

55,000lbs / 24,948 kgs						
Landing						
Flaps	0°	1°	8°	20°	30°	45°
Min Maneuvering	171	155	149	143	139	131
V _{REF}	161	145	139	133	129	121

Takeoff											
Add 1 kt to V ₁ & V _R for Wing & Cowl A/I ON											
Flaps	8°					20°					
Press. Alt.	0	2000	4000	6000	8000	0	2000	4000	6000	8000	
V ₁	≤ 10°C	114	115	116	116	117	119	118	118	118	117
	20°C	114	115	115	116	118	119	118	118	117	117
	30°C	114	115	116	117	120	118	118	117	117	117
	40°C	116	117	118	38° /	34° /	118	117	117	38° /	34° /
	MAX TEMP	50° / 118	46° / 120	42° / 118	120	120	50° / 117	46° / 117	42° / 117	116	117
V _R	≤ 10°C	119	119	119	119	119	119	118	118	118	117
	20°C	119	119	119	119	119	119	118	118	117	117
	30°C	119	119	119	119	120	118	118	117	117	117
	40°C	119	119	119	38° /	34° /	118	117	117	38° /	34° /
	MAX TEMP	50° / 119	46° / 120	42° / 119	121	120	50° / 117	46° / 117	42° / 117	116	117
V ₂ / V _{2GA}	135 / 128					136					
Flap Retraction	147 (Flaps 1)		155 (Flaps 0)			148 (Flaps 8)		156 (Flaps 1)		156 (Flaps 0)	

Additional speeds											
Approximate Single Engine Driftdown Altitude - FL310											
Altitude (FL)	<10,000	210	230	250	270	290	310	330	350	370	390
V _{FTO} / V _{ENR}	170	174	177	180	182	184	186	189	192	195	198
V _{MD} /Min Hold	199	199	199	200	200	201	200	201	204	207	212

56,000lbs / 25,401 kgs						
Landing						
Flaps	0°	1°	8°	20°	30°	45°
Min Maneuvering	172	156	150	142	140	132
V _{REF}	162	146	140	132	130	122

Takeoff										
Add 1 kt to V ₁ & V _R for Wing & Cowl A/I ON										
Flaps	8°					20°				
Press. Alt.	0	2000	4000	6000	8000	0	2000	4000	6000	8000
V ₁	≤ 10°C	115	116	117	117	119	119	118	118	117
	20°C	115	115	116	117	120	119	118	118	117
	30°C	115	116	117	119	122	118	118	117	117
	40°C	117	118	120	38° / 122	34° / 122	118	117	117	38° / 116 34° / 117
	MAX TEMP	50° / 120	46° / 122	42° / 120			50° / 117	46° / 117	42° / 117	
V _R	≤ 10°C	119	119	119	120	120	119	118	118	117
	20°C	119	119	119	120	121	119	118	118	117
	30°C	119	119	119	120	121	122	118	118	117
	40°C	119	120	121	38° / 122	34° / 122	118	117	117	38° / 116 34° / 117
	MAX TEMP	50° / 120	46° / 122	42° / 121			50° / 117	46° / 117	42° / 117	
V ₂ / V _{2GA}	135 / 129					136				
Flap Retraction	147 (Flaps 1)		157 (Flaps 0)			148 (Flaps 8)		156 (Flaps 1)		157 (Flaps 0)

Additional speeds											
Approximate Single Engine Driftdown Altitude - FL310											
Altitude (FL)	<10,000	210	230	250	270	290	310	330	350	370	390
V _{FTO} / V _{ENR}	172	175	178	182	184	186	188	191	194	197	200
V _{MD} /Min Hold	201	201	201	201	202	202	202	203	206	210	214

57,000lbs / 25,855 kgs						
Landing						
Flaps	0°	1°	8°	20°	30°	45°
Min Maneuvering	173	157	151	145	141	133
V _{REF}	163	147	141	135	131	123

Takeoff											
Add 1 kt to V ₁ & V _R for Wing & Cowl A/I ON											
Flaps	8°					20°					
Press. Alt.	0	2000	4000	6000	8000	0	2000	4000	6000	8000	
V ₁	≤ 10°C	115	116	117	118	120	119	118	118	117	117
	20°C	115	115	117	118	121	118	118	118	117	117
	30°C	115	116	118	121	123	118	118	117	117	116
	40°C	117	119	122	38° / 123	34° / 123	118	117	117	38° / 116	34° / 116
	MAX TEMP	50° / 121	46° / 123	42° / 122			50° / 117	46° / 117	42° / 117		
V _R	≤ 10°C	119	119	119	120	121	119	118	118	117	117
	20°C	119	119	119	120	122	118	118	118	117	117
	30°C	119	119	120	122	123	118	118	117	117	116
	40°C	119	120	122	38° / 123	34° / 123	118	117	117	38° / 116	34° / 116
	MAX TEMP	50° / 121	46° / 123	42° / 122			50° / 117	46° / 117	42° / 117		
V ₂ / V _{2GA}	134 / 130					135					
Flap Retraction	146 (Flaps 1)		158 (Flaps 0)			147 (Flaps 8)		155 (Flaps 1)		158 (Flaps 0)	

Additional speeds											
Approximate Single Engine Driftdown Altitude - FL310											
Altitude (FL)	<10,000	210	230	250	270	290	310	330	350	370	390
V _{FTO} / V _{ENR}	173	177	180	183	185	188	190	193	195	198	202
V _{MD} /Min Hold	203	203	203	203	204	204	204	205	208	212	217

58,000lbs / 26,308 kgs						
Landing						
Flaps	0°	1°	8°	20°	30°	45°
Min Maneuvering	174	158	152	146	142	134
V _{REF}	164	148	142	136	132	124

