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| --- | --- | --- | --- | --- | --- |
| Flight no: | ME(A)CR4.\_\_\_\_ | Trainee name & ARN: |  | | |
| Date: |  | Instructor: |  | | |
| Aircraft registration: |  | Aircraft type: |  | Flight time: |  |

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| Lesson Overview  * Engine start and shutdown malfunctions * Rejected take-off * Revise engine failure procedures – recognition, control, identification, performance * Asymmetric performance in the climb * Critical speeds:   + wings level, windmilling engine   + wings 5º bank, windmilling engine   + wings 5º bank, zero thrust * Practise manoeuvring with one engine inoperative * Engine failure during take-off – reinforce critical and decision speeds (upper air demonstrations in the training area - set a simulated ground height):   + simulated engine failure below decision speed   + simulated engine failure at or above decision speed   + simulated engine failure at take-off   + single engine climb * Asymmetric missed approach – demonstrate asymmetric missed approach performance, reinforce importance of decision height (upper air demonstrations in the training area - set a simulated ground height) * Simulated engine fire in flight * Demonstrate asymmetric circuit, approach and landing * Introduction to asymmetric operations in the circuit * **Assess:**   + pre-flight actions and procedures   + pre-flight inspection   + refuelling   + taxiing   + effective lookout   + post-flight actions and procedures |

| PRE-FLIGHT KNOWLEDGE  Long Briefing: 0.8 hour Pre-flight Briefing: 0.3 hour  Underpinning knowledge: as required | |
| --- | --- |
| Content | |
| **Long briefing** – Critical and Safety Speeds   * Review of critical airspeeds * Review engine failure recognition, control and performance * Factors affecting single engine climb performance * Take-off and initial climb considerations * Asymmetric missed approach * Asymmetric committal height considerations * Factors affecting decision speed/height | |
| **Underpinning knowledge**   * Review/expand previously introduced knowledge as appropriate * Emergency procedures for engine failure after take-off, engine fire airborne, engine failure in the cruise, waste gate failure (if applicable) and propeller overspeed [AME 4(c)] * Safety implications of asymmetric flight below VMCA [AME 4(d)] * Power, flight and configuration requirements that apply to VMCA * Performance the aeroplane can achieve after reaching VY or V2 during asymmetric flight [AME 4(h)] * Technique and procedures used to conduct an asymmetric go-around or missed approach, the appropriate reference airspeeds, and the specific pilot actions required [AME 4(m)] | |
| **HF & NTS**   * The application of situational awareness to identifying real or potential environmental or operational threats to flight safety [NTS2 4(c)] | |
| **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: 1.0 hour dual | | | |
| --- | --- | --- | --- |
| MOS Reference | Lesson Content (Elements & Performance Criteria) | Performance  Standard | |
| Required | Achieved\* |
| 1. C2.1 | Pre-flight actions and procedures |  |  |
|  | complete all required pre-flight administration documentation | **1** |  |
|  | obtain, interpret and apply information contained in the required pre-flight operational documentation, including the following: |  |  |
|  | * + 1. minimum equipment list (MEL) | **1** |  |
|  | * + 1. maintenance release | **1** |  |
|  | * + 1. weather forecasts | **1** |  |
|  | * + 1. local observations | **1** |  |
|  | * + 1. Notice to Airmen (NOTAM) | **1** |  |
|  | * + 1. global navigation satellite system (GNSS) receiver autonomous integrity monitoring (RAIM) information | **1** |  |
|  | * + 1. En Route Supplement Australia (ERSA) | **1** |  |
|  | * + 1. Aeronautical Information Package (AIP) | **1** |  |
|  | identify special aerodrome procedures | **1** |  |
|  | identify all relevant radio and navigation aid facilities to be used during the flight (if applicable) | **1** |  |
|  | determine the suitability of current and forecast weather conditions for the proposed flight | **1** |  |
|  | using the aircraft documents, calculate the following for a given set of environmental and operational conditions: | **1** |  |
|  | * + 1. weight and balance | **1** |  |
|  | * + 1. take-off and landing performance | **1** |  |
|  | * + 1. fuel requirements | **1** |  |
|  | determine whether the aircraft is serviceable for the proposed flight | **1** |  |
| 1. C2.2 | Perform pre-flight inspection |  |  |
|  | identify and secure equipment and documentation that is required for the flight | **1** |  |
