



Engine  
Operating Limits

Operating Conditions		Operating limits			
Thrust Setting	Time Limit	Max EGT	Oil Pressure min/max	Oil temp <sup>[4]</sup>	N1/N2
	(minutes)	°C (°F)	PSIG <sup>[2]</sup>	°C (°F)	
Max Takeoff	5 <sup>[1]</sup>	1054°C (1929°F)	50.3 /175.3	48°C to 163°C <sup>[3]</sup> (118°F to 325°F)	100%
Max Continuous	Continuous	1006°C (1842°F)	50.3 /175.4	48°C to 163°C <sup>[3]</sup> (118°F to 325°F)	100%
Reverse Thrust	As Required	1054°C (1929°F)	50.3 /175.4	48°C to 163°C <sup>[3]</sup> (118°F to 325°F)	100%
Ground idle (SLS)	Continuous	-	50.3 /175.4	-40°C to 163°C (-40°F to 325°F)	100%
Flight Idle	Continuous	-	50.3 /175.4	-40°C to 163°C (-40°F to 325°F)	100%
Starting	-	1054°C (1929°F)	-	-40°C to 163°C (-40°F to 325°F)	100%

[1] Time limit may be extended to 10 minutes for One Engine Inoperative (OEI) contingency.

[2] Minimum oil pressure is a function of N2 where the minimum oil pressure ranges from 50.3 psig to 97.0 psig.

[3] Minimum oil temperature for takeoff is 48°C (118°F).

[4] Maximum oil temperature of 174°C (345°F) for up to 20 minutes. Total operation between 163°C (325°F) up to 174°C (345°F) must not exceed 20 minutes.

## C.G. Limits

Forward limit: 12% MAC  
Aft limit: 37.2 % MAC

Outside Air  
Temperature  
Limits

Maximum ambient temperature approved for takeoff and landing is 52.5°C (126.5°F).  
Minimum ambient temperature approved for takeoff is -54°C (-65°F).  
Minimum ambient temperature approved for landing is -30°C (-22°F).

MODEL BD-500-1A10 (CONT'D)

Maximum Weight	<u>kg.</u>	<u>lb.</u>
Maximum Ramp Weight (MRW)	61,235	135,000
Maximum Takeoff Weight (MTOW)	60,781	134,000
Maximum Landing Weight (MLW)	52,390	115,500
Maximum Zero Fuel Weight (MZFW)	50,349	111,000

Cargo	Class	Approx. Volume (wet)		Max. Loading	
		cu.ft	m3	lb	kg
		Fwd Cargo Compartment	C	349	9
Aft Cargo Compartment	C	501	14.19	5185	2352

Airspeed Limits (IAS)		<u>knots</u>	<u>Mach</u>
$V_{MO}$ and $M_{MO}$		-	-
	Sea Level to 8,000 ft.	300	-
	10,000 ft. to 27,500 ft.	330	-
	Above 27,500 ft.	-	0.82
	See applicable AFM for variations of $V_{MO}$ and $M_{MO}$ .		
$V_{FE}$ (Flaps Extended)	Flap 1 (0°)	230	-
	Flap 2 (10°)	210	-
	Flap 3 (15°)	210	-
	Flap 4 (25°)	190	-
	Flap 5 (37°)	170	-
$V_A$ (Design Maneuvering)	See applicable AFM for variation of $V_A$ with altitude and aircraft weight.		
$V_{LO}$ (Landing Gear Operating)	Extension	250	-
	Retraction	220	-
$V_{LE}$ (Landing Gear Extended)		250	-
$V_{MCA}$ (Minimum Control Speed, air)	Flap 2 (10°)	108	-
	Flap 3 (15°)	109	-
	Flap 4 (25°)	107	-
$V_{MCG}$ (Minimum Control Speed, ground)	Flap 2 (10°)	100	-
	Flap 3 (15°)	101	-
	Flap 4 (25°)	102	-
$V_{MCL}$ (Minimum Control Speed during landing approach)	Flap 2 (10°) gear up	108	-
	Flap 4 (25°) gear up	107	-
	Flap 4 (25°) gear down	111	-
	Flap 5 (37°) gear down	110	-

