditions; (i) confirms location of ground support and firefighting personnel; (j) confirms normal and abnormal ops communications and signals; (k) confirms appropriate logistical considerations, including local airstrip condition, fuel, products, ground support and access to strip, SAR watch, water, and personal supplies, including adequate water and food. | * Demonstrate
* Direct
* Monitor
 | * Observe
* Perform tasks with guidance
* Perform tasks with monitoring
 |
| ***AA5.6 –*** ***Fly to, assess, land and take-off from an operational HLS or pick-up point*** (a) perform low-level navigation to an operational HLS or pick-up point at an appropriate safe height;(b) perform appropriate assessment of an operational HLS or pick-up point, including dimensions, conditions, direction, identification of hazards, meteorological conditions;(c) identify and manage issues relating to helicopter weight, performance, dimensions, load and meteorological conditions;(d) consistently perform pre-landing and pre-take-off checks;(e) demonstrate appropriate landing and take-off techniques;(f) identify an appropriate dumping point for each take-off, including adequate safety buffers;(g) demonstrate safe operations from a marginal HLS or pick-up point.  | * Direct
* Monitor
 | * Perform tasks with guidance
* Perform tasks with monitoring
 |
| AA5.7 – Fly between operational HLS and drop zone(a) perform low-level navigation from an operational airstrip to a drop zone; (b) selects the most appropriate route and height between the operational strip and the drop zone with considerations to terrain, stock, populated areas, housing and hazards. | * Direct
* Monitor
 | * Perform tasks with guidance
* Perform tasks with monitoring
 |
| NTS11.1 Maintain effective lookout1.2 Maintain situational awareness 1.3 Assess situations and make decisions 1.4 Set priorities and manage tasks 1.5 Maintain effective communications and interpersonal relationships | * As required
 | * As required
 |
| NTS22.1 recognise and manage threats 2.2 recognise and manage errors2.3 recognise and manage undesired aircraft state2.4 recognise an undesired aircraft state2.5 prioritise tasks to ensure an undesired aircraft state is managed effectively2.6 apply corrective actions to recover an undesired aircraft state in a safe and timely manner | * Monitor
 | * Perform tasks with monitoring
 |

### Debriefing for AA-FF(H)1

|  |  |
| --- | --- |
| Resources | * Briefing room with white board and white board markers
* Notebook with powerpoint and projector
* Aircraft model and other relevant visual aids as required
* Aircraft flight manual and checklist
* Company standard instructor briefing notes
 |

|  |  |  |
| --- | --- | --- |
| **Content – debriefing AA-FF(H)1** | **Teaching technique** | **Trainee activity** |
| * Training review and outcomes achieved against lesson objectives and the Part 61 MOS competency standards
* Recommendations for next lesson (including any carryover/remedial training)
* Trainee preparation for next lesson
* Training record completion & sign off
 | * Open discussion
* Feedback
* Ask/answer questions
 | * Open discussion
* Feedback
* Ask/answer questions
* Sign off on training record
 |

## Lesson plan AA-FF(H)2 Scenario training (1)

### Aeronautical knowledge training for AA-FF(H)2

|  |  |
| --- | --- |
| Agenda | * Long briefing 1.0 hour
* Underpinning knowledge as detailed
 |
| Resources | * Briefing room with white board and white board markers
* Notebook with powerpoint and projector
* Aircraft model and other relevant visual aids as required
* Aircraft flight manual and checklist
* Company standard instructor briefing notes
 |

| **Content– aeronautical knowledge AA-FF(H)1** | **Teaching technique** | **Trainee activity** |
| --- | --- | --- |
| Long briefing* Conduct operations at a certified or registered aerodrome
* Conduct an aerial survey of a fire area
* Apply substances
 | * Long briefing
 | * Take notes
* Ask/answer questions
* Interact
 |
| Underpinning knowledge topics – unit AA5(b) low level and localised meteorology: (i) local meteorological conditions relevant to fire conditions;  (ii) wind conditions likely to be found in fire conditions;  (iii) aircraft flight manual, performance, engine and systems(g) pre-flight serviceability checks that are conducted on fire-firefighting equipment that is fitted to the aircraft being flown(h) conditions would indicate unserviceable fire-firefighting equipment(j) radio frequencies being used by ground crews are obtained(k) factors that will determine the design and conduct of drop patterns(l) function and use of various fire suppressants and retardants(n) drop characteristics of suppressants and retardants with respect to driftUnderpinning knowledge topics – NTS1(a) effective communication under normal and non-normal circumstances (b) task management Underpinning knowledge topics – NTS2(b) threat and error management detailing processes that can be used to identify and mitigate or control threats and errors(c) the application of situational awareness to identifying real or potential environmental or operational threats to flight safety. | * Discuss/
* ask questions
* Include in long briefing
 | * Take notes
* Ask/answer questions
* Interact
 |

### Practical flight training for AA-FF(H)2

|  |  |
| --- | --- |
| Agenda | * Pre-flight briefing 0.3 hour
* Underpinning knowledge as detailed
* Flight time 1.0 hour dual
 |
| Content summary | * Scenario based helicopter firefighting operation
* Introduction to surveys and applying substances
 |
| Resources | * Aircraft that is suitable for the training and operation
* Role equipment
* Area map
* Aircraft flight manual and checklist
* Headsets and helmets
 |

