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BOEING 787 **B-787-8**

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Highlights of Change:

- 1.1 Added reference to CFR Part 91 flight operations
- 5.1.1 Added reference to CFR Part 91 flight operations
- 5.2.3 Added verbiage to reference pertinent CFRs
- 6.1.1 Added verbiage to reference CFR Part 61 checking items
- Appendix 3 Added verbiage to reference CFR Part 91 flight operations

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1. PURPOSE AND APPLICABILITY

1.1 Flight Standardization Board (FSB) Report Specifications. This FSB report specifies FAA master training, checking, and currency requirements applicable to crews operating B-787 Aircraft under CFR Part 121 and CFR Part 91. Various sections within the report are qualified as to whether compliance is required (considering the provisions of AC 120-53A), recommended, or advisory in nature. Provisions of the report:

- a. Identify a common pilot type rating assigned to the B-777 and B-787,
- b. Identify the B-777 and B-787 as “related aircraft”,
- c. Describe “Master Difference Requirements” for crews requiring differences qualification for mixed-fleet-flying or transition,
- d. Provide examples of acceptable “Operator Difference Requirements (ODR)” tables,
- e. Describe acceptable training program and device characteristics when necessary to establish compliance with pertinent MDRs,
- f. Identify checking and currency standards including specification of those checks that must be administered by FAA or operators,
- g. List regulatory compliance status (compliance checklist) for the B-787 for CFRs Part 91, 121, and 125, Advisory Circulars, or other operational criteria for information of FAA field offices.

1.2 This report addresses the B-787-8 series aircraft as specified in the FAA Type Certificate Data Sheet (TDCS).

1.3 The provisions of this FSB report are effective until amended, superseded, or withdrawn by subsequent revisions to this report.

1.4 FSB Responsibility/Authority. Determinations made in this report are based on the evaluations of specific B-777 and B-787 aircraft models equipped in a given configuration and in accordance with (IAW) current regulations and guidance. Modifications and upgrades made to the models described herein, or introduction of other related aircraft, may require amendment of the findings in this report. The FSB reserves responsibility and authority to re-evaluate and modify sections of this report based on new or revised Advisory Circular material, pertinent CFRs, aircraft operating experience, or the testing of new or modified aircraft under the provisions of AC 120-53A.

1.5 AQP/FSB Report Relationship. Differences between this report and an operator’s proposed training, checking, and currency requirements under an Advanced Qualification Program (AQP) must be justified and documented as part of the applicant’s AQP approval process. Program approvals under AQP need to ensure the basic provisions and requirements of this report have been

addressed, and where necessary, coordination with the appropriate Flight Standardization Board has been completed.

1.6 Terminology. The term "must" is used in this FSB report and certain MDR footnotes, even though it is recognized that this report (as well as AC 120-53A, on which it is based) provides one acceptable means, but not necessarily the only means of compliance with CFR requirements. This terminology acknowledges the need for operators to fully comply with this FSB report and MDR and ODR provisions if AC 120-53A is to be used by the operator as the means of complying with the pertinent CFRs. Operators who choose this method must comply with each applicable MDR provision, including any footnotes.

1.7 FSB Report Comprehensiveness. This report includes:

- a. Minimum requirements for approval by FAA field offices, (e.g., MDRs, type rating designations, etc.),
- b. Information which is advisory in general, but may be mandatory for particular operators if the designated configurations apply and if approved for that operator (e.g. MDR footnotes, acceptable ODR tables), and
- c. Information which is used to facilitate FAA review of an aircraft type or related aircraft proposed for the use by an operator (e.g. compliance checklist for FAA Field Office use)

Various sections of this report are qualified as to whether compliance (considering the provisions of FAA Advisory Circular AC-120-53A) is required, or is advisory in nature.

2. PILOT TYPE RATING REQUIREMENTS

2.1 Type Rating. The Boeing 787 is designated B-787. In accordance with the provisions of FAA Order 8900.1 and AC 120-53A, the B-777 and B-787 are assigned a common pilot type rating.

2.2 Second-In-Command (SIC) Type Rating. In accordance with the provisions of the pertinent CFR, FAA Order 8900.1 and AC 120-53A, a SIC type rating is assigned to the B-787 and is designated "B-787" with Limitations for "B-787 SIC Privileges Only".

3. "MASTER DIFFERENCE REQUIREMENTS" (MDRs)

3.1. Common Requirements (All B-787s).

3.1.1. Autopilot Engage/Disengage Altitudes.

- a. As referenced by approved AFMs, the B-787 has specifically been evaluated for autopilot suitability for engagement at or above 200 ft AGL during takeoff. For CFR 121.579 operators, authorization for autopilot engagement during takeoff is as designated by operations specifications.

- b. Without LAND 2 or LAND 3 annunciated, the autopilot must be disengaged below 100 feet AGL

3.1.2 Aircraft Approach Category and Circling Minima:

- a. The B-787 is considered Category D aircraft for the purposes of determining "straight-in" landing weather minima. The B-787 approach category is determined by the maximum certified landing weight approach speed as defined in the appropriate CFR.
- b. For circling, the aircraft approach category to be used for determining the circling minima is as specified in the Operations specifications for each operator.

3.1.3 Normal "Final Landing Flap Setting". The normal "final landing flap setting" per CFR 91.126(c) is considered to be either "Flaps 25" or "Flap 30" for all B-787s.

3.2 Master Difference Requirements.

3.2.1 Requirements (MDRs) for Particular B-777/B-787 related aircraft combinations. MDRs are shown in Appendix 1. These provisions apply when differences between related aircraft exist which affect crew knowledge, skills, or abilities related to flight safety (e.g., Level A or greater differences).

3.2.2 MDR Footnotes. Footnotes to MDR requirements define acceptable "required means" or "alternate means" of compliance. A footnote can indicate requirements that are less restrictive than the basic designation, or more restrictive than the basic designation depending on the significance of the differences between particular related aircraft.

4. ACCEPTABLE "OPERATOR DIFFERENCE REQUIREMENTS" TABLES

4.1 ODR tables - Used to Show an Operator's Compliance Method. Acceptable Operator Difference Requirements tables for operators conducting mixed fleet operations, using particular combinations of B-777 and B-787 related aircraft are shown in Appendix 2. The ODR tables represent an acceptable means to comply with MDR provisions for this combination of aircraft, based on differences and compliance methods shown. The tables do not necessarily represent an acceptable means of compliance for operators with aircraft having other differences, where compliance methods (e.g., devices or simulators) are different, or for combinations of aircraft not evaluated. For operators flying related aircraft, which are the same as the aircraft used for the ODR table development and using the same compliance methods, the ODR tables in Appendix 2 have been found acceptable by the FAA. Thus, equivalent tables may be approved by the POI for a particular operator.

4.2 Operator Preparation of ODR Tables. Operators flying "mixed-fleet" related aircraft must have approved ODR tables. Operators flying B777 and B787 related aircrafts similar to those covered by the acceptable ODR tables shown in Appendix 2 may use those tables. Operators with differences not shown on, or addressed by, the tables of Appendix 2, or operators seeking

different means of compliance, must prepare and seek FAA approval of specific ODR tables pertinent to their fleet.

4.3 ODR Table Coordination. Unless identical or equivalent ODR tables have been previously approved by the FAA, new ODR tables proposed by operators should be coordinated with their POI and the FSB prior to FAA approval and implementation. By coordination, the FSB ensures consistent treatment of related aircraft between various operators, and compatibility of each ODR table with MDR provisions.

4.4 ODR Table Distribution. Original approved ODR tables are retained by the operator. Copies of approved ODR tables are retained by the Certificate Holding District Office (CHDO). Copies should also be forwarded to the B-777 and/or B-787 FSB Chairman, Seattle AEG (SEA-AEG).

5. FSB SPECIFICATIONS FOR TRAINING

5.1 General.

5.1.1 Assumptions Regarding Airmen Previous Experience. The provisions of this section apply to programs for airmen who have experience in both CFR Part 121 and CFR Part 91 flight operations. For airmen not having this experience, additional requirements may be appropriate as determined by the POI, FSB, and AFS-200.

5.1.2 Training for Seat Dependent Tasks. Accomplishment of certain tasks, procedures, or maneuvers requires training of a crewmember for a particular crew position (e.g. captain, first officer, international relief officer, check airman, etc.). Training programs should recognize and address the necessary seat/position related tasks for the applicable crewmember. Accordingly, training programs should address seat dependent tasks or maneuvers to the extent necessary to satisfy crew qualification objectives and should be in accordance with ODR tables when applicable.

5.1.3 Second-In-Command Training Tasks. Flight Crews qualify to serve as SIC must accomplish certain tasks, procedures or maneuvers for the SIC crew position. Training programs should address all training elements of the pertinent CFR in accordance with FAA Order 8900.1. SIC pilot type rating may be issued in accordance with the pertinent CFR provided training required by the pertinent CFR and FAA Order 8900.1, including tasks stipulated by this report, are completed.

5.1.4 Future Air Navigation Systems (FANS)/RNP/ANP/CNS/CPDLC/ADS. Flight Crews operating aircraft equipped with FANS software should receive appropriate instruction in its general operational functions, appropriate uses for areas of operation, routes, or procedures to be flown. General training should address communications, navigation, and surveillance (CNS) functions covered by FANS, RNP, and ANP. In addition, sufficient training in use of data link communication and Automatic Dependent Surveillance (ADS) to ensure adequate knowledge, skill, and proficiency for flight crews to operate the above system(s) in typical daily operations (requiring their use) should be provided.

5.1.5 B-787 Programs Crediting Previous Boeing EFIS/FMS Experience (AQP or STARS). Training programs for the B-787 may take credit for previous Boeing EFIS/FMS experience. An example of a B-787 training course crediting previous Boeing model FMS flight deck experience is shown in Appendix 5. Principal Inspectors for operators initially introducing a B-787 type may approve programs consistent with programs previously approved or those of Appendix 5. For information regarding previously approved programs or programs crediting previous non-Boeing FMS/EFIS flight deck experience, FAA Principal Inspectors for other existing B-787 operators may be consulted.

5.1.6 B-787 Heads Up Display (HUD). Training in accordance with Appendix 9 or equivalent must be provided. If mixed fleet flying of HUD and non-HUD equipped aircraft occurs, the operator should have approved ODR tables reflecting the HUD installation.

5.1.7 B-787 Electronic Flight Bag (EFB). Refer to the Boeing EFB Flight Standardization Board Report, located on the FAA's Flight Standards Information System (FSIMS) web site.

5.2 Initial, Upgrade, or Transition Training

5.2.1 Pilots: Initial, Transition and Upgrade Ground Training. Initial, transition, or upgrade ground training for either the B777 or B787 or both is accomplished as specified by the pertinent CFR. No unique provisions or requirements are specified. However, when more than one model is flown, or transition from one related aircraft to another is accomplished, appropriate instruction in unique aircraft systems will be required for each related aircraft, consistent with MDR provisions. Training program hours may be reduced as specified in the pertinent CFR, but not in a manner or in areas which invalidate compliance with provisions of the MDRs.

5.2.2 Pilots: Initial, Transition, and Upgrade Flight Training. Initial, transition, or upgrade flight training for either the B-777 or B-787 or both is accomplished as specified by the pertinent CFR. No unique provisions or requirements are specified. When initial, transition, or upgrade flight training and practice specified in the pertinent CFR are accomplished, and several related aircraft are to be flown, training is considered to suitably address each related aircraft, since flight characteristics of all related aircraft are the same or equivalent. Training program hours may be reduced as specified in the pertinent CFR, but not in a manner or in areas which invalidate compliance with provisions of the MDR or ODR tables.

5.2.3 Crewmember Emergency Training. IAW pertinent CFRs, appropriate emergency training must be given to each crewmember on the location, function, and operation of emergency equipment that is different in each related aircraft of the B-777 or B-787. Where equipment is common, instruction may be adjusted for those crewmembers qualified and current on other related aircraft, provided records are available, which demonstrate that crewmembers meet the pertinent CFR requirements. For example, where elements of interior configurations are common, training may be simultaneously credited for related aircraft. Conversely, for different emergency equipment, doors, slides, slide/rafts, or other interior configuration elements, even when within the same model (e.g., B-787-8 and B-787-9), training on emergency equipment for each related aircraft is required in accordance with MDRs. Training on the location, type, or operation of this equipment may be accomplished by pictures or electronic media, provided adequate knowledge of its use is demonstrated to an authorized representative of the operator.

Emergency training also consists of instruction in crewmember emergency assignments and procedures including crew coordination and communication, the handling of emergency or other unusual situations, and emergency performance and observation drills that are specific to each related aircraft flown.

IAW CFR Part 121.417 and FAA Order 8900.1, Flight Standards Information Management System, emergency training requirements refer to two types of training: “general” and “aircraft specific” emergency training. General emergency training is instruction on those emergency items that are common to the B-777 and/or B-787 and all aircraft in an operator’s fleet, e.g., instruction on fire extinguishers and fire fighting procedures, if common to all aircraft. Aircraft-specific emergency training, is training on those items that are specific to the B-777 or B-787 aircraft. An example of aircraft-specific emergency training is instruction on the location of emergency equipment.

As part of an approved training program, an operator may use many methods when conducting aircraft specific emergency training including classroom instruction, pictures or electronic media, ground training devices, Computer-Based Training (CBT), and/or static aircraft training.

There is no specified training program hours for Crewmember Emergency Training, however, a chart in FAA Order 8900.1 (Volume 3, Chapter 19, Section 4) provides “national norms” for the approval of general emergency training program hours related to new hires. The complexity of the different related aircraft flown and the complexity of the type of operations conducted should be considered when approving B-777 and B-787 aircraft-specific emergency training.

5.2.4 Automatic Landings. If an operator conducts automatic landings in either the B-777 or B-787 then appropriate training must occur. This training must be conducted either in a B-777 or B-787 simulator or in the actual airplane, and may apply to one or both aircraft.

5.2.5. Areas of Emphasis. B-787 systems including bank angle indications and protection, enhanced underspeed (stall) and overspeed protection, fly-by-wire speed stability characteristics, aircraft response and primary flight displays. The requirement to train certain traditional maneuvers to proficiency, such as steep turns and stalls may be addressed as a training proficiency issue. Therefore, steep turns and approach to stalls will be demonstrated during training and are not typically checked in a B-787 training program.

5.2.6 Electronic Checklists. The electronic checklist (ECL) display system should be utilized when available to reduce crew workload. Use of the paper backup should also be trained. Standard practices and crew coordination should be established for use of ECL. To reduce workload, line items, which are sensed and indicate “completed” by the ECL system would not normally be read aloud.

5.2.7 Overhead flight crew rest (OFCR) and overhead flight attendant rest (OFAR) facilities for all B-787 related aircrafts:

5.2.7.1 Occupancy. Only approved crewmembers, trained in OFCR/OFAR evacuation procedures, may occupy the OFCR. Clear definition of “crewmembers” allowed to occupy the OFCR must be specified in the operational approval to use this facility.

5.2.7.2 Crew Rest Quality. The B787 OFCR has been reviewed by the FAA and has been determined to meet requirements of the pertinent CFR, and FAA AC 121-31, however specific operational approval for an operator to use the OFCR is still required.

5.2.7.3 Approval will be based on the following guidance:

5.2.7.3.1 Rescue and Emergency Evacuation. Operators should have written procedures regarding rescue and evacuation pertaining to occupants of the OFCR compartment, if OFCR is used for Taxi, Takeoff or Landing (TTL). As a minimum the following is needed:

For planned evacuations, OFCR occupants should be relocated to the main deck prior to landing if seats are available and time permits.

