European Aviation Safety Agency

EASA

TYPE-CERTIFICATE DATA SHEET

No. EASA.IM.A.210

for
DC-10 / MD-11

Type Certificate Holder:
Boeing

The Boeing Company
2401 E. Wardlow Road
Long Beach, California 90807-5309
United States of America

For Models: DC-10-10
DC-10-30
DC-10-30F
MD-11
MD-11F

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SECTION 1: DC-10-10, DC-10-30, DC-10-30F

I. General

1. Type/ Model/ Variant: DC-10-10/ DC10-30/ DC-10-30F

2. Performance Class: A

3. Certifying Authority:
Federal Aviation Administration (FAA)
Los Angeles Aircraft Certification Office
3960 Paramount Boulevard, Suite 100
Lakewood, California 90712-4137
United States of America

4. Manufacturer
The Boeing Company
2401 E. Wardlow Road
Long Beach, California 90807-5309
United States of America

5. FAA (State of Origin Airworthiness Authority) Certification Application Date
Refer to FAA Type Certificate Data Sheet No. A22WE

6. EASA Validation Application Date
The DC-10-10, DC-10-30 and DC-10-30F models were not subject to a validation by the Joint Airworthiness Authorities (JAA) prior to the establishment of EASA, therefore they are accepted by EASA under the provisions of EU Regulation 748/2012.

The DC-10-40, DC-10-10F, DC-10-15, DC-10-40F, MD-10-10F and MD-10-30F models are not included in this TCDS as none has been identified as being eligible under EU Regulation 748/2012.

7. FAA (State of Origin Airworthiness Authority) Type Certification Date
DC-10-10: 29 July 1971
DC-10-30: 21 November 1972
DC-10-30F: 30 March 1973

8. EASA Type Validation Date
DC-10-10: October 1972
DC-10-30: March 1973
DC-10-30F: September 1973

SECTION 1: : DC-10-10, DC-10-30, DC-10-30F - continued

II. Certification Basis

1. Reference Date for determining the applicable requirements
The DC-10-10, DC-10-30 and DC-10-30F are accepted by EASA under the provisions of EU Regulation 748/2012.

2. FAA (State of Origin Airworthiness Authority) Type Certification Data Sheet No.
FAA Type Certificate Data Sheet No. A22WE

3. FAA (State of Origin Airworthiness Authority) Certification Basis
Refer to FAA Type Certificate Data Sheet No. A22WE

4. EASA Airworthiness Requirements
Certification Basis as listed in FAA Type Certification Data Sheet No. A22WE

5. Special Conditions
Refer to FAA TCDS A22WE

6. Exemptions
Refer to FAA TCDS A22WE

7. Deviations
Refer to FAA TCDS A22WE

8. Equivalent Safety Findings
Refer to FAA TCDS A22WE

9. Environmental Protection Standards
FAR Part 36

III. Technical Characteristics and Operational Limitations

1. Type Design Definition	See FAA TCDS for eligible serial numbers
2. Description	Low wing jet transport with a conventional tail unit configuration, powered by three high bypass turbofan engines, of which two are mounted on pylons beneath the wings and one in the vertical tail.
3. Equipment	The basic required equipment as prescribed in the applicable airworthiness regulations (see Certification Basis) must be installed in the aircraft for certification.

4. Dimensions

SECTION 1: : DC-10-10, DC-10-30, DC-10-30F - continued

DC10-10	Length	55.5 m (182 ft 3 in)
	Wing Span	47.3 m (155 ft 4 in)
	Height	17.7 m (58 ft 1 in)
	Wing Area	329.8 m^2 (3550 ft^2)
DC-10-30, DC-10-30F	Length	55.35 m (181 ft 7.2 in)
	Wing Span	50.4 m (165 ft 4 in)
	Height	17.55 m (57 ft 7 in)
	Wing Area	339 m^2 (3647.5 ft^2)

5. Engines

DC-10-10 Refer to FAA Type Certificate Data Sheet No. A22WE
DC-10-30 Refer to FAA Type Certificate Data Sheet No. A22WE
DC-10-30F Refer to FAA Type Certificate Data Sheet No. A22WE

