UNITED KINGDOM
CIVIL AVIATION AUTHORITY

FA41	
Issue 13	
November 2003	
Airbus	**A318**
	A319
	A320
	A321

TYPE CERTIFICATE DATA SHEET No. FA41

This data sheet which is part of CAA Type Certificate No. FA41, prescribes conditions and limitations under which the product, for which the Type Certificate was issued, meet the airworthiness requirements of the Civil Aviation Authority.

TYPE CERTIFICATE HOLDER:

Airbus Industrie
1 Rond Point Maurice Bellonte
31707 BLAGNAC
FRANCE

MANUFACTURER:

Airbus Industrie
1 Rond Point Maurice Bellonte
31707 BLAGNAC
FRANCE

AIRCRAFT TYPE DESIGNATIONS:	**A318**	**A319**	**A320**	**A321**
VARIANT DESIGNATIONS:	A318-111	A319-111	A320-111	A321-111
	A319-112	A319-112	A320-211	A321-112
		A319-113	A320-212	A321-131
		A319-114	A320-214	A321-211
		A319-115	A320-231	A321-212
		A319-131	A320-232	A321-213
		A319-132	A320-233	A321-231
		A319-133		A321-232

Type Certification has been granted on the basis of a recommendation from the Joint Aviation Authorities (JAA) following an investigation carried out in accordance with the JAA Joint Certification procedures. Accordingly, the attached JAA Data Sheet No. JAA/25/95-014 Issue 19 dated November 2003 has been accepted by the CAA for the Airbus A318, A319, A320 and A321.

- END -

JOINT AVIATION AUTHORITIES

AIRCRAFT
AIRBUS

A 319 - 111	A 320 - 212	A321 - 212
A 319 - 112	A 320 - 214	A321 - 213
A 319 - 113	A 320 - 231	A321 - 232
A 319 - 114	A 320 – 232	A318 - 111
A 319 - 115	A 320 – 233	A318 - 112
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A 320 - 111	A 321 - 211	
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Issue n° 19
November 2003
Number of pages : 46

TYPE CERTIFICATE DATA SHEET JAA/25/95-014

AIRCRAFT AIRBUS A318 - A319 - A320 - A321

Manufacturer and Type certificate holder :

AIRBUS

1, Rond-Point Maurice Bellonte
31707 BLAGNAC - FRANCE

DGAC Type certificate N° 180

For model A320-111	:	February 26, 1988
For model A320-211	:	November 08, 1988
For model A320-231	:	April 20, 1989
For model A320-212	:	November 20, 1990
For model A320-232	:	September 28, 1993
For model A321-131	:	December 17, 1993
For model A321-112	:	February 15, 1994
For model A321-111	:	May 27, 1994
For model A320-214	:	March 10, 1995
For model A319-111	:	April 10, 1996
For model A319-112	:	April 10, 1996
For model A319-113	:	May 31, 1996
For model A319-114	:	May 31, 1996
For model A320-233	:	June 12, 1996
For model A319-131	:	December 18, 1996
For model A319-132	:	December 18, 1996
For model A321-211	:	March 20, 1997
For model A321-231	:	March 20, 1997
For model A319-115	:	July 30, 1999
For model A319-133	:	July 30, 1999
For model A321-212	:	August 31, 2001
For model A321-213	:	August 31, 2001
For model A321-232	:	August 31, 2001
For model A318-111	:	May 23, 2003
For model A318-112	:	May 23, 2003

This document presents the updated proposal to JAA for TCDS n° JAA/25/95-014 (Internal ref. AI/EA-S 413.0333/96)

Reason for ISS 19:
- Introduction of A319 second type III exit option
- Introduction of A319 WV006

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1. A320 - 100 SERIES

Twin turbo-fan, short to medium range, single aisle, transport category airplane.

1.1.1 - Model definition A 320-111

Certificated model : A320-111
Definition of reference airplane by document AI/EA-A 414.197/87.

1.1.2 - Engines

A320-111 Model : Two CFMI - CFM 56-5A1 (*) MOD 20141
or CFM 56-5A1/F (*) jet engines MOD 23755

(*): see note 4.14 for usual names and certified names

1.1.3 - Weight Limits (kg)

VARIANT	000 (BASIC)	001 (MOD 20939)	002 (MOD 22520)
Max. ramp weight	68 400	66 400	68 400
Max. take-off weight	68 000	66 000	68 000
Max. landing weight	63 000	63 000	63 000
Max. zero fuel weight	59 000	59 000	59 800
Minimum weight	36 750	36 750	36 750

1.1.4 - Fuel quantity (0.8 kg/liter)

TANK		2 TANK AIRPLANE		3 TANK AIRPLANE **	
		Usable fuel liters (kg)	Unusable fuel liters (kg)	Usable fuel liters (kg)	Unusable fuel liters (kg)
WING	Basic	15 588 (12 470)	57.3 (45.8)	15 588 (12 470)	58.9 (47.1)
	Mod 21145	15 843 (12 674)		15 843 (12 674)	
CENTER	Basic	-	-	8 079 (6 463)	23.2 (18.6)
	Mod 21145			8 250 (6 600)	
TOTAL	Basic	15 588 (12 470)	57.3 (45.8)	23 667 (18 933)	82.1 (65.7)
	Mod 21145	15 843 (12 674)		24 093 (19 274)	

** See note 4.1

2. A320 - 200 SERIES

Twin turbo-fan, short to medium range, single aisle, transport category airplane.

2.1.1 - Model definition A320-211

Certificated model : A320-211
Definition of reference airplane by AIRBUS INDUSTRIE document AI/EA-A 413.630/88

2.1.2 - Engines

A320-211 Model : Two CFMI - CFM 56-5A1 (*) MOD 20141
or CFM 56-5A1/F (*) jet engines MOD 23755

(*): see note 4.14 for usual names and certified names

2.1.3 - Weight Limits (kg)

VARIANT	000 (BASIC) (MOD 20802)	001 (MOD 20966)	002 (MOD 21601)	003 (MOD 22269)	004 (MOD 21532)	005 (MOD 21711)	006 (MOD 22436)	007 (MOD 23264)
Max. ramp weight	73 900	68 400	70 400	75 900	71 900	67 400	66 400	77 400
Max. take-off weight	73 500	68 000	70 000	75 500	71 500	67 000	66 000	77 000
Max. landing weight	64 500	64 500	64 500	64 500	64 500	64 500	64 500	64 500
Max. zero fuel weight	60 500	60 500	60 500	60 500	60 500	60 500	60 500	60 500
Minimum weight	37 230	37 230	37 230	37 230	37 230	37 230	37 230	37 230

VARIANT	008 (MOD 23900)	009 (MOD 23900 & 22269)	010 (MOD 23900 & 23264)	011 (MOD 30307)	012 (MOD 30479)	013 (MOD 31132)	014 (MOD 31385)
Max. ramp weight	73 900	75 900	77 400	75 900	77 400	71 900	73 900
Max. take-off weight	73 500	75 500	77 000	75 500	77 000	71 500	73 500
Max. landing weight	64 500	64 500	64 500	66 000	66 000	64 500	64 500
Max. zero fuel weight	61 000	61 000	61 000	62 500	62 500	61 000	61 500
Minimum weight	37 230	37 230	37 230	37 230	37 230	37 230	37 230

2.2.1 - Model definition A320-231

Certificated model : A320-231
Definition of reference airplane by AIRBUS INDUSTRIE document AI/EA-A 414.301/89

2.2.2 - Engines

A320-231 Model : Two IAE - V2500-A1 jet engines MOD 20165

2.2.3 - Weight Limits (kg)

Same as A320-211 above (para. 2.1.3), all Weight Variants 000 to 014

2.3.1 - Model definition A320-212

Certificated model : A320 - 212
Definition of reference airplane by AIRBUS INDUSTRIE document
AI/EA-A 412.1589/90 (00D000A0004/C0S)

2.3.2 - Engines

A320-212 Model : Two CFMI - CFM 56-5A3 jet engines MOD 22093

2.3.3 - Weight Limits (kg)

Same as A320-211 above (para. 2.1.3), all Weight Variants 000 to 014

2.4.1 - Model definition A320-232

Certificated model : A320 - 232
Definition of reference airplane by AIRBUS INDUSTRIE document
AI/EA-A 414.0502/93 (00D000A0005/C21)

2.4.2 - Engines

A320-232 model : Two IAE V2527-A5 jet engines MOD 23008

2.4.3 - Weight Limits (kg)

VARIANT	000 (BASIC)	002 (MOD 21601)	003 (MOD 22269)	007 (MOD 23264)	008 (MOD 23900)	009 (MOD 23900) (MOD 22269)	010 (MOD 23900) (MOD 23264)	011 (MOD 30307)
Max. ramp weight	73 900	70 400	75 900	77 400	73 900	75 900	77 400	75 900
Max. take-off weight	73 500	70 000	75 500	77 000	73 500	75 500	77 000	75 500
Max. landing weight	64 500	64 500	64 500	64 500	64 500	64 500	64 500	66 000
Max. zero fuel weight	60 500	60 500	60 500	60 500	61 000	61 000	61 000	62 500
Minimum weight	37 230	37 230	37 230	37 230	37 230	37 230	37 230	37 230

VARIANT	012 (MOD 30479)	013 (MOD 31132)	014 (MOD 31385)
Max. ramp weight	77 400	71 900	73 900
Max. take-off weight	77 000	71 500	73 500
Max. landing weight	66 000	64 500	64 500
Max. zero fuel weight	62 500	61 000	61 500
Minimum weight	37 230	37 230	37 230

2.5.1 - Model definition A320-214

Certificated model : A320 - 214
Definition of reference airplane by AIRBUS INDUSTRIE document
AI/EA-S 413.0150/95 (00D000A0006/C21)

2.5.2 - Engines

A320-214 model :	Two CFMI	CFM 56-5B4	MOD 24251
	or	CFM 56-5B4/2 jet engines	MOD 24405

Other power plant possibility : see also note 4.11 and 4.12.

2.5.3 - Weight Limits (kg)

Same as A320-232 above (para. 2.4.3), all Weight Variants 000 to 014

2.6.1 - Model definition A320-233

Certificated model : A320 - 233
Definition of reference airplane by AIRBUS INDUSTRIE document
AI/EA-S 413.1984/95 (00D000A0007/C21)

2.6.2 - Engines

A320-233 model : Two IAE V2527E-A5 jet engines MOD 25068

2.6.3 - Weight Limits (kg)

Same as A320-232 above (para. 2.4.3), all Weight Variants 000 to 014

3. DATA PERTINENT TO ALL A320 SERIES

3.1 - Certification Basis

Introducing note

Hereafter are listed the certification bases for the different A320 models. The amendments made to a particular basis at the occasion of further A320 model certification are identified per model.

a -The applicable technical conditions for models A320 - 111, A320 - 211, A320 - 212, A320 - 231 and weight variants up to 006 (DGAC letter 53170 SFACT/TC) are defined as follows :

- JAR 25 Change 11 (except paragraph 25.207 which remains at Change 10) as elected by the Manufacturer
- A320 Special Conditions, Experience Related Conditions and Harmonization Conditions.

Reminder : within the scope of the establishment of the A320 Joint Certification Basis, three types of special conditions were developed :

- Special conditions : raised to cover novel or unusual features not addressed by the JAR.
- Experience related conditions : raised to record an agreed text for the A320 Joint Certification Basis when evolution of JAR was in progress under the NPA procedure.
- Harmonization conditions : to record, for the purpose of the A320 Joint Certification Basis, a common understanding with respect to National variant. This should not be confused with the FAA/JAA harmonised regulations.

