



**REPUBLIC OF LEBANON**  
**MINISTRY OF PUBLIC WORKS AND TRANSPORT**  
**DIRECTORATE GENERAL OF CIVIL AVIATION**

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**DGCA OPS Form 100-5**  
**EVALUATION CHECK LIST**  
**International Level I and Level II Airplane Flight Simulators**

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This check list contains those items that will be inspected to the extent to which a flight simulator of a specified qualification level may be used by an operator or training organization as agreed by the Directorate General Civil Aviation. The inspector must be qualified in the aircraft for which the simulator represents.

The inspector must take into account the differences between aircraft and flight simulators and the operating and training ability of the operator. Differences will be filed with the DGCA.

The following is a guide for airplane flight simulator qualification levels:

ICAO Level I Flight Simulator

- FAA Level C
- JAA Level C
- CAA Level 3

ICAO Level II Flight Simulator

- FAA Level D
- JAA Level D
- CAA Level 4

JAR – STD 1A *with* Primary Reference Doc.

- JAR Level AG
- JAR Level BG
- JAR Level CG
- JAR Level DG

JAR – STD 1A *without* Primary Reference Doc.

- JAR Special Category

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1.	Airplane Flight Simulator Type:	<hr/>	<i>i.e. (A-310-300)</i>
2.	Simulator Manufacturer:	<hr/>	<i>i.e. (CAE)</i>
3.	Airplane Flight Simulator Serial No.:	<hr/>	<i>i.e. (EK-182A)</i>
4.	Airplane Flight Simulator Location:	<hr/>	
5.	Airplane Flight Simulator Sponsor:	<hr/>	
6.	<u>Qualifying Authority:</u>	<hr/>	<i>i.e. (FAA, LBA, UAE, CAA)</i>
	Qualification Level	<hr/>	<i>i.e. (CAP 453 Level 3 or Level 4)</i>
	ICAO / JAR Level:	<hr/>	<i>i.e. (level I or level II)</i>
	Type of Evaluation:	<hr/>	<i>i.e. (initial, recurrent, special)</i>
	Date:	<hr/>	
	Acceptable for:	1. <hr/>	
		2. <hr/>	
		3. <hr/>	
		4. <hr/>	

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- 5. \_\_\_\_\_
- 6. \_\_\_\_\_
- 7. \_\_\_\_\_

Second Qualifying Authority: \_\_\_\_\_ *i.e. (FAA, LBA, UAE, CAA)*

Qualification Level \_\_\_\_\_ *i.e. (CAP 453 Level 3 or Level 4)*

ICAO Level: \_\_\_\_\_ *i.e. (level I or level II)*

Type of Evaluation: \_\_\_\_\_ *i.e. (initial, recurrent, special)*

Date: \_\_\_\_\_

- Acceptable for:
- 1. \_\_\_\_\_
  - 2. \_\_\_\_\_
  - 3. \_\_\_\_\_
  - 4. \_\_\_\_\_
  - 5. \_\_\_\_\_
  - 6. \_\_\_\_\_
  - 7. \_\_\_\_\_

