

BOMBARDIER Fuel Burn Data

Rev.1

As of July 15th, 2009 – Data submitted to Eurocontrol for EU ETS Requirements

BUSINESS AIRCRAFT	ICAO Designator	Civil/Military	Certified MTOW (lbs)	Measurements	1	2	3	4	5	6
Light Business Jets				Nautical Miles	125	500	1000	1500	1700	
Bombardier Learjet 40XR	LJ40	Civil	21000	Fuel Burn (lbs)	640	1480	2590	3760	4240	
Super-Light Business Jets				Nautical Miles	125	500	1000	1500	1900	
Bombardier Learjet 45XR	LJ45	Civil	21500	Fuel Burn (lbs)	650	1490	2630	3820	4810	
Midsize Business Jets				Nautical Miles	125	500	1000	1500	2000	2400
Bombardier Learjet 60XR	LJ60	Civil	23500	Fuel Burn (lbs)	630	1550	2820	4160	5580	6800
Super-Midsize Business Jets				Nautical Miles	125	500	1000	2000	3000	3300
Bombardier Challenger 300	CL30	Civil	38850	Fuel Burn (lbs)	960	2210	3880	7350	11130	12320
Large Business Jets				Nautical Miles	125	500	1000	2000	3000	4000
Bombardier Challenger 605	CL60	Civil	48200	Fuel Burn (lbs)	920	2330	4260	8360	12880	17850
				Nautical Miles	125	500	1000	2000	2900	
Bombardier Challenger 850	CRJ2	Civil	53000	Fuel Burn (lbs)	1220	2910	5250	10230	15150	
Super-Large Business Jets				Nautical Miles	125	1000	2500	3500	5000	
Bombardier Global 5000	GL5T	Civil	87700	Fuel Burn (lbs)	1840	6850	16040	22640	33480	
Ultra-Long-Range Business Jets				Nautical Miles	125	1000	2500	5000	6000	
Bombardier Global Express XRS	GLEX	Civil	98000	Fuel Burn (lbs)	1850	6880	16100	33620	41570	
To calculate CO2 -- Fuel consumption x emission factor (3.15)										
For example, the metric tonnes of CO2 emitted by a Challenger 300 over a 500 nautical mile (nm) distance would be calculated as follows: $2210 \times 3.15 = 6961.5 \text{ lbs} \div 2204 = \mathbf{3.16}$ metric tonnes of CO2 per 500 nm trip										

Calculations and Recommendation

The fuel burn calculations performed by Bombardier and the data submitted to Eurocontrol may differ with fuel burn and emissions calculations performed using 3rd party applications (i.e. - Conklin & de Decker). This variance is likely the result of different user inputs, assumptions and formulas. As a result, for ETS purposes, we recommend operators use Bombardier fuel burn information for emissions calculations and for ETS MRV requirements.

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Chart Explanation

Eurocontrol requested the manufacturer to provide fuel burn amounts for at least five distance ranges for each aircraft model for which data are provided / required. Note - for the highest range, the distance was rounded down to the nearest thousand nm below the maximum payload-range for the mission defined – i.e. if 5200 nm then revert to 5000 nm.

Common Assumptions

Type Specification (Standard) configuration
Standard Type Spec mission assumptions for aircraft type, including fuel reserves, flight profiles, etc.
No wind, ISA, SL airport and no performance limits
Commercial aircraft: 70% load factor, type spec pax weight
Business aircraft: 4 pax, type spec pax weight
TOW appropriate for mission
"Book" performance standard
Highest MTOW available for max range mission
STEP CLIMB 2000 FT RVSM

Model Specific Assumptions

Learjet

Results based on 2009 Schedule A BOW
4 Pax @ 200 lbs ea
LRC
100 nm NBAA IFR Reserves
Block Fuel Includes WUTO Allowance (130 lbs for LJ40XR/45XR and 150 lbs for LJ60XR)

Challenger 300

Results based on following SPEC information: BOW 23500 lbs, Payload of 1600 lbs / Cruise @ M 0.80 / Climb & Descent @ 250 / 280 / M 0.80
Range of 3100 nm specified in the SPEC WEIGHT condition was matched at 'Normal climb & descent speed' of 250 / 280 / M 0.80
At long range climb & descent speed of 250 / M 0.75, a longer range of 3150 nm can be obtained (including approach & landing).
The long range climb & descent speed of 250 / M 0.75 was used for this task.
Approach & landing flight phase was removed (The approach & landing fuel is already included in the NBAA/IFR reserve profile).
For the SPEC weight, Long range climb & descent speed, cruise at M 0.80, 4 PAX of payload, the maximum range is 3300 nm.
For 4 PAX payload, a maximum fuel load of 14150 lbs can be obtained, however, not at an MTOW of 38850 lbs.

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Challenger 605

Results based on an OWE of 26700 lbs, 1000 lbs of payload, long range climb & descent speed of 250 / M0.72, LRC of M 0.74, a better match of 4057 nm can be obtained

Using a SPEC BOW of 26985 lbs, 1000 lbs of payload and take-off fuel from the database, a range of 4030 nm was obtained

Challenger 850

Results based on a BOW of 34790 lbs, payload of 1600 lbs / C.G. @ 25% MAC / Cruise @ M 0.74 / Climb & Descent @ 250 / M 0.70

The range of 2770 nm specified in the SPEC condition was matched

Global 5000

OWE: 50,840 LB

NBAA/IFR Reserves

1000 lb Payload (4 PAX)

Global Express XRS

OWE: 51,200 LB

NBAA/IFR Reserves

1000 lb Payload (4 PAX)