

[4910-13]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 25

[Docket No. NM452; Notice No. 25-424-SC]

Special Conditions: Boeing Model 747-2G4B Airplane; Certification of Cooktops.

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final special conditions; request for comments.

SUMMARY: These special conditions are issued for the Boeing Model 747-2G4B series airplane. This airplane, as modified by Greenpoint Technologies, Inc., will have a novel or unusual design feature associated with the replacement and re-certification of existing cooktops with advanced technology induction coil cooktops in the main deck galleys on two Boeing Model 747-2G4B airplanes. The proposed modification is limited to removing the existing cooktops and replacing them with new technology cooktops. No changes to the galley surfaces, smoke detection system, ventilation system, warning systems, and fire suppression systems are included in this modification. The applicable airworthiness regulations do not contain adequate or appropriate safety standards for this design feature. These special conditions contain the additional safety standards that the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards.

DATES: The effective date of these special conditions is March 22, 2011. We must receive your comments by April 28, 2011.

ADDRESSES: You must mail two copies of your comments to: Federal Aviation Administration, Transport Airplane Directorate, Attn: Rules Docket (ANM-113), Docket No.

NM452, 1601 Lind Avenue SW., Renton, Washington, 98057-3356. You may deliver two copies to the Transport Airplane Directorate at the above address. You must mark your comments : Docket No. NM452. You can inspect comments in the Rules Docket weekdays, except Federal holidays, between 7:30 a.m. and 4:00 p.m.

FOR FURTHER INFORMATION CONTACT: Jayson Claar, FAA, Airframe/Cabin Safety Branch, ANM-115, Transport Airplane Directorate, Aircraft Certification Service, 1601 Lind Avenue SW., Renton, Washington, 98057-3356; telephone (425) 227-2194; facsimile (425) 227-1320.

SUPPLEMENTARY INFORMATION:

The FAA has determined that notice of, and opportunity for prior public comment on, these special conditions is impracticable because these procedures would significantly delay issuance of the design approval and thus delivery of the affected airplanes. In addition, the substance of these special conditions has been subject to the public comment process in several prior instances with no substantive comments received. The FAA therefore finds that good cause exists for making these special conditions effective upon issuance.

Comments Invited

We invite interested people to take part in this rulemaking by sending written comments, data, or views. The most helpful comments reference a specific portion of the special conditions, explain the reason for any recommended change, and include supporting data. We ask that you send us two copies of written comments.

We will file in the docket all comments we receive, as well as a report summarizing each substantive public contact with FAA personnel concerning these special conditions. You can

inspect the docket before and after the comment closing date. If you wish to review the docket in person, go to the address in the ADDRESSES section of this preamble between 7:30 a.m. and 4:00 p.m., Monday through Friday, except Federal holidays.

We will consider all comments we receive on or before the closing date for comments.

We will consider comments filed late if it is possible to do so without incurring expense or delay.

We may change these special conditions based on the comments we receive.

If you want us to acknowledge receipt of your comments on this proposal, include with your comments a self-addressed, stamped postcard on which you have written the docket number. We will stamp the date on the postcard and mail it back to you.

Background

On July 20, 2010, Greenpoint Technologies, Inc., applied for a Supplemental Type Certificate (STC) for the replacement of existing cooktops in the Boeing Model 747-2G4B airplane. The Boeing Model 747-2G4B currently approved under Type Certificate No. A20WE, is a Model 747-200 series airplane with four CF6-80C2B1 engines. The Model 747-200 series airplane is an extended range passenger version of the Model 747-100 airplanes with changes to increase its strength and fuel capacity.

The modification incorporates the installation of an electrically heated surface, called a cooktop. Cooktops introduce high heat, smoke, and the possibility of fire into the passenger cabin environment. These potential hazards to the airplane and its occupants must be satisfactorily addressed. Since existing airworthiness regulations do not contain safety standards addressing cooktops, special conditions are therefore needed.

