VOLUME 4. AIRCRAFT EQUIPMENT AND OPERATIONAL AUTHORIZATIONS

CHAPTER 3. AIRPLANE PERFORMANCE AND AIRPORT DATA

SECTION 5. SELECTED PRACTICES

1013. GENERAL. This section contains general background information and guidance for inspectors on selected topics and practices relating to aircraft performance and data acquisition systems for Title 14 of the Code of Federal Regulations (14 CFR) part 121 and 135 operators.

1015. NON-TRANSPORT CATEGORY AIRPLANE OPERATING LIMITATIONS. Part 121, § 121.157 prohibits operators from using large airplanes certified after June 30, 1942 in revenue service unless the airplanes are certified in the transport category. Both parts 121 and 135 operators may, however, use in revenue service large airplanes that were certified prior to July 1, 1942. These airplanes are termed "large, non-transport category airplanes." Very few types of large, non-transport category airplanes remain in active revenue service. A few operators continue to operate the DC-3, the C-46, and the Lockheed 18.

A. Airplanes Recertified in the Transport Category. Some airplanes which were originally certified before July 1, 1942 have subsequently been modified and recertified in the transport category. Operators may only use C-46 type airplanes certified in the transport category in passenger-carrying operations. When an operator operates one of these airplanes in part 121 or 135 service, the operator must show compliance with part 121, §§ 121.199 through 121.205 or part 135, §§ 135.389 through 135.395 by means of data approved in the type certification process.

B. Non-Transport Category Airplanes. Operators using large, non-transport category airplanes must show compliance with the performance requirements of §§ 121.199 through 121.205 with data that has been approved by the Administrator. Operators must keep the data in the airplane in a place conveniently accessible to the pilot while the airplane is in flight.

C. C-46 Cargo-Only Operations. Operators using C-46 type airplanes in cargo-only operations may use data extracted from Appendix C of part 121 to show compliance with the requirements of §§ 121.157, 121.199, 121.201, 121.203, and 121.205.

D. Evaluation of Performance Data. Principal operations inspectors (POI's) who receive requests from operators to approve performance data for large, non-transport airplanes should contact the Aircraft Evaluation Group-Long Beach, ANM-217, (562) 627-5270, for direction and guidance.

1017. APPROVAL OF DRIFT-DOWN AND FUEL-DUMPING PROCEDURES. Operators may request FAA approval of drift-down or fuel dumping to show compliance with 14 CFR terrain clearance requirements. The POI may approve the drift-down and fuel dumping procedures in accordance with the guidance of this paragraph.

A. Approval Procedures. POIs should grant approval of drift-down and fuel dumping procedures by means of a nonstandard paragraph in Part B of the operations specifications (OpSpecs). (See Order 8400.10, volume 3, chapter 1, section 2, paragraphs 39 and 41.) The POI may enter the entire procedure into the OpSpecs paragraph. The preferred procedure, however, is for the POI to enter a reference to the section of the operator's general operations manual (GOM) which contains the procedure, the limitations, and the data.

B. Drift-Down Data and Procedures.

(1) Operators should base their proposals on manufacturer data and recommended procedures. In the absence of such data and procedures, the operator must develop the necessary data and procedures.

(2) The POI should require the operator that creates drift-down procedures to validate the procedures and data through validation tests.

(3) Because of the complexities involved, the POI should coordinate with the regional flight standards division (RFSD) and the aircraft evaluation group (AEG).

(4) The POI should also request that the RFSD coordinate the operator's proposal with air traffic control (ATC) to avoid possible air traffic conflicts.

C. Training Programs and Manuals. When the operator adopts drift-down or fuel dumping

procedures, the proce-dures, limitations, and performance data must be included in the operator's manuals and training program.

