



European Aviation Safety Agency

EASA

**TYPE-CERTIFICATE
DATA SHEET**

No. A.110

for
Airbus A380

Type Certificate Holder:
Airbus

1 Rond-point Maurice Bellonte
31707 BLAGNAC
FRANCE

Airworthiness Category: Large Aeroplanes

For Models: A380-841/-842
A380-861

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SECTION 1: A380-800 SERIES

I. General

1. Type/Model/Variant
A380-800
2. Performance Class
A
3. Certifying Authority
EASA
4. Manufacturer
AIRBUS
1 Rond-point Maurice Bellonte
31707 Blagnac
FRANCE
5. EASA Certification Application Date
A380-841/-842: 20 December 2001
A380-861: 30 April 2003
6. EASA Type Certification Date
A380-841/-842: 12 December 2006
A380-861: 14 December 2007

II. Certification Basis

1. EASA Type Certification Data Sheet No.

A.110

2. EASA Certification Basis

The following EASA/JAA airworthiness standards effective on the reference date:

- JAR 1 at change 5 plus orange papers 1/97/1 and 1/99/1
- JAR 25 at change 15
- JAR AWO at change 2 (post TC for autoland)

3. Special Conditions

- 3.1. Special Conditions issued because the product has novel or unusual design features relative to the design practices on which the applicable JAR 25 are based (JAR 21.16(a)(1)):

- SC B-01 Stalling and scheduled operating speeds
- SC B-02 Motion and effects of cockpit control
- SC B-04 Static directional, lateral and longitudinal stability and low energy awareness
- SC B-05 Flight envelope protection
- SC B-06 Normal load factor limiting system
- SC B-10 Human factors evaluation of novel features in the flight deck

- SC C-01 Crashworthiness of Large Aircraft Structures
- SC C-02 Discrete gust
- SC C-03 Loading conditions for multi leg landing gear
- SC C-04 Undercarriage lateral turning loads
- SC C-05 Jacking by landing gear
- SC C-06 Dynamic braking
- SC C-11 Interaction of systems and structures
- SC C-13 Design manoeuvre requirements
- SC C-15 Design dive speed V_d
- SC C-16 Limit pilot forces

- SC D-03 Emergency exit arrangement-outside viewing
- SC D-04 Crew rest compartments (Post TC)
- SC D-06 Use of stairs between decks
- SC D-07 Fire detection and protection in passenger cabin
- SC D-12 Design for security
- SC D-28 Harmonised 671/672
- SC D-33 Extendable length escape slide
- SC D-39 Inertia Locking Device in Dynamic Seats (optional)
- SC D-41 Installation of Suite Type Seating (optional)
- SC D-42 Type C Passenger Exits (optional)
- SC D-45 Trolley Stowage/ Lift Systems with Proximity to Upper Deck Staircase
- SC D-47 Installation of Inflatable Seat Belts

- SC F-01 JAR 25.1301 and 1309 compliance: Design assurance and safety assessment process
- SC F-02 Slide/Raft portability
- SC F-12 HIRF Protection
- SC F-26 Flight recorders, data link recording
- SC F-52 Lithium – Ion battery installation

3.2. Special Conditions issued because the intended use of the product is unconventional (JAR 21.16(a)(2)):

- SC D-20 Towbarless towing
- SC D-31 High altitude operation

- SC G-06 Ferrying one engine unserviceable (optional)

3.3. Special Conditions issued because experience from other products has shown that unsafe conditions may develop (JAR 21.16(a)(3)):

- SC D-13 Fire protection of thermal and acoustic insulation material
- SC D-15 Brakes and braking system – NPA 25D291
- SC D-43 Heat Release and Smoke Density to Seat Materials
- SC D-46 PED Charging Stowage

- SC E-02 Fuel tank safety
- SC E-04 Thrust reverser system requirements
- SC E-05 Sustained engine imbalance

