### Lesson Plan and Training Record

### CPL(A) 4: Navigation Exercise #2

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| --- | --- | --- | --- | --- | --- |
| Flight no: | CPL (A) 4\_\_\_ | Trainee name & ARN: |  | | |
| Date: |  | Instructor: |  | | |
| Aircraft registration: |  | Aircraft type: |  | Flight time: |  |

### Lesson Overview

* CPL Navigation Exercise 2 – Navigation route: [Enter navigation route\*]
* Simulated commercial exercise, including simulated passenger and cargo management and loading
* Controlled airspace and controlled aerodrome operations
* Critical point and point of no return calculations
* Refuelling
* Engine start and shutdown – simulated emergencies
* Simulated engine failure on take-off
* Simulated R/T equipment malfunction
* Navigation at low level, best range and best endurance performance, turbulence penetration configuration
* Basic instrument flight –simulated inadvertent IMC entry and return to visual flight
* Perform lost procedure
* Perform diversion procedure
* General handling - stalling, spin avoidance
* Practice forced landing – simulated partial engine failure, simulated engine failure in circuit area
* Precautionary search and landing
* Other abnormal situations – simulated electrical failure
* Short landing
* Monitor application of non-technical skills
* Assess:
  + non-technical skills – maintain effective lookout

\*lesson plan scenario – OCTA– CTA – OCTA (reflected in order of performance criteria)

### Pre-Flight Knowledge

* Long Briefing: as required
* Pre-flight Briefing: as required
* Underpinning knowledge: as required

| Content | |
| --- | --- |
| Long briefing   * Preparation for and overview of exercise * Use of navigation aids and systems * Revision as required | |
| **Underpinning knowledge**   * Light signals, including interpretation and actions required [C3 4(f)] * Fire extinguishers that can be used for fuel-related fires, including requirements and how to use them in the event of a fire, location of refuelling places, limitations on using drum stock fuel, health and safety requirements applicable to fuelling operations, variations to planned fuel consumption [C4 4(d)-(h)] * Managing passengers during abnormal or emergency situations, local procedures for movement of passengers, security requirements, dangerous goods awareness, health and safety regulations and best practice [C5 4(a)-(e)] * NOTAM decoding, aerodrome ground markings and lighting, standard RT phraseology, transponder codes for emergency [CTR 4(a)-(c),(e)] * Decode NOTAMS, aerodrome ground markings and lighting, standard RT phraseology for operations at controlled aerodromes, transponder codes [CTA 4(a)-(c),(e)] * Radio failure procedures in ERSA [ONTA 4(d)], Radio failure procedures in ERSA, transponder codes for radio failure and emergency [CTR 4(d)&(e)], [CTA 4(d)] | |
| **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)] | |
| **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: 2.5 hours dual (0.3 IF)

