

Factual Report - Attachment 17

CL-605 Landing Speeds

OPERATIONAL FACTORS

WPR21FA286

BOMBARDIER CHALLENGER 605	PERF-06-6
	REV 38, Mar 11/16

LANDING SPEEDS AND DISTANCES

ALTITUDE – 6,000 FEET

V_{REF} = Speed at 50 ft screen height – KIAS

V_{AC} = Approach climb speed (Flap 20°) – KIAS

V_{FTO} = Final segment speed (Flap 0°) – KIAS

LFL = Landing Field Length – Feet – Zero wind

ALD = Actual Landing Distance – Feet – Zero wind and zero runway gradient

Gradient Correction: Increase by 750 ft for every 1% DOWNHILL
No correction for UPHILL gradient

Wind Correction: Increase by 140 ft for every knot TAILWIND
Decrease by 10 ft for every knot HEADWIND
(refer to PERF-07-3 for wind component conversions)

Landing Speed Correction: Increase distance by 11% for every 10 knots above V_{REF}

Shaded area indicates landing data above maximum landing weight

WT LB	V _{REF} V _{AC} V _{FTO}	LFL		ALD TEMPERATURE – °C										
				-40	-10	0	10	15	20	25	30	35	38	
28000	117	4480	DRY	2680	2680	2680	2720	2780	2790	2830	2860	2890	2910	
	129	5120	WET	3900	3900	3900	3950	4040	4090	4150	4210	4260	4300	
	145													
30000	121	4670	DRY	2810	2810	2810	2850	2890	2930	2960	3000	3040	3060	
	129	5370	WET	4110	4110	4110	4150	4250	4310	4370	4430	4480	4530	
	145													
32000	125	4890	DRY	2930	2930	2930	2950	3030	3080	3100	3140	3180	3200	
	129	5620	WET	4310	4310	4310	4420	4480	4530	4590	4660	4720	4760	
	150													
34000	129	5100	DRY	3060	3060	3060	3120	3160	3200	3240	3280	3320	3350	
	130	5860	WET	4510	4510	4510	4610	4680	4740	4810	4880	4950	4990	
	154													
36000	133	5310	DRY	3190	3190	3190	3250	3290	3340	3380	3420	3460	3490	
	134	6110	WET	4720	4720	4720	4820	4890	4960	5030	5110	5180	5220	
	159													
38000	136	5530	DRY	3320	3320	3320	3380	3430	3470	3520	3560	3610	3640	
	137	6350	WET	4930	4930	4930	5030	5100	5160	5260	5330	5410	5450	
	163													
40000	141	5790	DRY	3470	3470	3470	3540	3590	3640	3680	3730	3780	3810	
	141	6650	WET	5170	5170	5170	5280	5360	5440	5520	5600	5680	5730	
	167													
42000	144	6000	DRY	3600	3600	3600	3670	3720	3770	3820	3880	3920	3960	
	145	6900	WET	5380	5380	5380	5500	5580	5660	5750	5830	5920	5970	
	171													
44000	148	6220	DRY	3730	3730	3730	3800	3860	3910	3960	4020	4070	4100	
	148	7150	WET	5590	5590	5590	5710	5800	5890	5970	6070	6150	6210	
	175													
46000	151	6410	DRY	3850	3850	3850	3920	3980	4040	4100	4160	4210	4250	
	151	7370	WET	5760	5760	5760	5910	6000	6090	6180	6280	6360	6420	
	179													

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QR1_DXLDG_006

QUICK REFERENCE HANDBOOK PSP 605-15	APPROACH AND LANDING DATA
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WT LB	V _{REF} V _{AC} V _{FTO}	LFL		ALD TEMPERATURE - °C											
				-40	-10	0	10	15	20	25	30	35	38		
28000	117	4460	DRY	2680	2680	2680	2720	2760	2790	2830	2860	2890	2910		
	129														
	145	5120	WET	3900	3900	3900	3990	4040	4090	4150	4210	4260	4300		
30000	121	4670	DRY	2810	2810	2810	2850	2890	2930	2960	3000	3040	3060		
	129														
	145	5370	WET	4110	4110	4110	4130	4250	4310	4370	4430	4490	4530		
32000	125	4890	DRY	2930	2930	2930	2930	3030	3060	3100	3140	3180	3200		
	129														
	150	5620	WET	4310	4310	4310	4420	4460	4530	4590	4660	4720	4760		
34000	129	5100	DRY	3060	3060	3060	3120	3160	3200	3240	3280	3320	3350		
	130														
	154	5860	WET	4510	4510	4510	4610	4680	4740	4810	4880	4950	4990		
36000	133	5310	DRY	3190	3190	3190	3250	3290	3340	3380	3420	3460	3490		
	134														
	159	6110	WET	4720	4720	4720	4820	4890	4960	5030	5110	5180	5220		
38000	136	5530	DRY	3320	3320	3320	3380	3430	3470	3520	3560	3610	3640		
	137														
	163	6350	WET	4930	4930	4930	5030	5100	5180	5260	5330	5410	5450		
40000	141	5790	DRY	3470	3470	3470	3540	3590	3640	3680	3730	3780	3810		
	141														
	167	6650	WET	5170	5170	5170	5290	5360	5440	5520	5600	5680	5730		
42000	144	6000	DRY	3600	3600	3600	3670	3720	3770	3820	3880	3920	3960		
	145														
	171	6900	WET	5380	5380	5380	5520	5580	5660	5750	5830	5920	5970		
44000	148	6220	DRY	3730	3730	3730	3820	3860	3910	3960	4020	4070	4100		
	148														
	175	7150	WET	5590	5590	5590	5710	5800	5890	5970	6070	6150	6210		
46000	151	6410	DRY	3850	3850	3850	3920	3980	4040	4100	4160	4210	4250		
	151														
	179	7370	WET	5780	5780	5780	5910	6000	6090	6180	6280	6360	6420		

