U.S. Department of Transportation
Federal Aviation Administration

Advisory Circular

Subject: Leadership and Command Training for Pilots in Command

Date: 3/3/20 **AC No:** 121-42

Initiated by: AFS-200 **Change:**

1 **PURPOSE OF THIS ADVISORY CIRCULAR (AC).** This AC presents guidelines for developing and implementing leadership and command training for pilots in command (PIC) and second-in-command (SIC) pilots serving in Title 14 of the Code of Federal Regulations (14 CFR) part 121 operations that require three or more pilots. These guidelines apply to air carriers, operators, and program managers conducting pilot training and qualification under part 121. This AC presents one way, but not necessarily the only way, that air carriers, operators, and program managers may comply with the leadership and command training requirements in part 121 subpart N. The contents of this document do not have the force and effect of law and are not meant to bind the public in any way. This document is intended only to provide clarity to the public regarding existing requirements under the law or agency policies. This AC may also provide valuable information to other air carriers and operators operating under 14 CFR part 125 or 135, other program managers operating under 14 CFR part 91 subpart K (part 91K) and training centers providing training under 14 CFR part 142.

Note: As described in paragraph 7.4, the FAA recognizes that an air carrier/ operator/program manager may choose to seek FAA approval to include robust leadership and command ground training that meets the regulatory requirements in its Crew Resource Management (CRM) modules.

2 **AUDIENCE.** The primary audience for this AC is air carrier, operator, and program manager personnel involved in the development and conduct of leadership and command training.

3 **WHERE YOU CAN FIND THIS AC.** You can find this AC on the Federal Aviation Administration's (FAA) website at https://www.faa.gov/regulations_policies/advisory_circulars.

4 **RELATED REGULATIONS.** The following 14 CFR sections may be found at https://www.ecfr.gov.

- Section 91.1063, Testing and Training: Applicability and Terms Used.
- Section 121.409, Training Courses Using Flight Simulation Training Devices.
- Section 121.419, Pilots and Flight Engineers: Initial, Transition, Conversion, and Upgrade Ground Training.
- Section 121.420, Pilots: Upgrade Ground Training.

- Section 121.424, Pilots: Initial, Transition, Conversion, and Upgrade Flight Training.
- Section 121.426, Pilots: Upgrade Flight Training.
- Section 121.427, Recurrent Training.
- Section 121.429, Pilots in Command: Leadership and Command and Mentoring Training.
- Section 121.432, General.
- Section 135.3, Rules Applicable to Operations Subject to This Part.

5 RELATED FAA GUIDANCE (current editions).

- AC 60-22, Aeronautical Decision Making.
- AC 120-35, Flightcrew Member Line Operational Simulations: Line-Oriented Flight Training, Special Purpose Operational Training, Line Operational Evaluation.
- AC 120-51, Crew Resource Management Training.
- AC 120-71, Standard Operating Procedures and Pilot Monitoring Duties for Flight Deck Crewmembers.
- Safety Alert for Operators (SAFO) 06004, Approach and Landing Accident Reduction: Sterile Cockpit, Fatigue.
- SAFO 07006, Safety During Positioning Flights.
- Information for Operators (InFO) 10003, Cockpit Distractions.
- FAA-H-8083-25, Pilot's Handbook of Aeronautical Knowledge.
- FAA-H-8083-2, Risk Management Handbook.

6 RELATED REFERENCES.

- *Leadership/Followership Recurrent Training*. Joseph H. Dunlap and Susan J. Mangold, Office of the Chief Scientific and Technical Advisor for Human Factors to the FAA (AAR-100), February 1998.
- *Leadership*, Flight Safety Foundation, https://www.skybrary.aero/index.php/Leadership_(OGHFA_BN).
- *Leadership: Theory, Application, & Skill Development*. Lussier, R. N., & Achua,
- C. F. (2010). Mason, OH: Cengage Learning.
- *Critical Thinking: An Introduction to Situational Awareness and Decision Making*, Flight Safety Foundation, https://www.skybrary.aero/bookshelf/views/bookDetails.php?bookId=758.