Engine data sheets:

FAA TCDS E23EA General Electric CF6-6D, CF6-6D1, CF6-6D1A, CF6-6K, CF6-6K2, CF6-50A, CF6-50C, CF6-50CA, CF6-50C1, CF6-50C2, CF6-50C2B or CF6-50C2-R

For limitations see engine data sheet, airplane data sheet (A22WE) and Airplane Flight Manual

6. Auxiliary Power Unit

Refer to FAA Type Certificate Data Sheet No. A22WE

7. Propellers

N/A

8. Fluids (Fuel, Oil, Additives, Hydraulics)

Refer to FAA Type Certificate Data Sheet No. A22WE

9. Fluid Capacities

Refer to FAA Type Certificate Data Sheet No. A22WE

10. Airspeed Limits

For airspeed limits see the FAA TCDS A22WE and appropriate FAA Approved Airplane Flight Manual.

11. Flight Envelope

For airspeed limits see the FAA TCDS A22WE and appropriate FAA Approved Airplane Flight Manual.

12. Operating Limitations

SECTION 1: : DC-10-10, DC-10-30, DC-10-30F - continued

Refer to FAA Type Certificate Data Sheet A22WE and appropriate FAA Approved Airplane Flight Manual

13. Maximum Certified Masses

DC-10-10 Refer to FAA Type Certificate Data Sheet No. A22WE
DC-10-30 Refer to FAA Type Certificate Data Sheet No. A22WE
DC-10-30F Refer to FAA Type Certificate Data Sheet No. A22WE

Also see Airplane Flight Manual for actual approved maximum masses.

14. Centre of Gravity Range

See Airplane Flight Manual

15. Datum

See Weights and Balance Manual

16. Mean Aerodynamic Chord (MAC)

See Weights and Balance Manual

17. Levelling Means

Refer to FAA Type Certificate Data Sheet No. A22WE

18. Minimum Flight Crew

Three (3): Persons (Pilot, Co-pilot, and flight engineer)

19. Minimum Cabin Crew

The DC-10-10, DC-10-30 and DC-10-30F are accepted by EASA under the provisions of EU Regulation 748/2012.

20. Maximum Seating Capacity

DC-10-10 Refer to FAA Type Certificate Data Sheet No. A22WE, Note 6
DC-10-30 Refer to FAA Type Certificate Data Sheet No. A22WE, Note 6
DC-10-30F Refer to FAA Type Certificate Data Sheet No. A22WE, Note 6

21. Baggage/ Cargo Compartment

See appropriate Weight and Balance Control and Loading Manual.

22. Wheels and Tyres

Number of wheels in nose wheel unit: 2

Number of wheels in each main wheel unit: 8 (for DC-10-10)

Number of wheels in each main wheel unit: 10 (for DC-10-30/-30F)

Maximum tyre pressures (unloaded):

Nose wheel tyres 11.5 bar (for DC-10-10)

SECTION 1: : DC-10-10, DC-10-30, DC-10-30F - continued

	12.8 bar (for DC-10-30/-30F)
Main wheel tyres	14.4 bar (for DC-10-10) 13.8 bar (for DC-10-30/-30F)
Centre wheel tyres	11.6 bar (for DC-10-30/-30F)

Runway load classification LCN number:

DC-10-10 (rigid)	82.0 (L = 30”) 93.7 (L = 40”) 104.7 (L = 50”)
DC-10-10 (flex)	84.8 (T = 20”) 103.4 (T = 30”) 118.4 (T = 40”)
DC-10-30/-30F (rigid)	81.1 (L = 30”) 93.3 (L = 40”) 104.5 (L = 50”)
DC-10-30/-30F (flex)	85.2 (T = 20”) 103.4 (T = 30”) 118.3 (T = 40”)

23. ETOPS

N/A

IV. Operating and Service Instructions

1. Airplane Flight Manual (AFM)

According to Regulation 748/2012, the FAA approved Airplane Flight Manuals are considered to be the EASA approved Airplane Flight Manuals for the applicable models. In addition, according to Regulation 748/2012, Airplane Flight Manuals that were specifically approved for some individual Member States are also considered to be EASA approved in combination with the design details as specified by these authorities for the applicable models. Information on these latter Airplane flight Manuals can be obtained by the responsible Member States authorities.