Takeoff											
Add 1 kt to V ₁ & V _R for Wing & Cowl A/I ON											
Flaps	8°					20°					
Press. Alt.	0	2000	4000	6000	8000	0	2000	4000	6000	8000	
V ₁	≤ 10°C	116	117	119	120	122	119	118	118	117	117
	20°C	116	117	118	120	123	118	118	118	117	117
	30°C	116	118	120	123	125	118	118	117	117	117
	40°C	119	121	124	38° / 125	34° / 125	118	117	117	38° / 117	34° / 117
	MAX TEMP	50° / 123	46° / 124	42° / 124			50° / 117	46° / 117	42° / 117		
V _R	≤ 10°C	120	120	121	121	123	119	118	118	117	117
	20°C	120	120	121	122	124	118	118	118	117	117
	30°C	120	120	122	123	125	118	118	117	117	117
	40°C	121	122	124	38° / 125	34° / 125	118	117	117	38° / 117	34° / 117
	MAX TEMP	50° / 123	46° / 124	42° / 124			50° / 117	46° / 117	42° / 117		
V ₂ / V _{2GA}	135 / 132					135					
Flap Retraction	147 (Flaps 1)		160 (Flaps 0)			147 (Flaps 8)		155 (Flaps 1)		160 (Flaps 0)	

Additional speeds											
Approximate Single Engine Driftdown Altitude - FL300											
Altitude (FL)	<10,000	210	230	250	270	290	310	330	350	370	390
V _{FTO} / V _{ENR}	175	178	182	185	187	189	192	194	197	200	204
V _{MD} /Min Hold	205	204	205	205	206	206	206	208	211	215	220

59,000lbs / 26,762 kgs						
Landing						
Flaps	0°	1°	8°	20°	30°	45°
Min Maneuvering	175	159	153	147	143	135
V _{REF}	165	149	143	137	133	125

Takeoff											
Add 1 kt to V ₁ & V _R for Wing & Cowl A/I ON											
Flaps	8°					20°					
Press. Alt.	0	2000	4000	6000	8000	0	2000	4000	6000	8000	
V ₁	≤ 10°C	117	118	120	121	123	118	118	118	117	117
	20°C	117	118	119	121	124	118	118	117	117	117
	30°C	117	119	121	124	126	118	118	117	117	117
	40°C	120	122	125	38° / 126	34° / 126	118	117	117	38° / 118	34° / 117
	MAX TEMP	50° / 124	46° / 125	42° / 125			50° / 117	46° / 117	42° / 117		
V _R	≤ 10°C	120	121	122	122	124	118	118	118	117	117
	20°C	120	121	122	123	125	118	118	117	117	117
	30°C	120	121	123	124	126	118	118	117	117	118
	40°C	122	123	125	38° / 126	34° / 126	118	117	117	38° / 118	34° / 118
	MAX TEMP	50° / 124	46° / 125	42° / 125			50° / 117	46° / 117	42° / 117		
V ₂ / V _{2GA}	135 / 133					134					
Flap Retraction	147 (Flaps 1)		161 (Flaps 0)			146 (Flaps 8)	154 (Flaps 1)		161 (Flaps 0)		

Additional speeds											
Approximate Single Engine Driftdown Altitude - FL300											
Altitude (FL)	<10,000	210	230	250	270	290	310	330	350	370	390
V _{FTO} / V _{ENR}	176	180	183	187	189	191	193	196	199	202	206
V _{MD} /Min Hold	206	206	207	207	208	207	207	210	213	218	223

60,000lbs / 27,216 kgs						
Landing						
Flaps	0°	1°	8°	20°	30°	45°
Min Maneuvering	176	160	154	148	144	136
V _{REF}	166	150	144	138	134	126

Takeoff											
Add 1 kt to V ₁ & V _R for Wing & Cowl A/I ON											
Flaps	8°					20°					
Press. Alt.	0	2000	4000	6000	8000	0	2000	4000	6000	8000	
V ₁	≤ 10°C	119	120	121	123	125	118	118	118	117	117
	20°C	119	120	121	123	126	118	118	117	117	118
	30°C	119	121	123	126	127	118	118	117	118	119
	40°C	122	124	126	38° / 128	34° / 127	118	117	118	38° / 119	34° / 119
	MAX TEMP	50° / 126	46° / 127	42° / 126			50° / 118	46° / 119	42° / 118		
V _R	≤ 10°C	121	122	123	124	125	118	118	118	117	118
	20°C	122	122	123	125	126	118	118	117	117	118
	30°C	122	123	125	126	127	118	118	117	118	119
	40°C	123	125	126	38° / 128	34° / 127	118	19	118	38° / 119	34° / 119
	MAX TEMP	50° / 126	46° / 127	42° / 126			50° / 118	46° / 119	42° / 118		
V ₂ / V _{2GA}	136 / 134					134					
Flap Retraction	148 (Flaps 1)		163 (Flaps 0)		145 (Flaps 8)			154 (Flaps 1)		163 (Flaps 0)	

Additional speeds											
Approximate Single Engine Driftdown Altitude - FL290											
Altitude (FL)	<10,000	210	230	250	270	290	310	330	350	370	390
V _{FTO} / V _{ENR}	178	181	185	189	191	193	195	198	201	204	208
V _{MD} /Min Hold	208	208	208	209	209	209	210	212	216	220	226

61,000lbs / 27,669 kgs						
Landing						
Flaps	0°	1°	8°	20°	30°	45°
Min Maneuvering	177	161	155	149	145	137
V _{REF}	167	151	145	139	135	127