| **Content – practical flight training for AA-FF(H)2** | **Teaching technique** | **Trainee activity** |
| --- | --- | --- |
| Pre-flight briefing* Review flight sequences, what to expect, see & do
* Check essential knowledge
* Reinforce threat & error management
* Reinforce significant airmanship points
 | * Pre-flight briefing
 | * Take notes
* Ask/answer questions
* Interact
 |
|  |  |  |
| AA5 Helicopter firefighting operationRevise elements of AA-FF(H)1 | * Monitor
 | * Perform tasks with guidance
* Perform tasks with monitoring
 |
| AA5.8 – Conduct operations at a certified or registered aerodrome (if applicable)Perform operations in accordance with the requirements of published regulations.  | * Monitor
 | * Perform tasks with monitoring
 |
| AA5.9 – Conduct an aerial survey of a fire area – as appropriate to the circumstances of the operation(a) develops an appropriate and safe plan for conduct of an aerial survey; (b) accurately identifies the fire area boundaries; (c) confirms the map; (d) identifies environmentally sensitive areas; (e) identifies hazards on the map; (f) checks and identifies any hazards not on the map, including fire specific hazards, sun glare and shadows from hills; (g) accurately assesses wind speed and direction; (h) confirms or appropriately amends the Application Management Plan, including pattern type and direction of treatment and possible suspension of application if conditions are not appropriate. | * Demonstrate
* Direct
* Monitor
 | * Observe
* Perform tasks with guidance
* Perform tasks with monitoring
 |
| AA5.10 – Apply substances (a) safely and accurately applies substances in accordance with Application Management Plan by doing the following;  (i) select the correct tank or door configuration and airspeed;  (ii) make appropriate allowance for wind conditions;  (iii) link application drops to create a continuous line of treatment; (b) establish and maintain correct application height relevant to terrain, application type and meteorological conditions; (c) control airspeed and flight profile appropriately on entry and re-entry to treatment area; (d) engage and shut off application equipment at appropriate points; (e) manoeuver around and over hazards in the treatment area with adequate safety buffers; (g) demonstrate safe command decisions to continue with, amend or suspend operations due to changing conditions. | * Demonstrate
* Direct
* Monitor
 | * Observe
* Perform tasks with guidance
* Perform tasks with monitoring
 |
| NTS1.1 Maintain effective lookout(a) Maintain traffic separation using a systematic visual scan technique at a rate determined by traffic density, visibility and terrain;(b) Maintain radio listening watch and interpret transmissions to determine traffic location and intentions;(c) Perform airspace-cleared procedures before commencing any manoeuvre. | * Demonstrate
* Direct
* Monitor
 | * Observe
* Perform tasks with guidance
* Perform tasks with monitoring
 |

|  |  |  |
| --- | --- | --- |
| NTS1.2 Maintain situational awareness(a) monitor all aircraft systems using a systematic scan technique(b) collect information to facilitate ongoing system management(c) monitor flight environment for deviations from planned operations(d) collect flight environment information to update planned operations | * Demonstrate
* Direct
* Monitor
 | * Observe
* Perform tasks with guidance
* Perform tasks with monitoring
 |
| NTS1.3 Assess situations and make decisions(a) identify problems(b) analyse problems(c) identify solutions(d) assess solutions and risks(e) decide on a course of action(f) communicate plans of action (if appropriate)(g) allocate tasks for action (if appropriate)(h) take actions to achieve optimum outcomes for the operation(i) monitor progress against plan(j) re-evaluate plan to achieve optimum outcomes | * Demonstrate
* Direct
* Monitor
 | * Observe
* Perform tasks with guidance
* Perform tasks with monitoring
 |
| NTS1.4 Set priorities and manage tasks(a) organise workload and priorities to ensure optimum outcome of the flight(b) plan events to occur sequentially(c) anticipate events and tasks to ensure sufficient opportunity for completion(d) use technology to reduce workload and improve cognitive and manipulate activities | * Demonstrate
* Direct
* Monitor
 | * Observe
* Perform tasks with guidance
* Perform tasks with monitoring
 |
| NTS1.5 Maintain effective communications and interpersonal relationships(a) establish and maintain effective and efficient communications and interpersonal relationships with all stakeholders to ensure the optimum outcome of the flight(b) define and explain objectives to stakeholders(c) demonstrate a level of assertiveness that ensures the optimum completion of the flight | * Demonstrate
* Direct
* Monitor
 | * Observe
* Perform tasks with guidance
* Perform tasks with monitoring
 |
| NTS2.1 Recognise and manage threats (a) identify relevant environmental or operational threats that are likely to affect the safety of the flight(b) identify when competing priorities and demands may represent a threat to the safety of the flight(c) develop and implement countermeasures to manage threats(d) monitor and assess flight progress to ensure a safe outcome, or modify actions when a safe outcome is not assured | * Demonstrate
* Direct
* Monitor
 | * Observe
* Perform tasks with guidance
* Perform tasks with monitoring
 |
| NTS2.2 Recognise and manage errors(a) apply checklists and standard operating procedures to prevent aircraft handling, procedural or communication errors (b) identify committed errors before safety is affected or the aircraft enters an undesired state(c) monitor the following to collect and analyse information to identify potential or actual errors: (i) aircraft systems using a systematic scan technique (ii) the flight environment (iii) other crew(d) implement countermeasures to prevent errors or take action in the time available to correct errors before the aircraft enters an undesired state. | * Demonstrate
* Direct
* Monitor
 | * Observe
* Perform tasks with guidance
* Perform tasks with monitoring
 |
| NTS2.3 Recognise and manage undesired aircraft state(a) recognise an undesired aircraft state(b) prioritise tasks to ensure an undesired aircraft state is managed effectively(c) apply corrective actions to recover an undesired aircraft state in a safe and timely manner | * Demonstrate
* Direct
* Monitor
 | * Observe
* Perform tasks with guidance
* Perform tasks with monitoring
 |

### Debriefing for AA-FF(H)2

|  |  |
| --- | --- |
| Resources | * Briefing room with white board and white board markers
* Notebook with powerpoint and projector
* Aircraft model and other relevant visual aids as required
* Aircraft flight manual and checklist
* Company standard instructor briefing notes
 |

|  |  |  |
| --- | --- | --- |
| **Content – debriefing AA-FF(H)2** | **Teaching technique** | **Trainee activity** |
| * Training review and outcomes achieved against lesson objectives and the Part 61 MOS competency standards
* Recommendations for next lesson (including any carryover/remedial training)
* Trainee preparation for next lesson
* Training record completion & sign off
 | * Open discussion
* Feedback
* Ask/answer questions
 | * Open discussion
* Feedback
* Ask/answer questions
* Sign off on training record
 |