7. DGCA (LARs Qualified)  
 Approval Inspector: *name* \_\_\_\_\_ *Type Ratings* \_\_\_\_\_

*signature* \_\_\_\_\_

*date of inspection* \_\_\_\_\_

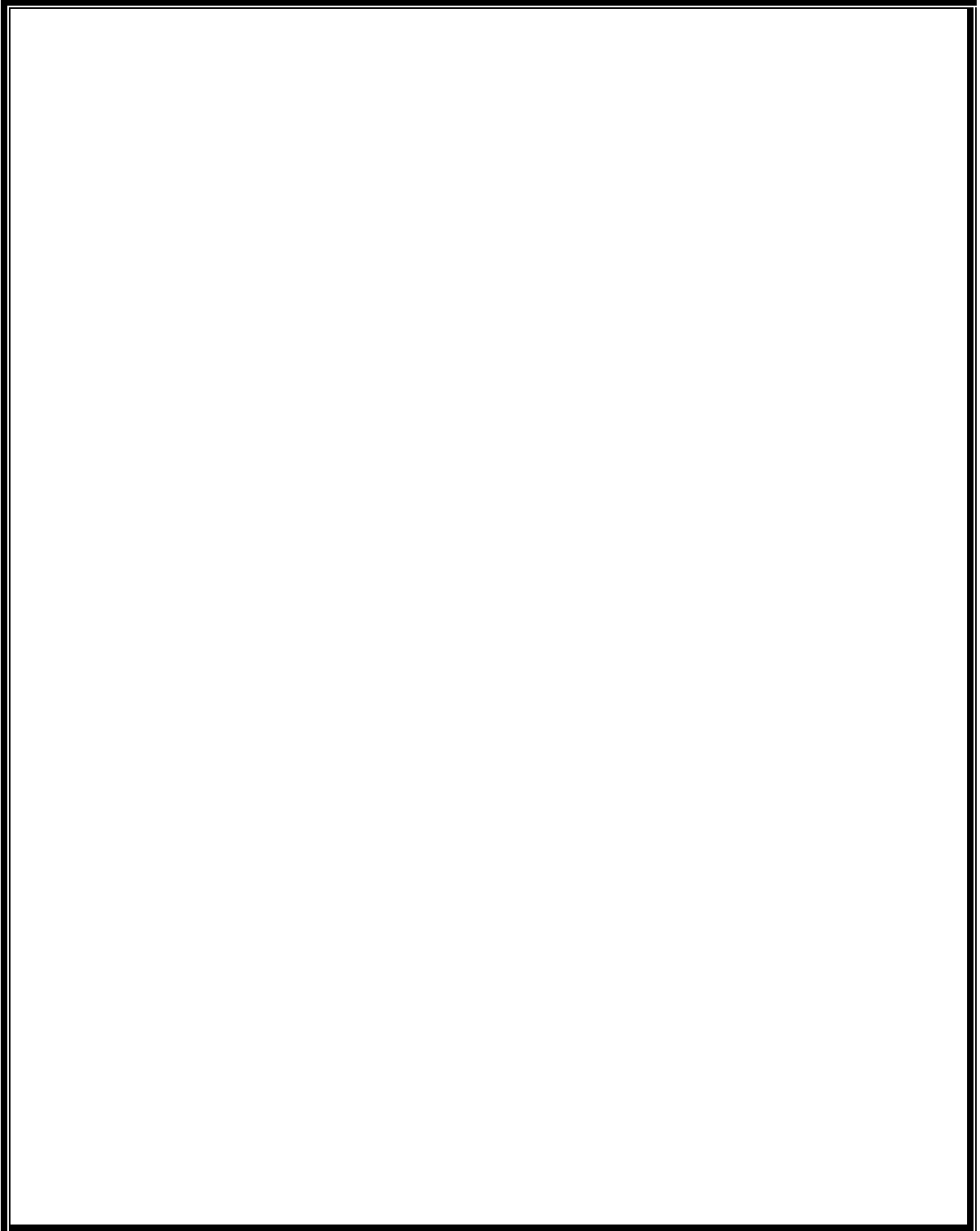
*date of approval* \_\_\_\_\_ *Level:* \_\_\_\_\_

- DGCA Acceptable for:
- 1. \_\_\_\_\_
  - 2. \_\_\_\_\_
  - 3. \_\_\_\_\_
  - 4. \_\_\_\_\_
  - 5. \_\_\_\_\_
  - 6. \_\_\_\_\_
  - 7. \_\_\_\_\_

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8. Review Master International Qualification Test Guide (MIQTG)

COMMENTS



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9. Review STD Operator's Quality System (JAR-STD 1A.025) (pg 1-C-1)

- Quality Assurance Program  Yes  No
- Quality Manager Name: \_\_\_\_\_
- Quality System Documentation  Yes  No

**SOURCE DOCUMENTS**

10. If the simulator is not recategorized, is there a Primary Reference Document (JAR-STD 1A.035) (pg 1-C-6)

- Yes  No

**COMMENTS**

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11. If the simulator is not recategorized, and there is no Primary Reference Document, what is the special arrangement with the primary approving Authority?  
(JAR-STD 1A.035) (pg 1-C-6)

**COMMENTS**

Functions Tests (JAR-STD-1A.035(c)(2)(ii)) / Subjective Tests (JAR-STD-1A.035(c)(2)(ii))

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12. What is the procedure for notifying the DGCA of simulator changes and upgrades? (JAR-STD 1A.040) (pg 1-C-6)