Takeoff											
Add 1 kt to V ₁ & V _R for Wing & Cowl A/I ON											
Flaps	8°					20°					
Press. Alt.	0	2000	4000	6000	8000	0	2000	4000	6000	8000	
V ₁	≤ 10°C	120	121	122	124	126	118	118	118	117	117
	20°C	120	121	122	125	127	118	118	117	117	118
	30°C	120	122	124	127	128	118	117	117	118	120
	40°C	123	125	127	38° / 129	34° / 128	117	117	119	38° / 120	34° / 120
	MAX TEMP	50° / 127	46° / 128	42° / 127			50° / 118	46° / 120	42° / 119		
V _R	≤ 10°C	122	123	124	125	126	118	118	118	117	118
	20°C	123	123	124	126	127	118	118	117	117	119
	30°C	123	124	126	127	128	118	117	117	119	120
	40°C	124	126	127	38° / 129	34° / 128	117	118	119	38° / 120	34° / 120
	MAX TEMP	50° / 127	46° / 128	42° / 127			50° / 118	46° / 120	42° / 119		
V ₂ / V _{2GA}	137 / 135					133					
Flap Retraction	149 (Flaps 1)		164 (Flaps 0)			145 (Flaps 8)		153 (Flaps 1)		164 (Flaps 0)	

Additional speeds											
Approximate Single Engine Driftdown Altitude - FL290											
Altitude (FL)	<10,000	210	230	250	270	290	310	330	350	370	390
V _{FTO} / V _{ENR}	179	183	186	190	192	195	197	200	203	206	210
V _{MD} /Min Hold	210	210	210	211	211	211	212	214	218	223	228

62,000lbs / 28,123 kgs						
Landing						
Flaps	0°	1°	8°	20°	30°	45°
Min Maneuvering	178	162	156	150	146	138
V _{REF}	168	152	146	140	136	128

Takeoff											
Add 1 kt to V ₁ & V _R for Wing & Cowl A/I ON											
Flaps	8°					20°					
Press. Alt.	0	2000	4000	6000	8000	0	2000	4000	6000	8000	
V ₁	≤ 10°C	121	123	124	126	128	118	118	118	118	119
	20°C	121	123	124	127	129	118	118	118	118	120
	30°C	122	124	126	129	130	118	118	118	120	121
	40°C	125	127	129	38° / 130	34° / 130	118	119	120	38° / 122	34° / 121
	MAX TEMP	50° / 128	46° / 129	42° / 129			50° / 120	46° / 121	42° / 120		
V _R	≤ 10°C	124	125	126	127	128	118	118	118	118	120
	20°C	124	125	126	127	129	118	118	118	119	120
	30°C	124	126	127	129	130	118	118	119	120	121
	40°C	126	128	129	38° / 130	34° / 130	118	119	121	38° / 122	34° / 121
	MAX TEMP	50° / 128	46° / 129	42° / 129			50° / 120	46° / 121	42° / 121		
V ₂ / V _{2GA}	138 / 136					133					
Flap Retraction	150 (Flaps 1)		166 (Flaps 0)			145 (Flaps 8)		153 (Flaps 1)		166 (Flaps 0)	

Additional speeds											
Approximate Single Engine Driftdown Altitude - FL290											
Altitude (FL)	<10,000	210	230	250	270	290	310	330	350	370	390
V _{FTO} / V _{ENR}	181	184	188	190	194	196	199	202	205	208	211
V _{MD} /Min Hold	211	212	212	212	212	212	214	217	221	226	229

63,000lbs / 28,576 kgs						
Landing						
Flaps	0°	1°	8°	20°	30°	45°
Min Maneuvering	179	163	157	151	147	139
V _{REF}	169	153	147	141	137	129

Takeoff											
Add 1 kt to V ₁ & V _R for Wing & Cowl A/I ON											
Flaps	8°					20°					
Press. Alt.	0	2000	4000	6000	8000	0	2000	4000	6000	8000	
V ₁	≤ 10°C	122	124	125	127	129	118	118	118	119	120
	20°C	122	124	125	128	130	118	118	118	119	121
	30°C	123	125	127	130	131	118	118	119	121	122
	40°C	126	128	130	38° / 131	34° / 131	118	120	121	38° / 123	34° / 122
	MAX TEMP	50° / 129	46° / 130	42° / 130			50° / 121	46° / 122	42° / 121		
V _R	≤ 10°C	125	126	127	128	129	118	118	118	119	121
	20°C	125	126	127	128	130	118	118	119	120	121
	30°C	125	127	128	130	131	118	118	120	121	122
	40°C	127	129	130	38° / 131	34° / 131	119	120	122	38° / 123	34° / 122
	MAX TEMP	50° / 129	46° / 130	42° / 130			50° / 121	46° / 122	42° / 122		
V ₂ / V _{2GA}	139 / 137					132					
Flap Retraction	151 (Flaps 1)					144 (Flaps 8)					
	167 (Flaps 0)					152 (Flaps 1)					
						167 (Flaps 0)					

Additional speeds											
Approximate Single Engine Driftdown Altitude - FL310											
Altitude (FL)	<10,000	210	230	250	270	290	310	330	350	370	390
V _{FTO} / V _{ENR}	182	186	189	193	195	198	200	203	206	209	213
V _{MD} /Min Hold	213	213	213	214	214	214	216	219	223	228	230

64,000lbs / 29,030 kgs						
Landing						
Flaps	0°	1°	8°	20°	30°	45°
Min Maneuvering	180	164	158	152	148	140
V _{REF}	170	154	148	142	138	130

Takeoff											
Add 1 kt to V ₁ & V _R for Wing & Cowl A/I ON											
Flaps	8°					20°					
Press. Alt.	0	2000	4000	6000	8000	0	2000	4000	6000	8000	
V ₁	≤ 10°C	124	126	127	129	131	119	119	119	120	121
	20°C	124	126	127	129	131	119	119	119	121	122
	30°C	124	127	129	131	132	119	119	121	122	124
	40°C	128	130	132	38° / 133	34° / 132	120	121	123	38° / 124	34° / 124
	MAX TEMP	50° / 131	46° / 132	42° / 132			50° / 122	46° / 123	42° / 123		
V _R	≤ 10°C	126	127	128	129	131	119	119	120	121	122
	20°C	127	128	129	130	131	119	119	120	121	123
	30°C	127	128	130	131	132	119	120	121	123	124
	40°C	129	130	132	38° / 133	34° / 132	120	122	123	38° / 124	34° / 124
	MAX TEMP	50° / 131	46° / 132	42° / 132			50° / 122	46° / 123	42° / 123		
V ₂ / V _{2GA}	140 / 138					132					
Flap Retraction	152 (Flaps 1)		169 (Flaps 0)			144 (Flaps 8)		152 (Flaps 1)		169 (Flaps 0)	