2. Instructions for Continued Airworthiness and Airworthiness Limitations

Scheduled Maintenance:	McDonnell Douglas DC-10 FAA Approved Maintenance Review Board Reports contain the initial minimum requirements used for development of a maintenance program that meets the requirements for continued airworthiness.
Life Limited Parts:	DC-10 life limited components are listed in FAA approved Report MDC-J5752.

SECTION 1: : DC-10-10, DC-10-30, DC-10-30F - continued

The DC-10 FAA mandatory brake wear limits are contained in FAA Airworthiness Directives or McDonnell Douglas Report MDC-94K1158.

3. Weight and Balance Manual (WBM)

McDonnell Douglas Report MDC-J0994 for DC-10-10 passenger aircraft
McDonnell Douglas Report MDC-J1001 for DC-10-30 passenger aircraft
McDonnell Douglas Report MDC-J1002 for DC-10-30F freighter aircraft

V. Notes

Refer to FAA TCDS A22WE for additional notes, applicable for all models unless otherwise specified.

SECTION 2: (MD-11 and MD-11F)

I. General

1. Type/ Model/ Variant	MD-11 and MD-11F
2. Performance Class	A
3. Certifying Authority	Federal Aviation Administration (FAA) Los Angeles Aircraft Certification Office 3960 Paramount Boulevard, Suite 100 Lakewood, California 90712-4137 United States of America
4. Manufacturer	The Boeing Company 2401 E. Wardlow Road Long Beach, California 90807-5309 United States of America
5. FAA (State of Origin Airworthiness Authority) Certification Application Date	9 Oct 1985
6. EASA Validation Application Date	12 Dec 1988.
7. FAA (State of Origin Airworthiness Authority) Type Certification Date	MD-11: 08-11-1990 MD-11F: 08-11-1990
8. EASA Type Validation Date	MD-11: 02-10-1991 (JAA recommendation) MD-11F: 20-12-1994 (JAA recommendation)

II. Certification Basis

1. Reference Date for determining the applicable requirements
Date used by FAA and JAA for determining applicable requirements: 25 Sept 1987

2. FAA (State of Origin Airworthiness Authority) Type Certification Data Sheet No.
FAA Type Certificate Data Sheet No. A22WE

3. FAA (State of Origin Airworthiness Authority) Certification Basis
See FAA Type Certificate Data Sheet No. A22WE

4. EASA Airworthiness Requirements
In accordance with Regulation (EC) 748/2012

SECTION 2: (MD-11 and MD-11F) - continued

In context of EU Commision Regulation EC 748/2012, Article 3, two EASA certification basis are defined:

- a certification basis based on the JAA certification basis, as defined below, for serial numbers 48484-48486, 48538, 48555-48564, 48616-48618, 48629, 48756-48757, 48766, 48780-48785, 48788, 48798-48806, other serial numbers in case the airplanes have been modified to meet the JAA certification basis on request of the owner.

- a certificate basis based on the FAA certification basis, as defined in the FAA TCDS nr A22WE for all other serial numbers.

JAA Certification Basis:

4.1) JAA Mandatory Airworthiness Standards

JAR 25 Change 12* (See 2 below) except for:

JAR 25.109 replaced by JAA Special Condition JAA/MD-11/10

JAR 25.307 replaced by FAR 25.307 Amendment 53 for structure unchanged from DC-10

JAR 25.963(d) replaced by FAR 25.963(d) Amendment 61 for the inertia fuel loads in the unchanged wing fuel tanks

JAR 25.1309 replaced by FAR 25.1309 Amendment 22 for parts unchanged in both design and usage from DC-10 and which have demonstrated satisfactory service experience

JAR 25.1401(b) & (f) replaced by JAR 25.1401(b) & (f) Change 10

JAR 25.1457(c)(2) need not be applied to the continuous recording of hand held microphones

JAR AWO Change 1

Special Conditions for JAA Certification Basis:

