

using stands or ramps allowed by item (3) above are considered to be on the ground when they are on the stand or ramp: *Provided*, That the acceptance rate of the stand or ramp is no greater than the acceptance rate of the means available on the airplane for descent from the wing during an actual crash situation.

(b) *Ditching demonstration.* The demonstration must assume that daylight hours exist outside the airplane, and that all required crewmembers are available for the demonstration.

(1) If the certificate holder's manual requires the use of passengers to assist in the launching of liferafts, the needed passengers must be aboard the airplane and participate in the demonstration according to the manual.

(2) A stand must be placed at each emergency exit and wing, with the top of the platform at a height simulating the water level of the airplane following a ditching.

(3) After the ditching signal has been received, each evacuee must don a life vest according to the certificate holder's manual.

(4) Each liferaft must be launched and inflated, according to the certificate holder's manual, and all other required emergency equipment must be placed in rafts.

(5) Each evacuee must enter a liferaft, and the crewmembers assigned to each liferaft must indicate the location of emergency equipment aboard the raft and describe its use.

(6) Either the airplane, a mockup of the airplane or a floating device simulating a passenger compartment must be used.

(i) If a mockup of the airplane is used, it must be a life-size mockup of the interior and representative of the airplane currently used by or proposed to be used by the certificate holder, and must contain adequate seats for use of the evacuees. Operation of the emergency exits and the doors must closely simulate those on the airplane. Sufficient wing area must be installed outside the over-the-wing exits to demonstrate the evacuation.

(ii) If a floating device simulating a passenger compartment is used, it must be representative, to the extent possible, of the passenger compartment of the airplane used in operations. Operation of the emergency exits and the doors must closely simulate operation on that airplane. Sufficient wing area must be installed outside the over-the-wing exits to demonstrate the evacuation. The device must be equipped with the same survival equipment as is installed on the air-

plane, to accommodate all persons participating in the demonstration.

[Doc. No. 2033, 30 FR 3206, Mar. 9, 1965, as amended by Amdt. 121-30, 32 FR 13268, Sept. 20, 1967; Amdt. 121-41, 33 FR 9067, June 20, 1968; Amdt. 121-46, 34 FR 5545, Mar. 22, 1969; Amdt. 121-47, 34 FR 11489, July 11, 1969; Amdt. 121-233, 58 FR 45230, Aug. 26, 1993]

#### APPENDIX E TO PART 121—FLIGHT TRAINING REQUIREMENTS

The maneuvers and procedures required by §121.424 of this part for pilot initial, transition, and upgrade flight training are set forth in the certificate holder's approved low-altitude windshear flight training program and in this appendix and must be performed inflight except that windshear maneuvers and procedures must be performed in an airplane simulator in which the maneuvers and procedures are specifically authorized to be accomplished and except to the extent that certain other maneuvers and procedures may be performed in an airplane simulator with a visual system (visual simulator), an airplane simulator without a visual system (nonvisual simulator), a training device, or a static airplane as indicated by the appropriate symbol in the respective column opposite the maneuver or procedure.

Whenever a maneuver or procedure is authorized to be performed in a nonvisual simulator, it may be performed in a visual simulator; when authorized in a training device, it may be performed in a visual or nonvisual simulator, and in some cases, a static airplane. Whenever the requirement may be performed in either a training device or a static airplane, the appropriate symbols are entered in the respective columns.

For the purpose of this appendix, the following symbols mean—

P=Pilot in Command (PIC).  
 S=Second in Command (SIC).  
 B=PIC and SIC.  
 F=Flight Engineer.  
 PJ=PIC transition Jet to Jet.  
 PP=PIC transition Prop. to Prop.  
 SJ=SIC transition Jet to Jet.  
 SP=SIC transition Prop. to Prop.  
 AT=All transition categories (PJ, PP, SJ, SP).  
 PS=SIC upgrading to PIC (same airplane).  
 SF=Flight Engineer upgrading to SIC (same airplane).  
 BU=Both SIC and Flight Engineer upgrading (same airplane).