- SC H-01 ICA on EWIS

4. Equivalent Safety Findings (JAR 21.21(c)(2))

ESF C-12	Vibration, buffet and aeroelastic stability requirements
ESF C-14	Proof of structure
ESF C-19	Checked Pitching manoeuvre loads
ESF C-20	Engine failure loads
ESF C-21	Continuous turbulence loads
ESF D-17	Fuselage doors
ESF D-19	Casting factors
ESF D-21	Allowable carbon dioxide concentration in aeroplane cabins and cabin ozone concentration
ESF D-24	Packs off operation
ESF D-48	Belly Fairing Thermal/acoustic Insulation Materials
ESF D-49	Improved flammability standards for Lower Deck crew
ESF D-50	Composite Pressure Bulkhead Thermal/acoustic Insulation Materials
ESF E-06	Falling and blowing snow
ESF E-09	Fuel tank crashworthiness
ESF E-10	Fuel tank access covers
ESF E-11	Rolls-Royce Trent turbine overheat detection (for A380-841/-842 models only)
ESF E-12	GP 7200 Fan zone as a non-fire zone (for A380-861 model only)
ESF E-15	Warning means for engine fuel filters (for A380-841/-842 models only)
ESF E-16	Thrust reverser testing
ESF E-17	Oil temperature indication
ESF E-19:	Engine fuel filter location (for A380-861 model only)
ESF F-11	Pneumatic systems
ESF F-15	Hydraulic systems
ESF F-23	Landing light switch
ESF F-29	New Harmonised JAR 25.1329
ESF F-38	Overpressure relief valves and outflow valves
ESF F-48	Use of computer simulation and similarity approach for high energy rotor containment demonstration
ESF F-53	Supplemental Cooling System – Impeller Pump Containment Test
ESF J-02	APU installation requirements
ESF K-06	Localizer excessive deviation alerts
ESF K-07	Limit Risk (NPA AWO 14)

5. Environmental Protection Requirements

Fuel venting and emissions:
ICAO Annex 16, Second Edition, Volume 2, Amdt 4, Part II and Part III, Chapter 2.

Noise:
ICAO Noise Standard (Annex 16, Volume 1, Amdt 7, Part II, Chapter 4)

6. Elect to Comply

The following paragraphs of JAR 25 at amendment 16 issued May 1st, 2003 are elected to comply by Airbus:

JAR25.21(d)	JAR25.791	JAR25.954	JAR25.1321	JAR25.1521(d)
JAR25.25	JAR25.803	JAR25.961	JAR25.1325	JAR25X1524
JAR25.149(e)	JAR25.807	JAR25.967	JAR25.1415	JAR25.1527
JAR25.251	JAR25.812	JAR25.975(a)(5)	JAR25.1441	JAR25.1545
JAR25X261	JAR25.815	JAR25.981	JAR25.1443	JAR25.1547
JAR25.337	JAR25.853	JAR25.993	JAR25.1445(a)	JAR25.1549
JAR25.493	JAR25.857	JAR25.994	JAR25.1447	JAR25.1581
JAR25.562(b)	JAR25.863(b)(4)	JAR25.997	JAR25.1449	JAR25.1583
JAR25.605	JAR25.904	JAR25.1013	JAR25.1450	JAR25.1585
JAR25.607	JAR25.907	JAR25.1015	JAR25.1457	JAR25.1587
JAR25.701	JAR25.933	JAR25.1019	JAR25.1513	
JAR25.733	JAR25.939	JAR25.1145	JAR25X1516	
JAR25.777	JAR25.951	JAR25.1303	JAR25.1517	
JAR25.781	JAR25.952	JAR25.1305	JAR25.1519	

Appendix D paragraph (b)
Appendix H subparagraph H25.3(e)

Appendix I

Note: JAR 25.1517, as in amendment 16 of JAR 25, is amended by Equivalent Safety Finding ESF C-21.