Additional speeds											
Approximate Single Engine Driftdown Altitude - FL280											
Altitude (FL)	<10,000	210	230	250	270	290	310	330	350	370	390
V _{FTO} / V _{ENR}	184	187	191	195	197	199	202	205	208	211	215
V _{MD} /Min Hold	214	215	215	216	216	216	218	221	226	231	231

65,000lbs / 29,484 kgs						
Landing						
Flaps	0°	1°	8°	20°	30°	45°
Min Maneuvering	181	165	159	153	149	141
V _{REF}	171	155	149	143	139	131

Takeoff											
Add 1 kt to V ₁ & V _R for Wing & Cowl A/I ON											
Flaps	8°					20°					
Press. Alt.	0	2000	4000	6000	8000	0	2000	4000	6000	8000	
V ₁	≤ 10°C	125	127	128	130	132	119	119	120	121	122
	20°C	125	127	128	130	132	119	119	120	122	123
	30°C	125	128	130	132	133	119	120	122	123	125
	40°C	129	131	133	38° / 134	34° / 133	121	122	124	38° / 125	34° / 125
	MAX TEMP	50° / 132	46° / 133	42° / 133			50° / 123	46° / 124	42° / 124		
V _R	≤ 10°C	127	128	129	130	132	119	120	121	122	123
	20°C	128	129	130	131	132	119	120	121	122	124
	30°C	128	129	131	132	133	119	121	122	124	125
	40°C	130	131	133	38° / 134	34° / 133	121	123	124	38° / 125	34° / 125
	MAX TEMP	50° / 132	46° / 133	42° / 133			50° / 123	46° / 124	42° / 124		
V ₂ / V _{2GA}	141 / 139					132					
Flap Retraction	153 (Flaps 1)		170 (Flaps 0)			144 (Flaps 8)	152 (Flaps 1)	170 (Flaps 0)			

Additional speeds											
Approximate Single Engine Driftdown Altitude - FL270											
Altitude (FL)	<10,000	210	230	250	270	290	310	330	350	370	390
V _{FTO} / V _{ENR}	185	189	192	196	198	201	204	207	210	213	217
V _{MD} /Min Hold	216	217	217	218	217	218	220	224	228	234	232

66,000lbs / 29,937 kgs						
Landing						
Flaps	0°	1°	8°	20°	30°	45°
Min Maneuvering	182	166	160	154	150	142
V _{REF}	172	156	150	144	140	132

Takeoff											
Add 1 kt to V ₁ & V _R for Wing & Cowl A/I ON											
Flaps	8°					20°					
Press. Alt.	0	2000	4000	6000	8000	0	2000	4000	6000	8000	
V ₁	≤ 10°C	127	129	130	132	133	120	121	122	128	124
	20°C	127	129	130	132	134	120	121	122	123	125
	30°C	127	130	132	134	135	120	122	123	125	126
	40°C	131	133	134	38° / 135	34° / 135	120	124	125	38° / 126	34° / 126
	MAX TEMP	50° / 133	46° / 134	42° / 134			50° / 125	46° / 126	42° / 125		
V _R	≤ 10°C	129	130	131	132	133	120	121	122	123	124
	20°C	129	130	131	132	134	120	122	128	129	130
	30°C	129	131	132	134	135	121	122	124	125	126
	40°C	131	133	134	38° / 135	34° / 135	123	124	125	38° / 126	34° / 126
	MAX TEMP	50° / 133	46° / 134	42° / 134			50° / 125	46° / 126	42° / 125		
V ₂ / V _{2GA}	142 / 140					133					
Flap Retraction	154 (Flaps 1)		172 (Flaps 0)			145 (Flaps 8)	153 (Flaps 1)		172 (Flaps 0)		

Additional speeds											
Approximate Single Engine Driftdown Altitude - FL270											
Altitude (FL)	<10,000	210	230	250	270	290	310	330	350	370	390
V _{FTO} / V _{ENR}	187	190	194	198	200	203	206	209	212	215	219
V _{MD} /Min Hold	218	218	219	219	219	220	222	226	231	237	233

67,000lbs / 30,391 kgs						
Landing						
Flaps	0°	1°	8°	20°	30°	45°
Min Maneuvering	183	167	161	155	151	143
V _{REF}	173	157	151	145	141	133

Takeoff											
Add 1 kt to V ₁ & V _R for Wing & Cowl A/I ON											
Flaps	8°					20°					
Press. Alt.	0	2000	4000	6000	8000	0	2000	4000	6000	8000	
V ₁	≤ 10°C	128	130	131	133	134	121	122	123	134	125
	20°C	128	130	131	133	135	121	122	123	124	126
	30°C	128	131	133	135	136	121	123	124	126	127
	40°C	132	134	135	38° / 136	34° / 136	123	125	126	38° / 127	34° / 127
	MAX TEMP	50° / 134	46° / 135	42° / 135			50° / 126	46° / 127	42° / 126		
V _R	≤ 10°C	130	131	132	133	134	121	122	123	124	125
	20°C	130	131	132	133	135	121	123	134	135	136
	30°C	130	132	133	135	136	122	123	125	126	127
	40°C	132	134	135	38° / 136	34° / 136	124	125	126	38° / 127	34° / 127
	MAX TEMP	50° / 134	46° / 135	42° / 135			50° / 126	46° / 127	42° / 126		
V ₂ / V _{2GA}	143 / 141					134					
Flap Retraction	155 (Flaps 1)		174 (Flaps 0)			146 (Flaps 8)		154 (Flaps 1)		174 (Flaps 0)	