## Lesson plan AA-FF(H)3 Scenario training (2)

### Aeronautical knowledge training for AA-FF(H)3

|  |  |
| --- | --- |
| Agenda | * Long briefing 1.0 hour
* Underpinning knowledge as detailed
 |
| Resources | * Briefing room with white board and white board markers
* Notebook with powerpoint and projector
* Aircraft model and other relevant visual aids as required
* Aircraft flight manual and checklist
* Company standard instructor briefing notes
 |

| **Content– aeronautical knowledge AA-FF(H)3** | **Teaching technique** | **Trainee activity** |
| --- | --- | --- |
| Long briefing* Operate at low level in hilly terrain
* Operate in high winds, high density altitude and high turbulence.
 | * Long briefing
 | * Take notes
* Ask/answer questions
* Interact
 |
| Underpinning knowledge topics – unit AA5(b) low level and localised meteorology:  (iii) wind conditions in hilly terrain, including lee winds(o) aircraft configuration for the aircraft being flown, when jettisoning a full load(p) flight characteristics of the aircraft being flown when jettisoning a full load(q) flight control and throttle actions required to maintain control of the aircraft being flown when jettisoning a full loadUnderpinning knowledge topics – unit NTS2(d) developing and implementing plans of action for the following: (i) removing and mitigating threats (ii) removing and mitigating errors(e) undesired aircraft states including prevention, identifying and controlling(f) how an undesired aircraft state can develop from an unmanaged threat or error(h) use checklists and SOP to prevent errors | * Discuss/
* ask questions
* Include in long briefing
 | * Take notes
* Ask/answer questions
* Interact
 |

### Practical flight training for AA-FF(H)3

|  |  |
| --- | --- |
| Agenda | * Pre-flight briefing 0.3 hour
* Underpinning knowledge as detailed
* Flight time 1.0 hour dual
 |
| Content summary | * Scenario based helicopter firefighting operation
* Conducting firefighting in hilly terrain and typical fire conditions
 |
| Resources | * Aircraft that is suitable for the training and operation
* Role equipment
* Area map
* Aircraft flight manual and checklist
* Headsets and helmets
 |

| **Content – practical flight training for AA-FF(H)3** | **Teaching technique** | **Trainee activity** |
| --- | --- | --- |
| Pre-flight briefing* Review flight sequences, what to expect, see & do
* Check essential knowledge
* Reinforce threat & error management
* Reinforce significant airmanship points
 | * Pre-flight briefing
 | * Take notes
* Ask/answer questions
* Interact
 |
| AA5 Helicopter firefighting operationRevise elements of AA-FF(H)1 and 2 | * Monitor
 | * Perform tasks with guidance
* Perform tasks with monitoring
 |
|  |  |  |
| ***AA5.12 – Replenish helicopter load with snorkel or bucket*** (a) demonstrates safe identification and assessment of replenishment site, including consideration of entry and exit direction, hazards, surrounding terrain, emergency actions, wind conditions and impact of heavier load on exit performance;(b) demonstrates safe speed control and height loss on approach to target replenishment spot (e.g. dam);(c) accurately places bucket or snorkel into water;(d) maintains safe hover while taking on load, smoothly adjusting for increasing weight;(e) demonstrates safe technique in lifting bucket or snorkel smoothly and maintaining safe hover and exit under new load;(f) maintains safe control of the helicopter and demonstrates safe command decisions to jettison or replace bucket into water if helicopter is unable to safely lift load. | * Demonstrate
* Direct
* Monitor
 | * Observe
* Perform tasks with guidance
* Perform tasks with monitoring
 |
| ***AA5.13 – Operate helicopter at maximum permissible weights for fire operations*** (a) determines take-off weight within legal requirements and relevant to HLS dimensions and conditions;(b) operates safely and effectively at maximum weights during:(i) taxi;(ii) take off and climb;(iii) approach and landing, including safe command decisions on dumping and HLS selection;(iv) application;(v) turns;(vi) obstacle avoidance. | * Demonstrate
* Direct
* Monitor
 | * Observe
* Perform tasks with guidance
* Perform tasks with monitoring
 |
| NTS1.1 Maintain effective lookout(a) Maintain traffic separation using a systematic visual scan technique at a rate determined by traffic density, visibility and terrain;(b) Maintain radio listening watch and interpret transmissions to determine traffic location and intentions;(c) Perform airspace-cleared procedures before commencing any manoeuvre. | * Monitor
 | * Perform tasks with guidance
* Perform tasks with monitoring
 |
| NTS1.2 Maintain situational awareness(a) monitor all aircraft systems using a systematic scan technique(b) collect information to facilitate ongoing system management(c) monitor flight environment for deviations from planned operations(d) collect flight environment information to update planned operations | * Monitor
 | * Perform tasks with guidance
* Perform tasks with monitoring
 |
| NTS1.3 Assess situations and make decisions(a) identify problems(b) analyse problems(c) identify solutions(d) assess solutions and risks(e) decide on a course of action(f) communicate plans of action (if appropriate)(g) allocate tasks for action (if appropriate)(h) take actions to achieve optimum outcomes for the operation(i) monitor progress against plan(j) re-evaluate plan to achieve optimum outcomes | * Monitor
 | * Perform tasks with guidance
* Perform tasks with monitoring
 |
| NTS1.4 Set priorities and manage tasks(a) organise workload and priorities to ensure optimum outcome of the flight(b) plan events to occur sequentially(c) anticipate events and tasks to ensure sufficient opportunity for completion(d) use technology to reduce workload and improve cognitive and manipulate activities | * Demonstrate
* Direct
* Monitor
 | * Observe
* Perform tasks with guidance
* Perform tasks with monitoring
 |
| NTS1.5 Maintain effective communications and interpersonal relationships(a) establish and maintain effective and efficient communications and interpersonal relationships with all stakeholders to ensure the optimum outcome of the flight(b) define and explain objectives to stakeholders(c) demonstrate a level of assertiveness that ensures the optimum completion of the flight | * Monitor
 | * Perform tasks with guidance
* Perform tasks with monitoring
 |
| NTS2.1 Recognise and manage threats (a) identify relevant environmental or operational threats that are likely to affect the safety of the flight(b) identify when competing priorities and demands may represent a threat to the safety of the flight(c) develop and implement countermeasures to manage threats(d) monitor and assess flight progress to ensure a safe outcome, or modify actions when a safe outcome is not assured | * Demonstrate
* Direct
* Monitor
 | * Observe
* Perform tasks with guidance
* Perform tasks with monitoring
 |
| NTS2.2 Recognise and manage errors(a) apply checklists and standard operating procedures to prevent aircraft handling, procedural or communication errors (b) identify committed errors before safety is affected or the aircraft enters an undesired state(c) monitor the following to collect and analyse information to identify potential or actual errors: (i) aircraft systems using a systematic scan technique (ii) the flight environment (iii) other crew(d) implement countermeasures to prevent errors or take action in the time available to correct errors before the aircraft enters an undesired state. | * Demonstrate
* Direct
* Monitor
 | * Observe
* Perform tasks with guidance
* Perform tasks with monitoring
 |
| NTS2.3 Recognise and manage undesired aircraft state(a) recognise an undesired aircraft state(b) prioritise tasks to ensure an undesired aircraft state is managed effectively(c) apply corrective actions to recover an undesired aircraft state in a safe and timely manner | * Demonstrate
* Direct
* Monitor
 | * Observe
* Perform tasks with guidance
* Perform tasks with monitoring
 |