1019. EN ROUTE OPERATIONS WITH LANDING GEAR EXTENDED. This paragraph contains direction and guidance to be used by POIs when reviewing and accepting an operator's procedures for en route operations with the landing gear extended. There are two gear-down situations for which operators may seek approval. In the first situation, the operator may seek approval to dispatch an aircraft with the landing gear secured in the down position. In the second situation, the flightcrew may not be able to retract the landing gear after takeoff. In most circumstances, an operator cannot comply with the performance requirements of part 121, Subpart I or part 135, Subpart I when the landing gear cannot be retracted after takeoff. The PIC of such a flight is normally forced to return to the departure airport or to divert to a takeoff alternate airport. Operators may, however, operate a revenue flight with the gear down when the operator can show compliance with regulatory requirements. POI's should review the following:

A. Procedures and Data. Operators must provide flight crewmembers with procedures and approved airplane performance data for gear extended operations. The procedures must include speed limitations and fuel consumption data sufficient to show compliance with regulatory requirements. POIs should ensure that the operator has included this information in the operator's company flight manual (CFM). Instruction on procedures must be included in the operator's training program.

B. Amended Release. POIs should verify that the operator's GOM contains adequate direction and guidance to both PICs and flight control personnel for amending the dispatch or flight release. POIs should coordinate review of manual material with the principal maintenance inspector (PMI).

1021. HIGH-SPEED TAXI STARTS WITH ONE POWER-PLANT INOPERATIVE. Flight Standards Service (FSS) safety policy is not to accept high-speed taxi start procedures due to the increased risk involved with these operations. When an operator makes a compelling case for approval for such procedures, the POI should coordinate with AFS-200 through the RFSD.

1023. APPROVAL OF UNPAVED RUNWAYS FOR TURBOJET OPERATIONS. This paragraph contains direction and guidance to POIs for approval of the use of unpaved runways for parts 121 and 135 operators. Although the FAA discourages the operation of turbojet equipment on other than hard-surfaced runways, operation of such equipment from a well compacted non-paved surface is possible. Unpaved runways can be certified in accordance with 14CFR part 139 and § 121.590 in order to meet the requirements of part 121 operators. Airport requirements for part 135 operators are contained in § 135.229.

A. Approval of Landing Surface. POIs must approve the use of an unpaved runway surface for turbojet operations. Approval for this type of operation must be based on actual flight test performance data acceptable to the responsible aircraft certification group, the AEG, and flight test engineering. Before the POI approves turbojet operations at any airport with other than paved runways, the POI will determine that the following conditions are met:

(1) Takeoff and landing field lengths must be based on approved flight test data for the particular type aircraft on the type of runway surface to be used.

(2) Flight testing must show that foreign object ingestion into the engines and gravel impingement upon the aircraft structure are not significant factors.

(3) The surface of the runway to be used must be reasonably stable throughout the various weather seasons; otherwise, the operations must be restricted to particular seasons.

B. Approval Procedures. An airport with unpaved runways is required to have special operational procedures and flight crewmember training. Approval of operations at an airport with unpaved runways is granted in OpSpecs paragraph C67. POI's may reference the appropriate section of the operator's manuals in paragraph C67.

1025. AIR CARRIER WINTER OPERATIONS. This paragraph contains guidance to be used by inspectors for reviewing those portions of manuals, procedures, and training programs concerning operations in winter weather conditions. The POI must ensure that the operator's manuals contain specific instructions and information to flightcrews for operating each type of aircraft operated in adverse weather conditions or prohibit such operations. The POI should also review the content of the operator's training program to ensure adequate coverage of adverse weather operations.

A. Training Requirements. The following subject areas should be considered in the operator's training program that is related to winter operations. These items are neither comprehensive nor exclusive, and the POI may require additional criteria.

- The requirement for a thorough preflight inspection in extreme temperatures
- A description of the performance and control problems that would differ from normal conditions during takeoff and landing with water, slush, or wet snow on the runway
- The speed, weight, and runway length adjustments that would be made when operating on contaminated runways

