

VOLUME 3 GENERAL TECHNICAL ADMINISTRATION**CHAPTER 29 PROVING AND VALIDATION TESTS****Section 4 Safety Assurance System: Planning the Proving Test****3-2356 APPLICANT'S PLAN FOR PROVING TESTS.**

A. Proving Test Plan. An applicant must submit a proving test plan at least 30 days in advance of any in-flight demonstration (including training or ferry flights) that the applicant desires to have credited toward the proving test requirements. Any subsequent change to the plan must be coordinated with the test team. The plan must contain at least the following information:

- Identification of the company coordinator who will serve as the primary proving test spokesperson;
- A detailed schedule of all proposed flights, including dates, times, and airports to be used (the schedule should clearly differentiate which flights will be conducted for training, ferry, or representative en route flights);
- A list of names and positions of the crewmembers who will be participating on each flight;
- A list of names, titles, and company affiliations of non-crewmember personnel whom the applicant intends to have on board each flight; and
- Any other information that the test team determines is necessary to properly plan and conduct the proving flight.

NOTE: It is Federal Aviation Administration (FAA) policy for Title 14 of the Code of Federal Regulations (14 CFR) part 121 and 14 CFR part 135 commuter operations that 50 percent of the scheduled proving flight hours are to consist of representative en route flights over routes and into airports which the applicant intends to serve. See Figure 3-111A, Sample Proving Test Plan.

B. Training Program and Aircraft Maintenance Records.

1) The applicant should be prepared to present personnel training records for, but not limited to:

- Crewmember training records,
- Aircraft maintenance records,
- Maintenance personnel training records,
- Aircraft ground handling personnel training records,
- Cargo loading and handling records, and
- Weight and Balance (W&B) training records.

2) Before initiation of proving tests, inspectors may request copies of records as an attachment to the plan for evaluation.

3-2357 APPLICANT'S PLAN FOR REQUESTING REDUCED PROVING TEST

HOURS. If the applicant requests a deviation from the 14 CFR required number of proving test hours, the request must be made by letter. The letter must transmit the applicant's plan, which is described in the previous paragraph, and it must include the additional information specified in Volume 3, Chapter 29, Section 7.

3-2358 FAA PLANNING FOR PROVING TESTS. For parts 121 and 135 proving tests, the certification project manager (CPM) should verify that the applicant has met all Gate III requirements (see Volume 2, Chapter 3, Section 2, Figure 2-3-2D for part 121 and Volume 2, Chapter 4, Section 1, Figure 2-11 for part 135). For part 121 applicants, the CPM should confirm the "show cause" order has been issued.

A. Early Planning. Development and implementation of the FAA's plan for observation and evaluation is of crucial importance to any proving test. The FAA test team should begin planning in step one of the proving test process. FAA planning should be completed as soon as possible after the inspection team receives the applicant's plan. Planning for parts 121 and 135 proving tests should be done in accordance with the Safety Assurance System (SAS).

B. Initial Review. The test team must review the applicant's plan initially to determine if the appropriate documentation has been submitted. The plan must contain a realistic proposal that will permit the FAA to adequately observe and evaluate the applicant's overall abilities. This review should be accomplished within 5 working days after receipt of the applicant's plan. Based on the results of this initial review, the FAA test team must take one of the following actions:

1) Accept the Plan. If the applicant's plan is feasible, accompanied by supporting documentation, and satisfies regulatory and FAA policy requirements, the CPM should verbally notify the applicant. Any changes should be mutually agreed upon at this time. If the applicant's plan includes a request for deviation from the required number of proving test hours, formal acceptance by letter must follow, after coordination with the regional Flight Standards division (RFSO). This letter must include a statement verifying that a deviation to the appropriate regulations is granted.

2) Return the Plan with Explanation. If the applicant's plan lacks appropriate documentation, or does not satisfy regulatory or FAA policy requirements, the FAA test team must return it to the applicant as soon as possible. A letter that briefly describes the principal reasons for the plan's return should accompany the plan.

NOTE: When the test team denies a request for deviation, the denial must be done by letter. This letter should contain any suggestions the team may have that would make the plan acceptable.