EC-G11	General Definitions
(DGAC-F) SC-G17	Operational proving flights
(CAA-UK) SC-G17	Operational flight before certification
SC-F1	Stalling and Scheduled operating Speeds
SC-F3	Cockpit control - motion and effect of cockpit control
SC-F4	Static longitudinal stability
SC-F6	Static directional and lateral stability
SC-F7	Flight envelope protection
SC-F8	Normal load factor limiting
SC-F9	Dual control system
HC-F103	Accelerate Stop Distance, Take-Off Distance and Take-Off Run on a Wet Runway
HC-F114	Approach and Target Threshold Speeds
SC-A.2.1.1	Certification Criteria of Aircraft Designed with Systems Interacting with Structural Performance
SC-A.2.2.2	Design manoeuvre requirement
SC-A.2.2.3	Design dive speed
EC-A.3.6.1	High Lift Devices
(CAA-UK) SC-A.4.3	Tuned Gust Loads
HC-A.4.4	Manoeuvre Loads - High Lift Devices Deployed
HC-A.4.5	Braked roll conditions
HC-A.4.6	Speed control device
SC-S11	Limit pilot forces and torques
HC-S23	Standby gyroscopic horizon
HC-S24	VMO/MMO Warning (setting)
EC-S30	Autoflight system
SC-S33	Autothrust system
SC-S52	Operation without normal electrical power
EC-S54	Circuit protective devices
HC-S61	Design Landing Brakes Kinetic Energy
HC-S62	Rejected Take-Off Brakes Kinetic Energy

HC-S72	Flight recorder
SC-S74	Abnormal attitudes
SC-S75	Lightning protection indirect effects
SC-S76	Effect of external radiations up on aircraft systems
SC-S77	Integrity of control signal
SC-P01	Full Authority Engine Control System (FADEC)

b1 - For weight variant 007 and subsequent and for all new models from and including A320 - 232, the JAR 25 paragraphs defined in paragraph (a) above are modified following the elect to comply to OP 91/1 (NPA 25C205) by the manufacturer (DGAC letter 60667/SFACT/N.AT).

- JAR 25.305	- JAR 25.349 (b)
- JAR 25.321	- JAR 25.351
- JAR 25.331	- JAR 25.365 (e)
- JAR 25.333	- JAR 25.371
- JAR 25.335 (d)	- JAR 25.373
- JAR 25.341	- JAR 25.391
- JAR 25.343 (b) (1) (ii)	- JAR 25.427
- JAR 25.345 (a) (c)	- JAR 25.571 (b) (2)

The following A320 Special Conditions and Interpretative Materials are deleted by application of JAR 25 amendment 91/1 :

- IM-A3.8 - Discrete gust loads.
- SC/AMC-A4.3 - Tuned gust loads.
- HC-A4.4 - Manoeuvre loads with high lift devices deployed.

b2 - For all models of A 320-200 series, the JAR 25 paragraphs defined in 3.1.a) and b1) above are modified following the Elect-to comply with the new discrete gust requirements of JAR 25 Change 14 as amended by NPA 25C-282, by application of the major change titled "Flight Controls - deletion of LAF features from A 320", modifications 26334/26335. (CRI A2006).

c - The following Special Conditions have been developed for the A320-233 :

- SC-F11 " Accelerate-Stop distances and related performances, worn brakes " (see CRI F2012 dated June 4, 1996 and
  SC-S79 "Brakes requirements, qualification and testing" (see CRI SE2003 dated June 4, 1996), for which the requirements are met by installation of Mod 24946 (Messier-Bugatti SEPCARB III brakes).

d - For A320-233 and all A320-200 with OCTOPUS AFM (see CRI F2013), the JAR 25 paragraphs defined in 3.1 a) and b) above are modified following the Elect-to-comply with SC-F11 and SC-S79.
The following JAR Change 11 paragraphs are deleted :
25x131 ; 25x132 ; 25x133 ; 25x135 ; 25x1588.

The following A320 Harmonisation Conditions are deleted :
HC-F103 : Accelerate-Stop distance, Take-off distance, Take-off run on wet runway
HC-S61 : Design landing brakes kinetic energy
HC-S62 : Rejected take-off brakes kinetic energy

The following JAR 25 paragraphs are upgraded at Change 13 and amended by SC-F11 and SC-S79 :
25.101 ; 25.105 ; 25.109 ; 25.113 ; 25.115 ; 25.735 ; 25x1591

e - For take off and landing operations at high altitude airports up to 14,100 ft pressure altitude, the following new Special Condition has been created :
SC-E10 " High altitude airport operations (up to 14,100 ft) " (see CRI E10).

f - For any new application (new or modified aeroplane system and associated components) after July 10, 1998, SC/IM-S76 (Effect of external radiations upon aircraft systems) are superseded by SC/IM-S76-1 (CRI SE14).

g - For any further variant certification after Aug. 10, 1998, the HC-A.4.5 (Braked roll conditions) is superseded by JAR 25.943(d) at Change 14 (CRI A7).

h - Exemptions :
None exemption.

i - Equivalent safety findings :
The following paragraphs have been complied with through equivalent safety demonstrations :
- JAR 25.783 (e) for cargo doors (see CRI SM 2005)
- JAR 25.783 (f) for passenger doors and bulk cargo door (Mod 20029) (see CRI SM 2004 and SM 2007)
- JAR 25.813 (c) for emergency exits (see CRI E 2105 issue 3 "Type III overwing emergency exit access", seat cushion height)
- JAR 25.807 for maximum number of passengers (180 PAX) (see CRI E 2107 "Passenger extension to 180")
- JAR 25.933 (a) for thrust reverser autorestow function (see CRI P 1002).

j - ETOPS
For the Extended Range Twin Engine Airplane Operations the applicable technical conditions are contained in CAP 513 ETOPS.

k - JAR AWO Change 1 for autoland and operations in low visibility.

l - ICAO Annex 16 :
- Vol. I Part II Chapter 3 for Noise Requirements
- Vol. II Part II for Fuel Venting, Vol. II Part III Chapter 2 for Emissions.

3.2 - Center of gravity range

See DGAC approved Airplane Flight Manual.

3.3 - Limit speeds (Indicated Airspeed - IAS - unless otherwise stated)

- Maximum Operating Mach - MMO : 0,82
- Maximum Operating Speed - VMO : 350 kt
- Maneuvering Speed VA : Chapter 2.0 of the DGAC approved Flight Manual
- Extended Flaps / Slats Speed (VFE) : see table below.

Configuration	Slats/Flaps (°)	VFE (kt)	
1	18/0 *18/10	230 215	Intermediate approach Take-off
2	22/15	200	Take-off and approach
3	22/20	185	Take-off, approach, landing
Full	27/35	177	Landing

* Auto flap retraction at 210 kt in take-off configuration

Landing gear :
- VLE - Extended : 280 kt/Mach 0.67
- VLO - Extension : 250 kt
  - Retraction : 220 kt

Tyres limit speed (ground speed) = 195.5 kt (225 mph)

3.4 - Maximum operating altitude

39 100 ft (pressure altitude)
39 800 ft (pressure altitude) if modification 30748 is embodied

3.5 - Minimum flight crew

2 pilots

3.6. - Maximum number of passengers

180.

3.7 - Cargo compartment loading

CARGO COMPARTMENT	MAXIMUM LOAD (kg)
Forward	3 402
Aft	4 536
Rear (bulk)	1 497

For the positions and the loading conditions authorized in each position (references of containers, pallets and associated weights) see Weight and Balance Manual, ref. 00D080A0001/C1S Chapter 1.10.

3.8 - Fuel

3.8.1 - Fuel Specification :
See installation manual : document CFM 2026 or document IAE - 0043

NOMENCLATURE	SPECIFICATION			
	FRANCE	USA		UK
Kerosene	AIR 3405 C	ASTM D 1655	(JET A) (JET A1)	DERD 2494
Wide cut	AIR 3407	ASTM D 1655	(JET B)	DERD 2454
	AIR 3407 (TR4)	MIL - T 5624	(JP 4) *	DERD 2454
High flash point	AIR 3404	MIL - T 5624	(JP 5)	DERD 2452

Additives : See CFMI "Specific Operating Instructions", CFM TPOI-13,
or IAE V2500 "Installation and Operating Manual" IAE 0043 Section 4.5

* JP4 Fuel is not suitable for double annular combustor (DAC) engines.

The above mentioned fuels and additives are also suitable for the APU.

3.8.2. - Fuel quantity (0,8 kg/liter)

TANK	3 TANK AIRPLANE		4 or 5 TANK AIRPLANE *	
	Usable fuel liters (kg)	Unusable fuel liters (kg)	Usable fuel liters (kg)	Unusable fuel liters (kg)
WING	15 609 (12 487)	58.9 (47.1)	15 609 (12 487)	58.9 (47.1)
CENTER	8 250 (6 600)	23.2 (18.6)	8 250 (6 600)	23.2 (18.6)
ACT (*)			2 900 / 5 800 (2 320 / 4 640)	17 / 34 (13.6 / 27.2)
TOTAL	23 859 (19 087)	82.1 (65.7)	26 759 / 29 659 (21 407 / 23 727)	99.1 / 116.1 (79.3 / 92.9)

* See note 4.13

3.9- Hydraulic fluids

Type IV - Specification NSA 30.7110

3.10 - Auxiliary Power Unit (APU)

3.10.1 - APU GARRETT
GARRETT AIRESEARCH GTCP 36-300 (A)
(Specification 31-5306B)
Approved oils : see GARRETT REPORT GT. 7800

3.10.2 - APU APIC (Option)
The APU APIC installation is defined by MOD 22562.
APIC APS 3200 (Specification ESR 0802, Rev. A).
Approved oils : in conformance to MIL-L-7808, MIL-L-23699 or DERD 2487.

3.10.3 - APU AlliedSignal (Option)
The APU AlliedSignal installation is defined by MOD 25888.
AlliedSignal 131-9[A] (Specification 4900 M1E 03 19 01)
Approved oils : according to Model Specification 31-12048A-3A.

3.11- Tyres

See SB A320 - 32 - 1007

3.12- Equipment

- Equipment approved for installation is listed in the Certification Standard Equipment List 00D000A0101/C1S.

- Cabin furnishings, equipment and arrangement shall be in conformance to the following specifications :

  . 00D252K0004/C01 for cabin seats
  . 00D252K0019/C01 for galleys.

3.13- Limitations

3.13.1 -Powerplant (2.2482 lb/daN)

Engine	**CFMI CFM56-5A1 (*) CFM56-5A1/F (*)**	**CFMI CFM56-5A3**	**CFMI CFM56-5B4 CFMI CFM56-5B4/2**
	Data sheets E28NE (FAA) M15 (DGAC) M-IM19 (DGAC)	Data sheets E28NE (FAA) M15 (DGAC) M-IM19 (DGAC)	Data sheets E37NE ; E38NE (FAA) M17 ; M-IM28 (DGAC)
Static thrust at sea level . Take-off (5 min)* (Flat rated 30°C) . Maximum continuous (Flat rated 25°C)	11 120 daN (25 000 lbs) 10 542 daN (23 600 lbs)	11 787 daN (26 500 lbs) 10 542 daN (23 600 lbs)	12 010 daN (27 000 lbs) 10 840 daN (24 370 lbs)
Approved oils	See SB CFMI 79-001-0X	See SB CFMI 79-001-0X	See SB CFMI 79-001-0X

(*): see note 4.14 for usual names and certified names

Engine	**IAE V2500-A1**	**IAE V2527-A5 IAE V2527E-A5**
	Data sheets E31NE (FAA) M-IM22 (DGAC)	Data sheets E40NE (FAA) M-IM31 (DGAC)
Static thrust at sea level . Take-off (5 min)* (Flat rated 30°C) . Maximum continuous (Flat rated 25°C)	11 031 daN (24 800 lbs) 9 893 daN (22 240 lbs)	11 031 daN (24 800 lbs) 9 893 daN (22 240 lbs)
Approved oils	See doc IAE 0043 Sect 4.9 (MIL-L-23699)	

* 10 minutes at take-off thrust allowed only in case of engine failure (at take-off or during go-around) in accordance with DGAC "Fiche de Caractéristiques Moteur".