|  | complete an internal and external check of the aircraft | **1** |  |
|  | identify all defects or damage to the aircraft | **1** |  |
|  | report to, and seek advice from, qualified personnel to determine the action required in relation to any identified defects or damage | **1** |  |
|  | ensure all aircraft locking and securing devices, covers and bungs are removed and stowed securely | **1** |  |
|  | certify the aircraft flight technical log entering any defects or endorsements to permissible unserviceabilities as appropriate | **1** |  |
|  | complete and certify the daily inspection (if authorised to do so) | **1** |  |
| 1. C4.1 | Plan fuel requirements |  |  |
|  | determine the quantity of fuel required taking into account operational requirements and relevant abnormal or emergency conditions and contingencies | **2** |  |
| 1. C4.3 | Refuel aircraft |  |  |
|  | identify the correct type of fuel to be used | **1** |  |
|  | ensure aircraft is earthed prior to refuelling and defueling operations | **1** |  |
|  | correctly load and unload fuel | **1** |  |
|  | ensure required fuel quantity is loaded | **1** |  |
|  | ensure fuel caps are closed and secured after fuelling operations | **1** |  |
|  | perform fuel quality checks | **1** |  |
| 1. A1.1 | Start and stop engine |  |  |
|  | manage engine start and shutdown malfunctions and emergencies  (example: simulated engine fire on start-up, simulated engine fire on shutdown) | **2** |  |
| 1. A1.2 | Taxi aeroplane |  |  |
|  | use aerodrome or landing area charts to taxi aircraft | **1** |  |
|  | comply with taxiway and other aerodrome markings, right-of-way rules and ATC or marshalling instructions when applicable | **1** |  |
|  | perform applicable taxi checks, including the following: |  |  |
|  | * + 1. brakes and steering function normally and take appropriate action in the event of a malfunction | **1** |  |
|  | * + 1. instruments for correct readings | **1** |  |
|  | * + 1. altimeter setting | **1** |  |
|  | maintain safe taxi speed and control of the aircraft | **1** |  |
|  | maintain safe spacing from other aircraft, obstructions, and persons | **1** |  |
|  | taxi the aeroplane along the centre of the taxiway | **1** |  |
|  | avoid causing a hazard to other aircraft, objects or persons | **1** |  |
|  | correct handling techniques are applied to take into account wind from all four quadrants | **1** |  |
|  | correctly manage the engine during taxi manoeuvres | **1** |  |
| 1. A2.1 | Carry out pre take-off procedures |  |  |
|  | work out a plan of action, in advance, to ensure the safest outcome in the event of abnormal operations | **2** |  |
| 1. AME.5 | Perform rejected take-off - multi-engine aeroplane |  |  |
|  | abort take-off at or before decision point during the take-off where the abort procedure can be initiated and the aeroplane stopped on the remaining runway or stopway | **2** |  |
|  | reduce power smoothly and promptly | **2** |  |
|  | activate spoilers, prop fine, reverse, thrust reverse, wheel brakes and other drag and braking devices (as applicable) | **2** |  |
|  | maintain positive control to bring the aeroplane to a safe stop | **2** |  |
|  | initiate and complete engine failure procedures and checklists | **2** |  |
| 1. A2.2 | Take-off aeroplane |  |  |
|  | apply the controls correctly to maintain longitudinal alignment on the centreline of the runway, if appropriate, prior to initiating and during the take-off | **2** |  |
|  | adjust the power controls taking into account the existing conditions | **2** |  |
|  | monitor power controls, settings, and instruments during take-off to ensure all predetermined parameters are achieved and maintained | **2** |  |
|  | adjust the controls to attain the desired pitch attitude at the predetermined airspeed to attain the desired performance | **2** |  |
|  | perform the take-off applying the required pitch, roll and yaw inputs as appropriate in a smooth, coordinated manner | **2** |  |
|  | trim the aeroplane accurately | **2** |  |
|  | perform gear and flap retractions, power adjustments (as applicable) and other required pilot-related activities | **2** |  |
|  | maintain flight path along the runway extended centreline | **2** |  |
|  | apply the applicable noise abatement and wake turbulence avoidance procedures | **2** |  |
|  | recognise take-off abnormalities and take appropriate action to reject take-off (can be simulated) | **2** |  |
| 1. A2.3 | Take-off aeroplane in a crosswind |  |  |
|  | perform a take-off in an aeroplane making appropriate adjustments for the crosswind conditions | **2** |  |