- a. If an in-flight emergency occurs where an evacuation is possible, and the situation permits, the crew must inform the appropriate Air Traffic Services Unit that there is an occupied OFCR on board. This information should include the number of occupants and the location of the OFCR on board.
- b. At least one cabin crew member is given responsibility to ensure occupants of the OFCR are evacuated if an evacuation command is given.

5.2.7.3.2 Training – Occupants. As a minimum, prior to occupying the OFCR/OFAR, crewmembers must be familiarized with the conditions for occupancy and the safety provisions and equipment of the OFCR facility, to include the following:

- a. Maximum allowable occupancy for TTL and in flight
- b. Fire extinguishers and smoke hoods (fire fighting procedures)
- c. Emergency oxygen (decompression procedures)
- d. Primary and secondary escape routes (evacuation procedures)
- e. Reminder that Flight Attendants will provide further direction after reviewing the outside conditions
- f. Communication system
- g. Occupant use of seat and ancillary equipment, seat belts and bunk restraints during turbulence and critical phases of flight
- h. Restrictions prohibiting bunk use during takeoff and landing, (as appropriate)

5.2.7.3.3 Procedures and Training - Flight Attendant. OFCR/OFAR familiarization must also be included in flight attendant training to include the above items and an additional responsibility for ensuring the OFCR, if occupied, is evacuated during an airplane evacuation.

Procedures must be developed and included in training for the following:

- a. Closing the OFCR door after takeoff, and opening the door prior to landing
- b. Requirement to minimize rest disruptions
- c. Prevention of unauthorized entry to the OFCR/OFAR compartment

5.3 Differences Training.

5.3.1 General. Unless an initial or transition program is completed for each related aircraft, differences training is necessary for each B-777 and B-787 as provided in MDR and ODR tables. A training program addressing pertinent differences described by individual operator ODRs, including normal, non-normal, and alternate operations, is required for each related aircraft flown.

- a. A Differences Training Program prerequisite is that a trainee has completed initial, upgrade, or transition training in one related aircraft and will receive differences training for the other related aircraft.
- b. When a Differences Training Program involves related aircraft having the same Pilot Type Rating, coverage of differences may be completed either coincident with each phase of an initial, upgrade, or transition training course, or following completion of that training course. The differences training must be consistent with the provisions of the approved applicable MDR/ODR Tables.
- c. When a Differences Training Program involves related aircraft having different Pilot Type Ratings, coverage of a differences course must be completed in accordance with the prerequisites defined in 5.1.1, and applicable MDR/ODR provisions.

5.3.2 Ground Training. Differences ground training is required on the topics applicable to the pertinent related aircraft. Training is shown by applicable ODR tables in the following subjects:

- a. General description of the aircraft
- b. Performance characteristics
- c. Engines
- d. Airplane Systems (e.g. EICAS, hydraulics, electrical, HUD...)
- e. Normal, Non-normal, and Alternate Procedures
- f. Limitations
- g. Other instruction in features unique to the operator's fleet of B-777/B-787 airplanes

5.3.3 Flight Training. Difference flight training is required in the topics and maneuvers applicable to the pertinent related aircraft that is shown by applicable ODR tables. For an Advanced Qualification Program (Part 121 Subpart Y), "flight qualification events" must be consistent with items specified by the applicable ODR tables.

A sample of an acceptable minimum program for differences is shown in Appendix 6.

5.3.4 Fleets with different Engine Types. Mixed flying of B-787 fleets with different engine types (e.g. B-787 fleet with GE or RR engines) may require additional training. Although not explicitly addressed by MDRs, a minimum of A/A/B is designated for such operations, unless otherwise approved by the FSB.

5.4 Recurrent Training

5.4.1 Recurrent Training. Recurrent training must include appropriate training in accordance with the pertinent CFRs, or an approved AQP program, for each related aircraft (e.g., B-777 and/or B-787). When recurrent training addresses more than one related aircraft, the differences

must be covered in accordance with the items and levels specified by MDR and ODR tables for initial differences training, unless otherwise approved by the FSB.

5.4.2 Recurrent Ground Training Time Reductions. If recurrent ground training is reduced below programmed hours required in CFR Part 121.427(c), in accordance with CFR Part 121.405, such reductions must be consistent with MDR and ODR table provisions.

5.4.3 Recurrent Flight Training. Recurrent flight training requires appropriate maneuvers and procedures identified in the pertinent CFR, or an approved AQP program, for either related aircraft group (e.g. B-777 or B-787). Appropriate emphasis should be placed on systems and procedures that may not have been used operationally, and are expected to be used prior to the next recurrent training event (e.g. Electronic checklist, Data Link, RNAV, FANS, RNP, HUD, Electronic Flight Bag, Communications, etc.). As permitted by the pertinent CFR, satisfactory completion of a proficiency check, in accordance with the pertinent CFR, may be substituted for training. When ODR table provisions identify differences in maneuvers or procedures between related aircraft, such differences must be addressed in the operators' recurrent program.

5.4.4 Recurrent Training Level Adjustments. The FSB will consider proposals to establish recurrent differences training at levels other than for the initial differences training on a case by case basis. Requests for changes should be made to the FSB through the POI. If the FSB accepts different levels for recurrent training, and AFS-200 approves those changes, such provisions will be identified in amended MDR footnotes.

5.4.5 For Flight Attendants, B-787 recurrent training consists of instruction as necessary in the B-787 general operational subjects, as addressed in Paragraph 5.6.2, "Flight Attendants: Initial and Transition Ground Training" and in the B-787 aircraft-specific emergency subjects, as addressed in Paragraph 5.2.3.

5.5 Operating Experience:

5.5.1 Operating Experience Pertinent to Each Flight Crewmember. Operating experience must be obtained while serving in a primary crew position.

5.5.2 Separate Operating Experience for Single Fleet Operations. Operating experience for the B-787 may be accomplished in any related B-787 aircraft.

5.5.3 Operating experience for Mixed Fleet Flying Operations. Separate operating experience in accordance with the pertinent CFR applies to the B-787 and other related aircraft (e.g. B-777, B-737, etc).

5.6 Other Training

5.6.1 LOFT Programs. When operators have LOFT programs, POIs should review those programs to assure their suitability for the related aircraft flown. For example the LOFT programs include scenarios flown in either the B-777 or B-787. If simulators used for LOFT have differences from the related aircraft, LOFT credits may be reduced or eliminated if such differences are determined to have a significant adverse effect on the effectiveness of LOFT.

5.6.2 Flight Attendants, Initial and Transition Ground Training. Due to differences in cabin configuration, flight attendants should be separately qualified in B-777 and B-787 aircraft. Such qualification, however, may be conducted concurrently when qualification is for both B-777 and B-787 aircraft. Credit is permitted for common subjects. See Appendix 7.

5.6.3 Aircraft Dispatchers, Initial and Transition. Dispatchers may be simultaneously qualified for B777 and B787 aircraft. Provisions of the pertinent CFR are applicable to each related aircraft. If the aircraft are used in Extended Range (ER) operations, dispatchers must be suitably qualified to address ER issues. Dispatchers must also be suitably trained to address any (all) differences in related aircrafts related to ER performance, procedures, or limitations.

6. FSB SPECIFICATIONS FOR CHECKING

6.1 General.

6.1.1 Checking Items. Knowledge, procedures, and maneuvers specified by the applicable CFR, FAA Order 8900.1, or FAA Practical Test Standards (PTS), pertinent to multi-engine turbojet transport aircraft apply to all B-787 related aircraft, with the exception that approach to stalls and steep turns are not required for the B-787 aircraft. CFR Part 121 or CFR Part 61, checking items are accomplished as specified by the MDR and ODRs to qualify in pertinent B-787 aircraft.

6.1.2 Areas of Emphasis. The following areas of emphasis should be addressed during checks as necessary:

- a. Proficiency with manual and automatic flight must be demonstrated,
- b. Proper outside visual scans without prolonged fixation on FMS operation should be demonstrated, and failure of component(s) of the FMS should be addressed,
- c. Proper selection and use of map displays, raw data, flight director, and AFDS should be demonstrated, particularly during instrument approaches,
- d. Demonstrations of FMS/GPS navigation (departures and approaches) proficiency if these type operations are approved for the operator,
- e. Demonstration on the use of electronic checklists (ECL) during normal and non-normal procedures,
- f. Understanding of speed and attitude stability characteristics of B-787 flight controls in normal operations,
- g. Proper use and knowledge of the Look ahead Terrain Function of the EGPWS (if installed),
- h. Proper use and knowledge of the Predictive wind shear system (if installed),
- i. Proper use of the Heads Up display, and
- j. Proper use of the Electronic flight Bag/Flight Deck Video Security System.

6.1.3 “No-Flap” Landings. Due to redundant flap system features of all B-787 aircraft, demonstration of a “No Flap” approach and landing during and the pertinent CFR check is unnecessary, provided alternate flap systems operations (flaps-only or partial-flap) is evaluated.

6.1.4. Steep turns, approach to stalls, and manually flown non-precision approaches. Steep turns, approach to stalls and manually flown non-precision approaches will be demonstrated during training and are not evaluated in the B-787.

6.1.5 MMEL/MEL Use

Dispatch relief under the provisions of the Operator's MEL should receive appropriate emphasis as part of the normal checking process in order to address those issues related to crew workload and safety. Since an individual operator may elect to take advantage of the full range of relief provided under the MMEL, Certificate Holding District Offices should closely review specific MEL proposals to ensure that training and checking are sufficient to ensure satisfactory crew performance in both the normal and non-normal flight regimes. MEL relief should be granted only where it can be confirmed that safety will not be compromised as a function of crew experience, qualifications and training. Special attention should be given to checking to ensure that adequate training is provided to address dispatch with systems operated in alternate/degraded modes. Training and checking should also emphasize the crewmember's ability to cope with the subsequent airborne failure of the next most critical system failure, e.g., failure of one or more features of the autoflight system.

6.2 Type Ratings.

6.2.1 Oral and Written Tests. Oral examinations for the B-787 will be conducted prior to the Practical Test. If qualified on the B-777, the B-787 oral examination addresses differences between the two aircraft.

6.2.2 Practical Test. Practical tests may follow standard provisions of the pertinent CFR, or approved Line Operational Evaluation (LOE) provisions of AQP. If AQP LOEs apply, suitable LOEs should be available that are pertinent to the intended operations expected (e.g. oceanic scenarios, etc).

6.2.2.1 If qualified on the B-777, the B-787 practical test is a Differences Check as defined in AC 120-53A, with the purpose of addressing those differences between the two aircraft. The Differences Check is a Partial proficiency check which does not fully satisfy the recency requirements of a full proficiency check as defined in CFR Part 61.58. The elements of the Differences Check are designed to evaluate the differences between the 777 and 787, and are listed in Appendix 10. Operators choosing to reset the recency requirements for proficiency checks may administer a full proficiency check in lieu of the partial proficiency check.

6.2.3 Application For and Issuance of Type Ratings. Airmen completing pertinent CFR requirements in a B-787 with FSB requirements described in this report may apply to FAA for the appropriate B-787 type rating endorsement. The B-777 and B-787 are a common pilot type

rating, however requirements described in this report must be complied with before the B-787 type rating endorsement is issued. Upon completion of requirements and submission of an application (FAA Form 8710-1), authorized FAA inspectors or designees, may issue the necessary pilot certificate with type rating.

6.3 Proficiency Checks.

6.3.1 General. Proficiency checks are administered as designated in the pertinent CFR or IAW an approved AQP program, for either the B-777 or B-787 aircraft, except as specified or permitted by MDR and ODR tables. A proficiency check in either a B-777 or a B-787 suffices for the other aircraft if initial and recurrent qualification is conducted IAW MDRs and approved ODR tables for that operator. Such checks should assess knowledge and acceptable levels of skill, considering related aircraft flown and crew position. When checks are conducted for mixed fleet flying between the B-777 and the B-787, one aircraft is typically selected as the base aircraft, and a sufficient number of questions on the other related aircraft are covered to ensure effectiveness of differences preparation. The preflight and equipment examination portion of initial and recurrent proficiency checks should address each aircraft operated by the flight crewmember in mixed fleet flying. Satisfactory completion of a proficiency check may be substituted for recurrent flight training as permitted in the pertinent CFR.

6.3.2 Heads Up Display. Evaluation must include suitable demonstration of HUD use for modes and phases of flight and is equivalent to those for non-HUD operations except when low visibility takeoff operations using the HUD are authorized.

6.3.3 Alternating B-777 and B-787 Proficiency Checks. For mixed-fleet flying between B-777 and B-787 aircraft, Proficiency Checks should alternate for PICs and other flight crewmembers. Academic requirements for mixed fleet flying between the B-777 and the B-787 should include differences between the alternating aircraft.

6.4 Line Checks. Line checks completed for either a B-777 or a B-787 may satisfy requirements for both aircraft. However, for specific operations separate line checks may be appropriate, such as for initial oceanic operations, CFR Part 121.445 "special routes or airports," or other factors which may be unique to either the B-777 or the B-787 related aircraft groups for that operator.

7. FSB SPECIFICATIONS FOR RECENCY OF EXPERIENCE

7.1 Recency of Experience is common between the B-777 and the B-787. Recency of experience required by the pertinent CFRs may be maintained for the B-777 and the B-787 by accomplishing the required takeoffs and landings in either aircraft. Segment currency may be maintained in the B-777 and the B-787 by accomplishing the required segment currency in either aircraft.

8. AIRCRAFT COMPLIANCE CHECKLIST

8.1 Compliance Checklist (see Appendix 3).

Compliance checklists are provided as an aid to FAA Certificate Holding District Offices (CHDOs) to identify those specific rules or policies for which compliance has already been demonstrated to FAA for an aircraft having a particular aircraft type certificate. The checklist also notes rules or policies which remain to be demonstrated to CHDOs by operators. Not all rules or policies are necessarily listed or addressed. When differences exist between the aircraft evaluated with the compliance checklist and aircraft used by an operator, the CHDO evaluates those differences and approves use of that aircraft if that aircraft provides equivalent compliance with CFR Parts or FAA policies. It remains the responsibility of a Certificate Holding District

Office to review compliance with pertinent rules or policies not already satisfactorily addressed in the compliance checklist, prior to CFR Part 121 or CFR Part 91 approval of an operator for use of particular B-787 aircraft

8.2 Discussion of Specific Compliance Checklist Items

8.2.1 B787 Observer Seat. On B787 aircraft with two observer seats installed, one or both seats satisfy the requirements of CFR Part 121.581. Either seat may be used by FAA inspectors at their discretion.

8.2.2 Emergency Evacuation. The B-787 has successfully been demonstrated by simulated emergency evacuations credited under the pertinent CFR for configurations and passenger capacities specified in FAA Order 8900.1 Vol. 3, Chapter 10, Section 7. Accordingly, the pertinent CFR full scale evacuation is not necessary for aircraft configurations consistent with previously approved tests. Passenger capacity less than or equal to the previously demonstrated capacity may be authorized. A mini-evacuation is required unless particular certificate holder has previously operated a B-787 with the same or similar interior and exit configuration.

8.2.3 Proving Runs. Initial CFR Part 121 proving runs in accordance with provisions of the pertinent CFR for the B-787 have not been completed. Demonstration under the pertinent CFR is required.