3-2359 OTHER PROVING TEST PARTICIPANTS. Title 14 CFR part 91, § 91.1041(c), part 121, § 121.163(e), and part 135, § 135.145(c) limit the individuals who can participate in the in-flight portion of the proving tests to those who are required by the applicant to conduct the tests, and to those designated by the administrator.

A. U.S. Government Participants. During the demonstration phase, an applicant exercises all aspects of its operation, such as flight control, communications, flight planning,

nonroutine maintenance, and minimum equipment list (MEL)/Configuration Deviation List (CDL) program control. It is essential that this phase be free from distractions created by nonessential personnel. The test team may authorize the participation of any government or contractor employee, including those from other agencies. These personnel should be limited to those having specific tasks to perform and to inspectors accomplishing on-the-job training (OJT).

B. The Applicant's Participants. Many situations occur during proving flights that require decisions by the applicant's supervisory personnel to correct deficiencies observed during the flights. Therefore, the applicant's participants should include:

- Applicable crewmembers (i.e., pilots, Flight Engineers (FE), Flight Attendants (F/A), check airmen);
- Directors of Operations (DO), Directors of Maintenance (DOM), and directors of quality control (QC) (if applicable); and
- Supervisory personnel needed to act on behalf of the applicant if actions are required to resolve discrepancies (e.g., in-flight management representatives).

C. Other Personnel. Other personnel, such as representatives of engine and aircraft manufacturers, may be authorized to participate if their presence materially enhances the process.

3-2360 COORDINATION. During the development of the FAA plan to conduct proving tests, the FAA CPM is responsible for coordinating all parts of the proposed tests. The applicant's representatives and crewmembers and FAA participants must understand and agree on which tasks must be accomplished to show compliance with regulatory requirements. The CPM notifies the RFSD of proving flight dates, times, and locations. The RFSD notifies other RFSDs affected by the proposed proving flights and any future scheduled operations the applicant proposes. The RFSD also notifies the Air Transportation Division (AFS-200) and the Aircraft Maintenance Division (AFS-300) (part 121), the Part 135 Air Carrier Operations Branch, AFS-250 (part 135), and the General Aviation and Commercial Division (AFS-800) (part 91 subpart K (91K)) of the proving flight schedule. When planning proving tests, the test team should use the job aid in Volume 3, Chapter 29, Section 2, Figure 3-110, General Purpose Proving and Validation Test Job Aid.

NOTE: All flights into Special Areas of Operation (SAO) (e.g., Class II Navigation airspace, North Atlantic High Level Airspace (NAT HLA), or areas of magnetic unreliability (AMU)) require coordination with an FAA regional NextGen (AXX-220) SAO specialist (formerly known as a navigation specialist).

3-2361 PREDEMONSTRATION TEST MEETING (FAA TEST TEAM). The CPM conducts as many predemonstration test meetings as necessary to accomplish the following:

A. Provide Schedules and Assignments. The FAA CPM provides specific team members with schedules and assignments for the proving flights, including:

- Flight times,
- Locations,

- Inspections, and
- Reporting requirements.

B. Proving Test Scenarios. The test team establishes in-flight and ground scenarios, simulated emergencies, and other means of testing the ability of crewmembers and the applicant to cope with actual operational contingencies independently and safely. Inspectors may wish to attach a copy of the company procedures for quick reference. Such scenarios are effective when evaluating the applicant's overall and specific abilities. The scenarios, and their results, will be retained and become part of the permanent record of the certification and/or request. For parts 121 and 135, develop proving test scenarios that measure the applicant's operating systems at the element level to confirm that the applicant is following its procedures and producing the intended result.

C. Scenario Development.

- 1) For parts 121 and 135, identify Element Performance (EP) Data Collection Tool (DCT) or Custom (C) DCT questions to assess the applicant's performance.
- 2) Develop scenarios that generate data for identified questions.
- 3) Document each scenario on the Proving Flight Test Scenario Worksheet.
- 4) Match scenarios to specific flight legs.
- 5) Determine inspector assignments for each scenario and document it in the "Assignment" field of the worksheet.
- 6) Determine the method for presenting the scenario and document it in the "Initiation" field of the worksheet.

NOTE: It is not always practical to initiate a scenario by handing a note or giving verbal instructions to the applicant. The assigned inspector playing the role of the passenger can best initiate scenarios such as a passenger standing during taxi, appearing intoxicated, or using a cell phone before takeoff.

