



TYPE-CERTIFICATE

DATA SHEET

No. EASA.IM.A.080

CHALLENGER 300
CHALLENGER 350

Type Certificate Holder:
BOMBARDIER INC.

800 Boul. René-Lévesque Ouest
Montreal, QC, Canada
H3B 1Y8

For Model: BD-100-1A10

Issue 9 dated 13 Sep 2021

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SECTION 1: GENERAL

1. **Data Sheet No:** IM.A.080
2. **Airworthiness Category:** Transport
3. **Certifying Authority:** Transport Canada Civil Aviation
Aircraft Certification branch (AARD)
330 Sparks street
Tower "C" Place de Ville
Ottawa, Ontario K1A 0N8
Canada
4. **Type Certificate Holder:** Bombardier Inc
800 Boul. René-Lévesque Ouest
Montreal, QC, Canada
H3B 1Y8

SECTION 2

I. General

1. **Aeroplane:** BD-100-1A10

II. Certification Basis

1. **Reference Application Date for TCCA Certification:** 26 March 1999
2. **TCCA Certification Date:** 30 May 2003
3. **EASA Validation Application Date:** 29 July, 1999
4. **EASA Certification Date:** 27 September, 2003
5. **TCCA Certification Basis:**

Refer to TCCA Type Certificate Data Sheet No: A-234, Issue 6

6. EASA Certification Basis:

EASA Airworthiness Requirements:

JAR 25 Large Aeroplanes Change 15

This includes the optional requirements of JAR 25.1419, Ice Protection and JAR 25.801, Ditching Provisions.

Reversions: None requested

JAR AWO at Change 2

EASA Special Conditions:

a) Novel Design Features:

i.	Automatic Performance Reserve	CRI E-2	25x20; AMJ25-13
ii.	Operation to High Altitude 45 000 ft	CRI F-04	25.571; 25.831; 25.841; 25.1441

b) Unconventional Use: None.

c) General Experience

i.	INT/POL/25/2	HIRF Protection	CRI F-01	25.1431
ii.	INT/POL/25/3	Lightning Strike Protection, Direct Effects	CRI F-02	25X899, ACJ 25X899
iii.	INT/POL/25/4	Lightning Strike Protection, Indirect Effects	CRI F-03	25.581, 25X899, 25.954, 25.1309
iv.	INT/POL/25/6	Worn Brakes	CRI D-04	25.735
v.	INT/POL/25/8	Ground Gust Conditions	CRI C-10	25.415; ACJ 25.415
vi.	INT/POL/25/9	Fuel Tank Crashworthiness	CRI C-01	25.963
vii.	NPA 25E-306	Sustained Engine Imbalance	CRI C-12	25.901(c); 25.903(c); 25.629; 25.571
viii.	25X745(d)	Towbarless Towing	CRI D-02	25.307; 25x745(d); 25.571; 25.1529
ix.	NPA 25C-199	Interaction Between Systems and Structure	CRI C-13	25.302; appendix K; 25.629
x.		Fuel tank safety	CRI E-07	25.981; 25.1309
xi.		Freezing fog	CRI E-01	25.1093(b)(2); 25.1501, 25.1581
xii.		Uncontrollable High Thrust	CRI E-02	25.901(c)

EASA Deviations:

i.	Personnal Injury Criteria of dynamic testing of side facing sofas	CRI D-07 PTC	25.785(b)
ii.	Personnal Injury Criteria of dynamic testing of side facing single occupant seats	CRI D-09 PTC	25.785(b)
iii.	Lavatory door	CRI D-10 PTC	25.813(e)
iv.	Deviation on CS 25.901(c) "powerplant installation" and CS 25.1309(b)(1)(ii) "Equipment, systems and installations" (See Note 7)	CRI E-04	25.901(c); 25.1309(b)(1)(ii)

