### **Lesson Plan and Training Record**

### **RPL(A) 5: Stalling**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Flight no: | RPL (A) 5. \_\_\_ | Trainee name & ARN: |  | | |
| Date: |  | Instructor: |  | | |
| Aircraft registration: |  | Aircraft type: |  | Flight time: |  |

### Lesson Overview

* Checklist procedures (e.g. HASELL)
* Slow flight
* Symptoms and recognition of an imminent stall
* Symptoms and recognition of a fully developed stall
* Recovery technique
* Effect of power on recovery
* Effect of power, undercarriage (if retractable) and flap on the stall
* Landing configuration stall
* Wing drop recovery
* Spin avoidance
* Engine start and shutdown malfunctions and emergencies
* **Assess:**
  + straight and level
  + control aeroplane at slow speed
  + stalling (from straight and level, approach configuration)
  + communicating face-to-face

### **Pre-Flight Knowledge**

* Long Briefing: 0.8 hour
* Pre-flight Briefing: 0.3 hour
* Underpinning knowledge: as required

| Content | |
| --- | --- |
| **Long briefing** – Stalling   * Stall aerodynamics * Stall avoidance * Control effectiveness at slow speed * Symptoms and recognition of an imminent stall * Stall warning device * Symptoms and recognition of a fully developed stall * Recovery from an imminent stall * Recovery from fully developed stall * Control technique * Effect of power on recovery * Factors affecting stall speed (weight, power, flap and/or slat position, dynamic loading, ice or damage to wings) * Instrument indications * Application in flight and checklist procedures (e.g. HASELL checks) | |
| **Underpinning knowledge**   * Review/expand previously introduced knowledge as required * Standard operating procedures for the category, and class or type of aircraft and the operator [C2 4(a)] * Engine start procedures – cold start, flooded start * Difference between normally aspirated and fuel-injected systems [A1 4(b)] * Cause and effect of fuel vaporisation [A1 4(d)] * Stall warning devices [A3 4(c)] * Relationship between AOB, LF & stall speed [A3 4(i)] * Relationship between induced drag and operating at low speed [A3 4(j)] * Aerodynamic and aeroplane operational considerations related to slow flight, stalling, spinning & upset aeroplane states [A5 4(b)], including, but not limited to:   + symptoms of approach to stall and throughout the stall manoeuvre until recovery   + relationship between angle of attack and stall   + effects of weight, ‘g’ force and angle of attack   + dangers of unbalanced flight   + principles relating to the position of the elevator control and the point of stall   + priority given to reduce angle of attack during stall manoeuvres   + loss of height is considered in relation to available height and energy state   + the technique of converting excess height to speed   + the technique of converting excess speed to height   + symmetrical and rolling ‘g’ force limitations   + higher stall speeds when the aeroplane is turning   + effects on fuel, pitot and flap systems | |
| **HF & NTS**   * Task management [NTS1 4(b)] * Use of checklists and standard operating procedures to prevent errors [NTS2 4(h)] * Application of situational awareness to identify real or potential threats [NTS2 4(c)] * Developing and implementing plans of action to remove and mitigate threats and errors [NTS2 4(d)] * Undesired aeroplane state – prevention, identifying, controlling [NTS2 4(e)] * Initial reaction to undesired aeroplane state (‘startle effect’), importance of recognition skills and well-rehearsed responses * How an undesired aeroplane state can develop from unmanaged threat or error [NTS2 4(f)] | |
| **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 |
|  |  |

|  |  |  |
| --- | --- | --- |
| 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, and is deemed safe to conduct solo practice under direct supervision | Achieves competency to the standard required for qualification issue |