7 BACKGROUND.

7.1 Accidents.

7.1.1 On May 9, 2004, an Executive Airlines Avions de Transport Regional 72-212 crashed at the Luis Muñoz Marin International Airport, San Juan, Puerto Rico. During the landing conducted by the SIC, the airplane crossed the runway threshold at an airspeed 9 knots greater than the appropriate minimum approach airspeed and skipped once on the runway. The PIC took control and the airplane bounced hard twice on the runway and then came to a complete stop on a grassy area to the left of the runway. One flightcrew member was seriously injured and 3 flightcrew members and 16 passengers received minor injuries. The airplane was substantially damaged. The National Transportation Safety Board (NTSB) determined that the pilots did not comply with the Executive Airlines' standard operating procedures (SOP) for calculating approach airspeed. Additionally, the NTSB determined that the PIC did not properly follow the Executive Airlines' before-landing procedures and demonstrated poor flight deck oversight.

7.1.2 On October 14, 2004, a Pinnacle Airlines Bombardier CL-600-2B19, operating as Northwest Airlink Flight 3701, crashed into a residential area about 2.5 miles from the Jefferson City Memorial Airport, Jefferson City, Missouri. During the flight, both engines flamed out after a pilot-induced aerodynamic stall and were unable to be restarted. Both pilots were killed and the airplane was destroyed. The NTSB determined the pilots' unprofessional behavior, deviation from SOPs, failure to prepare for an emergency landing in a timely manner, and improper management of the double engine failure checklist contributed to the accident.

7.1.3 On October 19, 2004, a Corporate Airlines BAE Systems BAE-J3201 struck trees on final approach and crashed short of the runway at the Kirksville Regional Airport, Kirksville, Missouri. Both pilots and 11 passengers were fatally injured. Two passengers received serious injuries and the airplane was destroyed by impact and a post-impact fire. The NTSB determined that pilots' failure to follow established procedures, failure to adhere to the established division of duties between the pilot flying (PF) and pilot monitoring (PM), and their unprofessional behavior contributed to the accident.

7.1.4 On September 28, 2007, an American Airlines McDonnell Douglas DC-9-82 experienced an in-flight engine fire during departure from Lambert-St. Louis International Airport, St. Louis, Missouri. The flightcrew conducted an emergency landing. No occupant injuries were reported, but the airplane sustained substantial damage from the fire. The NTSB determined that the pilots failed to properly allocate tasks, including checklist execution and radio communications, and they did not effectively manage their workload which adversely affected their ability to conduct essential flight deck tasks, such as completing appropriate checklists.

7.1.5 On February 12, 2009, a Colgan Air Bombardier DHC-8-400, operating as Continental Connection Flight 3407, crashed about 5 nautical miles northeast of the Buffalo-Niagara International Airport while on an instrument approach. The 4 crewmembers, 45 passengers, and 1 person on the ground were killed and the airplane was destroyed by

impact forces and a post-crash fire. The NTSB determined that the pilots' failure to adhere to sterile cockpit procedures and the PIC's failure to effectively manage the flight contributed to the accident. The Colgan Air accident focused public and Congressional attention on multiple aspects of existing air carrier training requirements, including whether pilots were obtaining the training required to serve as leaders in the flight deck.

7.2 Pilot Professional Development Final Rule. On February 25, 2020, the FAA issued the Pilot Professional Development Final Rule. This Final Rule includes amendments to part 121 subpart N to require leadership and command training for PICs and for SICs serving in operations that require three or more pilots. This amendment is effective April 27, 2020. Compliance with the leadership and command training requirements in §§ 121.419, 121.420, 121.424, and 121.426 is required by April 27, 2022. Compliance with the leadership and command training requirements in §§ 121.409 and 121.429 is required by April 27, 2023.

7.3 SICs Serving in Part 121 Operations That Require Three or More Pilots. In accordance with § 121.432(a), except for operating experience and mentoring ground training, SICs serving in part 121 operations that require three or more pilots must be fully qualified as PICs. Therefore, these SICs are required to complete the same leadership and command training, including recurrent, as PICs. Accordingly, this AC applies equally to training for SICs serving in operations that require three or more pilots.