|  | maintain the runway centreline and extended centreline | **2** |  |
| 1. A2.5 | Take-off aeroplane from ‘short field’ |  |  |
|  | calculate take-off and landing performance in accordance with the aeroplane's performance charts | **2** |  |
|  | perform take-off aeroplane to achieve the minimum length take-off performance | **2** |  |
|  | perform take-off aeroplane to achieve the obstacle clearance parameters | **2** |  |
| 1. AME.3 | Manage engine failure and malfunction after take-off (simulated)(upper air simulation) |  |  |
|  | manage simulated engine failures and malfunctions effectively whilst maintaining control of the aircraft flight path within specified tolerances | 3 |  |
|  | configure and fly aeroplane to achieve best performance | 3 |  |
|  | replan flight and take action to return to land or divert to alternate | 3 |  |
| 1. AME.4 | Manage engine failure and malfunction enroute (simulated)(including simulated engine fire in flight) |  |  |
|  | maintain or regain control of the aeroplane flight path within specified tolerances | **2** |  |
|  | manage failed or malfunctioning engine effectively | **2** |  |
|  | replan flight and take action to continue or divert to alternate | **2** |  |
| 1. AME.2 | Manage failures and malfunctions - general |  |  |
|  | operate and manage aircraft systems | **2** |  |
|  | asymmetric operations for all phases of flight are anticipated and contingencies are planned | **2** |  |
|  | a plan of action is self-briefed or briefed that will ensure the safest outcome in the event of asymmetric operations | **2** |  |
| 1. AME.6 | Manage engine failure and malfunction during approach and landing (simulated)(upper air simulation and introduction to asymmetric circuits) |  |  |
|  | maintain control of aeroplane flight path | **2** |  |
|  | nominate decision height for landing | **2** |  |
|  | make decision to continue or abort approach and landing in a safe and timely way | **2** |  |
|  | advise ATS or other agencies capable of providing assistance of situation and intentions | **2** |  |
|  | establish the approach and landing configuration appropriate for the runway or landing area and meteorological conditions, and adjust the power plant controls as required | **2** |  |
|  | maintain a stabilised approach and nominated airspeed within tolerances | **2** |  |
|  | achieve a smooth, positively-controlled transition from final approach to touchdown in the touchdown zone within tolerances | **2** |  |
|  | maintain positive directional control and crosswind corrections during the after landing roll maintaining the centreline within tolerances | **2** |  |
|  | use spoilers, prop reverse, thrust reversers, wheel brakes, and other drag or braking devices, as appropriate, in such a manner to bring the airplane to a safe stop after landing (as applicable) | **2** |  |
| 1. AME.7 | Conduct go-around or missed approach with engine failure (simulated)(upper air simulation) |  |  |
|  | identify and confirm engine failure in a multi-engine aeroplane during a go-around or missed approach | **2** |  |
|  | maintain control of aeroplane | **2** |  |
|  | perform engine inoperative go-around safely not below the decision height | **2** |  |
| 1. A3.6 | Perform circuits and approaches |  |  |
|  | operate and monitor all aircraft systems when operating the aeroplane in the circuit | **2** |  |
|  | in accordance with specific local procedures, safely perform a full circuit pattern (5 legs) by balancing and trimming the aeroplane accurately while applying smooth, coordinated control inputs to achieve the required flight tolerances specified for the flight path flown during traffic pattern manoeuvres as follows: |  |  |
|  | * + 1. track upwind along extended centreline to 500 ft | **2** |  |
|  | * + 1. establish and maintain crosswind leg tracking 90° to the runway | **2** |  |
|  | * + 1. establish and maintain downwind leg tracking parallel to, and at a specified distance from, the runway at circuit height | **2** |  |
|  | * + 1. establish base leg tracking 90° to the runway at a specified distance from the runway threshold | **2** |  |
|  | perform checks as required throughout circuit | **2** |  |
|  | establish the approach and landing configuration appropriate for the runway and meteorological conditions, and adjust the power plant controls as required for the following: |  |  |
|  | * + 1. commence and control approach descent path | **2** |  |
|  | * + 1. adjust descent commencement point to take account of extended downwind leg or traffic adjustments | **2** |  |
|  | * + 1. align and maintain aircraft on final approach flight path with specified or appropriate runway | **2** |  |