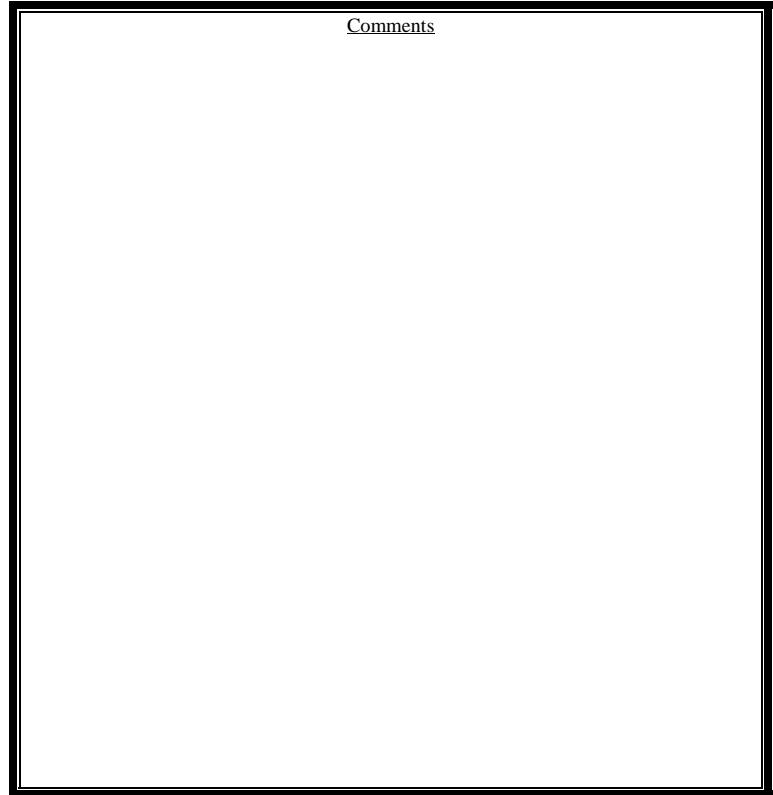
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13. Review differences between airplane simulator and operator's airplane:

Compare to Operator's Differences Analysis:

Comments



14. Review Maintenance Logs for inoperative equipment etc.:

Comments



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# FUNCTIONS AND SUBJECTIVE TESTS

## INSTRUCTIONS TO INSPECTOR

1. This check list is to be used by the Inspector as a job aid for approving an airplane flight simulator for flight training and checking.
2. Functions and maneuvers may be accomplished by the Inspector, observed being accomplished by an operator's qualified crew member, or verify satisfactory results on the Master International Qualification Test Guide (MIQTG).
3. The MIQTG is the primary document to be used for airplane flight simulator approval and this check list should be used as a job aid during actual simulator flights by the inspector or during observations of an operator's flight crew.

## FUNCTIONS AND MANEUVERS

### 1. Preparation for flight

- a) *Pre-flight.* Accomplish a functions Check of all switches, indicators, systems and equipment at all crew members' and instructors' stations and determine that the flight deck design and functions are identical to that of the airplane simulated

#### Comments

### 2. Surface operations (pre-take-off)

- a) *Engine Start*
- i) normal start
  - ii) alternate start procedures
  - iii) abnormal starts and shutdowns (hot start, hung start, etc.)

- b) *Pushback/Powerback*

- c) *Taxi*
- i) thrust response
  - ii) power lever friction
  - iii) ground handling
  - iv) nose-wheel scuffing
  - v) brake operation (normal and alternate/emergency)
  - vi) brake fade (if applicable)
  - vii) other

### 3. Take-off

- a) *Normal Take-off*
- i) parameter relationships
  - ii) acceleration characteristics
  - iii) nose-wheel and rudder steering
  - iv) cross-wind (maximum demonstrated)
  - v) special performance
  - vi) instrument take-off
  - vii) landing gear, wing flap, leading edge device operation
  - viii) other

- b) *Abnormal/Emergency*
- i) rejected take-off
  - ii) rejected special performance
  - iii) with failure of most critical engine at most critical point along take-off path (continued take-off)

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- iv) with wind shear
- v) flight control system failure modes
- vi) other

