

United States of America
Department of Transportation Federal Aviation Administration
Supplemental Type Certificate

Number **ST01706SE**

This certificate, issued to:

**Israel Aerospace Industries, LTD.
Bedek Aviation Group
Ben Gurion International Airport, 70100
Israel**

certifies that the change in the type design for the following product with the limitations and conditions therefore as specified hereon meets the airworthiness requirements of Part 25 of the Federal Aviation Regulations.

Original Product—Type Certificate Number: A20WE
Make: The Boeing Company
Model: 747-400 Series

Description of the Type Design Change: Conversion of a Boeing 747-400 passenger configuration to a special freighter configuration in accordance with Israel Aircraft Industries, LTD. Master Document List (MDL) TR-366-00-00-A3673 Rev. D, or later Federal Aviation Administration (FAA) approved revisions.

Limitations and Conditions: Approval of this change in type design applies to the above model aircraft only. This approval should not be extended to other aircraft of these models on which other previously approved modifications are incorporated unless it is determined that the relationship between this change and any of those other previously approved modifications, including changes in type design, will introduce no adverse effect upon the airworthiness of that aircraft. A copy of this certificate and Israel Aircraft Industries, LTD. MDL TR-365-00-00-A3673 Rev. D, or later FAA-approved revisions, must be maintained as part of the permanent records for the modified aircraft.

If the holder agrees to permit another person to use this certificate to alter the product, the holder shall give the other person written evidence of that permission.

This certificate and the supporting data which is the basis for approval shall remain in effect until surrendered, suspended, revoked, or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.

Date of application: February 12, 2004

Date reissued:

Date of issuance: October 27, 2006

Date amended: 10/31/06; 11/20/06; 8/31/07; 10/12/07



By direction of the Administrator

(Signature)
Acting Manager, Seattle Aircraft Certification Office

(Title)

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.

This certificate may be transferred in accordance with FAR 21.47.

Supplemental Type Certificate

(Continuation Sheet)

Number **ST01706SE**

Israel Aerospace Industries, LTD.

Issued: October 27, 2006

Reissued:

Amended: 10/31/06; 11/20/06; 8/31/07; 10/12/07

Certification Basis:

Because of the magnitude of this design change, the certification basis for the changed aspects was required to be established and documented in accordance with Section 21.101 (Changed Product Rule).

The certification basis was established according to the requirements given in § 21.101 and Advisory Circular (AC) 21.101-1, and was determined in accordance with FAA Order 8110.48. The conversion to the 747-400 SF configuration entails the following two product level changes:

- Passenger to Freighter Conversion (significant product level change, per AC 21.101-1) and,
- Upper Deck Interior Reconfiguration (not a significant change, per AC 21.101-1)

I. Significant Product Level Change - Passenger to Freighter Conversion:

Changed Areas: The following is a listing of the changes incorporated as part of the 747-400 Passenger to Special Freighter Conversion:

- Increased maximum zero fuel and landing weights
- Strengthened main deck floor and fuselage frames
- New structure added to support the cargo loading system fittings
- Replacement of upper deck floor beams between stations 880 and 1100 with tension ties
- Replacement or reinforcement of upper deck rear tension ties
- Replacement of upper deck floor beam at station 800
- Structure modified and reinforced to allow new ladder access installation

Certification Basis: Part 36: unchanged from 747-400 Series
 SFAR 27: unchanged from 747-400 Series
 Part 25 of the Title 14 Code of Federal Regulations (14CFR), effective February 1, 1965, as amended by Amendments 25-1 through 25-112 with the following exceptions per Section 21.101(b):

| SECTION NO. | TITLE | THROUGH AMENDMENT 25- |
|-------------|--|--|
| 25.365 | Pressurized Compartment Loads | 25-54 |
| 25.571 | Damage Tolerance and Fatigue Evaluation of Structure | 25-54 |
| 25.831 | Ventilation | 25-87 except for the following: 25.831(g) – for this regulation, the basic environmental control system is considered to be a “not affected area” and compliance with this later amendment is not required. |
| 25.783 | Doors | 25-114 compliance for main deck side cargo door |

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Israel Aerospace Industries, LTD.*Issued:* October 27, 2006*Reissued:**Amended:* 10/31/06; 11/20/06; 8/31/07; 10/12/07*Certification Basis (continued):*

