

Cancelled See 120-29
00-2R

AC NO: AC 120-4B

DATE: 6/14/68



ADVISORY CIRCULAR

DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION

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

1. **PURPOSE.** This Advisory Circular sets forth the criteria for approval of landing weather minima for turbojet aircraft below 3/4 mile visibility or RVR 4000 but above Category II minima. Specific requirements and authorizations are contained in the air carrier and commercial operator operations specifications.
2. **CANCELLATION.** Advisory Circular 120-4A 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 lowered to RVR 2400 in October of 1963. 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 turbojets on runways equipped with these lights. These criteria have now been further updated to incorporate the provisions of TERPS which became effective on November 18, 1967.
4. **AIRPORTS - ALL TURBOJET AIRCRAFT.**
 - a. Straight-in landing minimums below 3/4 mile visibility or RVR 4000 will be authorized in the operations specifications when:
 - (1) Glide slope angle is 3 degrees or less for ILS or PAR approaches.
 - (2) U.S. Standard "A" ALS/SFL and HIRL (or FAA approved equivalent) available.
 - (3) U.S. or ICAO all-weather runway markings or runway centerline lights are available.

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- (4) 15 percent additional runway is available over that required by FAR 121.195(b) but not in addition to the requirements of FAR 121.195(d).
- (5) The crosswind component does not exceed 10 knots.
- (6) These minimums are not denied in the applicable instrument approach procedure.
- (7) The provisions of this Advisory Circular are satisfied.

b. U. S. Military or Foreign Airports.

U. S. military or foreign airports served by U. S. air carriers or commercial operators are authorized in accordance with the provisions of this Advisory Circular on a basis of equivalent safety. As sequenced flashing lights are not an ICAO standard, this requirement may be deleted at foreign airports, provided the approach lights system otherwise provides adequate guidance. The following approach lighting systems are considered equivalent substitutes in lieu of the U. S. Standard "A" system when applying the appropriate visibility reduction to instrument approach minimum at U. S. military and foreign airports, if not otherwise denied:

- (1) U. S. Configuration "B".
- (2) NATO Standard (C).
- (3) Navy Composite (U.S.).
- (4) Calvert (British).
- (5) Centerline (High Intensity).
- (6) Centre Row DOT Standard High Intensity (Canada).

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.

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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 low 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 operator's operations manual and the minimum equipment list must be amended to include the applicable provisions contained in paragraphs 7.a. through 7.e.

- a. If the operator wishes to predicate its operations on dual flight director systems, both systems must be operative for dispatch when the destination weather is forecast to be below 3/4 mile visibility 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 3/4 mile visibility 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 3/4 mile visibility 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 provisions 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.

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8. INITIAL AIR CARRIER APPROVAL. The initial application for amendment of the operations specifications for authority to operate with landing weather minimums below 3/4 mile visibility 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. Each of the carrier's turbojet pilots-in-command must be observed and certified by an FAA inspector before he may utilize these minimums.
9. FOREIGN AIR CARRIERS. Foreign Flag Air Carrier operations specifications may be amended to authorize the special conditions contained in their operations specifications to authorize turbojet landing minimums lower than 3/4 mile visibility or RVR 4000 without FAA certification 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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