**4. In-flight operation**

a) *Climb*

- i) normal
- ii) one engine inoperative
- iii) other

b) *Cruise*

- i) performance characteristics (speed vs power)
- ii) turns with/without spoilers (speedbrake) deployed
- iii) high altitude handling
- iv) high speed handling
- v) Mach tuck and trim, overspeed warning
- vi) normal and steep turns
- vii) performance turns
- viii) approach to stalls, stall warning, buffet and g-break (cruise, take-off, approach and landing configuration)
- ix) high angle of attack maneuvers (cruise, take-off, approach and landing configuration)
- x) in-flight engine shutdown and restart
- xi) maneuvering with one engine inoperative
- xii) special flight characteristics
- xiii) manual flight control reversion
- xiv) flight control system failure modes
- xv) other

c) *Descent*

- i) normal
- ii) maximum rate
- iii) manual flight control reversion
- iv) flight control system failure modes
- v) other

**5. Approaches**

a) *Non-precision Approach and Landing Procedures*

- NDB
- VOR, RNAV, TACAN
- DME ARC
- ILS/LOC/BC
- ILS offset localizer
- direction finding facility
- surveillance radar
- i) maneuvering with all engines operating
- ii) landing gear, operation of flaps and speed brake
- iii) all engines operating
- iv) one or more engines inoperative
- v) missed approach procedures
  - all engines operating

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- one or more engines inoperative (as applicable)

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**b) Precision Approach and Landing Procedures**

- i)** PAR
- ii)** ILS/MLS
  - normal
  - engine(s) inoperative
  - category I published approach
    - manually controlled with and without flight director to 30 m (100 ft) below CAT I minima
    - with cross-wind (maximum demonstrated)
    - with wind shear
  - Category II published approach
    - auto-coupled, autothrottle, autoland
    - all engines operating missed approach
  - Category III published approach
    - with generator failure
    - with 10 knot tailwind
    - with 10 knot cross-wind
    - one engine inoperative


**c) Visual Approach and Landing**

- i)** abnormal wing flaps/slats
- ii)** without glide slope guidance

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**6. Visual segment and landing**

**a) Normal**

- i)** cross-wind (maximum demonstrated)
- ii)** from VFR traffic pattern
- iii)** from non-precision approach
- iv)** from precision approach
- v)** from circling approach

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**b) Abnormal/Emergency**

- i)** engine(s) inoperative
- ii)** rejected
- iii)** with wind shear
- iv)** with standby (minimum) electrical/hydraulic power
- v)** with longitudinal trim malfunction
- vi)** with lateral-directional trim malfunction
- vii)** with loss of flight control power (manual reversion)
- viii)** with worst case failure of flight control system (most significant degradation of fly-by-wire system which is not extremely improbable)
- ix)** other flight control system failure modes as dictated by training program
- x)** other

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**7. Ground Operations (post landing)**

- a) *Landing Roll and Taxi*
  - i) spoiler operation
  - ii) reverse thrust operation
  - iii) directional control and ground handling, both with and without reverse thrust
  - iv) reduction of rudder effectiveness with increased reverse thrust (rear pod-mounted engines)
  - v) brake and anti-skid operation with dry, wet and icy conditions
  
  - vi) brake operation
  - vii) other

**8. Any flight phase**

- a) *Airplane and Powerplant Systems Operation*
  - i) air conditioning
  - ii) anti-icing/de-icing
  - iii) auxillary power unit
  - iv) communications
  - v) electrical
  - vi) fire detection and suppression
  - vii) flaps
  - viii) flight controls
  - ix) fuel and oil
  - x) hydraulic
  - xi) landing gear
  - xii) oxygen
  - xiii) pneumatic
  - xiv) powerplant
  - xv) pressurization
  
- b) *Flight Management and Guidance Systems*
  - i) airborne radar
  - ii) automatic landing aids
  - iii) autopilot
  - iv) collision avoidance systems
  - v) flight control computers
  - vi) flight display systems
  - vii) ground proximity warning systems
  - viii) head-up displays
  - ix) navigational systems
  - x) stall warning/avoidance
  - xi) stability and control augmentation
  - xii) wind shear avoidance equipment
  
- c) *Airborne Procedures*
  - i) holding
  - ii) air hazard avoidance
  - iii) wind shear
  
- d) *Engine Shutdown and Parking*
  - i) engine and systems operation
  - ii) parking brake operation