Other engine limitations : see the relevant Engine Type Certificate Data Sheet.
Other power plant possibility : see also note 4.11 and 4.12.

3.13.2 - Life limitations

- Life limitations are provided in the A319/A320/A321 Maintenance Planning Document, Section 9 "Airworthiness Limitation Section", Sub-Sections 9-1-2 and 9-1-3 approved by DGAC (Cert.Doc. 00D050A0M91/C0S MPD Section 9-1 Life Limitations).
- Maintenance Criteria to comply with certification requirements for systems are given in Airbus Industrie Document 00D050A0008/C11 "Certification Maintenance Requirements".
- Maintenance criteria to comply with certification requirements for structure are given in Airbus Industrie Document AI/SE-M4/95A.0252/96 "Airworthiness Limitation Items".

3.13.3 - Other limitations

See DGAC approved Flight Manual.

3.14 - Production conditions

- A320 aircraft up to and including MSN 0925, with the exception of those listed below, are produced in Blagnac (France) under approval P09 issued by DGAC to AIRBUS INDUSTRIE.
- A320 aircraft MSN 0844, 0861, 0863, 0868, 0870, 0918, and A320 aircraft From and including MSN 0927 are produced in Blagnac (France) under approval F.G.035 issued by DGAC to AIRBUS INDUSTRIE.

4 - NOTES PERTINENT TO ALL A320 SERIES

4.1 If modification 20024 is embodied on the series A320-100, the central wing box is used as a central fuel tank.

4.2 If modification 20758 is embodied, the aircraft is qualified to Cat. III B precision approach.

4.3 Aircraft incorporating modification 20139 are equipped with a four wheel bogie landing gear (up to 73.5 T MTOW).

4.4 The Configuration, Maintenance and Procedure Standards for extended range twin engine airplane operations, is contained in the document AI/EA 4000. Certificated models are A320-111/-211/-212/-214/-231/-232/-233, with all applicable engines except CFMI DAC engines.

4.5 A320 - 212 (CFM 56-5A3 engines) - A320 - 111 / - 211 (CFM 56-5A1/F engines, see note 4.14 for usual names and certified names). The maximum permissible gas temperature at take-off and max continuous is extended to 915° C and 880° C respectively. However, the ECAM indication remains at 890° C and 855° C.

4.6 A320 - 231 with modification 23872 (EGT redline increase for IAE engines) :
- for consolidated bump rating operation (mod 22461 or 23408), the maximum permissible gas temperature is extended to 650° C at take-off. The ECAM indication remains at 635° ;
- for non rating bump operation, the maximum permissible gas temperature is extended to 640° C at take-off. The ECAM indication remains at 635° C ;
- for maximum continuous and take-off operation, the maximum permissible gas temperature is extended to 615° C. The ECAM indication remains at 610° C.

4.7 A320 - 231 with modification 25000 (FADEC Standard SCN12C for IAE engines) :
- for take-off operation, the maximum permissible gas temperature is extended to 650° C. The ECAM indication remains at 635° C ;
- for maximum continuous operation, the maximum permissible gas temperature is extended to 625° C. The ECAM indication remains at 610° C.

4.8 A320 - 111/-211 CFM 56-5A1 engine can be intermixed with CFM 56-5A1/F engine (mod 23755) on the same aircraft (see note 4.14 for usual names and certified names).

4.9 A320 - 214 CFM 56-5B4 engine can be intermixed with CFM 56-5B4/2 engine (mod 24405) on the same aircraft (AFM supplement).

4.10 A320 - 111 aircraft serial numbers eligible are restricted from MSN 001 up to MSN 021.

4.11 If modification 25800 is embodied on models with CFM56-5B engines, the engine performance is improved. The engine denomination changes to /P.
The modification is currently applicable for :
A320-214 : CFM56-5B4 (SAC) which changes to CFM56-5B4/P.

CFM 56-5B/"non-P" engine can be intermixed with CFM 56-5B/P engine on the same aircraft.

4.12 If modification 26610 is embodied on models with CFM-5B/2 (DAC) engines, the engine performance and gaseous emission levels are improved. The modification is currently applicable for:
A320-214 : CFM 56-5B4/2 (DAC) which changes to CFM 56-5B4/2P (DAC II C)

CFM 56-5B/2 "non-P" (DAC) engine can be intermixed with CFM 56-5B/2P (DAC II C) engine on the same aircraft (AFM supplement).

CFM 56-5B/P or / "non-P" (SAC) engine can be intermixed with CFM 56-5B/2P (DAC II C) engine on the same aircraft (AFM supplement).

4.13 On the series A320-200, the certification of installing one or two Additional Center Tanks (ACT) in bulk version is defined by modification 28378. The approval together with structural and system provisions is subject of Major Change D2-128 (compliance to CRI P9).

4.14 Whereas it is common use to apply the name of CFMI engines CFM56-5A1 and CFM56-5A1/F, the correct names of the certified engines are:

- CFM56-5 is the certified engine name, when CFM56-5A1 is the usual name.
- CFM56-5-A1/F is the certified engine name, when CFM56-5A1/F is the usual name.

4.15 Principal dimensions of A320 Aircraft
- Length : 37,57 m
- Width : 34,10 m
- Height : 11,76 m
- Width at horizontal stabilizer : 12,45 m
- Outside fuselage diameter : 3,95 m
- Distance between engines axis : 11,51 m
- Distance between main landing gear : 7,59 m
- Distance between nose and main landing gear : 12,64 m

5. A321 - 100 SERIES

Twin turbo-fan, short to medium range, single aisle, transport category airplane.

5.1.1 - Model Definition A321 - 131
Certificated Model : A321 - 131
Definition of reference airplane by AIRBUS INDUSTRIE Document
AI/EA-A 414.0900/93 (00E000A0003/C21)

5.1.2 - Engines
A321-131 model : Two IAE V2530 - A5 jet engines MOD 22989.

5.1.3 - Equipment
Equipment approved for installation is listed in the Certification Standard Equipment List 00E000A0004/C0S.

5.2.1 - Model Definition A321 - 112
Certificated Model : A 321 - 112
Definition of reference airplane by AIRBUS INDUSTRIE Document
AI/EA-A 414.0118/94 (00E000A0002/C11).

5.2.2 - Engines
A321-112 model : Two CFMI - CFM 56-5B2 engines MOD 23152.
Other power plant possibility. See also note 8.10.

5.2.3 - Equipment
Equipment approved for installation is listed in the Certification Standard Equipment List 00E000A0006/C1S.

5.3.1 - Model Definition A321 - 111
Certificated Model : A321 - 111
Definition of reference airplane by AIRBUS INDUSTRIE Document
AI/EA-A 413.1063/94 (00E000A0008/C21).

5.3.2 - Engines
A321-111 model : Two CFMI - CFM 56-5B1 MOD 23083
or CFM 56-5B1/2 jet engines MOD 24404
Other power plant possibility. See also note 8.10 and 8.12.

5.3.3 - Equipment
Equipment approved for installation is listed in the Certification Standard Equipment List 00E000A0007/C1S.

6. A321 - 200 SERIES

Twin turbo-fan, short to medium range, single aisle, transport category airplane.

6.1.1 - Model Definition A321 - 211
Certificated Model : A321 - 211
Definition of reference airplane by doc. : AI/EA-S 413.0400/97 (00 E 000 A 0211 / C21)

6.1.2 - Engines
A321-211 model: Two CFMI CFM 56-5B3/P (MOD 26359 + 25800) or
CFM 56-5B3/2P (MOD 27640) jet engines.

6.1.3 - Equipment
Equipment approved for installation is listed in the Certification Standard Equipment List 00 E 000 A 0211 / C0S.

6.2.1 - Model definition A321 - 231
Certificated Model : A321 - 231
Definition of reference airplane by doc. : AI/EA-S 413.0388/97 (00 E 000 A 0231 / C21)

6.2.2 - Engines
A321-231 model : Two IAE V2533-A5 jet engines (MOD 25643)

6.2.3 - Equipment
Equipment approved for installation is listed in the Certification Standard Equipment List 00 E 000 A 0231/COS.

6.3.1 - Model Definition A321 - 212
Certificated Model : A 321 - 212
Definition of reference airplane by doc. : AI/EA-S 413.1359/01 (00 E 000 A 0212 / C21)

6.3.2 - Engines
A321-212 model : Two CFMI - CFM 56-5B1 MOD 23083
or CFM 56-5B1/2 jet engines MOD 24404
Other power plant possibility. See also note 8.10 and 8.12.

6.3.3 - Equipment
Equipment approved for installation is listed in the Certification Standard Equipment List 00 E 000 A 0212 / C0S.

6.4.1 - Model Definition A321 - 213
Certificated Model : A321 - 213
Definition of reference airplane by doc. : AI/EA-S 413.1360/01 (00 E 000 A 0213 / C21)

6.4.2 - Engines
A321-213 model : Two CFMI - CFM 56-5B2 engines MOD 23152.
Other power plant possibility. See also note 8.10.

6.4.3 - Equipment
Equipment approved for installation is listed in the Certification Standard Equipment List 00 E 000 A 0213 / C0S.

6.5.1 - Model Definition A321 - 232
Certificated Model : A321 - 232
Definition of reference airplane by doc. : AI/EA-S 413.1361/01 (00 E 000 A 0232 / C21)

6.5.2 - Engines
A321-232 model : Two IAE V2530 - A5 jet engines MOD 22989.

6.5.3 - Equipment
Equipment approved for installation is listed in the Certification Standard Equipment List 00 E 000 A 0232 / C0S.

7. DATA PERTINENT TO ALL A321 SERIES

7.1 - Certification Basis

Introducing Note :

Hereafter are listed the certification bases for the different A321 series. The amendments made to a particular basis at the occasion of further A321 series certification are identified per series.
AIRBUS INDUSTRIE has applied for A321-100 certification on November 30, 1989 by letter AI/EA-410.106/89.

The applicable Joint Certification Basis defined in CRI G3001 Issue 4 dated 29/11/93 are :

a -JAR 25 Change 11 as amended by the following JAR 25 Change 13 paragraphs effective on the reference date November 30, 1989.

- 25X20- 25.121		- 25.812(e)
- 25.101	- 25.125	- 25.857(d)(6)
- 25.105	- 25.143(f)	- 25.1501(c)
- 25.107(d)	- 25.207	- 25.1533(b)
- 25.109(a)	- 25.253	- 25.1581(b)
- 25.113	- 25.345(a)	- 25.1583(k)
- 25.119(b)	- 25.365	- 25.1587
	- 25X1591	

Associated to JAR 25 Change 13, the following paragraphs are deleted :

- 25X131	Change 11
- 25X132	Change 11
- 25X133	Change 11
- 25X135	Change 11
- 25X1588	Change 11

b - JAR 25 Requirements elected by the manufacturer (Letter AI/EA 412.0033/92 dated March 13, 1992).

b1 - JAR 25 paragraphs at Change 13 and amended by the NPA 25C205 Unified Discrete Gust Requirements introduced by Orange Paper 91/1 :

- JAR 25.305	- JAR 25.349(b)
- JAR 25.321	- JAR 25.351
- JAR 25.331	- JAR 25.365
- JAR 25.333	- JAR 25.371
- JAR 25.335(d)	- JAR 25.373
- JAR 25.341	- JAR 25.391
- JAR 25.343(b)(1)(ii)	- JAR 25.427
- JAR 25.345(a) and (c)	- JAR 25.571(b)(2)

b2 - JAR 25 paragraphs at Change 13 and amended by the NPA 25 BDG 244 Accelerate Stop Distances and Associated Performance.
Refer to Special Conditions F-10, S-79 and IM-S79.

c - The following A320 Special Conditions, Experience Related Conditions and Harmonization Conditions are deleted :

Reminder : within the scope of the establishment of the A320 Joint Certification Basis, three types of special conditions were developed :

- Special conditions : raised to cover novel or unusual features not addressed by the JAR.