The following paragraphs of JAR AWO as modified per NPA AWO 8 and 10, adopted by the JAAC on 07 February 2003, that are elected to comply by Airbus per their letter AI/LE-A 828.0005/99 issue 3 dated 20 July 2001:

Introduction to JAR AWO Subpart 3, section B, 3rd paragraph, Introduction to JAR AWO Subpart 3, section C, 2nd paragraph, Introduction to JAR AWO Subpart 3, section D, 1st paragraph, Introduction to JAR AWO Subpart 4, 2nd paragraph

JAR AWO 131(c)(2)	JAR AWO 313	JAR AWO 316(a)	JAR AWO 381
JAR AWO 304(b)	JAR AWO 314	JAR AWO 321(c)(4)	JAR AWO 481(a)
JAR AWO 305	JAR AWO 316 title	JAR AWO 321(d)(4)	

III. Technical Characteristics and Operating Limitations

1. A380-841/-842 Powered by RR Engines

1.1. Type Design Definition

A380-841: 00L000H0841/C0S, Issue 3, October 2007
A380-842: 00L000H0842/C0S, Issue 1, December 2006

1.2. Description

Four turbo-fan, long range, twin-aisle, large category airplane.

1.3. Engines

A380-841: Four (4) RB211 Trent 970-84 or RB211 Trent 970B-84 turbofan engines
A380-842: Four (4) RB211 Trent 972-84 or RB211 Trent 972B-84 turbofan engines

Engine Limits:

ENGINE LIMITS DATA SHEET EASA E.012	A380-841 RB211 Trent 970B-84	A380-842 RB211 Trent 972B-84
Static thrust at sea level: -Take-off (5mn)* (flat rated 30°C)	348.31 kN	356.81 kN
Approved Oil	Refer to the Engine Operating Instructions for information on approved oil specifications for Trent 900	

* 10 minutes at take-off thrust allowed only in case of engine failure (at take-off or during go-around) in accordance with EASA TCDS paragraph VI-1.

Other engine limitations: See the relevant Engine Type Certificate Data Sheet.

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

Nomenclature	Specification				
	FRANCE	U.S.A.	U.K.	RUSSIA	CHINA
KEROSENE	DCSEA 134/B (JET A1) Kerosene	ASTM D-1655-07(a) (Jet A), (Jet A1)	DEF STAN 91-91/5 AVTUR	RJFS0 GOST 10227-86, (RT) (TS-1)	PRC MPIS GB 6537-2006 (No3 Jet Fuel)
		USA Air Force MIL-DTL- 83133 E (JP8)	DEF STAN 91-87/5 AVTUR FSII	FAoTR&M GOST R 52050-2006 (JET A1)	
	DCSEA 144/B (JP 5) Kerosene	US Navy MIL-DTL- 5624 U (JP5)	DEF STAN 91-86/5 AVTUR FSII		

Additives: See Rolls Royce "RB211 Specific Operating Instructions for Trent 900", installation manual. The above-mentioned fuels and additives are also suitable for the APU.

Hydraulics: Fluid specifications: TYPE IV LD (Low Density) and TYPE V LD as per NSA 307-110.

1.5. Airspeed Limitations

Refer to approved Airplane Flight Manual.

1.6. Centre of Gravity Range

Refer to approved Airplane Flight Manual.

1.7. Maximum Certified Masses

VARIANT (Modification Number)	000 Basic	001 (64636)	002 (64605)	003 (66611)	004 (69436)	005 (69879)	007 (71127)
MTW (T)	562	512	571	512	562	562	492
MTOW (T)	560	510	569	510	560	560	490
MLW (T)	386	394	391	395	391	386	395
MZFW (T)	361	372	366	373	366	366	373

1.8. Notes

None

2. A380-861 Powered by GP Engines

2.1. Type Design Definition

A380-861: 00L 000H0861/C01, Issue 2, June 2008

2.2. Description

Four turbo-fan, long range, twin-aisle, large category airplane.

