Civil Aviation Authority
United Kingdom

TYPE-CERTIFICATE DATA SHEET

UK.TC.A.00099

for
CHALLENGER 300
CHALLENGER 350

Type Certificate Holder
Bombardier Inc.

400 Côte-Vertu Road West,
Dorval, Québec,
Canada, H4S 1Y9

Model(s):	BD-100-1A10
Issue:	1
Date of issue:	23 April 2024

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Section 1 General

I. General

This Type-Certificate Data Sheet (TCDS) is the concise definition of the type-certificated product accepted and or approved by the CAA in the UK for the affected types and models.

This TCDS includes:

1. Details of the type design that affect the TCDS that have been approved or accepted by the CAA in the UK since 01 January 2021.
2. Details of the type design that affected the TCDS and were approved or accepted by EASA before 01 January 2021, and were incorporated into EASA TCDS EASA.IM.A.080 at Issue 8 dated 20 August 2019 and are therefore accepted by the UK under Article 15 of Annex 30 of the UK-EU Trade and Cooperation Agreement.

1. Airworthiness Category

Large Aeroplanes

2. Certifying Authority

Transport Canada Civil Aviation

Aircraft Certification branch (AARD)

330 Sparks street

Tower “C” Place de Ville

Ottawa, Ontario K1A 0N8

Canada

3. Type Certificate Holder

Bombardier Inc.

400 Côte-Vertu Road West,

Dorval, Québec,

Canada, H4S 1Y9

Section 2 BD-100-1A10

I. General

1. Type / Variant or Model

a) Type: Challenger 300, Challenger 350

b) Model: BD-100-1A10

II. Certification Basis

1. Reference Application Date for TCCA Certification

26 March 1999

2. TCCA Certification Date

30 May 2003

3. UK Validation Application Date

29 July 1999

4. UK Certification Date

27 September 2003

5. TCCA Certification Basis

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

6. UK Certification Basis

UK 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

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)
xiii.		Non-Rechargeable Lithium Batteries and Battery Systems (See Note 8)	TCCA SCA 2020-04	25.1353

Deviations:

i.	Personal Injury Criteria of dynamic testing of side facing sofas	CRI D-07 PTC	25.785(b)
ii.	Personal 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)

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)

Elect to Comply Standards:

CS 25.791(d) Amdt 23

CS 25.853(g) Amdt 23

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. Environmental Standards:

Noise: ICAO Annex 16, Volume I (see TCDSN no. UK.TC.A.00099 for details)

Prevention of intentional fuel venting: Emissions: ICAO Annex 16, Volume II, Amendment 4, Part II, Chapter 2.

8. Operational Suitability Data (OSD)

The UK Type Certification basis 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 Issue 2, dated 15 September 2021.

III. Technical Characteristic and Operating 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. UK 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 UK.TC.E.00102.

S/N 20501 and subsequent are equipped with two Honeywell AS907-2-1A turbofan engines, with reverse thrust capability. Refer to UK.TC.E.00102.

3. Engine Limits

Refer to the applicable Airplane Flight Manual

4. Fuel

Fuel Capacity:

	Load		Weight*	
Usable	U.S.Gal.	litres	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.

5. Oil

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

6. 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

7. 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 29,475 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 25,525 ft.	380	-	380	-	380	-
Above 25,525 ft.	-	0.90	-	0.90	-	0.90
V_A (manoeuvring) 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

8. Maximum Operating Altitude

13,716 m (45,000 ft)

9. Centre of Gravity

See applicable AFM

10. Datum

FS 0.0 located at 495 cm (195 in.) Fwd of the aircraft nose

11. Mean Aerodynamic Cord (MAC)

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

12. Levelling Means:

Aircraft is levelled 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.

13. 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

14. Minimum Flight Crew

2 (Pilot and co-pilot)

15. Maximum Seating Capacity

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

16. 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)

17. Baggage/Cargo Compartments

None

18. 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	512-1,024	954-1,875
Running	594-714	1,101-1,317

* Refer to applicable AFM for detail limitations

19. Propellers

Not Applicable

20. Propeller Limits:

Not Applicable

21. 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.

22. 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)

23. All Weather Capability

Refer to applicable AFM for All Weather Capability

24. 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

25. Landing Gear

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

26. Fluids (Fuel/Additives)

See applicable AFM for Approved Fluids

27. 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

28. 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. Approved Airplane Flight Manual: The airplane must be operated according to the appropriate Approved Airplane Flight Manual.

3. All placards must be installed in accordance with Bombardier Drawings 1001100001, 1001100002, 1001100003 and 1001100004.

4. 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 are 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. Deviation E-04 was incorporated in the BD-100 certification basis defined in TCDS EASA.IM.A.080 Issue 8 dated 20 August 2019, and therefore accepted by the UK under Article 15 of Annex 30 of the UK-EU trade and cooperation agreement. Whilst the deviation is applicable in the UK after 01 January 2021, it is recognised that the wording of the deviation is EU / EASA centric, and by way of clarification the applicability in the UK may be interpreted as follows:

   Bombardier Mod. Sum 100T010874 A “Challenger 350 Uncontrolled High Thrust (UHT) Detection and Malfunction Accommodation – ECU Software Version V24B” approved under EASA certificate 10067440, approved prior to 31 December 2020 and therefore accepted in the UK, is added to the type certificate design configuration definition for “Challenger 350” marketing designation aircraft.