NOTE: Inspectors may wish to attach a copy of the company procedures for quick reference.

- 7) CPM. For parts 121 and 135, assign identified EP DCTs to the CPT.

D. Implementation of Scenarios.

1) All team members must clearly understand in-flight and ground scenarios in terms of individual roles and responsibilities. In addition, the scenarios should be multidisciplinary in nature (i.e., involve flight operations, airworthiness, cabin safety, operational control, and/or stations issues, or any combination of these). Initiate only one scenario at a time. The CPM must ensure that the applicant is not encumbered with so many simulated scenarios that a proper

evaluation of its proposed routine operation is inhibited. Scenarios should focus on areas of weakness found during phases three and four.

2) Since the primary purpose of proving flights is to ensure basic compliance with the regulations and safe operating practices during routine operations, the CPM should not permit compound *emergency scenarios* to occur. When other agencies, such as air traffic control (ATC), airport authorities, and the Transportation Security Administration (TSA) need to be involved for safety and/or security reasons, the CPM ensures that all scenarios are well coordinated. If an actual emergency occurs, all simulated scenarios are terminated.

3) The following examples of typical scenarios may be useful for evaluating the applicant's capabilities:

a) Diversion to Alternate Airports for Reasons Such as Weather or Maintenance. This scenario tests the applicant's communications, maintenance, and other operational control capabilities.

NOTE: A telephone call to the controlling ATC facility(s) is required prior to departure if a diversion will be accomplished. A planned diversion without prior coordination with ATC can put the entire crew at jeopardy with air defense systems. In addition, if and when the diversion occurs, ensure that the flightcrews use the following text: "we are diverting for a simulated emergency that has been pre-coordinated with (name of controlling agency) that is part of a training exercise" in initial communications with ATC.

b) MEL or CDL Situations. These scenarios test the crewmembers' understanding of specific operational limitations and the applicant's operations and maintenance procedures. For example, dispatching with a simulated inoperative generator overwater tests the applicant's ability to comply with the operational and maintenance provisions of the MEL.

c) Performance Problems. These scenarios require aircrew and operational control personnel to demonstrate competency and knowledge of items, such as aircraft performance, airport analysis programs, and alternative company procedures. For example, simulating an inoperative antiskid or thrust reverser while operating on contaminated runways (e.g., ice, slush, or snow) tests the applicant's ability to deal with performance issues.

d) Security and/or Hazardous Cargo Situations. These scenarios require the aircrew and other applicant company personnel to function in accordance with established company hazardous materials (hazmat) and security procedures and FAA/TSA regulations.

NOTE: Hijack or other security-related scenarios are prohibited during proving flights. Aircrew knowledge and company procedures must be examined by inspectors or TSA aviation security inspectors through other methods. The applicant's anti-hijack program is not exercised during proving flights.

e) Situations That Exercise Dispatch, Flight-Following, or Flight Locating Procedures. These scenarios test communications, Notices to Airmen (NOTAM), special flight advisories, weather information dissemination, and other operational control issues. An effective

means for testing these capabilities is to position an inspector who has specialized dispatch knowledge (dispatch inspector) in the operator's operational control facility (for part 121), at a prearranged time to initiate a scenario such as adverse destination weather that would require a diversion. This action tests the communications and weather reporting capability of the facility and also the applicant's procedural contingencies as demonstrated by the flightcrew.

NOTE: Evaluation of flight locating procedures for parts 91K and 135 are typically conducted by an operations inspector either from an aircraft en route or during ground operations.

f) Maintenance Scenarios. The test team should plan a simulated maintenance problem, however minor, at any location into which the operator operates. This tests the applicant's ability to communicate and resolve problems that flightcrews may experience (see § 121.563) to include an operator's use of contract maintenance.

g) Simulated Aircraft Emergencies. These scenarios test the crewmember's knowledge and competency in handling emergency situations in accordance with the applicant's procedures. They also test applicant communications, maintenance, and other operational capabilities. Examples include:

1. Simulated engine failure. An inspector will *not*, under any circumstances, require an actual engine shutdown.

2. Simulated incapacitated passengers in need of immediate medical assistance.

3. Simulated lavatory fire.

4. Simulated loss of pressurization.

5. Simulated landing gear extension or retraction problems.

6. Simulated auxiliary power unit (APU) inoperative (e.g., inoperative air flow, inoperative electric output).

7. Cabin safety scenarios. Flight attendants (F/A) play a very important role in proving runs. Therefore, in-flight policies and procedures should be represented by appropriate, applicable cabin scenarios. Possible examples include:

- Carry-on baggage;
- Exit seating;
- Incapacitated F/A;
- Passenger smoking in cabin or lavatory;
- Passenger noncompliance; and
- Intoxicated passenger.