FLIGHT TRAINING REQUIREMENTS

|   | Initial training |        |                  |                      | Transition training |          |           |                  | Upgrade training     |                 |           |        |                  |                      |                 |
|---|------------------|--------|------------------|----------------------|---------------------|----------|-----------|------------------|----------------------|-----------------|-----------|--------|------------------|----------------------|-----------------|
|   | A/P              |        | Simulator        |                      | A/P                 |          | Simulator |                  | A/P                  |                 | Simulator |        |                  |                      |                 |
|   | Inflight         | Static | Visual simulator | Non-visual simulator | Training device     | Inflight | Static    | Visual simulator | Non-visual simulator | Training device | Inflight  | Static | Visual simulator | Non-visual simulator | Training device |
| Maneuvers/Procedures  |                  |        |                  |                      |                     |          |           |                  |                      |                 |           |        |                  |                      |                 |
| As appropriate to the airplane and the operation involved, flight training for pilots must include the following maneuvers and procedures..   |                  |        |                  |                      |                     |          |           |                  |                      |                 |           |        |                  |                      |                 |
| I. Preflight  |                  |        |                  |                      |                     |          |           |                  |                      |                 |           |        |                  |                      |                 |
| (a) Visual inspection of the exterior and interior of the airplane, the location of each item to be inspected, and the purpose for inspecting it. If a flight engineer is a required crewmember for the particular type of airplane, the visual inspection may be replaced by using an approved pictorial means that realistically portrays the location and detail of preflight inspection items.. |                  |        |                  |                      |                     |          |           |                  |                      |                 |           |        |                  |                      |                 |
| (b) Use of the prestart check list, appropriate control system checks, starting procedures, radio, and electronic equipment checks, and the selection of proper navigation and communications radio facilities and frequencies prior to flight.   |                  |        |                  |                      |                     |          |           |                  |                      |                 |           |        |                  |                      |                 |
| (c) Taxiing, sailing, and docking procedures in compliance with instructions issued by the appropriate Traffic Control Authority or by the person conducting the training.  | B                |        |                  |                      |                     |          |           |                  |                      |                 |           |        |                  |                      |                 |
| (d) Pretakeoff checks that include powerplant checks.   |                  |        |                  |                      |                     |          |           |                  |                      |                 |           |        |                  |                      |                 |
| II. Takeoffs:   |                  |        |                  |                      |                     |          |           |                  |                      |                 |           |        |                  |                      |                 |
| (a) Normal takeoffs which, for the purpose of this maneuver, begin when the airplane is taxied into position on the runway to be used.  | B                |        |                  |                      |                     |          |           |                  |                      |                 |           |        |                  |                      |                 |
| (b) Takeoffs with instrument conditions simulated at or before reaching an altitude of 100' above the airport elevation.  |                  | B      |                  |                      |                     |          |           | AT               |                      |                 |           |        | BU               |                      |                 |
| (c) Crosswind takeoffs  | B                |        |                  |                      |                     |          |           |                  |                      |                 |           |        |                  |                      |                 |
| (d) Takeoffs with a simulated failure of the most critical powerplant—  |                  | B      |                  |                      |                     |          |           | AT               |                      |                 |           |        | BU               |                      |                 |