Additional speeds											
Approximate Single Engine Driftdown Altitude - FL270											
Altitude (FL)	<10,000	210	230	250	270	290	310	330	350	370	390
V _{FTO} / V _{ENR}	188	192	195	199	202	205	207	210	213	217	220
V _{MD} /Min Hold	219	220	220	221	221	222	225	228	233	239	234

68,000lbs / 30,844 kgs						
Landing						
Flaps	0°	1°	8°	20°	30°	45°
Min Maneuvering	184	168	162	156	152	144
V _{REF}	174	158	152	146	142	134

Takeoff											
Add 1 kt to V ₁ & V _R for Wing & Cowl A/I ON											
Flaps	8°					20°					
Press. Alt.	0	2000	4000	6000	8000	0	2000	4000	6000	8000	
V ₁	≤ 10°C	130	132	133	134	135	122	123	124	130	126
	20°C	130	132	133	135	136	122	123	124	126	127
	30°C	130	133	135	136	137	122	124	126	127	128
	40°C	134	135	136	38° / 138	34° / 137	125	126	128	38° / 139	34° / 128
	MAX TEMP	50° / 136	46° / 137	42° / 136			50° / 127	46° / 128	42° / 128		
V _R	≤ 10°C	131	132	133	134	135	123	124	125	126	127
	20°C	132	133	134	135	136	123	124	130	131	132
	30°C	132	134	135	136	137	123	125	126	127	128
	40°C	134	135	136	38° / 138	34° / 137	125	126	128	38° / 129	34° / 128
	MAX TEMP	50° / 136	46° / 137	42° / 136			50° / 127	46° / 128	42° / 128		
V ₂ / V _{2GA}	144 / 143					125					
Flap Retraction	156 (Flaps 1)		175 (Flaps 0)			147 (Flaps 8)	155 (Flaps 1)		175 (Flaps 0)		

Additional speeds											
Approximate Single Engine Driftdown Altitude - FL260											
Altitude (FL)	<10,000	210	230	250	270	290	310	330	350	370	390
V _{FTO} / V _{ENR}	190	193	197	201	203	206	209	212	215	218	222
V _{MD} /Min Hold	221	221	222	222	222	224	227	231	236	240	235

69,000lbs / 31,298 kgs						
Landing						
Flaps	0°	1°	8°	20°	30°	45°
Min Maneuvering	185	169	163	157	153	145
V _{REF}	175	159	153	147	143	135

Takeoff											
Add 1 kt to V ₁ & V _R for Wing & Cowl A/I ON											
Flaps	8°					20°					
Press. Alt.	0	2000	4000	6000	8000	0	2000	4000	6000	8000	
V ₁	≤ 10°C	131	133	134	135	136	123	124	125	126	127
	20°C	131	133	134	136	137	123	124	125	127	128
	30°C	131	134	136	137	138	123	125	127	128	129
	40°C	135	136	137	38° / 139	34° / 138	126	127	129	38° / 130	34° / 129
	MAX TEMP	50° / 137	46° / 138	42° / 137			50° / 128	46° / 129	42° / 129		
V _R	≤ 10°C	132	133	134	135	136	124	125	126	127	128
	20°C	133	134	135	136	137	124	125	126	127	128
	30°C	133	135	136	137	138	124	126	127	128	129
	40°C	135	136	137	38° / 139	34° / 138	126	127	129	38° / 130	34° / 129
	MAX TEMP	50° / 137	46° / 138	42° / 137			50° / 128	46° / 129	42° / 129		
V ₂ / V _{2GA}	145 / 144					136					
Flap Retraction	157 (Flaps 1)		176 (Flaps 0)			148 (Flaps 8)	156 (Flaps 1)	176 (Flaps 0)			

Additional speeds											
Approximate Single Engine Driftdown Altitude - FL260											
Altitude (FL)	<10,000	210	230	250	270	290	310	330	350	370	390
V _{FTO} / V _{ENR}	191	195	198	202	205	208	210	213	216	220	224
V _{MD} /Min Hold	222	223	224	224	224	226	229	233	238	241	-

70,000lbs / 31,751 kgs						
Landing						
Flaps	0°	1°	8°	20°	30°	45°
Min Maneuvering	186	170	164	158	154	146
V _{REF}	176	160	154	148	144	136

Takeoff											
Add 1 kt to V ₁ & V _R for Wing & Cowl A/I ON											
Flaps	8°					20°					
Press. Alt.	0	2000	4000	6000	8000	0	2000	4000	6000	8000	
V ₁	≤ 10°C	133	134	136	137	138	125	126	127	128	129
	20°C	133	134	136	137	139	125	126	127	128	130
	30°C	133	136	137	139	140	125	126	128	130	131
	40°C	136	138	139	38° / 140	34° / 140	127	129	130	38° / 131	34° / 131
	MAX TEMP	50° / 138	46° / 139	42° / 139			50° / 129	46° / 130	42° / 130		
V _R	≤ 10°C	134	135	136	137	138	125	126	127	128	129
	20°C	134	135	136	137	138	125	126	127	128	130
	30°C	134	136	137	139	140	126	127	128	130	131
	40°C	136	138	139	38° / 140	34° / 140	127	129	130	38° / 131	34° / 131
	MAX TEMP	50° / 138	46° / 139	42° / 139			50° / 129	46° / 130	42° / 130		
V ₂ / V _{2GA}	146 / 145					137					
Flap Retraction	158 (Flaps 1)		177 (Flaps 0)			149 (Flaps 8)	157 (Flaps 1)		177 (Flaps 0)		