7.4 Crew Resource Management (CRM). In 1995, the FAA published the Air Carrier and Commercial Operator Training Programs Final Rule (60 FR 65940). The rule required part 121 air carriers to provide CRM training to crewmembers. The FAA also published AC 120-51 to provide basic guidance for developing CRM training. The FAA has amended AC 120-51 multiple times based on continuing research into effective CRM training. CRM is generally defined as the effective use of all available resources: human resources, hardware, and information. Therefore, the FAA recommends in AC 120-51 that CRM training be conducted jointly with other crewmembers and aircraft dispatchers. Joint CRM training allows team exercises in which each student can function in the same role that they normally perform during normal flight operations. As discussed in AC 120-51, leadership is a factor in effective CRM. However, since CRM training is most effective when conducted with other crewmembers and aircraft dispatchers, it is not designed with the express intent to provide leadership training to PICs. Despite this distinction, the FAA recognizes that an air carrier/operator/program manager may choose to seek FAA approval to include robust leadership and command ground training that meets the regulatory requirements in its CRM modules. To seek approval in this manner, an air carrier/operator/program manager would need to develop enhanced CRM training that included additional instruction and facilitated discussion specifically designed to provide PICs with the necessary leadership and command skills. The FAA recommends that PICs complete the leadership and command ground training prior to completing CRM training with other crewmembers. This will allow PICs to practice the newly acquired leadership and command skills during CRM team exercises. Subsequently, PICs will then be able to practice CRM and leadership and command skills during scenario-based flight training.

8 GENERAL. The purpose of leadership and command training is to develop PICs as capable leaders with knowledge of their position and responsibilities within the air carrier/operator/program manager, the regulatory environment, and air carrier/operator/program manager culture within which they must operate. In accordance with §§ 121.409, 121.419, 121.420, 121.424, 121.426, and 121.427, ground and flight training must be included in the PIC upgrade curriculum, PIC initial curriculum, and PIC recurrent curriculum. Further, in accordance with § 121.429, all current PICs must complete the PIC ground training on leadership and command.

9 OBJECTIVE. The objective of leadership and command training is to provide PICs with the leadership and command skills necessary to manage the crew (including flight attendants (F/A), if applicable), communications, and workload in a manner that promotes professionalism and adherence to SOPs. At the completion of training, the PIC should:

- Understand the regulatory requirements that impact authority and leadership;
- Understand the air carrier/operator/program manager's policies and procedures pertaining to authority and responsibility;
- Understand the impact of the PIC's performance on overall crew effectiveness;
- Understand appropriate leadership types and roles;
- Understand the skills needed for effective crew leadership;
- Understand the need to clarify roles and expectations for other crewmembers; and
- Be able to demonstrate effective leadership and command skills in line operations.

10 GROUND TRAINING. In accordance with §§ 121.419, 121.420, 121.427, and 121.429, ground training must include instruction and facilitated discussion. The following paragraphs identify suggested curriculum topics for the instruction module and facilitated discussion module. Each air carrier/operator/program manager should tailor these topics to their specific organizational culture and operations. This training may be presented by distance instruction as long as the leadership and command training objectives can be satisfied.

10.1 Instruction Module.

10.1.1 Defining Leadership. Leadership can be defined as a relational process that emphasizes the ability to exercise skill to achieve a goal, is both proactive and reactive, and necessarily takes into account other members of the group. In flight operations, leadership is a proactive process by the PIC that considers other crewmembers (including F/As, as applicable) and uses all available resources to achieve a safe flight in a professional manner in accordance with SOPs.

10.1.2 Attributes of Leadership. The PIC should understand the personality attributes, characteristics, and practices that can contribute to effective leadership during flight operations. Instruction should reflect evidence-based consideration of characteristics that

could influence a PIC's ability to lead, to potentially include discussions of confidence, focus, decisiveness, adaptability, accountability, honesty, professionalism, and inspiring others. The PIC should understand how leadership characteristics can influence and improve situation awareness, proactive decision making, and communication with others, including receptivity to feedback and active listening.

10.1.3 Roles and Styles of Leadership. Depending on the situation and other persons involved, an effective leader may perform different roles involving exercising or emphasizing specific leadership characteristics. PICs may have personality types that value different leadership characteristics differently, and should have evidence-based instruction recognizing the advantages and disadvantages to their default or preferred leadership style. PICs should consider how they can adapt their personal leadership and supervision styles to varying situations, including the experience and attributes of other crewmembers.