MODEL BD-500-1A10 (CONT'D)

APU	Honeywell 131-9(C) max altitude: 23000 ft min altitude: -2000 ft
Reference Datum	FS 0.0 is located 640 cm. (252.0 in.) forward of the aircraft nose.
Leveling Means	Aircraft is leveled in the longitudinal and lateral axis by means of a plumb bob and target plate in the rear fuselage/aft equipment bay at FS 1390.83.
Minimum Flight Crew	2 (Pilot and Co-Pilot)
Maximum Occupants	133 (including 1 Pilot, 1 Co-pilot, 1 Observer, a minimum of 3 Cabin Crew* and a maximum of 127 Passengers*). See Note 3.  * Maximum 130 cabin occupants when fitted with an approved interior.

Flight Load Factor	Flaps up:	-1.0 g to 2.5 g
	Flaps down:	0.0 g to 2.0 g

Fuel Capacity            Operation of the aircraft with fuel quantity as indicated by the fuel quantity gauging system above the maximum quantity defined below is prohibited:

Maximum fuel quantity as indicated by the fuel quantity gauging system <FAA>		
Tank	Kg	Lb
Left main tank	1587	3500
Right main tank	1587	3500
Center tank	0	0
Total	3174	7000

Maximum Operating Altitude	Take-off and Landing:	8,000 ft. (2,438 m.)
	Enroute:	41,000 ft. (12,497 m.)

Serial Numbers Eligible    50,001 and subsequent

**SERVICE INFORMATION**    Service Bulletins, structural repair manuals, vendor manuals, overhaul and maintenance manuals, and aircraft flight manuals which contain a statement that the document is Transport Canada approved or Transport Canada approved through the Manufacturers Design Approval Representative are accepted by the FAA and are considered FAA approved. (These approvals pertain to the design data only).

- Approved Publications
- Airplane Flight Manual (AFM), BD 500-3AB48-22200-00, Issue 002 in addition to RS 002 and RS 004 or later approved revisions.
  - Maintenance Review Board Report (MRBR), BD500-3AB48-11400-01, Issue 001 or later approved revisions.
  - Aircraft Structural Repair Publication (ASRP), BD500-3AB48-10600-00 Issue 001 or

later approved revisions.

- d) Airworthiness Limitations (AWL), BD 500-3AB48-11400-02, Issue 02 or later approved revisions.
- Required Equipment
- a) The basic required equipment is prescribed in the applicable airworthiness requirements (See Certification Basis) must be installed in the aircraft.
- b) Aircraft Flight Manual as listed in Approved Publications.
- Type Certification Configuration
- Type design definition approved by this TCDS for the BD-500-1A10 is defined in RAZ-BA500-027 at Rev. B or later approved revisions.
- The approved type design appropriate to the “as delivered” configuration of a particular BD-500-1A10 aircraft is defined in RAZ-BA500-027 Rev. B or later approved revisions, and RAL-BA500-XXXXX (production sequence number, where XXXXX denotes the aircraft serial number).
- Import Requirements
- A U.S. Airworthiness Certificate may be issued on the basis of the Canadian Department of Transport "Certificate of Airworthiness for Export" signed by the Minister of Transport. This form must contain the following statement (in the english language): "This certifies that the aircraft described below has been manufactured in conformity with data forming the basis for the Transport Canada Type Certificate No. A-236 and includes the minimum type design defined in document RAZ-BA500-027 Issue B or subsequent approved revisions and RAL-BA500-0004 Rev -- or subsequent approved revisions as being required to comply with the basis for the U.S. Type Certificate No. T00008NY, and is in a condition for safe operation.

