

Federal Aviation Agency



AC NO: AC 120-4A

AIR CARRIER AND
COMMERCIAL OPERATIONS

Cancelled See 4B

EFFECTIVE :

8/9/65

SUBJECT : CRITERIA FOR TURBOJET LANDING MINIMA - AIR CARRIERS
AND COMMERCIAL OPERATORS OF LARGE AIRCRAFT

1. PURPOSE. This Advisory Circular amends the criteria for approval of landing minima below 300-3/4 or RVR 4000 for turbojet aircraft. Specific requirements and authorizations are contained in the air carrier and commercial operator operations specifications.
2. CANCELLATION. Advisory Circular 120-4 is hereby canceled.
3. BACKGROUND. Criteria for the reduction of turbojet landing minimums from 300-3/4 to 200-1/2 were originally issued on September 28, 1961, as a step toward all-weather operation. Subsequently, on May 11, 1962, the first air carrier was authorized to utilize straight-in ILS/PAR minimums of 200-1/2 or RVR 2600 at a few selected airports. Operating experience proved satisfactory and the standard RVR minimum was in October of 1963, lowered to RVR 2400. At that time the air carriers were also authorized RVR 1800 for ILS/PAR approaches to runways equipped with touchdown zone and centerline lights for all aircraft except 4-engine jets. Subsequently, RVR 2000 was authorized for 4-engine jets on runways equipped with these lights.
4. AIRPORTS - ALL TURBOJET AIRCRAFT.
 - a. Straight-in landing minimums below 300-3/4 or RVR 4000 may be authorized at U. S. airports for turbojet aircraft when:
 - (1) Glide slope angle is 3 degrees or less.
 - (2) The runway is served by high intensity runway lights, and standard approach light system with sequenced flashing lights.
 - (3) TSO-N10(b) all-weather runway marking or runway centerline lighting is available.

b. Approval of Foreign Airports.

Foreign airports served by U. S. air carriers or commercial operators may be approved in accordance with the provisions of this Advisory Circular on a basis of equivalent safety. The requirements for additional runway length and the maximum allowable crosswind component will not be waived in any case; however, the requirement for sequenced flashing approach lights may be deleted if the approach lighting system provides adequate guidance.

5. AIRBORNE EQUIPMENT - ALL TURBOJET AIRCRAFT. In addition to instrument and radio requirements specified in the FARs, the following equipment is required:

- a. A flight director system or an automatic approach coupler. The air carrier must show that such equipment has an acceptable level of reliability.
- b. An improved instrument failure warning system or cockpit procedure designed to insure the ready detection of instrument and approach system failures.

6. TRAINING REQUIREMENTS - ALL TURBOJET AIRCRAFT.

- a. Initial Training. The approved training program must be amended to include the following pilot-in-command qualification requirements which are categorized according to the type of instrumentation the operator elects to use:

(1) Dual Flight Director Systems.

- (a) One ILS approach to 100' from which a landing will be accomplished.
- (b) One ILS approach to at least 200' from which a missed approach will be executed with one of the critical engines at idle thrust.

(2) Single Flight Director System and Automatic Approach Coupler.

- (a) One ILS approach to 100' using the flight director.
- (b) One coupled ILS approach to 100'.
- (c) From either (a) or (b) a missed approach will be executed with one of the critical engines at idle thrust.
- (d) From either (a) or (b) a landing will be accomplished.

(3) Single Flight Director or Automatic Approach Coupler.

- (a) One ILS approach to 200' using raw data presentation (manual approach) without using either the flight director or approach coupler from which a missed approach will be executed with one of the critical engines at idle thrust.
- (b) One ILS approach to 100' using either the flight director or approach coupler, from which a landing will be completed.

(4) The initial pilot-in-command training requirements must be satisfactorily accomplished in each type of turbojet aircraft for which approval is sought, unless it is shown that the instrument panels and approach guidance systems installed in each type are comparable.

(5) Pilots-in-command must be initially certified by an FAA inspector as having satisfactorily demonstrated the approaches specified above, as appropriate, before being authorized to utilize the lower minimums.

b. Recurrent Training. The recurrent pilot-in-command proficiency requirements include a satisfactory demonstration in flight, to an FAA inspector, or company check pilot, the approaches specified in paragraph a. above, as appropriate. If the carrier has an approved aircraft simulator, the alternate check may be accomplished in the simulator. In the case of a pilot-in-command who is qualified in more than one type of aircraft, the proficiency requirements need be accomplished in only one such type; provided, the instrument panels and approach guidance systems installed in each type are comparable. If a pilot is approved to use both the flight director and the approach coupler, the coupler demonstration need not be accomplished. However, a pilot must make at least two ILS approaches in order to accomplish the landing and missed approach requirements.

7. OPERATIONAL REQUIREMENTS - ALL TURBOJET AIRCRAFT. The operations manual and the minimum equipment list will be amended to include the following:

- a. If the operator wishes to predicate its operations on dual flight director systems, the minimum equipment list must be amended to require both systems to be operative for dispatch when the destination weather is forecast to be below 300-3/4 or RVR 4000 at the estimated time of arrival.
- b. If the operation is predicated on pilot demonstration of a flight director approach and an automatic coupler approach in lieu of a raw data (manual) approach, both the flight director and approach

coupler must be operative for dispatch when the destination weather is forecast to be below 300-3/4 or RVR 4000 at the estimated time of arrival.

