

LANDING

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Minimum Landing Runway Length (737-600)

FLAPS 40 - Landing Runway Limit Weight Table

Required Field Length ft	AIRPORT PRESSURE ALTITUDE (FT)							
	0		1000		2000		3000	
	DRY	WET	DRY	WET	DRY	WET	DRY	WET
3300	81.1							
4000	104.7	86.2	101.6	83.6	98.3	80.9	95.5	
4500	126.5	106.7	123.7	103.6	120.8	100.3	117.5	97.4
5000	145.7	125.9	142.0	123.0	138.2	119.9	134.9	116.6
6000	163.8	142.0	160.1	138.7	156.1	135.1	152.3	132.1
6500		158.5		154.8		151.0		146.8

To use this table: Enter from the top of the table by selecting the pressure altitude that most closely matches the landing airport. (For airports higher than 3000ft use the 3000ft columns.) Select the DRY or WET runway column to suit circumstances, then find the weight that most closely matches the planned landing weight for your destination. Find the minimum required runway length by moving left to the first column.

Example: 0ft. MSL airport with a dry runway and landing weight of 126,000lbs will result in a minimum runway requirement of 4,500ft.

Required Runway Length Wind Correction Table
(Headwinds are negative numbers / Tailwinds positive)

Runway Length ft.	WIND COMPONENT (KTS)							
	-15	-10	-5	0	10	20	30	40
3300		2657	2953	3300	3478	3707	3937	4167
4000	2920	3248	3609	4000	4167	4396	4659	4921
4500	3510	3871	4232	4500	4823	5118	5381	5643
5000	4101	4462	4856	5000	5512	5807	6070	6398
6000	4692	5085	5479	6000	6201	6496	6791	7119
6500	5282	5676	6102	6500	6890	7185	7513	7874
7300	5873	6299	6726	7300	7579			
8000	6463	6923	7382	8000				
8500	7054	7513						
9200	7644							

To use this table: Enter table at left edge using runway length. Adjust required landing length based on winds reported at surface. Headwinds will shorten required landing runway distance while tail winds will increase landing runway length.

Minimum Landing Runway Length (737-700)

FLAPS 40 - Landing Runway Limit Weight Table

Required Field Length ft	AIRPORT PRESSURE ALTITUDE (FT)							
	0		1000		2000		3000	
	DRY	WET	DRY	WET	DRY	WET	DRY	WET
3800	92.6		89.8		87.0			
4200	106.2	87.6	103.0	85.0	99.9		96.9	
4600	120.0	99.4	116.5	96.4	112.9	93.4	109.5	90.6
5000	134.0	111.3	130.1	108.0	126.2	104.7	122.4	101.5
5400	147.4	123.4	143.3	119.7	139.2	116.1	135.1	112.6
5800	158.9	135.5	154.8	131.6	150.8	127.6	146.9	123.8
6200	170.4	147.1	165.9	143.0	161.4	138.9	157.3	134.8
6600	180	157.1	176.4	153.2	172.1	149.2	167.6	145.1
7000		167.1		162.8	180	158.4	177.4	154.4
7400		176.5		172.1		167.8		163.4

To use this table: Enter from the top of the table by selecting the pressure altitude that most closely matches the landing airport. (For airports higher than 3000ft use the 3000ft columns.) Select the DRY or WET runway column to suit circumstances, then find the weight that most closely matches the planned landing weight for your destination. Find the minimum required runway length by moving left to the first column.

Example: 0ft. MSL airport with a dry runway and landing weight of 134,000lbs will result in a minimum runway requirement of 5000ft.

Required Runway Length Wind Correction Table
(Headwinds are negative numbers / Tailwinds positive)

Runway Length ft.	WIND COMPONENT (KTS)							
	-15	-10	-5	0	10	20	30	40
3000			2670	3000	3220	3440	3680	3910
3400		2720	3060	3400	3630	3870	4110	4360
3800	2750	3090	3440	3800	4040	4290	4540	4800
4200	3110	3470	3830	4200	4450	4710	4970	5240
4600	3480	3840	4210	4600	4860	5130	5410	5690
5000	3840	4210	4600	5000	5270	5550	5840	6130
5400	4200	4590	4990	5400	5680	5970	6270	6570
5800	4560	4960	5370	5800	6090	6390	6700	7020
6200	4920	5330	5760	6200	6500	6810	7130	7460
6600	5280	5710	6140	6600	6910	7230	7560	7900
7000	5640	6080	6530	7000	7320	7650	7990	8350
7400	6000	6450	6910	7400	7730	8070	8420	
7800	6360	6830	7300	7800	8140	8490		
8200	6720	7200	7690	8200	8550			

To use this table: Enter table at left edge using runway length. Adjust required landing length based on winds reported at surface. Headwinds will shorten required landing runway distance while tail winds will increase landing runway length.