EASA Equivalent Safety Findings:

i.		Thrust Reverser	CRI E-04	25.933(a)
ii.		Hydraulic System – Tests and Analysis (Compliance with NPA 25F-273 and CRI F-11)	CRI F-11	25.1435(b)(1)
iii.		Static Lateral / Directional Stability	CRI B-09	25.177(c)
iv.	NPA 25 B, C, D-236	Vibration, Buffet and Aeroelastic Stability (Identical to FAR 25, Amendment 77)	CRI C-02	25.251; 25.305; 25.427; 25.629; ACJ 25.629
v.		Fuel Tank Crashworthiness	CRI C-01	25.963
vi.	NPA25C,D-330	Shock Absorption Test	CRI C-05	25.723; ACJ 25.723
vii.	NPA 25C-329	Design Dive Speed	CRI C-06	25.335(b)(2)
viii.	P-NPA25C-309	Gust and Continuous Turbulence Design Loads	CRI C-08	25.341; 25.343; 25.345; 25.371; 25.373; 25.391; 25.1517; ACJ 25.341(b)
ix.	NPA25C-305	Engine and APU Loads Conditions	CRI C-09	25.361(b); 25.362
x.	NPA25D-285	Carbon Dioxide Concentration (Identical to FAR 25, Amendment 89)	CRI F-10	25.831; 25.832
xi.		Emergency exit markings	CRI D-08 PTC	25.811(d)(1); 25.812(b)(1)(i)

EASA Elect to Comply Standards

CS 25.791(d) Amdt 23
CS 25.853(g) Amdt 23

EASA Environmental Standards:

Noise: ICAO Annex 16, Volume I, Third Edition, Amendment 7.
Emissions: ICAO Annex 16, Volume II, Second Edition, Amendment 4.

Additional National Design Requirements (ANDR)

Additional National Design Requirements (ANDR) as specified in JAA Administrative and Guidance Material, Section 3/Part 4 in effect at the time of Type Certification. Refer to CRI A-02.

7. Operational Suitability Data (OSD)

The EASA Type Certification with respect to Operational Suitability Data (OSD) is defined as follows:

MMEL: JAR-MMEL Amendment 1, Section 1

FCD: Certification Specifications for Operational Suitability Data (OSD) Flight Crew Data CS-FCD Initial Issue dated 31 January 2014.

III. Technical Characteristics and Operational Limitations

The BD-100-1A10, manufactured by Bombardier Aerospace (BA) is a nominal 8-passenger, (max 19 occupants), two-crew member. It has a low, high swept airfoil, T-tail with trimmable horizontal stabilizer and tricycle landing gear.). It is a new medium range, high altitude, and high-speed business/corporate aircraft. With a range of 3100 NM at 0.83M and a 45,000 ft maximum operating altitude at initial certification, the aircraft has been designed for mission duration up to 7 hours. Two Honeywell AS907 turbofan engines with reverse thrust capability are rear fuselage mounted on pylons. The targeted economic repair life is 15000 flights. The main landing gear is an inboard retracting, cantilever type and features two braked wheels per axle. The nose landing gear is a forward retracting, cantilever type and features two free rolling wheels.

At initial certification, the maximum take-off weight (MTOW) for the BD-100-1A10 is 38 500 lbs., maximum landing weight (MLW) is 33,750 lbs.

The aircraft is certified in the “green” configuration (no passenger / cargo compartment interiors) only and approval of the interiors will be independently accomplished under a Supplemental Type Certificate

1. EASA Type Certificate Design Definition:

Reference CRI A-06 JAA Build Standard Definition, RAZ-BA100-103.

2. Engines:

S/N 20002 up to 20500 are equipped with two Honeywell AS907-1-1A turbofan engines, with reverse thrust capability. Refer to EASA Type Certificate Data Sheet IM.E.058.

S/N 20501 and subsequent are equipped with two Honeywell AS907-2-1A turbofan engines, with reverse thrust capability. Refer to EASA Type Certificate Data Sheet IM.E.058.

Engine Limits:

Refer to the applicable Airplane Flight Manual

3. Fuel

Fuel Capacity:

Usable	Load		Weight*	
	U.S. Gal.	liters	lb.	kg
2 main tanks (each)	1 048	3 967	7 074	3 209
Total	2 096	7 934	14 150	6 418
Total Unusable (drainable)	7.5	28.2	50.4	22.8
Total Undrainable	6.4	24.3	43.4	19.7

* Assuming a fuel density of 6.75 lbs/U.S. Gal.