- Experience Related Conditions : raised to record an agreed text for the A320 Joint Certification Basis when evolution of JAR was in progress under the NPA procedure.

- Harmonization Conditions : to record, for the purpose of the A320 Joint Certification Basis, a common understanding with respect to National variant. This should not be confused with the FAA/JAA harmonised regulations.

c1 - Further to application of the updated requirements of above paragraphs (a) and (b) :

HC-F103	ASD-TOD-TOR on wet runways
HC-F114	Approach and Target Threshold Speeds
EC-A361	High Lift Devices
SC-A43	Tuned Gust Loads (UK)
HC-A44	Manoeuvre Loads - High Lift Devices Deployed
HC-S61	Design Landing Brake Kinetic Energy
HC-S62	Rejected Take-Off Brake Kinetic Energy
IM-AMC-F101	Wet Runway Friction Characteristics
IM-F103	ASD-TOD-TOR on Wet Runways
IM-A38	Discrete Gust Requirements
AMC-A43	Tuned Gust Loads (UK)

c2 - Further to JAR 25 requirements evolution :

EC-G11	General Definition
IM-F107	Landing Distance Determination
AMC-F111	Take-Off Speeds VMU

c3 - Further to issuance of A321 Special Conditions and Interpretative Materials listed in paragraph (d) below :

SC-A211/IM-A211	Certification criteria for aircraft designed with systems interacting with structural performance
IM-A35	Rapid Decompression
IM-A47	Emergency Landing Conditions

d - New or updated A321 Special Conditions and Advisory Material

<u>Flight</u>

SC-F1 and IM-F1 (CRI F3001)	Stalling and Scheduled Operating Speeds
SC-F10 (CRI F3002)	Accelerate - Stop Distance
IM-F4 (CRI F3003)	Static Longitudinal Stability (low energy awareness)
IM-F12 (CRI F3004)	Computerized Airplane Flight Manual
IM-F13 (CRI F3005)	Landing Distance Extrapolation
AMC-F14 (CRI F3006)	Flight in Icing Conditions

<u>Structure</u>

SC-A1 and IM-A1 (CRI A3001)	Interaction of Systems and Structure
SC-A2 (CRI A3002)	Stalling Speeds for Structural Design
IM-A3 (CRI A3003)	Rapid Decompression
IM-A4 (CRI A3004)	Crashworthiness of Fuel Tanks outside the fuselage

<u>Propulsion</u>

SC-P1 and IM-P1 (CRI P3001)	FADEC
IM-P2 (CRI P3003)	Nacelle Cowling Resistance to Fire

<u>Environment</u>

SC-E1 and IM-E1 (CRI E3005)	Resistance to Fire Terminology
AMC-E2 (CRI E3006)	Emergency Evacuation Demonstration
SC-E3 (CRI E3001)	Exit Configuration
IM-E4 (CRI E3002)	Reclassification of door 2 and 3 to Type III

<u>Systems</u>

IM-S78	Low altitude autopilot engagement
SC-S79 and IM-S79	Brakes requirements qualification and testing

e - The following A320 Special Conditions and Interpretative Material are validated for A321

SC-G17 (F)	Operational proving flights
SC-G17 (G)	Operational flight for certification
SC-F3	Cockpit Control - motion and effect of cockpit control
SC-F4	Static Longitudinal Stability
SC-F6	Static Directional and Lateral Stability
SC-F7/IM-F7	Flight Envelope Protection
SC-F8	Normal Load Factor Limiting
SC-F9	Dual Control System
AMC-F116	Take-off Speeds VMU
SC-A222/IM-A222	Design Manoeuvre requirement
SC-A223/IM-A223	Design Dive Speed
AMC-A23	Composite Aircraft Structure
IM-A313	Composite Turbulence - use of calculation results
IM-A37	Emergency Landing Conditions and Landing Gear
IM-A39	Discrete Source Damage
HC-A45/IM-A45	Brake Roll Conditions
HC-A46	Speed control device
AMC-S1	Digital Equipment
AMC-S5	Electrical bonding and lightning protection (direct effects)
SC-S11	Limit pilot forces and torques
IM-S13	Standby gyroscopic horizon
IM/AMC-S14	Electrical flight controls (manual flight)
AMC-S20	Electronic instrument systems
IM-S21	Landing Gear
HC-S23/IM-S23	Standby Gyroscopic Horizon
HC-S24	VMO/MMO Warning (Setting)
IM/AMC-S27	Altitude Display System
EC-S30/AMC-S30	Autoflight System
SC-S33	Autothrust System
IM-S35	Autopilot Synchronization
IM/AMC-S42	APU Rotor Burst
IM-S51	Emergency Loads
SC-S52/IM-S52	Operation without normal electrical power
SC-S54/IM-S54	Circuit protective devices
HC-S72/IM-S73	Flight recorder
SC-S74	Abnormal attitudes
SC-S75	Lightning protection (indirect effects)
SC-S76/IM-S76	Effect of external radiations upon aircraft systems
SC-S77/IM-S77	Integrity of signal control

f - Airbus Industrie has applied for A321-200 certification on July 17, 1996 by letter AI/EA-S 413.1938/96.
The applicable Joint Certification Basis defined in CRI G3001 Issue 4 dated 29/11/93 as listed under 7.1 a) to e) above remains applicable, except b2) which is superseded by the Airbus Industrie elect-to-comply (letter AI/EA-S 413.0278/97 dated January 29, 1997) with NPA 25 BDG 244 dated January 1996, amended 24/04/96, 22/05/96, 07/06/96, 04/07/96) (see CRI F3012).

g - For take off and landing operations at high altitude airports up to 14,100 ft pressure altitude, the following new Special Condition has been created :

SC-E10 " High altitude airport operations (up to 14,100 ft) " (see CRI E10).

h - For any new application (new or modified aeroplane system and associated components) after July 10, 1998, SC/IM-S76 (Effect of external radiations upon aircraft systems) are superseded by SC/IM-S76-1 (CRI SE14).

i - For any further variant certification after Aug. 10, 1998, the HC-A.4.5 (Braked roll conditions) is superseded by JAR 25.943(d) at Change 14 (CRI A7).

j - Exemptions :
None.

k - Equivalent safety findings :
The following paragraphs JAR 25 have been complied with through equivalent safety demonstration :
- JAR 25.783 (f) for passenger doors and bulk door (see CRI SM 3001, SM 3002 and SM 3004)
- JAR 25.933 (a) for thrust reverser autorestow function (see CRI P 3008).

l - JAR AWO Change 1 for autoland and operations in low visibility.

m - ICAO Annex 16 : Vol. I Part II Chapter 3 for Noise Requirements
Vol. II Part II for Fuel Venting.

n - For the Extended Twin Engine Airplane Operations the applicable technical conditions are contained in AMJ 120-42/IL 20 and the A321 ETOPS CRI :
- CRI G3006 ETOPS
- CRI G3007 ETOPS - One engine inoperative cruise speed.

7.2 - Weight limits (kg)

7.2.1 A321-100

VARIANT	000 (BASIC)	002 (MOD 24178)	003 (MOD 24899)	004 (MOD 24308)	005 (MOD 25649)	006 (MOD 26600*)	007 (MOD 26888	008 (MOD 30334)
Max. take-off weight	83 000	83 000	85 000	78 000	83 000	78 000	80 000	89 000
Max. landing weight	73 500	74 500	74 500	73 500	75 000	74 500	73 500	75 500
Max. zero fuel weight	69 500	70 500	70 500	69 500	71 000	70 500	69 500	71 500
Minimum weight	47 500	47 500	47 500	47 500	47 500	47 500	47 500	47 500

NOTE : Weight Variant 005 is currently not approved for A321-131 model. *: See note 8.17 for other build-up possibility.

7.2.2 A321-200

VARIANT	000 (BASIC)	001 (MOD 28960)	002 (MOD 28721)	003 (MOD 31613)	004 (MOD 31614)	005 (MOD 31615)	006 (MOD 31616)	007 (MOD 31617)	008 (MOD 31618)	009 (MOD 31619)	010 (MOD 31321)	011 (MOD 32456)
Max. take-off weight	89 000	93 000	89 000	91 000	87 000	85 000	83 000	83 000	80 000	78 000	85 000	93 500
Max. landing weight	75 500	77 800	77 800	77 800	75 500	75 500	75 500	73 500	73 500	73 500	77 800	77 800
Max. zero fuel weight	71 500	73 800	73 800	73 800	71 500	71 500	71 500	69 500	69 500	69 500	73 800	73 800
Minimum weight	47 500	47 500	47 500	47 500	47 500	47 500	47 500	47 500	47 500	47 500	47 500	47 500

NOTE : Weight Variants 003, 004, 005, 006, 007, 008, 009 and 010 are currently not approved for A321-211/-231 models.

7.3 - Center of gravity range

See DGAC approved Airplane Flight Manual.

7.4 - Limit speeds (Indicated Airspeed - IAS - unless otherwise stated)

- Maximum Operating Mach (MMO) : 0,82
- Maximum Operating Speed (VMO) : 350 kt
- Maneuvering Speed VA : see Chapter 2.0 of the DGAC approved Flight Manual
- Extended Flaps/Slats Speed (VFE) : see table below.

Configuration	Slats/Flaps (°)	VFE (kt)	
1	18/0 18/10	230 ** 215 **	Intermediate approach Take-off
2	22/14	205 215*	Take-off and approach
3	22/21	195	Take-off, approach, landing
Full	27/25	190	Landing

* See note 8.7 ** See note 8.18

Landing gear :
- VLE - Extended : 280 kt/Mach 0.67
- VLO - Extension : 250 kt
  - Retraction : 220 kt

Tyres limit speed (ground speed) : 195.5 kt (225 mph)

7.5 - Maximum operating altitude

39 100 ft (pressure altitude)
39 800 ft (pressure altitude) if modification 30748 is embodied

7.6 - Minimum flight crew

2 pilots.

7.7 - Maximum number of passengers

220.

7.8 - Cargo compartment loading

CARGO COMPARTMENT	MAXIMUM LOAD (kg)
Forward	5 670
Aft	5 670
Rear (bulk)	1 497

For the positions and the loading conditions authorized in each position (references of containers, pallets and associated weights) see Weight and Balance Manual, ref. 00E080A0001/C1S Chapter 1.10.

7.9 - Fuel

7.9.1 - Fuel specification
See Installation Manual - (Document CFM 2026 or document IAE-0043).

NOMENCLATURE	SPECIFICATION		
	FRANCE	USA	UK
Kerosene	-	MIL-T 83133 A (JP8)	-
	AIR 3405 C	ASTM D 1655 (JET A- JET A1)	DERD 2494
Wide cut	AIR 3407	ASTM D 1655 (JET B)	DERD 2454
	AIR 3407 (TR 4)	MIL-T 5624 (JP 4)*	DERD 2454
High flash point	AIR 3404	MIL-T 5624 (JP 5)	DERD 2452

* Note - JP4 Fuel is not suitable for double annular combustor (DAC) engines.

Additives : see CFMI "Specific Operating Instructions", CFM TPOI-13, or IAE V2500 "Installation and Operating Manual" IAE-0043 Sec 4.5.

The above mentioned fuels and additives are also suitable for the APU.