2.3. Engines

A380-861: Four (4) Engine Alliance GP7270 P/N GP7270GP01 turbofan engines

Engine Limits:

ENGINE LIMITS DATA SHEET FAA E00072EN	A380-861 Engine Alliance GP7270	A380-861 Engine Alliance GP7270E (1)
Static thrust at sea level: - Take-off (5mn)* (flat rated 30°C)	332.44 kN	332.44 kN
Approved Oil	Refer to the Engine Alliance Service Bulletin EAGP7-79-1 for the listing of approved oils for use in the GP7200 series turbofan engine	Refer to the Engine Alliance Service Bulletin EAGP7-79-1 for the listing of approved oils for use in the GP7200 series turbofan engine

* The normal 5 minute takeoff rating may be extended to 10 minutes for engine out contingency in accordance with the FAA TCDS Note 2.

Other engine limitations: See the relevant Engine Type Certificate Data Sheet.

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

Nomenclature	Specification				
	FRANCE	U.S.A.	U.K.	RUSSIA	CHINA
KEROSENE	DCSEA 134/B (JET A1) Kerosene	ASTM D-1655-07(a) (Jet A),(Jet A1)	DEF STAN 91-91/5 AVTUR	RJFS0 GOST 10227-86, (RT) (TS-1)	PRC MPIS GB 6537-2006 (No3 Jet Fuel)
		USA Air Force MIL-DTL- 83133 E (JP8)	DEF STAN 91-87/5 AVTUR FSII	FAoTR&M GOST R 52050-2006 (JET A1)	
	DCSEA 144/B (JP 5) Kerosene	US Navy MIL-DTL- 5624 U (JP5)	DEF STAN 91-86/5 AVTUR FSII		

Additives: Refer to the Engine Alliance Service Bulletin EAGP7-73-1 for the listing of approved fuels and derivatives for use in the GP7200 series turbofan engine. The above-mentioned fuels and additives are also suitable for the APU.

Hydraulics: Fluid specifications: TYPE IV LD (Low Density) and TYPE V LD as per NSA 307-110.

2.5. Airspeed Limitations

Refer to approved Airplane Flight Manual.

2.6. Centre of Gravity Range

Refer to approved Airplane Flight Manual.

2.7. Maximum Certified Masses

VARIANT (Modification Number)	000 Basic	001 (64636)	002 (64605)	003 (66611)	004 (69436)	005 (69879)	007 (71127)
MTW (T)	562	512	571	512	562	562	492
MTOW (T)	560	510	569	510	560	560	490
MLW (T)	386	394	391	395	391	386	395
MZFW (T)	361	372	366	373	366	366	373

2.8. Notes

If modification 62947 (Thrust Enhancement Kit – TEK) is embodied on A380-861 aircraft models, the aircraft have an increased thrust in hot days condition. The engine denomination changes from GP7270 to GP7270E.

3. Data Pertinent to all A380-800 Series

3.1. Equipment

The equipment required by the applicable requirements shall be installed.

Cabin furnishings, equipment and arrangement shall conform to the following specification:

- 00L252C0028/C01 for cabin seats,
- 00L252C0027/C01 for galley,
- 00L252C0032/C01 for cabin attendant seats.

3.2. Auxiliary Power Unit

One Pratt & Whitney Canada PW980A
Oils: Refer to applicable approved Manuals

3.3. Propellers

None

3.4. Fluid Capacities

Tanks		Usable Fuel Litres (Kg)	Unusable Fuel Litres (Kg)
Wing	Outer Left	10 340 (8 272)	38 (30)
	Feed 1	27 632 (22 106)	82 (66)
	Mid Left	36 461 (29 169)	50 (40)
	Inner Left	46 142 (36 914)	70 (56)
	Feed 2	29 349 (23 479)	88 (70)
	Feed 3	29 349 (23 479)	88 (70)
	Inner Right	46 142 (36 914)	70 (56)
	Mid Right	36 461 (29 169)	50 (40)
	Feed 4	27 632 (22 106)	82 (66)
	Outer Right	10 340 (8 272)	38 (30)
Trim		23 698 (18 958)	49 (39)
Systems		793 (634)	382 (305)
Total		324339 (259471)	1086 (869)

3.5. Flight Envelope

Refer to approved Airplane Flight Manual.