### Debriefing for AA-FF(H)3

|  |  |
| --- | --- |
| Resources | * Briefing room with white board and white board markers
* Notebook with powerpoint and projector
* Aircraft model and other relevant visual aids as required
* Aircraft flight manual and checklist
* Company standard instructor briefing notes
 |

|  |  |  |
| --- | --- | --- |
| **Content – debriefing AA-FF(H)3** | **Teaching technique** | **Trainee activity** |
| * Training review and outcomes achieved against lesson objectives and the Part 61 MOS competency standards
* Recommendations for next lesson (including any carryover/remedial training)
* Trainee preparation for next lesson
* Training record completion & sign off
 | * Open discussion
* Feedback
* Ask/answer questions
 | * Open discussion
* Feedback
* Ask/answer questions
* Sign off on training record
 |

## Lesson plan AA-FF(H)4 Scenario training and emergencies

### Aeronautical knowledge training for AA-FF(H)4

|  |  |
| --- | --- |
| Agenda | * Long briefing 0.7 hour
* Underpinning knowledge as detailed
 |
| Resources | * Briefing room with white board and white board markers
* Notebook with powerpoint and projector
* Aircraft model and other relevant visual aids as required
* Aircraft flight manual and checklist
* Company standard instructor briefing notes
 |

| **Content – aeronautical knowledge AA-FF(H)4** | **Teaching technique** | **Trainee activity** |
| --- | --- | --- |
| Long briefing* Operate aircraft at maximum permissible weight for fire operations
* Low-visibility operations
* Manage abnormal and emergency situations during low-level operations on a fire ground
* Jettison load from fire gate
 | * Long briefing
 | * Take notes
* Ask/answer questions
* Interact
 |
| Underpinning knowledge topics(r) terminology used during firebombing operations(s) operational conditions under which fire-bombing could be suspended by an Air Attack Supervisor(t) environmental conditions under which an Air Attack Supervisor could suspend fire-bombing operations (u) symptoms that could indicate crew fatigue(v) Symptoms of dehydration and explain effects of dehydration on a pilot’s performance(w) markings of fire retardant and suppression chemicals(x) toxicity conditions that apply to firefighting chemicals and the methods of avoiding any adverse effectsUnderpinning knowledge topics – NTS2(e) undesired aircraft states including prevention, identifying and controlling(f) how an undesired aircraft state can develop from an unmanaged threat or error | * Discuss/
* ask questions
* Include in long briefing
 | * Take notes
* Ask/answer questions
* Interact
 |

### Practical flight training for AA-FF(H)4

|  |  |
| --- | --- |
| Agenda | * Pre-flight briefing 0.3 hour
* Underpinning knowledge as detailed
* Flight time 1.0 hour dual
 |
| Content summary | * Scenario based helicopter firefighting operation
* Operating at maximum weight, in low visibility conditions
* Managing abnormal and emergency situations
* Jettison load
 |
| Resources | * Aircraft that is suitable for training and operation
* Role equipment
* Area map
* Aircraft flight manual and checklist
* Headsets and helmets
 |