| MOS Reference | Lesson Content (Elements & Performance Criteria) | Performance  Standard | |
| --- | --- | --- | --- |
| Required | Achieved\* |
| NAV.1 | Prepare documents and flight plan |  |  |
|  | 1. calculate and document critical point (CP) and point of no return (PNR) locations | 3 |  |
| CTR.1 | Controlled aerodrome pre-flight preparation |  |  |
|  | 1. using a current ERSA and NOTAM, for the controlled aerodrome, extract all the relevant operational information | 2 |  |
|  | 1. interpret the extracted information | 2 |  |
|  | 1. identify all special aerodrome procedures | 2 |  |
|  | 1. check current weather forecast and local observations | 2 |  |
|  | 1. identify all relevant radio and navigation aid frequencies | 2 |  |
| C4.3 | Refuel aircraft |  |  |
|  | 1. identify the correct type of fuel to be used | 2 |  |
|  | 1. ensure aircraft is earthed prior to refuelling and defueling operations | 2 |  |
|  | 1. correctly load and unload fuel | 2 |  |
|  | 1. ensure required fuel quantity is loaded | 2 |  |
|  | 1. ensure fuel caps are closed and secured after fuelling operations | 2 |  |
|  | 1. perform fuel quality checks | 2 |  |
| C5.1 | Manage passengers |  |  |
|  | supervise passenger safety | 2 |  |
|  | 1. encourage passengers to participate in and contribute to the safe outcome of the flight | 2 |  |
|  | 1. conduct pre-flight passenger safety briefing | 2 |  |
|  | 1. ensure passengers are aware of, and avoid interference with, flight and systems controls | 2 |  |
|  | 1. ensure passengers are aware of, and comply with, the use of seat harnesses | 2 |  |
|  | 1. ensure passengers are aware of the use of escape hatches, exits and emergency equipment on board the aircraft | 2 |  |
|  | 1. manage passenger safety in the event of abnormal or in-flight emergency situations | 2 |  |
| C5.2 | Aid and assist passengers |  |  |
|  | 1. establish and maintain clear communications with passengers | 2 |  |
|  | 1. assist with passenger comfort both when airside and in flight | 2 |  |
| C5.3 | Manage cargo |  |  |
|  | 1. manage loading, unloading and security of cargo during flight operations | 2 |  |
|  | 1. identify dangerous goods and apply procedures to ensure safety and security | 2 |  |
| A1.1 | Start and stop engine |  |  |
|  | 1. manage engine start malfunctions and emergencies 2. (e.g. flooded start, inoperative magneto after start) | 2 |  |
| A6.1 | Manage engine failure - take-off (simulated) | 2 |  |
| C3.2 | Manage R/T equipment malfunctions  (scenario outbound, scenario inbound to operating base) |  |  |
|  | 1. perform radio failure procedures | 2 |  |
|  | 1. use fault finding procedures and perform corrective actions | 2 |  |
| OGA | Operate aircraft in Class G airspace |  |  |
|  | 1. apply loss of radio communication procedures | 2 |  |
| NAV.4 | Navigate aircraft enroute |  |  |
|  | 1. configure the aircraft as required for the following environmental and operational conditions: |  |  |
|  | 1. turbulence | 2 |  |
|  | 1. holding | 2 |  |
|  | 1. maximum range | 2 |  |
| A3.2 | Maintain straight and level flight |  |  |
|  | 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 maximum range | 2 |  |
|  | 1. at maximum endurance | 2 |  |
| C4.2 | Manage fuel system |  |  |
|  | 1. configure the aircraft correctly to achieve best range performance and correctly calculate the revised range of operation | 2 |  |
|  | 1. configure the aircraft correctly to achieve best endurance performance and correctly calculate the revised operational endurance | 2 |  |
| NAV.5 | Navigate at low level and in reduced visibility |  |  |
|  | 1. configure the aircraft as required for the following environmental and operational conditions: |  |  |
|  | 1. reduced visibility | 2 |  |
|  | 1. low cloud base | 2 |  |
|  | 1. navigate aeroplane at minimum heights (not below 500 ft AGL, clear of built-up areas) and remain in VMC | 2 |  |
|  | 1. maintain separation from terrain, obstacles, allowing for wind and turbulence at low level | 2 |  |
|  | 1. avoid noise sensitive areas | 2 |  |
|  | 1. operate appropriately in the vicinity of aerodromes and landing areas | 2 |  |
| NAV.7 | Perform diversion procedure |  |  |
|  | 1. make timely decision to divert | 2 |  |
|  | 1. identify an acceptable alternate aerodrome | 2 |  |
|  | 1. select a suitable route and cruising level | 2 |  |
|  | 1. revise flight plan considering weather, terrain, airspace and fuel available | 2 |  |
|  | 1. advise ATS of an intention to divert | 2 |  |
| A5.1 | Enter and recover from stall  (revise recovery from initial symptoms of a stall, stalls from straight & level flight and during climb) | 2 |  |
| A5.2 | Avoid spin  (revise spin avoidance from straight and level flight) |  |  |