10.1.4 PIC Authority and Responsibility.

10.1.4.1 Legal Authority and Responsibility of the PIC in Accordance with 14 CFR. Title 14 CFR defines the PIC and prescribes the legal authority and responsibility of the PIC during part 121 operations.

- Title 14 CFR Part 1, § 1.1. The PIC is the person who has final authority and responsibility for the operation and safety of the flight; has been designated as the PIC before the flight; and holds the appropriate airman certificates and ratings for the conduct of the flight.
- Section 91.3. The PIC is directly responsible for and is the final authority as to the operation of the airplane. During an in-flight emergency requiring immediate action, the PIC may deviate from part 91 to the extent required to meet the emergency.
- Sections 121.533(b) and 121.535(b). For domestic and flag operations, the PIC is jointly responsible with the aircraft dispatcher for the preflight planning, delay, and dispatch release of a flight in compliance with the regulations and air carrier's operations specifications (OpSpec).
- Section 121.537(b) and (e). For supplemental operations, the PIC is jointly responsible with the director of operations for the initiation, continuation, diversion, and termination of a flight in compliance with the regulations and air carrier's OpSpecs. The PIC is responsible for the preflight planning and the operation of the flight in compliance with the regulations and the air carrier's OpSpecs.
- Sections 121.533(d), 121.535(d), and 121.537(d). During flight time, the PIC is in command of the airplane and crew. The PIC is responsible for the safety of the passengers, crewmembers, cargo, and airplane.

- Sections 121.533(e), 121.535(e), and 121.537(d). During flight time, the PIC has full control and authority in the operation of the airplane, without limitation, over other crewmembers and their duties during flight time.
- Section 121.542(b). The PIC may not permit any activity during a critical phase of flight which could distract any flightcrew member from the performance of his or her duties or which could interfere in any way with the proper conduct of those duties.
- Section 121.542(d). The PIC may not permit the use of a personal wireless communications device or laptop computer at a flightcrew member duty station unless the purpose is directly related to the operation of the airplane or for emergency, safety-related, or employment-related communications, in accordance with the approved air carrier procedures.
- Sections 121.557 and 121.559. In an emergency situation that requires immediate decision and action, the PIC may deviate from prescribed operations procedures and methods, weather minimums, and the regulations to the extent required in the interests of safety. When a PIC exercises emergency authority, he/she must keep the appropriate air traffic control (ATC) facility and aircraft dispatcher (domestic and flag operations) fully informed of the progress of the flight. The PIC must send a written report of any deviation through the air carrier to the Administrator within 10 days after return to the home base.

10.1.4.2 Air Carrier/Operator/Program Manager Policies and Procedures. Discuss the air carrier/operator/program manager's policies and procedures related to the PIC's legal authority and responsibility including:

- For domestic and flag operations, when the PIC does not agree with the aircraft dispatcher regarding the preflight planning, delay, and dispatch release of a flight;
- For supplemental operations, when the PIC does not agree with the director of operations for the initiation, continuation, diversion, and termination of a flight;
- When a flightcrew member is not complying with § 121.542(b) or (d);
- When a PIC exercises emergency authority in accordance with §§ 121.557 and 121.559, including the process for submitting the required written report; and
- Chain of command for normal operations, augmented crew operations, and non-normal operations with an incapacitated crewmember.

10.1.5 Adherence to SOPs. The PIC's adherence to SOPs has a direct impact on overall crew effectiveness, promotion of professionalism, and safety of the flight.

10.1.5.1 Normalization of Deviance. The normalization of deviance can generally be described as a gradual process during which nonstandard practices or actions become the norm through repetitive application with no corrective action.

10.1.5.2 Occurrence at an Air Carrier/Operator/Program Manager. The normalization of deviance could occur within a specific crew pairing, within a specific fleet, or within all fleets at an air carrier/operator/program manager.

10.1.5.3 Prevention. A PIC can contribute to the prevention of the normalization of deviance by taking the following actions:

- Acknowledging and reinforcing that the SOPs are designed to achieve consistently safe flight operations through adherence by all crewmembers;
- Recognizing situations that increase vulnerability to non-standard procedures or actions, such as time pressure, complacency, fatigue, and boredom;
- Not tolerating non-standard procedures or actions by other crewmembers, even when the non-standard action appears minor; and
- Using the air carrier/operator/program manager's safety reporting system to report any SOP that is impractical or ineffective instead of "working around" the SOP.

