DCA11MA076

Postaccident Test Card and Test Safety Hazard Analysis for Flaps 10, OEI Takeoff

(3 pages)

TIME																
Card: X		NOTES HIGH RISK		NO						lse rudder and NWS as	nn pull to approximately osition so that the airplane one (1) second. A moderate ng the initial pitch attitude	is confirmed in "air" and it is apture V ₂ . Do not retract	nb speed to 100 ft AGL. Do complete at 100 ft.			
6001 Flight XXX	Field Performance OEI Takeoff	2 N	L PWR MTO CG FWD LIM Weight MTOW	TEST DESCRIPTION	25.101, 25.105, 25.107, 25.109, 25.113 93-324.21	1. Configure aircraft for takeoff.	2. Align aircraft on runway and apply brakes.	R PWR:	akes.	5. At V _R -15 chop power to L ENG to IDLE. Use rudder and NWS as required for directional control.	6. At V _R , perform a progressive control column pull to approximately one-half aft displacement from the neutral position so that the airplane pitch response occurs within approximately one (1) second. A moderate pitch rate should be maintained until achieving the initial pitch attitude target of 9 degrees	7. Maintain target pitch attitude until aircraft is confirmed in "air" and it is necessary to increase the pitch attitude to capture V_2 . Do not retract landing gear.	8. Adjust pitch attitude to maintain target climb speed to 100 ft AGL. Do not exceed 20 deg pitch attitude. Maneuver complete at 100 ft.	at least once.		
Model: GVI		SE	Gear EXT ALT 3600 Airspeed 0 Bleed ECS		25.101, 25.10 93-324.21	1. Configure ;	2. Align aircre	3. Set L &R P	4. Release brakes.	5. At V _R -15 cl required for d	6. At V _R , perform a one-half aft displac pitch response occi pitch rate should be target of 9 degrees	7. Maintain ta necessary to landing gear.	8. Adjust pitcl not exceed 20	9. Repeat at I		

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TEST SAFETY HAZARD ANALYSIS (TSHA)

ID: TSHA-000084

 TEST: Field Performance - Engine-out Takeoffs (OEI)

 RISK LEVEL: HIGH
 PROBABILITY: OCCASIONAL

 HAZARD: CATASTROPHIC

HAZARD: Aircraft Departs Runway/Inadvertent Ground Contact/Inadvertent Stall

CAUSE: Engine failure/Over-rotation at low airspeed/ low altitude stall

EFFECT: Inability to recover directional control on the ground Loss of controlled flight Loss of aircraft/loss of crew.

PREVENTATIVE ACTIONS / MINIMIZING PROCEDURES:

- 1. All testing shall be conducted under day VMC conditions on a smooth, hard-surfaced dry runway. Fuel cut tests shall be conducted at KROW, on Runway 3/21 which is 13000'x300'. Non-fuel cut tests shall be conducted on a runway of at least 12000' in length and at least 150' in width.
- Brief local fire and rescue crews on test conditions. CFR support will be required for this testing. The CFR support will be "in-position" outside the fire station at a location determined by the local fire chief that will allow the most expeditious response time.
- 3. Service struts, brakes and tires to recommended limits.
- 4. Inspect leading edge of wings and gap bands prior to each flight.
- Only crewmembers deemed essential for conduct of the test shall be onboard. For development, company, or delegated testing, minimum crew will be no more than 2 pilots and 1 FTE. For certification testing with FAA participation, minimum crew will be no more than 2 pilots (1 GAC, 1 FAA) and 2 FTEs (1 GAC, 1 FAA).
- 6. Initial takeoff pitch attitude target will be limited to 9° for test runs.
- 7. Winds will be limited to 10 knots, gust spread less than 5 knots, crosswind component of 5 knots, or tailwind component of 2 knots, using the GAC Flight Test wind station as the primary instrument.
- 8. Testing will be approached in a build-up manner for each configuration. Fuel cuts will be preceded by tests using a throttle chop to idle power. No engine shutdowns will be conducted without conducting build-up tests. The number of required build-ups and repeat testing will be determined by the on-site test team. Additionally, the pilot flying shall have recent experience with the test maneuver or perform a build-up maneuver(s) before conducting the test condition.
- 9. Brief dual engine-out emergency procedures.
- 10. The rudder oscillation monitor will be disabled, and alternate control law maximum gains will be loaded prior to testing.
- 11. Stick shaker and PLI-intercept are set to maintain an in-ground-effect stall AOA margin of at least one (1) degree.
- 12. Confirm aircraft is airborne prior to increasing pitch from the initial takeoff pitch attitude.
- 13. Do not allow airplane roll angle to exceed degrees. Wing tip strike is estimated to occur at approximately degrees of roll attitude for the maximum abused takeoff attitude.
- 14. Periodically visually inspect brakes and tires and check tire temperatures to maintain below 150°F. An alternative method is that tire temperature is acceptable for continued testing if a person can place and maintain their hand on the tire sidewall.
- 15. Telemetry support is required for this test. A review of test data from each maneuver will be conducted in TM and onboard the aircraft. Concurrence between TM support and flight crew will be required prior to continuing to next test condition.
- 16. Flight crew will monitor displayed airspeed during each maneuver and determine if airspeed fluctuations are too large to allow continued testing.

CORRECTIVE TECHNIQUES:

- 1. If the engine fails prior to V_R, reject the takeoff.
- 2. If the aircraft is alrorne and an engine fails, decrease pitch attitude and land aircraft if near the ground and sufficient runway is available. If unable to land, establish a stable bank angle, and advance the operative engine PLA to maximum thrust and continue takeoff using standard engine failure techniques.
- If the engine fails above V_R during a fuel cut, restart shutdown engine, if possible, and continue flight using standard engine failure techniques. If unable to restart engine, perform dual engine out landing procedure.

4. If the aircraft pitch attitude exceeds the PLI (over-rotated, or rotated early and stalls), the pilot will use his discretion and perform one of the following: decrease angle of attack, advance PLA on both engines to maximum thrust, use all flight controls as required to regain aircraft control and continue climbout to safe altitude, or retard both throttles and land.

ID: TSHA-000084