| **Content – practical training for AA-FF(H)4** | **Teaching technique** | **Trainee activity** |
| --- | --- | --- |
| Pre-flight briefing* Review flight sequences, what to expect, see & do
* Check essential knowledge
* Reinforce threat & error management
* Reinforce significant airmanship points
 | * Pre-flight briefing
 | * Take notes
* Ask/answer questions
* Interact
 |
| AA5 Helicopter firefighting operation* Revise elements of AA-FF(H)1, 2 and 3
 | * Monitor
 | * Perform tasks with guidance
* Perform tasks with monitoring
 |
|  |  |  |
| ***AA5.14 – Manage known helicopter risks during firefighting operations*** (a) demonstrate sound decision making in assessing likely hover performance considering load, density altitude, ground surface and relative wind;(b) demonstrates awareness of and correct techniques in managing rotor disc behaviour under reduced or negative ‘g ‘;(c) demonstrate awareness of and correct techniques in avoiding dynamic rollover;(d) demonstrate awareness of and correct techniques in avoiding loss of tail rotor effectiveness (LTE) and vortex ring state. | * Demonstrate
* Direct
* Monitor
 | * Observe
* Perform tasks with guidance
* Perform tasks with monitoring
 |
| ***AA5.15 – Low-visibility operations*** able to explain low visibility risks, including illusions such as false horizons and operating in smoke conditions. | * Demonstrate
* Direct
* Monitor
 | * Observe
* Perform tasks with guidance
* Perform tasks with monitoring
 |
| ***AA5.16 – Operate at low level in hilly terrain*** (a) safely manipulate the helicopter at low level in hilly terrain;(b) establish and maintain safe height relevant to application type;(c) demonstrate safe contour flying;(d) identify and select appropriate natural markers to aid situational awareness;(e) demonstrate safe approaches to higher ground, including identification of escape routes;(f) demonstrate safe turns in hilly terrain;(g) demonstrate awareness and management of the effects of wind and turbulence in hilly terrain, including lee effects;(h) demonstrate awareness of illusions in hilly terrain, including false horizon effect and shadows.  | * Demonstrate
* Direct
* Monitor
 | * Observe
* Perform tasks with guidance
* Perform tasks with monitoring
 |
| ***AA5.17 – Operate in high winds, high density altitude and high turbulence*** (a) demonstrate awareness of the principles of operating at low level in high winds, high density altitude and high turbulence;(b) demonstrate sound judgement in assessing take-off conditions as being within the limitations of the helicopter. | * Demonstrate
* Direct
* Monitor
 | * Observe
* Perform tasks with guidance
* Perform tasks with monitoring
 |
| AA5.18 – Manage abnormal and emergency situations during low-level operations on a fire ground (a) identify potential forced-landing areas prior to and during firebombing operations;(b) identify abnormal or emergency situations;(c) conduct appropriate abnormal or emergency procedures;(d) maintain control of helicopter including adequate coordination of collective, jettison load if required, and avoid any powerlines or hazards;(e) successfully conduct a practice forced landing from 500 ft. | * Demonstrate
* Direct
* Monitor
 | * Observe
* Perform tasks with guidance
* Perform tasks with monitoring
 |
| AA5.19 – Jettison load from fire gate (a) jettison a full liquid load at take-off, and maintains control of the helicopter;(b) jettison a full liquid load during flight and ensures maintenance of altitude (+100 -0 ft). | * Demonstrate
* Direct
* Monitor
 | * Observe
* Perform tasks with guidance
* Perform tasks with monitoring
 |
| NTS1.1 Maintain effective lookout(a) Maintain traffic separation using a systematic visual scan technique at a rate determined by traffic density, visibility and terrain;(b) Maintain radio listening watch and interpret transmissions to determine traffic location and intentions;(c) Perform airspace-cleared procedures before commencing any manoeuvre. | * Monitor
 | * Perform tasks with guidance
* Perform tasks with monitoring
 |
| NTS1.2 Maintain situational awareness(a) monitor all aircraft systems using a systematic scan technique(b) collect information to facilitate ongoing system management(c) monitor flight environment for deviations from planned operations(d) collect flight environment information to update planned operations | * Monitor
 | * Perform tasks with guidance
* Perform tasks with monitoring
 |
| NTS1.3 Assess situations and make decisions(a) identify problems(b) analyse problems(c) identify solutions(d) assess solutions and risks(e) decide on a course of action(f) communicate plans of action (if appropriate)(g) allocate tasks for action (if appropriate)(h) take actions to achieve optimum outcomes for the operation(i) monitor progress against plan(j) re-evaluate plan to achieve optimum outcomes | * Monitor
 | * Perform tasks with guidance
* Perform tasks with monitoring
 |
| NTS1.4 Set priorities and manage tasks(a) organise workload and priorities to ensure optimum outcome of the flight(b) plan events to occur sequentially(c) anticipate events and tasks to ensure sufficient opportunity for completion(d) use technology to reduce workload and improve cognitive and manipulate activities | * Monitor
 | * Perform tasks with guidance
* Perform tasks with monitoring
 |
| NTS1.5 Maintain effective communications and interpersonal relationships(a) establish and maintain effective and efficient communications and interpersonal relationships with all stakeholders to ensure the optimum outcome of the flight(b) define and explain objectives to stakeholders(c) demonstrate a level of assertiveness that ensures the optimum completion of the flight | * Monitor
 | * Perform tasks with guidance
* Perform tasks with monitoring
 |
| NTS2.1 Recognise and manage threats (a) identify relevant environmental or operational threats that are likely to affect the safety of the flight(b) identify when competing priorities and demands may represent a threat to the safety of the flight(c) develop and implement countermeasures to manage threats(d) monitor and assess flight progress to ensure a safe outcome, or modify actions when a safe outcome is not assured | * Monitor
 | * Perform tasks with guidance
* Perform tasks with monitoring
 |
| NTS2.2 Recognise and manage errors(a) apply checklists and standard operating procedures to prevent aircraft handling, procedural or communication errors (b) identify committed errors before safety is affected or the aircraft enters an undesired state(c) monitor the following to collect and analyse information to identify potential or actual errors: (i) aircraft systems using a systematic scan technique (ii) the flight environment (iii) other crew(d) implement countermeasures to prevent errors or take action in the time available to correct errors before the aircraft enters an undesired state. | * Demonstrate
* Direct
* Monitor
 | * Observe
* Perform tasks with guidance
* Perform tasks with monitoring
 |
| NTS2.3 Recognise and manage undesired aircraft state(a) recognise an undesired aircraft state(b) prioritise tasks to ensure an undesired aircraft state is managed effectively(c) apply corrective actions to recover an undesired aircraft state in a safe and timely manner | * Demonstrate
* Direct
* Monitor
 | * Observe
* Perform tasks with guidance
* Perform tasks with monitoring
 |

### Debriefing for AA-FF(H)4

|  |  |
| --- | --- |
| Resources | * Briefing room with white board and white board markers
* Notebook with powerpoint and projector
* Aircraft model and other relevant visual aids as required
* Aircraft flight manual and checklist
* Company standard instructor briefing notes
 |

|  |  |  |
| --- | --- | --- |
| **Content – debriefing AA-FF(H)4** | **Teaching technique** | **Trainee activity** |
| * Training review and outcomes achieved against lesson objectives and the Part 61 MOS competency standards
* Recommendations for next lesson (including any carryover/remedial training)
* Trainee preparation for next lesson
* Training record completion & sign off
 | * Open discussion
* Feedback
* Ask/answer questions
 | * Open discussion
* Feedback
* Ask/answer questions
* Sign off on training record
 |