JAA/MD-11/01	Artificial Static Longitudinal Stability	30 Oct 1990
JAA/MD-11/03	Discrete Gust Loads	26 April 1989
JAA/MD-11/04	Gust Requirements for Winglets	26 April 1989
JAA/MD-11/05	Lightning Strike Indirect Effects and External Radiation Protection	20 Nov 1989

SECTION 2: (MD-11 and MD-11F) - continued

JAA/MD-11/06	Engine Full Authority Digital Electric Control Systems	2 May 1989
JAA/MD-11/07	Operation without Normal Electrical Power	May 1989
JAA/MD-11/08	Miscellaneous Electrical Requirements	May 1989
JAA/MD-11/09	Aeroplane Wheels and Wheel Brake Assemblies: Minimum Performance Standards	Aug 1990
JAA/MD-11/10	Rejected Take-off	Sept 1991

4.2) MDC Elect to Comply Airworthiness Standards for JAA Certification Basis

MDC elected to comply with JAR NPAs 25B-158, 25B-183 and 25CDEF-185 which were introduced into Change 12 by Amendment 87/2.

MDC also elected to comply with the "Deletion of National Variants from JAR 25 Change 12 Introduced by Amendment 88/1 dated 18 October 1988".

Compliance with the following optional requirements has been established:

Ditching Provisions	25.801
Ice Protection Provisions	25.1419

4.3) Equivalent Safety Findings for JAA Certification Basis

ES/MD-11/01	Rating of oversize Type 1 Exits (JAR 25.807(a)(2))
ES/MD-11/02	Provision of Oxygen in Galley Work Areas (JAR 25.1447(c)(3))
ES/MD-11/03	Engine Low Pressure Warning (JAR 25.1305(a)(1))
ES/MD-11/04	Fire Zones (PW 4000 Fan Zone) (JAR 25.1181(a)(6))

5. Special Conditions

See above for JAA certification basis and FAA TCDS A22WE for FAA certification basis.

SECTION 2: (MD-11 and MD-11F) - continued

6. Exemptions

See above for JAA certification basis and FAA TCDS A22WE for FAA certification basis.

7. Deviations

See above for JAA certification basis and FAA TCDS A22WE for FAA certification basis.

8. Equivalent Safety Findings

See above for JAA certification basis and FAA TCDS A22WE for FAA certification basis.

9. Environmental Protection Standards

ICAO Annex 16 Volume 1 and Volume 2 for airplanes with JAA Certification Basis and FAA Type Certificate Data Sheet No. A22WE for aircraft with a certification basis based upon FAA certification basis.

III. Technical Characteristics and Operational Limitations

1. Type Design Definition Report MDC 91K0526

2. Description Low wing jet transport with a conventional tail unit configuration, powered by three high bypass turbofan engines, of which two are mounted on pylons beneath the wings and one in the vertical tail.

3. Equipment

The basic required equipment as prescribed in the applicable airworthiness regulations (see Certification Basis) must be installed in the aircraft for certification. All required equipment that must be installed as well as optional equipment approved by the FAA are contained in the following:

MD-11 Report No. MDC-K0032, Chapter 2, "Weight and Balance Manual." Model MD-11.

MD-11 Report No. MDC-K5542, Chapter 2, "Weight and Balance Manual." Model MD-11F.

For the airplanes with a JAA Certification Basis, all of the required equipment that must be installed as well as optional equipment installations approved by the JAA are contained in the following:

JAA Type Design Standard Definition Report MDC 91K0526
(also NOTE 5)

SECTION 2: (MD-11 and MD-11F) - continued

Automatic Landing System Limitations

MD-11 airplanes which meet the following are eligible for autolanding:

(a) The Certification Maintenance Requirements (CMR) listed in FAA approved report MDC-K4174 revision Q or later approved revision must be complied with;

(b) MD-11 EWO 22002 (see report MDC 91K0526) or SB 22-4 must be incorporated.