- Criteria for takeoff, en route, and destination weather conditions
- The causes and effects to the aircraft from hydroplaning or aquaplaning
- The effects of increased viscosity of fluids in cold temperatures
- Adverse effect of cold temperatures on hydraulic fittings and seals
- The effects of cold weather conditions to fuel pumps and fuel filter drains
- Fuel contamination, fuel leaks caused by cold weather operations
- The hazards associated with wet snow or slush in wheel wells when entering freezing temperatures
- Ice on tail and recovery techniques in stall
- Techniques and procedures for braking, steering, and reversing with water, slush or snow on taxiways and runways
- Deicing and anti-icing procedures and equipment for frost, ice, or snow removal from airfoils, control surfaces, and static ports
- Proper adjustment of cables and rods used to manipulate flight controls
- A description of landing surface conditions and appropriate braking action

B. Pertinent References. Inspectors should be aware of the following advisory circulars and booklet, and should bring them to the attention of operators:

- AC 91-13, "Cold Weather Operation of Aircraft"; for discussion of aircraft cold weather preparation and operations
- AC 91-6, "Water, Slush, and Snow on the Runway"; for guidelines concerning the operation of turbojet aircraft with water, slush, wet or dry snow on runways
- AC 135-9, "FAR Part 135 Icing Limits"; for guidance concerning compliance with FAR 135.227
- AC 91-51, "Airplane Deice and Anti-Ice Systems"; for information on ice protection system approval and the results of inflight icing
- "Winter Operations Guidance for Air Carriers"; booklet prepared by FSS

1027. DEVIATION FOR OBSTACLE CLEARANCE DATA FOR CERTAIN TURBOJET AIRPLANES IN PART 135 OPERATIONS. This paragraph contains direction and guidance to be used by POIs when issuing operators of certain transport category airplanes a deviation to § 135.367(a)(3) or 135.379(d).

A. Background. Sections 135.367(a)(3) and 135.379(d) require part 135 operators of transport category airplanes to acquire airport obstacle data and compute obstacle clearance limited takeoff weights.

(1) Section 135.363(h) authorizes the FAA Administrator to issue deviations to Subpart I of part 135 if "special circumstances make a literal observation of a requirement unnecessary for safety."

(2) Normal category airplanes certified under the provisions of SFAR 23 and SFAR 41 can be operated with up to 19 passenger seats and 19,000 pounds maximum takeoff weight (MTOW) without requiring the operator to collect obstruction data or compute obstacle clearance performance data. Safety records of these aircraft indicate no record of accidents caused by contact with obstacles around departure runways either with or without an engine failure. Further, transport category airplanes have more stringent engine-out climb performance requirements than do airplanes certified in the normal category. Consequently, FSS has determined that, under limited conditions, there is no degradation in the level of safety provided when transport category airplanes (with up to 19,000 pounds MTOW or 19 passenger seats) are operated without complying with these rules.

B. Conditions of the Deviation. The operator is authorized to conduct takeoff operations using transport category airplanes weighing no more than 19,000 pounds and having a seating configuration of no more than 19 passenger seats without showing compliance with §§ 135.367(a)(3) and 135.379(d). This authorization is limited to only the following operations conducted:

- At airports of 4,000 feet mean sea level or less field elevation, and
- On runways on which the available length of runway is equal to or greater than 150 percent of the runway required by §§ 135.367(a)(1) and (2) or § 135.379(c), as applicable
- In weather conditions equal to or greater than straight-in Category I landing minimums for the runway being used

C. Method of Granting the Deviation. The POI should ensure that the operator has included the limitations of this deviation in the operator's GOM. The operator must also provide direction and guidance concerning how to obtain obstacle data and compute obstacle clearance performance in the GOM when the limitations of the deviation are not met. Compliance under one engine inoperative conditions with TERPS (FAA Order 8260.3, United States Standard for Terminal Instrument Procedures (TERPS), as amended) climb criteria (200' per nautical mile, or the specific nonstandard takeoff minima) designated for the runway to be used in lieu of an airport analysis is an acceptable method of ensuring obstacle clearance. (Also, see AIM paragraph 5-2-

6.) The operator must also include these limitations and procedures in the approved training program. When these conditions have been met, the POI may grant approval to the operator for the deviation by selecting the applicable text for insertion into OpSpec C067. If a deviation to 14 CFR section 135.367(a)(3) or section 135.379(d) is authorized it must also be entered in OpSpec A005.