## Flight Training

## Suggested flight time: 1.0 hour dual

| MOS Reference | Lesson Content (Elements & Performance Criteria) | Performance  Standard | |
| --- | --- | --- | --- |
| Required | Achieved\* |
| C2.1 | Pre-flight actions and procedures |  |  |
|  | 1. obtain, interpret and apply information contained in the required pre-flight operational documentation, including the following: |  |  |
|  | 1. maintenance release | 3 |  |
|  | 1. local observations | 3 |  |
|  | 1. identify special aerodrome procedures | 3 |  |
|  | 1. determine the suitability of the current weather conditions for the proposed flight | 3 |  |
|  | 1. determine whether the aircraft is serviceable for the proposed flight | 3 |  |
| A1.1 | Start and stop engine |  |  |
|  | 1. manage engine start and shutdown malfunctions and emergencies   (e.g. flooded start, inoperative magneto after start, inoperative magneto or live magneto on shutdown) | 3 |  |
| C1.1 | Communicating face-to-face | 2 |  |
| C2.2 | Perform pre-flight inspection |  |  |
|  | 1. identify and secure equipment and documentation that is required for the flight | 3 |  |
|  | 1. identify all defects or damage to the aircraft | 3 |  |
| A3.2 | Maintain straight and level flight |  |  |
|  | 1. operate and monitor all aircraft systems during straight and level flight manoeuvres | 2 |  |
|  | 1. adjust altimeter subscale according to applicable settings | 2 |  |
|  | 1. identify and avoid terrain and traffic | 2 |  |
|  | 1. for the following straight and level manoeuvres select power, attitude and configuration as required for the flight path, balance and trim the aeroplane accurately, and apply smooth, coordinated control inputs to achieve the required flight tolerances that apply to the manoeuvre: |  |  |
|  | 1. at slow speed | 2 |  |
|  | 1. at normal cruise | 2 |  |
|  | 1. at high-speed cruise | 2 |  |
|  | 1. during acceleration and deceleration | 2 |  |
|  | 1. with flaps selected | 2 |  |
| A3.5 | Control aeroplane at slow speeds |  |  |
|  | 1. complete pre-manoeuvre checks | 2 |  |
|  | 1. operate and monitor all aircraft systems when operating the aeroplane at slow speed in straight and level, climbing, descending and turning flight | 2 |  |
|  | 1. except for multi-engine aeroplane operations, select power, attitude and configuration as required for the flight path, balance and trim the aeroplane accurately, and apply smooth, coordinated control inputs to achieve stable flight at the required flight tolerances that apply to the following: |  |  |
|  | 1. minimum approach speed with flaps retracted | 2 |  |
|  | 1. minimum approach speed in approach configuration | 2 |  |
|  | 1. flight at speeds just above stall warning activation or at the initial symptoms of stall | 2 |  |
|  | 1. except for multi-engine aeroplane operations, observe audible and visible stall warnings and recover aeroplane to controlled flight | 2 |  |
|  | 1. recognise and respond positively to reduced effectiveness of controls during slow flight manoeuvres | 2 |  |
|  | 1. recognise the need to increase power while manoeuvring in slow flight to maintain nominated altitude and a margin of speed above the stall | 2 |  |
|  | 1. transition from slow speed configuration, using take off power to achieve nominated speed in excess of 1.5 Vs without loss of height | 2 |  |
| A5.1 | Enter and recover from stall |  |  |
|  | 1. perform stalling pre-manoeuvre checks | 2 |  |
|  | 1. recognise symptoms of a stall | 2 |  |
|  | 1. control the aeroplane by trimming and balancing accurately for slow flight and then applying the required pitch, roll and yaw inputs to enter and recover from the following: |  |  |
|  | 1. slow flight where initial symptoms of a stall become evident | 2 |  |
|  | 1. stall, recovering without application of power | 2 |  |
|  | 1. stall, recovering with full power applied (not required for multi-engine aeroplanes) | 2 |  |
|  | 1. stall under the following conditions: |  |  |
|  | 1. straight and level flight | 2 |  |
|  | 1. approach to land configuration | 2 |  |
|  | 1. perform stall recovery including the following: |  |  |
|  | 1. reduce angle of attack | 2 |  |
|  | 1. prevent yaw | 2 |  |
|  | 1. use available power and height to increase the aircraft energy state | 2 |  |
|  | 1. avoid secondary stall | 2 |  |
|  | 1. re-establish desired flight path and aircraft control with balanced control application | 2 |  |
| A5.2 | **Avoid spin** (instructor demonstration only) |  |  |
|  | 1. perform stalling pre-manoeuvre checks | 3 |  |
|  | 1. recognise wing drop at the stall | 3 |  |
|  | 1. from balanced flight, recover from stall in the attitudes and configurations most likely to cause a wing drop | 3 |  |
|  | 1. perform recovery where the aeroplane exhibits a tendency to drop a wing at the stall, in accordance with 5.1(d) | 3 |  |
| A6.6 | Recover from unusual flight attitudes |  |  |
|  | 1. identify nose-high unusual attitude flight condition | 3 |  |
|  | 1. recover from nose-high unusual attitudes by adjusting pitch, bank and power to resume controlled and balanced flight | 3 |  |
|  | 1. apply controlled corrective action while maintaining aircraft performance within limits | 3 |  |
| C4.2 | Manage fuel system |  |  |
|  | 1. monitor fuel usage during the flight | 3 |  |
|  | 1. perform fuel tank changes correctly | 3 |  |
|  | 1. maintain fuel load within aircraft limits | 3 |  |
|  | 1. operate fuel pumps and engine controls correctly | 3 |  |
| NTS1.2 | Maintain situational awareness |  |  |
|  | 1. monitor all aircraft systems using a systematic scan technique | 3 |  |
|  | 1. collect information to facilitate ongoing system management | 3 |  |
|  | 1. monitor flight environment for deviations from planned operations | 3 |  |
|  | 1. collect flight environment information to update planned operations | 3 |  |
| NTS2.1 | Recognise and manage threats |  |  |
|  | 1. identify relevant environmental or operational threats that are likely to affect the safety of the flight | 3 |  |
|  | 1. monitor and assess flight progress to ensure a safe outcome, or modify actions when a safe outcome is not assured | 3 |  |
| NTS2.2 | Recognise and manage errors |  |  |
|  | 1. apply checklists and standard operating procedures to prevent aircraft handling, procedural or communication errors | 3 |  |
|  | 1. identify committed errors before safety is affected or the aircraft enters an undesired state | 3 |  |
|  | 1. implement countermeasures to prevent errors or take action in the time available to correct errors before the aircraft enters an undesired state | 3 |  |
| NTS2.3 | Recognise and manage undesired aircraft state |  |  |
|  | 1. recognise an undesired aircraft state | 3 |  |
|  | 1. prioritise tasks to ensure an undesired aircraft state is managed effectively | 3 |  |
|  | 1. apply corrective actions to recover an undesired aircraft state in a safe and timely manner | 3 |  |

\*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.

### **Consolidation and/or Remedial Training**

| MOS Reference | Lesson Content (Elements & Performance Criteria) | Performance  Standard | |
| --- | --- | --- | --- |
| Required | Achieved |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

### **Debriefing**

| 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 Outcomes | | |
| --- | --- | --- |
|  | | |
| Proceed to next training session? | Yes | No |

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