8.2.3.1 For B-787 aircraft new to an operator. Proving runs in accordance with the pertinent CFR are appropriate in accordance with FAA Order 8900.1, Vol. 3, Chapter 9 for the B-787. Credit in the form of proving run time reductions may be given for previous B-777 or B-787 experience with that operator, when such previous experience is directly applicable. For example, when B-787s are introduced by an operator already having B-777 domestic operations, significant credit for the B-777 experience may be permitted. Conversely, if characteristics of the new operation are different, as with introduction of B-787s for oceanic/ER operations by an air carrier having only domestic B-777 experience, less route proving credit may be appropriate. Proving run requirements and reductions are as designated by FAA Order 8900.1 and the Certificate Holding District Office, or as otherwise specified by the FSB or AFS-200.

9. FSB SPECIFICATIONS FOR DEVICES AND SIMULATORS

9.1 Standard Devices and Simulators. Device and Simulator characteristics pertinent to B-777 and B-787 aircraft are as designated in AC 120-40 and 120-45 (as amended), except as described below.

9.2 Special Requirements. Special device or simulator characteristics are described for training, checking, and re-establishing currency as follows:

9.2.1 When different EICAS engine display formats are used, due to operation with different engine types (GE and RR), crews should be exposed to the alternate EICAS presentations by

some means (e.g. photos, drawings CBT, etc.), which would assure proper display interpretation and use by the flight deck crew (See paragraph 5.3.4).

9.3 Devices Used for Recurrent Proficiency Checks. Recurrent checking may be accomplished in either B-777 or B-787 simulators. However, recurrent proficiency checks are to be accomplished in relevant B-777 or B-787 simulators or combinations of simulators as suited to the particular operator's fleet, fleet mix, types of operations, and approved training program. For example, if crews predominantly or exclusively operate extended range oceanic flights in a B-787, it would be expected that checks (and LOFT scenarios if used), would address the thrust to weight characteristics, non-normal planning and decision making, and include a discussion of systems configurations typical of those operations. Even though the B-777 and B-787 aircraft have a common pilot type rating, in this situation exclusive or predominant use of non-ER configured simulators, using typical weights and scenarios for domestic operations would only be considered an acceptable recurrent checking program when some means is provided to determine proficiency in the unique areas. Checking and simulator use proposals where simulators do not closely match the related aircraft to be flown are evaluated on a case by case basis by the POI, in consultation with the FSB. A POI, FAA inspectors, designated examiners, or check airmen may require demonstration of competency in a simulator or the aircraft representing the related aircraft to be flown, when doubt exists regarding training program adequacy, or an airman's preparation or competency.

10. APPLICATION OF FSB REPORT

10.1 Operators of B-787 Aircraft Without Differences. Relevant parts of this report (e.g. type rating designation, checking maneuvers, etc.) are effective when the report is approved by the FAA. Sections or paragraphs of this report related to differences (e.g. MDRs, ODRs, etc.) may be voluntarily applied to facilitate transition programs, when approved by the FAA.

10.2 Operators of B-777s and B-787s in Mixed Fleets. For Mixed- Fleet-Flying of B-777s and B-787s, unless otherwise approved, operations must be in accordance with relevant provisions of this report, including approved MDR and ODR tables. This includes items in 10.1 above. It is recognized that a time period may be required for operator specific ODR table preparation, device approvals, bulletin issuance, etc. to establish compliance. Accordingly, when ODR tables describing compliance methods for an operator are approved by FAA, interim programs or interim extension of present programs may be made until a mutually agreed compliance date.

11. ALTERNATE MEANS OF COMPLIANCE

11.1 Approval Level and Approval Criteria. Alternate means of compliance to differences requirements of pertinent CFRs for B-787 aircraft, other than as specified in provisions of this report or as approved under an AQP, must be approved by the Flight Standards, Air Transportation Division (AFS-200). Any differences petitioned under AQP must be coordinated

with AFS-230, the POI, and the FSB. If alternate means of compliance is sought, operators will be required to establish that the proposed alternate means of compliance provides an equivalent level of safety to the provisions of AC 120-53A, and this FSB report. Analysis, demonstrations, proof of concept testing, differences documentation, or other evidence may be required.

11.2 Equivalent Safety. In the event alternate means of compliance is sought, training program hour reductions, simulator approvals, and device approvals, may be significantly limited and reporting requirements may be increased to assure equivalent safety. AFS-200 will generally not consider relief by alternate means of compliance unless sufficient lead time has been planned by an operator to allow for any necessary testing and evaluation.

11.3 Interim Programs. In the event unforeseen circumstances make it impossible for an operator to comply with MDR provisions, the operator may seek interim program approval rather than a permanent, alternate compliance method. Financial arrangements, scheduling adjustments, and similar justifications are not considered to be "unforeseen circumstances" for the purposes of this provision.

12 APPENDICES

APPENDIX 1

MASTER DIFFERENCES REQUIREMENTS

MASTER DIFFERENCES REQUIREMENTS (MDR) TABLE

Airplane Type Rating: B-787-8					
			FROM AIRPLANE		
		B-777-200/-200ER/- 200LR/-200F	B-777-300	B-777-300ER	B-787-8
	B-777- 200/200ER/- 200LR/-200F		A/A/A (1) SATCOM B/A/A (2) FANS/DATALINK/RNP B/A/A	A/A/A (1) SATCOM B/A/A (2) FANS/DATALINK/RNP B/A/A	(3) D/D/C
TO AIRPLANE	B-777-300	B/A/A (1) SATCOM B/A/A (2) FANS/DATALINK/RNP B/A/A		A/A/A (1) SATCOM B/A/A (2) FANS/DATALINK/RNP B/A/A	(3) D/D/C
	B-777-300ER	B/A/A (1) SATCOM B/A/A (2) FANS/DATALINK/RNP B/A/A	A/A/A (1) SATCOM B/A/A (2) FANS/DATALINK/RNP B/A/A		(3) D/D/C
	B-787-8	D/D/C	D/D/C	D/D/C	

Notes: (1) Addition of SATCOM may require additional training.
(2) Addition of FANS/DATA LINK may require additional training.
(3) 3D level device required for "TAC-off" training requirement.

APPENDIX 2

ACCEPTABLE ODR TABLES AND RELATED NOTES

The following ODR tables are provided:

- * B777-300ER to B-787-8
- * B-787-8 to B-777-300ER

DESIGN OPERATOR DIFFERENCES REQUIREMENTS TABLE										
DIFFERENCE AIRCRAFT: 787-8				COMPLIANCE METHOD						
BASE AIRCRAFT: 777-300ER				TRAINING					CHKG/CURR	
General	Differences	Flt char	Proc chg	A	B	C	D	E	FLT CHK	REC EXP
GENERAL	LONG RANGE	No	No	HND OUT						
DIMENSIONS	787-8 Length = 186 feet 1 inches (56.74 meters) - Height = 55 feet 6 inches (16.92 meters) - Wing Span = 197 feet 4 inches (60.12 meters) - Nose gear to main gear = 74 feet 9 inches (22.80 meters)	No	No	HND OUT						
FLIGHT DECK	FLIGHT DECK ARRANGEMENT - PFD/ND format, large displays PILOT'S FIELD OF VIEW: - Pilot eye height (above ground) - minor differences FLIGHT DECK OVERHEAD HATCH	No	No	HND OUT						
CABIN	787 max passenger capacity is variable by customer choice	No	No	HND OUT						
CARGO	BULK CARGO - Left side	No	No	HND OUT						
ENGINES	Rolls Royce Trent 1000 General Electric GEN X	No	Yes	HND OUT						
LIMITATIONS	WEIGHT/CG DIFFERENCE - Size/type/system limitations VMO/MMO - Per placard Max slats speed, stalling speed, VMCA, VMCG	No	Yes	HND OUT						

SYSTEM OPERATOR DIFFERENCES REQUIREMENTS TABLE										
DIFFERENCE AIRCRAFT: 787-8 BASE AIRCRAFT: 777-300ER				COMPLIANCE METHOD						
				TRAINING					CHKG/CURR	
System	Differences	Flt char	Proc chg	A	B	C	D	E	FLT CHK	REC EXP
21 – AIR CONDITIONING	CONTROLS AND INDICATORS - Panel layout PACKS: - Electric compressors ALTERNATE VENTILATION: - New Function EQUIPMENT COOLING: - Forward and Aft System - Smoke EICAS message CARGO HEAT SYSTEM: - Switch types - Automated functions	No	Yes		CBT					
21 - PRESSURIZATION	SYSTEM,CONTROLS & INDICATORS: - Same as 777	No	No							
22- AUTOFLIGHT	MODE CONTROL PANEL - MCP 2 line windows (Speed, Heading, and Altitude) <ul style="list-style-type: none"> o Future uplink feature - Integrated Approach Navigation - Bank limit selector AFDS FLIGHT MODE ANNUCIATIONS: - Same except addition of Integrated Approach Navigation and GLS AUTOMATIC FLIGHT APPROACH AND LANDING: - Same except addition of Integrated Approach Navigation and GLS	No	Yes		CBT					
23- COMMUNICATIONS	CONTROLS AND INDICATORS: - New Tuning Control Panel (TCP) VHF, HF, PA, CABIN/FLIGHT AND SERVICE INTERPHONE - Control resides in Tuning Control Panel (TCP) SATCOM - Control resides in Tuning Control Panel (TCP) AUDIO CONTROL PANEL - Same except PA MIC switch function	No	Yes		CBT					

SYSTEM OPERATOR DIFFERENCES REQUIREMENTS TABLE										
DIFFERENCE AIRCRAFT: 787-8 BASE AIRCRAFT: 777-300ER				COMPLIANCE METHOD						
				TRAINING					CHKG/CURR	
System	Differences	Flt char	Proc chg	A	B	C	D	E	FLT CHK	REC EXP
24- ELECTRICAL POWER	ELECTRICAL CONTROL PANEL - System architecture – functionally equivalent - No bus tie switches - Additional Engine Generator and Drive Disconnect switches - Additional APU Generator switch - Additional external power switches AC ELECTRICAL - Four Engine Starter Generators - Two APU Starter Generators - No backup generators AC ELECTRICAL POWER DISTRIBUTION - No flight instrument transfer busses DC ELECTRICAL - System architecture – functionally equivalent BATTERY/STANDBY POWER SYSTEM - System architecture – functionally equivalent AUTOLAND - System architecture – functionally equivalent	No	Yes		CBT					
25- EQUIPMENT/FURNISHING	FLIGHT DECK GENERAL ARRANGEMENT: - Non-opening number two windows - Flight deck door controls to aisle stand and alerting on EICAS - Overhead hatch - C/Bs panels location – Main display system	No	Yes	HND OUT						
25- EMERGENCY EVAC	EMERGENCY EVACUATION PANEL - Same functions – Integrated aisle stand panel	No	No	HND OUT						
26- FIRE PROTECTION	APU FIRE CONTROLS AND INDICATORS: - Same panel/location - More automation CARGO FIRE CONTROLS AND INDICATORS: - Same panel/location - Additional automation for composite structure protection	No	Yes	HND OUT						
27 – FLIGHT CONTROLS	PRIMARY FLIGHT CONTROL SURFACES - Roll: different mix same roll effect	No	Yes	HND OUT						

SYSTEM OPERATOR DIFFERENCES REQUIREMENTS TABLE										
DIFFERENCE AIRCRAFT: 787-8 BASE AIRCRAFT: 777-300ER				COMPLIANCE METHOD						
				TRAINING					CHKG/CURR	
System	Differences	Flt char	Proc chg	A	B	C	D	E	FLT CHK	REC EXP
	FLIGHT CONTROL SYSTEMS - Roll - Roll rate command – same handling - Yaw - Yaw rate command – same handling FLIGHT ENVELOPE PROTECTION: - Enhanced Stall Protection (ESP) STABILIZER TRIM: - Electrical back-up trim control - Electrically actuated TRIM INDICATORS: - Indicator location on primary EICAS display - Aileron trim eliminated THRUST ASYMMETRY COMPENSATION: - No TAC Switch – available full time - Embedded in flight control law - Yaw rate based FLAP LOAD RELIEF - Functionally equivalent but different threshold sensing ALTERNATE FLAP OPERATION - Alternate mode – minor differences CRUISE FLAPS SYSTEM - New performance enhancement system with EICAS message									
28- FUEL	FUEL TANKS: - Fuel Tank Capacities, o Left Main 37,500 lbs o Right Main 37,500 lbs o Center 150,800 lbs o Total Fuel 225,800 lbs (33,700 US GAL) - Fuel tank inerting system CONTROLS AND INDICATORS: - Panel layout – minor differences - One Crossfeed - Fuel balance switch FUEL PUMPS: - Center tank pump operation – minor differences	No	Yes		CBT					

SYSTEM OPERATOR DIFFERENCES REQUIREMENTS TABLE										
DIFFERENCE AIRCRAFT: 787-8 BASE AIRCRAFT: 777-300ER				COMPLIANCE METHOD						
				TRAINING					CHKG/CURR	
System	Differences	Flt char	Proc chg	A	B	C	D	E	FLT CHK	REC EXP
29 – HYDRAULIC POWER	CONTROLS AND INDICATORS: - Panel layout HYDRAULIC SYSTEMS: - 5000 psi CENTER HYDRAULIC SYSTEM - No Air-driven demand pumps - Electric pumps	No	Yes	HND OUT						
30- ICE AND RAIN	WIPER PANEL - Same panel location - Washer switches WING ANTI-ICE - Electric heater blankets	No	Yes	HND OUT						
31- FLIGHT INSTRUMENT DISPLAYS	EFIS CONTROL PANEL PFD/ND CONTROLS - Map switches moved to soft controls - minor - ND mode selector – rotary control display selection - ND range selector - .5 – 1280 NM DISPLAY SELECT PANEL - Panel layout - four DSPs - Synoptic soft switches – software menu - EICAS display position switch PFD/MFD SELECTOR - PFD/MFD functionally similar to INBD DSPL selector - Different location INSTRUMENT SOURCE SELECTORS - Air data/attitude different switch type - NAV switch eliminated - DSPL CTRL switch eliminated CURSOR CONTROL - Minor differences - additional rotary control DISPLAY FORMATS: - Enhanced large format capabilities - Clock integrated in display format - Airport map - Vertical Situation Display (VSD)	No	Yes			FTD				

SYSTEM OPERATOR DIFFERENCES REQUIREMENTS TABLE										
DIFFERENCE AIRCRAFT: 787-8 BASE AIRCRAFT: 777-300ER				COMPLIANCE METHOD						
				TRAINING					CHKG/CURR	
System	Differences	Flt char	Proc chg	A	B	C	D	E	FLT CHK	REC EXP
	STANDBY FLIGHT INSTRUMENTS - Same instrument minor relocation									
31- FLIGHT INSTRUMENT DISPLAYS	HEAD UP DISPLAY (HUD): - Dual installation	No	Yes				FFS			
32- LANDING GEAR	MAIN GEAR: - Twin tandem bogie assembly (4 wheels) - No aft axle steering NOSE WHEEL STEERING TILLER: - Steer by wire - Functionally equivalent - Nose gear cut-out switch BRAKES: - System operation – functionally equivalent - Electric brakes - Battery indication vs. accumulator	No	Yes	HND OUT						
34 – NAVIGATION	CONTROL DISPLAY UNIT - Display based CDU - Cursor Controls - Message/Help window FLIGHT MANAGEMENT SYSTEM - Added design features INERTIAL REFERENCE SYSTEM - Air data system separate TRANSPONDER PANEL - Control integrated into the Tuning Control Panel (TCP) WEATHER RADAR CONTROL PANEL - Control integrated into the Tuning Control Panel (TCP) Alternate NAV - Function in Tuning Control Panel (TCP)	No	Yes		CBT					
36- PNEUMATIC	BLEED AIR CONTROL PANEL - Eliminated									
49- APU	SYSTEM OPERATION - No Bleed Air - No Air Turbine Starter - Electric starter Starter Duty cycle Limitation	No	No	HND OUT						

