

Exemption No. 6895

**UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
RENTON, WASHINGTON 98055-4056**

In the matter of the petition of

DORNIER Luftfahrt GmbH

for an exemption from § 25.1435(b)(1) of
Title 14, Code of Federal Aviation Regulations

Regulatory Docket No. 29530

GRANT OF EXEMPTION

By letter of March 26, 1999, Dr. W. M. Wallwitz, Director, Airworthiness and Certification, Airworthiness Office, DORNIER Luftfahrt GmbH, P. O. Box 11 03, D-82230, Wessling, Germany, petitioned for an exemption from the static proof pressure test requirement of § 25.1435(b)(1) of Title 14, Code of Federal Regulations (14 CFR). The proposed exemption, if granted, would permit a dynamic test to be conducted at system relief valve cracking pressure (3580 psig) for the hydraulic system on the Dornier Model 328-300 airplane.

The petitioner requests relief from the following regulations:

Section 25.1435(b)(1) states that a complete hydraulic system must be static tested to show that it can withstand 1.5 times the design operating pressure without a deformation of any part of the system that would prevent it from performing its intended function. Clearance between structural members and hydraulic system elements must be adequate, and there must be no permanent detrimental deformation. For the purpose of this test, the pressure relief valve may be made inoperable to permit application of the required pressure.

ANM-99-290-E

Related section of the Federal Aviation Regulations (FAR):

Section 25.1435(a)(2) states that each element of the hydraulic system must be able to withstand, without rupture, the design operating pressure loads multiplied by a factor of 1.5, in combination with ultimate structural loads that can reasonably occur simultaneously. Design operating pressure is maximum normal operating pressure, excluding transient pressure.

The petitioner's supportive information is as follows:

In place of the static test (4500 psi), Dornier proposes to conduct a range of motion functional test at the system relief pressure, 3580 psig, and component testing at 1.5 times operating pressure (4500 psi) per § 25.1435(a)(2).

"For compliance with the requirements as outlined in NPRM 96-6 (proposed FAR 25.1435 (c)(3) requirement) Dornier will conduct, on the aircraft, a dynamic test with the system(s) at system relief valve cracking pressure. . . . The dynamic test will be conducted by readjusting the compensator of the A/C motor hydraulic pump (ACMP) to deliver the increased discharge pressure output. In doing so the ACMP of each hydraulic system produces 3580 PSI discharge pressure which equates to system relief valve cracking pressure.

"Also, on the aircraft, each hydraulic powered system will be operated in turn through its full range of movement. A total of three full range operations will be conducted. During these tests, careful observation will be kept on the components and tubing to see if any undesirable deflections, interferences or external leakages occur."

"The Dornier 328-300 hydraulic system components and lines are individually tested to 1.5 times the design operating pressure as part of their qualification tests and acceptance test procedures to satisfy the current § 25.1435(a)(2) requirement. However, a complete hydraulic system is not planned to be tested [at 4500 psig] in a single test on the aircraft as this requires extensive test preparation, unnecessary additional costs and does not add to the level of safety to be demonstrated by the dynamic test proposed and static tests already being conducted on the Dornier 328-300.

Reasons why granting an exemption is in the public's interest

"Harmonization JAA – FAA Based on the published NPA 25F-273 (harmonization with NPRM 96-6) which will introduce the rule change as discussed above JAA has accepted the usage of the "new" requirement as an equivalent level of safety (CRI F-2.1). For Canadian projects Transport Canada has accepted the same approach. If FAA would not be in the position to grant the requested exemption this would create a disharmony between JAA and FAA.

"Increase in safety Dornier shares with the FAA (as outlined in detail in NPRM 96-6) the consideration that the usage of the proposed functional (i.e. dynamic) test more

closely approximates actual operating conditions than the existing static test. This is because for the static test, several parts of the system and associated relief valves (including return lines) may need to be disabled to allow system pressurisation at 1.5 times the design operating pressure due to the fact that the relief valves are designed to open at a pressure lower than 1.5 times the design operating pressure. Although the proposed test pressure would be lower than 1.5 times the design operating pressure, all elements would still be required to be able to withstand at least 1.5 times the design operating pressure per current FAR 25.1435(a)(2), at least retaining and potentially enhancing the current level of safety by identification of additional dynamic interference problems.

"Precedence For some transport category airplane programs precedence has been already set for the recently granted petitions for exemption to The Boeing Company, Regulatory Docket No. 27384, and to Bombardier Inc. Canadair, Global Express, Regulatory Docket No. 29077. Dornier contends that denial of the requested exemption would violate uniform application of FAA policy.

"Effects on public safety Dornier states that insisting on compliance with the effective [existing] requirement would not contribute to an increased level of safety as demonstrated in the sections above. The Dornier 328-300 is scheduled to begin passenger operation in the U.S. in the second half of 1999. It is planned to deliver seven airplanes to customers during 1999. The aircraft will be certified to later FAA/JAA airworthiness standards than most competitive models on the market. This means that the latest safety standards have been applied to the aircraft. Considering the fact that the Dornier 328-300 meets the later certification/safety standards, it is therefore in the interest of the travelling public that operation with the aircraft be possible at an early point in time. If efficient and economical operation of the Dornier 328-300 in the planned time frame is not possible, the customer airlines might be forced to acquire other airplanes which may provide a lesser standard of safety."

"Type Certification Schedule Dornier respectfully would like to refer to the precedence cases (granted to The Boeing Company, Regulatory Docket No. 27384, and to Bombardier Inc. Canadair, Global Express, Regulatory Docket No. 29077) and would like to request a "stream-lined" process for publication in the Federal Register and a brief comment period. Dornier would appreciate all FAA efforts to not endanger the type certification date of the Dornier 328-300 on July 1, 1999, as coordinated and agreed with the FAA Transport Airplane Directorate in Seattle."

In view of the substantiating factors detailed above, Dornier considers it as fully justified to petition for an exemption from the requirement of 14 CFR Part 25, § 25.1435(b)(1). Dornier also considers that granting of the exemption would be in the public interest as well as in line with the proposed requirements as published in NPRM 96-6.

A summary of the petition was published in the Federal Register on April 20, 1999 (64 FR 19403). No comments were received.

The FAA's analysis/summary is as follows:

The FAA has carefully considered the information provided by the petitioner, and has determined that there is sufficient merit to warrant a grant of exemption.

Notice of Proposed Rulemaking, 96-6

The FAA concurs that the petitioner's proposed test is in compliance with the proposed harmonized rule change under consideration by the FAA and the Joint Aviation Authority (JAA).

Previously Granted Exemptions for Boeing 777-200, and Bombardier Global Express

The FAA concurs that a precedent does exist based on the exemptions granted for the Boeing 777-200 and the Bombardier Global Express BD700-1A10 airplanes.

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 (14 CFR 11.53), DORNIER Luftfahrt GmbH is granted an exemption from 14 CFR § 25.1435(b)(1) to the extent necessary to permit type certification of the Model 328-300 by conducting a proof pressure test of the hydraulic system at 3580 psig (the system relief pressure) per the proposed § 25.1435(c)(3), and component testing at 1.5 times the operating pressure (4500 psig) per the current § 25.1435(a)(2). All test results pertinent to this exemption must be documented in a report and a copy provided to this office.

Issued in Renton, Washington, on May 20, 1999.

/s/ John J. Hickey
John J. Hickey
Acting Manager
Transport Airplane Directorate
Aircraft Certification Service, ANM-100