

The FAA is aware of the small difference in approach speeds and agrees with the request to remove the landing flap limitation. In the preamble of the proposed AD, the FAA indicated that additional studies were being conducted to develop applicable operating limitations that would address approach flap settings. The FAA has since obtained additional analysis indicating that the new gain schedule applies to both 30-degree and 40-degree landing flap configurations. Therefore, paragraph (d) of the proposed AD has been removed from the final rule, and subsequent paragraphs have been reidentified.

Request To Revise Applicability: Exclude Certain Airplanes

Two operators request that the applicability of the proposed AD be revised to exclude airplanes equipped with single-pitch channels that use radio altimeter-based glideslope gain programming. One commenter reports that most of the affected airplanes in its fleet have been modified to incorporate a dual-pitch computer configuration in accordance with Sperry Service Bulletin 21-1132-121, dated November 23, 1982 (for SP-50 autopilots); or 21-1132-122, dated February 7, 1983 (for SP-150 autopilots). (Those service bulletins were cited in the proposed AD as the appropriate source of service information for the one-time test of the modified autopilot.) This commenter adds that compliance with paragraphs (b) and (c) of the proposed AD would be impossible for those airplanes because the proposed AD and Boeing service bulletin are targeted for airplanes with single-channel autopilot systems. In addition, this commenter states that paragraph (a) of the proposed AD imposes an undesirable restriction on modified airplanes by preventing them from flying category II and category III approaches into airports with inoperative middle markers. This commenter asserts that this restriction is unnecessary for the modified airplanes because their autopilot configurations use radio altimeter glideslope gain programming (radio altitude-based desensitization), and are therefore not susceptible to the airworthiness concern associated with inoperative middle markers addressed by the proposed AD. The commenter recommends that the applicability of the proposed AD be revised to exclude those airplanes.

The other commenter notes that affected airplanes with single-pitch channels on which the actions specified in Boeing Service Bulletin 727-22-0052 have been incorporated do not use the middle marker in gain programming.

The commenter concludes that these airplanes should not be prohibited from category II approaches if no middle marker is available.

The FAA agrees. In this case, where the autopilot has already been modified with an FAA-approved design that does not normally use time-based gain programming, the FAA agrees that excluding airplanes equipped with radio altimeter-based autopilots from the applicability of the AD will not compromise the safety of the fleet. The applicability of this AD has been revised accordingly.

Request To Revise Applicability: Clarify Intent

Several commenters request that the applicability of the proposed AD be revised to clarify that the requirements apply only if operators desire to maintain the capability of the autopilot coupled ILS approach. One operator, conducting "Cat I approach only," requests exclusion from the applicability of the AD.

The FAA partially agrees. The intent of the AD is to "prevent dangerous pitch oscillations during coupled (ILS) approaches"; affected operators could comply with the AD simply by never conducting coupled approaches. Although the cited wording does not directly address category I coupled approaches, analysis has shown that, if the unmodified autopilot is used, potentially unsafe pitch oscillation can begin at 400 feet above ground level (AGL), which is well above the typical decision height for category I approaches of 200 feet AGL. As a result, category I and category II coupled approaches would be prohibited for airplanes that have unmodified autopilot gains. However, manually flown approaches using autopilot guidance (glideslope and localizer needle deviations) or flight director guidance would be permitted. Because the middle marker signal is typically received at 200 feet AGL and because during typical category I coupled approaches the pilot disconnects the autopilot at 200 feet AGL (compared to 100 feet AGL, which is typical for category II approaches), no AFM restriction for category I approaches is discussed in the AD even though modification of the autopilot is required if it is used for any coupled approach. The AFM language has been further revised in paragraph (a) of this final rule to clarify that the autopilot must be modified if any coupled ILS approach is conducted. To more clearly identify those airplanes affected by this requirement, new paragraph (e) has been added to the final rule to require

modification of the autopilot unit only if autopilot coupled ILS approaches are to be used with that airplane. Subsequent paragraphs that appeared in the proposed AD have been reidentified in the final rule.

Request To Revise Applicability: Add Certain Airplanes

The applicability of the proposed AD includes only those Model 727-100 and -200 series airplanes that are listed in Boeing Alert Service Bulletin 727-22A0093, dated December 20, 2000. One operator reports that some of its airplanes are not listed in the service bulletin but are equipped with SP-50 and/or SP-150 autopilots. The FAA infers that the commenter is requesting that the applicability of the proposed AD be expanded to include any Model 727-100 and -200 series airplane equipped with a subject autopilot.

The FAA does not agree. Not all Model 727-100 or -200 series airplanes with the subject autopilots are susceptible to the unsafe condition identified by this AD. For example, airplanes delivered after November 1977 are not susceptible because they use radio altimeter gain scheduling for the SP-150 autopilots instead of the time-based gain scheduling discussed in the proposed AD. No change to the applicability of the final rule is necessary in this regard.

Request for Clarification of Test

Two commenters request clarification of the one-time test specified by paragraph (c) of the proposed AD. The commenters state that this requirement, as written, is either redundant or subject to misinterpretation. The Sperry service bulletins, described previously, were cited in the proposed AD: in paragraph (c) for the one-time test procedures and in paragraph (d) for the autopilot modification procedures. (Paragraph (d) has since been removed from the final rule, as discussed previously.) The proposed AD specified that the test be done concurrently with the modification, before reinstallation of the modified autopilot, and before further flight. The commenters suggest that the wording of the proposed AD could cause operators to perform unnecessary rework. The commenters suggest that the proposed test requirement be a one-time test of the autopilot unit, because "the timing in relation to the modification is immaterial."

One operator requests that the proposed test requirement be revised to distinguish the requirements associated with the autopilot from those associated with the airplane. This commenter suggests that paragraph (c) of the