

# ***European Aviation Safety Agency***

---

**EASA**

**TYPE-CERTIFICATE  
DATA SHEET**

**IM.A.080**

**CHALLENGER 300**

**Manufacturer:  
BOMBARDIER INC.**

P. O. Box 6087  
Station Centre-ville  
Montreal, Quebec  
Canada H3C 3G9

For Model: BD100-1A10 (Challenger 300)

Issue: 3, 26 October 2010

INTENTIONALLY LEFT BLANK

## TABLE OF CONTENTS

<b>SECTION 1: GENERAL</b>	<b>4</b>
<b>SECTION 2 : BD100-1A10 (Challenger 300)</b>	<b>4</b>
<b>I. General</b>	<b>4</b>
<b>II. Certification Basis</b>	<b>4</b>
<b>III. Technical Characteristics and Operational Limitations</b>	<b>6</b>
<b>SECTION 3: CHANGE RECORD</b>	<b>11</b>

## **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  
P.O. Box 6087  
Station Centre-ville  
Montreal, Quebec  
Canada H3C 3G9

## **SECTION 2 : BD100-1A10 (Challenger 300)**

### **I. General**

1. Aeroplane: BD100-1A10, Challenger 300

### **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 1

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)
  - ii. Operation to High Altitude 45 000 ft (CRI F-04)
- b) Unconventional Use: None.
- c) General Experience:
  - i. INT/POL/25/2 HIRF Protection (Ref. CRI F-01)
  - ii. INT/POL/25/3 Lightning Strike Protection, Direct Effects (Ref. CRI F-02)
  - iii. INT/POL/25/4 Lightning Strike Protection, Indirect Effects (Ref. CRI F-03)
  - iv. INT/POL/25/6 Worn Brakes (Ref. CRI D-04)
  - v. INT/POL/25/8 Ground Gust Conditions (Ref. CRI C-10)
  - vi. INT/POL/25/9 Fuel Tank Crashworthiness (Ref. CRI C-01)
  - vii. NPA 25E-306 Sustained Engine Imbalance (Ref. CRI C-12)
  - viii. 25X745(d) Towbarless Towing (Ref. CRI D-02)
  - ix. NPA 25C-199 Interaction Between Systems and Structure (Ref C-13)

EASA Exemptions:

None

EASA Equivalent Safety Findings:

- i. JAR 25.933 Thrust Reverser (CRI E-04)
- ii. JAR 25.1435(b)(1) Hydraulic System – Tests and Analysis (Compliance with NPA 25F-273 and CRI F-11)
- iii. JAR 25.177(c) Static Lateral / Directional Stability (Ref. CRI B-09)
- iv. NPA 25B, C, D-236 Vibration, Buffet and Aeroelastic Stability (Ref. CRI C-02) (Identical to FAR 25, Amendment 77)
- v. JAR 25.963 Fuel Tank Crashworthiness (Ref. CRI C-01)
- vi. NPA 25C,D-330 Shock Absorption Test (Ref. CRI C-05)
- vii. NPA 25C-329 Design Dive Speed (Ref. CRI C-06)
- viii. P-NPA 25C-309 Gust and Continuous Turbulence Design Loads (Ref. CRI C-08)
- ix. NPA 25C-305 Engine and APU Loads Conditions (Ref CRI C-09)
- x. NPA 25D-285 Carbon Dioxide Concentration (Ref. CRI F-10) (Identical to FAR 25, Amendment 89)

EASA Elect to Comply Standards:

None.

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.

### **III. Technical Characteristics and Operational Limitations**

The Challenger 300 (BD-100), 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, the aircraft has been designed for mission duration up to 7 hours. Two Honeywell AS907 turbofan engines with 6,929 lbs. thrust, 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:

Two Honeywell AS907-1-1A turbofan engines, with reverse thrust capability, are rear fuselage mounted on pylons. JAA Executive Board recommendation letter 04/12/72/10/02-L257 dated 22/10/2002. Appropriate National Authority Type Certificate or FAA Type Certificate No. E00010LA, and associated Type Certificate Data Sheet.

Engine Limits:

Refer to the Airplane Flight Manual (CSP 100-1)

3. Fuel

Fuel Capacity:

	Load		Weight*	
	U.S. Gal.	liters	lb.	kg
Usable				
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, Bombardier  
Publication BD100 AMM, 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

	knots	Mach
$V_{MO}$ and $M_{MO}$	-	-
Sea Level to 8000 ft.	300	-
8001 ft. to 29475 ft.	320	-
Above 29475 ft.	-	0.83
$V_{FE}$ (Flaps Extended) 10°	210	-
20°	210	-
30°	175	-
$V_D$ and $M_D$	-	-
Sea Level to 25525 ft	380	-
Above 25525 ft	-	0.90
$V_A$ (maneuvering) See Airplane Flight Manual for variation of $V_A$ with altitude and aircraft weight		
$V_{MCA}$ Flap 10°	106	-
Flap 20°	102	-
$V_{MCG}$	111	-
$V_{LO(RET)}$	200	-
$V_{LO(EXT)}$	250	-
$V_{LE}$	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 AFM, CSP 100-1

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

	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

NOTE: See AFM (CSP 100-1) 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 AFM (CSP 100-1) 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

Span	19.4 m	(63.8 ft.)
Length	20.9 m	(68.7 ft.)
Height	6.2 m	(20.25 ft.)
Wing Area	48.5 m <sup>2</sup>	(522.0 ft <sup>2</sup> )

17. All Weather Capability

Refer to AFM (CSP 100-1) 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

19. Landing Gear

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

20. Fluids (Fuel/Additives):

See AFM (CSP 100-1) for Approved Fluids

21. Operating and Service Instructions:

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):	Challenger 300 MMEL

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

#### **IV 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 BD100 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.

### **SECTION 3: CHANGE RECORD**

(Starting with Issue 2.0)

TCDS Issue No	TCDS Date	TCDS Changes	TC Date
2.0	08/10/08	<ul style="list-style-type: none"><li>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</li></ul>	26/06/06
3.0	26/10/10	<ul style="list-style-type: none"><li>Page 7, Issue 2, dated 8 October 2008: Increase Maximum Weight Table – Make corrections to “Max Zero Fuel” line</li><li>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”</li><li>Page 9, Issue 2, dated 8 October 2008: Section 20: Operating and Service Instructions – Make corrections to the Technical Manual references</li></ul>	26/06/06