MODEL BD-500-1A10 (CONT'D)

- Certification Basis
1. Airworthiness Standards:
 

Federal Aviation Administration (FAA), Title 14, Code of Federal Regulations (14 CFR) Part 25, effective February 1, 1965, including Amendments 25-1 through 25-134.
  2. Special Conditions are as follow:

Special Condition No.	Title
25-477-SC	Limit Pilot Forces for Sidestick Controllers
25-499-SC	Interactions of Systems and Structures
25-500-SC	Design Roll Maneuver Condition
25-512-SC	Seats With Non-Traditional, Large, Non-Metallic Panels
25-513-SC	Side Stick Controllers: Pilot Strength, Pilot Control Authority, and Pilot Control
25-515-SC	Autobraking System Loads
25-518-SC	Fuselage Post-Crash Fire Survivability
25-519-SC	Fuselage In-Flight Fire Safety and Flammability Resistance
25-544-SC	Composite Wing and Fuel Tank Structure Post-Crash Fire Survivability
25-546-SC	Electronic Flight Control System: Control Surface Awareness and Mode Annunciation
25-547-SC	Flight Envelope Protection: Normal Load Factor (g) Limiting
25-548-SC	Flight Envelope Protection: General Limiting Requirements
25-549-SC	Flight Envelope Protection: High-Speed Limiting

Certification Basis  
(Cont'd)

<b>Special Condition No.</b>	<b>Title</b>
25-555-SC	Limit Engine Torque Loads
25-560-SC	Tire Failure - Tire Debris Impacts to Fuel Tanks
25-565-SC	Automatic Speed Protection for Design Dive Speed
25-566-SC	Isolation or Airplane Electronic System Security Protection From Unauthorized Internal Access
25-567-SC	Airplane Electronic System Security Protection From Unauthorized External Access
25-576-SC	Electronic Flight-Control System (EFCS): Pitch-and Roll-Limiting Functions
25-578-SC	Alternate Fuel Tank Structural Lightning Protection Requirements
25-583-SC	Operation Without Normal Electrical Power
25-584-SC	Electronic Flight Control System: Lateral-Directional and Longitudinal Stability and Low-Energy Awareness
25-591-SC	Installed Rechargeable Lithium Batteries and Battery Systems
25-597-SC	Flight-Envelope Protection, High Incidence Protection Function

MODEL BD-500-1A10 (CS100) (CONT'D)

## 3. Equivalent Safety Findings:

Certification  
Basis (Cont'd)

<b>ELOS Memo</b>	<b>Requirement</b>	<b>Title</b>
TC4948NY-T-ES-19	25.856(b)	Penetrations in Fire Barrier of Cargo Compartment and WTBF
TC4948NY-T-ES-20	25.1441(c)	Oxygen Quantity Indication
TC4948NY-T-A-25	25.721 25.963(d) 25.994	Emergency Landing Conditions
TC4948NY-T-ES-18	25.1443(c)	Minimum Mass Flow of Supplemental Oxygen
TC4948NY-T-P-06	25.904 Part 25 Appendix I	Lack of On/Off Switch for ATTCS System
TC4948NY-T-CS-10	25.811(g) 25.812(b)(1)	Symbolic Exit Signs
TC4948NY-T-ES-16	25.856(b)	Burn Through Protection at Aft Pressure Bulkhead
TC4948NY-T-P-41	25.1145(a)	Engine Ignition Switches
TC4948NY-T-P-16	25.1193(e)(3)	Engine and APU Fire Protection
TC4948NY-T-P-20	25.933(a)(1)	Flight Critical Thrust Reverser
TC4948NY-T-ES-17	25.813(c)(1)(i)	Type III Exit Passageway Width
TC4948NY-T-P-15	25.1549 (a) to (c)	Digital Only Display of the Turbine Engine Required Parameters
TC4948NY-T-P-08	14CFR part 25 subpart E, F, and G, 25.1103(e)(1) 25.1105 25.1305	APU Certification Requirements

Certification  
Basis (Cont'd)