- c. Operators predicating their operation on either a. or b. above (dual flight director system or flight director and approach coupler) and if pilots-in-command have not demonstrated a raw data approach, ILS/PAR landing minimums will revert to turbojet localizer minimums, as appropriate to the aircraft and location, in event of failure of both systems en route.
- d. If the operation is predicated on either a single flight director or automatic approach coupler and pilots have demonstrated a raw data approach landing minimums will be at least 300-3/4 in the event of failure of the flight director or approach coupler en route.
- e. Pilots with less than 100 hours of pilot-in-command time in the particular type turbojet aircraft will be governed by the provisions of FAR 121.651(e). When these pilots have been certificated by an FAA inspector as having met the requirements of paragraph 6, of this Advisory Circular, they may be authorized to utilize minimums of 300-1 or RVR 5000 until they have acquired the necessary 100 hours pilot-in-command in that type aircraft.

8. INITIAL AIR CARRIER APPROVAL. The initial application for amendment of the operations specifications for authority to operate with landing weather minimums below 300-3/4 or RVR 4000 will be approved for the carrier when 30 percent of the operator's turbojet pilots-in-command have successfully demonstrated their ability to utilize these lower minimums to an FAA inspector. All of the carrier's turbojet pilots-in-command must be subsequently observed and certified by an FAA inspector before using these minimums.

9. AMENDMENT OF THE OPERATIONS SPECIFICATIONS.

a. All Turbojet Aircraft. When the foregoing provisions have been met, the operations specifications will be amended as follows:

- (1) Pilot Qualifications. The straight-in ILS or PAR landing minimums specified in paragraph ____ above under special conditions for lower landing minima are authorized only for those pilots-in-command who have been certified by an FAA inspector as being qualified to operate at such minimums; provided: That for 4-engine turbojet aircraft such lower minimums apply only at those airports listed in paragraph ____, or ____ below.

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- (2) Operating Limitations. An ILS or PAR instrument approach shall not be started in any turbojet aircraft when weather conditions are reported to be less than 300-3/4 or RVR 4000 feet unless:
- (a) 15 percent or 1000 feet, whichever is greater, additional runway is available over the required FAR field length.
 - (b) The crosswind component does not exceed 10 knots.
 - (c) The required components of the ILS or PAR to operate at the minima specified in paragraph ___ above and related airborne equipment are operative.
 - (d) The approach lights and sequenced flashing lights are operative.
 - (e) All-weather runway marking or runway centerline lights are available.

b. Authorized Minima. The amended operations specifications will authorize the following landing minima:

(1) Four-engine Turbojet.

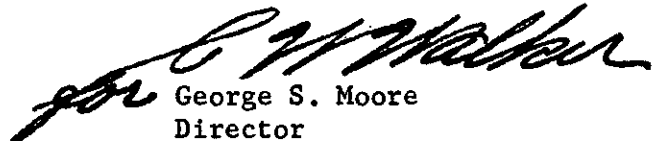
- (a) Straight-in landing minima of 200-1/2, RVR 2400 may be authorized when provisions of paragraphs 4, 5, and 6 of this Advisory Circular are met, and the specific airports/runways are listed in the air carrier operations specifications.
- (b) Straight-in ILS landing minima of 2000 RVR may be authorized on runways served by operating touchdown zone and threshold-to-threshold centerline lighting when the provisions of paragraphs 4, 5, and 6 of this Advisory Circular are met.
- (c) All airports/runways must be approved by FAA Washington prior to their authorization for landing minima below 300-3/4.

c. Two and Three-Engine Turbojet Aircraft.

- (1) Straight-in ILS landing minima of 200-1/2, RVR 2400, may be approved when the provisions of paragraphs 4, 5, and 6 of this Advisory Circular are met.
- (2) Straight-in ILS landing minima of RVR 1800 may be authorized when the provisions of paragraphs 4, 5, and 6 of this Advisory Circular are met and the runway is served by operating touchdown zone and threshold-to-threshold centerline lighting.

- d. The airports/runways approved for these minimums must meet all of the requirements contained herein and must also be approved in the FAA Form 511 for standard minimums of 200-1/2 or RVR 2400 for propeller aircraft.
- e. Airports/runways approved for 2 and 3-engine turbojets do not need prior approval by FAA Washington.

10. FOREIGN AIR CARRIERS. Foreign Flag Air Carrier operations specifications may be amended to authorize turbojet landing minimums lower than 300-3/4 or RVR 4000 in accordance with paragraph 9 above, without FAA certification of each of its pilots, when the carrier certifies that its pilot training and qualification program, airborne equipment installations, and operating procedures are consistent with standards imposed for U. S. carriers for the same authorization. All other provisions of this Advisory Circular will apply in authorizing these minimums at U. S. airports.



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