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| Helicopter Sling Operations 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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**EX 31/23 Approved Company Pilots**

| **Date**  | **Pilot Name** | **ARN** | **Approved to conduct** (sling/winch/fire) |
| --- | --- | --- | --- |
|  |  |  |  |
|  |  |  |  |

# 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 sling operations endorsement (LL-SO).

The CASR part 138 HOO or HOTC is responsible for management of all flight training operations under EX31/23 and will assign an appropriately qualified training pilot to complete the course of training.

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 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.

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 sling operations. Graduates need to carefully consider their limitations in the context of the operating environment they are likely to flying in.

The course shall contain a minimum of 3 flights and 10 sling load operations in the same aircraft type to be used post-training.

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 LL-SO.

The summary includes sufficient flight training to meet the requirements for the grant of the 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.

### 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 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 LL-SO. 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.

The HOO/HOTC shall ensure copies of all training records are added to the trainee pilots personnel file and retained for 3 years.

### 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 LL-SO the applicant must have:

* CPL(H) or ATPL(H) with 50 hours as pilot in command and
* low-level rating with helicopter endorsement.

### Training pilot qualifications

Before conducting training under CASA Instrument 31/23 for the issue of LL-SO the instructor must have:

* A CPL(H) or ATPL(H) with LL(H) rating and LL-SO endorsement
* Conducted 100 sling load operations.
* 1000 PIC helicopter
* 2 years operational experience (sling load operations)
* Completed Principles and methods of instruction training.
* Completed 5 hours dual flight training in a non-command seat with a GR1 instructor
* Been assessed by a GR1 instructor as competent to deliver training for the endorsement.
* Applied for and completed e-learning modules of the flight examiner rating course.
* Registered with CASA FTM and use the FTM system as the method of flight test notification for the flight test.
* Received approval from CASA authorising the pilot to conduct the training and testing
* A recurrent check every 2 years in conducting flight training, assessed by a Grade 1 flight instructor.

# 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** |
| LL-SO-L1 | General scenario training | 1.0 |  |  |  |  |  | 1.0 |
| LL-SO-L2 | Scenario training & emergencies | 1.0 |  |  |  |  |  | 2.0 |
| LL-SO-L3 | Abnormal operations and emergencies | 1.0 |  |  |  |  |  | 3.0 |
| ***Aeronautical Knowledge examination*** |
|  | Not applicable |  |  |  |  |  |  |  |
| ***Flight test IAW CASA form 61-1507*** | **1.5** |  |  |  |  |  | **4.5** |

# Planning Matrix

|  |  |
| --- | --- |
| **Legend**D = Demonstration Di = DirectR = RevisionM = MonitorS = SoloA = Assessment T = Flight Test (independent assessment) | **Low-level Sling Operations Course** |
| **1** | **2** | **3** | **4** |
| **Performance Standards** | Scenario training  | Scenario training & emergencies  | Abnormal 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** | **1.5** |
|   | Assessment | A | A  | A  | T |
|   | Exams | Nil |  |  |   |
| **Units and Elements** |   |   |   |   |
| **LL-H** | **Helicopter low-level operations** |   |   |   |   |
| LL-H.1 | Plan low-level operations | **1** | **1** | **1** | T |
| LL-H.2 | Flight component | **1** | **1** | **1** | T |
| LL-H.3 | Aircraft handling (at an altitude above 1,500 ft AGL) | **1** | **1** | **1** | T |
| LL-H.4 | Low-level handling (at an altitude of 200 ft AGL but not below 5 ft AGL) | **1** | **1** | **1** | T |
| LL-H.5 | Execute autorotative forced landing from below 500 feet AGL (S/E) | **1** | **1** | **1** | T |
| LL-H.6 | Execute engine failure from below 500 feet AGL (M/E) | **1** | **1** | **1** | T |
| LL-H.7 | Operate at low level in hilly terrain | **1** | **1** | **1** | T |