<b>ELOS Memo</b>	<b>Requirement</b>	<b>Title</b>
TC4948NY-T-ES-17	25.831(g)	Finding FOR Ventilation System Failures - Cabin Temperature and Humidity
TC4948NY-T-S-13	25.1301 25.1309	ARAC Recommendation Revision
TC4948NY-T-S-3	25.671	Flight Control System Failure Criteria
TC4948NY-T-P-7	25.904 Part 25 Appendix I	Performance Credit for use of Automatic Power Reserve (APR) During Reduced Thrust Takeoffs(Automatic Takeoff Thrust Control System (ATTCS)
TC4948NY-T-F-28	25.161(c)(1)	Longitudinal Trim

MODEL BD-500-1A10 (CS100) (CONT'D)

Certification Basis (Cont'd)	<p>4. Exemptions from 14 CFR Part 25 are as follow:</p> <p>Exemption No. 10944 dated February 2, 2015, High Altitude Decompression caused by a failure of one of the engines, 14 CFR 25.841(a)(2)(i) and (ii);</p> <p>Exemption No. 10840 dated August 8, 2013, Emergency Exit Viewing Means, 14 CFR 25.809(a);</p> <p>Time Limited Exemption No.16779 dated June 10, 2016, Fuel Tank Ignition Prevention, 14 CFR 25.981(a)(3);</p> <p>Exemption No. 16780 dated June 10, 2016, Throttle Quadrant Assembly, 14 CFR 25.901(c) See Note 4.</p> <p>5. Optional Design Regulations:</p> <p>a) Ditching §§ 25.801, 25.1411 and 25.1415</p> <p>b) Ice Protection 25.1419</p> <p>c) Automatic Takeoff Thrust Control System (ATTCS) 25.904 and Appendix I to Part 25</p> <p>6. 14 CFR Part 26: December 10, 2007 including Amendments 26-1 through 26-6.</p> <p>7. 14 CFR Part 36: Effective December 1, 1969, and including all amendments through Amendment 36-29.</p> <p>8. 14 CFR Part 34: Effective September 10, 1990, and including all amendments through Amendment 34-5A, in effect on the date of type certification..</p> <p>9. A finding of regulatory adequacy pursuant to the “Noise Control Act of 1972” (49 USC Section 44715).</p>				
Placards	<p>All placards must be installed in accordance with Bombardier drawings: C04471003 Rev. D, C04473003 Rev. C, C04475003 Rev. A, C04477003 Rev. D, and C05200003 Rev. A.</p> <p>Drawings noted above are for basic type certification only. For “as-delivered” aircraft configurations, refer to RAL-BA500-XXXXX (XXXXX denotes aircraft serial number).</p>				
Application Date	<table border="0"> <tr> <td style="padding-right: 20px;">Initial Date</td> <td>February 25, 2010</td> </tr> <tr> <td>Deferred Date</td> <td>December 31, 2011</td> </tr> </table>	Initial Date	February 25, 2010	Deferred Date	December 31, 2011
Initial Date	February 25, 2010				
Deferred Date	December 31, 2011				
NOTE 1	ETOPS operations are not permitted as the compliance demonstration for ETOPS is incomplete.				
NOTE 2	The CS100 is a marketing designation of the Bombardier aircraft model BD-500-1A10.				

## NOTE 3

## Other Operating Limitations:

- a) The FAA pilot type rating has not been determined. No U.S. CS100 pilot certificates may be issued until this is accomplished.
- b) Operational suitability under 14 CFR Parts 91, 125, 121 and 135 has not been evaluated. This aircraft may not be operated under those regulations until this evaluation has been accomplished.
- c) Initial FAA Certification is for a “Green Aircraft” interior configuration. The green aircraft type design configuration defined in Bombardier Document RAZ-BA500-027, Rev. B, does not allow the carriage of passengers. Carriage of passengers in the cabin is permitted when required passenger provisions are incorporated in accordance with the Basis of Certification.

## NOTE 4

The FAA has concluded that the occurrence of any uncontrollable high-thrust failure condition, or any of the associated causal failures listed within Bombardier Aerospace Document [reference TBD], may endanger the safe operation of an airplane. Consequently, the FAA recommends that operators be encouraged to report any such failures in accordance with Title 14, Code of Federal Regulations 121.703(c), 125.409(c), and 135.415(c).

- END -