7.9.2 - Fuel quantity (0.8 kg/liter)

TANK	3 TANK AIRPLANE		4 or 5 TANK AIRPLANE (*) (**)	
	Usable fuel liters (kg)	Unusable fuel liters (kg)	Usable fuel liters (kg)	Unusable fuel liters (kg)
WING	15 500 (12 400)	22.6 (18)	15 500 (12 400)	22.6 (18)
CENTER	8 200 (6 560)	23.2 (18.6)	8 200 (6 560)	23.2 (18.6)
ACT (*) (**)			2 900 or 2 992 / 5 984 ** (2 320) or (2 393 / 4 786) **	17 / 34 (13.6 / 27.2)
TOTAL	23 700 (18 960)	45.8 (36.6)	26 600 or 26 692 / 29 684 ** (21 280) or (21 353 / 23 746) **	62.8 / 79.8 (50.2 / 63.8)

* See notes 8.11 and 8.16 on additional center tanks

** 1 ACT high pressure system, 2900 liters on A321-200,
1 / 2 ACT low pressure system 2992/5984 liters on A321-200

7.10 - Hydraulic fluids

Type IV Specification NSA 30.7110

7.11 - Auxiliary Power Unit (APU)

7.11.1 - APU GARRETT
GARRETT AIR RESEARCH GTCP 36-300 (A) (Specification 31-5306 B).
Approved oils : see GARRETT GT 7800.

7.11.2 - APU APIC (Option)
The APU APIC installation is defined by Mod. 22562.
APU APIC APS 3200 (Specification ESR 0802 rev. A).
Approved oils : in conformance to MIL-L-7808, MIL-L-23699 or DERD 2487.

7.11.3 - APU AlliedSignal (Option)
The APU AlliedSignal installation is defined by MOD 25888.
AlliedSignal 131-9[A] (Specification 4900 M1E 03 19 01)
Approved oils : according to Model Specification 31-12048A-3A.

7.12 - Tyres
See SB A320-32-1007.

7.13 - Cabin equipment
Cabin furnishings, equipment and arrangement shall be in conformance to the following specifications :
- 00D252K0004/C01 for cabin seats
- 00D252K0019/C01 for galleys.

7.14 - Limitations

7.14.1 - Powerplant (2.2482 lb/daN)
a) A321-111 or –212 / A321-112 or –213 / A321-131 or -232

Engine	**CFMI CFM56-5B1 CFM56-5B1/2**	**CFMI CFM56-5B2**	**IAE V2530-A5**
Data sheets	E37NE (FAA) E38NE (FAA) M-17 (DGAC) M-IM28 (DGAC)	E37NE (FAA) E38NE (FAA) M-17 (DGAC) M-IM28 (DGAC)	E40NE (FAA) M-IM31 (DGAC)
Static thrust at Sea level Take-off (5 minutes)* (Flat rated 30° C) Maximum continuous (Flat rated 25° C)	 13 344 daN (30 000 lbs) 12 940 daN (29 090 lbs)	 13 789 daN (31 000 lbs) 12 940 daN (29 090 lbs)	 13 300 daN) (29 900 lbs) 11 988 daN (26 950 lbs)
Approved oils	See SB CFMI 79-001-OX	See SB CFMI 79-001-OX	See Doc IAE 0043 Sect 4.9 (MIL-L 23 699)

* 10 minutes at take-off thrust allowed only in case of engine failure (at take-off or during go-around) in accordance with DGAC "Fiche de caractéristiques moteur".

Other engine limitations : see the relevant Engine Type Certificate Data Sheet.
Other power plant possibility : see also note 8.10 and 8.12.

b) A321-211/-231

Engine	**CFMI CFM56-5B3 (/P only) CFM56-5B3/2P**	**IAE V2533-A5**
Data sheets	E37NE (FAA) E38NE (FAA) M-17 (DGAC) M-IM28 (DGAC)	E40NE (FAA) M-IM31 (DGAC)
Static thrust at Sea level Take-off (5 minutes)* (Flat rated 30° C) Maxi continuous (Flat rated 25° C)	 14 234 daN (32 000 lbs) 12 940 daN (29 090 lbs)	 14 055 daN (31 600 lbs) 11 988 daN (26 950 lbs))
Approved oils	SB CFMI 79-001-OX	Doc IAE 0043 Sect 4.9 (MIL-L 23 699)

* 10 minutes at take-off thrust allowed only in case of engine failure (at take-off or during go-around) in accordance with DGAC "Fiche de Caractéristiques Moteur".

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

7.14.2 -Life limitations

Life limitations are provided in the A319/A320/A321 Maintenance Planning Document, Section 9 "Airworthiness Limitation Section", Sub-Sections 9-1-2 and 9-1-3 approved by DGAC (Cert.Doc. 00D050A0M91/C0S MPD Section 9-1 Life Limitations).

Maintenance Criteria to comply with certification requirements for systems are given in Airbus Industrie Document 00E050A0008/C11 "Certification Maintenance Requirements".

Maintenance criteria to comply with certification requirements for structure are given in Airbus Industrie Document AI/SE-M4/95A.0252/96 " Airworthiness Limitation Items ".

7.14.3 -Other Limitations

See DGAC approved Flight Manual.

7.15 - Production Conditions

A321 aircraft, all series, all models, are all produced in Hamburg - Germany - under approval I-A9 (until April 1999) or LBA.G.0009 (since April 1999) issued by LBA to AIRBUS INDUSTRIE.

8. NOTES PERTINENT TO ALL A321 SERIES

8.1 - If modifications 24173 and 22853 are embodied on models with IAE engines, the aircraft is qualified for Cat. II precision approach.

8.2 - If modification 24064 is embodied on models with CFM engines, the aircraft is qualified for Cat. III precision approach.

8.3 - If modification 24066 is embodied on models with IAE engines, the aircraft is qualified for Cat. III precision approach.

8.4 - If modification 25199 is embodied on models with CFM engines, the aircraft is qualified for Cat. III B precision approach.

8.5 - If modification 25200 is embodied on models with IAE engines, the aircraft is qualified for Cat. III B precision approach.

8.6 - DOOR 2 and/or DOOR 3 may be derated to Type III.

8.7 - If FWC Standard D2 and FAC Standard BAM 0510 are fitted on A321 aircraft, VFE speed in Configuration 2 is increased from 205 kts to 215 kts (as identified by speed limitation placard installed by modification 24641).

8.8 - A321-111 CFM 56-5B1 engine can be intermixed with CFM 56-5B1/2 engine (mod. 24404) on the same aircraft (AFM supplement).

8.9 - The Configuration, Maintenance and Procedure Standards for extended range twin engine airplane operations are contained in the document AI/EA 4000. Certificated models are A321 – 111 / - 112 / - 131 / - 211 / - 231, with all applicable engines except CFMI DAC engines.

8.10 - If modification 25800 is embodied on models with CFM-5B engines, the engine performance is improved. The engine denomination changes to /P.

The modification is currently applicable for :

- A 321-111 : CFM 56-5B1 (SAC) which changes to CFM 56-5B1/P
- A 321-112 : CFM 56-5B2 (SAC) which changes to CFM 56-5B2/P
- A 321-212 : CFM 56-5B1 (SAC) which changes to CFM 56-5B1/P

CFM 56-5B/"non-P" engine can be intermixed with CFM 56-5B/P engine on the same aircraft.

8.11 - On the series A321-200, one Additional Center Tank (ACT) in bulk version is defined by modification 25453 (high pressure system). Its approval together with structural and system provisions is subject of Major Change E2-001 (compliance to CRI P9).

8.12 - If modification 26610 is embodied on models with CFM-5B/2 (DAC) engines, the engine performance and gaseous emission levels are improved. The engine denomination changes to /2P.
The modification is currently applicable for :

A 321-111 :	CFM 56-5B1/2 (DAC)	which changes to	CFM 56-5B1/2P (DAC II C)
A 321-212 :	CFM 56-5B1/2 (DAC)	which changes to	CFM 56-5B1/2P (DAC II C)

CFM 56-5B/2 "non P" (DAC) engine can be intermixed with CFM 56-5B/2P (DAC II C) engine on the same aircraft (AFM supplement).

CFM 56-5B/P or /"non-P" (SAC) engine can be intermixed with CFM 56-5B/2P (DAC II C) engine on the same aircraft (AFM supplement).

8.13 - For cabin arrangements of 201 passenger seats up to the maximum number of 220 passenger seats, five cabin crew are required.
For cabin arrangements up to and including 200 passenger seats, only four cabin crew members are required.

8.14 - The type design definitions and certification standard equipment lists as referenced in para. 6 are complemented by doc. 00D000A0546/C0S “ A319-100/A321-200 FMGC Type Std Evolution ”.

8.15 - CFM56-5B3/P (SAC) engine (mod 26359 + 25800) can be intermixed with CFM56-5B3/2P (DAC II C PIP) engine (mod 27640) on the same aircraft (AFM supplement).

8.16 - On the series A321-200, one or two Additional Center Tanks (ACT) in bulk version are defined by modification 30422 (low pressure system). Their approval together with structural and system provisions is subject of Major Change E2-002 (compliance to CRI P9).

8.17 - On the series A321-100, Weight Variant 006 is defined either by mod 26600, building up on Weight Variant 003, or mod 30310, building up on Weight Variant 000.

8.18 - On the series A321-200, Weight Variant 001, 002 & 011, VFE speed in Configuration 1 is increased from 230 to 235 kts, and in Configuration 1+F increased from 215 to 225 kts (as identified by speed limitation placard installed by modification 28960 or 28721).

8.19 - Principal dimensions of A321 Aircraft :

- Length : 44,51 m
- Width : 34,10 m
- Height : 11,76 m
- Width at horizontal stabilizer : 12,45 m
- Outside fuselage diameter : 3,95 m
- Distance between engine axis : 11,51 m
- Distance between main landing gear : 7,59 m
- Distance between nose and main landing gear : 16,91 m

9. A319-100 SERIES

Twin turbo-fan, short to medium range, single aisle, transport category airplane.

9.1.1 - Model definition A319-111
Certificated model : A319-111
Definition of reference airplane by doc. :
AI/EA-S 413.0700/96 (00J000A0011/C21).

9.1.2 - Engines
Two CFMI - CFM 56-5B5 jet engines (Mod. 24932).
Other power plant possibility : see also note 11.2 .

9.1.3 - Equipment
Equipment approved for installation is listed in the Certification Standard Equipment List 00J000A0012/COS.

9.2.1 - Model definition A319-112
Certificated model : A319-112
Definition of reference airplane by doc. :
AI/EA-S 413.0505/96 (00J000A0003/C21).

9.2.2 - Engines
Two CFMI 56-5B6 (Mod. 25287) or CFMI 56-5B6/2 jet engines (Mod. 25530).
Other power plant possibility : see also note 11.2 and 11.6

9.2.3 - Equipment
Equipment approved for installation is listed in the Certification Standard Equipment List 00J000A0004/COS.

9.3.1 - Model definition A319-113
Certificated model : A319 - 113
Definition of reference airplane by doc. :
AI/EA-S 413.1377/96 (00J000A0113/C21).

9.3.2 - Engines
Two CFMI CFM56-5A4 jet engines (Mod. 25238)
or two CFMI CFM 56-5A4/F jet engines (Mod. 23755).

9.3.3 - Equipment
Equipment approved for installation is listed in the Certification Standard Equipment List 00J000A0113/C0S.

9.4.1 - Model definition A319-114
Certificated model : A 319-114
Definition of reference airplane by doc. :
AI/EA-S 413.1400/96 (00J000A0114/C21).

9.4.2 - Engines
Two CFMI CFM56-5A5 jet engines (Mod 25286)
or two CFMI CFM 56-5A5/F jet engines (Mod. 23755).

9.4.3 - Equipment
Equipment approved for installation is listed in the Certification Standard Equipment List 00J000A0114/C0S.

9.5.1 - Model definition A 319-131
Certificated model : A 319-131
Definition of reference airplane by doc :
AI/EA-S 413.3250/96 (00J000A0131/C21)

9.5.2 - Engines
Two IAE V2522-A5 jet engines (Mod 26152)

9.5.3 - Equipment
Equipment approved for installation is listed in the Certification Standard Equipment List 00J000A0131/C0S.