10.1.5.4 Examples. Some examples of normalization of deviance include:

- Nonessential conversations between crewmembers during sterile flight deck contrary to § 121.542(b);
- Use of a personal laptop computer or tablet by a flightcrew member during cruise flight contrary to § 121.542(d);
- A pilot not using the oxygen mask when the other pilot has left the flight deck duty station when operating above flight level (FL) 410 contrary to § 121.333(c)(3);
- Not completing the cruise checklist; and
- Continuation of an unstabilized approach contrary to the stabilized approach criteria stated in the air carrier/operator/program manager's SOPs.

10.1.6 Decision Making.

10.1.6.1 Decision-Making Process. The decision-making process is used to identify hazards, access the degree or risk, and determine the best course of action. Good decision making requires critical thinking.

10.1.6.2 Critical Thinking. Critical thinking is an intellectual, methodical, and disciplined process of interpreting and evaluating information resulting in well-reasoned judgments and decisions. Critical thinking requires a person to seek information, analyze that information, ask pertinent questions about that information, assess alternatives, and reach a conclusion.

10.1.6.3 Decision-Making Models. There are many decision-making models currently in use within aviation that provide a PIC or flightcrew with a logical way of making decisions. Consider discussing evidence-based models that have been identified as providing an easily recalled, structured outline to aid PICs and flightcrews when making critical decisions for risk management.

10.2 Facilitated Discussion Module.

10.2.1 Briefing and Debriefing Strategies. Instructors should facilitate discussion of effective briefing and debriefing strategies using examples from the air carrier/operator/program manager's Safety Management System (SMS), Aviation Safety Action Program (ASAP), Line Operations Safety Audit (LOSA), or other event-reporting programs, when possible. Instructors should facilitate practical exercises requiring students to practice briefings and debriefings occurring regularly during line operations, such as:

- Preflight briefing of the crew, including F/As, if applicable, prior to the first flight of the day;
- Preflight briefing of the flightcrew prior to a flight for which a higher than normal workload is expected due to circumstances such as icing conditions, items deferred per the minimum equipment list (MEL), and takeoff or landing from a special airport;
- Briefing of the flightcrew prior to the PIC taking a rest break; and
- Debriefing of the flightcrew after a flight for which a higher than normal workload was encountered.

10.2.2 Decision-Making Exercises. Practical exercises should focus on scenarios requiring the students to exercise decision-making skills. The FAA recommends that scenarios be developed based on actual events reported through the air carrier/operator/program manager's SMS, ASAP, LOSA, or other event-reporting programs.

10.2.3 Positive and Negative Leadership Experiences. Instructors should facilitate a discussion of positive and negative leadership experiences that the students have experienced during line operations. For discussion of negative leadership experiences, the instructor should facilitate discussion of how the leader could have acted differently for a more positive leadership experience.

10.2.4 Professional and Unprofessional Conduct. Instructors should facilitate a discussion of professional and unprofessional conduct that the students have experienced during line operations. The FAA recommends including examples reported through the air carrier/operator/program manager's SMS, ASAP, LOSA, or other event-reporting programs, when possible.

10.2.5 Reinforcement and Correction Skills. Instructors should facilitate a discussion of appropriate reinforcement and correction skills, including positive and negative experiences that the students have experienced during line operations as an SIC. Instructors should facilitate practical exercises requiring students to practice effective reinforcement and correction skills of other crewmembers.

11 FLIGHT TRAINING.

11.1 PIC Initial and Upgrade. In accordance with §§ 121.424 and 121.426, initial flight training for PICs and upgrade flight training for PICs must include scenario-based training structured to incorporate CRM and leadership and command skills. This scenario-based training should provide the PIC with an opportunity to use the skills learned in ground training in a realistic flight environment. As described in AC 120-35, the FAA recommends that scenario-based training be conducted using a complete flightcrew (i.e., PIC, SIC, and, if applicable, Flight Engineer (FE)).