Type Certification Basis

Under the provisions of 14 CFR § 21.101, Greenpoint Technologies Inc., must show that the Boeing Model 747-2G4B, as changed, continues to meet the applicable provisions of the regulations incorporated by reference in Type Certification No. A20WE, or the applicable regulations in effect on the date of application for the change. The regulations incorporated by reference in the type certificate are commonly referred to as the “original type certification basis.” The regulations incorporated by reference in Type Certificate No. A20WE are part 25, as amended by Amendments 25-1 through 25-8, with reversions to earlier amendments, voluntary compliance to later amendments, special conditions, equivalent safety findings, and exemptions listed in the type certificate data sheet.

If the Administrator finds that the applicable airworthiness regulations (i.e., 14 CFR part 25) do not contain adequate or appropriate safety standards for the Boeing Model 747-2G4B because of a novel or unusual design feature, special conditions are prescribed under the provisions of § 21.16.

Special conditions are initially applicable to the model for which they are issued. Should the applicant apply for a supplemental type certificate to modify any other model included on the same type certificate to incorporate the same novel or unusual design features, the special conditions would also apply to the other model.

In addition to the applicable airworthiness regulations and special conditions, the Boeing Model 747-2G4B must comply with the fuel vent and exhaust emission requirements of 14 CFR part 34 and the noise certification requirements of 14 CFR part 36.

The FAA issues special conditions, as defined in 14 CFR 11.19, in accordance with § 11.38, and they become part of the type-certification basis under § 21.101.

Novel or Unusual Design Features

The modification of the Boeing Model 747-2G4B airplane will include installation of cooktops in the passenger cabin. Cooktops introduce high heat, smoke, and the possibility of fire into the passenger cabin environment. The current airworthiness standards of part 25 do not contain adequate or appropriate safety standards to protect the airplane and its occupants from these potential hazards. Accordingly, this system is considered to be a novel or unusual design feature.

Discussion

Currently, ovens are the prevailing means of heating food on airplanes. Ovens are characterized by an enclosure that contains both the heat source and the food being heated. The hazards represented by ovens are thus inherently limited, and are well understood through years of service experience. Cooktops, on the other hand, are characterized by exposed heat sources and the presence of relatively unrestrained hot cookware and heated food, which may represent unprecedented hazards to both occupants and the airplane.

Cooktops could have serious passenger and airplane safety implications if appropriate requirements are not established for their installation and use. These special conditions apply to cooktops with electrically powered burners. The use of an open flame cooktop (for example natural gas) is beyond the scope of these special conditions and would require separate rulemaking action. The requirements identified in these special conditions are in addition to those considerations identified in Advisory Circular (AC) 20-168, "Certification Guidance for

Installation of Non-Essential, Non-Required Aircraft Cabin Systems & Equipment (CS&E)," and those in AC 25-17A, "Transport Airplane Cabin Interiors Crashworthiness Handbook." The intent of these special conditions is to provide a level of safety that is consistent with that on similar airplanes without cooktops.

Applicability

As discussed above, these special conditions are applicable to the Boeing Model 747-2G4B airplane modified by Greenpoint Technologies, Inc. Should Greenpoint Technologies, Inc., apply at a later date for a supplemental type certificate to modify any other model included on the same type certificate to incorporate the same novel or unusual design feature, these special conditions would apply to that model as well.

Conclusion

This action affects only certain novel or unusual design features on the Boeing Model 747-2G4B airplane modified by Greenpoint Technologies, Inc. It is not a rule of general applicability and it affects only the applicant who applied to the FAA for approval of these features on the airplane.

Under standard practice, the effective date of final special conditions would be 30 days after the date of publication in the *Federal Register*; however, as the certification date of the Boeing Model 747-2G4B is imminent, the FAA finds that good cause exists to make these special conditions effective upon issuance.

List of Subjects in 14 CFR Part 25

Aircraft, Aviation safety, Reporting and recordkeeping requirements.

The authority citation for these special conditions is as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701, 44702, 44704.