FLIGHT TRAINING REQUIREMENTS—Continued

|  | Initial training |        |                  |                      | Transition training |          |           |                  | Upgrade training     |                 |           |        |                  |                      |                 |
|--|------------------|--------|------------------|----------------------|---------------------|----------|-----------|------------------|----------------------|-----------------|-----------|--------|------------------|----------------------|-----------------|
|  | A/P              |        | Simulator        |                      | A/P                 |          | Simulator |                  | A/P                  |                 | Simulator |        |                  |                      |                 |
|  | Inflight         | Static | Visual simulator | Non-visual simulator | Training device     | Inflight | Static    | Visual simulator | Non-visual simulator | Training device | Inflight  | Static | Visual simulator | Non-visual simulator | Training device |
| Maneuvers/Procedures   |                  |        |                  |                      |                     |          |           |                  |                      |                 |           |        |                  |                      |                 |
| (9) Auto-pilot   | .....            | .....  | .....            | B                    | .....               | .....    | .....     | .....            | .....                | .....           | .....     | .....  | .....            | .....                | .....           |
| (10) Automatic or other approach aids  | B                | .....  | .....            | B                    | .....               | .....    | .....     | .....            | .....                | .....           | .....     | .....  | .....            | .....                | .....           |
| (11) Stall warning devices, stall avoidance devices, and stability augmentation devices.   | B                | .....  | .....            | B                    | .....               | .....    | .....     | .....            | .....                | .....           | .....     | .....  | .....            | .....                | .....           |
| (12) Airborne radar devices  | .....            | .....  | .....            | B                    | .....               | .....    | .....     | .....            | .....                | .....           | .....     | .....  | .....            | .....                | .....           |
| (13) Any other systems, devices, or aids available.  | .....            | .....  | .....            | B                    | .....               | .....    | .....     | .....            | .....                | .....           | .....     | .....  | .....            | .....                | .....           |
| (14) Electrical, hydraulic, flight control, and flight instrument system malfunctioning or failure.  | .....            | .....  | .....            | B                    | .....               | .....    | .....     | .....            | .....                | .....           | .....     | .....  | .....            | .....                | .....           |
| (15) Landing gear and flap systems failure or malfunction.   | .....            | .....  | .....            | B                    | .....               | .....    | .....     | .....            | .....                | .....           | .....     | .....  | .....            | .....                | .....           |
| (16) Failure of navigation or communications equipment.  | .....            | .....  | .....            | B                    | .....               | .....    | .....     | .....            | .....                | .....           | .....     | .....  | .....            | .....                | .....           |
| (g) Flight emergency procedures that include at least the following:   | .....            | .....  | .....            | B                    | .....               | .....    | .....     | .....            | .....                | .....           | .....     | .....  | .....            | .....                | .....           |
| (1) Powerplant, heater, cargo compartment, cabin, flight deck, wing, and electrical fires.   | .....            | .....  | .....            | B                    | .....               | .....    | .....     | .....            | .....                | .....           | .....     | .....  | .....            | .....                | .....           |
| (2) Smoke control  | .....            | .....  | .....            | B                    | .....               | .....    | .....     | .....            | .....                | .....           | .....     | .....  | .....            | .....                | .....           |
| (3) Powerplant failures  | .....            | .....  | .....            | B                    | .....               | .....    | .....     | .....            | .....                | .....           | .....     | .....  | .....            | .....                | .....           |
| (4) Fuel jettisoning   | .....            | .....  | .....            | B                    | .....               | .....    | .....     | .....            | .....                | .....           | .....     | .....  | .....            | .....                | .....           |
| (5) Any other emergency procedures outlined in the appropriate flight manual.  | .....            | .....  | .....            | B                    | .....               | .....    | .....     | .....            | .....                | .....           | .....     | .....  | .....            | .....                | .....           |
| (h) Sleep turns in each direction. Each sleep turn must involve a bank angle of 45° with a heading change of at least 180° but not more than 360°.                                   | .....            | .....  | .....            | P                    | .....               | .....    | .....     | .....            | .....                | .....           | .....     | .....  | .....            | .....                | .....           |
| (i) Approaches to stalls in the takeoff configuration (except where the airplane uses only a zero-flap configuration), in the clean configuration, and in the landing configuration. | .....            | .....  | .....            | B                    | .....               | .....    | .....     | .....            | .....                | .....           | .....     | .....  | .....            | .....                | .....           |
| Training in at least one of the above configurations must be accomplished while in a turn with a bank angle between 15° and 30°.   | .....            | .....  | .....            | B                    | .....               | .....    | .....     | .....            | .....                | .....           | .....     | .....  | .....            | .....                | .....           |
| (j) Recovery from specific flight characteristics that are peculiar to the airplane type.  | .....            | .....  | .....            | B                    | .....               | .....    | .....     | .....            | .....                | .....           | .....     | .....  | .....            | .....                | .....           |