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## VISUAL SYSTEM

1. **Accurate portrayal of environment relating to simulator attitudes**
2. **The distance at which runway features are visible should not be less than those listed below. Distances are measured from runway threshold to an airplane aligned with the runway on an extended 3-degree glide slope**
  - a) Runway definition, strobe lights, approach lights, white runway edge lights and VASI from 8 km (5 sm) of the runway threshold
  - b) Runway center line lights and taxiway definition from 5 km (3 sm)
  - c) Threshold lights and touchdown zone lights from 3 km (2 sm)
  - d) Runway markings within range of landing lights for night scenes; as required by 3 arc-minute resolution on day scenes
3. **Representative aerodrome scene content including:**
  - a) Aerodrome runways and taxiways
  - b) Runway definition
    - i) runway surface and markings
    - ii) lighting for the runway in use including runway edge and center line lighting, touchdown zone, VASI and approach lighting of appropriate colors
    - iii) taxiway lights
4. **Operational landing lights**
5. **Instructor controls of:**
  - a) Cloud base
  - b) Visibility in kilometers/statute miles and RVR in meters/feet
  - c) Aerodrome selection
  - d) Aerodrome lighting
6. Visual system compatibility with aerodynamic programming
7. Visual cues to assess sink rates and depth perception during landings
  - a) Surface on taxiways and ramps
  - b) Terrain features
8. Dusk and night visual scene capability

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9. Minimum of three specific aerodrome scenes
  - a) Surfaces on runways, taxiways and ramps
  - b) Lighting of appropriate color for all runways including runway edge, center line, VASI and approach lighting for the runway in use
  - c) Aerodrome taxiway lighting
  - d) Ramps and terminal buildings which correspond to specified line oriented flight training (LOFT) and line oriented simulator (LOS) scenarios
10. General terrain characteristics and significant landmarks
11. At and below an altitude of 610 m (2,000 ft) height above the aerodrome and within a radius of 16 km (10 sm) from the aerodrome, weather representations, including the following:
  - a) Variable cloud density
  - b) Partial obscuration of ground scenes, the effect of a scattered-to-broken cloud deck
  - c) Gradual break-out
  - d) Patchy fog
  - e) The effect of fog on aerodrome lighting
12. A capability to present ground and air hazards such as another airplane crossing the active runway or converging airborne traffic
13. Operational visual scenes which portray representative physical relationships known to cause landing illusions, such as short runways, landing approaches over water, uphill or downhill runways, rising terrain on the approach path and unique topographic features
14. Special weather representations which include the sound, visual and motion effects of entering light, medium and heavy precipitation near a thunderstorm on take-off, approach and landings at and below an altitude of 610 m (2,000 ft) above the aerodrome surface and within a radius of 16 km (10 sm) from the aerodrome
15. Wet and snow-covered runways including runway lighting reflections for wet, partially obscured lights for snow or suitable alternative effects
16. Realistic color and directionality of aerodrome lighting
17. Weather radar presentations in airplanes where radar information is presented on the pilot's navigation instruments. Radar returns should correlate to the visual scene
18. Freedom from apparent quantization (aliasing)

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## SPECIAL EFFECTS

- |   |  |
|---|--|
| <b>1.</b> Runway rumble, oleo deflections, effects of ground speed and uneven runway characteristics  |  |
| <b>2.</b> Buffets on the ground due to spoiler/speedbrake extension and thrust reversal   |  |
| <b>3.</b> Bumps after lift-off of nose and main gear  |  |
| <b>4.</b> Buffet during extension and retraction of landing gear  |  |
| <b>5.</b> Buffet in the air due to flap and spoiler/speedbrake extension and approach to stall buffet   |  |
| <b>6.</b> Touchdown cues for main and nose gear   |  |
| <b>7.</b> Nose-wheel scuffing   |  |
| <b>8.</b> Thrust effects with brakes set  |  |
| <b>9.</b> Mach buffet   |  |
| <b>10.</b> Representative brake and tire failure dynamics (including anti-skid) and decreased brake efficiency due to high brake temperatures based on airplane related data. These representations should be realistic enough to cause pilot identification of the problem and implementation of appropriate procedures. Simulator pitch, side loading and directional control characteristics should be representative of the airplane  |  |
| <b>11.</b> Sound of precipitation and significant airplane noises perceptible to the pilot during normal operations and the sound of a crash when the simulator is landed in excess of the landing gear limitations. Significant airplane noises should include noises such as engine, flap, gear and spoiler extension and retraction and thrust reversal to a comparable level as that found in the airplane. The sound of a crash should be related in some logical manner to landing in an unusual attitude or in excess of the structural gear limitations of the airplane |  |
| <b>12.</b> Effects of airframe icing  |  |