- Added an electrically operated main deck side cargo door on the left hand side of the Aft fuselage including replacement and reinforcement of door surround structure, addition of door indications and operating systems.
- Added a main deck rigid cargo barrier at station 140-160 and a 9-G cargo net at station 840-860 of the upper deck
- Deactivated horizontal stabilizer tail fuel tanks
- Reconfigured air conditioning, air distribution, equipment cooling, and cabin pressurization to freighter configurations
- Added air conditioning for the lower cargo compartments
- Added main deck smoke detection and class E depressurization capability
- Replaced lower lobe cargo smoke detection system with new ambient smoke detectors
- Installed new main deck dado panels, sidewall cargo liners, and flat ceiling All other changes resulting from the Passenger to Freighter Product Level Change are either Secondary or Not Affected in accordance with § 21.101 and AC 21.101-1. Amendment levels for sections of 14CFR Part 25 that apply to Secondary Changes or Not Affected Areas remain at the 747-400 Series amendment levels.

II. Not Significant Product Level Change - Upper Deck Interior Reconfiguration:

Certification Basis: The certification basis for the changed aspects associated with the upper deck interior configuration rearrangement is unchanged from the 747-400 Series in accordance with Section 21.101(b)(1).

Special Conditions: Special conditions that are part of the certification basis for the 747-400 Series apply to the airplane operating in the 747-400 SF configuration, unless otherwise noted below:

Special Condition 25-ANM-16 (use of an overhead crew rest area, occupancy not to exceed ten crewmembers) does not apply to aircraft operated in the 747-400SF configuration.

Special Conditions 25-61-NW-1 (occupancy not to exceed 32 passengers on the upper deck – spiral staircase) and 25-71-NW-3 (occupancy not to exceed 45 (or later, 110) passengers on the upper deck of airplanes with a straight segmented stairway):

The 747-400SF conversion removes the stairway between the main and upper deck, which eliminates some aspects of Special Conditions 25-61-NW-1 and 25-71-NW-3 as described below. For Special Condition 25-61-NW-1, all aspects related to occupant egress and escape provisions noted in this special condition are also addressed in Special Condition 25-71-NW-3. Special Condition 25-71-NW-3 remains part of the certification basis for the 747-400 Series operating in the 747-400SF configuration, with the following noted exceptions:

1. The requirements of Special Condition numbered 25-71-NW-3, 3(a)(1) through 3(a)(7) do not apply to airplanes in the 747-400 SF configuration.

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Certification Basis (continued):

Exemptions: All exemptions from 14CFR Part 25 listed in Type Certificate Data Sheet (TCDS) A20WE for the 747-400 Series apply to the 747-400SF configuration.

Exemption 8590, dated July 27, 2005, allows up to 20 persons to occupy the upper deck cabin of the 747-400 SF without a flight attendant.

Exemption 8587, dated July 19, 2005 and Exemption 8587A, dated November 3, 2005, allow up to eight non-crewmembers (supernumeraries) to occupy the upper deck cabin of the 747-400SF and to enter the class E compartment in flight with relief from FAR sections 25.785(j), 25.857(e), and 25.1447(c)(1).

Equivalent Safety Findings: All existing Equivalent Safety Findings listed in TCDS A20WE for the 747-400 Series apply to the 747-400 operated in the 747-400 SF configuration.

TCDS Notes: All Notes in TCDS A20WE that apply to the 747-400 Series also apply to an airplane operated in the 747-400 SF configuration.

Note 14, as applicable to the 747-400F Series, is also applicable to the 747-400 Series operated in the 747-400 SF configuration.

Optional Requirements: All optional requirements in TCDS A20WE that apply to the 747-400 Series also apply to an airplane operated in the 747-400SF configuration.

Compliance to Part 121.313 (j)(2) must be shown prior to operation under Part 121. This FAA Regulation states that after October 1, 2003, for transport category, all-cargo airplanes that had a door installed between the pilot compartment and any other occupied compartment on or after January 15, 2002, each such door must meet the requirements of Sec. 25.795(a)(1) and (2) in effect on January 15, 2002; or the operator must implement a security program approved by the Transportation Security Administration for the operation of all airplanes in that operator's fleet.

- END -

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