4. Oil

Oil: Engine, APU: Refer to Aircraft Maintenance Manual, Chapter 12.

Oil Capacity:

	Load		Weight	
	U.S. Qts.	litres	lb.	kg.
Left Engine	6.0	5.7	12.6	5.7
Right Engine	5.0	4.7	10.4	4.7
Total	11.0	10.4	23.0	10.4
Usable per Engine	1.7	1.6	3.5	1.6

5. Airplane Limit Speeds

	S/N 20002 - 20500		S/N above 20501		S/N 20813 and subsequent; for 20501 to 20812, if incorporating SB 350-27-008, Rudder Travel Increase (See Airplane Flight Manual Supplement 11, SFO, for additional limitations)	
	knots	Mach	knots	Mach	knots	Mach
V_{MO} and M_{MO}	-	-	-	-	-	-
Sea Level to 8000 ft.	300	-	300	-	300	-
8001 ft. to 29475 ft.	320	-	320	-	320	-
Above 29475 ft.	-	0.83	-	0.83	-	0.83
V_{FE} (Flaps Extended)	10°	210	-	210	-	210
	20°	210	-	210	-	210
	30°	175	-	175	-	175
V_D and M_D	-	-	-	-	-	-
Sea Level to 25525 ft.	380	-	380	-	380	-
Above 25525 ft.	-	0.90	-	0.90	-	0.90
V_A (maneuvering) See Airplane Flight Manual for variation of V_A with altitude and aircraft weight						
V_{MCA}	Flap 10°	106	-	110	-	110
	Flap 20°	102	-	109	-	109
V_{MCG}	Flap 10°	111	-	115	-	115
	Flap 20°	111	-	114	-	109
$V_{LO (RET)}$		200	-	200	-	200
$V_{LO (EXT)}$		250	-	250	-	250
V_{LE}		250	-	250	-	250

Max. Tyre ground speeds:	m.p.h.	knots
Nose Gear Tyre	210	182
Main Gear Tyre	210	182

6. Maximum Operating Altitude 13 716 m (45 000 ft)

7. Centre of Gravity Range

See applicable AFM

Datum: FS 0.0 located at 495 cm (195 in.) Fwd of the aircraft nose Mean Aerodynamic Cord (MAC):

284.9 cm 112.2 in (MAC leading edge at fuselage station 1 413.9 cm 556.67 in.)

Leveling Means:

Aircraft is leveled in the longitudinal and lateral axis by means of a plumb bob and target in the aft equipment bay at FS 755.5 and RBL 1.0.

8. Maximum Certified Weights

MAXIMUM WEIGHTS FOR S/N 20002 TO 20500.

	lb.	kg.
Max. Taxi and Ramp	38 650	17 532
Max. Takeoff	38 500	17 463
Max. Landing	33 750	15 309
Max. Zero Fuel	26 100	11 839

INCREASED MAXIMUM WEIGHT WITH M.S.100T010126, BB100T010126 & S.B. 100-11-01

	lb.	Kg.
Max. Taxi and Ramp	39 000	17 690
Max. Takeoff	38 850	17 622
Max. Landing	33 750	15 309
Max. Zero Fuel	27 200	12 338

MAXIMUM WEIGHT FOR S/N 20501 AND SUBSEQUENT.

	lb.	Kg.
Max. Taxi and Ramp	40 750	18 484
Max. Takeoff	40 600	18 416
Max. Landing	34 150	15 490
Max. Zero Fuel	28 200	12 791

NOTE: See applicable AFM for other weight limitations and aircraft eligibility.

9. Minimum Flight Crew

2 (Pilot and co-pilot)

10. Maximum Seating Capacity

19 (including the crew and no more than 16 passengers)

11. Exits

Location:	Number:	Type:	Size:
L/H	1	I	1.88 m x 0.76 m (74 in X 30 in)
R/H	1	III	0.94 m x 0.51 m (37.2 in x 20.2 in)

12. Baggage/Cargo Compartments:

None

13. Auxiliary Power Unit (APU)

Honeywell 36-150 [BD]
Approved to TSO C-77A
Appropriate National Authority Type Certificate and TCDS.