Additional speeds											
Approximate Single Engine Driftdown Altitude - FL250											
Altitude (FL)	<10,000	210	230	250	270	290	310	330	350	370	390
V _{FTO} / V _{ENR}	192	196	200	204	206	209	212	215	218	222	226
V _{MD} /Min Hold	224	225	226	226	226	228	231	235	241	241	-

71,000lbs / 32,205 kgs						
Landing						
Flaps	0°	1°	8°	20°	30°	45°
Min Maneuvering	187	171	165	159	155	147
V _{REF}	177	161	155	149	145	137

Takeoff											
Add 1 kt to V ₁ & V _R for Wing & Cowl A/I ON											
Flaps	8°					20°					
Press. Alt.	0	2000	4000	6000	8000	0	2000	4000	6000	8000	
V ₁	≤ 10°C	134	135	137	138	139	126	127	128	129	130
	20°C	134	135	137	138	140	126	127	128	129	131
	30°C	134	137	138	140	141	126	127	129	131	132
	40°C	137	139	140	38° / 141	34° / 141	128	130	131	38° / 132	34° / 132
	MAX TEMP	50° / 139	46° / 140	42° / 140			50° / 130	46° / 131	42° / 131		
V _R	≤ 10°C	135	136	137	138	139	126	127	128	129	130
	20°C	135	136	137	138	140	126	127	128	129	131
	30°C	135	137	138	140	141	127	128	129	131	132
	40°C	137	139	140	38° / 141	34° / 141	128	130	131	38° / 132	34° / 132
	MAX TEMP	50° / 139	46° / 140	42° / 140			50° / 130	46° / 131	42° / 131		
V ₂ / V _{2GA}	147 / 146					137					
Flap Retraction	159 (Flaps 1)		178 (Flaps 0)		149 (Flaps 8) 157 (Flaps 1) 178 (Flaps 0)						

Additional speeds											
Approximate Single Engine Driftdown Altitude – FL250											
Altitude (FL)	<10,000	210	230	250	270	290	310	330	350	370	390
V _{FTO} / V _{ENR}	193	198	201	205	208	211	214	217	220	224	227
V _{MD} /Min Hold	226	226	227	227	227	230	233	238	243	242	-

72,000lbs / 32,659 kgs						
Landing						
Flaps	0°	1°	8°	20°	30°	45°
Min Maneuvering	188	172	166	160	156	148
V _{REF}	178	162	156	150	146	138

Takeoff											
Add 1 kt to V ₁ & V _R for Wing & Cowl A/I ON											
Flaps	8°					20°					
Press. Alt.	0	2000	4000	6000	8000	0	2000	4000	6000	8000	
V ₁	≤ 10°C	136	137	138	139	140	127	128	129	130	131
	20°C	136	137	139	140	141	127	128	129	130	132
	30°C	136	138	140	141	142	127	129	130	132	133
	40°C	139	140	141	38° / 142	34° / 142	129	131	132	38° / 133	34° / 133
	MAX TEMP	50° / 141	46° / 142	42° / 141			50° / 131	46° / 133	42° / 132		
V _R	≤ 10°C	136	137	138	139	140	127	128	129	130	131
	20°C	137	138	139	140	141	128	129	130	131	132
	30°C	137	138	140	141	142	128	129	131	132	133
	40°C	139	140	141	38° / 142	34° / 142	130	131	132	38° / 133	34° / 133
	MAX TEMP	50° / 141	46° / 142	42° / 141			50° / 131	46° / 133	42° / 132		
V ₂ / V _{2GA}	148 / 147					138					
Flap Retraction	160 (Flaps 1)		180 (Flaps 0)		150 (Flaps 8)		158 (Flaps 1)		180 (Flaps 0)		

Additional speeds											
Approximate Single Engine Driftdown Altitude – FL250											
Altitude (FL)	<10,000	210	230	250	270	290	310	330	350	370	390
V _{FTO} / V _{ENR}	195	199	203	207	209	212	215	218	222	225	229
V _{MD} /Min Hold	227	228	229	228	229	232	235	240	246	243	-

73,000lbs / 33,112 kgs						
Landing						
Flaps	0°	1°	8°	20°	30°	45°
Min Maneuvering	189	173	167	161	157	149
V _{REF}	179	163	157	151	147	139

Takeoff											
Add 1 kt to V ₁ & V _R for Wing & Cowl A/I ON											
Flaps	8°					20°					
Press. Alt.	0	2000	4000	6000	8000	0	2000	4000	6000	8000	
V ₁	≤ 10°C	137	138	139	140	141	128	129	130	131	132
	20°C	137	138	140	141	142	128	129	130	131	133
	30°C	137	139	141	142	143	128	130	131	133	134
	40°C	140	141	142	38° / 143	34° / 143	130	132	133	38° / 134	34° / 134
	MAX TEMP	50° / 142	46° / 143	42° / 142			50° / 132	46° / 134	42° / 133		
V _R	≤ 10°C	137	138	139	140	141	128	129	130	131	132
	20°C	138	139	140	141	142	129	130	131	132	133
	30°C	138	139	141	142	143	129	130	132	133	134
	40°C	140	141	142	38° / 143	34° / 143	131	132	133	38° / 134	34° / 134
	MAX TEMP	50° / 142	46° / 143	42° / 142			50° / 132	46° / 134	42° / 133		
V ₂ / V _{2GA}	149 / 148					139					
Flap Retraction	161 (Flaps 1)		181 (Flaps 0)			151 (Flaps 8)	159 (Flaps 1)		181 (Flaps 0)		

Additional speeds											
Approximate Single Engine Driftdown Altitude – FL240											
Altitude (FL)	<10,000	210	230	250	270	290	310	330	350	370	390
V _{FTO} / V _{ENR}	196	200	204	208	211	214	217	220	223	227	231
V _{MD} /Min Hold	229	230	230	230	231	234	238	243	249	244	-