|  | * + 1. set and maintain approach configuration not below 500 ft AGL | **2** |  |
|  | * + 1. identify and maintain the nominated aiming point | **2** |  |
|  | * + 1. maintain a stabilised approach angle at the nominated airspeed not less than 1.3Vs to the round-out height | **2** |  |
|  | * + 1. verify existing wind conditions, make proper correction for drift, and maintain a precise ground track | **2** |  |
|  | * + 1. apply speed allowances for wind gusts | **2** |  |
|  | * + 1. configure aeroplane for landing | **2** |  |
|  | maintain aircraft separation and position in the circuit with reference to other aircraft traffic in the circuit area | **2** |  |
| 1. A4.3 | Conduct a missed approach |  |  |
|  | recognise the conditions when a missed approach should be executed | **2** |  |
|  | make the decision to execute a missed approach when it is safe to do so | **2** |  |
|  | make a smooth, positively-controlled transition from approach to missed approach, including the following: |  |  |
|  | * + 1. select power, attitude and configuration to safely control aeroplane | **2** |  |
|  | * + 1. manoeuvre aeroplane clear of the ground and conduct after take-off procedures | **2** |  |
|  | * + 1. make allowance for wind velocity during go-around | **2** |  |
|  | * + 1. avoid wake turbulence | **2** |  |
| 1. A4.4 | Perform recovery from missed landing |  |  |
|  | recognise when a missed landing is occurring and when it is appropriate to take recovery action | **2** |  |
|  | make the decision to execute recovery from a missed landing only when it is safe to do so | **2** |  |
|  | make a smooth, positively-controlled transition from missed landing to missed approach, including the following: |  |  |
|  | * + 1. select power, attitude and configuration to safely control aeroplane | **2** |  |
|  | * + 1. manoeuvre aeroplane clear of the ground and conduct after take-off procedures | **2** |  |
|  | * + 1. make allowance for wind velocity during go-around | **2** |  |
|  | * + 1. avoid wake turbulence | **2** |  |
| 1. A4.1 | Land aeroplane |  |  |
|  | maintain a constant landing position aim point | **2** |  |
|  | achieve a smooth, positively-controlled transition from final approach to touchdown, including the following: |  |  |
|  | * + 1. control ballooning during flare | **2** |  |
|  | * + 1. touchdown at a controlled rate of descent, in the specified touchdown zone within tolerances | **2** |  |
|  | * + 1. control bouncing after touchdown | **2** |  |
|  | * + 1. touchdown aligned with the centreline within tolerances | **2** |  |
|  | ensure separation is maintained | **2** |  |
|  | maintain positive directional control and crosswind correction during the after landing roll | **2** |  |
|  | use drag and braking devices, as applicable, in such a manner to bring the airplane to a safe stop | **2** |  |
|  | complete the applicable after landing checklist items in a timely manner | **2** |  |
| 1. A4.2 | Land aeroplane in a crosswind |  |  |
|  | verify existing wind conditions, make proper correction for drift, and maintain a precise ground track | **2** |  |
|  | configure the aeroplane for the crosswind conditions | **2** |  |
|  | control the aeroplane during the transition from final approach to touchdown and during after landing roll to compensate for the crosswind conditions | **2** |  |
| 1. A4.5 | Short landing |  |  |
|  | land aeroplane at nominated touchdown point at minimum speed | **2** |  |
|  | control ballooning during flare | **2** |  |
|  | control bouncing after touchdown | **2** |  |
|  | maintain direction after touchdown | **2** |  |
|  | apply maximum braking without locking up wheels | **2** |  |
|  | stops aircraft within landing distance available | **2** |  |
| 1. NTS1.1 | Maintain effective lookout |  |  |
|  | maintain traffic separation using a systematic visual scan technique at a rate determined by traffic density, visibility and terrain | **1** |  |
|  | maintain radio listening watch and interpret transmissions to determine traffic location and intentions | **1** |  |
|  | perform airspace-cleared procedure before commencing any manoeuvre | **1** |  |
| 1. C2.3 | Post-flight actions and procedures |  |  |
|  | shut down aircraft | **1** |  |
|  | conduct post-flight inspection and secure the aircraft (if applicable) | **1** |  |
|  | complete all required post-flight administration documentation | **1** |  |

\*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 OUTCOME | | |
| --- | --- | --- |
|  | | |
| **Proceed to next training session?** | **Yes** | **No** |

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