9.6.1 - Model definition A 319-132
Certificated model : A 319-132
Definition of reference airplane by doc :
AI/EA-S 413.3300/96 (00J000A0132/C21)

9.6.2 - Engines
Two IAE V2524-A5 jet engines (Mod 26298)

9.6.3 - Equipment
Equipment approved for installation is listed in the Certification Standard Equipment List 00J000A0132/C0S.

9.7.1 - Model definition A 319-115
Certificated model : A 319-115
Definition of reference airplane by doc :
AI/EA-S 413.1204/99 (00J000A0115/C21)

9.7.2 - Engines
Two CFMI CFM 56-5B7 jet engines (Mod 27567)
Other power plant possibility : see also note 11.2 .

9.7.3 - Equipment
Equipment approved for installation is listed in the Certification Standard Equipment List 00J000A0115/C0S.

9.8.1 - Model definition A 319-133
Certificated model : A 319-133
Definition of reference airplane by doc :
AI/EA-S 413.1205/99 (00J000A0133/C21)

9.8.2 - Engines
Two IAE V2527M-A5 jet engines (Mod 27568)

9.8.3 - Equipment
Equipment approved for installation is listed in the Certification Standard Equipment List 00J000A0133/C0S.

10. DATA PERTINENT TO ALL A319 SERIES

10.1- Certification Basis

Airbus Industrie has applied for A319 certification on June 17, 1992 by letter AI/EA 410.0122/92. The applicable Joint Certification Basis defined in CRI G4001 Issue 4 dated 21/03/96 are :

a) JAR 25 Change 11
- except Subpart BB,
- except all National Variants,
- except, due to the application of the procedure for establishing the Joint Type Certification Basis for derivative large aeroplanes, the following JAR 25 paragraphs which are upgraded at Change 13 and eventually amended by Orange Paper 90/1 or Orange Paper 91/1 :

25 X 20	25.253
25.107(d)	25.365 amended by OP 91/1
25.121	25.807(c) amended by OP 90/1
25.125	25.812(e)
25.143(f)	25.857(d)(6)
25.207	

- except, due to the Elect to Comply with NPA 25-C205, the following JAR 25 paragraphs which are upgraded at Change 13 and amended by Orange Paper 91/1 :

25.305	25.343 (b) (1) (ii)	25.373
25.321	25.345 (a) and (c)	25.391
25.331	25.349 (b)	25.427
25.333	25.351	25.571 (b) (2)
25.335 (d)	25.365 (e)	
25.341	25.371	

- except, due to the Elect to Comply with SC-F11 and SC-S79, the following deleted paragraphs:

25x131	25x135
25x132	25x1588
25x133	

- the following JAR 25 paragraphs upgraded at Change 13 and amended by SC-F11 and SC-S79 :

25.101	25.115
25.105	25.735
25.109	25x1591
25.113	

b) JAR AWO at Change 1.

c) The following A320 Special conditions, Experience Related Conditions and Harmonization Conditions which are kept for the A319 :

Reminder : within the scope of the establishment of the A320 Joint Certification Basis, three types of special conditions were developped :

* Special Conditions : raised to cover novel or unusual features not addressed by the JAR.

* Experience Related Conditions : raised to record an agreed text for the A320 Joint Certification Basis when evolution of JAR was in progress under the NPA procedure.

* Harmonization Conditions : to record, for the purpose of the A320 Joint Certification Basis, a common understanding with respect to National variant. This should not be confused with the FAA/JAA harmonised regulations.

(DGAC-F) SC-G17	Operational proving flights
(CAA-UK) SC-G17	Operational flight before certification
SC-F3	Cockpit control - motion and effect of cockpit control
SC-F4	Static longitudinal stability
SC-F6	Static directional and lateral stability
SC-F7	Flight envelope protection
SC-F8	Normal load factor limiting
SC-F9	Dual control system
SC-A.2.2.2.	Design manœuvre requirement
SC-A.2.2.3.	Design dive speed
HC-A.4.5.	Braked roll conditions
HC-A.4.6.	Speed control device
SC-S11	Limit pilot forces and torques
HC-S23	Standby gyroscopic horizon
HC-S24	VMO/MMO Warning (setting)
EC-S30	Autoflight system
SC-S33	Autothrust system
SC-S52	Operation without normal electrical power
EC-S54	Circuit protective devices
HC-S72	Flight recorder
SC-S74	Abnormal attitudes
SC-S75	Lightning protection indirect effects
SC-S76	Effect of external radiations up on aircraft systems
SC-S77	Integrity of control signal

d) The following Special Conditions developped for the A319 :

SC-A2 " Stalling Speeds for Structural Design " (see CRI A4002)
SC-F1 " Stalling and Scheduled Operating Speeds " (see CRI F4001)
SC-F11 " Accelerate-Stop distances and related performances, worn brakes " (see CRI F4012)
SC-S79 " Brakes requirements, qualification and testing " (see CRI SE4003)

e) For A 319, Airbus Industrie has elected to comply with the following A 321 Special Conditions :

- SC-A1 "Interaction of Systems and Structure" (see CRI A 4001)
- SC-P1 "FADEC" (see CRI P 4001)
- SC-E1 "Resistance to Fire Terminology" (see CRI E 4005)

f) For take off and landing operations at high altitude airports up to 14,100 ft pressure altitude, the following new Special Condition has been created :

SC-E10 “ High altitude airport operations (up to 14,100 ft) ” (see CRI E10).

g) For any new application (new or modified aeroplane system and associated components) after July 10, 1998, SC/IM-S76 (Effect of external radiations upon aircraft systems) are superseded by SC/IM-S76-1 (CRI SE14).

h) For A319 weight variant 002 and for any further variant certification after Aug. 10, 1998, the HC-A.4.5 (Braked roll conditions) is superseded by JAR 25.493(d) at Change 14 (CRI A7).

i) For A319-115 and -133 models, the following JAR 25 paragraphs and Special Conditions are upgraded at Change 14 and Orange Paper 96/1 :

25.119(a)	25.145(b)(c)
25.121(d)/SC-F1 Appendix 3	25.149(f)(g)(h)(i) and associated ACJ

This is introduced as Special Condition applicable to the "Third Rating", with a wording as close as possible to those paragraphs of the NPA 25B-261 involving the Go-around rating (CRI F8).

j) Exemptions :
None exemption.

k) Equivalent Safety findings :

Equivalent Safety findings to the following requirements are granted, as documented in relevant CRIs :

- JAR 25-783 (f) related to " Doors " (see CRI SM 4004 " Passenger doors " ; The same Equivalent Safety finding was previously granted for A320 and A321).

- JAR 25-807 (c) (1) related to " Passengers emergency exits " (see CRI E 4001 " Exit configuration " issued on the basis of the JAA policy dated December 1995).

- JAR 25-813 (c) (1) related to " Emergency exit access " (see CRI E 4105 " Type III over wing emergency exit access ", issued on the basis of A320 CRI E2105 issue 3).

- JAR 25-933 (a) (1) related to " Reversing systems " (see CRI P4008 " Thrust Reverser Auto restow ", issued on the basis of A320 CRI P1002).

- JAR AWO 313 related to " Minimum approach break-off height " (see CRI SE 4005 " Minimum approach break-off height ").

l) National requirements for TC and Environmental requirements :

The environmental requirements applicable in each JAA country are listed in CRI G4002, G4004 and G4005.

m) For the Extended Twin Engine Airplane Operations the applicable technical conditions are contained in AMJ 120-42/IL 20 and the A319 ETOPS CRI :
- CRI G4006 ETOPS
- CRI G4007 ETOPS - One engine inoperative cruise speed.

10.2 - Weight limits (kg)

VARIANT	000 BASIC	001 MOD 25328	002 MOD 27112	003 MOD 26457
Max. Take-off Weight	64 000	70 000	75 500	68 000
Max. Landing Weight	61 000	61 000	62 500	61 000
Max. Zero Fuel Weight	57 000	57 000	58 500	57 000
Minimum Weight	35 400	35 400	35 400	35 400

VARIANT	004 MOD 28053	005 MOD 28136	006 MOD 33418
Max. Take-off Weight	68 000	70 000	73 500
Max. Landing Weight	62 500	62 500	62 500
Max. Zero Fuel Weight	58 500	58 500	58 500
Minimum Weight	35 400	35 400	35 400

10.3 - Center of gravity range

See DGAC approved Airplane Flight Manual

10.4 - Limit speeds (Indicated Airspeed - IAS - unless otherwise stated)

- Maximum Operating Mach (MMO) : 0,82
- Maximum Operating Speed (VMO) : 350 kt
- Manœuvring Speed (VA) : see Chapter 2.0 of the DGAC approved Flight Manual
- Extended Flaps/Slats Speed (VFE) : see table below

Configuration	Slats/Flaps (°)	VFE (kt)	
1	18/0 18/10*	230 215	Intermediate approach Take-off
2	22/15	200	Take-off and approach
3	22/20	185	Take-off, approach, landing
Full	27/40	177	Landing

* Auto flap retraction at 210 kt in Take-off configuration

Landing gear :
- VLE - Extended : 280 kt/Mach 0.67
- VLO - Extension : 250 kt
  - Retraction : 220 kt

Tyres Limit Speed (Ground speed) = 195.5 kt (225 mph)

10.5 - Maximum operating altitude

39 100 ft (pressure altitude)
41 100 ft (pressure altitude) if modification 28162 is embodied (A319-112/-115/-132/-133 only)
39 800 ft (pressure altitude) if modification 30748 is embodied

10.6 - Minimum flight crew

2 pilots

10.7 - Maximum number of passengers

145 (160 with modification 32208).

10.8 - Cargo compartment loading

CARGO COMPARTMENT	MAXIMUM LOAD (kg)
Forward	2 268
Aft	3 021
Rear (bulk)	1 497

For the positions and the loading conditions authorized in each position (references of containers, pallets and associated weights) see Weight and Balance Manual, ref. 00 J 080 A 0001/C1S Chapter 1.10.

10.9 - Fuel

10.9.1 - Fuel Specification

See installation manual : document CFM 2026 or document IAE - 0043.

NOMENCLATURE	SPÉCIFICATION		
	FRANCE	USA	UK
Kerosene	-	MIL-T 83133 A (JP8)	-
	AIR 3405 C	ASTM D 1655 (JET A - JET A1)	DERD 2494
Wide cut	AIR 3407	ASTM D 1655 (JET B)	DERD 2454
	AIR 3407 (TR 4)	MIL-T 5624 (JP 4) *	DERD 2454
High flash point	AIR 3404	MIL-T 5624 (JP 5)	DERD 2452

Additives : see CFMI " Specific Operating Instructions ", CFM TPOI-13 or IAE V2500 "Installation and Operating Manual" IAE 0043 Sec. 4.5.

The above mentioned fuels and additives are also suitable for the APU.

* JP4 fuel is not suitable for double annular combustor (DAC) engines.

10.9.2 - Fuel Quantity (0.8 kg/liter)

Tank	3 TANK AIRPLANE		4 or 5 TANK AIRPLANE*	
	Usable fuel liters (kg)	Unusable fuel Liters (kg)	Usable fuel liters (kg)	Unusable fuel liters (kg)
Wing	15 609 (12 487)	58.9 (47.1)	15 609 (12 487)	58.9 (47.1)
Center	8 250 (6 600)	23.2 (18.6)	8 250 (6 600)	23.2 (18.6)
ACT			3 121 / 6 242 (2 497 / 4 994)	17 / 34 (13.6 / 27.2)
TOTAL	23 859 (19 087)	82.1 (65.7)	26 980 / 30 101 (21 584 / 24 081)	99.1 / 116.1 (79.3 / 92.9)

Tank	6 or 7 TANK AIRPLANE*		8 or 9 TANK AIRPLANE*	
	Usable fuel liters (kg)	Unusable fuel Liters (kg)	Usable fuel liters (kg)	Unusable fuel liters (kg)
Wing	15 609 (12 487)	58.9 (47.1)	15 609 (12 487)	58.9 (47.1)
Center	8 250 (6 600)	23.2 (18.6)	8 250 (6 600)	23.2 (18.6)
ACT	8 428 / 10 614 (6 743 / 8 492)	56 /78 (44.8 / 62.4)	13 660 / 16 781 (10 929 / 13 426)	90 / 107 (72 / 85.6)
TOTAL	32 287 / 34 473 (25 830 / 27 579)	138.1 / 160.1 (110.5 / 128.1)	37 519 / 40 640 (30 016 / 32 513)	172.1 / 189.1 (137.7 / 151.3)

* see note 11.9

10.10 - Hydraulic fluids

Type IV - Specification NSA 30.7110.

