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Area of Operation **V** - Task **G**

Before Takeoff Check

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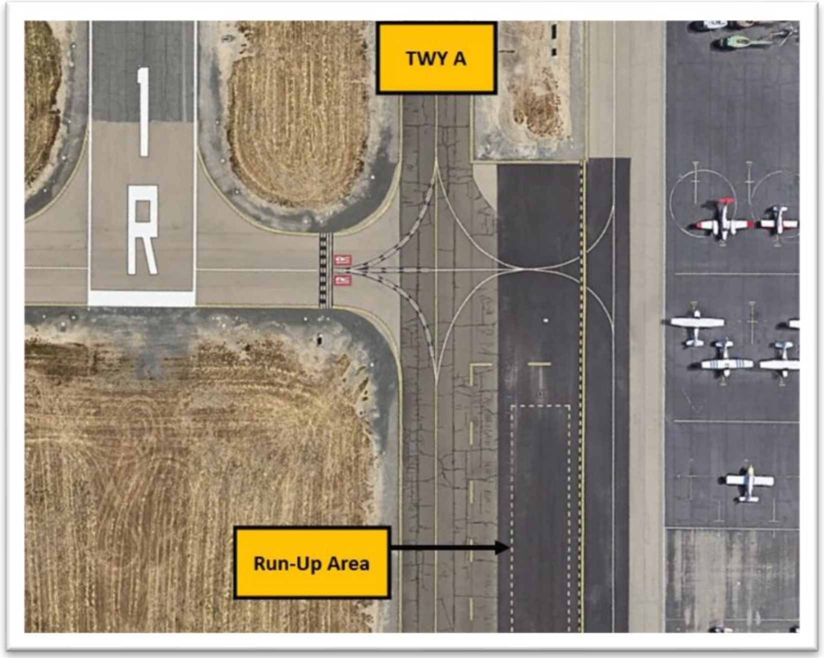
Key References:

- Airplane Flying Handbook
- POH/AFM

1. Introduction

- **What**: Procedure for checking the engine, controls, systems, instruments, and avionics prior to flight
- **Why**: Ensures the airplane is ready for safe flight before taking it into the air
- **Location Considerations:**
  - Before Takeoff Check is known as “Run-up”
  - Usually performed after taxiing to the departure runway to allow time for engine warm-up
  - *Make sure you know where the Run-Up Areas are located*
  - *Leave space to others (be mindful when positioning your aircraft)*
  - *As much as possible, try positioning it into the wind*
  - *If no run-up area, assess the following options:*
    - *If controlled field ➔ Ask ATC for runup in the taxiway*
    - *If uncontrolled ➔ Ramp or Taxiway (never on the runway)*
  - Location should be firm and free of debris (e.g no tie down)
  - Verify nothing behind the aircraft that might be damaged
  - Roll the aircraft slightly forward to straighten the nose wheel



2. Before Takeoff Check

- **Divide attention between inside and outside the airplane**
- **Before Takeoff Checklist**
- **Make a PIC "Go/No-Go" Decision**
  - PIC is responsible for determining the airplane is safe to fly
  - Chance to catch a problem while safely on the ground
  - If there are doubts, return to the ramp for further investigation
- **Departure Brief**
  - Review and brief the departure procedure, runway and airspeeds
- **Emergency Brief**
  - Lose engine on the roll ➔ Abort takeoff, close throttle, full brakes
  - Lose engine after rotation ➔ Land straight ahead, pitch for 70kts
  - Lose engine above 1000ft AGL ➔ Turn back to land

RUN UP	
Parking Brake	SET
Passenger Seat Backs	MOST UPRIGHT
Seats & Seatbelts	CHECK SECURE
Cabin Doors	CLOSED & LOCKED
Flight Controls	FREE & CORRECT
Fuel Quantity	CHECK
Fuel Selector Valve	RECHECK BOTH
Mixture	RICH
Throttle	1800 RPM
Magnetos (<150 RPM drop each, <50 diff)	CHECK
Vacuum Gauge	CHECK
Engine Instruments	CHECK
Ammeters & Voltmeters	CHECK
Annunciators	CHECK NONE ILLUMINATED
Throttle	IDLE → THEN 1000 RPM
Throttle Friction Lock	SET
COM/NAV Frequencies + Transponder	SET
GPS Flight Plan/CDI/HDG/ALT	ENTER/SET
IFR: Airspeed (0), Attitude (blue/brown, $<5^0$), HSI ($<10^0$), Altitude (<75ft), WAAS/RAIM/Fcst, Clock	
Autopilot Check	HDG, PITCH, OVERCOME, DISCONECT
Departure procedure	BRIEFED
Lights	AS REQUIRED
Parking Brake	RELEASED

3. Safety Considerations

- **Assure the Takeoff Area is Free of Hazards**
  - Visually check the area to ensure it is clear of anything that could be considered a hazard
  - Ensure the runway, as well as final approach are clear of other traffic
  - Radio communication is not required at uncontrolled airports, be extra vigilant
  - If "line-up and wait", be mindful of the risk and how long you stay there

- **Avoiding Incursions**
  - Before moving, clear to the left, right, and center
  - Confirm the runway you are holding short is the runway you intend / clear to depart
  - Monitor the appropriate frequency
  - Maintain situational awareness – Know where you are and where other aircraft are in relation to you
  - Read back all clearances, and do not cross any runways without a clearance
  - While holding short ➔ Keep feet in the brakes (and constantly verify airplane is not moving)
  - If any doubt exists, stop and wait for traffic to clear
  - Clear final approach and the runway before taxiing into takeoff position

4. Common Errors

1. Failure to properly use the appropriate checklist
2. Improper positioning of the airplane
3. Improper acceptance of marginal engine performance
4. An improper check of flight controls
5. Hazards of failure to review takeoff and emergency procedures
6. Failure to avoid runway incursions and to ensure no conflict with traffic prior to taxiing into takeoff position

Questions?