Exemption No. 10842

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
RENTON, WASHINGTON 98057-3356

In the matter of the petition of

The Boeing Company

for an exemption from §§ 25.981(a)(3) and 25.901(c) of Title 14, Code of Federal Regulations

Regulatory Docket No. FAA-2013-0322

GRANT OF EXEMPTION

By letter dated April 4, 2013, Douglas M. Lane, ODA Deputy Lead Administrator, The Boeing Company, P.O. Box 37037, M/C 03-56, Seattle, Washington 98124-2207, petitioned the Federal Aviation Administration (FAA) for an exemption from the requirements of Title 14, Code of Federal Regulations (14 CFR) part 25, §§ 25.981(a)(3) Amendment 25-102, and 25.901(c), amendment 25-46. This exemption, if granted would permit installation of an improved fuel pump electrical connector independently of the Pump Fault Current Detector (FCD), or conversely, to allow installation of the FCD independently of the improved fuel pump electrical connector on the MD-11, DC-10, and MD-10 airplanes.

The petitioner requests relief from the following regulation(s):

Section 25.981(a)(3), Amendment 25-102, effective 6/6/2001, requires, in part: "(a) No ignition source may be present at each point in the fuel tank or fuel tank system where catastrophic failure could occur due to ignition of fuel or vapors. This must be shown by: ..." "(3) Demonstrating that an ignition source could not result from each single failure, from each single failure in combination with each latent failure condition not shown to be extremely remote, and from all combinations of failures not shown to be extremely improbable. The effects of manufacturing variability, aging, wear, corrosion, and likely damage must be considered."

Section 25.901 (c), Amendment 25-46, effective 12/1/1978, requires, in part: "(c) For each powerplant and auxiliary power unit installation, it must be established that no single failure or malfunction or probable combination of failures will jeopardize the safe operation of the airplane except that the failure of structural elements need not be considered if the probability of such failure is extremely remote."

The petitioner supports its request with the following information:

This section quotes the relevant information from the petitioner's request. The complete petition is available at the Department of Transportation's Federal Docket Management System, on the Internet at http://regulations.gov, in Docket No. FAA-2013-0322.

> "Safety of the Boeing Trijet airplane fleet will be incrementally enhanced by allowing installation of either the improved fuel pump electrical connector or the FCD independently until both are required by a pending Advisory Directive (AD). The full benefit of the improvements, including compliance to § 25.981(a)(3), Amendment 25-102 and § 25.901(c), Amendment 25-46, will be achieved when both components are installed."
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> "A separate design change to include fuel system electrical protection compliant to § 25.981(a)(3), Amendment 25-102 by an FAA-approved Equivalent Level of Safety (ELOS) is in the process of being certified per project LB04-0021, Trijet FCD. The installation of the FCD design change is necessary to provide the LB08-0019 connector design change with the system protection needed to show compliance to § 25.981(a)(3), Amendment 25-102 and § 25.901(c), Amendment 25-46, by the ELOS as required by the FAA. Therefore compliance findings to § 25.981(a)(3), Amendment 25-102 and § 25.901(c), Amendment 25-46, for the LB08-0019, Trijet Improved Fuel Pump Electrical Connector project, are not possible without concurrent installation of the FCD."
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> "Boeing is proceeding with certification of the FCD project. When installed, the FCD will provide overall fuel pump electrical circuit (which includes the existing fuel pump connector) protection against ignition sources required by § 25.981(a)(3), Amendment 25-102. The installation of the FCD will also provide fuel system compliance to § 25.901(c), Amendment 25-46, for the fuel tank ignition source failure condition, required to be considered per Special Federal Aviation Regulations (SFAR) No. 88. All other conditions required by § 25.901(c), Amendment 25-46 will be shown compliant for the respective certifications of the improved fuel pump electrical connector and FCD."
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> "Boeing anticipates the FAA will issue an Airworthiness Directive (AD) mandating the installation of the FCD or similar device. Additionally, Boeing anticipates the FAA will issue an AD in the future that will mandate the installation of the LB08-0019, Trijet Improved Fuel Pump Electrical Connector.
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> Approval of an exemption for the LB08-0019, Trijet Improved Fuel Pump Electrical Connector and the FCD to §25.981(a)(3), Amendment 25-102 and §25.901(c), Amendment 25-46, regarding ignition sources in fuel tanks, will allow approval for installation of either device prior to the anticipated AD compliance requirement dates. This will provide an incremental enhancement to safety of the fleet of Trijet airplanes in the interim."

***Federal Register* publication**

A summary of the petition was published in the *Federal Register* on May 21, 2013, Vol. 78, No. 98, FR 2013-12024, pages 29807-29808. No comments were received.

The FAA's analysis

Findings of compliance for changes to airplanes are made at the system level. Direct compliance to § 25.981 (a)(3) would require changes to the fuel pump system, including the fuel pump connector and installation of the FCD protection feature in the fuel pump electrical power supply. The FAA has mandated installation of both design improvements by Airworthiness Directive (AD) 2013-08-23. Each of these design improvements separately provides an incremental improvement in fuel pump system safety. This exemption will allow operators to install either design improvement during maintenance actions as the design improvements become available so that incremental safety improvement is achieved. Granting this exemption allows improved airplane safety that would not otherwise be possible if full compliance was required prior to the compliance date that is established in AD 2013-08-23.

Public Interest

The public interest is benefitted by granting this petition because it improves the safety of the fuel pump electrical power system by installing either the FCD or the improved electrical connector as each becomes available.

Additionally, the public is served by this exemption because it enables Boeing to maintain a spare parts supply which may preclude grounding airplanes necessary for air freight commerce.

The FAA's decision

In consideration of the foregoing, I find that a grant of exemption is in the public interest. Therefore, pursuant to the authority contained in § 49 U.S.C. §§ 40113 and 44701, delegated to me by the Administrator, The Boeing Company, is hereby granted an exemption from §§ 25.981(a)(3) and 25.901(c). The exemption is granted to the extent necessary to allow the Boeing Company to install an improved fuel pump electrical connector independently of the FCD, or conversely, to allow installation of the FCD independently of the improved fuel pump electrical connector on the MD-11, DC-10, and MD-10 airplanes until such time as both are required to be installed by AD 2013-08-23.

Issued in Renton Washington, on August 15, 2013

/s/

Jeffrey E. Duven
Acting Manager, Transport Airplane Directorate
Aircraft Certification Service