

Boeing 767-200/200ER/300 Limitations

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767-200/200ER equipped with JT9D-7R4 engines
767-300 equipped with PW4060 engines

SELECTED LIMITATIONS (For both -200 and -300 unless otherwise noted.)

All references to airspeed or Mach Number relate to Indicated Airspeed or Indicated Mach Number, unless otherwise noted. All references to altitude relate to Pressure Altitude, unless otherwise noted.

WEIGHTS

TYPE	767-200	767-200ER	767-300
Type	322,000	322,000	401,000
Takeoff	320,000	320,000	400,000
Landing	272,000	272,000	320,000
Maximum zero fuel	250,000	250,000	288,000
Minimum inflight *	168,000	168,000	179,000
Operating weight (approx)	180,900	187,900	200,000

* Does not include usable fuel.

Overweight Landing (AFM)

During an approach and landing at weights greater than the structural design landing weight with normal landing flaps, avoid bank angles greater than 30°.

SPEEDS

Maximum Operating Limit Speeds (Vmo/Mmo)

PRESS ALT (FT)	SL	5,000	10,000	15,000	20,000	26,000	30,000	35,000	43,000
Vmo (KIAS)	360	360	360	360	360	360 .86M	331 .86M	295 .86M	245 .86M

Design Maneuvering Speeds (Va)

The maximum speed at which application of full available aileron, rudder or elevator will not overstress the airplane.

767-200					
PRESSURE ALT (FT)	SL	10,000	20,000	30,000	36,000
Va (KIAS)	260	263	270	279	288 .86M
767-300					
PRESSURE ALT (FT)	SL	10,000	20,000	29,000	
Va (KIAS)	302	315	327	336 .86M	

Maximum Flap Extended Speeds (Vfe)

767-200						
FLAP POSITION	1	5	15	20	25	30
Vfe (KIAS)	240	220	210	195	190	162
767-300						
FLAP POSITION	1	5	15	20	25	30
Vfe (KIAS)	250	230	210	210	180	170

Landing Gear Limit Speeds (Vlo/le)

Operating (Vlo):	Normal System	Alternate System
Retraction	270 KIAS	
Extension	270 KIAS / .82M	250 KIAS / .75M
Extended (Vle):		270 KIAS / .82M

Stall Speeds (For Altitudes Less Than 8000 Feet)

767-200								
FLAP POSITION	GEAR	STALL SPEED - KIAS						
		GROSS WEIGHT - 1000 POUNDS						
		200	220	240	260	280	300	320
0	UP	121	128	136	143	150	157	163
1	UP	102	108	113	118	123	127	132
5	UP	98	104	108	113	120	122	126
15	UP	93	98	103	108	113	117	122
20	UP	91	96	101	106	111	115	119
25	DOWN	93	97	102	106	110	-	-
30	DOWN	90	94	98	102	107	-	-

767-300											
FLAP POSITION	GEAR	STALL SPEED - KIAS									
		GROSS WEIGHT - 1000 POUNDS									
		220	240	260	280	300	320	340	360	380	400
0	UP	137	145	152	159	166	172	178	184	189	195
1	UP	113	119	125	131	137	142	147	152	157	162
5	UP	104	110	116	121	126	131	135	139	143	148
15	UP	102	108	113	118	123	127	132	136	140	144
20	UP	99	104	110	115	120	125	129	134	138	142
25	DOWN	97	102	107	112	116	120	124	128	132	135
30	DOWN	97	102	106	111	115	119	123	126	130	133

Minimum V1 Speed (All Takeoff Flaps)

Minimum V1 is the minimum speed on the ground at which the takeoff can be continued, utilizing aerodynamic controls alone, when the critical engine suddenly becomes inoperative with the remaining engine at takeoff thrust.

767-200									
PRESS ALT FEET	OAT ° F (° C) UP TO 50 (10)	60 (15)	70 (21)	80 (27)	90 (32)	100 (39)	110 (43)	120 (49)	130 (54)
8000	105	105	103	102	100	98	95	93	91
6000	108	108	107	106	104	102	99	97	95
4000	110	110	110	109	107	105	103	101	98
2000	113	113	113	113	110	109	106	104	101
SL	114	114	114	114	114	112	110	107	104
767-300									
PRESS ALT FEET	OAT ° F (° C) UP TO 50 (10)	60 (15)	70 (21)	80 (27)	90 (32)	100 (39)	110 (43)	120 (49)	130 (54)
9000	95	95	94	93	91	89	-	-	-
8000	97	96	96	95	93	91	-	-	-
6000	100	100	100	99	97	95	92	-	-
4000	104	103	103	103	101	99	96	93	-
2000	107	106	106	106	105	103	100	96	93
SL	110	110	110	110	110	107	104	100	97

Operating Speeds

767-200			
CONDITION		KIAS	MACH
Standard Climb Speed	10,000 Feet and Above	300	.80
Optional Climb Speeds for Minimum Trip Fuel Burnout	10,000 Feet and Above	290	.78
Best Climb Rate Speed	Gross Weight (1000 Pounds) 320.0 300.0 260.0 220.0	292 289 282 276	.78
Best Climb Angle Speed	Gross Weight (1000 Pounds) 320.0 300.0 260.0 220.0	244 234 214 203	.77
Rough Air Speed	15,000 Feet and Above	290	.78
	Below 15,000 Feet	250	-
Standard Cruise		300	.80
Standard Descent Speed	10,000 Feet and Above	280	.80
767-300			
CONDITION		KIAS	MACH
Standard Climb Speed	10,000 Feet and Above	300	.80
Optional Climb Speeds for Minimum Trip Fuel Burnout	10,000 Feet and Above	290	.78
Best Climb Rate Speed	Gross Weight (1000 Pounds) 400.0 360.0 320.0 280.0 240.0	304 298 292 285 279	.78
Best Climb Angle Speed	Gross Weight (1000 Pounds) 400.0 360.0 320.0 280.0 240.0	254 240 227 216 205	.77
Rough Air Speed	15,000 Feet and Above	290	.78
	Below 15,000 Feet	250	-
Standard Cruise		300	.80