| A6.3 | Perform forced landing (simulated)  (revise simulated partial engine failure) | 2 |  |
| A6.4 | Conduct precautionary search and landing (simulated condition) | 2 |  |
| A6.5 | Manage other abnormal situations (simulated)  (simulated electrical failure) |  |  |
|  | 1. correctly identify the situation and maintain safe control of the aeroplane at all times | 2 |  |
|  | 1. manage abnormal and emergency situations in accordance with relevant emergency procedures and regulatory requirements | 2 |  |
|  | 1. follow appropriate emergency procedures while maintaining control of the aeroplane | 2 |  |
|  | 1. correctly identify when an emergency evacuation of an aeroplane is required | 2 |  |
|  | 1. execute a simulated emergency evacuation of an aeroplane | 2 |  |
|  | 1. advise ATS or other agencies capable of providing assistance of situation and intentions | 2 |  |
| IFL.4 | Re-establish visual flight  (simulated inadvertent IMC entry – limited panel) | 3 |  |
| NAV.6 | Perform lost procedure |  |  |
|  | 1. acknowledge positional uncertainty in a timely manner | 2 |  |
|  | 1. configure aircraft for range and endurance as required | 2 |  |
|  | 1. apply recognised method to re-establish aircraft position | 2 |  |
|  | 1. fix position | 2 |  |
|  | 1. use radio to request assistance, if applicable | 2 |  |
|  | 1. plan a timely precautionary search and landing if unable to complete flight safely to suitable aerodrome | 2 |  |
| CTA.1 | Operate aircraft in controlled airspace |  |  |
|  | 1. comply with airways clearance requirements for operating in all classes of airspace, including lead time required for flight plan submission, contents, ‘clearance void time’, and ‘readback’ requirement | 2 |  |
|  | 1. apply airways clearance requirements for entering, operating in and departing from CTA and CTR, including details that need to be provided to ATC, and what details to expect from ATC | 2 |  |
|  | 1. maintain control area protection tolerances | 2 |  |
|  | 1. maintain tracking and altitude tolerances when operating on an airways clearance | 2 |  |
|  | 1. reconfirm any clearance items when doubt exists | 2 |  |
|  | 1. advise ATC as soon as possible if unable to maintain clearance due to adverse weather conditions | 2 |  |
|  | 1. follow ATC requirements for a change of level in CTA, including in an emergency situation | 2 |  |
|  | 1. comply with departure, climb, transition to cruise (levelling out), cruise, change of levels, descent and visual approach procedures in CTA and CTR instructions | 2 |  |
|  | 1. apply separation standards between IFR flights, and IFR and VFR flights in the various classes of CTA | 2 |  |
|  | 1. perform appropriate actions in the event of the loss of radio communication in CTA and CTR | 2 |  |
|  | 1. perform appropriate actions in the event of abnormal operations and emergency procedures in CTA and CTR | 2 |  |
|  | 1. operate under radar vectoring procedures, including radio procedures and phraseologies | 2 |  |
|  | 1. maximum permissible time interval between ATC transmissions during radar vectoring are not exceeded | 2 |  |
|  | 1. perform appropriate actions in the event of abnormal operations and emergencies | 2 |  |
|  | 1. recall transponder emergency code and communication failure code | 2 |  |
| CTR.4 | Perform arrival and landing at controlled aerodrome |  |  |
|  | 1. check ERSA and NOTAM prior to entering control area and extract required operational information | 2 |  |
|  | 1. receive ATIS and correctly set the appropriate QNH | 2 |  |
|  | 1. request and receive ATC clearance and set correct transponder code prior to entering control area | 2 |  |
|  | 1. advise ATC as soon as possible if unable to comply with clearance | 2 |  |
|  | 1. maintain lookout at all times | 2 |  |
|  | 1. update QNH as required | 2 |  |
|  | 1. maintain tracking tolerances | 2 |  |
|  | 1. establish aircraft on the correct leg of the circuit in preparation for landing and maintain separation from traffic | 2 |  |
|  | 1. confirm clearance to land | 2 |  |
|  | 1. vacate runway and obtain taxi clearance | 2 |  |
| CTR.2 | Taxi aircraft at a controlled aerodrome |  |  |
|  | 1. obtain and comply with ATC clearances | 2 |  |
|  | 1. manoeuvre aircraft to holding point as instructed and take appropriate action to avoid other aircraft and obstructions | 2 |  |
|  | 1. recognise ground markings during taxi and take appropriate action | 2 |  |
|  | 1. recognise lighting signals and take appropriate action | 2 |  |
|  | 1. identify airport runway incursion hotspots | 2 |  |
|  | 1. manoeuvre aircraft to avoid jet blast hazard | 2 |  |
|  | 1. request taxi guidance if unsure of position | 2 |  |
|  | 1. use strobes when crossing any runway | 2 |  |
| CTR.3 | Perform departure from controlled aerodrome |  |  |