NOTE: Under no circumstances should an aircraft divert from a planned route, altitude, or speed without prior coordination with ATC.

3-2362 ISSUANCE OF LETTER OF AUTHORIZATION (LOA). Until the final phase is completed and the operation specification (OpSpec) approval is issued, an operator must be issued an LOA to conduct the following:

A. Proving Flights. The applicant should submit a letter of request at least 10 business days prior to the first proposed flight. Per 14 CFR part 119, § 119.33(c), all part 121 and 135 applicants must have received an LOA and *draft* OpSpecs before proving tests may commence. See Figure 3-111B, Proving Flight Letter of Authorization.

NOTE: It is important for the CPM to remember to request a precertification designator from the Aviation Data Systems Branch (AFS-620). Use this designator for recording any required or related SAS, Program Tracking and Reporting Subsystem (PTRS), or Labor Distribution Reporting (LDR) information into the FAA data-gathering computer programs.

B. Special Areas of Operation (SAO).

1) All applicants must receive an LOA and *draft* OpSpecs before operating in NAT HLA or Reduced Vertical Separation Minimum (RVSM) airspace.

2) Per FAA Order 8400.12, Required Navigation Performance 10 (RNP 10) Operational Authorization (current edition), all applicants must receive an LOA and draft OpSpecs before operating in North Pacific (NOPAC) and Central East Pacific (CEP) routes (RNP-10).

NOTE: OpSpec/MSpec/LOA B036 is required before issuing the following:

- B037, Operations in Central East Pacific (CEP) Airspace.
- B038, North Pacific (NOPAC) Operations.
- B039, Operations in North Atlantic High Level Airspace.
- B040, Operations in Areas of Magnetic Unreliability.
- B041, North Atlantic Operation (NAT/OPS) with Two-Engine Airplanes Under Part 121.

Figure 3-111A. Sample Proving Test Plan

Date

Mr. John Jones
Certification Project Manager (CPM)
XYC Flight Standards District Office (FSDO)
P.O. Box 12345
Las Vegas, TX 74321

Dear Mr. Jones:

Enclosed for your consideration is the First Jet Airlines, Inc. Proving Test Plan for the CL-65 Regional Jet.

The plan has been formatted with the “P” series flight numbers indicating a proving test flight.

The plan assumes that all flights will be operated as normal line flights. Each flight will consist of fueling, baggage handling, passenger handling, and aircraft servicing as required by the existing circumstances. Each crewmember will perform their respective duties per First Jet Airlines, Inc. standard operating policies and procedures. Any simulated, abnormal, or emergency situations will be provided by Federal Aviation Administration (FAA) authorized personnel. Any simulated or actual abnormal or emergency situations that may occur will be handled in accordance with First Jet Airlines, Inc. approved Company Flight Manual (CFM) and standard operating procedures (SOP).

- I. Company Coordinator - Jack Simpson
- II. Proving Test Schedule
 - A. Representative en route flights 50:07
 - B. Non-en route segments
 - 1. Ferry flights: None
 - 2. Training flights: None
 - C. Maintenance test unit: None

Flight Schedule

NOTE: The proving test team will have exclusive use of an aircraft during the test period.