3.6. Operating Limitations

Refer to approved Airplane Flight Manual.

3.7. All Weather Capabilities

The aircraft is qualified to Cat 3 precision approach and autoland.

3.8. Minimum Flight Crew

Two (2): Pilot and Co-pilot

3.9. Maximum Seating Capacity

The maximum number of passengers approved for emergency evacuation is: 853

Upper deck: 315 pax

Main deck: 538 pax

See interior layout drawing for the maximum passenger capacities approved for each aeroplane when delivered.

3.10. Baggage/Cargo Compartment

Cargo compartment	Maximum load (kg)
Forward	28577 kg or 63000 lb
Aft	20310 kg or 44775 lb
Rear (bulk)	2515 kg or 5540 lb

For the positions and the loading conditions authorized in each position (references of containers, pallets and associated weights), see Weight and Balance Manual Chapter 1.10 ref.: 00L080H0001/C0S.

3.11. Wheels and Tyres

Tyres mixability: See Service Bulletin A380-32-8021 (Landing Gear – Tires – General Procedures) for allowable combinations.

3.12. Electrical Power Center Configuration Data File Tool

An Airline Configuration Tool (ACTS) has been developed and qualified to allow airlines to manage the Configuration Data File of Secondary Power Distribution Boxes (SPDB). This ACTS tool shall be used in accordance with the SIL “Guidance on Electrical system Configuration Data File update” reference “SIL 24-085”. Applicable version of the ACTS tool is version 2 (CSCI 51220010-7)

IV. Operating and Service Instructions

1. Airplane Flight Manual (AFM)

Approved Aircraft Flight Manual: STL 38000

2. Instructions for Continued Airworthiness and Airworthiness Limitations

Limitations applicable to Safe Life Airworthiness Limitation Items are provided in the A380 Airworthiness Limitations Section Part 1, Revision 05 (approved by EASA Document 00L050H0007/C01, issue 7, October 2009[1]).

Limitations applicable to Damage-Tolerant Airworthiness Limitation Items are provided in the A380 Airworthiness Limitations Section Part 2, Revision 01 02 (approved by EASA Document 00L050H0005/C01, issue 5, May 2011[1]).

Limitations applicable to Certification Maintenance Requirements are provided in the A380 Airworthiness Limitations Section Part 3, Revision 1 02 (approved by EASA Document 00L050H0002/C01, Issue 08, May 2009[1]).

Limitations applicable to Ageing System Maintenance are provided in the A380 Airworthiness Limitations Section Part 4, Revision 07 (approved by EASA Document 00L050H0010/C01, Issue 11, October 2009[1]).

Limitations applicable to Fuel Airworthiness Limitations are provided in the A380 Airworthiness Limitations Section Part 5, Revision 04 (approved by EASA Document 00L050H0009/C01, Issue 4, July 2009[1]).

Limitations applicable to Aircraft Information System Security are provided in the A380 Airworthiness Limitations Section Part 6, Revision 2 03 (approved by EASA Document 00L050HLS06/C01, Issue 04, July 2009[1]).