Minimum Landing Runway Length (737-800)

FLAPS 40 - Landing Runway Limit Weight Table

Required Field Length ft	AIRPORT PRESSURE ALTITUDE (FT)									
	0		2000		4000		6000		8000	
	DRY	WET	DRY	WET	DRY	WET	DRY	WET	DRY	WET
3300	79.4									
4000	101.4	84.2	95.7	79.4	90.2		84.8		79.8	
4600	122.8	103.4	116.6	97.5	110.0	91.9	103.8	86.4	97.7	86.4
5000	140.4	122.1	134.0	115.7	128.0	109.1	122.1	103.0	115.5	103.0
5400	159.4	137.3	151.5	131.2	143.7	125.2	137.1	119.3	130.7	119.3
5800	179.2	153.4	170.0	145.7	161.4	138.9	153.0	132.7	145.1	132.7
6200	195.2	170.6	188.0	161.8	179.0	153.7	169.8	145.7	160.7	145.7
6600		187.4		178.1	193.6	169.1	186.3	160.3	176.6	160.3
7000		199.3		192		184.5	198	174.8	188.7	174.8
7400						195.8		188.5	194.9	188.5

To use this table: Enter from the top of the table by selecting the pressure altitude that most closely matches the landing airport. (For airports higher than 8000ft use the 8000ft columns.) Select the DRY or WET runway column to suit circumstances, then find the weight that most closely matches the planned landing weight for your destination. Find the minimum required runway length by moving left to the first column.

Example: 0ft. MSL airport with a dry runway and landing weight of 134,000lbs will result in a minimum runway requirement of 5000ft.

Required Runway Length Wind Correction Table
(Headwinds are negative numbers / Tailwinds positive)

Runway Length ft.	WIND COMPONENT (KTS)							
	-15	-10	-5	0	10	20	30	40
3280		2657	2952	3280	3706	3936	4166	4166
3936		3280	3608	3936	4395	4658	4920	4920
4592	3542	3870	4231	4592	5117	5379	5642	5642
5248	4100	4461	4854	5248	5806	6068	6363	6396
5904	4690	5084	5478	5904	6494	6790	7118	7118
6560	5281	5674	6101	6560	7183	7511	7839	7872
7216	5871	6298	6724	7216	7872	8233	8594	
7872	6462	6888	7380	7872	8561	8922		
8528	7019	7511	8003	8528				
9184	7610	8102	8626	9184				
9840	8200	8692						
10496	8790							

To use this table: Enter table at left edge using runway length. Adjust required landing length based on winds reported at surface. Headwinds will shorten required landing runway distance while tail winds will increase landing runway length.

Minimum Landing Runway Length (737-900)

FLAPS 40 - Landing Runway Limit Weight Table

Required Field Length ft	AIRPORT PRESSURE ALTITUDE (FT)									
	0		2000		4000		6000		8000	
	DRY	WET	DRY	WET	DRY	WET	DRY	WET	DRY	WET
3800	93.3		87.8							
4200	107.1	88.3	100.8		94.7		88.9			
4600	121.0	100.2	114.0	94.3	107.1	88.6	100.6		94.3	
5000	132.2	112.3	125.9	105.6	119.8	99.3	112.5	93.2	105.5	84.4
5400	143.5	123.7	136.5	117.2	130.0	110.1	123.7	103.5	116.8	97.0
5800	159.6	133.4	151.9	127.1	140.0	120.9	133.2	113.8	126.6	106.7
6200	171.1	143.2	162.9	136.3	154.9	129.7	142.7	123.5	135.6	116.6
6600	182.7	157.8	173.8	148.5	165.2	138.5	157.1	131.7	146.7	125.2
7000	191.9	167.9	184.8	159.8	175.6	151.8	166.9	140	158.5	133
7400		177.9	193	169.3	186	161	176.7	153	167.8	140.9
7800		187.5		178.8	193.3	170	186.5	161.6	177.1	153.5
8200		194.6		187.8		179	193.3	170.1	186.3	161.5
8600				194.5		187.5		178.6	190.7	169.6
9000						193.8		186.9	194.3	177.7
9400								192.9		185.7
9800										189.9
10200										193.1
10600										