74,000lbs / 33,566 kgs						
Landing						
Flaps	0°	1°	8°	20°	30°	45°
Min Maneuvering	190	174	168	162	158	150
V _{REF}	180	164	158	152	148	140

Takeoff											
Add 1 kt to V ₁ & V _R for Wing & Cowl A/I ON											
Flaps	8°					20°					
Press. Alt.	0	2000	4000	6000	8000	0	2000	4000	6000	8000	
V ₁	≤ 10°C	139	140	141	142	143	129	130	131	132	133
	20°C	139	140	141	142	143	129	130	131	133	134
	30°C	139	141	142	143	144	129	131	133	134	135
	40°C	141	142	143	38° / 144	34° / 144	132	133	134	38° / 135	34° / 135
	MAX TEMP	50° / 143	46° / 144	42° / 143			50° / 134	46° / 135	42° / 134		
V _R	≤ 10°C	139	140	141	142	143	130	131	132	132	133
	20°C	139	140	141	142	143	130	131	132	132	133
	30°C	139	141	142	143	144	130	132	133	134	135
	40°C	141	142	143	38° / 144	34° / 144	132	133	134	38° / 135	34° / 135
	MAX TEMP	50° / 143	46° / 144	42° / 143			50° / 134	46° / 135	42° / 134		
V ₂ / V _{2GA}	151 / 149					140					
Flap Retraction	163 (Flaps 1)		183 (Flaps 0)			152 (Flaps 8)	160 (Flaps 1)	183 (Flaps 0)			

Additional speeds											
Approximate Single Engine Driftdown Altitude - FL310											
Altitude (FL)	<10,000	210	230	250	270	290	310	330	350	370	390
V _{FTO} / V _{ENR}	198	202	206	210	212	215	218	221	225	229	233
V _{MD} /Min Hold	230	231	232	231	233	236	240	245	250	245	-

75,000lbs / 34,019 kgs						
Landing						
Flaps	0°	1°	8°	20°	30°	45°
Min Maneuvering	191	175	169	163	159	151
V _{REF}	181	165	159	153	149	141

Takeoff											
Add 1 kt to V ₁ & V _R for Wing & Cowl A/I ON											
Flaps	8°					20°					
Press. Alt.	0	2000	4000	6000	8000	0	2000	4000	6000	8000	
V ₁	≤ 10°C	140	141	142	143	144	130	131	132	133	134
	20°C	140	141	142	143	144	130	131	132	134	135
	30°C	140	142	143	144	145	130	132	134	135	136
	40°C	142	143	144	38° / 145	34° / 145	133	134	135	38° / 136	34° / 136
	MAX TEMP	50° / 144	46° / 145	42° / 144			50° / 135	46° / 136	42° / 135		
V _R	≤ 10°C	140	141	142	143	144	131	132	133	133	134
	20°C	140	141	142	143	144	131	132	133	134	135
	30°C	140	142	143	144	145	131	133	134	135	136
	40°C	142	143	144	38° / 145	34° / 145	133	134	135	38° / 136	34° / 136
	MAX TEMP	50° / 144	46° / 145	42° / 144			50° / 135	46° / 136	42° / 135		
V ₂ / V _{2GA}	152 / 150					141					
Flap Retraction	164 (Flaps 1)		184 (Flaps 0)			153 (Flaps 8)	161 (Flaps 1)	184 (Flaps 0)			

Additional speeds											
Approximate Single Engine Driftdown Altitude – FL240											
Altitude (FL)	<10,000	210	230	250	270	290	310	330	350	370	390
V _{FTO} / V _{ENR}	199	203	207	211	214	217	220	223	226	230	234
V _{MD} /Min Hold	231	233	233	233	235	238	242	247	251	246	-

76,000lbs / 34,473 kgs						
Landing (overweight)						
Flaps	0°	1°	8°	20°	30°	45°
Min Maneuvering	192	176	170	164	160	152
V _{REF}	182	166	160	154	150	142

Takeoff											
Add 1 kt to V ₁ & V _R for Wing & Cowl A/I ON											
Flaps	8°					20°					
Press. Alt.	0	2000	4000	6000	8000	0	2000	4000	6000	8000	
V ₁	≤ 10°C	141	142	143	144	145	132	133	134	135	136
	20°C	141	142	143	144	146	132	133	134	135	136
	30°C	141	143	144	145	146	132	133	135	136	137
	40°C	143	145	146	38° / 34° /	134	135	136	38° / 34° /	137	137
	MAX TEMP	50° / 145	46° / 146	42° / 146	147	146	50° / 136	46° / 137	42° / 136		
V _R	≤ 10°C	141	142	143	144	145	132	133	134	135	136
	20°C	142	142	143	144	146	132	133	134	135	136
	30°C	142	143	144	145	146	132	134	135	136	137
	40°C	143	145	146	38° / 34° /	134	135	136	38° / 34° /	137	137
	MAX TEMP	50° / 145	46° / 146	42° / 146	147	137	50° / 136	46° / 137	42° / 136		
V ₂ / V _{2GA}	153 / 151					142					
Flap Retraction	165 (Flaps 1)		185 (Flaps 0)			154 (Flaps 8)		162 (Flaps 1)		185 (Flaps 0)	

Additional speeds											
Approximate Single Engine Driftdown Altitude – FL230											
Altitude (FL)	<10,000	210	230	250	270	290	310	330	350	370	390
V _{FTO} / V _{ENR}	200	205	209	213	215	218	221	225	228	232	236
V _{MD} /Min Hold	233	235	234	235	237	240	244	250	252	247	-

77,000lbs / 34,927 kgs						
Landing (overweight)						
Flaps	0°	1°	8°	20°	30°	45°
Min Maneuvering	193	177	171	165	161	153
V _{REF}	183	167	161	155	151	143