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|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **LL-SO** | **Low-level Sling Operations** |  |  |  |  |
| LL-SO.1 | Prepare and rig a sling load | **3** | **1** | **1** | T |
| LL-SO.2 | Plan external load operations | **3** | **2** | **1** | T |
| LL-SO.3 | Conduct pre-flight briefings for external load operations | **3** | **2** | **1** | T |
| LL-SO.4 | Operate the aircraft during external load operations | **3** | **2** | **1** | T |
| LL-SO.5 | Manage abnormal and emergency situations during external load operations |  | **2** | **1** | T |
| LL-SO.6 | Conduct post-flight activities for external load operations | **3** | **2** | **1** | T |
| **NTS1** | **Non-technical skills 1** |  |  |  |  |
| NTS1.1 | Maintain effective lookout | **1** | **1** | **1** | **T** |
| NTS1.2 | Maintain situational awareness | **2** | **2** | **1** | **T** |
| NTS1.3 | Assess situations and make decisions | **3** | **2** | **1** | **T** |
| NTS1.4 | Set priorities and manage tasks | **3** | **2** | **1** | **T** |
| NTS1.5 | Maintain effective communications and interpersonal relationships | **2** | **1** | **1** | **T** |
| **NTS2** | **Non-technical skills 2** |  |  |  |  |
| NTS2.1 | Recognise and manage threats | **2** | **1** | **1** | **T** |
| NTS2.2 | Recognise and manage errors | **2** | **1** | **1** | **T** |
| NTS2.3 | Recognise and manage undesired aircraft state | **1** | **1** | **1** | **T** |
| \* Assessment conducted in VMC by day |  |  |  |  |  |  |  |  |

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# Achievement record — Low-level Sling Operations 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 LL-SO Low-Level Sling Operations endorsement

| **ELEMENT** | **Date** | **Instructor’s ARN** | **Instructor’s signature** |
| --- | --- | --- | --- |
| LL-SO.1 Prepare and rig a sling load |  |  |  |
| LL-SO.2 Plan external load operations |  |  |  |
| LL-SO.3 Conduct pre-flight briefings for external load operations |  |  |  |
| LL-SO.4 Operate the aircraft during external load operations |  |  |  |
| LL-SO.5 Manage abnormal and emergency situations during external load operations |  |  |  |
| LL-SO.6 Conduct post-flight activities for external load operations |  |  |  |

### *Note: Continued next page*

### 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: \_\_\_\_/\_\_\_\_/202\_\_ |

# Syllabus lesson plans

## Syllabus Lesson Plan – LL-SO-L1: General scenario training

### Aeronautical knowledge training for LL-SO-L1

|  |  |
| --- | --- |
| 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 LL-SO-L1** | **Teaching technique** | **Trainee activity** |
| --- | --- | --- |
| Long Briefing * Low flying revision and introduction to sling operations
* Study of the external sling load supplement contained in the Flight Manual for the particular helicopter type.
* Cargo hook assembly including operation of the normal and emergency release mechanism.
* Generic sling procedures (lift off-transit-over the target)
* Performance limitations & use of appropriate performance graphs.
* Planning and risk management
* Apply Human Factors
* Pre-flight actions
 | * Long briefing
 | * Take notes
* Ask/answer questions
* Interact
 |
| Underpinning knowledge topics – unit LL-SO(b) relevant sections of Civil Aviation Safety Regulations (d) aircraft performance calculations (for all phases of flight);(e) internal and external load limitations for the aircraft type to be flown;(h) load rigging and preparation for flight; (m) aircraft dimensions;(n) vertical reference (long line) operation procedures if applicable;(o) external load lifting equipment inspection procedures;(p) communication procedure and terminology applicable to external load operations.Underpinning knowledge topics – unit NTS1(a) Monitor all aircraft systems using a systematic scan technique;(b) collect flight environment information to update planned operations.(c) establish and maintain effective and efficient communications and interpersonal relationships with all stakeholders to ensure the optimum outcome of the flight; | * Discuss/
* ask questions
* Include in long briefing
 | * Take notes
* Ask/answer questions
* Interact
 |