APU Limits: *

Maximum RPM:	110%	
Maximum EGT:	°C	°F
Starting	512-1024	954-1875
Running	594-714	1101-1317

* Refer to applicable AFM for detail limitations

14. Propellers: Not Applicable

Propeller Limits: Not Applicable

15. Equipment:

The basic required equipment as prescribed in the applicable airworthiness regulations (see Certification Basis) and defined in the Type Certificate Type Design Definition, (see report RAZ-BA100-103) must be installed in the airplane for certification.

16. Dimensions

	S/N 20002 - 20500	S/N above 20501
Span	19.4 m (63.8 ft.)	21.1 m (69.0 ft)
Length	20.9 m (68.7 ft.)	20.9 m (68.7 ft.)
Height	6.2 m (20.25 ft.)	6.2 m (20.25 ft.)
Wing Area	48.5 m ² (522.0 ft ²)	48.5 m ² (522.0 ft ²)

17. All Weather Capability

Refer to applicable AFM for All Weather Capability

18. Wheels and Tyres

Tyre	Size
Dual Nose Wheel and Tyre	18 x 5.5, 10 ply
Dual Main Wheels and Tyres (L/H & R/H)	H26.5 x 8.0 – 14, 14 ply

Landing Gear

Tricycle Type (Two main gear assemblies and one steerable nose gear assembly)

19. Fluids (Fuel/Additives)

See applicable AFM for Approved Fluids

20. Operating and Service Instructions

For S/N 20002 up to 20500:

Airplane Flight Manual:	CSP 100-1
Flight Crew Operating Manual:	CSP 100-6
Weight and Balance Manual:	CH 300 WBM
Minimum Master Equipment List (MMEL):	CSP 100-154

The Instructions for Continued Airworthiness consist of the following Publications:

Aircraft Maintenance Manual (AMM):	CH 300 AMM
Time Limits/Maintenance Checks Manual:	CH 300 TLMC
Structural Repair Manual (SRM):	CH 300 SRM
Non-Destructive Testing Manual (NDTM)	CH 300 NDTM

For S/N 20501 and subsequent:

Airplane Flight Manual:	CH 350-AFM
Flight Crew Operating Manual:	CH 350 FCOM
Weight and Balance Manual:	CH 350 WBM
Minimum Master Equipment List (MMEL):	CSP 100-154

The Instructions for Continued Airworthiness consist of the following Publications:

Aircraft Maintenance Manual (AMM):	CH 350 AMM
Time Limits/Maintenance Checks Manual:	CH 350 TLMC
Structural Repair Manual (SRM):	CH 350 SRM
Non-Destructive Testing Manual (NDTM)	CH 350 NDTM

21. Operational Suitability Data (OSD)

The Operational Suitability Data elements listed below are approved by the European Union Aviation Safety Agency as per Commission Regulation (EU) 748/2012 as amended by Commission Regulation (EU) No 69/2014.

Master Minimum Equipment List

The Master Minimum Equipment List has been approved as per the defined Operational Suitability Data Certification Basis and as documented in European Union Aviation Safety Agency Master Minimum Equipment List, Bombardier Business Jet, BD-100-1A10, Revision 3, CSP 100-154, dated Apr 16/12, or later approved revisions.

Flight Crew Data

The Flight Crew data has been approved as per the defined Operational Suitability Data Certification Basis and as documented in “Bombardier Challenger 300/350 Operational Suitability Data (OSD) – Flight Crew (Ref: BAT-BD100-OSD-FC, Initial Issue dated 15 September 2014)” or later approved revisions.