|  | 1. receive and correctly read back an airways clearance | 2 |  |
|  | 1. check and ensure runway approach is clear prior to entering a runway | 2 |  |
|  | 1. correctly set transponder code and mode prior to entering runway for take-off | 2 |  |
|  | 1. comply with ATC departure instructions | 2 |  |
|  | 1. advise ATC as soon as possible if unable to comply with clearance | 2 |  |
|  | 1. contact approach with airborne report or give departure call to tower | 2 |  |
|  | 1. maintain lookout | 2 |  |
|  | 1. avoid wake turbulence | 2 |  |
|  | 1. comply with airways clearances within tracking and altitude tolerances and maintain traffic lookout until clear of the aerodrome control zone | 2 |  |
| NTS1.1 | Maintain effective lookout |  |  |
|  | 1. maintain traffic separation using a systematic visual scan technique at a rate determined by traffic density, visibility and terrain | 1 |  |
|  | 1. maintain radio listening watch and interpret transmissions to determine traffic location and intentions | 1 |  |
|  | 1. perform airspace-cleared procedure before commencing any manoeuvre | 1 |  |
| NTS1.2 | Maintain situational awareness |  |  |
|  | 1. monitor all aircraft systems using a systematic scan technique | 2 |  |
|  | 1. collect information to facilitate ongoing system management | 2 |  |
|  | 1. monitor flight environment for deviations from planned operations | 2 |  |
|  | 1. collect flight environment information to update planned operations | 2 |  |
| NTS1.3 | Assess situations and make decisions |  |  |
|  | 1. identify problems | 2 |  |
|  | 1. analyse problems | 2 |  |
|  | 1. identify solutions | 2 |  |
|  | 1. assess solutions and risks | 2 |  |
|  | 1. decide on a course of action | 2 |  |
|  | 1. communicate plans of action (if appropriate) | 2 |  |
|  | 1. allocate tasks for action (if appropriate) | 2 |  |
|  | 1. take actions to achieve optimum outcomes for the operation | 2 |  |
|  | 1. monitor progress against plan | 2 |  |
|  | 1. re-evaluate plan to achieve optimum outcomes | 2 |  |
| NTS1.4 | Set priorities and manage tasks |  |  |
|  | 1. organise workload and priorities to ensure optimum outcome of the flight | 2 |  |
|  | 1. plan events and tasks to occur sequentially | 2 |  |
|  | 1. anticipate events and tasks to ensure sufficient opportunity for completion | 2 |  |
|  | 1. use technology to reduce workload and improve cognitive and manipulative activities | 2 |  |
| NTS1.5 | Maintain effective communications and interpersonal relationships |  |  |
|  | 1. establish and maintain effective and efficient communications and interpersonal relationships with all stakeholders to ensure the optimum outcome of the flight | 2 |  |
|  | 1. define and explain objectives to stakeholders | 2 |  |
|  | 1. demonstrate a level of assertiveness that ensures the optimum completion of the flight | 2 |  |
| NTS2.1 | Recognise and manage threats |  |  |
|  | 1. identify relevant environmental or operational threats that are likely to affect the safety of the flight | 2 |  |
|  | 1. identify when competing priorities and demands may represent a threat to the safety of the flight | 2 |  |
|  | 1. develop and implement countermeasures to manage threats | 2 |  |
|  | 1. monitor and assess flight progress to ensure a safe outcome, or modify actions when a safe outcome is not assured | 2 |  |
| NTS2.2 | Recognise and manage errors |  |  |
|  | 1. apply checklists and standard operating procedures to prevent aircraft handling, procedural or communication errors | 2 |  |
|  | 1. identify committed errors before safety is affected or the aircraft enters an undesired state | 2 |  |
|  | 1. monitor the following to collect and analyse information to identify potential or actual errors: |  |  |
|  | 1. aircraft systems using a systematic scan technique | 2 |  |
|  | 1. the flight environment | 2 |  |
|  | 1. other crew | 2 |  |
|  | 1. implement countermeasures to prevent errors or take action in the time available to correct errors before the aircraft enters an undesired state | 2 |  |
| NTS2.3 | Recognise and manage undesired aircraft state |  |  |
|  | 1. recognise an undesired aircraft state | 2 |  |
|  | 1. prioritise tasks to ensure an undesired aircraft state is managed effectively | 2 |  |
|  | 1. apply corrective actions to recover an undesired aircraft state in a safe and timely manner | 2 |  |
| A6.2 | Manage engine failure in the circuit area (simulated) | 2 |  |
| A4.5 | Short landing | 2 |  |
| A1.1 | Start and stop engine |  |  |
|  | 1. manage engine shutdown malfunctions and emergencies   (e.g. inoperative magneto or live magneto on shutdown) | 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.

## Consolidation and/or Remedial Training

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