### Practical flight training for LL-SO-L1

|  |  |
| --- | --- |
| 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 Low-level Sling Operations
 |
| Resources | * Suitable training helicopter
* Role equipment
* Area map
* Aircraft flight manual and checklist
* Headsets and helmets
* Ground crew with appropriate comm’s
 |

| **Content – practical flight training LL-SO-L1** | **Teaching technique** | **Trainee activity** |
| --- | --- | --- |
| Pre-flight Briefing* Review weather/traffic/airspace requirements
* Review weight and balance calculations
* Review flight sequences, what to expect, see & do
* Pre-flight of aircraft hook components including normal and emergency release mechanisms
* Pre-flight of external load components (slings/hooks etc)
* Pre-flight of external load
* Check essential knowledge
* Reinforce TEM & airmanship points
 | * Pre-flight briefing
 | * Take notes
* Ask/answer questions
* Interact
 |
| LL-H Helicopter low-level operations* Plan low-level operations
* Low-level handling (at an altitude of 200 ft AGL but not below 5 ft AGL)
 | * Monitor
 | * Perform tasks with guidance
* Perform tasks with monitoring
 |
| LL-SO.1 – Prepare and rig a sling load(a) tasking requirements are identified;(b) external load is secured, stabilised and rigged in accordance with workplace procedures and AFM or POH. | * Direct
* Monitor
 | * Perform tasks with guidance
* Perform tasks with monitoring
 |
| LL-SO.2 – Plan external load operations(a) external load procedure, equipment and personnel required for task are determined;(b) helicopter performance data is interpreted and calculated to ensure suitability of aircraft for external load operations;(c) outbound and return flight routes are planned;(d) secure and stable load preparations are arranged;(e) load lifting equipment strength and suitability are assessed. | * Direct
* Monitor
 | * Perform tasks with guidance
* Perform tasks with monitoring
 |
| LL-SO.3 – Conduct pre-flight briefings for external load operations (a) requirements of the load task are explained and confirmed;(b) personnel responsible for inspecting the load lifting equipment for serviceability and security are identified;(c) communication and hook-up procedure is explained;(d) hook-up person and hook-up procedure is specified;(e) departure, transit, approach, termination and load release procedures are explained;(f) emergency procedures are explained and confirmed;(g) pilot vertical reference (long line) procedure is explained if applicable;(h) crew and ground loadmaster are briefed on all aspects of the load lifting task;(i) seating is adjusted to ensure full exercise of the flight controls and the ability to scan the instrument panel;(j) helicopter performance data is interpreted and calculated to ensure suitability of aircraft for operations;(k) the removal of doors and the security of internal equipment is arranged as required. | * Simulation
* Monitor
 | * Perform tasks with guidance
* Perform tasks with monitoring
 |
|  LL-SO.4 – Operate the aircraft during external load operations (a) functional and safety checks on role equipment are performed, and defects are reported;(b) fuel and cargo load combinations to achieve task are calculated;(c) adequacy of power margin and directional control are determined;(d) stable hover over the load during hook-up/delivery procedures is maintained;(e) external load is lifted and transported to a separate location and placed at a specified position;(f) load is monitored and appropriate actions are taken to ensure load security and stability during flight;(g) excessive load swing during transit is avoided. | * Simulation
* 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
 |

### Debriefing for LL-SO-L1

|  |  |
| --- | --- |
| 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 LL-SO-L1** | **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 LL-SO-L2: Scenario training & emergencies

### Aeronautical knowledge training for LL-SO-L2

|  |  |
| --- | --- |
| 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 LL-SO-L2** | **Teaching technique** | **Trainee activity** |
| --- | --- | --- |
| Long briefing* Review the external sling load supplement contained in the Flight Manual for the particular helicopter type.
* Planning and risk management
* Cargo hook assembly including operation of the normal and emergency release mechanism.
* Performance limitations & use of appropriate performance graphs.
* Generic sling procedures (lift off-transit-over the target)
* Introduction to emergency procedures
* Apply Human Factors
* Pre-flight actions
 | * Long briefing
 | * Take notes
* Ask/answer questions
* Interact
 |
| Underpinning knowledge topics – unit LL-SO(a) the topics mentioned in Section 2.5, Low-level rating in Schedule 3 of Part 61 MOS;(c) engine performance checks for the helicopter type to be flown;(f) aerial delivery equipment operation, safe working loads and limitations;(g) cargo hook limitations, problems and hazards;(i) principles of aerodynamics;(j) control effectiveness in all phases of flight;(k) hazards that exist and problems that can occur when operating an aircraft during external load operations;(l) procedures to address problems associated with a helicopter during external load operations;Underpinning knowledge topics – NTS2(a) Identify relevant environmental or operational threats that are likely to affect the safety of the flight;(b) recognise an undesired aircraft state; | * Discuss/
* ask questions
* Include in long briefing
 | * Take notes
* Ask/answer questions
* Interact
 |