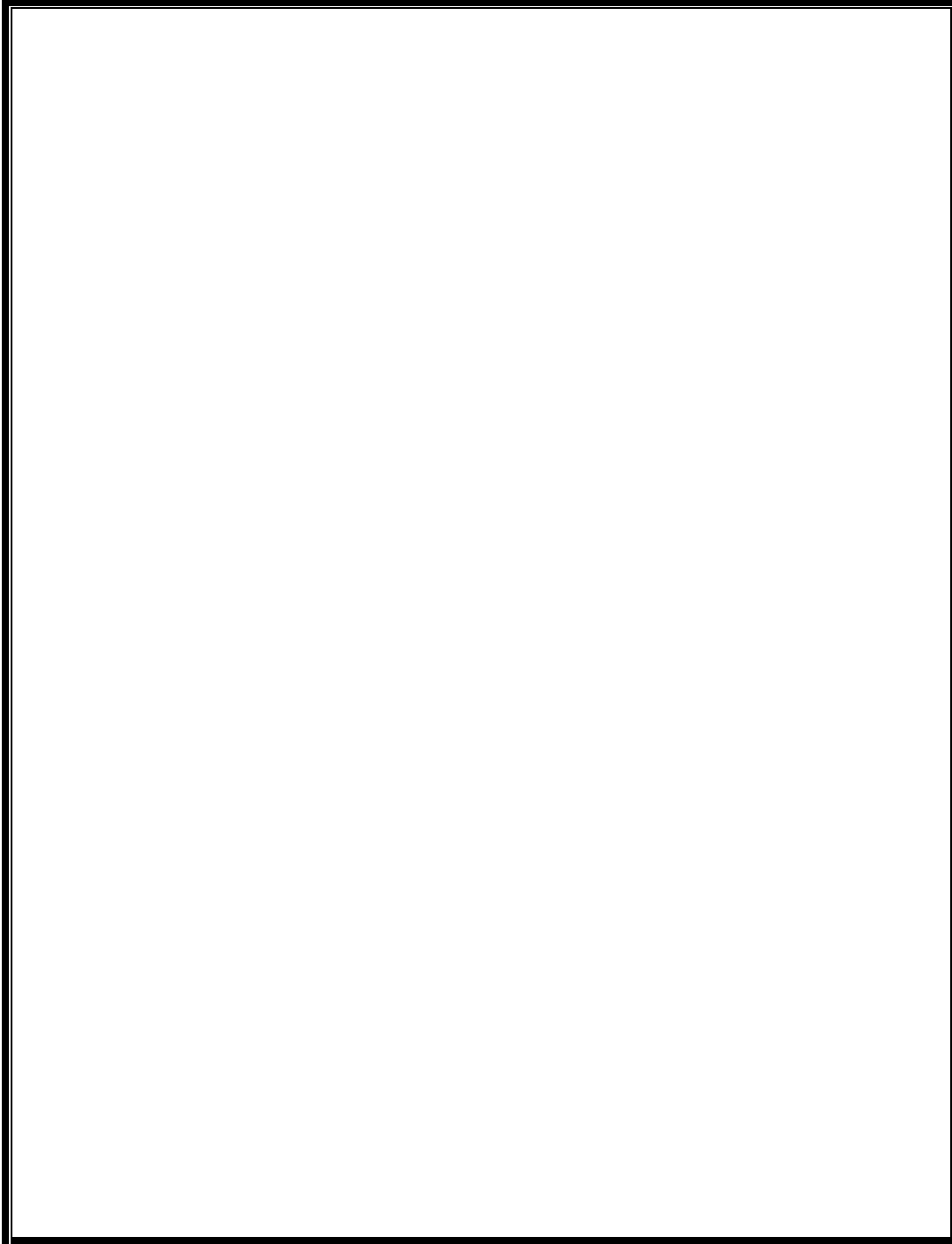
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SIMULATOR SESSION: \_\_\_\_\_