10.11 - Auxiliary Power (APU)

10.11.1 - APU GARRETT
GARRETT AIRESEARCH GTCP 36-300 (A) (Specification 31-5306 B).
Approved oil : see Garrett report GT 7800.

10.11.2 - APU APIC (Option)
The APU APIC installation is defined by Mod. 22562.
APU APIC APS 3200 (Specification ESR 0802, Rev. A).
Approved oils : in conformance to MIL-L-7808, MIL-L-23699 or DERD 2487.

10.11.3 - APU AlliedSignal (Option)
The APU AlliedSignal installation is defined by MOD 25888.
AlliedSignal 131-9[A] (Specification 4900 M1E 03 19 01)
Approved oils : according to Model Specification 31-12048A-3A.

10.12 - Tyres

See SB A320-32-1007.

10.13 - Cabin Equipment

Cabin furnishings, equipment and arrangement shall be in conformance to the following specifications :
- 00 D 252 K 0004 / C01 for cabin seats
- 00 D 252 K 0019 / C01 for galleys.

10.14 - Limitations

10.14.1 - Powerplant (2.2482 lb/daN)

10.14.1 a) CFMI Engines

Engine	**CFMI**				
	CFM56-5B5	**CFM56-5B6** **CFM56-5B6/2**	**CFM56-5B7**	**CFM56-5A4** **CFM56-5A4/F**	**CFM56-5A5** **CFM56-5A5/F**
Data sheets	E37NE (FAA) E38NE (FAA) M-17 (DGAC) M-IM28 (DGAC)	E37NE (FAA) E38NE (FAA) M-17 (DGAC) M-IM28 (DGAC)	E37NE (FAA) E38NE (FAA) M-17 (DGAC) M-IM28 (DGAC)	E28NE (FAA) M-15 (DGAC) M-IM19 (DGAC)	E28NE (FAA) M-15 (DGAC) M-IM19 (DGAC)
Static thrust at sea level Take-off (5 min)* (Flat rated 30° C) Maximum continuous (Flat rated 25° C)	 9 786 daN (22 000 lbs) 9 008 daN (20 250 lbs)	 10 453 daN (23 500 lbs) 9 008 daN (20 250 lbs)	 12 010 daN (27 000 lb) 10 840 daN (24 370 lb)	 9 786 daN (22 000 lbs) 9 195 daN (20 670 lbs)	 10 453 daN (23 500 lbs) 9 195 daN (20 670 lbs)
Approved Oils	SB CFMI 79-001-OX				

Other power plant possibility : see also notes 11.2 and 11.6

* 10 minutes at take-off thrust allowed only in case of engine failure (at take-off or during go-around) in accordance with DGAC " Fiche de Caractéristiques Moteur ".
Other engine limitations : see the relevant Engine Type Certificate Data Sheet.

10.14.1. b) IAE Engines

Engine	IAE V2522-A5	V2524-A5	V2527M-A5
Data sheets	E40NE (FAA) M-IM31 (DGAC)	E40NE (FAA) M-IM31 (DGAC)	E40NE (FAA) M-IM31 (DGAC)
Static thrust at sea level Take-off (5 min)* (Flat rated 30° C) Maximum continuous (Flat rated 25° C)	 10 249 daN (23 040 lb) 8 540 daN (19 200 lb)	 10 889 daN (24 480 lb) 8 540 daN (19 200 lb)	 11 031 daN (24 800 lb) 9 893 daN (22 240 lb)
Approved oils	See doc. IAE-0043 Sect. 4.9 (MIL-L-23699)		

* 10 minutes at take-off thrust allowed only in case of engine failure (at take-off or during go-around) in accordance with DGAC " Fiche de Caractéristiques Moteur ".

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

10.14.2 -Life limitations

- Life limitations are provided in the A319/A320/A321 Maintenance Planning Document, Section 9 "Airworthiness Limitation Section", Sub-Sections 9-1-2 and 9-1-3 approved by DGAC (Cert.Doc. 00D050A0M91/C0S MPD Section 9-1 Life Limitations).
- Maintenance criteria to comply with certification requirements for systems are given in Airbus Industrie Document 00J050A0008/C11 "Certification Maintenance Requirements".
- Maintenance criteria to comply with certification requirements for structure are given in Airbus Industrie Document AI/SE-M4/95A.0252/96 " Airworthiness Limitation Items ".

Note:
This document is not applicable for A319CJ, but the specific document AI/SE-M2/95A-1038/99.

10.14.3 - Other limitations
See DGAC approved Flight Manual.

10.15 - Production conditions

A319 aircraft, all series, all models, are produced in Hamburg (Germany) under approval I-A9 (until April 1999) or LBA.G.0009 (since April 1999) issued by LBA to AIRBUS INDUSTRIE.

11. NOTES PERTINENT TO ALL A319 SERIES

11.1 - If modification 25469 or 26968 is embodied on models with CFM engines, the aircraft is qualified for Cat. IIIB precision approach.

11.2 - If modification 25800 is embodied on models with CFM-5B engines, the engine performance is improved.
The engine denomination changes to /P. The modification is currently applicable for :
- A 319-111 : CFM 56-5B5 (SAC) which changes to CFM 56-5B5/P
- A 319-112 : CFM 56-5B6 (SAC) which changes to CFM 56-5B6/P
- A 319-112 : CFM 56-5B6/2 (DAC) which changes to CFM 56-5B6/2P
- A 319-115 : CFM 56-5B7 (SAC) which changes to CFM 56-5B7/P

CFM 56-5B/"non-P" engine can be intermixed with CFM 56-5B/P engine on the same aircraft.

11.3 - A319-113/-114 (CFM 56-5A4/F or -5A5/F engines) :

- The maximum permissible gas temperature at take-off and max. continuous is extended to 915° C and 880° C respectively. However, the ECAM indication remains at 890° C and 855° C.

- CFM 56-5A4 engine can be intermixed with CFM 56-5A4/F engine (mod. 23755) on the same aircraft.

- CFM 56-5A5 engine can be intermixed with CFM 56-5A5/F engine (mod. 23755) on the same aircraft.

11.4 - The configuration, Maintenance and Procedure Standards for extended range twin engine airplane operations (ETOPS) are contained in the document AI/EA 4000.

Certificated models are A319-111/-112/-113/-114/-115/-131/-132/-133, with all applicable engines except CFMI DAC engines.

11.5 - A319-112 CFM 56-5B6 engine can be intermixed with CFM 56-5B6/2 engine (mod. 25532) on the same aircraft (AFM supplement).

11.6 - If modification 26610 is embodied on models with CFM-5B/2 (DAC) engines, the engine performance and gaseous emission levels are improved.

A319-112 :	CFM 56-5B6/2 (DAC)	which changes to	CFM 56-5B6/2P (DAC II C)

CFM 56-5B/2 "non P" (DAC) engine can be intermixed with CFM 56-5B/2P (DAC II C) engine on the same aircraft (AFM supplement).

CFM 56-5B/P or / "non P" (SAC) engine can be intermixed with CFM 56-5B/2P (DAC II C) engine on the same aircraft (AFM supplement).

11.7 - If modification 26717 or 26716 is embodied on models with IAE engines, the aircraft is qualified for cat. III B precision approach.

11.8 - The type design definitions and certification standard equipment lists as referenced in para. 9 are complemented by doc. 00D000A0546/COS “ A319-100/A321-200 FMGC Type Std Evolution ” and doc. 00J000A0067/COS “ A319-111/112 ATC Transponder Type Std Evolution ”.

11.9 On A319 for Corporate Jet use, the certification of installing up to six Additional Center Tanks (ACT) in bulk version is defined by modification 28238. The approval together with structural and system provisions is subject of Major Change J1-CJT (compliance to CRI P9).

11.10 Principal dimensions of A319 aircraft :

- Length : 33.84 m
- Width : 34.10 m
- Height : 11.76 m
- Width at horizontal stabilizer : 12.45 m
- Outside fuselage diameter : 3.95 m
- Distance between engine axes : 11.51 m
- Distance between main landing gear : 7.59 m
- Distance between nose and main landing gear : 11.04 m

12. A318-100 SERIES

Twin turbo-fan, short to medium range, single aisle, transport category airplane.

12.1.1- Model definition A318-111
Certificated model : A318-111
Definition of reference airplane by doc. :
D03006056 (00P000A0111/C21).

12.1.2- Engines
Two CFMI - CFM 56-5B8/P jet engines (Mod. 32028).

12.2.1- Model definition A318-112
Certificated model : A318-112
Definition of reference airplane by doc. :
D03006716 (00P000A0112/C21).

12.2.2- Engines
Two CFMI 56-5B9/P jet engines (Mod. 32029).

13. DATA PERTINENT TO ALL A318 SERIES

13.1- Certification Basis

Airbus Industrie has applied for A318 certification on December 11, 1998 by letter AI/EA-S 413.2952/1998.

The applicable Joint Certification Basis defined in CRI G5001 Issue 2 dated May 2003 are :

a. JAR 25 Change 11

b. except :

b.1 subpart BB which remains at Change 10,

b.2 all national variants,

b.3

JAR 25 X 20	Change 14
JAR 25.21	Change 14
JAR 25.23	Change 14
JAR 25.25	Change 14
JAR 25.27	Change 14
JAR 25.29	Change 14
JAR 25.31	Change 14
JAR 25.101	Change 14
JAR 25.103	Change 14
JAR 25.105	Change 14
JAR 25.107	Change 14
JAR 25.109	Change 14
JAR 25.111	Change 14
JAR 25.113	Change 14 amended by OP 96/1
JAR 25.115	Change 14
JAR 25.117	Change 14
JAR 25.119	Change 14 amended by OP 96/1
JAR 25.121	Change 14 amended by OP 96/1
JAR 25.123	Change 14
JAR 25.125	Change 14 amended by OP 96/1
JAR 25.143	Change 14 amended by OP 96/1
JAR 25.145	Change 14 amended by OP 96/1
JAR 25.147	Change 14
JAR 25.149	Change 14 amended by OP 96/1
JAR 25.161	Change 14
JAR 25.171	Change 14
JAR 25.173	Change 14
JAR 25.175	Change 14
JAR 25.177	Change 14 amended by OP 96/1
JAR 25.181	Change 14
JAR 25.201	Change 14 amended by OP 96/1
JAR 25.203	Change 14 amended by OP 96/1
JAR 25.207	Change 14
JAR 25.231	Change 14
JAR 25.233	Change 14
JAR 25.235	Change 14
JAR 25.237	Change 14
JAR 25.251	Change 14
JAR 25.253	Change 14 amended by OP 96/1
JAR 25.255	Change 14
JAR 25X261	Change 14
JAR 25.305	Change 15
JAR 25.321	Change 15
JAR 25.331	Change 15
JAR 25.333	Change 15
JAR 25.335	Change 15
JAR 25.341	Change 15
JAR 25.343	Change 15
JAR 25.345	Change 15