## Lesson plan AA-FF(H)5 Abnormals and emergencies

### Practical flight training for AA-FF(H)5

|  |  |
| --- | --- |
| Agenda | * Pre-flight briefing 0.3 hour
* Underpinning knowledge as detailed
* Flight time 1.0 hour dual
 |
| Content summary | * Final training session, review critical aspects of conducting operation
 |
| Resources | * Briefing room with white board and white board markers
* Notebook with powerpoint and projector
* Aircraft model and other relevant visual aids as required
* Aircraft flight manual and checklist
* Company standard instructor briefing notes
* Aircraft
* Role equipment
* Area map
* Aircraft flight manual and checklist
* Headsets and helmets
 |

| **Content – practical flight training for AA-FF(H)5** | **Teaching technique** | **Trainee activity** |
| --- | --- | --- |
| Pre-flight briefing* Review flight sequences, what to expect, see & do
* Check essential knowledge
* Reinforce threat & error management
* Reinforce significant airmanship points
 | * Pre-flight brief
 | * Perform tasks with guidance
* Perform tasks with monitoring
 |
| AA5 Helicopter firefighting operation* Revise elements of AA-FF(H)1, 2, 3 and 4
* Revise units NTS1 and NTS2
 | * Monitor
 | * Perform tasks with guidance
* Perform tasks with monitoring
 |

### Debriefing for AA-FF(H)5

|  |  |
| --- | --- |
| Resources | * Briefing room with white board and white board markers
* Notebook with powerpoint and projector
* Aircraft model and other relevant visual aids as required
* Aircraft flight manual and checklist
* Company standard instructor briefing notes
 |

|  |  |  |
| --- | --- | --- |
| **Content – debriefing for AA-FF(H)5** | **Teaching technique** | **Trainee activity** |
| * Training review and outcomes achieved against lesson objectives and the Part 61 MOS competency standards
* Recommendations for next lesson (including any carryover/remedial training)
* Trainee preparation for flight test
* Training record completion & sign off
 | * Open discussion
* Feedback
* Ask/answer questions
 | * Open discussion
* Feedback
* Ask/answer questions
* Sign off on training record
 |

# Training records

## Training record AA-FF(H)1 Revision and basic operations

Suggested flight time 1.0 hour dual

|  |  |  |
| --- | --- | --- |
| Trainee’s details | Name |  |
| ARN |  |
| Instructor details | Name |  |
| ARN |  |
| Aircraft details | Aircraft registration |  | Aircraft type |  |
| Flight details | Date |  | Flight time |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Completion dates | Long briefing  | Pre-flight briefing  | Underpinning knowledge |
|  |  |  |

|  |
| --- |
| **Performance Standard** |
| **3** | **2** | **1** |
| Has received training in the element, however is not able to consistently demonstrate competency to the standard required for qualification issue  | Is able to achieve competency to the standard required for the grant of the authorisation on the majority of occasions, and is safe to operate as pilot in command under direct supervision | Achieves competency to the standard required for qualification issue |

| Unit / Element | Description | Required standard | Demonstrated standard |
| --- | --- | --- | --- |
| LL-H.1 | Plan low-level operations | 1 |  |
| LL-H.2 | Flight component | 1 |  |
| LL-H.3 | Aircraft handling (at an altitude above 1,500 ft AGL) | 1 |  |
| LL-H.4 | Low-level handling (at an altitude of 200 ft AGL but not below 5 ft AGL) | 1 |  |
| LL-H.5 | Execute autorotative forced landing (simulated) from below 500 ft AGL (single-engine helicopter only) | 1 |  |
| LL-H.6 | Execute engine failure (simulated) from below 500 ft AGL (multi-engine helicopter only) | 1 |  |
| LL-H.7 | Operate at low level in hilly terrain | 1 |  |
| AA5.1 | Applies human factors | 1 |  |
| AA5.2 | Pre-flight actions | 3 |  |
| AA5.3 | Demonstrates understanding of generic fire agency procedures | 3 |  |
| AA5.4 | Fire traffic management and other aircraft separation | 3 |  |
| AA5.5 | Planning and risk management | 3 |  |
| AA5.6 | Fly to, assess, land and take-off from an operational HLS or pick-up point | 2 |  |
| AA5.7 | Fly between operational HLS and drop zone | 2 |  |

***Note:*** *Where an element has either not been conducted, or where the trainee has not attained the required performance standard, that element is to be covered during the next training session*

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| **Proceed to next training session?** | **YES** | **NO** |

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## Training record AA FF(H)(2) Scenario training (1)

Suggested flight time 1.0 hour dual

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| Trainee’s details | Name |  |
| ARN |  |
| Instructor details | Name |  |
| ARN |  |
| Aircraft details | Aircraft registration |  | Aircraft type |  |
| Flight details | Date |  | Flight time |  |

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| Completion dates | Long briefing  | Pre-flight briefing  | Underpinning knowledge |
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| **Performance Standard** |
| **3** | **2** | **1** |
| Has received training in the element, however is not able to consistently demonstrate competency to the standard required for qualification issue  | Is able to achieve competency to the standard required for qualification issue on the majority of occasions, and is safe to operate solo under direct supervision | Achieves competency to the standard required for qualification issue |

| Unit / Element | Description | Required standard | Demonstrated standard |
| --- | --- | --- | --- |
| LL-H.1 | Plan low-level operations | 1 |  |
| LL-H.2 | Flight component | 1 |  |
| LL-H.3 | Aircraft handling (at an altitude above 1,500 ft AGL) | 1 |  |
| LL-H.4 | Low-level handling (at an altitude of 200 ft AGL but not below 5 ft AGL) | 1 |  |
| LL-H.5 | Execute autorotative forced landing (simulated) from below 500 ft AGL (single-engine helicopter only) | 1 |  |
| LL-H.6 | Execute engine failure (simulated) from below 500 ft AGL (multi-engine helicopter only) | 1 |  |
| LL-H.7 | Operate at low level in hilly terrain | 1 |  |
| AA5.1 | Applies human factors | 1 |  |
| AA5.2 | Pre-flight actions | 2 |  |
| AA5.3 | Demonstrates understanding of generic fire agency procedures | 2 |  |
| AA5.4 | Fire traffic management and other aircraft separation | 2 |  |
| AA5.5 | Planning and risk management | 2 |  |
| AA5.6 | Fly to, assess, land and take-off from an operational HLS or pick-up point | 2 |  |
| AA5.7 | Fly between operational HLS and drop zone | 2 |  |
| AA5.8 | Conduct operations at a certified or registered aerodrome (if applicable) | 1 |  |
| AA5.9 | Conduct an aerial survey of a fire area (as appropriate) | 2 |  |
| AA5.10 | Apply substances | 2 |  |
| NTS1.1 | Maintain effective lookout | 1 |  |
| NTS1.2 | Maintain situational awareness | 2 |  |
| NTS1.3 | Assess situations and make decisions | 2 |  |
| NTS1.4 | Set priorities and manage tasks | 2 |  |
| NTS1.5 | Maintain effective communications and interpersonal relationships | 1 |  |
| NTS2.1 | Recognise and manage threats | 3 |  |
| NTS2.2 | Recognise and manage errors | 3 |  |
| NTS2.3 | Recognise and manage undesired aircraft state | 3 |  |