Required Runway Length Wind Correction Table

(Headwinds are negative numbers / Tailwinds positive)

Runway Length ft.	WIND COMPONENT (KTS)							
	-15	-10	-5	0	10	20	30	40
3000			2640	3000	3200	3420	3630	3860
3400		2650	3020	3400	3620	3840	4070	4310
3800	2660	3020	3400	3800	4030	4260	4500	4750
4200	3010	3380	3770	4200	4440	4680	4940	5200
4600	3370	3740	4150	4600	4850	5110	5380	5650
5000	3730	4100	4530	5000	5260	5530	5810	6100
4500	4090	4470	4910	5400	5670	5950	6250	6550
5800	4440	4830	5280	5800	6080	6380	6680	7000
6200	4800	5190	5660	6200	6500	6800	7120	7440
6600	5160	5560	6040	6600	6910	7220	7550	7890
7000	5510	5920	6410	7000	7320	7650	7990	8340
7400	5870	6280	6790	7400	77330	8070	8420	8790
7800	6230	6640	7070	7800	8140	8490	8860	9240
8200	6590	7010	7550	8200	8550	8920	9300	9690
8600	6940	7370	7920	8600	8960	9340	9730	10140
9000	7300	7730	8300	9000	9370	9760	10170	10580
9400	7660	8100	8680	9400	9790	10190	10600	11030
9800	8010	8460	9050	9800	10200	10610	11040	
10200	8370	8820	9430	10200	10610	11030		
10600	8730	9180	9810	10600	11020			

RUNWAY WEIGHT LIMIT OVERVIEW (737-ALL)

The **Landing Runway Limit Tables** provided here are calculated based on a normal approach, flown at FLAPS40 at the target approach REF speed as specified by the FMC. The runway limit predictions are based upon a threshold crossing of 50ft followed by normal touchdown using spoilers, minimal braking with no reverse thrust.

Crews should keep in mind that these figures were acquired using a new aircraft with new brakes and tires, so actual performance of an in-service aircraft may vary slightly. Runway Limit Weights in excess of the known structural weight limit are included for emergency use should a forced landing in excess of the **Structural Limit Weight** be required. Inclusion of these figures does not imply permission to land the aircraft above the Structural Limit Weight, and crews are encouraged to land the aircraft in such a condition only as a matter of last recourse.

If required to land the aircraft while still above the Structural Limit Weight, crews should anticipate a hot-brake condition, and ensure that adequate ground safety precautions are taken prior to arrival.

AUTOBRAKE SYSTEM ISSUES (B737-ALL)

Unlike a simple anti-skid system, the autobrake system used aboard the Next Generation 737 aircraft is designed to modulate brake pressure to all four main gear brake systems in order to provide the aircraft with a specific rate of deceleration. This rate of deceleration will be provided and maintained regardless of the use of spoilers or reverse thrust. The rate of deceleration is provided according to the settings below:

Setting 1:	4ft [1.2 M]/Second/Second	Setting 4:	7.5ft [2.3 M]/Second/Second
Setting 2:	5ft [1.5 M]/Second/Second	MAX AUTO:	11ft [3.4 M]/Second/Second
Setting 3:	6ft [1.8 M]/Second/Second		

When used, spoilers and reverse thrust will reduce the total energy that would otherwise be absorbed by the brake systems. By reducing the amount of energy absorbed into the brake pads, spoilers and reverse thrust reduce the overall wear of the brake systems and aircraft tires. As such, crews are encouraged to use reverse thrust commensurate with safety and control of the aircraft on all landings.

LANDING SPEED TERMINOLOGY

__REF: The calculated reference speed for a specific flap configuration. (e.g. 30REF for a flaps 30 approach.) This speed is used to calculate the actual target speeds at which the aircraft will be flown. 40REF, 30REF, 25REF speeds etc can be found using the APPROACH page of the FMC.

Target Speed: The speed at which the approach should be flown. Target speed should equal 25REF+5 or 30REF+5 knots. To this figure, add "1/2 steady wind plus the full gust factor (up to a maximum of 20 knots.)"

Threshold Speed: Speed crossing the threshold. Equal to 25REF or 30REF plus the full gust factor, up to a maximum of 20kts.

Autoland Target Speeds: The speed at which the Autoland/Autothrottle approach is flown. Equal to 25REF+5 or 30REF + 5 knots, regardless of wind conditions. The Autothrottle corrects for normal wind gust conditions through the airspeed and acceleration sensing system.

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