Maintenance Review Board Report 00L050H0001/C01

Note [1]: Including ALS variations or later EASA approved revision

V. Notes

None

SECTION: ADMINISTRATIVE

I. Acronyms and Abbreviations

APU	Auxiliary Power Unit
AWO	All Weather Operations
CRI	Certification Review Item
EASA	European Aviation Safety Agency
ESF	Equivalent Safety Finding
EWIS	Enhanced Wiring Interconnection System
HIRF	High Intensity Radiated Field
ICA	Instructions for Continued Airworthiness
ICAO	International Civil Aviation Organization
JAA(C)	Joint Aviation Authorities (Central)
JAR	Joint Aviation Requirements
NPA	Notice of Proposed Amendment
PED	Portable Electronic Device
RR	Rolls Royce
SC	Special Condition
TCDS	Type Certificate Data Sheet
TCDSN	Type Certificate Data Sheet for Noise

II. Type Certificate Holder Record

AIRBUS
1 Rond-point Maurice Bellonte
31707 Blagnac
France

III. Change Record

Issue	Date	Changes	TC issue
Issue 01	12/12/06	Initial Issue	Initial Issue, 12/12/06
Issue 02	12/10/07	Section 2, III, 1.1: Correction of Type Definition reference Section 2, III, 2.9: Update to All Weather Capabilities Section 2, III, 2.12: Update to Operational, Maintenance Instructions and Airworthiness Limitation	Initial Issue, 12/12/06
Issue 03	14/12/07	Section 2, II, 1.: Inclusion of A380-861 reference Section 2, II, 2.: Inclusion of A380-861 reference Section 2, II, 6.: New ESF E-19 Section 2, II, 8.: Removal of Additional National Requirements Section 2, II, 8.: Re-number of para 9 to 8, Elect to Comply Section 2, III, 2.: New Section to include A380-861 data Section 2, III, 3.: Re-numbered Section, General Data Section 2, III, 3.12.:Update to Operational, Maintenance Instructions and Airworthiness Limitation	Issue 02, 14/12/07

Issue 04	20/02/09	Section 2, II, 4.1: New Special Conditions, D-39,-41,-42,-45 Removal of erroneous CRI Reference Section 2, II, 4.3: New Special Conditions, D-43 Section 2, II, 5.: Removal of para 5, Temporary Deviation Section 2, II, 5.: Re-numbering of following paragraphs Section 2, III, 1.3: Correction to, plus additional fuel refs Section 2, III, 1.6: Additional Weight Variant Section 2, III, 2.1: Update to Type Definition A380-861 Section 2, III, 2.2.1: Additional Engine variant, GP7270E, note Section 2, III, 2.3: Correction to, plus additional fuel refs Section 2, III, 2.6: Additional Weight Variant Section 2, III, 3.8: Correction to Equipment references Section 2, III, 3.12: Update to Operational, Maintenance Instructions and Airworthiness Limitation	Issue 02, 14/12/07
Issue 05	01/12/09	Addition of Change Record Section 2, II, 4.3: New Special Condition D-46 Section 2, III, 1.6: Additional Weight Variants Section 2, III, 2.6: Additional Weight Variant Section 2, III, 3.10: Wheels and Tyres mixability allowed Section 2, III, 3.11: Correction to Hydraulic Fluid Specification Section 2, III, 3.12: Update to Operational, Maintenance Instructions and Airworthiness Limitation	Issue 02, 14/12/07
Issue 06	28/07/11	Section 2, II, 4.1: New Special Condition D-47 Section 2, II, 5: New ESF, D-48, D-49 and D-50 Section 2, III, 1.6: Additional Weight Variant 007 Section 2, III, 2.6: Additional Weight Variant 007 Section 2, III, 3.9: Addition of "Electrical Power Center Configuration Data File Tool paragraph Section 2, III, 3.13: Update to Operational, Maintenance Instructions and Airworthiness Limitation	Issue 02, 14/12/07
Issue 07	16/09/11	Section 1, II, 5.3: Addition of SC H-01 "ICA on EWIS" Correction of errors in Change Record Issue 06 Content restructured and completed to match new TCDS format (new numbering scheme)	Issue 02, 14/12/07

[insert rows as necessary]

-END-