***Note:*** *Where an element has either not been conducted, or where the trainee has not attained the required performance standard, that element is to be covered during the next training session*

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| **Proceed to next training session?** | **YES** | **NO** |

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## Training record AA FF(H)3 Scenario training (2)

Suggested flight time 1.0 hour dual

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| --- | --- | --- |
| Trainee’s details | Name |  |
| ARN |  |
| Instructor details | Name |  |
| ARN |  |
| Aircraft details | Aircraft registration |  | Aircraft type |  |
| Flight details | Date |  | Flight time |  |

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| --- | --- | --- | --- |
| Completion dates | Long briefing  | Pre-flight briefing  | Underpinning knowledge |
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| **Performance Standard** |
| **3** | **2** | **1** |
| Has received training in the element, however is not able to consistently demonstrate competency to the standard required for qualification issue  | Is able to achieve competency to the standard required for qualification issue on the majority of occasions, and is safe to operate solo under direct supervision | Achieves competency to the standard required for qualification issue |

| Unit / Element | Description | Required standard | Demonstrated standard |
| --- | --- | --- | --- |
| LL-H.1 | Plan low-level operations | 1 |  |
| LL-H.2 | Flight component | 1 |  |
| LL-H.3 | Aircraft handling (at an altitude above 1,500 ft AGL) | 1 |  |
| LL-H.4 | Low-level handling (at an altitude of 200 ft AGL but not below 5 ft AGL) | 1 |  |
| LL-H.5 | Execute autorotative forced landing (simulated) from below 500 ft AGL (single-engine helicopter only) | 1 |  |
| LL-H.6 | Execute engine failure (simulated) from below 500 ft AGL (multi-engine helicopter only) | 1 |  |
| LL-H.7 | Operate at low level in hilly terrain | 1 |  |
| AA5.1 | Applies human factors | 1 |  |
| AA5.2 | Pre-flight actions | 2 |  |
| AA5.3 | Demonstrates understanding of generic fire agency procedures | 2 |  |
| AA5.4 | Fire traffic management and other aircraft separation | 2 |  |
| AA5.5 | Planning and risk management | 2 |  |
| AA5.6 | Fly to, assess, land and take-off from an operational HLS or pick-up point | 2 |  |
| AA5.7 | Fly between operational HLS and drop zone | 2 |  |
| AA5.8 | Conduct operations at a certified or registered aerodrome (if applicable) | 1 |  |
| AA5.9 | Conduct an aerial survey of a fire area (as appropriate) | 1 |  |
| AA5.10 | Apply substances | 2 |  |
| AA5.12 | Replenish helicopter load with snorkel or bucket | 2 |  |
| AA5.13 | Operate helicopter at maximum permissible weights for fire operations | 2 |  |
| NTS1.1 | Maintain effective lookout | 1 |  |
| NTS1.2 | Maintain situational awareness | 2 |  |
| NTS1.3 | Assess situations and make decisions | 2 |  |
| NTS1.4 | Set priorities and manage tasks | 2 |  |
| NTS1.5 | Maintain effective communications and interpersonal relationships | 1 |  |
| NTS2.1 | Recognise and manage threats | 3 |  |
| NTS2.2 | Recognise and manage errors | 3 |  |
| NTS2.3 | Recognise and manage undesired aircraft state | 3 |  |

***Note:*** *Where an element has either not been conducted, or where the trainee has not attained the required performance standard, that element is to be covered during the next training session*

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| **Proceed to next training session?** | **YES** | **NO** |

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## Training record AA FF(H)(4) Scenario training and emergencies

Suggested flight time 1.0 hour dual

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| --- | --- | --- |
| Trainee’s details | Name |  |
| ARN |  |
| Instructor details | Name |  |
| ARN |  |
| Aircraft details | Aircraft registration |  | Aircraft type |  |
| Flight details | Date |  | Flight time |  |

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| Completion dates | Long briefing  | Pre-flight briefing  | Underpinning knowledge |
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| **Performance Standard** |
| **3** | **2** | **1** |
| Has received training in the element, however is not able to consistently demonstrate competency to the standard required for qualification issue  | Is able to achieve competency to the standard required for qualification issue on the majority of occasions, and is safe to operate solo under direct supervision | Achieves competency to the standard required for qualification issue |