1029. SPECIAL AIRPORT AUTHORIZATION FOR CONDUCTING OPERATIONS AT AIRPORTS IN ALASKA WITH AN APPROVED REGINALD BENNETT INTERNATIONAL (RBI) RUNWAY REFLECTORIZATION SYSTEM. For authorization to conduct airplane operations using the RBI Runway Reflectorization System in Alaska:

A. The air carrier must provide a station agent at the airport trained to give wind information to the flightcrew and

B. Train its flightcrews on this specific system in accordance with an approved training program. The training program must be approved in accordance with the following criteria:

- Each pilot must receive initial and recurrent training in accordance with their company approved training program.
- Initial training must be completed by each person (both ground and flight personnel) prior to their participation with this authorization.
- Recurrent training must be completed within each subsequent 12 calendar months. Whenever a person who is required to take this recurrent training completes the training in the calendar month before or the calendar month after the month in which this recurrent training is required, that person is considered to have completed it in the calendar month in which it was required.

1031. SPECIAL AIRPORTS REQUIRING SPECIAL PILOT-IN-COMMAND QUALIFICATION. 14 CFR part 121, section 121.445 requires pilots-in-command (PIC) of domestic, flag, and supplemental air carriers to be qualified for operations into airports determined to be Special PIC Qualification airports. Section 121.445 also allows pictorial means to be used as a method of qualifying PICs for operations into Special PIC Qualification airports. OpSpec C050, Special PIC Qualification Airports, is used to authorize part 121 domestic, flag, and supplemental air carriers to conduct IFR operations into special airports requiring special airport qualification for the PIC. (OpSpec C067 is not used for this purpose).

A. PIC Qualifications. Crewmember qualification requirements in part 121, subpart O, prescribe the PIC qualifications required for operations to each airport and terminal area. This guidance and OpSpec C050 focuses on the PIC's qualifications to operate into and out of special PIC qualification airports. Two sections of subpart O are particularly relevant to this guidance, section 121.443(a) and (b) and section 121.445(a) and (b). Section 121.445(c) relieves the PIC and the certificate holder from the qualification requirements in section 121.445(b) if the weather conditions at a specific special PIC qualification airport are above the values specified in that section. Section 121.445(d) is specific to PIC qualifications to fly between terminals over a route or area that requires a special type of navigation qualification. This guidance does not address the requirements of Section 121.445(d).

(1) Section 121.443(a) requires each certificate holder to provide a system acceptable to the Administrator for disseminating certain specific information (as set forth in section 121.443(b)) to the PIC and appropriate flight operations personnel. In addition, the certificate holder must provide current information to its PICs on the subjects identified in section 121.443(b). The certificate holder is also responsible under section 121.443(b) for ensuring that those persons have adequate knowledge of, and the ability to use, the information.

(2) Section 121.445(a) through (c) sets forth the PIC's qualifications for landing and takeoff at airports that the FAA has designated as special PIC qualification airports. Accordingly, if an operator uses a special PIC qualification airport in its operations, regardless of whether it is a provisional, regular, refueling, alternate, or Extended Twin Engine Operations (ETOPS) alternate airport, then (except as provided in section 121.445(c)) the PIC qualification requirements in section 121.445(b) apply. The PIC may obtain qualification within the preceding 12 calendar months in one of three ways:

(a) by having served as PIC or second-in-command (SIC) and making an entry to that airport (including a takeoff and landing) in an airplane or level D simulator;

(b) by serving with an SIC who has made an entry into that airport while serving as PIC in an airplane or level D simulator; or

(c) by using pictorial means acceptable to the administrator.

(3) Approved pictorial means may include, but is not limited to videotapes, 35mm slide presentations, and still photos, when approved by the Administrator. Whatever means are presented to the Administrator for approval must

assure a realistic depiction of the airport and significant surrounding features.

B. Identifying Special Airports.

(1) Determination of Which Airports Require Special PIC Airport Qualifications.

(a) Section121.445(a) states that the Administrator may determine that certain airports (due to items such as surrounding terrain, obstructions, or complex approach/departure procedures) are special airports that require the PIC to hold special airport qualifications prior to landing or taking off from that airport. The Air Transportation Division (AFS-200) of the Flight Standards Service evaluates airports and determines whether an airport should be identified as a special qualification airport.