SYSTEM OPERATOR DIFFERENCES REQUIREMENTS TABLE										
DIFFERENCE AIRCRAFT: 787-8 BASE AIRCRAFT: 777-300ER				COMPLIANCE METHOD						
				TRAINING					CHKG/CURR	
System	Differences	Flt char	Proc chg	A	B	C	D	E	FLT CHK	REC EXP
52- DOORS	DOORS: - Eight entry doors - same	No	No	HND OUT						
70- POWER PLANT	ENGINES: - GE & RR - engine type design differences	No	Yes	HND OUT						
73- ENGINE FUEL AND CONTROL	EEC SYSTEM - Functionally equivalent	No	No	HND OUT						
77- ENGINE INDICATING	INDICATORS - RR Engine - TPR replaces EPR	No	Yes		CBT					
78- EXHAUST	THRUST REVERSER SYSTEM - Same	No	No							
80 STARTING	CONTROLS AND INDICATORS - Panel layout - System operation - Electric starter - Starter Duty cycle Limitation	No	Yes		CBT					

MANEUVER OPERATOR DIFFERENCES REQUIREMENTS TABLE										
DIFFERENCE AIRCRAFT: 787-8 BASE AIRCRAFT: 777-300ER				COMPLIANCE METHOD						
				TRAINING					CHKG/CURR	
Maneuver	Differences	Flt char	Proc chg	A	B	C	D	E	FLT CHK	REC EXP
Exterior Preflight	Minor differences	No	No							
Preflight Procedures	Minor Differences due to systems	No	Yes	HND OUT						
Before Start Procedures	Minor differences	No	Yes		CBT					
Taxi	Minor differences (Airport Map)	No	Yes		CBT					
HUD operations	Minor Differences all phases of flight	No	Yes				FFS			
Engine failure/V1	Minor differences (TAC embedded in control law)	No	No							
ILS/GLS Normal	No differences (GLS added)	No	No							
Go-Around (All Eng)	Minor differences (LNAV auto engage)	No	Yes	HND OUT						
ILS Eng Inop	Minor differences (TAC embedded in control law)	No	No							
Go-Around (One Eng)	Minor differences (TAC embedded in control law)	No	No							
Manual Landing (One Eng)	Minor differences (TAC embedded in control law)	No	No							
Non-ILS app	Minor differences (Integrated Approach Navigation)	No	Yes			FTD				

DESIGN OPERATOR DIFFERENCES REQUIREMENTS TABLE

DIFFERENCE AIRCRAFT: 777-300ER BASE AIRCRAFT: 787-8				COMPLIANCE METHOD						
				TRAINING					CHKG/CURR	
General	Differences	Flt char	Proc chg	A	B	C	D	E	FLT CHK	REC EXP
GENERAL	LONG RANGE	No	No	HND OUT						
DIMENSIONS	777-300ER - Length = 242 feet 4 inches (73.9 meters) - Height = 60 feet 10 inches (18.54 meters) - Wing Span = 212 feet 7 inches (64.8 meters) - Nose gear to main gear = 102 feet 5 inches (31.2 meters)	No	No	HND OUT						
FLIGHT DECK	FLIGHT DECK ARRANGEMENT - PFD/ND format, smaller displays PILOT'S FIELD OF VIEW: - Pilot eye height (above ground) - minor differences Flight deck windows	No	No	HND OUT						
CABIN	777 max passenger capacity is variable by customer choice	No	No	HND OUT						
CARGO	BULK CARGO - Right side	No	No	HND OUT						
ENGINES	General Electric Model GE90-115B	No	Yes	HND OUT						
LIMITATIONS	WEIGHT/CG DIFFERENCE - Size/type/system limitations VMO/MMO - Per placard Max slats speed, stalling speed, VMCA, VMCG	No	Yes	HND OUT						

SYSTEM OPERATOR DIFFERENCES REQUIREMENTS TABLE

DIFFERENCE AIRCRAFT: 777-300ER BASE AIRCRAFT: 787-8				COMPLIANCE METHOD						
				TRAINING					CHKG/CURR	
System	Differences	Flt char	Proc chg	A	B	C	D	E	FLT CHK	REC EXP
21 – AIR CONDITIONING	CONTROLS AND INDICATORS - Panel layout PACKS: - Engine Bleed Air ALTERNATE VENTILATION: - N/A EQUIPMENT COOLING: - Forward System Only CARGO HEAT SYSTEM: - Switch types - Automated functions	No	Yes		CBT					
21 - PRESSURIZATION	SYSTEM,CONTROLS & INDICATORS: - Same as 787	No	No							
22- AUTOFLIGHT	MODE CONTROL PANEL - MCP single windows (speed, heading, and altitude) - Bank limit selector AFDS FLIGHT MODE ANNUCIATIONS: - Same except no Integrated Approach Navigation or GLS AUTOMATIC FLIGHT APPROACH AND LANDING: - Same except no Integrated Approach Navigation or GLS	No	Yes		CBT					
23- COMMUNICATIONS	CONTROLS AND INDICATORS: - Radio Tuning Panel VHF, HF, SATCOM, PA, CABIN/FLIGHT AND SERVICE INTERPHONE - Controlled by audio control panel - Tuning on radio control panel (VHF and HF) AUDIO CONTROL PANEL - Same except PA MIC switch function	No	Yes		CBT					

SYSTEM OPERATOR DIFFERENCES REQUIREMENTS TABLE

DIFFERENCE AIRCRAFT: 777-300ER BASE AIRCRAFT: 787-8				COMPLIANCE METHOD						
				TRAINING					CHKG/CURR	
System	Differences	Flt char	Proc chg	A	B	C	D	E	FLT CHK	REC EXP
24- ELECTRICAL POWER	ELECTRICAL CONTROL PANEL - System architecture – functionally equivalent - Bus tie switches - One Engine Generator and Drive Disconnect switch per engine - One APU Generator switch - Two external power switches AC ELECTRICAL - Two Engine Starter Generators - One APU Starter Generators - Two backup generators AC ELECTRICAL POWER DISTRIBUTION - Two flight instrument transfer busses DC ELECTRICAL - System architecture – functionally equivalent BATTERY/STANDBY POWER SYSTEM - System architecture – functionally equivalent AUTOLAND - System architecture – functionally equivalent	No	Yes		CBT					
25- EQUIPMENT/ FURNISHING	FLIGHT DECK GENERAL ARRANGEMENT: - Two opening number two windows - Flight deck access system switch to flight deck side door post - C/Bs panels location – overhead panel	No	Yes	HND OUT						
25- EMERGENCY EVAC	EMERGENCY EVACUATION PANEL - Same functions – Integrated aisle stand panel	No	No	HND OUT						
26- FIRE PROTECTION	APU FIRE CONTROLS AND INDICATORS: - Same panel/location - Less automation CARGO FIRE CONTROLS AND INDICATORS: - Same panel/location	No	Yes	HND OUT						
27 – FLIGHT CONTROLS	PRIMARY FLIGHT CONTROL SURFACES - Roll: different mix same roll effect	No	Yes	HND OUT						

SYSTEM OPERATOR DIFFERENCES REQUIREMENTS TABLE

DIFFERENCE AIRCRAFT: 777-300ER BASE AIRCRAFT: 787-8				COMPLIANCE METHOD						
				TRAINING					CHKG/CURR	
System	Differences	Flt char	Proc chg	A	B	C	D	E	FLT CHK	REC EXP
	FLIGHT CONTROL SYSTEMS - Roll - Roll rate command – same handling - Yaw - Yaw rate command – same handling FLIGHT ENVELOPE PROTECTION: - Functionally equivalent STABILIZER TRIM: - Alternate pitch trim levers TRIM INDICATORS: - Pitch trim on Control Stand - Aileron trim on control wheel/column - Rudder trim on aft aisle stand THRUST ASYMMETRY COMPENSATION: - TAC Switch on overhead panel - Engine thrust based FLAP LOAD RELIEF - Functionally equivalent but different threshold sensing ALTERNATE FLAP OPERATION - Alternate mode – minor differences CRUISE FLAPS SYSTEM - None									
28- FUEL	FUEL TANKS: - Fuel Tank Capacities, <ul style="list-style-type: none"> o Left Main 69,000 lbs ■ (31,300 kgs) o Left Main 69,000 lbs ■ (31,300 kgs) o Center 182,800 lbs ■ (82,900 kgs) o Total Fuel 320,800 lbs ■ (145,500 kgs) o (470,890 US GAL) - Nitrogen generating system (NGS)	No	Yes		CBT					

SYSTEM OPERATOR DIFFERENCES REQUIREMENTS TABLE

DIFFERENCE AIRCRAFT: 777-300ER BASE AIRCRAFT: 787-8				COMPLIANCE METHOD						
				TRAINING					CHKG/CURR	
System	Differences	Flt char	Proc chg	A	B	C	D	E	FLT CHK	REC EXP
	CONTROLS AND INDICATORS: - Panel layout – minor differences - Two Crossfeed - No fuel balance switch FUEL PUMPS: - Center tank pump operation – minor differences									
29 – HYDRAULIC POWER	CONTROLS AND INDICATORS: - Panel layout HYDRAULIC SYSTEMS: - 3000 psi CENTER HYDRAULIC SYSTEM - Two air-driven demand pumps - Two electric pumps	No	Yes	HND OUT						
30- ICE AND RAIN	WIPER PANEL - Same panel location - Washer switches WING ANTI-ICE - Bleed air heats three midwing leading edge slats on each wing	No	Yes	HND OUT						
31- FLIGHT INSTRUMENT DISPLAYS	EFIS CONTROL PANEL PFD/ND CONTROLS - Map switches on EFIS panel - ND mode selector – EFIS control panel - ND range selector – 10 - 640 NM DISPLAY SELECT PANEL (DSP) - Panel layout - One DSP INBOARD DISPLAY CONTROLS - functionally similar to PFD/MFD selector - Different location INSTRUMENT SOURCE SELECTORS - Air data/attitude different switch type - NAV switch - DSPL CTRL switch	No	Yes			FTD				

SYSTEM OPERATOR DIFFERENCES REQUIREMENTS TABLE

DIFFERENCE AIRCRAFT: 777-300ER BASE AIRCRAFT: 787-8				COMPLIANCE METHOD						
				TRAINING					CHKG/CURR	
System	Differences	Flt char	Proc chg	A	B	C	D	E	FLT CHK	REC EXP
	CURSOR CONTROL - Minor differences - no rotary control DISPLAY FORMATS: - Smaller format capabilities - Clock on left and right forward panels - Airport map on EFB - No Vertical Situation Display (VSD) STANDBY FLIGHT INSTRUMENTS - Same instrument minor relocation									
31- FLIGHT INSTRUMENT DISPLAYS	HEAD UP DISPLAY (HUD): - None									
32- LANDING GEAR	MAIN GEAR: - Each gear has six wheels in tandem pairs - Has aft axle steering NOSE WHEEL STEERING TILLER: - Hydraulic powered - Functionally equivalent BRAKES: - System operation – functionally equivalent - Hydraulic brakes - Brake accumulator pressure indicator	No	Yes	HND OUT						
34 – NAVIGATION	CONTROL DISPLAY UNIT - Conventional CDU FLIGHT MANAGEMENT SYSTEM - Functionally equivalent AIR DATA INERTIAL REFERENCE SYSTEM (ADIRU) - One ADIRU, one SAARU, eight air data modules TRANSPONDER PANEL - On aft aisle stand WEATHER RADAR CONTROL PANEL - On aft aisle stand Alternate NAV - CDUs can be used if both FMCs fail	No	Yes		CBT					

SYSTEM OPERATOR DIFFERENCES REQUIREMENTS TABLE

DIFFERENCE AIRCRAFT: 777-300ER BASE AIRCRAFT: 787-8				COMPLIANCE METHOD						
				TRAINING					CHKG/CURR	
System	Differences	Flt char	Proc chg	A	B	C	D	E	FLT CHK	REC EXP
36- PNEUMATIC	BLEED AIR CONTROL PANEL - Overhead panel									
49- APU	SYSTEM OPERATION - Bleed Air and electric power - Air Turbine Starter	No	No	HND OUT						
52- DOORS	DOORS: - Eight entry doors - same	No	No	HND OUT						
70- POWER PLANT	ENGINES: - GE90-115B - engine type design differences	No	Yes	HND OUT						
73- ENGINE FUEL AND CONTROL	EEC SYSTEM - Functionally equivalent	No	No	HND OUT						
77- ENGINE INDICATING	INDICATORS - GE Engines - N1 replaces TPR	No	Yes		CBT					
78- EXHAUST	THRUST REVERSER SYSTEM - Same	No	No							
80 STARTING	CONTROLS AND INDICATORS - Panel layout - System operation - Pneumatic starter - Starter Duty cycle limitation monitored automatically	No	Yes		CBT					

MANEUVER OPERATOR DIFFERENCES REQUIREMENTS TABLE

DIFFERENCE AIRCRAFT: 777-300ER BASE AIRCRAFT: 787-8				COMPLIANCE METHOD						
				TRAINING					CHKG/CURR	
Maneuver	Differences	Flt char	Proc chg	A	B	C	D	E	FLT CHK	REC EXP
Exterior Preflight	Minor differences	No	No	HND OUT						
Preflight Procedures	Minor Differences due to systems	No	Yes	HND OUT						
Before Start Procedures	Minor differences	No	Yes		CBT					
Taxi	Minor differences (Airport Map on EFB)	No	Yes		CBT					
HUD operations	None									
Engine failure/V1	Minor differences (TAC off)	No	No				FFS			
ILS/GLS Normal	No differences (no GLS)	No	No							
Go-Around (All Eng)	Minor differences	No	Yes	HND OUT						
ILS Eng Inop	Minor differences (TAC off)	No	No				FFS			
Go-Around (One Eng)	Minor differences (TAC off)	No	No				FFS			
Manual Landing (One Eng)	Minor differences (TAC off)	No	No				FFS			
Non-ILS app	Minor differences (no Integrated Approach Navigation)	No	Yes	HND OUT						

APPENDIX 3

AIRCRAFT COMPLIANCE CHECKLIST

This checklist applies to the B-787. Items that are identified as “CHDO” need to be evaluated by Principle Inspectors at the Certificate Holding district Office prior to the B-787 aircraft being used in CFR 121 or CFR Part 91 flight operations. Items marked “complies” have either been found to directly comply with the applicable rule, or the necessary data or procedures are available to permit assessment for compliance of a B-787 for a particular operation (e.g. as for takeoff obstacle clearance assessment pertinent to CFR 121.189). Items marked NA are not applicable to the B-787 aircraft.

PART 91

Subpart A – General

91.9 Civil Aircraft flight manual, marking, and placard requirements

- (a) - (b) The 787 supports these requirements by documenting the airplane limitations in the Airplane Flight Manual as required per 25.1581 and displaying the markings and placards as required per 25.1541, 25.1557, 25.1561, 25.1543, 25.1555.
- (c) The 787 design meets the marking requirements of part 45.
- (d) This requirement is for rotorcraft and does not apply to the 787.

91.21 Portable Electronic Devices

- (a)-(c) These requirements are operational in nature and as such compliance is not directly dependent on the 787 design. Compliance is the responsibility of the aircraft operator.