| Unit / Element | Description | Required standard | Demonstrated standard |
| --- | --- | --- | --- |
| LL-H.1 | Plan low-level operations | 1 |  |
| LL-H.2 | Flight component | 1 |  |
| LL-H.3 | Aircraft handling (at an altitude above 1,500 ft AGL) | 1 |  |
| LL-H.4 | Low-level handling (at an altitude of 200 ft AGL but not below 5 ft AGL) | 1 |  |
| LL-H.5 | Execute autorotative forced landing (simulated) from below 500 ft AGL (single-engine helicopter only) | 1 |  |
| LL-H.6 | Execute engine failure (simulated) from below 500 ft AGL (multi-engine helicopter only) | 1 |  |
| LL-H.7 | Operate at low level in hilly terrain | 1 |  |
| AA5.1 | Applies human factors | 1 |  |
| AA5.2 | Pre-flight actions | 1 |  |
| AA5.3 | Demonstrates understanding of generic fire agency procedures | 1 |  |
| AA5.4 | Fire traffic management and other aircraft separation | 1 |  |
| AA5.5 | Planning and risk management | 1 |  |
| AA5.6 | Fly to, assess, land and take-off from an operational HLS or pick-up point | 1 |  |
| AA5.7 | Fly between operational HLS and drop zone | 1 |  |
| AA5.8 | Conduct operations at a certified or registered aerodrome (if applicable) | 1 |  |
| AA5.9 | Conduct an aerial survey of a fire area (as appropriate) | 1 |  |
| AA5.10 | Apply substances | 1 |  |
| AA5.12 | Replenish helicopter load with snorkel or bucket | 1 |  |
| AA5.13 | Operate helicopter at maximum permissible weights for fire operations | 1 |  |
| AA5.14 | Manage known helicopter risks during firefighting operations | 2 |  |
| AA5.15 | Low-visibility operations | 2 |  |
| AA5.16 | Operate at low level in hilly terrain | 2 |  |
| AA5.17 | Operate in high winds, high density altitude and high turbulence | 2 |  |
| AA5.18 | Manage abnormal and emergency situations during low-level operations on a fire ground | 2 |  |
| AA5.19 | Jettison load from fire gate | 2 |  |
| NTS1.1 | Maintain effective lookout | 1 |  |
| NTS1.2 | Maintain situational awareness | 2 |  |
| NTS1.3 | Assess situations and make decisions | 2 |  |
| NTS1.4 | Set priorities and manage tasks | 2 |  |
| NTS1.5 | Maintain effective communications and interpersonal relationships | 1 |  |
| NTS2.1 | Recognise and manage threats | 2 |  |
| NTS2.2 | Recognise and manage errors | 2 |  |
| NTS2.3 | Recognise and manage undesired aircraft state | 2 |  |

***Note:*** *Where an element has either not been conducted, or where the trainee has not attained the required performance standard, that element is to be covered during the next training session*

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| **Proceed to next training session?** | **YES** | **NO** |

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## Training record AA FF(H)(5) Abnormal and emergencies

Suggested flight time 1.0 hour dual

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| --- | --- | --- |
| Trainee’s details | Name |  |
| ARN |  |
| Instructor details | Name |  |
| ARN |  |
| Aircraft details | Aircraft registration |  | Aircraft type |  |
| Flight details | Date |  | Flight time |  |

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| Completion dates | Long briefing  | Pre-flight briefing  | Underpinning knowledge |
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| **Performance Standard** |
| **3** | **2** | **1** |
| Has received training in the element, however is not able to consistently demonstrate competency to the standard required for qualification issue  | Is able to achieve competency to the standard required for qualification issue on the majority of occasions, and is safe to operate solo under direct supervision | Achieves competency to the standard required for qualification issue |

| Unit / Element | Description | Required standard | Demonstrated standard |
| --- | --- | --- | --- |
| LL-H.1 | Plan low-level operations | 1 |  |
| LL-H.2 | Flight component | 1 |  |
| LL-H.3 | Aircraft handling (at an altitude above 1,500 ft AGL) | 1 |  |
| LL-H.4 | Low-level handling (at an altitude of 200 ft AGL but not below 5 ft AGL) | 1 |  |
| LL-H.5 | Execute autorotative forced landing (simulated) from below 500 ft AGL (single-engine helicopter only) | 1 |  |
| LL-H.6 | Execute engine failure (simulated) from below 500 ft AGL (multi-engine helicopter only) | 1 |  |
| LL-H.7 | Operate at low level in hilly terrain | 1 |  |
| AA5.1 | Applies human factors | 1 |  |
| AA5.2 | Pre-flight actions | 1 |  |
| AA5.3 | Demonstrates understanding of generic fire agency procedures | 1 |  |
| AA5.4 | Fire traffic management and other aircraft separation | 1 |  |
| AA5.5 | Planning and risk management | 1 |  |
| AA5.6 | Fly to, assess, land and take-off from an operational HLS or pick-up point | 1 |  |
| AA5.7 | Fly between operational HLS and drop zone | 1 |  |
| AA5.8 | Conduct operations at a certified or registered aerodrome (if applicable) | 1 |  |
| AA5.9 | Conduct an aerial survey of a fire area (as appropriate) | 1 |  |
| AA5.10 | Apply substances | 1 |  |
| AA5.12 | Replenish helicopter load with snorkel or bucket | 1 |  |
| AA5.13 | Operate helicopter at maximum permissible weights for fire operations | 1 |  |
| AA5.14 | Manage known helicopter risks during firefighting operations | 1 |  |
| AA5.15 | Low-visibility operations | 1 |  |
| AA5.16 | Operate at low level in hilly terrain | 1 |  |
| AA5.17 | Operate in high winds, high density altitude and high turbulence | 1 |  |
| AA5.18 | Manage abnormal and emergency situations during low-level operations on a fire ground | 1 |  |
| AA5.19 | Jettison load from fire gate | 1 |  |
| NTS1.1 | Maintain effective lookout | 1 |  |
| NTS1.2 | Maintain situational awareness | 1 |  |
| NTS1.3 | Assess situations and make decisions | 1 |  |
| NTS1.4 | Set priorities and manage tasks | 1 |  |
| NTS1.5 | Maintain effective communications and interpersonal relationships | 1 |  |
| NTS2.1 | Recognise and manage threats | 1 |  |
| NTS2.2 | Recognise and manage errors | 1 |  |
| NTS2.3 | Recognise and manage undesired aircraft state | 1 |  |

***Note:*** *Where an element has either not been conducted, or where the trainee has not attained the required performance standard, that element is to be covered during the next training session*

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| **Comments** |
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| **Proceed to flight test?** | **YES** | **NO** |

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# Course Completion Certificate

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| --- | --- |
| **Name of Course** | Aerial application rating and helicopter firefighting endorsement |
| **Training provider name** |  |
| **Training provider ARN** |  |
| **Trainee’s name** |  |
| **Trainee’s ARN** |  |
| **Date commenced training** |  |
| **Date of final assessment**  |  |
| **Certification** | The certificate confirms the trainee has completed the described course to the standards prescribed in the relevant Appendix of Schedule 2 of the Part 61 Manual of Standards and is eligible to take the flight test for the grant of the aerial application rating with helicopter firefighting endorsement. |
| **Head of Operations name** |  |
| **Signature** |  |
| **Date**  |  |