JAR 25.349	Change 15	
JAR 25.351	Change 15	
JAR 25.365	Change 13	
JAR 25.371	Change 15	
JAR 25.373	Change 15	
JAR 25.391	Change 15	
JAR 25.415	Change 15	
JAR 25.427	Change 15	
JAR 25.445	Change 15	
JAR 25.473	Change 15	
JAR 25.479	Change 15	
JAR 25.481	Change 15	
JAR 25.483	Change 15	
JAR 25.485	Change 15	
JAR 25.491	Change 15	
JAR 25.493 (d)	Change 14	amended by OP 96/1
JAR 25.499	Change 15	
JAR 25.511	Change 15	
JAR 25.X519	Change 13	
JAR 25.561 (c)	Change 15	
JAR 25.562	Change 14	(see CRI E5001)
JAR 25.571	Change 15	
JAR 25.801	Change 14	
JAR 25.803	Change 14	
JAR 25.807	Change 14	
JAR 25.809	Change 14	
JAR 25.810	Change 14	
JAR 25.811	Change 14	
JAR 25.812	Change 14	
JAR 25.813	Change 14	
JAR 25.853	Change 14	
JAR 25.855	Change 14	
JAR 25.857	Change 14	
JAR 25.858	Change 14	
JAR 25.1501	Change 14	
JAR 25.1517	Change 15	
JAR 25.1583	Change 14	
JAR 25.1587	Change 14	
JAR 25.X1591	Change 14	(replacing JAR 25X131, 25X132, 25X133, 25X135, 25X1588 at Change 11)

c. JAR AWO at Change 1

d. Special Conditions, Experience related Conditions, Harmonised Conditions :

d.1 A320 SC, EC and HC :

. A320 (DGAC-F) SC-G17	operational proving flights
. A320 (CAA-UK) SC-G17	operational flight before certification
. A320 SC-F3	cockpit control - motion and effect of cockpit control
. A320 SC-F6	static directional and lateral stability
. A320 SC-F7	flight envelope protection
. A320 SC-F8	normal load factor limiting
. A320 SC-F9	dual control system
. A320 SC-A2.2.2	design manoeuvre requirements
. A320 SC-S11	limit pilot forces and torques
. A320 SC-S33	auto-thrust system
. A320 SC-S52	operation without normal electrical power
. A320 SC-S74	abnormal attitudes
. A320 SC-S75	lightning protection indirect effects
. A320 SC-S77	integrity of control signal
. A320 HC-A4.6	speed control device
. A320 HC-S23	standby gyroscopic horizon
. A320 HC-S24	VMO/MMO warning (setting)
. A320 HC-S72	flight recorder

. A320 EC-G11 general definition
. A320 EC-S30 autoflight system
. A320 EC-S54 circuit protective devices

d.2 A319 SC:
. A319 SC-A2 stalling speeds for structural design
. A319 SC-F11 accelerate-stop distances and relates performances, worn brakes

. A319 SC-A1 interaction of systems and structure
. A319 SC-P1 FADEC for CFM56 and AMJ20X-1 change 14 for PW6000
. A319 SC-S79 brakes requirements, qualification and testing

d.3 A319/A320/A321 SC :

. A319/320/321 SC-IM76 [...]

d.4 A318 SC :
- A318 SC-F5001 Stalling and scheduled operation speed
- A318 SC-F5004 Static longitudinal stability and low energy awarness

- A318 SC-A5001 Engine Failure Loads (PW engine only)
- A318 SC-A5003 Design Dive Speed
- A318 SC-P5004 Engine Sustained Imbalance (PW engine only)
- A318 SC-SE5002 AFM – RVR limits

e. Exemptions

None

f. Equivalent Safety Findings

- JAR 25.783(f) related to "Doors (see A319 CRI SM 4004 "passenger doors")

- JAR 25.807(d) related to "Passenger emergency exits" (see CRI E 5004 "Exit configuration" similar to A319 CRI E 4001)

- JAR 25.813(c)(1) related to "Emergency exit access" (see CRI E 5005 "Type III overwing emergency exit access")

- JAR 25.831(a) related to "Ventilation" (see CRI E 5006 "Packs Off Operation")

- JAR 25.933(a)(1) related to "Reversing systems" (see A319 CRI P 4008 "Thrust Reverser Auto restow")

- JAR AWO 313 related to "Minimum Approach Break-Off Height") (see A319 CRI SE 4005 "Minimum Approach Break-Off Height")

- JAR AWO 236 related to "Excess Deviation Alerts" (see CRI SE 5005 "Cat III Operation – Excess Deviation Alert")

- NPA AWO 10 related to “ Airworthiness Harmonization package n°2” (see CRI SE-5002 “AFM – RVR limits”)

g. Environmental requirements :

ICAO Annex 16, Volume 1, Third Edition, Amendment 5, Part II, Chapter 3 : Noise Requirements.
ICAO Annex 16, Volume II amendment 3, Part 2 for Fuel venting and Part III, Chapter 2 for Emissions.

13.2 - Weight limits (kg)

VARIANT	000 BASIC	001 MOD 31672	002 MOD 31673	003 MOD 31674	004 MOD 31675	005 MOD 31676
Max. Take-off Weight	59 000	61 500	63 000	64 500	66 000	68 000
Max. Landing Weight	56 000	56 000	57 500	57 500	57 500	57 500
Max. Zero Fuel Weight	53 000	53 000	54 500	54 500	54 500	54 500
Minimum Weight	34 500	34 500	34 500	34 500	34 500	34 500

VARIANT	006 MOD 33235	007 MOD 33126	008 MOD 33128
Max. Take-off Weight	56 000	61 000	64 000
Max. Landing Weight	56 000	56 000	56 000
Max. Zero Fuel Weight	53 000	53 000	53 000
Minimum Weight	34 500	34 500	34 500

13.3 - Center of gravity range

See DGAC approved Airplane Flight Manual

13.4 - Limit speeds (Indicated Airspeed - IAS - unless otherwise stated)

- Maximum Operating Mach (MMO) : 0,82
- Maximum Operating Speed (VMO) : 350 kt
- Manœuvring Speed (VA) : see Chapter 2.0 of the DGAC approved Flight Manual
- Extended Flaps/Slats Speed (VFE) : see table below

Configuration	Slats/Flaps (°)	VFE (kt)	
1	18/0 18/10*	230 215	Intermediate approach Take-off
2	22/15	200	Take-off and approach
3	22/20	185	Take-off, approach, landing
Full	27/40	177	Landing

* Auto flap retraction at 210 kt in Take-off configuration

Landing gear :
- VLE - Extended : 280 kt/Mach 0.67
- VLO - Extension : 250 kt
  - Retraction : 220 kt

Tyres Limit Speed (Ground speed) = 195.5 kt (225 mph)

13.5 - Maximum operating altitude

39 800 ft (pressure altitude)

13.6 - Minimum flight crew

2 pilots

13.7 - Maximum number of passengers

136.

13.8 - Cargo compartment loading

CARGO COMPARTMENT	MAXIMUM LOAD (kg)
Forward	1 614
Aft	2131
Rear (bulk)	1372

For the positions and the loading conditions authorized in each position (references of containers, pallets and associated weights) see Weight and Balance Manual, ref. 00 P 080 A 0001/C1S Chapter 1.10.

13.9 - Fuel

13.9.1 - Fuel Specification
See installation manual : document CFM 2026 or document IAE - 0043.

NOMENCLATURE	SPÉCIFICATION		
	FRANCE	USA	UK
Kerosene	-	MIL-T 83133 A (JP8)	-
	AIR 3405 C	ASTM D 1655 (JET A - JET A1)	DERD 2494
Wide cut	AIR 3407	ASTM D 1655 (JET B)	DERD 2454
	AIR 3407 (TR 4)	MIL-T 5624 (JP 4) *	DERD 2454
High flash point	AIR 3404	MIL-T 5624 (JP 5)	DERD 2452

Additives : see CFMI " Specific Operating Instructions ", CFM TPOI-13 .

The above mentioned fuels and additives are also suitable for the APU.

13.9.2 - Fuel Quantity (0.8 kg/liter)

Tank	3 TANK AIRPLANE	
	Usable fuel liters (kg)	Unusable fuel Liters (kg)
Wing	15 609 (12 487)	58.9 (47.1)
Center	8 250 (6 600)	23.2 (18.6)
ACT		
TOTAL	23 859 (19 087)	82.1 (65.7)

13.10 - Hydraulic fluids

Type IV - Specification NSA 30.7110.

13.11 - Auxiliary Power (APU)

13.11.1 -APU HONEYWELL
HONEYWELL AIRESEARCH GTCP 36-300 (A) (Specification 31-5306 B).
Approved oil : see Garrett report GT 7800.

13.11.2 -APU APIC (Option)
The APU APIC installation is defined by Mod. 22562.
APU APIC APS 3200 (Specification ESR 0802, Rev. A).
Approved oils : in conformance to MIL-L-7808, MIL-L-23699 or DERD 2487.

13.11.3 - APU HONEYWELL (Option)
The APU HONEYWELL installation is defined by MOD 25888.
AlliedSignal 131-9[A] (Specification 4900 M1E 03 19 01)
Approved oils : according to Model Specification 31-12048A-3A.

13.12 - Tyres

See SB A320-32-1007.

13.13 - Cabin Equipment

Cabin furnishings, equipment and arrangement shall be in conformance to the following specifications :
- 00 D 252 K 0004 / C01 plus 00D 252 K 0030 / C01 for cabin seats
- 00 D 252 K 0019 / C01 for galleys.

13.14 - Limitations

10.14.1 - Powerplant (2.2482 lb/daN)

10.14.1 a) CFMI Engines

Engine	**CFMI**	
	CFM56-5B8/P	**CFM56-5B9/P**
Data sheets	E37NE (FAA) E38NE (FAA) M-17 (DGAC) M-IM28 (DGAC)	E37NE (FAA) E38NE (FAA) M-17 (DGAC) M-IM28 (DGAC)
Static thrust at sea level Take-off (5 min)* (Flat rated 30° C) Maximum continuous (Flat rated 25° C)	 9 608 daN (21 600 lbs) 8478 daN (19060 lbs)	 10 364 daN (23 300 lbs) 9 008 daN (20 250 lbs)
Approved Oils	SB CFMI 79-001-OX	

* 10 minutes at take-off thrust allowed only in case of engine failure (at take-off or during go-around) in accordance with DGAC " Fiche de Caractéristiques Moteur ".

13.14.2 -Life limitations

- Life limitations are provided in the A318/A319/A320/A321 Maintenance Planning Document, Section 9 "Airworthiness Limitation Section", Sub-Sections 9-1-2 and 9-1-3 approved by DGAC (Cert.Doc. 00D050A0M91/C0S MPD Section 9-1 Life Limitations).
- Maintenance criteria to comply with certification requirements for systems are given in Airbus Industrie Document 00P050A0008/C11 "Certification Maintenance Requirements".
- Maintenance criteria to comply with certification requirements for structure are given in Airbus Industrie Document AI/SE-M4/95A.0252/96 " Airworthiness Limitation Items ".

13.14.3 - Other limitations
See DGAC approved Flight Manual.

13.15 - Production conditions

A318 aircraft, all series, all models, are produced in Hamburg (Germany) under approval LBA.G.0009 issued by LBA to AIRBUS.

14. NOTES PERTINENT TO ALL A318 SERIES

14.1 Principal dimensions of A318 aircraft :

- Length : 31.45 m
- Width : 34.10 m
- Height : 12.789 m
- Width at horizontal stabilizer : 12.45 m
- Outside fuselage diameter : 3.95 m
- Distance between engine axes : 11.51 m
- Distance between main landing gear : 7.59 m
- Distance between nose and main landing gear : 11.04 m

11.1 - If modifications 32997, 33310 & 33299 are embodied on models with CFM engines, the airplane is qualified for CAT III B precision approach. This does not constitute an operational approval.

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