Conceived by the Society of Aviation and Flight Educators (SAFE) in 2010, the Pilot Proficiency Project™ is a cooperative effort between SAFE and Redbird Flight Simulations. The Project provides forums and simulator training sessions at aviation venues across the U.S. to address key safety of flight issues. The first such Project was offered in 2012 during EAA AirVenture and again during AOPA Summit. Based on the popularity and success of those Projects, the decision was made to share the Redbird simulator scenarios with all operators of Redbird simulators. The following scenarios were co-developed by SAFE instructors and the Redbird team.

For more information, please visit www.SAFEPilots.org and www.RedbirdFlightSimulations.com/

Redbird Simulator Scenario Learning Points

Each simulator session is scheduled to run for 30 minutes. Each pilot will receive a thorough pre-briefing on the key learning points of the chosen scenario(s) prior to entering the simulator, followed by a debriefing after the simulator event concludes. The session breakdown follows:

- Pre-briefing – 15 minutes
- Simulator scenario(s) – 30 minutes each
- Debriefing – 15 minutes
- Total duration for each pilot – 1:00 per scenario

Scenario #1 – Johnson Creek, Idaho: Maximum Performance Takeoff with Obstacles

This scenario requires the proper application of short field takeoff procedures as defined in the C-172S PIM. This profile requires the client to access the risks associated with a high density altitude takeoff over obstacles. It will require the proper application of both knowledge and skill to result in a successful takeoff and departure. Following is a list of key learning points encompassed within this scenario:

- Performance planning
- Proper aircraft configuration/airspeeds
- Mixture management
- Proper use of brakes
- Proper rotation technique
- Avoidance of transition to the back side of the power curve while trying to climb
- Situational awareness/decision making

Scenario # 2 – St. George Island, Florida: Takeoff Followed by Partial Power Loss on Climbout

This scenario will require proper preflight planning to include a risk assessment and review of alternative courses of action that are available to the pilot. The scenario will depart over the water with a partial engine power loss at approximately 500'. The power loss will continue in increments necessitating a return to the airport for a landing before a complete power failure occurs. Additionally, emphasis will be placed on proper attention to the Before Takeoff checks to ensure the aircraft can deliver the performance required. Following is a list of key learning points encompassed within this scenario:

- Aircraft configuration
- Use of flaps
- Situational awareness/decision making

Scenario # 3 – St. George Island, Florida: Engine Failure after Takeoff Necessitating a Ditching Just Off Shore

This scenario will require proper preflight planning to include a risk assessment and review of alternative courses of action that are available to the pilot. The scenario will depart over the water with a total engine failure at approximately 800'. The only viable option is a ditching near the shoreline and parallel to the swells. Following is a list of key learning points encompassed within this scenario:

- Best glide speed vs. minimum sink speed
- Aircraft configuration
- Use of flaps
- Ditching procedures
- Situational awareness/decision making

Scenario # 4 – Denton, Texas: ILS Approach to Runway 18 at KDTO Followed by a Missed Approach Flown to the Missed Approach Holding Pattern

This scenario is an ILS approach to minimums at KDTO. As the pilot transitions to visual reference a runway incursion will occur necessitating a Go-Around followed by the published missed approach procedure to include entering the holding pattern with an EFC that will allow for a reassessment of the pilot's options, i.e., continue holding followed by another minimums approach with minimum fuel, or divert to the planned alternate with non-precision weather. Following is a list of key learning points encompassed within this scenario:

- Approach planning to include missed approach procedure
- Fuel planning
- Proper ATC communications
- Proper Go-Around procedures
- Situational awareness/decision making

Scenario #5 – Norwood, Massachusetts: LOC Only Approach to KOWD with a Tailwind

This scenario will require the pilot to fly a LOC only approach to minimums with a ten-knot tailwind at KOWD. The pilot will have to make a decision before beginning the approach whether or not to land with the tailwind, or conduct a circling approach with a ragged ceiling at circling minimums. Either choice can be flown successfully depending on the pilot's level of proficiency and knowledge of procedures. Following is a list of key learning points encompassed within this scenario:

- Performance considerations – tailwind vs. circling at minimums
- Proper circling procedures – category/airspeed/distance from runway
- Use of the autopilot
- Proper approach procedures – timing, calculating a VDP, constant rate descent vs. dive and drive
- Situational awareness/decision making

Scenario # 6 – Spicewood, Texas: Visual Approach to 88R with Maximum Crosswind and a Narrow Runway

This scenario begins on an extended base leg to runway 17/35 at 88R. This is a visual approach to the runway with a 15-knot crosswind. The runway is 4185' x 30'. This approach requires a great deal of planning since there are no visual glide path indicators and the airport sits atop a bluff, giving the visual illusion of being high. Following is a list of key learning points encompassed within this scenario:

- Use of GPS to maintain a 3-to-1 glide path to the runway
- Groundspeed vs. rate of descent to maintain a 3-to-1 glide path
- Proper aircraft configuration vs. demonstrated x-wind limitations
- Proper x-wind control and technique
- Situational awareness/decision making

Scenario # 7 – Johnson Creek Idaho: Maximum Performance Landing over Obstacles

This scenario requires the proper application of short field landing procedures as defined in the C-172S PIM. This profile requires the pilot to access the risks associated with a high density altitude landing over obstacles. It will require the proper application of both knowledge and skill to result in a successful arrival. A Go-Around is possible should the decision be made to execute one. Following is a list of key learning points encompassed within this scenario:

- Performance planning
- Proper aircraft configuration/airspeeds
- Correct short field technique
- Go-Around planning
- Situational awareness/decision making

Scenario # 8 – Luling, Texas: Night Visual Approach to T91

This scenario will have the pilot fly to and enter a downwind for a full traffic pattern to a night visual approach. The runway has non-standard LIRL. The lights are located 95' from the runway centerline and contribute to a wider than normal appearance for the runway as well as the visual illusion of being lower than actual on the approach. Following is a list of key learning points encompassed within this scenario:

- Night illusions – "black hole" approach
- Use of GPS to maintain a 3-to-1 glide path to the runway
- Groundspeed vs. rate of descent to maintain a 3-to-1 glide path
- Use of GPS "OBS" mode to aid in course guidance to the runway
- Situational awareness/decision making

Scenario # 9 – Continued VMC into IMC Conditions

This scenario will have the pilot flying inbound for visual traffic pattern in deteriorating VMC weather conditions necessitating a diversion to better weather with the possibility of a CFIT encounter if the flight is continued into the deteriorating weather. Following is a list of key learning points encompassed within this scenario:

- CFIT avoidance
- Diversion planning/procedures
- Use of all available resources – ATC, ASOS, Unicom, other aircraft
- Situational awareness/decision making

Scenario # 10 – Oshkosh, Wisconsin: Arrival to RWY 27 with an Engine Failure and a Moderate Overshooting Crosswind during Base-to-Final

This scenario will result in a complete power loss while entering the downwind for a Runway 27 arrival at AirVenture. The pilot will experience a complete engine failure with an overshooting wind on the base-to-final turn. This is a classic stall/spin setup that will require a great deal of situational awareness and the possibility of an off runway landing, or a likely stall/spin entry while turning final. Following is a list of key learning points encompassed within this scenario:

- Angle of Attack awareness
- Stall prevention vs. recovery
- Load factor vs. bank angle
- Spin recovery procedures
- Situational awareness/decision making

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