Figure 3-111A. Sample Proving Test Plan (Continued)**Dallas/Fort Worth International Airport (DFW)****Date:**

Flt #	Dep. City	Dep. Time	Arr. City	Arr. Time	Seg. Time	Act. Time	Total Time
101P	DFW	11:30	SAN	12:41	1:11	_____	1:11
102P	SAN	13:30	DFW	14:43	1:13	_____	2:24

Total time scheduled: Hrs. & Min. 2:24

DFW**Date:**

Flt #	Dep. City	Dep. Time	Arr. City	Arr. Time	Seg. Time	Act. Time	Total Time
201P	DFW	11:30	OKC	12:41	1:11	_____	1:11
202P	OKC	13:30	DFW	14:43	1:13	_____	2:24
203P	DFW	16:30	DAL	17:20	:50	_____	3:14

Total time scheduled: Hrs. & Min. 3:14 Cumulative time scheduled: Hrs. & Min. 5:38

Total Hours: Hrs. & Min. 50:07

III. Flight Crewmember Pilots

Kevin Nelson
Mark Aponte
Dave Hall
Rob Ryerson

Flight Attendants (F/A)

Stefan Wright
Jason Ashcraft
Automm Pellet
Harvey Ritter
Arlene Nieman
Jonathan Rhodes

IV. Non-Flight Crewmembers**Name**

Jonathan Glass
David Robinson

Position

Chairman/chief executive officer (CEO)
Director of Safety (DOS)

Your comments and consideration in this matter are greatly appreciated.

If I can be of assistance, please call me at (982) 555-3825 or cell (703) 555-4403.

Sincerely,

Steven Arthur
Director of Operations (DO)
First Jet Airlines, Inc.

Cc: Michael Dundee, First Jet Airlines, Inc

Figure 3-111B. Proving Flight Letter of Authorization

Flight Standards District Office
(FSDO) Letterhead

Requestor
XYZ Airlines, Inc.
Anywhere, USA 00000

Date

Dear Mr./Ms. Requestor:
Letter of Authorization

As requested in your letter of [date], [name of company] is authorized to operate [airplane make/model and registration number] in compliance with Title 14 of the Code of Federal Regulations (14 CFR) part 121, § 121.163. [Name of company] is authorized to conduct for the purpose of training flights, proving flights, and other flights associated with certification under the requirements in accordance with the provisions of 14 CFR part 119, § 119.33(c) and § 121.163. All proving tests must be conducted under the appropriate operating and maintenance requirements of part 121 that would apply if the applicant were fully certificated. Only passengers incidental to the business of the company may be carried under the provisions of this letter.

During the course of any operations conducted under the authority of this letter of authorization (LOA), the company must demonstrate full compliance with and an ability to operate in accordance with part 121, issued draft operations specifications (OpSpecs), and the approved proving flight plan. In the event of actual or simulated equipment malfunction(s) [name of company] must operate in accordance with the draft minimum equipment list (MEL).

The proving flights will begin on or about _____ and terminate on or before _____, or otherwise upon satisfactory completion of all required tasks or when the administrator determines that [name of company] has demonstrated operational qualifications.

In addition, these proving flights may be suspended or terminated when the administrator determines that the public interest in air safety so requires. [Name of company] proving flights may be suspended or terminated if any of the following conditions occur:

- Violation of any section of 14 CFR,
- Noncompliance with draft OpSpecs,
- Unapproved deviation from approved proving flight plan (except actual emergency),
- Inadequate or incomplete training of required crewmember or maintenance personnel,
- Failure to operate in accordance with established company manual procedures,
- Failure to meet three consecutive scheduled takeoff times (if the delay is not the direct result of a scenario generated by the Federal Aviation Administration (FAA)),
- Inability to detect and correct operational and/or maintenance deficiencies, or
- Lack of qualified support personnel to conduct operations.

The above conditions are illustrative and shall not be considered an exclusive listing of the basis for suspension or termination of proving flights. Proving flights may be suspended or terminated at any time when deemed appropriate by the administrator. The administrator shall provide written notice to [Name of company] with the reasons for suspension or termination of such flights within five (5) working days.

A copy of this letter must be carried on the above numbered airplanes during the operations specified.

Signed,
Manager

Figure 3-111C. Proving Flight Test Work Sheet

Proving Flight Test Work Sheet			
Proving Flight Test Scenario Work Sheet			
Applicant:		Date:	
Flight Number:		Block Time (UTC):	
Arrival:		Block In:	
Departure:		Block Out:	
PIC:		Block Time:	
A/C Type:	No:	Total Time:	
Scenario Number:		Scenario:	
Assignments:			
Initiation:			
Objective:			
Completion Standards:			
Termination:			
Comments:			
SAT	UNSAT	Name:	Signature:

RESERVED. Paragraphs 3-2363 through 3-2375.