Notes

1. Current weight and balance report, loading instructions (when necessary), and the list of equipment included in the certificated empty weight must be provided for each aircraft at the time of original certification.
2. EASA Approved Airplane Flight Manual: The airplane must be operated according to the appropriate EASA Approved Airplane Flight Manual.
3. All placards must be installed in accordance with Bombardier Drawings 1001100001, 1001100002, 1001100003 and 1001100004.
4. EASA approved Airworthiness Limitations (AWL) items and Certification Maintenance Requirements (CMR) items are found in the Time Limits/Maintenance Checks (TLMC) Manual.
5. The green aircraft type design configuration does not include passenger provisions. Carriage of persons in the cabin is permitted when an approved seating arrangement and related required passenger provisions and incorporated in accordance with the Type Certification basis.
6. “Challenger 300” is a marketing designation for the BD-100-1A10 up to aircraft S/N 20500. “Challenger 350” is a marketing designation for the BD-100-1A10 starting at aircraft S/N 20501.
7. Bombardier Mod. Sum 100T010874 A “Challenger 350 Uncontrolled High Thrust (UHT) Detection and Malfunction Accommodation – ECU Software Version V24B” approved under EASA certificate 10067440 is added to the EASA type certificate design configuration definition for “Challenger 350” marketing designation aircraft.

However, under the scope of EASA Deviation E-04, the following serial number aircraft are not required to incorporate Mod. Sum 100T010874 A as long as they stay under European Union Member States or EASA associated countries (Iceland, Liechtenstein, Norway and Switzerland) registration: 20504; 20508; 20513; 20514; 20525; 20535; 20538; 20540; 20541; 20544; 20545; 20547; 20550; 20553; 20560; 20572; 20581; 20583; 20584; 20588; 20592; 20606; 20618; 20621; 20623; 20624; 20628; 20639; 20642; 20650; 20670; 20671; 20697; 20698; 20699; 20702; 20727; 20731; 20733; 20740. In case any of these S/N aircraft leaves EU / EASA associated country registration, it will need to embody Mod. Sum 100T010874 A before it enters again in any of the registrations referred in this paragraph.

SECTION 3: CHANGE RECORD

TCDS Issue No	TCDS Date	TCDS Changes	TC Date
2	08/10/08	<ul style="list-style-type: none"> Page 9 and Page 10, Issue 1, dated 26 June 2006: Remove Maintenance Requirement Manual (MRM) reference with the Time Limits/Maintenance Checks (TLMC) Manual reference 	27/09/03
3	26/10/10	<ul style="list-style-type: none"> Page 7, Issue 2, dated 8 October 2008: Increase Maximum Weight Table – Make corrections to “Max Zero Fuel” line Page 8, Issue 2, dated 8 October 2008: Section 17: All Weather Capability – Remove “Category I” and add “Refer to AFM (CSP 100-1) for All Weather Capability” Page 9, Issue 2, dated 8 October 2008: Section 20: Operating and Service Instructions – Make corrections to the Technical Manual references 	27/09/03
4	2/09/2014	<ul style="list-style-type: none"> Page 1: Bombardier address up-dated Pages 4 and 5: addition of paragraphs associated to the CRIs. Addition of post TC CRIs and CH350. Up-date of applicable environmental standards. Pages 6, 7, 8: up-dated data on engines, fuel, oil, speed following certification of the CH350 Pages 9 and 10: up-date of the dimensions for the CH350 Page 10: references to operating and service instructions for the CH350 	27/09/03
5	25/3/2015	<ul style="list-style-type: none"> Page 4: Bombardier address up-dated Pages 6: add associated title and CRI number to NPA 25C-309; correct reference to ICAO noise standards 	27/09/03
6	11/12/2015	<ul style="list-style-type: none"> Pages 5 Operational Suitability Data (OSD) added Pages 10, 11: MMEL references revised; Operational Suitability Data (OSD) added 	27/09/03
7	15/02/2019	<ul style="list-style-type: none"> Pages 4 and 11 updated for Challenger 350 EASA Deviation E-04 related content. 	27/09/03
8	20/08/2019	<ul style="list-style-type: none"> Cover Sheet updated to recent EASA template Page 7 updated Airplane Limit Speeds 	27/09/03
9	09/09/2021	<ul style="list-style-type: none"> CB at later Amdtment: CS 25.791(d) Amdt 23 & CS 25.853(g) Amdt 23 added to EASA Certification Basis section 	09/09/21