The Special Conditions

Accordingly, pursuant to the authority delegated to me by the Administrator, the following special conditions are issued as part of the type certification basis for Boeing Model 747-2G4B airplanes modified by Greenpoint Technologies, Inc.:

Cooktop Installations with Electrically-Powered Burner

1. Means, such as conspicuous burner-on indicators, physical barriers, or handholds, must be installed to minimize the potential for inadvertent personnel contact with hot surfaces of both the cooktop and cookware. Conditions of turbulence must be considered.
2. Sufficient design means must be included to restrain cookware while in place on the cooktop, as well as representative contents, e.g., soup, sauces, etc., from the effects of flight loads and turbulence. Restraints must be provided to preclude hazardous movement of cookware and contents. These restraints must accommodate any cookware that is identified for use with the cooktop. Restraints must be designed to be easily utilized and effective in service. The cookware restraint system should also be designed so that it will not be easily disabled, thus rendering it unusable. Placarding must be installed which prohibits the use of cookware that can not be accommodated by the restraint system.
3. Placarding must be installed which prohibits the use of cooktops (i.e., power on any burner) during taxi, takeoff, and landing (TTL).

4. Means must be provided to address the possibility of a fire occurring on or in the immediate vicinity of the cooktop. Two acceptable means of complying with this requirement are as follows:

a. Placarding must be installed that prohibits any burner from being powered when the cooktop is unattended (note: that this would prohibit a single person from cooking on the cooktop and intermittently serving food to passengers while any burner is powered), and a fire detector must be installed in the vicinity of the cooktop which provides an audible warning in the passenger cabin, or galley only audible warning per the airworthiness approval of the Boeing Model 747-2G4B aircraft with existing design safety features, compartment and a fire extinguisher of appropriate size and extinguishing agent must be installed in the immediate vicinity of the cooktop. Access to the extinguisher must not be blocked by a fire on or around the cooktop. One of the fire extinguishers required by § 25.851 may be used to satisfy this requirement if the total complement of extinguishers can be evenly distributed throughout the cabin. If this is not possible, then the extinguisher in the galley area would be additional, or

b. An automatic, thermally activated fire suppression system must be installed to extinguish a fire at the cooktop and immediately adjacent surfaces. The agent used in the system must be an approved total flooding agent suitable for use in an occupied area. The fire suppression system must have a manual override. The automatic activation of the fire suppression system must also automatically shut off power to the cooktop.

5. Means must be provided to address the surfaces of the galley surrounding the cooktop, which could be exposed to a fire on the cooktop surface or in cookware on the cooktop. Two acceptable means of complying with this requirement are as follows:

a. The materials must be constructed of materials that comply with the flammability requirements of Part III of Appendix F of part 25. This requirement is in addition to the flammability requirements typically required of the materials in these galley surfaces. During the selection of these materials, consideration must also be given to ensure that the flammability characteristics of the materials will not be adversely affected by the use of cleaning agents and utensils used to remove cooking stains.

b. Retain the surface materials of the existing galleys surrounding the cooktops per the airworthiness approval of the Boeing 747-2G4B model aircraft flammability requirements of Part I (§ 25.853 Amendment 25-59) of Appendix F of part 25. The use of the existing flammability approvals of the galley per the Type Certificate (A20WE) certification basis for the Boeing 747-2G4B model is acceptable as this modification consists of structural changes strictly to accommodate the installation of new cooktops.

6. The cooktop must be ventilated with a system independent of the airplane cabin and cargo ventilation system. Procedures and time intervals must be established to inspect and clean or replace the ventilation system to prevent a fire hazard from the accumulation of flammable oils and be included in the instructions for continued airworthiness. The ventilation system ducting must be protected by a flame arrestor or an automatic shutoff valve in the over-range top ventilation system in lieu of the flame arrestor. [Note: The applicant may find additional useful information in Society of Automotive Engineers, Aerospace Recommended Practice 85, Rev. E, entitled "Air Conditioning Systems for Subsonic Airplanes," dated August 1, 1991.]

7. Means must be provided to contain spilled foods or fluids in a manner that will prevent the creation of a slipping hazard to occupants and will not lead to the loss of structural strength due to corrosion.
8. Cooktop installations must provide adequate space for the user to immediately escape a hazardous cooktop condition.
9. A means to shut off power to the cooktop must be provided at the galley containing the cooktop and in the cockpit. If additional switches are introduced in the cockpit, revisions to smoke or fire emergency procedures of the AFM will be required.

Issued in Renton, Washington, on March 22, 2011.

/s/ KC Yanamura

KC Yanamura
Assistant Manager, Transport Airplane Directorate
Aircraft Certification Service