Subpart B – Flight Rules

91.117 Aircraft Speed

- (a)-(c) These requirements are operational in nature and as such compliance is not directly dependent on the 787 design. Compliance is the responsibility of the aircraft operator.
- (d) Airspeed limitations are listed in the Airplane Flight Manual (AFM).

91.175 Takeoff and landing under IFR

- (a)- (k) These requirements are operational in nature and as such compliance is not directly dependent on the 787 design. Compliance is the responsibility of the aircraft operator.
- (l)-(m) do not apply since the 787 design does not include an enhanced flight vision system (EFVS).

91.180 Reduced Vertical Separation Minimum Airspace

The 787 is designed to be able to obtain Aircraft Approval according to the RVSM standards specified in Section II, Appendix G of Part 91.

91.191 Category II and Category III Manual

(a) – (c) The 787 is designed to operate in Category II and III operations, and relevant procedures are reflected in the manual. However, this paragraph does not apply to operations conducted under parts 121 or 135, as stated in 91.191(c).

Subpart C – Equipment, Instrument and Certificate Requirements

91.203 Civil Aircraft: Certifications Required

(a) - (b) The 787 will be delivered with a current airworthiness certificate appropriately displayed. The holder for the airworthiness certificate, registration certificate, and radio license is installed on the forward face of the flight deck's aft bulkhead next to the door.

(c) The 787 design does not include provisions for fuel tanks in the passenger compartment or the baggage compartment.

(d) The 787 propulsion system design complies with the relevant requirements of part 34.

91.205 Powered Civil Aircraft with Standard Category U.S. Airworthiness Certificates; Instrument and Emergency Requirements

(a) 787 instruments and equipment support this operational requirement.

(b)(1) – (b)(5) The 787 primary flight displays and engine indications meet these requirements.

(b)(6) This requirement does not apply to turbine powered aircraft.

(b)(7) The 787 engine indications meet these requirements.

(b)(8) This requirement does not apply to turbine powered aircraft.

(b)(9) – (b)(10) The 787 fuel quantity indicator and engine indications meet these requirements.

(b)(11) This requirement applies to small civil aircraft and as such does not apply to the 787.

(b)(12) Ditching equipment in compliance with 25.1415 is provided.

(b)(13) Safety belts compliant with 25.785 are provided.

(b)(14) This requirement applies to small civil aircraft and as such does not apply to the 787.

(b)(15) An emergency locator transmitter (ELT) compliant with 91.207 is provided (25.1415 for overwater-equipped airplanes).

(b)(16) This requirement does not apply to the 787 since it has more than 9 passenger seats.

(b)(17) This requirement applies to rotorcraft and as such does not apply to the 787.

(c)(1) – (c)(6) The 787 design meets these requirements. Requirements for instruments and equipment in paragraph (b) are addressed above.

(d)(1) Requirements for instruments and equipment in paragraph (b) and (c) are addressed above.

(d)(2) 787 radio communication system and navigational equipment support this requirement.

(d)(3) The exception described in paragraph (3)(i) applies, since the 787 has a third attitude instrument which meets those requirements.

(d)(4) – (d)(9) – The 787’s instrumentation meets these requirements.

(e) The 787 instrumentation includes distance measuring equipment (DME).

(f) – (h) The 787 is designed to operate in Category II and III operations, and will comply with requirements in Part 91 and Appendix A. This paragraph does not apply to operations conducted under part 121/135, as stated in 91.205(h).

91.207 Emergency Locator Transmitters

(a) - (f) The 787 is delivered with an ELT that meets these requirements. For overwater equipped 787, an ELT compliant with 25.1415 is installed.

91.209 Aircraft Lights

(a) – (b) All requirements of this paragraph are met by the design of the 787 with the exception of the lighting requirements for an anchored airplane (subparagraph 3), which do not apply to the 787 airplane.

91.211 Supplemental Oxygen

(a) The 787 is pressurized, and is equipped with supplemental oxygen to meet these requirements in the event of a loss of cabin pressurization.

(b) 787 Crew and passenger oxygen systems compliant with 25.1441, 25.1443, and 25.1447 support the operation of the airplane as defined by this requirement.

91.213 Inoperative Instruments and Equipment

(a) - (b) The 787 supports these requirements with a Master Minimum Equipment List (developed as described in Boeing Document M-7661-05-051, Response to AEG O-4) and Dispatch Deviation Guide.

(c) - (e) These requirements are operational in nature and as such compliance is not directly dependent on the 787 design.

91.215 ATC Transponder and Altitude Reporting Equipment and Use

(a) The transponder equipment included in the 787 design meets the requirements of this paragraph.

(b) – (c) The 787 design includes the equipment necessary to support these requirements.

(d) This requirement is operational in nature and as such compliance is not directly dependent on the 787 design.

91.217 Data Correspondence between Automatically Reported Pressure Altitude Data and the Pilots Altitude Reference

(a) – (c) The 787 design includes the equipment necessary to support this requirement.

91.219 Altitude Alerting System or Device; Turbojet Powered Civil Airplanes

(a) – (b) The 787’s altitude alerting system design supports this requirement.

(c) – (d) These requirements are operational in nature and as such compliance is not directly dependent on the 787 design.

91.221 Traffic Alert and Collision Avoidance System Equipment and Use

- (a) The 787 design meets this requirement.
- (b) The 787 design includes controls and displays necessary to support this requirement.

91.223 Terrain Awareness and Warning System

- (a) The 787's design includes a Terrain Awareness Warning System (TAWS) that meets the requirements of this paragraph.
- (b) Not applicable to the 787 (manufactured after March 29, 2002).
- (c) The 787's Airplane Flight Manual complies with the requirements of this paragraph.

**Subpart D – Special Flight Operations
(None Applicable)**

Subpart E – Maintenance, Preventive Maintenance, and Alterations

91.409 Inspections

- (a) – (h) These requirements are operational in nature and as such compliance is not directly dependent on the 787 design. However, inspection requirements are documented in the Maintenance Planning Document delivered with the airplane.

91.411 Altimeter System and Altitude Reporting Equipment Tests and Inspections

- (a) – (d) Initial altimeter system and altitude reporting equipment tests are made on the 787 airplane prior to delivery, which meets the relevant requirements of this paragraph.

91.413 ATC Transponder Tests and Inspections

- (a) – (c) Initial transponder system and associated equipment tests are made on the 787 airplane prior to delivery, which meets the relevant requirements of this paragraph.

91.415 Changes to Aircraft Inspections Programs

- (a)-(d) These requirements are operational in nature and as such compliance is not directly dependent on the 787 design.

Subpart F – Large and Turbine-Powered Multi-engine Airplanes

91.503 Flying Equipment and Operating Information

- (a) Stowage provisions are included for the necessary flying publications, equipment, and charts required by this subparagraph.
- (b) – (c) Checklists meeting these requirements for normal and non-normal operation of the 787 is provided to the certificate holder.
- (d) This requirement is operational in nature and as such compliance is not directly dependent on the 787 design.

91.507 Equipment Requirements: Over-the-Top or Night VFR Operations

The requirements of this paragraph are addressed by subparagraph 91.205(d), above.

91.509 Survival Equipment for Overwater Operations

(a) – (f) For overwater equipped 787, ditching equipment in accordance with this paragraph and 25.1415 is provided. Life vests are provided and stowed in the captain and first officer seat back compartments.

91.511 Radio Equipment for Overwater Operations

(a)(1) Qty (4) boom-microphone headsets are provided for both pilot and observers. Qty (2) interphone / aural warning speakers are also installed. A minimum of four independent receiver/transmitters is installed. Provisions for qty (3) hand microphones are provided for both pilots and the first observer.

(a)(2) – (b) The design of the 787's navigation system meets the requirements of these subparagraphs.

(c) This requirement is operational in nature and as such compliance is not directly dependent on the 787 design.

(d) The communication system design of the 787 meets the requirements of this subparagraph.

(f) The design of the 787's navigation system meets the requirements of this subparagraph.

91.513 Emergency Equipment

(a)-(b) Stowage for emergency equipment on the 787 meets the requirements of this paragraph.

(c) Fire extinguishers are installed in compliance with this paragraph and 25.851.

(d) First Aid Kits (number dependent on passenger count) are provided.

(e) A crash axe is installed in the flight deck.

(f) Two megaphones are provided in the passenger cabin.

91.517 Passenger Information

(a) 787 design includes signs and controls compliant with this paragraph and 25.791. The 787 design includes controls for the pilots to turn the FASTEN SEAT BELTS signs on and off. Baseline on 787 provides for control of NO SMOKING placards, with an option available for customers to select NO SMOKING signs to be installed hard wired on.

(b) This requirement does not apply to the 787 airplane because the airplane is quipped with all the necessary signs.

(c) – (e) These requirements are operational in nature and as such compliance is not directly dependent on the 787 design.

91.519 Passenger Briefing

(a) – (d) These requirements are largely operational in nature; however, the 787 design supports operator compliance with the requirements of this paragraph.

91.521 Shoulder Harness

(a) – (b) Flight crew and flight attendant combined seat belt and shoulder harness meet the requirements of 25.785. Additionally, flight deck pilot seats, observer seats, and attendant seats comply with 25.562 and thus meet these requirements.

91.523 Carry-on Baggage

(a) – (b) The 787 carry-on baggage stowage areas are designed to be compliant with 25.787 (which references 25.561(b)).

91.525 Carriage of Cargo

(a) The 787 is not designed to carry cargo other than in the cargo compartments, which are compliant with 25.787.

(b) This requirement does not apply to the 787 airplane because the cargo compartments are not designed to require physical entry of the crewmember to extinguish any fire.

91.527 Operating in Icing Conditions

(a) This requirement is operational in nature and as such compliance is not directly dependent on the 787 design.

(b) - (c) 787 ice protection provisions meet the requirements which allow operations defined in these paragraphs.

(d) This requirement is operational in nature and as such compliance is not directly dependent on the 787 design.

Subpart G – Additional Equipment and Operating Requirements for large and Transport Category Aircraft

91.603 Aural Speed Warning Device

The 787 aural speed warning device design has been granted an equivalent safety finding for 25.1303(c)(1).

91.605 Transport Category Civil Airplane Weight Limitations

(a) This requirement does not apply to turbine-engine powered airplanes certificated after September 30, 1958.

(b)-(c) These requirements are operational in nature and as such compliance is not directly dependent on the 787 design. However, the 787 Airplane Flight Manual provides sufficient information for the operator to conduct operations in accordance with these requirements.

91.607 Emergency Exits for Airplanes Carrying Passengers for Hire

(a) – (b) These requirements are not applicable to the 787 since it will be certificated after 1957.

(c) This requirement is operational in nature and as such compliance is not directly dependent on the 787 design.

91.609 Flight Recorders and Cockpit Voice Recorders

(a) The 787 flight data recorder and cockpit voice recorder are designed to meet the requirements in section 25.1457 and 25.1459.

(b) This requirement is operational in nature and as such compliance is not directly dependent on the 787 design.

(c) – (d) The 787 flight data recorder is designed to meet all Part 25, 91, 121, and 125 requirements and approved per the requirements of section 25.1459. The 787 flight

data recorder uses a digital solid state recording medium and retains the last 25 hours of aircraft operation.

(e) – (f) The 787 cockpit voice recorder was designed to meet all Part 25, 91,121 and 125 requirements and approved per the requirements of section 25.1457.

(g) This requirement is operational in nature and as such compliance is not directly dependent on the 787 design.

Subpart H – Foreign Aircraft Operations and Operations of U.S. Registered Civil Aircraft Outside of the United States

91.705 Operations within the North Atlantic Minimum Navigation Performance Specifications Airspace

The navigation system of the 787 is designed to meet the MNPS requirements of Appendix C to Part 91.

91.706 Operations within Airspace Designed as Reduced Vertical Separation Minimum Airspace

(a) – (b) The air data system and crew displays of the 787 are designed to meet the RVSM requirements of Appendix G to Part 91.

Appendix A to Part 91: Category II Operations (1) The Airplane Flight Manual provided with the 787 contains information A to Category II and III approval and demonstrations.
(2) The 787 design includes the instruments and equipment necessary to meet this requirement.
(3) The 787's instruments and equipment will be approved for Category II and III operations upon delivery.
(4) The maintenance program for Cat II systems will be the responsibility of the operator, and as such compliance is not directly dependent on the 787 design. However, some of the data required by this requirement are documented in the Maintenance Planning Document.

PART 121

Subpart G – Manual Requirements

121.141 Airplane or Rotorcraft Flight Manual

(a) The 787 will be supplied with an FAA-approved Airplane Flight Manual as required per section 25.1581.

(b) This requirement is operational in nature; however, the 787 design supports the carriage of manuals by providing stowage in the flight deck.

Subpart H – Aircraft Requirements

121.157 Aircraft Certification and Equipment Requirements

(a) This section applies to aircraft certificated before June 1, 1942 and as such does not apply to the 787.

(b) 121.173(b) and (d) apply to the 787. Refer below for compliance with 121.173(b) and (d).

(c) – (f) These sections are not applicable to the 787 because they apply to C-46 type airplanes and non-transport category airplanes.

(g) This requirement does not apply to the 787. (Appendix K applies to turbopropeller-powered airplanes).

(h) The 787 will be type certificated under Part 25.

121.161 Airplane Limitations: Type of Route

(a) The 787 design is intended for ETOPS certification.

(b) The 787 design is intended for certification under Part 25, including ditching provisions.

(c) This paragraph does not apply to the 787 (applies to nontransport category airplanes not certificated under part 25).

Subpart I – Airplane Performance Operating Limitations

121.173 General

(a) This section applies to reciprocating engine aircraft and is not applicable to the 787.

(b) This section requires compliance with sections 121.189 through 121.197 and is applicable to the 787. Refer below to entries for FARs 121.189 through 121.197 for specifics applicable to the 787.

(d) This section requires compliance with sections 121.175 through 121.197; sections 121.175 through 121.187 apply to aircraft with reciprocating engines or four or more engines; sections 121.189 through 121.197 are applicable to the 787. Refer below to the FARs 121.189 through 121.197 for specifics.

(e) This section applies to reciprocating engine-powered airplanes and as such is not applicable to the 787.

(f) This section describes deviation methods and as such is not applicable to the 787 design.

(g) This requirement is operational in nature and as such compliance is not directly dependent on the 787 design.

121.189 Transport Category Airplanes: Turbine Engine Powered: Takeoff Limitations

(a) The 787 design and documentation in the Airplane Flight Manual provides the information necessary for operations to comply with this requirement.

(b) This section applies to aircraft certified after August 26, 1957 and before August 30, 1959 and as such does not apply to the 787 design.

(c) – (d) The 787 design and the Airplane Flight Manual provide the information necessary for operations to comply with these requirements.

(e) The Airplane Flight Manual provides the information necessary for operations to comply with this requirement.

(f) – (g) These sections provide definitions for determining compliance to this section.

121.191 Transport Category Airplanes: Turbine Engine Powered: En Route Limitations: One Engine Inoperative

(a) This requirement is operational in nature and as such compliance is not directly dependent on the 787 design. However, the Airplane Flight Manual will provide the necessary performance information for operations to determine compliance with this requirement.

(b) This section provides definitions for determining compliance to this section.

121.195 Transport Category Airplanes: Turbine Engine Powered: Landing Limitations: Destination Airports

(a) – (b) Though these requirements are operational in nature and not directly dependent on the 787 design, the Airplane Flight Manual will contain the information necessary for operations to comply with these requirements.

(c) This section applies to turbopropeller powered airplanes and as such does not apply to the 787.

(d) – (e) Though these requirements are operational in nature and not directly dependent on the 787 design, the Airplane Flight Manual will contain the information necessary for operations to comply with these requirements.

