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| Flight no: | DFE 1.\_\_\_\_ | Trainee name & ARN: |  | | |
| Date: |  | Instructor: |  | | |
| Aircraft registration: |  | Aircraft type: |  | Flight time: |  |

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| Lesson Overview  * Introduction to retractable undercarriage and variable pitch propeller systems and their operation * Pre-flight considerations - including weight and balance and performance calculations, items to be inspected relevant to retractable undercarriage and manual propeller pitch control, loading of passengers and cargo * Cockpit controls and indicators, warning systems * Normal, abnormal and emergency procedures applicable to manual propeller pitch control and retractable undercarriage, including observation of operating limitations for retractable undercarriage * Aeroplane familiarisation and general competency – other operating systems and limitations, navigation systems, general handling exercises including steep turns, stalling, practice forced landing# |

**#***The CASR 61.385 general competency requirement must be met prior to endorsement issue. The flight training and assessment required to meet this requirement must be determined by the training provider, when taking into account the aeroplane complexity, operating procedures and limitations. This syllabus provides an example only.*

| PRE-FLIGHT KNOWLEDGE  Long Briefing: 1.0 hour each Pre-flight Briefing: 0.5 hour  Underpinning knowledge: as required | |
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| Content | |
| **Long briefings (for completion prior to flight lesson DFE1):**   * **Retractable undercarriage system** * **Constant speed unit and variable pitch propeller** * **Aeroplane navigation and operating systems, general handling, normal and abnormal operations** | |
| **Underpinning knowledge**   * Contents of the flight manual and POH * **DFE2 Retractable undercarriage -** source of power, cockpit indications for down and locked, retracted and in transit, conditions causing undercarriage warning horn to sound, how landing gear doors are opened and closed, method of preventing retraction on the ground, VLE, VLO, how long the undercarriage takes to extend and retract, emergency procedures to extend and lock the undercarriage down [DFE2 4(a)-(k)] * **DFE3 Manual propeller pitch control** - effects of loss of oil pressure to the CSU, effects of loss of oil pressure on propeller pitch (if applicable), effects of counterweights on engine RPM (if applicable), the function of oil pressure on the CSU, the function of the fine and coarse pitch stops, the effect that failure of the fine pitch stops may cause, the effects of the use of carburettor heat, propeller over-speed, indications of engine ice, indications that carburettor ice has been cleared, effects on manifold pressure of reducing RPM in a normally aspirated engine below full throttle height [DFE3 4(a)-(k)] | |
| **HF & NTS**   * Effective communication under normal and non-normal circumstances, task management [NTS1 & NTS2 4(a), NTS1 4(b), NTS2 4(i)] * Threat and error management detailing processes that can be used to identify and mitigate or control threats and errors, the application of situation awareness to identifying real or potential environmental or operational threats to flight safety, developing and implementing plans of action for removing and mitigating threats, and removing and mitigating errors, undesired aircraft states, including prevention, identifying and controlling, how an undesired aircraft state can develop from an unmanaged threat or error, use of checklists and standard operating procedures to prevent errors [NTS2 4(b)-(f),(g)] * Potential causes for inadvertent undercarriage retraction on the ground and failure to extend undercarriage in flight | |
| **Pre-flight briefing**   * Review flight sequences, what to expect, see & do * Check essential knowledge * Reinforce threat & error management * Reinforce significant airmanship points | |
| **Pre-flight knowledge components complete:** | **Instructor’s signature & date** |

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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 | Demonstrates a developing level of proficiency | Achieves competency to the standard required for qualification issue |