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DEFINITIONS

The following definitions are for terms commonly used throughout the manual. Items not commonly used will be defined in the respective sections where they apply.

Airspeeds

CAS	Calibrated airspeed – Indicated airspeed corrected for static source position error.
EAS	Equivalent airspeed – Calibrated airspeed corrected for compressibility.
IAS	Indicated airspeed – Airspeed indicator reading corrected for instrument error. Values in this manual assume zero instrument error.
M	Indicated Mach number – Machmeter reading corrected for instrument error.
M _T	True Mach number – Machmeter reading corrected for both instrument and static source position errors.
TAS	True airspeed – Equivalent airspeed corrected for density.
V ₁	Takeoff decision speed (formerly designated as Critical engine failure recognition speed) – The speed used as a reference at which, due to engine failure or other causes, the pilot may elect to stop or continue the takeoff.
V _{1MBE}	Maximum V ₁ for brake energy – The maximum speed on the ground from which a stop can be accomplished within the energy capabilities of the brakes.
V _{1MCG}	Minimum V ₁ limited by control on the ground – The takeoff decision speed following an engine failure at V _{1MCG} . V ₁ may not be less than V _{1MCG} .
V ₂	Takeoff safety speed – Target climb speed to be attained at or before a height of 35 feet above the runway during a continued takeoff, following an engine failure.
V _A	Design maneuvering speed – The maximum speed at which application of full available aileron, rudder or elevator will not overstress the airplane.
V _{AC}	Approach Climb Speed – The target climb speed to be attained after initiation of a Go-Around and selection of the approach climb configuration following an engine failure.

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DEFINITIONS (CONT'D)

Airspeeds (Cont'd)

V_{ATE}	Autothrottle automatic engagement speed – The speed at which the Autothrottle will automatically engage. Corresponds nominally to $1.2 V_S$ and displayed on the Airspeed tape by an amber line located above the low speed cue indication.
V_{EF}	Critical engine failure speed – The speed at which, if the critical engine fails, the engine failure is recognized at V_1 .
V_{FE}	Maximum flap extended speed – is the highest speed permissible with the wing flaps in a prescribed extended position.
V_{FTO}	Final takeoff climb speed – The speed attained at the end of the flight path acceleration segment during a continued takeoff following an engine failure, and is the climb speed scheduled for the final takeoff climb.
V_{LC}	Landing Climb Speed – The target climb speed to be attained after initiation of a Go-Around while in the landing configuration with all engines operating.
V_{LE}	Maximum landing gear extended speed – The maximum speed at which the airplane can be safely flown with the landing gear extended.
V_{LO}	Maximum landing gear operating speed – The maximum speed at which the landing gear can be safely extended or retracted.
V_{MO}/M_{MO}	Maximum Operating Limit Speed / Mach Number – The maximum operating limit speed (airspeed or Mach number) is the speed that may not be deliberately exceeded in any regime of flight (climb, cruise, or descent) unless a higher speed is authorized for flight test or pilot training operations.
V_{MCA}	Minimum control speed, air – Minimum flight speed at which the airplane is controllable when the critical engine suddenly becomes inoperative, with the remaining engine at maximum takeoff thrust.

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DEFINITIONS (CONT'D)

Airspeeds (Cont'd)

V_{MCG}	Minimum control speed, ground – Minimum speed on the ground at which control can be maintained and the takeoff continued using aerodynamic controls alone, when the critical engine suddenly becomes inoperative, with the remaining engine at maximum takeoff thrust.
V_{MCL}	Minimum control speed during landing approach – Minimum flight speed at which the airplane is controllable when the critical engine suddenly becomes inoperative, with the remaining engine at maximum takeoff thrust.
V_{MD}	Minimum Drag Speed – The speed that provides the maximum lift/drag ratio.
V_R	Rotation speed – Speed at which rotation is initiated during takeoff.
V_{REF}	Approach speed – The landing reference speed at a height of 50 feet above the runway threshold in the normal landing configuration.
V_S	Stalling speed.

Temperature

ISA	International Standard Atmosphere.
OAT	Outside air temperature – The free air temperature, obtained either from in-flight temperature indications or ground meteorological sources.
SAT	Static air temperature – Outside air (ambient) temperature as computed by the Air Data Computer and presented on the SAT indicator.
TAT	Total air temperature – Static air temperature plus adiabatic compression (ram) rise.

Distances

Takeoff Field Length (Dry and wet runways)	The takeoff field length is the longer of: a. The takeoff distance (see below). b. The accelerate-stop distance (see below).
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