121.197 Transport Category Airplanes: Turbine Engine Powered: Landing Limitations: Alternate Airports

Though this requirement is operational in nature and not directly dependent on 787 design, the Airplane Flight Manual will contain the information necessary for operations to comply with these requirements.

Subpart J – Special Airworthiness Requirements

121.215 Cabin Interiors

(a) – (e) Flight deck interior and passenger compartment materials and components comply with the applicable requirements of this paragraph and FAR 25.853.

121.217 Internal Doors

Does not apply to the 787 flight deck door (no louvers or other ventilating means).

121.219 Ventilation

The 787 environmental control system is designed to maintain CO concentration in passenger & crew compartments in compliance with 25.831. The 787 flight deck door has no louvers or other ventilating means.

121.221 Fire Precautions

(a)- (f) Flight deck interior, passenger compartment, and cargo bay materials and components comply with the applicable requirements of this paragraph and FAR 25.853 and 25.855.

121.263 Fire-Extinguishing Systems

(a) – (b) The 787 design is compliant with the requirements of this paragraph via FAR 25.1195 and 25.1201.

121.273 Fire-Detector Systems

The 787 design is compliant with the requirements of this paragraph via FAR 25.1203.

- 121.285 Carriage of Cargo in Passenger Compartments**
(a)- (d) The 787 design is compliant with the requirements of this paragraph, FAR 25.787, and 25.789.
- 121.287 Carriage of Cargo in Cargo Compartments**
This requirement is not applicable since the 787 cargo compartments are not designed to require the physical entry of a crewmember to extinguish a fire (an integral cargo fire protection system is installed).
- 121.289 Landing Gear: Aural Warning Device**
(a) – (c) These requirements are not applicable to the 787 because it complies with the requirements of section 25.729.
- 121.291 Demonstration of Emergency Evacuation Procedures**
(a) The 787 will demonstrate compliance with the requirements of FAR 25.803 during type certification. Per 121.291(a)(1), an additional demonstration is not required for this paragraph.
(b) – (c) These requirements are operational in nature and as such compliance is not directly dependent on the 787 design. Compliance is the responsibility of the aircraft operator.
(d) – (e) Compliance with these requirements is the responsibility of the aircraft operator. The 787 is designed to comply with the ditching requirements in FAR 25.801.
- Subpart K – Instruments and Equipment Requirements**
- 121.305 Flight and Navigational Equipment**
(a) – (k) The 787 includes these required flight and navigational instruments and equipment.
- 121.307 Engine Instruments**
(a) – (c) 787 engine instrumentation is designed in accordance with 25.1305(c) and does not have carburetor air, head temperature indications or fuel pressure indications for each engine.
(d) – (e) 787 engine and fuel system instrumentation design has the necessary displays to meet these requirements.
(f) This requirement is not applicable to the 787.
(g) – (k) 787 engine instrumentation design has the necessary displays to meet these requirements.
(l) This requirement addresses reversible propellers and is not applicable to the 787.
- 121.308 Lavatory Fire Protection**
(a) Each lavatory is equipped with a smoke detector system compliant with 25.854(a) and thus meets this requirement.
(b) Each lavatory is equipped with a smoke detector system compliant with 25.854(b) located in the waste container cabinet and thus meets this requirement.

(c) – (d) These requirements apply to aircraft with 30 or few passenger seats, and thus are not applicable to the 787.

121.309 Emergency Equipment

(a) The 787 is designed to accommodate emergency equipment compliant with the requirements of this paragraph and 121.310 as stated below.

(b) Emergency equipment provided with the 787 complies with FAR 25.851 and 25.1411, and meets the design requirements of this paragraph.

(c) Water and Halon fire extinguishers compliant with 25.851 and 25.1411 are located throughout the passenger cabin and flight deck. Requirement (c)(2) is not applicable to the 787 because the cargo compartment is not designed to be accessible to the crew during flight.

(e) A crash axe is installed in the flight deck.

(f) Two megaphones are provided in the passenger cabin.

121.310 Additional Emergency Equipment

(a) Each passenger entry door emergency evacuation slide/raft and pneumatic door opening system contains an assisting means approved per section 25.809. (note: there is no sub-paragraph §25.809(f)(1))

(b) Interior emergency exit markings are designed to meet requirements in this paragraph, FAR 25.811 and 25.812.

(c) Lighting for interior emergency exit markings is designed to meet the requirements of this paragraph and FAR 25.812.

(d) Emergency lighting on the 787 is designed to meet the requirements of this paragraph and FAR 25.812.

(e) Emergency exit operating handles are designed to meet the requirements of this paragraph and FAR 25.811(e) with the following caveat: The architecture of the 787(as with the architecture of the 777) passenger door does not lend itself to show the full arc arrow representing the travel of the door handle. The Boeing Company will demonstrate (1) that if the passenger door arrow was applied to meeting exactly the FAR 25.811(e)(4)(i)(ii), this would confuse door operation procedure, and (2) that the passenger door arrow designed for the 787 will meet the intent of FAR 25.811(e)(4)(i)(ii) with an interior compliance inspection.

(f) Access to emergency exits is designed to meet the requirements of this paragraph and FAR 25.813.

(g) Exterior exit markings are designed to meet the requirements of this paragraph and FAR 25.811(f).

(h) Exterior emergency lighting is designed to meet the requirements of this paragraph and FAR 25.812(g).

(i) Each of the passenger emergency exits is designed to meet the requirements in this paragraph and §§25.807-25.813.

(j) This requirement is not applicable to the 787 because there are no emergency exits in the passenger compartment in excess of the minimum required.

(k) This requirement is not applicable to the 787 because there are no ventral or tailcone exits in the passenger compartment.

(l) The 787's emergency exits are designed to be compliant with the requirements of FAR 25.809(i) and 25.813(b)(6)(ii).

(m) The emergency exits of the 787 are designed to meet the requirements of this paragraph.

(n) The 787 cabin design includes flashlight stowage provisions accessible from each flight attendant seat.

121.311 Seats, Safety Belts, and Shoulder Harnesses

(a) These requirements are operational in nature; however, the 787 passenger seats and safety belts are designed to meet the requirements of this paragraph and FARs 25.562 and 25.785.

(b) – (c) These requirements are operational in nature and as such compliance is not directly dependent on the 787 design.

(d) This requirement is not applicable to the 787 because there are no side-facing seats.

(e) This requirement is operational in nature and as such compliance is not directly dependent on the 787 design.

(f) – (g) The flight deck station and flight attendant seats fully comply with sections 25.562 and 25.785.

(h) This requirement is operational in nature. However, pilot reach to controls with all belts fastened is designed to be compliant with section 25.777(c).

(i) The flight deck seats include a stowage pocket for the buckle and shoulder harnesses that retract into the seat when not in use.

(j) All passenger and flight attendant seats on the 787 are designed to be compliant with the requirements of 25.562.

121.312 Materials for Compartment Interiors

(a) – (d) Materials in compartments used by crewmembers or passengers meet the requirements in section 25.853.

(e) Thermal/acoustic insulation materials in the 787 design meet requirements of this paragraph and FAR 25.856.

121.313 Miscellaneous Equipment

(a) This requirement is not applicable to the 787 because fuses are not installed on the airplane.

(b) A windshield wiper is installed for each pilot's front window.

(c) The power supply and distribution system is designed for compliance with the specified part 25 FARs.

(d) Displays do not operate without adequate power. EICAS messages alert the flight crew to electrical system faults and conditions when electrical buses are unpowered.

(e) There are three static pressure ADMs, each connected to two static ports, one on each side of the airplane. The Air Data Reference Function uses a voted static pressure value from the three ADM sources for to calculate trusted data for

displays and other using systems. A manual selection to alternate airspeed and altitude sources is made by a rotary selector. The alternate position provides synthetic airspeed derived from AOA and inertial data, and GPS altitude. Amber annunciations are provided on the airspeed and altitude displays to indicate that alternate sources are displayed.

(f) The flight deck door between the passenger compartment and the flight deck is lockable and complies with 25.772.

(g) – (h) These requirements are not applicable to the 787 because there is no door that is the means of access to a required passenger emergency exit.

(i) A means to unlock the lavatory doors is located outside each door, per 25.820.

(j) The flight deck doors comply with 25.795(a)(1) and (2). The crew rest compartment doors are located outside of the flight deck, and consequently are not required to comply with 25.795 or 121.313(j).

121.314 Cargo and Baggage Compartments

(a) – (b) Cargo and baggage compartment ceiling and sidewall liner panels are constructed of glass fiber reinforced resin and meet the test requirements of the specified Part 25 requirements.

(c) – (d) 787 compartments are designed to meet the standards of 25.857 and 25.858.

121.315 Cockpit Check Procedure

(a) This requirement is operational in nature, however, the 787 is furnished with cockpit normal and non-normal procedures as part of the Airplane Flight Manual, and Boeing Operations Manual supplied with the airplane.

(b) Normal and non-normal checklists are provided. Normal checklists are used to verify that certain critical procedural steps have been accomplished. Non-normal procedures are used by the flight crew to cope with non-normal situations, including engine and system emergencies.

(c) This requirement is operational in nature; however, the 787 design includes an electronic checklist as the primary means of access, and for backup paper copies a stowage slot for a normal checklist card is located under the glareshield, and stowage compartments for checklist manuals are outboard of each pilot seat.

121.316 Fuel Tanks

The 787 meets the requirements specified in 25.963(e).

121.317 Passenger Information

(a) The 787 design is compliant with section 25.791, and the passenger cabin signs are controlled by overhead panel selectors in the flight deck.

(b) – (c) These requirements are procedural in nature and as such compliance is not directly dependent on the 787 design.

(d) The 787 design is compliant with the requirements of this paragraph and section 25.791.

(e) This placard is installed on the lavatory ceiling next to the smoke detector per 25.1541.

(f) – (k) These requirements are procedural in nature and as such compliance is not directly dependent on the 787 design.

(l) This requirement does not apply to the 787 since it is manufactured after December 20, 1997.

121.318 Public Address System

(a) The 787 design includes a public address system that meets the requirements of this paragraph. Operation of the PA system is independent from operation of the crew interphone system.

(b) The PA system is approved in accordance with FAR 21.305(c).

(c) The PA handset on the flight deck is located on the aft aislestand between the two pilots. The pilots' audio control panels are located on the forward aislestand. Reach to all flight deck controls is shown to be compliant to 25.777c.

(d) The 787 complies with 25.1423(g) and therefore meets this requirement.

(e) Operation of the PA can be accomplished within 3 seconds.

(f) The 787 complies with 25.1423(c) and hence the PA system complies with this requirement.

(g) The PA system complies with FAR 25.1423.

121.319 Crewmember Interphone System

(a) The crew interphone system operation is designed to meet the requirements of this paragraph.

(b) The crew interphone system was approved in accordance with FAR 21.305(c) and meets the additional requirements of this subparagraph.

121.323 Instruments and Equipment for Operations at Night

(a) The 787 is equipped with position lights.

(b) A red strobe anti-collision light is located on the top and bottom of the fuselage.

(c) Two landing lights are located in each wing root and two landing lights are located on the nose gear. The orientation of each light is designed to ensure sufficient beam spread during approach, flare, and ground roll.

(d) The 787 is equipped with lighting controls for all displays and panels. In addition, the main displays will have automatic and manual brightness controls. Anti-reflective coatings are used to reduce reflections and glare off the displays. Instrument lighting reflections, and illumination intensity controls comply with section 25.1381.

(e) Airspeed is provided to the primary displays by the Air Data Reference Function which is hosted in the Flight Control Electronics. Pitot heat is provided.

(f) Altitude is provided to the primary displays by the Air Data Reference Function which is hosted in the Flight Control Electronics.

121.325 Instruments and Equipment for Operations under IFR Over-the-Top

(a) See response to FAR 121.323(e) for compliance statement.

(b) See response to FAR 121.323(f) for compliance statement.

(c) See response to FAR 121.323(d) for compliance statement.

121.329 Supplemental Oxygen for Sustenance: Turbine Engine Powered Airplanes
(a) – (c) Oxygen systems compliant with Parts 25.1441, 25.1443, 25.1445, and 25.1447 is provided for emergency supplemental oxygen use. The systems can be operated in accordance with 121.329.

121.333 Supplemental Oxygen for Emergency Descent and for First Aid; Turbine Engine Powered Airplanes with Pressurized Cabins
(a) An oxygen system compliant with Parts 25.1441, 25.1443 [25.1443(c) via Equivalent Safety Finding], 25.1445, and 25.1447 is provided. See response to (b) through (e).
(b) Two hours worth of oxygen are provided to meet this requirement.
(c) Flight Crew oxygen masks are provided that allow the operator to comply with this operational requirement.
(d) Portable oxygen equipment is installed for each attendant (per 25.1447(c)(4)). While attendants are between attendants' seat locations, oxygen is available from the additional oxygen masks installed (vs. number of passenger seats) at the Passenger Service Units (per 25.1447(c)(1)).
(e) Twelve minutes of passenger oxygen is available as basic equipment to meet this requirement.
(f) This requirement is operational in nature and as such compliance is not directly dependent on the 787 design.

121.335 Equipment Standards
(a) This requirement is for reciprocating engine powered airplanes and does not apply to the 787.
(b) The oxygen system will meet the equipment standard of Section 4b.651 of the Civil Air Regulations by Equivalent Safety Finding to 25.1443(c).

121.337 Protective Breathing Equipment
(a) – (b) Protective breathing equipment is provided that is compliant with this paragraph and 25.1439.
(c) This requirement is procedural in nature and as such compliance is not directly dependent on the 787 design.

121.339 Emergency Equipment for Extended Over-Water Operations
(a) The 787 design complies with 25.1415 and includes a life preserver equipped with a survivor locator light for each occupant of the airplane, slide/raft to cover rated capacity, a flare for each raft, and an ELT.
(b) Emergency equipment is readily accessible, as required for compliance with 25.1411.
(c) A survival kit is contained within each slide/raft unit.

121.340 Emergency Flotation Means
(a) Life vests compliant with 25.1415 are provided for overwater configurations of the 787. Life vests are provided and stowed in the captain and first officer seat back compartments.

(b) This requirement is operational in nature and as such compliance is not directly dependent on the 787 design.

121.341 Equipment for Operations in Icing Conditions

(a) The 787 provides for the prevention /removal of ice with electro-thermal ice protection system for the wings, pneumatic ice protection system for the engines, and electrical heating for flight deck windows and air data probes.

(b) The 787 provides a primary ice detection system which is operable in flight during all day/night lighting conditions. The PIDS detects icing conditions and automatically activates the wing ice protection system. The 787 also provides wing lights installed on the fuselage to illuminate the leading edge of the wing, and it was shown by analysis that no glare or reflection would handicap crewmembers in the performance or their duties.

(c) These requirements are for non-transport category airplanes and thus do not apply to the 787.

(d) This requirement is operational in nature and as such compliance is not directly dependent on the 787 design.

121.342 Pitot Heat Indication System

The 787 complies with section 25.1326 and provides caution level EICAS alerts for failure of one or more pitot probe heat systems.

121.343 Flight Recorders

(a) The 787 flight data recorder was designed and tested to meet all Part 25, 91, 121, and 125 requirements and approved per the requirements of section 25.1459.

(b) These requirements do not apply to the 787 since it was not certificated before 1969.

(c) The 787 flight data recorder uses a digital solid state recording medium and is compliant with section 121.344.

(d) – (f) The 787 flight data recorder was designed and tested to meet all Part 25, 91, 121, and 125 requirements and approved the requirements of section 25.1459.