| FLIGHT TRAINING  Suggested flight time: 1.2 hours dual | | | |
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| MOS Reference | Lesson Content (Elements & Performance Criteria) | Performance  Standard | |
| Required | Achieved\* |
| **Design Feature Endorsement Competencies** | | | |
| 1. DFE3.1 | Perform pre-flight and pre-take-off checks for manual propeller pitch control |  |  |
|  | perform propeller pre-flight checks ensuring the serviceability of the following: |  |  |
|  | * + 1. propeller | 3 |  |
|  | * + 1. spinner (when fitted) | 3 |  |
|  | * + 1. backing plate | 3 |  |
|  | CSU control rods and cables are checked to confirm they are intact and secure (when visible) | 3 |  |
|  | perform propeller pre-take-off checks, including the following: |  |  |
|  | * + 1. oil temperature and pressure within limits | 3 |  |
|  | * + 1. function of propeller pitch control at specified RPM | 3 |  |
| 1. DFE3.2 | Operate manual propeller pitch control during ground and flight operations |  |  |
|  | operates manual propeller pitch control on the ground within the limitations and conditions specified in AFM and POH, ensuring: |  |  |
|  | * + 1. idle RPM within limits | 3 |  |
|  | * + 1. propeller RPM responds appropriately to throttle | 3 |  |
|  | * + 1. engine RPM is within limitations when take-off power is set | 3 |  |
|  | operates manual propeller pitch control in flight within the limitations and conditions specified in AFM and POH and: |  |  |
|  | * + 1. sets RPM as required | 3 |  |
|  | * + 1. monitors RPM remains within specified limits | 3 |  |
|  | * + 1. avoids oil congelation in cold weather operations by cycling engine RPM | 3 |  |
| 1. DFE3.3 | Manage abnormal and emergency procedures for a manual propeller pitch control |  |  |
|  | identifies abnormal or emergency operations of manual propeller pitch control or CSU | 3 |  |
|  | maintains control of engine RPM | 3 |  |
|  | performs appropriate abnormal or emergency procedures | 3 |  |
| 1. DFE2.1 | Retractable undercarriage in normal flight |  |  |
|  | retract undercarriage | 3 |  |
|  | establish a positive rate of climb before selecting undercarriage up | 3 |  |
|  | identify undercarriage selector and select undercarriage up | 3 |  |
|  | confirm undercarriage is in transit | 3 |  |
|  | confirm undercarriage is in the retracted and locked position by reference to undercarriage position indicators | 3 |  |
|  | comply with undercarriage speed limitations (VLO) | 3 |  |
|  | lower undercarriage | 3 |  |
|  | comply with undercarriage lowering speed limits (VLE) | 3 |  |
|  | identify undercarriage selector and select undercarriage down | 3 |  |
|  | confirm undercarriage is in transit | 3 |  |
|  | confirm undercarriage is in the lowered and locked position by reference to undercarriage position indicators | 3 |  |
| 1. DFE2.2 | Manage abnormal and emergency procedures applicable to retractable undercarriage |  |  |
|  | identify abnormal operation of undercarriage | 3 |  |
|  | control aircraft | 3 |  |
|  | manage abnormal or emergency operation of undercarriage to achieve a safe flight outcome | 3 |  |
| **Aeroplane General Competency** | | | |
| 1. C2.1 | Pre-flight actions and procedures *(including minimum equipment list, weight & balance calculations, take-off and landing performance calculations)* | 2 |  |
| 1. C4.1 | Plan fuel requirements | 2 |  |
| 1. C2.2 | Perform pre-flight inspection *(including retractable undercarriage pre-flight checks)* | 2 |  |
| 1. C4.2 | Manage fuel system | 2 |  |
| 1. C5 | Manage passengers and cargo *(including pre-flight safety briefing, use of seat harnesses, escape hatches, exits and emergency equipment. Loading of cargo, distribution and limitations)* | 2 |  |
| 1. A1.1 | Start engine | 2 |  |
| 1. A1.2 | Taxi aeroplane | 2 |  |
| 1. A2.1 | Carry out pre take-off procedures | 2 |  |
| 1. A2.2 | Take off aeroplane | 2 |  |
| 1. A2.4 | Carry out after take-off procedures | 2 |  |
| 1. A3.1 | Climb aeroplane *(including best angle and best rate climb)* | 2 |  |
| 1. A3.2 | Maintain straight and level flight *(including at slow speed and during acceleration and deceleration)* | 2 |  |
| 1. A3.4 | Turn aeroplane | 2 |  |
| 1. A5.1 | Enter and recover from stall *(including incipient stall, stall without power applied, turning and climbing stalls, approach configuration stalls)* | 2 |  |
| 1. A5.3 | Turn aeroplane steeply | 2 |  |
| 1. A6.3 | Perform forced landing (simulated) *(simulated complete engine failure)* | 2 |  |
| 1. A3.3 | Descend aeroplane *(including glide and powered descents)* | 2 |  |
| 1. NTS1.1 | Maintain effective lookout | 2 |  |
| 1. NTS1.2 | Maintain situational awareness | 2 |  |
| 1. NTS1.3 | Assess situations and make decisions | 2 |  |
| 1. NTS1.4 | Set priorities and manage tasks | 2 |  |
| 1. NTS1.5 | Maintain effective communications and interpersonal relationships | 2 |  |
| 1. NTS2.1 | Recognise and manage threats | 2 |  |
| 1. NTS2.2 | Recognise and manage errors | 2 |  |
| 1. NTS2.3 | Recognise and manage undesired aircraft state | 2 |  |
| 1. A4.1 | Land aeroplane | 2 |  |
| 1. A1.1 | Stop engine | 2 |  |
| 1. C2.3 | Post-flight actions and procedures | 2 |  |

\*Enter the performance standard achieved if it is different to that required

Where it has not been possible to introduce performance criteria or the trainee has not achieved the required standard, the performance criteria must be covered during the next lesson. Enter these performance criteria in the lesson record for the subsequent lesson.

| DEBRIEFING |
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| Content |
| * 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 and sign off |

| COMMENTS AND OUTCOME | | |
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|  | | |
| **Proceed to next training session?** | **Yes** | **No** |

| Instructor’s signature & date | Trainee’s signature & date |
| --- | --- |
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