### Practical flight training for LL-SO-L2

|  |  |
| --- | --- |
| Agenda | * Pre-flight briefing 0.3 hour
* Underpinning knowledge as detailed
* Flight time 1.0 hour dual
 |
| Content summary | * Scenario based Low-level Sling Operations
* 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
* Ground crew with appropriate comms
 |

| **Content – practical flight training for LL-SO-L2** | **Teaching technique** | **Trainee activity** |
| --- | --- | --- |
| Pre-flight briefing* Review weather/traffic/airspace requirements
* Review weight and balance calculations
* Review flight sequences, what to expect, see & do
* Pre-flight of aircraft hook components including normal and emergency release mechanisms
* Pre-flight of external load components (slings/hooks etc)
* Pre-flight of external load
* Check essential knowledge
* Reinforce TEM & airmanship points
 | * Pre-flight briefing
 | * Take notes
* Ask/answer questions
* Interact
 |
| LL-H Helicopter low-level operations* Execute autorotative forced landing (simulated) from below 500 ft AGL (single-engine helicopter only)
* Execute engine failure (simulated) from below 500 ft AGL (multi-engine helicopter only)
 | * Monitor
 | * Perform tasks with guidance
* Perform tasks with monitoring
 |
| LL-SO Low-level Sling Operations* Revise elements of LL-SO-L1
* Revise unit NTS1
 | * Monitor
 | * Perform tasks with guidance
* Perform tasks with monitoring
 |
| LL-SO.5 – Manage abnormal and emergency situations during external load operations (a) helicopter control is maintained; (b) abnormal or emergency situations are identified and managed in accordance with workplace procedures and AFM or POH;(c) load is jettisoned when appropriate.  | * Monitor
 | * Perform tasks with monitoring
 |
| LL-SO.6 – Conduct post-flight activities for external load operations (a) operating procedures and outcomes of the flight are reviewed and analysed;(b) effectiveness, efficiency and performance of equipment is analysed and reported. | * 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 LL-SO-L2

|  |  |
| --- | --- |
| 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 LL-SO-L2** | **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 LL-SO-L3: Abnormal operations and emergencies

### Aeronautical knowledge training for LL-SO-L3

|  |  |
| --- | --- |
| Agenda | * Pre-flight briefing 0.3 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
* Company standard instructor briefing notes
 |

| **Content– aeronautical knowledge for LL-SO-L3** | **Teaching technique** | **Trainee activity** |
| --- | --- | --- |
| Long briefing* Review underpinning knowledge
 | * Open discussion
* Feedback
* Ask/answer questions
 | * Take notes
* Ask/answer questions
* Interact
 |
| Underpinning knowledge topics – unit LL-SORevise elements of LL-SO-L1 & LL-SO-L2Underpinning knowledge topics – unit NTS1 & NTS2Revise units NTS1 & NTS2 | * Open discussion
* Feedback
* Ask/answer questions
 | * Take notes
* Ask/answer questions
* Interact
 |

### Practical flight training for LL-SO-L3

|  |  |
| --- | --- |
| Agenda | * Pre-flight briefing 0.3 hour
* Underpinning knowledge as detailed
* Flight time 1.0 hour dual
 |
| Content summary | * Scenario based Low-level Sling Operations
 |
| Resources | * Aircraft that is suitable for the training and operation
* Role equipment
* Area map
* Aircraft flight manual and checklist
* Headsets and helmets
* Ground crew with appropriate comms
 |

| **Content – practical flight training for LL-SO-L3** | **Teaching technique** | **Trainee activity** |
| --- | --- | --- |
| Pre-flight briefing* Review weather/traffic/airspace requirements
* Review weight and balance calculations
* Review flight sequences, what to expect, see & do
* Pre-flight of aircraft hook components including normal and emergency release mechanisms
* Pre-flight of external load components (slings/hooks etc)
* Pre-flight of external load
* Check essential knowledge
* Reinforce TEM & airmanship points
 | * Pre-flight briefing
 | * Take notes
* Ask/answer questions
* Interact
 |
| LL-H Helicopter low-level operations* Operate at low level in hilly terrain
* Aircraft handling (at an altitude above 1,500 ft AGL)
 | * Monitor
 | * Perform tasks with guidance
* Perform tasks with monitoring
 |
| LL-SO Low-level Sling Operations* Revise elements of LL-SO1 and LL-SO2
* Revise units NTS1 and NTS2
 | * Monitor
 | * Perform tasks with guidance
* Perform tasks with monitoring
 |