11.1.1 Scenario Development. Scenario-based training may consist of full or partial flight segments. An effective scenario would provide an opportunity for the PIC to identify available resources, obtain information from those resources, analyze that information, apply decision-making techniques, and communicate and coordinate with ATC, the aircraft dispatcher, and other crewmembers, as appropriate.

11.1.2 Examples. Examples of scenarios include, but are not limited to:

- Mechanical malfunctions;
- Passenger medical events;
- Variable weather conditions; or
- Security concerns.

11.2 PIC Recurrent. In accordance with § 121.409, recurrent Line-Oriented Flight Training (LOFT) must provide an opportunity for each PIC to demonstrate leadership and command skills. The FAA recommends that scenarios for recurrent LOFT be developed based on actual events reported through the air carrier/operator/program manager's SMS, ASAP, LOSA, or other event-reporting programs. In accordance with § 121.409, recurrent LOFT must be conducted using a complete flightcrew (i.e., PIC, SIC, and, if applicable, FE). Refer to AC 120-35 for additional information regarding LOFT.

12 INSTRUCTOR QUALIFICATION.

The key to effective leadership and command training is a properly trained and qualified instructor who possesses the necessary experience, academic knowledge, and skills applicable to the specific air carrier/operator/program manager's leadership and command training.

12.1 Ground Instructor Training. In accordance with § 121.401(a), each air carrier/operator/program manager must provide properly qualified ground instructors. Therefore, the FAA recommends ground instructor training include:

- The topics as outlined in paragraph 10; and
- How to effectively lead a facilitated discussion. This training should include practice in conducting a facilitated discussion using the air carrier/operator/program manager's delivery method (e.g., classroom or distance instruction).

12.2 Flight Instructor Training. In accordance with § 121.414, flight instructors must be trained on the appropriate methods, procedures, and techniques for conducting flight instruction. Therefore, the FAA recommends flight instructor training include:

- The topics as outlined in paragraphs 10 and 11; and
- How to conduct effective scenario-based training which incorporates CRM and leadership and command skills.

12.3 Additional Instructor Skills. Instructors should also have the following skills:

- Good listening and effective communication skills;
- Being approachable and responsive to students;
- Credibility and integrity; and
- For ground instructors, sufficient knowledge of flightcrew member roles to effectively facilitate role-playing exercises.

13 CREDIT FOR PREVIOUS LEADERSHIP AND COMMAND TRAINING.

Section 121.429 allows credit toward all or part of the requirements for leadership and command training for current PICs. In accordance with § 121.429(b)(1), the credit must be based on leadership and command training previously completed with that air carrier/operator/program manager after April 27, 2017 and prior to April 27, 2020.

13.1 Request Process. An air carrier/operator/program manager who has voluntarily provided leadership and command training to PICs may seek credit for all or part of the requirements for leadership and command training for current PICs. To seek credit, an air carrier/operator/program manager should submit the following information to the Principal Operations Inspector (POI):

- Outline of the training module(s) for leadership and command training with sufficient detail to determine if some, or all, of the principal elements, as outlined in this AC, were included;
- Description of the training aids, devices, methods, and procedures used during leadership and command training; and
- Description of the recordkeeping method used by the air carrier/operator/program manager to determine if each PIC has completed all or part of the requirements of leadership and command training.

13.2 Evaluation Process. To ensure a consistent determination of whether the previous training met some or all of the requirements, the FAA established a focus team, consisting of FAA subject matter experts (SME), to evaluate all requests for credit. The POI will forward the air carrier/operator/program manager's request to the focus team. To determine whether credit should be granted, the focus team will conduct an evaluation of the information submitted. The focus team will consider the training aids, devices, methods, and procedures as well as the content of the training module as compared to the guidelines presented in this AC. The focus team, through the POI, may request additional supporting information, such as courseware, lesson plans, or instructor guides, if necessary for a thorough evaluation.

13.3 Notification Process. After completing the evaluation, the focus team, through the POI, will notify the air carrier/operator/program manager by letter whether credit toward all or part of the requirements for leadership and command training is granted.

13.4 Recordkeeping. If credit is granted, in accordance with § 91.1027, § 121.683, or § 135.63, as applicable, the air carrier/operator/program manager must enter a record into the recordkeeping system for each PIC. The record must document the credit granted to meet all or part of the requirements of § 121.429. The record should reference the letter provided by the POI.

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