FLIGHT TRAINING REQUIREMENTS—Continued

|  | Initial training |        |                  |                      | Transition training |          |           |                  | Upgrade training     |                 |           |        |                  |                      |                 |
|--|------------------|--------|------------------|----------------------|---------------------|----------|-----------|------------------|----------------------|-----------------|-----------|--------|------------------|----------------------|-----------------|
|  | A/P              |        | Simulator        |                      | A/P                 |          | Simulator |                  | A/P                  |                 | Simulator |        |                  |                      |                 |
|  | Inflight         | Static | Visual simulator | Non-visual simulator | Training device     | Inflight | Static    | Visual simulator | Non-visual simulator | Training device | Inflight  | Static | Visual simulator | Non-visual simulator | Training device |
| Maneuvers/Procedures   |                  |        |                  |                      |                     |          |           |                  |                      |                 |           |        |                  |                      |                 |
| (2) The circling approach must be made to the authorized minimum circling approach altitude followed by a change in heading and the necessary maneuvering (by visual reference) to maintain a flight path that permits a normal landing on a runway at least 90° from the final approach course of the simulated instrument portion of the approach.   |                  |        |                  |                      |                     |          |           |                  |                      |                 |           |        |                  |                      |                 |
| (3) The circling approach must be performed without excessive maneuvering, and without exceeding the normal operating limits of the airplane. The angle of bank should not exceed 30°.   |                  |        |                  |                      |                     |          |           |                  |                      |                 |           |        |                  |                      |                 |
| Training in the circling approach maneuver is not required for a pilot employed by a certificate holder subject to the operating rules of Part 121 of this chapter if the certificate holder's manual prohibits a circling approach in weather conditions below 1000-3 (ceiling and visibility); for a SIC if the certificate holder's manual prohibits the SIC from performing a circling approach in operations under this part. |                  |        |                  |                      |                     |          |           |                  |                      |                 |           |        |                  |                      |                 |
| (o) Zero-flap approaches. Training in this maneuver is not required for a particular airplane type if the Administrator has determined that the probability of flap extension failure on that type airplane is extremely remote due to system design. In making this determination, the Administrator determines whether training on slats only and partial flap approaches is necessary.  | P                |        |                  |                      |                     |          |           |                  |                      |                 |           |        |                  |                      |                 |
| (p) Missed approaches which include the following:<br>(1) Missed approaches from ILS approaches.   |                  | B      |                  |                      |                     |          |           | PP, PJ           |                      |                 |           |        | PS               |                      |                 |
|  |                  |        |                  |                      |                     |          |           |                  |                      |                 |           |        |                  |                      | BU              |



FLIGHT TRAINING REQUIREMENTS—Continued

| Maneuvers/Procedures  | Initial training |        |                  |                      | Transition training |          |           |                  | Upgrade training     |                   |           |        |                  |                      |                   |       |
|---|------------------|--------|------------------|----------------------|---------------------|----------|-----------|------------------|----------------------|-------------------|-----------|--------|------------------|----------------------|-------------------|-------|
|   | A/P              |        | Simulator        |                      | A/P                 |          | Simulator |                  | A/P                  |                   | Simulator |        |                  |                      |                   |       |
|   | Inflight         | Static | Visual simulator | Non-visual simulator | Train-ing de-vice   | Inflight | Static    | Visual simulator | Non-visual simulator | Train-ing de-vice | Inflight  | Static | Visual simulator | Non-visual simulator | Train-ing de-vice |       |
| (f) Landing under simulated circling approach conditions (exceptions under III(n) applicable to this requirement).  | B                | .....  | .....            | .....                | .....               | .....    | .....     | AT               | .....                | .....             | .....     | .....  | .....            | .....                | .....             | ..... |
| (g) Rejected landings that include a normal missed approach procedure after the maneuver is rejected. For the purpose of this maneuver the landing should be rejected at approximately 50 feet and approximately over the runway threshold.   | B                | .....  | .....            | .....                | .....               | .....    | .....     | AT               | .....                | .....             | .....     | .....  | .....            | .....                | .....             | ..... |
| (h) Zero-flap landings if the Administrator finds that maneuver appropriate for training in the airplane.   | P                | .....  | .....            | .....                | .....               | .....    | .....     | PP, P, J.        | .....                | .....             | .....     | .....  | .....            | .....                | .....             | ..... |
| (i) Manual reversion (if appropriate) ..... Training in landings and approaches to landings must include the types and conditions provided in IV(a) through (l) but more than one type may be combined where appropriate.   | .....            | .....  | .....            | .....                | .....               | .....    | .....     | AT               | .....                | .....             | .....     | .....  | .....            | .....                | .....             | ..... |
| Training in one of the above landings must be accomplished at night. For transitioning pilots, this requirement may be met during the operating experience required under §121.434 of this part by performing a normal landing when a check pilot serving as pilot-in-command is occupying a pilot station. | B                | .....  | .....            | .....                | .....               | .....    | .....     | .....            | .....                | .....             | .....     | .....  | .....            | .....                | .....             | ..... |

[Doc. No. 9509, 35 FR 97, Jan. 3, 1970, as amended by Amdt. 121-91, 37 FR 10730, May 27, 1972; Amdt. 121-108, 38 FR 35446, Dec. 28, 1973; Amdt. 121-159, 45 FR 41595, June 19, 1980; Amdt. 121-199, 53 FR 37697, Sept. 27, 1988]