(b) If an airport is designated as a special PIC qualification airport (see www.opspecs.com), then prior to serving on a flight to or from that airport, the PIC must meet certain qualification standards, unless the weather conditions are such that the ceiling at the airport is at least 1,000 feet above the lowest MEA or MOCA or initial approach altitude prescribed for the instrument approach procedure for that airport and the visibility is at least 3 miles.

(2) Qualification Options. If both the ceiling and the visibility minimums are not satisfied as detailed in section121.445(c), then the qualification requirements of section 121.445(b) apply. Section121.445(b) specifies that for a pilot to serve as PIC on a flight to a special qualification airport, the PIC must have the benefit of one of the following:

(a) The PIC, within the preceding 12 calendar months, has made a takeoff and landing at that airport while serving as a pilot flight crewmember;

(b) The second in command (SIC), within the preceding 12 calendar months, has made an takeoff and landing at that airport while serving as a pilot flight crewmember; or

(c) Within the preceding 12 calendar months, the PIC has qualified by using pictorial means acceptable to the Administrator for that airport.

(3) Exception to Special PIC Airport Qualification Requirements Due to Favorable Weather Conditions. Section 121.445(c) provides that the PIC's special airport qualifications prescribed by section121.445(b) do not apply to an entry to that airport (including a takeoff and a landing) when all of the following conditions apply:

(a) The ceiling at that airport is at least 1,000 feet above the lowest Minimum En route IFR Altitude (MEA) or Minimum Obstruction Clearance Altitude (MOCA), or initial approach altitude for the instrument approach procedure for that airport.

(b) The visibility at that airport is at least 3 miles.

C. Airport Assessment and Designation of Special Airports.

(1) Methodology The FAA maintains a list of special PIC qualification airports, as posted in the OPSS guidance subsystem in association with OpSpec C050 and on the website, http://www.opspecs.com. The FAA determines that an airport should be listed as a special PIC qualification airport through one of two methods (Refer to the Airport Assessment Aid in Order 8400.10, volume 4, chapter 3, section 5, Selected Practices, or in the OPSS guidance subsystem in association with OpSpec C050):

(a) it independently assesses the airport using the criteria contained in the Airport Assessment Aid and determines whether or not the airport should be listed as a special PIC qualification airport; or

(b) a part 121 air carrier certificate holder assesses an airport using the Airport Assessment Aid below and submits the assessment to its POI or to the address at the top of the form, and the FAA then uses that assessment to determine whether the airport should be listed as a special qualification airport. This aid also can be used by a part 121 air carrier certificate holder to request that an airport be removed from the special qualification airport list. The criteria contained in the Airport Assessment Aid are not all-inclusive, and may be supplemented by additional information.

*(2) Assessment Guidelines.*An assessment of an airport must be conducted by an FAA operations inspector or part 121 air carrier certificate holder. Usually, assessments are conducted because an air carrier wishes to operate into an airport that has not been previously included in its route structure. Further discussion on the requirements for an assessment is found in paragraph 4. The operator should refer to the updated airport list in the OPSS guidance subsystem in association with OpSpec C050 or on the http://www.opspecs.com website to determine if the airport has been assessed previously and requires listing as a Special Pilot Qualification Airport under 121.445. If the airport is shown as a special qualification airport but the operator disagrees with that determination, the operator may request a reassessment in accordance with paragraph 3 below.

(a) *OpSpec C050 Only Applies.*The extent of the assessment conducted by the operator depends on the nature and complexity of certain factors associated with the airport (i.e., high altitude, foreign airport, specific terrain features, unique weather patterns may be present singly or in combination). When considering the airport assessment, a determination should be made whether to include the airport in OpSpec paragraph C067 or C050. For instance, an airport surrounded by high, fast-rising terrain may require designation as a special PIC qualification airport. In this case, OpSpecC050 would be used for authorization.