4. Dimensions

Wing Span	51.96 m (170ft 5.5 inch) (winglet to winglet)
Length	61.21 m (200 ft 10 inch)
Height	17.60 m (57 ft 9 inch)
Wing Area	338.9 m^2 (3648 ft^2)

5. Engines 3 General Electric CF6-80C2D1F high-bypass turbofan engines.

or

3 Pratt & Whitney PW4460 high-bypass turbofan engines.

or

3 Pratt & Whitney PW4462 high-bypass turbofan engines.

Engine data sheets:

FAA TCDS E24NE	Pratt and Whitney 4460, 4462
FAA TCDS E13NE	General Electric CF6-80C2D1F

For limitations see engine data sheet, airplane data sheet (A22WE) and Airplane Flight Manual

6. Auxiliary Power Unit 1 Garret Airesearch TSCP700-4E

For limitations see airplane data sheet (A22WE)

7. Reserved

8. Fluids (Fuel, Oil, Additives, Hydraulics)
Refer to FAA Type Certificate Data Sheet No. A22WE

9. Fluid Capacities
Refer to FAA Type Certificate Data Sheet No. A22WE

10. Airspeed Limits
Refer to FAA Type Certificate Data Sheet No. A22WE

SECTION 2: (MD-11 and MD-11F) - continued

11. Flight Envelope

Refer to FAA Type Certificate Data Sheet No. A22WE

12. Operating Limitations

12.1 Approved Operations

Refer to FAA Type Certificate Data Sheet No. A22WE and approved Airplane Flight Manual

12.2 Other Limitations

Maximum Operating Altitude: 12,800 m (43,200 ft) pressure altitude

13. Maximum Certified Masses

MD-11 Refer to FAA Type Certificate Data Sheet No. A22WE

MD-11F Refer to FAA Type Certificate Data Sheet No. A22WE

14. Centre of Gravity Range

See Airplane Flight Manual

15. Datum

Refer to FAA Type Certificate Data Sheet No. A22WE

16. Mean Aerodynamic Chord (MAC)

Refer to FAA Type Certificate Data Sheet No. A22WE

17. Levelling Means

One of the following three systems:

a) Two sets of lugs in nose wheel well

1) Lateral on centerline 2 inches forward of station 495.

2) Longitudinal 24 inches left of centreline, 20 inches and 40 inches forward of station 495.

b) Plumb bob and grid plate at station 1516 aft bulkhead, right hand main gear wheel well, if installed per Service Bulletin 53-52.

c) Set of lugs at sta. 1521 in right hand main gear wheel well. Lay flat plate on which to put level for either lateral or longitudinal.

Control Surface: To insure proper operation of the airplane, the movement of the various control surfaces must be carefully controlled by proper rigging of the Flight Control Systems. The airplane must therefore be rigged in accordance with Douglas Drawing NXH 6704, "Rigging Procedures", and NXH-6705, "Throws - Flight Controls."

18. Minimum Flight Crew

SECTION 2: (MD-11 and MD-11F) - continued

Two (2): Persons (Pilot and Co-pilot)

19. Minimum Cabin Crew

The MD-11 and MD11F are accepted by EASA under the provisions of EU Regulation 748/2012.

20. Maximum Seating Capacity

Refer to FAA Type Certificate Data Sheet No. A22WE, Note 6

21. Baggage/ Cargo Compartment

MD-11: (See MD-11 Weight and Balance Manual Report No. MDC-K0032).
MD-11F: (See MD-11F Weight and Balance Manual Report No. MDC-K5542)

22. Wheels and Tyres

Number of wheels in nose wheel unit:		2
Number of wheels in each main wheel unit:		10
Maximum tyre pressures (unloaded):		
	Nose wheel tyres	12.7 bar
	Main wheel tyres	14.3 bar
	Center wheel tyres	12.4 bar
Runway load classification LCN number:		
	(rigid)	94.1 (L = 30”) 107.8 (L = 40”) 120.3 (L = 50”)
	(flex)	98.3 (T = 20”) 119.0 (T = 30”) 135.9 (T = 40”)

23. ETOPS

N/A

IV. Operating and Service Instructions

1. Airplane Flight Manual (AFM)

FAA Approved flight Manuals : MDC-K0031J and MDC-K0051J.
For airplanes delivered according the JAA Certification Basis, JAA approved supplements are applicable.