   The following serial number aircraft are not required to incorporate Mod. Sum 100T010874 A as long as they stay under UK registration, or the enter UK registration from an EU Member State or EASA associated country (Iceland, Liechtenstein, Norway and Switzerland); 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 UK or EU Member State / EASA associated country registration, Mod. Sum 100T010874 A will require embodiment before

subsequent UK registration.

8. The Certification Basis of the BD-100-1A10 includes Special Condition Airworthiness SCA 2020-04, "Non-Rechargeable Lithium Batteries and Battery Systems”. This special condition airworthiness is applicable to design changes approved after October 08, 2020 (SCA issue date).

IV. Operational Suitability Data (OSD)

The Operational Suitability Data elements listed below were approved by the European Union Aviation Safety Agency as per Commission Regulation (EU) 748/2012 as amended by Commission Regulation (EU) No 69/2014, and are therefore accepted by the UK under Article 15 of Annex 30 of the UK-EU Trade and Cooperation Agreement.

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 5, CSP 100-154, dated 08 July 2019, or later UK CAA 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, Revision 5 dated 27 July 2018)” or later UK CAA approved revisions.

Section 3 Administration

I. Acronyms and Abbreviations

Acronym / Abbreviation	Definition
AFM	Airplane Flight Manual
AMM	Aircraft Maintenance Manual
ANDR	Additional National Design Requirements
APU	Auxiliary Power Unit
AWL	Airworthiness Limitations
AWO	All Weather Operations
BA	Bombardier Aerospace
CAA	(United Kingdom) Civil Aviation Authority
CMR	Certification Maintenance Requirement
CRI	Certification Review Item
CS	Certification Specification
EASA	European Union Aviation Safety Agency
FCD	Flight Crew Data
FCOM	Flight Crew Operating Manual
ICAO	International Civil Aviation Organization
JAA	Joint Aviation Authorities
JAR	Joint Aviation Regulations
Kg	Kilograms
Lbs	U.S. Pounds
MLW	Maximum Landing Weight
MMEL	Master Minimum Equipment List
M_{MO}	Maximum Operating Limit Speed (Mach)
MTOW	Maximum Take Off Weight
NDTM	Non-Destructive Testing Manual
NM	Nautical Mile
No	Number
OSD	Operational Suitability Data
RPM	Revolutions Per Minute
S/N	Serial Number
SRM	Structural Repair Manual
TCCA	Transport Canada Civil Aviation
TC	Type Certificate
TCDS	Type Certificate Data Sheet
TCH	Type Certificate Holder
TLMC	Time Limits/Maintenance Checks Manual
TSO	Technical Standard Orders
UHT	Uncontrolled High Thrust
UK CAA	United Kingdom Civil Aviation Authority
WBM	Weight and Balance Manual

II. Type Certificate Holder Record

TCH Record	Period
Bombardier Inc. 400 Côte-Vertu Road West Dorval Québec Canada H4S 1Y9	Present. No changes.

III. Amendment Record

TCDS Issue No.	TCDS Issue Date	Changes	TC Issue and Date
1	23 April 2024	The content of the initial issue of this UK CAA TCDS was taken from EASA TCDS No. EASA.IM.A.080 Issue 8 dated 20 August 2019 which was the current EASA version on 31 December 2020 and therefore the version of the TCDS for the Challenger 300/Challenger 350 accepted by the UK under Article 15 of Annex 30 of the UK-EU Trade and Cooperation Agreement, except as listed below: Editorial changes to reflect EU Exit: - Section 1: Updated to reflect UK CAA Type Certificate number - Section 2.I.1: Type / Model Variant added to reflect UK TCDS format. - Section 2.II.3: Updated from “EASA” to “UK” Application date. - Section 2.II.4: Updated from “EASA” to “UK” Certification Date. - Section 2.II.6: Updated from “EASA” to “UK” Certification Basis, from “EASA” to “UK” Requirements, & references to “EASA” SCs, etc removed. - Section 2.II.7: Environmental Standards assigned new section heading and statements updated. - Section 2.III.1: “EASA Type…” updated to “UK Type…” - Section 2.III.2: Engine TCDS references updated to current applicable UK Engine TCDS references - Section 2.III.28: Notes section repositioned in document. Note 7 amended for applicability to UK. - Section 2.IV: Approval statements updated to reflect acceptance of EASA approved OSD under UK-EU Trade and Cooperation Agreement. Applicable revisions of MMEL and FCD updated to those applicable on 01 January 2021, or later UK CAA approved revisions. Changes related to UK.MAJ.00330: - Cover Page: TC Holder address updated - Section 1.4 TC Holder Address updated. - Section 2.II.5: Removed issue number from TCCA TCDS	Issue 1 23 April 2024

	reference. - Section 2.II.6: TCCA Special Condition SCA 2020-04 adopted to UK Certification Basis. Elect to Comply Standards added for CS 25.791(d) and CS 25.853(g) at Amendment 23 - Section 2.II.7: OSD certification basis updated from CS-FCD Initial Issue to CS-FCD Issue 2 - Section 2.III.27: Note 8 Added.