Standard Descent Speed	10,000 Feet and Above	280	.80
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Maximum Tire Speed (AFM)

196 knots ground speed

AVIONICS

Autoland Limitations

Maximum allowable wind conditions for autoland:

- Headwind - 25 kts
- Tailwind - 10 kts
- Crosswind other than CAT II/III - 25 kts
- Crosswind CAT II/III - 10 kts
- Maximum ground speed at 200 feet AGL - 165 kts

Minimum Altitudes with Autopilot Engaged

- After Take-off; Enroute; Descent - 1200 feet AGL (AFM)
- Approaches, Multiple Autopilots - Touchdown
- Approaches, Single Autopilot - 50 feet below DH/MDA, but not less than 50 feet AGL

ENGINES

Spool	767-200	767-300
Max N1	104.7%	111.4%
Max N2	102.5%	105.5%

Ignition

Engine ignition must be operating for takeoff and landing.

Starter (AFM)

Maximum reengagement rpm - 20% N2

Reverse Thrust

Use for ground operation only. Backing the airplane with the use of reverse thrust is not permitted.

When using reverse thrust during landing, upon reaching 80 knots, begin reducing thrust so as to be at the reverse idle detent by 60 knots. Move reverse levers to forward idle after engine has decelerated to reverse idle rpm, unless conditions require longer use of reverse thrust (AFM).

FUEL

Fuel Loading

The maximum allowable fuel weight in either the left or right main tank is 43,097 pounds, and in the center tank (-200ER / -300) is 32,376 pounds. (This is a structural limit and can only be achieved with extremely high density fuel.)

Fuel Usage

Use center tank fuel for all operations with all operable boost pumps on and the crossfeed valve closed until center tank is depleted. Then use tank-to-engine fuel feed with all operable main tank boost pumps on and the crossfeed valve closed.

Operating Values (Pounds)

FUEL	767-200	767-300
Taxi Per Minute (Not In Takeoff Weight)	55	48
Minimum Dispatch	9000	9000
FAR Domestic Reserve	See Table Below	
AFM Contingency	1000	1000
Minimum Alternate	2000	2000
Holding Per Hour	8000	9000
APU Fuel Burn Per Hour	250	250

FAR Reserve Fuel (Pounds)

767-200	
ZERO FUEL WEIGHT	DOMESTIC 45 MINUTE FAR
250.0	7400
240.0	7400
230.0	7200
220.0	6900
210.0	6600
200.0	6300
190.0	6100

767-300	
ZERO FUEL WEIGHT	DOMESTIC 45 MINUTE FAR
288.0	8200
280.0	8000
270.0	7700
260.0	7500
250.0	7200
240.0	7000
230.0	6700
220.0	6400

Minimum Fuel For Landing (AFM)

No flight should plan to land with less than the indicated quantity listed for MINIMUM DESIRED LANDING FUEL.

FUEL AT TOUCHDOWN	600
EXECUTE A GO-AROUND	1100
FUEL INDICATOR ERROR	900
MINIMUM DESIRED LANDING FUEL (INDICATED)	2600

The value for FUEL AT TOUCHDOWN assures adequate fuel boost pump coverage to keep the engines running for reversing and throughout the landing roll.

The fuel value to EXECUTE A GO-AROUND is the amount required to execute a pullup at runway threshold to 1000 feet AGL, fly a VFR pattern, intercept a 3° glide slope approximately 2.5 miles from the runway, and continue to a landing.

The value for FUEL INDICATOR ERROR represents the maximum design quantity error for all tanks.

HYDRAULIC SYSTEMS

Flaps

The maximum flap extension altitude is 20,000 feet.

Speed Brakes (AFM)

Do not use speed brakes under either of the following conditions:

- Inside the final approach fix on IFR approaches
- Below 1000 feet AGL on VFR approaches

ICE AND RAIN

Anti-Ice Systems

Do not operate the engine or wing anti-ice system when total air temperature (TAT) is above 10°C.

Engine Anti-Ice System

The engine anti-ice must be on during all ground and flight operations when icing conditions exist or are anticipated, except during climb and cruise when the temperature is below -40°C SAT.

Engine anti-ice must be on prior to and during descent in icing conditions, including temperatures below -40°C SAT.

Note

Icing conditions exist when the OAT on the ground and for takeoff is 10°C or below, or when TAT in flight is 10°C or below and visible moisture in any form is present. Icing conditions also exist on the ground and for takeoff when the OAT is 10°C or below when operating on ramps, taxiways, or runways where surface snow, standing water, or slush may be ingested by the engines or freeze on engines, nacelles, or engine sensor probes.

GENERAL LIMITATIONS

Flight Load Acceleration Limits

Flaps up - +2.5g/-1.0g

Flaps down - +2.0g/0.0g

Note

With flaps 25 and 30, positive limits vary linearly from +2.0g at maximum landing weight to +1.5g at maximum takeoff weight.

Altitude Limits

Maximum takeoff and landing altitude - 8,400 feet pressure altitude

Maximum operating altitude - 43,100 feet

Miscellaneous General Limits

Runway slope - +/- 2%

Crosswind (maximum demonstrated takeoff and landing) - 29 kts
Tailwind (maximum for takeoff and landing) - 10 kts (AFM)