2. Instructions for Continued Airworthiness and Airworthiness Limitations

MD-11 Certification Maintenance Requirements (CMR's) are listed in FAA approved MDC Report No. MDC-K4174, Revision Q or later FAA approved

SECTION 2: (MD-11 and MD-11F) - continued

revision supplemented by the engine Type Certificate Data Sheet and, for the airplanes with a JAA Certification Basis, by the JAA additional items in Report 91K0836. The more restrictive requirement from these documents shall be in force.

McDonnell Douglas Model DC-10 and MD-11 Structural Repair Manual, Volume I and IV is FAA approved.

MD-11 life limited components and required structural inspections for damage tolerant structure, are listed in FAA approved Report MDC-K5225.

The DC-10/MD-11 FAA mandatory brake wear limits are contained in FAA Airworthiness Directives or McDonnell Douglas Report MDC-94K1158.

The life limited components must be replaced as indicated in the appropriate life limit report and revisions thereto. The MD-11 damage tolerance inspections must be conducted in accordance with Report MDC-K5225.

3. Weight and Balance Manual (WBM)

McDonnell Douglas Report MDC-K0032 for passenger aircraft
McDonnell Douglas Report MDC-K5542 for freighter aircraft
McDonnell Douglas Report MDC-K5543 for combi aircraft
McDonnell Douglas Report MDC-93K1163 for convertible freighter aircraft

V. Notes

NOTE 1: The maximum weights specified do not apply to all aircraft associated with this Type Certificate Data Sheet. Maximum weights and associated required items for an individual aircraft must be determined by reference to the FAA approved JAA Airplane Flight Manual applicable to that aircraft.

Fuel dump valves are required for operation in excess of maximum landing weight (See fuel capacity data in FAA TCDS A22WE).

NOTE 2: All replacement seats (crew, passenger and lounge), although they may comply with TSO-C39b, must also be demonstrated to comply with JAR 25.785 and other relevant specified requirements. Other installations, such as berths, compartments, or items of mass which could create a hazard to the safety of passengers and crew must also be demonstrated to meet the same requirements.

NOTE 3: When approved for use of 10 minute Take-off rating in accordance with Appendix 4 to the AFM then the revised limits in Section 4A or Section 4B (if applicable) of Appendix 4 will apply.

NOTE 4: Individual JAA Authorities

SECTION 2: (MD-11 and MD-11F) - continued

For French DGAC certification, parts 1) and 2) are amended as follows:

1) Replace JAR 25 Change 12 with: JAR 25 Change 10 plus Amendments 84/1, 84/2, 84/3 and 85/1, (See 2) below) except for:

Replace exception relating to JAR 25.109 with:
JAR 25.109 replaced by JAA NPA 25B,D,G-244

Delete exception relating to 25.1401(b) & (f)

Add: Qualification Aviation Civile (QAC)

2) *MDC elected to comply with Change 12.

The elect to comply with the "Deletion of National Variants" and the compliance with optioned requirement statements are unchanged.

For German LBA certification add the following items:

1A) 4 DV Luft Bau 0-LFKH Hand Held Fire Extinguishers for use in Personnel Compartments.

NOTE 5: Radio/Nav equipment subject to specific approval by individual JAA Authorities.

The radio/nav equipment approved by each JAA Authority is listed in the applicable Appendix to Report MDC 91K0526.

NOTE 6: The MD-11 aircraft is qualified for operations within Reduced Vertical Separation Minimum (RVSM) airspace. See McDonnell Douglas Service Bulletin MD11-34-065 for establishing the basis for operational approval.

FAA TCDS A22WE Notes 1, 4, 5, 7, 9, 10, 12, 14, 16, 17 and 18 are also applicable.

SECTION: ADMINISTRATIVE

I. Acronyms and Abbreviations

II. Type Certificate Holder Record

The Boeing Company
2401 E. Wardlow Road
Long Beach, California 90807-5309
United States of America

Before transition to Boeing Company held by:

McDonnell Douglas Corporation
3855 Lakewood Boulevard
Long Beach, California 90846-0001
United States of America

III. Change Record

Issue	Date	Changes	TC issue
Issue 01	02 December 2013	Initial Issue	Initial Issue dd 02 December 2013

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