### Debriefing for LL-SO-L3

|  |  |
| --- | --- |
| 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
 |

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| --- | --- | --- |
| **Content – debriefing LL-SO-L3** | **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
* Trainee recommended 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 LL-SO-L1: General scenario training

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 |
|  |  |  |

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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 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.4 | Low-level handling | 1 |  |
| LL-H.6 | Execute forced landing from below 500 feet AGL (S/E) | 1 |  |
| LL-H.7 | Execute engine failure from below 500 feet AGL (M/E) | 1 |  |
| LL-SO.1 | Prepare and rig a sling load | 3 |  |
| LL-SO.2 | Plan external load operations | 3 |  |
| LL-SO.3 | Conduct pre-flight briefings for external load operations | 3 |  |
| LL-SO.4 | Operate the aircraft during external load operations | 3 |  |
| NTS1.1 | Maintain effective lookout | 1 |  |
| NTS1.2 | Maintain situational awareness | 2 |  |
| NTS1.3 | Assess situations and make decisions | 3 |  |
| NTS1.4 | Set priorities and manage tasks | 3 |  |
| NTS1.5 | Maintain effective communications and interpersonal relationships | 2 |  |
| NTS2.1 | Recognise and manage threats | 2 |  |
| NTS2.2 | Recognise and manage errors | 2 |  |
| 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 next training session?** | **YES** | **NO** |

|  |  |
| --- | --- |
| **Instructor’s signature** | **Trainee’s signature** |
|  |  |

## Training record LL-SO-L(2): Scenario training & emergencies

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 |
|  |  |  |

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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.4 | Low-level handling | 1 |  |
| LL-H.6 | Execute forced landing from below 500 feet AGL (S/E) | 1 |  |
| LL-H.7 | Execute engine failure from below 500 feet AGL (M/E) | 1 |  |
| LL-SO.1 | Prepare and rig a sling load | 1 |  |
| LL-SO.2 | Plan external load operations | 2 |  |
| LL-SO.3 | Conduct pre-flight briefings for external load operations | 2 |  |
| LL-SO.4 | Operate the aircraft during external load operations | 2 |  |
| LL-SO.5 | Manage abnormal and emergency situations during external load operations | 2 |  |
| LL-SO.6 | Conduct post-flight activities for external load 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 | 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 next training session?** | **YES** | **NO** |

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| --- | --- |
| **Instructor’s signature** | **Trainee’s signature** |
|  |  |

## Training record LL-SO-L3 Abnormal operations and emergencies

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 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.4 | Low-level handling | 1 |  |
| LL-H.6 | Execute forced landing from below 500 feet AGL (S/E) | 1 |  |
| LL-H.7 | Execute engine failure from below 500 feet AGL (M/E) | 1 |  |
| LL-H.8 | Operate at low level in hilly terrain  | 1 |  |
| LL-SO.1 | Prepare and rig a sling load | 1 |  |
| LL-SO.2 | Plan external load operations | 1 |  |
| LL-SO.3 | Conduct pre-flight briefings for external load operations | 1 |  |
| LL-SO.4 | Operate the aircraft during external load operations | 1 |  |
| LL-SO.5 | Manage abnormal and emergency situations during external load operations | 1 |  |
| LL-SO.6 | Conduct post-flight activities for external load operations | 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 next training session?** | **YES** | **NO** |

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| **Instructor’s signature** | **Trainee’s signature** |
|  |  |

# Course Completion Certificate

|  |  |
| --- | --- |
| **Name of Course** | Low-level Sling Operations 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 low-level sling operations endorsement. |
| **Head of Operations name** |  |
| **Signature** |  |
| **Date**  |  |