(b) *Provisions of OpSpec C050 Applies and Airport Should Be Listed in C067.* An airport that is already classified as a special PIC qualification airport may be unique, as determined by the POI, especially when used with certain types of aircraft because of the unique safety issues raised by the use of that type of aircraft at the particular airport. This uniqueness means that the POI has determined that certificate holders should develop and pilots should comply with specific procedures for conducting operations at that airport. The FAA may require the use of these procedures through OpSpec C067, even though the provisions of OpSpec C050 may apply if that airport is also listed as a special PIC qualification airport.

(3) Airport Assessment Aid. The completed Airport Assessment Aid should be forwarded to the operator's POI. The POI will then forward the form with his/her comments to AFS-200. AFS-200, in concert with industry, will make the final determination to list or remove the airport as a special PIC qualification airport. The newly revised special PIC qualification airport list and associated assessment(s) may be accessed through OPSS guidance subsystem in association with OpSpec C050 and on the website, http://www.opspecs.com.

(4) Airports Without Assessment or Prior Part 121 Service. An operator and its POI will jointly decide whether or not an assessment is necessary for airports that have not been served by the operator and have not been assessed previously. For example, an airport located in a country for which limited information is available and an assessment has not been completed will likely be a candidate for assessment for inclusion in the Special Airports Requiring Special PIC Qualification list. Additionally, an airport located in a country for which appropriate information is available (such as AIP, DOD ASRR, and other equivalent information) and/or part 121 operations have been conducted will most likely not be a candidate for an assessment.

(5) *Airport Assessment Aid.* See Figrue 4.3.5.1, Airport Assesment Aid.

(6) Other Guidance. Reference Order 8400.10, Vol. 3, Chap. 1, Section 5, OpSpec C050, "Special Pilot-in-Command Airport Qualification," and OpSpec C067, "Special Airports."

1032. - 1064. RESERVED.

FIGURE 4.3.5.1. AIRPORT ASSESSMENT AID
For Determining Requirements for Special PIC Qualification Airport Designation
(Ref.: 14 CFR Part 121, Section 121.445)

This aid (an electronic file version is available in the OPSS guidance subsystem in association with OpSpec C050) should be completed and submitted via electronic mail to 9-AWA-AFS-OPSSPROB@FAA.GOV or to the following address for review and action: Federal Aviation Administration, Air Transportation Division, Rm. 831, Attn.: AFS-220, 800 Independence Avenue, SW, Washington, DC 20591

Name & Title	Address	Phone/Fax/Internet
DATE:		Airline:
Airport Name, ICAO Identifier, City, State, Country		
Type(s) of Aircraft Addressed In This Assessment: M/M/S		

	Key Elements	Please enter the requested information:
1.	Terrain/Obstructions: Is there high terrain located in the immediate vicinity of the airport? YES / NO List the terrain within the vicinity of the airport that might effect operations: Other remarks regarding the local terrain: Attach a copy of a topographical map depicting the location of the terrain mentioned above. List obstructions located in the approach/departure corridor or in the vicinity of the airport:	
2.	Approach/Missed Approach/Departure Procedure Attach a copy of the chart depicting the approach/departure procedure. State the degree of complexity of the procedure (terrain/obstacle/other) and any unique local procedures: Does the approach have a nonstandard descent (greater than a 3-degree glide slope)? YES / NO Climb gradient: If there is a climb gradient requirement shown please write that requirement.	
3.	**Limited Maneuvering Airspace** State the limitations (e.g., political, terrain) to maneuvering airspace.	
4.	Limited Airport Information (accuracy/currency) Example: There is mountainous terrain in close proximity of the airport with no indication of an arrival or departure procedure that takes the terrain into account.	
5.	Unique Country Rules—Different than ICAO	
6.	Communication, Navigation, and Surveillance Anomalies—Specific to Approach and Departures (Approach Control Radar or lack of ATC)	
7.	Applicable SFAR	
8.	Additional information in support of pictorial requirements:	
9.	Recommend C050 (Special PIC Qualification Airport) or C067 (Special Airport)	
Recommend Special Pilot Qualification Airport Designation (Yes or No)		

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