Pilot: \_\_\_\_\_ Copilot: \_\_\_\_\_

Flight Engineer: \_\_\_\_\_ Instructor: \_\_\_\_\_

**COMMENTS**



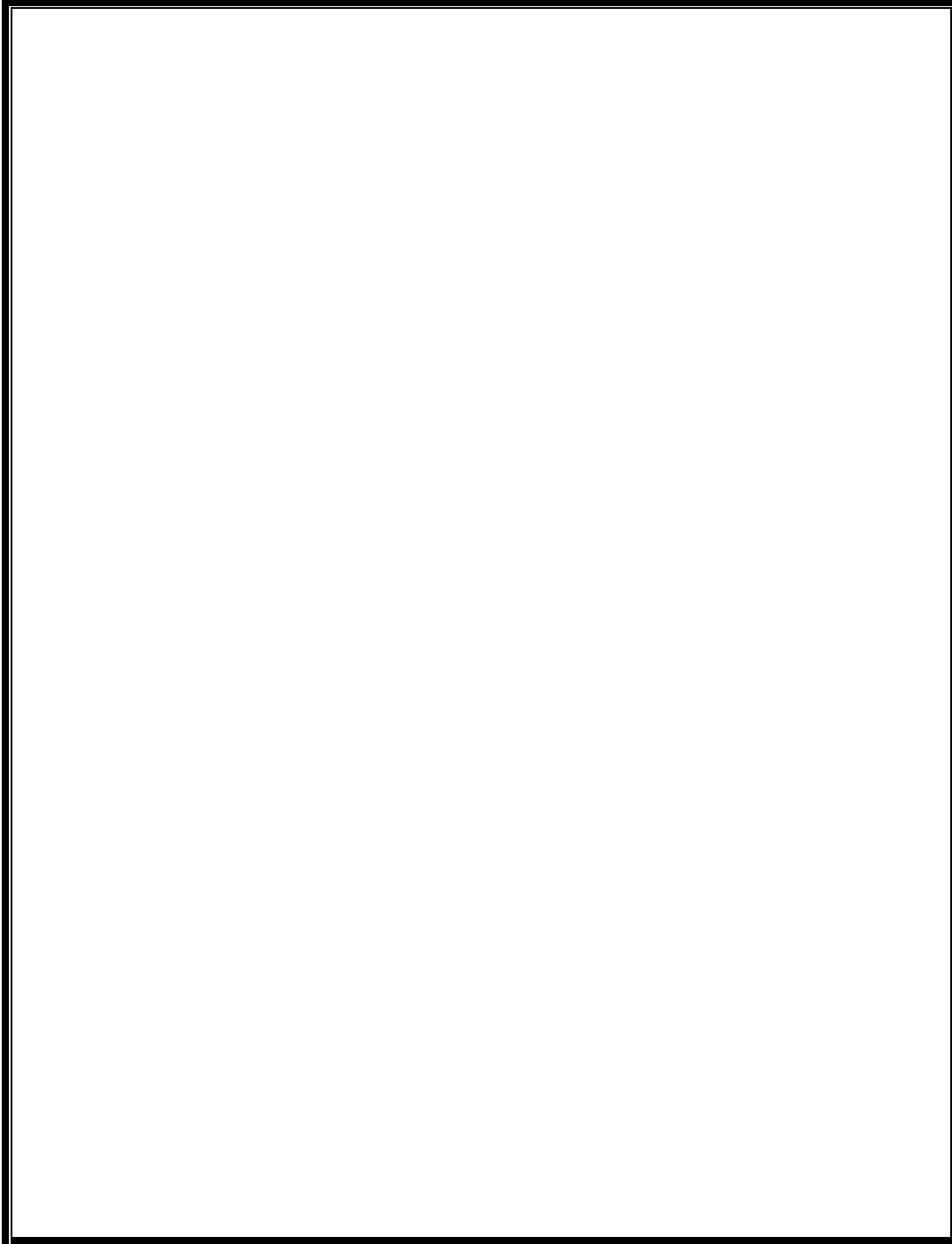
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SIMULATOR SESSION: \_\_\_\_\_

Pilot: \_\_\_\_\_ Copilot: \_\_\_\_\_

Flight Engineer: \_\_\_\_\_ Instructor: \_\_\_\_\_

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