(g) The design of the 787 flight recorder enables operators to comply with this requirement by automatically recording data from start of preflight checklist to end of flight checklist.

(h) – (i) These requirements are operational in nature and as such compliance is not directly dependent on the 787 design.

(j) – (l) The 787 flight data recorder was designed and tested to meet all Part 25, 91, 121, and 125 requirements and approved per the requirements of section 25.1459.

121.344 Digital Flight Data Recorders for Transport Category Airplanes

(a)-(b) The 787 flight data recorder was designed and tested to meet all Part 25, 91, 121, and 125 requirements and approved per the requirements of section 25.1459.

(c) The requirements of this paragraph do not apply to the 787 since it is manufactured after October 11, 1991.

(d)-(g) The 787 flight recorder is designed to meet the requirements of this paragraph.

- (h) – (i) These requirements are operational in nature and as such compliance is in not directly dependent on the 787 design.
- (j) – (l) The 787 flight data recorder was designed and tested to meet all Part 25, 91, 121, and 125 requirements and approved per the requirements of section 25.1459.

121.345 Radio Equipment

- (a) The 787 has three VHF radios and two HF radios, plus SATCOM for ETOPS flights greater than 180 min.
- (b) All radio systems have separate antenna installations except HF radios which share a rigid antenna.
- (c) Specified aircraft ATC equipment is classified as mode S.

121.347 Radio Equipment for Operations under VFR over Routes Navigated by Pilotage

- (a) The 787 design includes radio equipment capable of communicating with appropriate ground stations or traffic control facilities, while simultaneously receiving meteorological information at any point along the route.
- (b) Onboard ADF, VOR, GPS, and DME systems are designed to receive navigational signals independently of the communications radios.

121.349 Radio Equipment for Operations under VFR over Routes Not Navigated by Pilotage or for Operations under IFR or Over-the-Top

- (a) All communication devices mentioned in section 121.347(a) are still active for this condition. Dual redundant VOR/ILS, DME, and marker beacon receivers are installed.
- (b) Two VORs are installed, and the design makes provisions for two ADFs if the operator requires them.
- (c) Redundant DME receivers are installed.
- (d) This requirement is operational in nature and as such compliance is not directly dependent on the 787 design.
- (e) This requirement does not apply to the 787 since it has more than 30 seats.

121.351 Radio Equipment for Extended Overwater Operations and for certain others Operations

- (a) – (b) The 787 is equipped with the radio equipment necessary to comply with the requirements of this paragraph, 121.347 and 121.349.
- (c) This requirement is operational in nature and as such compliance is not directly dependent on the 787 design.

121.353 Emergency Equipment for Operations over Uninhabited Terrain Areas: Flag and Supplemental Air Carriers and Commercial Carriers

- (a) Each slide/raft contains a pyrotechnic signaling device.
- (b) There is one survival type emergency locator transmitter furnished with the 787.
- (c) Survival kits are provided.

- 121.355 Equipment for operations on which Specialized Means of Navigation are Used**
- (a) The ERS (Earth Reference System) is certified to meet the requirements of Appendix G to Part 121.
 - (b) This requirement is not applicable since the ERS (Earth Reference System) was not certificated prior to 1972.
- 121.356 Traffic Alert and Collision Avoidance Equipment Requirements**
- (a) The 787 is equipped with dual approved TCAS II systems (compliant with TSO-C119b) and Mode S transponders (compliant with TSO-C112).
 - (b) This requirement is not applicable to the 787 since it has more than 30 seats.
 - (c) This requirement is not applicable to the 787 since it is turbine powered.
- 121.357 Airborne Weather Radar Equipment Requirements**
- (a) The 787 is equipped with a weather radar system that complies with all applicable sections of FAR 25. The weather radar system is qualified to TSO-C63c.
 - (c) – (d) These requirements are operational in nature and as such compliance is not directly dependent on the 787 design.
 - (e) The 787 weather radar design complies with this requirement.
- 121.358 Low-altitude Windshear Equipment Requirements**
- (a) The 787 is equipped with an approved airborne windshear warning system.
 - (b) – (d) These requirements are not applicable to the 787 because of it is manufactured after January 3, 1991.
- 121.359 Cockpit Voice Recorders**
- (a) The 787 cockpit voice recorder was designed and tested to meet all part 25, 91, 121, and 125 requirements and approved per the requirements of section 25.1457.
 - (c) The 787 cockpit voice recorder was designed and tested to meet all part 25, 91, 121, and 125 requirements and approved per the requirements of section 25.1457.
 - (d) This requirement does not apply to the 787 because it has more than 19 seats.
 - (e) This requirement does not apply to the 787 because it has more than 30 seats.
 - (f) The 787 uses a CVR that provides a continuous record of the last two hours of communications and conversation.
 - (g) – (h) These requirements are operational in nature and as such compliance is not directly dependent on the 787 design.
- 121.360 Ground Proximity Warning/Glideslope Deviation Alerting System**
- (a) The 787 is equipped with a ground proximity warning system that is compliant with TSO-C92c.
 - (b) This information is contained in the 787 Operations Manual.
 - (c) – (d) These requirements are operational in nature and as such compliance is not dependent on the 787 design.
 - (e) The 787 is equipped with a ground proximity warning glide slope deviation alerting system that meets the requirements of, and is approved under, TSO-C92c.

(f) The ground proximity warning glide slope deviation alerting system meets these requirements.

**Subpart L – Maintenance, Preventive Maintenance, and Alternations
Manual Requirements**

121.369

(a) – (c) These requirements apply to manuals developed by the operator and as such compliance is not directly dependent on the 787 design.

**Subpart T – Flight Operations
Oxygen for Medical Use by Passengers**

121.574

(a) – (d) These requirements are operational in nature and as such compliance is not directly dependent on the 787 design.

Retention of Items of Mass in Passenger and Crew Compartments

121.576

The 787 is designed to comply with the requirements in sections 25.787 and 25.789. Suitcase stowage for the flight crew is provided in multiple places on the flight deck.

Food and Beverage Service Equipment during Takeoff and Landing

121.577

(a) – (e) These requirements are operational in nature and as such compliance is not directly dependent on the 787 design. The 787 design includes provisions for stowage of the items listed in this paragraph.

Cabin Ozone Concentration

121.578

(a) This paragraph provides definitions for subsequent paragraphs.
(b) – (c) The 787 will gain approval per the cabin ozone concentration requirements of section 25.832.
(d) – (e) These requirements are operational in nature and as such compliance is not directly dependent on the 787 design.

Forward Observer’s Seat; Enroute Inspections

121.581

(a) The first observer’s seat installed on the 787 flight deck is suitable for conducting enroute inspections.
(b) This requirement is operational in nature and as such compliance is not directly dependent on the 787 design.
(c) This requirement does not apply to the 787 since it will be certificated after December 20, 1995.

Closing and Locking of Flight Crew Compartment Door

121.587

(a) – (b) These requirements are operational in nature and as such compliance is not directly dependent on the 787 flight deck door is lockable in accordance with 121.313.

Carry-on Baggage

121.589

(a) – (e) These requirements are operational in nature and as such compliance is not directly dependent on the 787 design. Passenger compartment stowage areas

are designed for compliance with all applicable requirements in Parts 25, 91, 121, and 125.

(f) The 787 passenger seats are approved per the requirements in sections 25.787 and 25.789.

(g) This requirement is operational in nature and as such compliance is not directly dependent on the 787 design.

PART 125

Subpart C – Manual Requirements

125.75 Airplane Flight Manual

(a) This requirement is operational in nature, however, the 787 is furnished with an FAA-approved Airplane Flight Manual as required per section 25.1581.

(b) This requirement is operational in nature; however, the 787 design supports the carriage of manuals by providing stowage in the flight deck.

Subpart D – Airplane Requirements

125.93 Airplane Limitations

The 787 is designed for compliance with the ditching-related requirements in Parts 25, 91, 121, and 125. The Boeing Operations Manual includes a DITCHING non-normal procedure.

Subpart E – Special Airworthiness Requirements

125.183 Carriage of Cargo in Passenger Compartments

(a) – (c) These requirements are largely operational in nature; however, the design of the stowage compartments per 25.787 and 25.798 allows operators to be in compliance with this paragraph.

125.185 Carriage of Cargo in Cargo Compartments

This requirement is not applicable to the 787. All cargo compartment fire extinguishers are controlled by switches on the Cargo Fire Panel on the flight deck.

125.187 Landing Gear: Aural Warning Device

(a) – (c) The exception to these requirements in paragraph (a) applies to the 787 because it complies with the requirements of section 25.729.

125.189 Demonstration of Emergency Evacuation Procedures

(a) – (b) The 787 will demonstrate compliance with section 25.803(c). An additional demonstration in support of this paragraph is not required, per 125.189(d).

(c) – (d) These requirements are airline dependent and not directly dependent on airplane design. The 787 is designed for compliance with 25.801 (ditching).

Subpart F – Instrument and Equipment Requirements

125.203 Radio and Navigational Equipment

(a) Three independent VHF radios provide two-way radio communications up to a line of sight distance to the horizon.

- (b) Over-the-top operations on the 787 can be supported by the following 2 VOR/ILS systems and 2 DME systems.
- (c) The 787 contains the following radio communication and navigational equipment to support this requirement: 2 independent HF radios, 2 speakers, 4 jacks for microphone-headsets, and provisions for 3 microphone jacks, a marker beacon receiver (within the left VOR Receiver), and two independent VOR systems.
- (d) The dual HF radios are independent.
- (e) This requirement is procedural in nature and not dependent on airplane design.

125.205

Equipment Requirements: Airplanes under IFR

- (a) Vertical speed is indicated on the right hand side of each pilot's primary flight display.
- (b) Total air temperature is indicated on the EICAS display.
- (c) The air data reference system relies on three heated pitot probes.
- (d) Displayed attitude is provided by data from the Flight Control Electronics. It is based on voted values of pitch and roll from the 4 inertial measurement units in the ERS. Any loss of power or loss of attitude output to the primary displays is alerted to the flight crew by failure flags on the PFD and by EICAS messages.
- (e) Three air data modules (ADM) connected to three sets of static ports serve as the sources of static pressure for the flight displays. All three sources are used to provide voted airspeed and altitude for display. If the voted static pressure is not available, an airspeed calculated from the AOA is displayed. Flags on the PFDs and EICAS message alert the crew to this failure.
- (f) Two Variable Frequency Starter Generators (VFSGs) are installed on each engine, and two APU starter generators (ASGs) are installed on the Auxiliary Power Unit (APU). Any two of these generators are rated sufficiently to power all the loads necessary for safe emergency operation.
- (g) The VFSG pairs are independent, as are the two APU generators and the battery.
- (h) This definition is consistent with compliance to paragraph (f).
- (i) The air data reference system relies on three heated pitot probes to provide reliable airspeed.
- (j) Barometric pressure is sensed by three sets of static pressure ports connected to three air data modules. The static pressure from all three static ADMs is used by the Air Data Reference Functions to provide voted, trusted altitude for the primary altitude displays. The Center Static ADM provides the altitude displayed on the Integrated Standby Flight Display (ISFD).
- (k) Instrument lighting, reflections, and illumination intensity controls comply with section 25.1381.

125.206

Pitot Heat Indication Systems

- (a) The 787 complies with section 25.1326.
- (b) This requirement is not applicable to the 787 because it complies with (a).

125.207 Emergency Equipment Requirements

- (a) First aid kits (number dependent on passenger count) are provided in the passenger cabin. A crash axe is located in the flight deck. Passenger signs compliant with section 25.791, controlled by overhead panel selectors in the flight deck, are incorporated. The 787 includes provisions for the additional emergency equipment specified in Appendix A to Parts 121 and 125.
- (b) Two megaphones are installed in the passenger cabin.

125.209 Emergency Equipment: Extended Overwater Operations

- (a) Life preservers and rafts compliant with 25.1415 are provided.
- (b) This requirement is mainly operational in nature, however, the design of the 787 allows for equipping overwater 787s with a survival-type emergency locator transmitter.

125.211 Seat and Safety Belts

- (a) These requirements are mainly operational in nature; however, the 787 passenger seats and safety belts are approved per sections 25.561, 25.562, and 25.785.
- (b) – (c) These requirements are operational in nature and as such compliance is not directly dependent on the 787 design.
- (d) This requirement is not applicable to the 787 because there are no side-facing seats.
- (e) This requirement is operational in nature and as such compliance is not directly dependent on the 787 design.
- (f) This requirement is operational in nature and as such compliance is not directly dependent on the 787 design. Flight deck and flight attendant seats are equipped with shoulder harnesses in accordance with section 25.785(g) and 25.785(h)(6), respectively.

125.213 Miscellaneous Equipment

- (a) This requirement is not applicable to the 787 because fuses are not installed on the airplane.
- (b) A windshield wiper is installed for each pilot's front window.
- (c) The power supply and distribution system has been shown compliant with the specified part 25 FARs.
- (d) Displays do not operate without adequate power. EICAS messages alert the flight crew to electrical system faults and conditions when electrical buses are unpowered.
- (e) There are three static pressure ADMs each connected to two static ports, one on each side of the airplane. The Air Data Reference Function uses a voted static pressure value from the three ADM sources for to calculate trusted data for displays and other using systems. A manual selection to alternate airspeed and altitude sources is made by a rotary selector. Amber annunciations are provided on the airspeed and altitude displays to indicate that alternate sources are displayed.

- (f) This requirement is not applicable to the 787 because there is no door that is the means of access to a required passenger emergency exit.
- (g) A means to unlock lavatory doors is located outside each door per 25.820.

125.215 Operating Information Required

- (a) These requirements are operational in nature; however the 787 is furnished with cockpit normal procedures, non-normal procedures, and engine inoperative performance data as part of the Ops Manual and Airplane /Flight Manual, respectively. Flight deck stowage for the flight kit, QRH, flight manual, and logbook is provided outboard of the captain and first officer seats.
- (b) The 787 normal procedures checklist contains the procedures to meet this requirement.
- (c) The 787 non-normal procedures contain the categories of procedures specified in this requirement.

125.217 Passenger Information

- (a) The 787 is compliant with section 25.791, and the passenger cabin signs are controlled by overhead panel controls in the flight deck.
- (b) – (d) These requirements are operational in nature and as such compliance is not directly dependent on the 787 design.

125.219 Oxygen for Medical Use by Passengers

- (a) – (e) These requirements are operational in nature and as such compliance is not directly dependent on the 787 design.

125.221 Icing Conditions: Operating Limitations

- (a) – (b) These requirements are operational in nature and as such compliance is not directly dependent on the 787 design.
- (c) – (d) The 787 design complies with the FAR Part 25 requirements relating to ice protection.
- (e) This requirement is operational in nature and as such compliance is not directly dependent on the 787 design.

125.223 Airborne Weather Radar Equipment Requirements

- (a) The 787 is equipped with a weather radar system that complies with all applicable sections of FAR 25. The weather radar system is qualified to TSO-C63c.
- (b) – (d) These requirements are operational in nature and as such compliance is not dependent on the 787 design.
- (e) The 787 aircraft weather radar installation design complies.

125.224 Traffic Alert and Collision Avoidance System

- (a) The 787 is equipped with an approved TCAS II system and the appropriate Mode S transponder.

(b) Information as to procedures and input sources required for the TCAS to function properly are provided in the manuals (Flight Manual and Wiring Diagram Manual, respectively) as required by 125.71.

125.225 Flight Recorders

(a) This requirement is not applicable to the 787 because it was not certificated prior to 1969.

(b) – (c) These requirements are not applicable to the 787 because the more restrictive requirement (d) is applicable (see below).

(d) The 787 flight data recorder was designed and tested to meet all part 25, 91, 121, and 125 requirements and approved per the requirements of section 25.1459.

(e) – (g) These requirements are operational in nature and as such compliance is not directly dependent on the 787 design.

(h) – (i) The 787 flight data recorder was designed and tested to meet all Part 25, 91, 121, and 125 requirements and approved per the requirements of section 25.1459, which includes the requirement for an underwater locating device.

125.227 Cockpit Voice Recorders

(a) A cockpit voice recorder designed and tested to meet all Part 25, 91, 121, and 125 requirements and approved per the requirements of section 25.1457 is installed in the 787. The CVR will automatically record data from start of preflight checklist to end of flight checklist.

(b) This requirement is operational in nature and as such compliance is not directly dependent on the 787 design.

(c) – (d) The 787 cockpit voice recorder was designed and tested to meet all Part 25, 91, 121, and 125 requirements and approved per the requirements of section 25.1457.

(e) – (f) These requirements are operational in nature and as such compliance is not directly dependent on the 787 design.

Subpart G – Maintenance

125.249 Maintenance Manual Requirements

(a) – (b) These requirements are operational in nature and as such compliance is not directly dependent on the 787 design.

Subpart H – Airman and Crewmember Requirements

125.269 Flight Attendants

(a) – (c) These requirements are operational in nature and as such compliance is not directly dependent on the 787 design.

Subpart J – Flight Operations

125.327 Briefing of Passengers before Flight

(a) – (e) These requirements are operational in nature and as such compliance is not directly dependent on the 787 design.

125.329 Minimum Altitudes for Use of Autopilot

(a) - (c) For takeoff, the autoflight system design supports these requirements with an autopilot engage inhibit to 200ft RA. For approach, the Airplane Flight Manual provides operating limitations for operational compliance.

(d) – (e) These requirements are operational in nature and as such compliance is not directly dependent on the 787 design.

MISCELLANEOUS

a. ADVISORY CIRCULARS

1) AC 00-50A - Low Level Wind Shear - Aircraft operating procedures are consistent with this AC. Windshear alerting and flight guidance system installed meets CFR PART 121.358.

2) AC 25-15

3) AC 20-129

4) AC 20-130 and AC 90-45A - Area Navigation/Multi Sensor Navigation Systems in US NAS - Meets or exceeds all requirements for enroute or approach area navigation systems. Aircraft may file “/G” flight plan suffix for pertinent routes.

5) AC 90-79 - Use of Electronic navigation in Remote Areas - Aircraft systems and procedures are consistent with this AC.

6) AC 91-6A - Water, Slush, and Snow on Runway - Aircraft systems and procedures are consistent with this AC.

7) AC 91-53A - Noise Abatement Departure Profile - Aircraft systems and procedures are consistent with this AC. Both U.S. and ICAO A and B procedures may be flown by appropriate FMS data entries.

8) AC 120-28D - Category III - AFM provisions address Category III requirements. Cat IIIb minima are based on fail operational autoland ("LAND 3" mode). Fail passive autoland ("LAND 2" mode) is limited to Cat IIIa. Irregular terrain clearance (Case I) demonstrations have been successfully completed for the B-787 (KSEA).

9) AC 120-29A - Category II - Aircraft systems and procedures are consistent with this AC. AFM and MMEL include reference to configurations approved, as addressed by standard operations specifications.

10) AC 120-33 - Navigation Systems For Approval in MNPS - Aircraft systems and procedures are consistent with this AC.

11) AC 120-35A - LOFT - Aircraft systems and procedures, and training, checking, and currency identified by the FSB are consistent with this AC. Specific provisions related to LOFT are addressed by paragraph 6.5.1 of this report.

12) AC 120-38 - Cabin Ozone Concentrations - B-787 systems and procedures are consistent with this AC and qualified for operations in areas of high ozone concentration without special flight procedure.

13) AC 120-42A - Extended Range Operations With Two-Engine Airplanes (ETOPS) - The B-787 has been shown to meet type design requirements for extended range operations (ETOPS) as specified by it's AFM.

14) AC 120-ECL(Pending) - Operational Use and Modifications of Electronic Checklists (ECLs) - Aircraft systems and procedures are consistent with this AC. A current paper backup to the ECL must be carried on board and be readily accessible to the crew.

15) AC 121-13 - Self Contained Navigation Systems - Aircraft systems and procedures are consistent with this AC.

b. FAA DIRECTIVES, POLICIES, AND US AIRMAN'S INFORMATION MANUAL

1) The B-787 is considered a "Heavy" aircraft and flight plans should be so designated.

2) For the B-787, airspeeds in excess of US standard limits (greater than 250 KIAS below 10,000 MSL) may require routine crew advisories to ATC regarding deviation from speed limits when operating at heavy gross weights.

3) Flight Plan designator is B-787. No unique air traffic requirements are applicable to the B-787.

APPENDIX 4

EXAMPLE FULL TRANSITION COURSE FOOTPRINT

Flight Training Curriculum

B-787 Transition Footprint (FAR 121.424 Appendix E)

From all non-FMS flight decks (full transition)

CBT/Academics, Performance, and Exam.	FFS	FFS
10 FBS	LOS/LOFT	Ck

12 days	8 days
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20 days total

APPENDIX 5

EXAMPLE SHORTENED TRANSITION FOOTPRINT

Flight Training Curriculum

B-787 Shortened Transition Footprint (CFR PART 121.424 Appendix E)

From all other Boeing FMS flight decks (shortened transition)

CBT/Academics, Performance, and Exam.	FFS	FFS
6 FBS	LOS/LOFT	Ck

7 days	6 days
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13 days total

Previous Boeing FMS flight deck experience
Similar airplane systems, autopilot/autothrottle, FMC operation,
EFIS and overall flight deck design: B-737-Classic, NG, B-757/767, B-747-400/-8

APPENDIX 6

EXAMPLE DIFFERENCES COURSE

Flight Training Curriculum

B-787 Differences Footprint (CFR PART 121.424 Appendix E)

From B-777 to B-787

CBT/Academics, Performance, and Exam.	FFS	FFS
2 FBS	1 FFS	Ck

3 days	2 days
--------	--------

5 days total

Note 1: The B-787 differences curriculum requires the pilot to be type rated in the B-777, with a current proficiency check as specified in CFR PART 61.57, and Boeing EFB proficient.

Note 2: The B-787 FBS must be qualified at a Level 5 FTD or higher for the B-777 to B-787 Differences course.

APPENDIX 7

EXAMPLE FLIGHT ATTENDANT TRAINING

B-787 Flight Attendant Transition Training (CFR Part 121.421)

The training modules addressed in the B-787 training program are considered to reflect the minimum training requirements for an emergency evacuation of the B-787 aircraft. In addition, these training modules were designed to train to the minimum evacuation performance standards required for optimum flight attendant performance proficiency when evacuating the B-787 aircraft. When approving B-787 training programs, the FAA must consider the category of training to be addressed, the complexity of the different related aircrafts of the B-787 aircraft, and the complexity of the type of operation to be conducted.

1. B-787 Aircraft Familiarization and Systems Orientation

- Aircraft characteristics and description including cabin configuration
- Description of the function and operation of the flight attendant jumpseat restraint system
- Description and location of emergency exits
- Door opening controls and indicators
- Arming and disarming of emergency evacuation system
- Door operating procedures in the normal mode
- Door operating procedures in the emergency mode including slide/raft deployment
- Description of the emergency communication and lighting systems

2. B-787 Flight Attendant-Evacuation Responsibilities

- Flight attendant numbering system and duty stations
- Flight attendant jumpseat restraint system and protective position at jumpseat
- Switches and controls to be used at assigned station
- Exit assignment(s) including where and how to assess conditions outside the aircraft
- Operation of exit controls including location of manual inflation handle
- Protective position at exit and dedicated assist space
- Evacuation commands and actions
- Helper requirements

3. B-787 Evacuation Procedures

- Flight attendant readiness including assuming protective position
- Maintaining brace position until aircraft comes to a complete stop
- Releasing seatbelt and getting out of seat
- Assessing conditions
- Decision to evacuate and initiation of evacuation

- Ensuring activation of emergency lights
- Commanding passengers to release seatbelts and evacuate
- Assessing exit condition while commanding passengers to stand back
- IF EXIT IS USABLE: opening of exit and assuming protective position in dedicated assist space.

NOTE: One area of training that needs to be emphasized in respect to an inoperative or blocked door is redirecting passengers in a positive and persuasive manner to an operative door. This would maximize the flow rates to an operative door which would aid in reducing the evacuation times.

- Pulling manual inflation handle
- Commanding passengers to stand back until slide/raft fully deployed
- Commanding passengers to evacuate at exit and run away from aircraft
- Continuing to assess conditions inside and outside the aircraft to ensure passenger flow is maintained
- Taking appropriate action to assist hesitant passengers
- When passenger flow has ceased at exit, taking appropriate actions to assist and redirect passengers at adjacent exit(s)
- Exiting aircraft following last passenger, using nearest exit
- IF EXIT NOT USABLE: blocking exit to prevent passenger egress while commanding passengers that exit is blocked
- Assessing usability of other doors in vicinity
- Visually determining that passenger flow has been established through a usable exit before re-directing passenger flow
- Directing passengers to nearest usable exit by issuing appropriate commands and using arms and hands to point passengers in direction of exit
- When in flight attendant's best judgment, passenger flow has been established away from a non usable exit and toward a usable exit, proceeding to appropriate location to best direct passengers to active exits
- Maintaining awareness of evacuation progress at other usable exits and directing (or redirecting) passengers as necessary to maintain equal flow to each exit
- FLIGHT ATTENDANTS NOT ASSIGNED TO AN EXIT: flight attendant readiness including assuming protective position
- Maintaining brace position until aircraft comes to a complete stop
- Releasing seatbelt and getting out of seat
- Assessing conditions and directing passengers to usable exits

4. Door Training

- INSTRUCTOR DEMONSTRATION: normal opening/closing, including use of gust lock
- Arming and disarming of emergency evacuation system including visual indicators
- Assessing conditions

- Emergency door operation including pulling of manual inflation handle
- Assuming protective position

- ALL FLIGHT ATTENDANTS PERFORM: one time arming and disarming of emergency evacuation system
- Verbal review of evacuation protocol
- Evacuation protocol including one successful opening of the door in the armed mode and one successful opening of the door in the emergency mode (average five minutes per trainee)

APPENDIX 8

FLIGHTCREW SLEEPING QUARTERS AND REST FACILITIES

In accordance with the guidance provided by AC 121-31 – Flightcrew Sleeping Quarters and Rest Facilities, the B-787 Flight Standardization Board (FSB) has conducted a comprehensive review of the B-787 Door 1 Overhead Flightcrew Rest facilities, as documented in the Certification Plan D925W071, and finds the facilities in compliance with 14 CFR Part 121.485 (a). Further, the FSB reviewed B-787 Door 3 and Door 5 Overhead Flight Attendant Rest facilities and found the safety-related features of the design to be equivalent to the Door 1 Overhead Flight Crew Rest facilities. Future changes to the approved configuration that affect crewmember emergency and/or related training shall require subsequent evaluation and approval by the FSB. The Principal Operating Inspector (POI) in lieu of an on-site operational evaluation may use this statement of compliance.

APPENDIX 9

EXAMPLE HUD TRAINING REQUIREMENTS

HEAD UP DISPLAY TRAINING REQUIREMENTS

The HUD pilot training is integrated in all B-787 ground and flight training. The HUD is a dual installation so both pilots will be trained on the HUD. Additional training is required for operators to receive credit for low visibility operations.

1. INITIAL GROUND TRAINING: For airline operators, initial training should be conducted in accordance with the applicable provisions of CFR PART 121.415, 121.419, 121.424, 121.427 and the airline operation specifications. For all operators, the initial ground training program should include the following elements:
 - A. Classroom instruction (or CBT) covering HUD operational concepts, crew duties and responsibilities and operational procedures including preflight, normal and non-normal pilot activities.
 - B. Classroom instruction (or CBT) on the HUD symbology set and it's inter-relationship with airplane aerodynamics, inertial factors and environmental conditions.
 - C. A HUD pilot training manual or equivalent material in the Operations Manual which explains all modes of operation, the use of various HUD controls, clear descriptions of HUD symbology including limit conditions and failures, and incorporating use of the HUD into existing crew procedures
2. Initial Flight Training: For all operators, initial flight training should be conducted in accordance with the applicable provisions of CFR Part 121 or CFR Part 142. HUD familiarization and proficiency is integrated into the flight training program. For flight simulator training, approach training should be conducted with a sufficient final approach segment to identify and train the appropriate symbology and HUD usage.

The following flight training program is generic in nature and should not be construed to dictate what is included in the course of instruction. This training can be integrated in the basic training course. Each operator has his own unique requirements, route structure, fleet composition and operations policies to consider in developing their training program. Therefore, what follows might be considered as a guide to an operator who is tailoring a HUD training program to fit his own needs.

A. Airwork - Airwork integrated into the training program. Emphasis should be placed on HUD unique symbology, i.e., flight path, flight path acceleration, airspeed error tape, and

the commonality with the heads down display (the PFD). When this training is complete, the trainee should have a thorough understanding of the relationship between aircraft flight path parameters and the HUD symbology.

- B. Visual Approaches Sufficient approach work to show HUD symbology and use in relation to glide path, centerline control, and crosswind conditions
- C. Instrument Approaches Sufficient ILS/GLS and non-ILS approaches, missed approaches, and landings with appropriate weather minimums to show HUD symbology and gain proficiency in these maneuvers.

HUD TAKEOFF DURING LOW VISIBILITY OPERATIONS

TRAINING REQUIREMENTS

For operators authorized for low visibility takeoff operations predicated on use of the HUD TAKEOFF function, training should be conducted in accordance with AC 120-29A and AC 120-28D.

RECURRENT REQUIREMENTS

For operators authorized for low visibility operations predicated on use of the HUD TAKEOFF function, recurrent training should be conducted in accordance with AC 120-29A and AC 120-28D.

Selected ground training subjects should be reviewed annually.

APPENDIX 10

EVALUATION REQUIREMENTS FOR THE 787 DIFFERENCES COURSE PARTIAL PROFICIENCY CHECK

EVALUATION SUMMARY

The simulator evaluation flight profile includes those procedures and representative maneuvers that will be evaluated in a motion visual simulator with emphasis on the differences between the 777 and the 787. The specific maneuvers, sequence of events and the non-normal procedures used may be modified at the discretion of the check pilot.

PREFLIGHT

Preflight
Engine start
Start malfunction
Taxi out
Takeoff checks

TAKEOFF

Normal takeoff
Instrument takeoff
Rejected takeoff
Departure procedures

APPROACH PROCEDURES

STAR/FMS procedures
Manually flown ILS approach
IAN Non-ILS approaches
Visual approach
Missed approach

LANDING

Full stop
Rejected landing

NON-NORMAL PROCEDURES

Select at least one of the following:
LIQUID COOLING
EFIS/DSP PANEL
FIRE CARGO

TAXI IN

After landing procedure
Parking, shutdown, and secure

13. B-787 FLIGHT STANDARDIZATION BOARD REPORT - PART II

SUPPLEMENTAL BOARD REPORT

Part II of the FSB report contains historical development information used to develop the final FSB report. This information is kept on file at the Seattle Aircraft Evaluation Office, 1601 Lind Avenue S.W., Renton, WA. 98055-4056