Takeoff											
Add 1 kt to V ₁ & V _R for Wing & Cowl A/I ON											
Flaps	8°					20°					
Press. Alt.	0	2000	4000	6000	8000	0	2000	4000	6000	8000	
V ₁	≤ 10°C	142	143	144	145	146	133	134	135	136	137
	20°C	142	143	144	145	147	133	134	135	136	137
	30°C	142	144	145	146	147	133	134	136	137	138
	40°C	144	146	147	38° / 148	34° / 147	135	136	137	38° / 138	34° / 138
	MAX TEMP	50° / 146	46° / 147	42° / 147			50° / 137	46° / 138	42° / 137		
V _R	≤ 10°C	142	143	144	145	146	133	134	135	136	137
	20°C	143	143	144	145	147	133	134	135	136	137
	30°C	143	144	145	146	147	133	135	136	137	138
	40°C	144	146	147	38° / 148	34° / 147	135	136	137	38° / 138	34° / 138
	MAX TEMP	50° / 146	46° / 147	42° / 147			50° / 137	46° / 138	42° / 137		
V ₂ / V _{2GA}	154 / 152					143					
Flap Retraction	166 (Flaps 1)		186 (Flaps 0)			155 (Flaps 8)	163 (Flaps 1)		186 (Flaps 0)		

Additional speeds											
Approximate Single Engine Driftdown Altitude – FL230											
Altitude (FL)	<10,000	210	230	250	270	290	310	330	350	370	390
V _{FTO} / V _{ENR}	201	206	210	214	217	220	223	226	230	234	238
V _{MD} /Min Hold	234	236	236	236	239	242	247	252	253	-	-

78,000lbs / 35,380 kgs						
Landing (overweight)						
Flaps	0°	1°	8°	20°	30°	45°
Min Maneuvering	194	178	172	166	162	154
V _{REF}	184	168	162	156	152	144

Takeoff											
Add 1 kt to V ₁ & V _R for Wing & Cowl A/I ON											
Flaps	8°					20°					
Press. Alt.	0	2000	4000	6000	8000	0	2000	4000	6000	8000	
V ₁	≤ 10°C	144	144	145	146	147	134	135	136	137	138
	20°C	144	145	145	147	148	134	135	136	137	138
	30°C	144	145	146	148	149	134	136	137	138	139
	40°C	146	147	148	38° / 149	34° / 149	136	137	138	38° / 139	34° / 139
	MAX TEMP	50° / 147	46° / 148	42° / 148			50° / 138	46° / 139	42° / 138		
V _R	≤ 10°C	144	144	145	146	147	134	135	136	137	138
	20°C	144	145	145	147	148	134	135	136	137	138
	30°C	144	145	146	148	149	135	136	137	138	139
	40°C	146	147	148	38° / 149	34° / 149	136	137	138	38° / 139	34° / 139
	MAX TEMP	50° / 147	46° / 148	42° / 149			50° / 138	46° / 139	42° / 138		
V ₂ / V _{2GA}	155 / 153					144					
Flap Retraction	167 (Flaps 1)		188 (Flaps 0)			156 (Flaps 8)	164 (Flaps 1)		188 (Flaps 0)		

Additional speeds											
Approximate Single Engine Driftdown Altitude – FL230											
Altitude (FL)	<10,000	210	230	250	270	290	310	330	350	370	390
V _{FTO} / V _{ENR}	203	208	212	216	218	221	224	228	232	236	240
V _{MD} /Min Hold	236	238	237	238	241	244	249	255	254	-	-

79,000lbs / 35,834 kgs						
Landing (overweight)						
Flaps	0°	1°	8°	20°	30°	45°
Min Maneuvering	195	179	173	167	163	155
V _{REF}	185	169	163	157	153	145

Takeoff											
Add 1 kt to V ₁ & V _R for Wing & Cowl A/I ON											
Flaps	8°					20°					
Press. Alt.	0	2000	4000	6000	8000	0	2000	4000	6000	8000	
V ₁	≤ 10°C	145	145	146	147	148	135	136	137	138	139
	20°C	145	146	146	148	149	135	136	137	138	139
	30°C	145	146	147	149	150	135	137	138	139	140
	40°C	147	148	149	38° / 150	34° / 150	137	138	139	38° / 139	34° / 140
	MAX TEMP	50° / 148	46° / 149	42° / 149			50° / 139	46° / 140	42° / 139		
V _R	≤ 10°C	145	145	146	147	148	135	136	137	138	139
	20°C	145	146	146	148	149	135	136	137	138	139
	30°C	145	146	147	149	150	136	137	138	139	140
	40°C	147	148	149	38° / 150	34° / 150	137	138	139	38° / 139	34° / 140
	MAX TEMP	50° / 148	46° / 149	42° / 149			50° / 139	46° / 140	42° / 139		
V ₂ / V _{2GA}	156 / 154					144					
Flap Retraction	168 (Flaps 1)		189 (Flaps 0)			156 (Flaps 8)	164 (Flaps 1)		189 (Flaps 0)		

Additional speeds											
Approximate Single Engine Driftdown Altitude – FL220											
Altitude (FL)	<10,000	210	230	250	270	290	310	330	350	370	390
V _{FTO} / V _{ENR}	204	209	213	217	220	223	226	229	233	237	241
V _{MD} /Min Hold	237	239	239	240	243	246	251	257	255	-	-

80,000lbs / 36,287 kgs						
Landing (overweight)						
Flaps	0°	1°	8°	20°	30°	45°
Min Maneuvering	196	180	174	168	164	156
V _{REF}	186	170	164	158	154	146

Takeoff											
Add 1 kt to V ₁ & V _R for Wing & Cowl A/I ON											
Flaps	8°					20°					
Press. Alt.	0	2000	4000	6000	8000	0	2000	4000	6000	8000	
V ₁	≤ 10°C	146	147	147	148	149	136	137	138	139	140
	20°C	146	147	148	149	150	136	137	138	139	140
	30°C	146	147	149	150	151	136	138	139	140	141
	40°C	148	149	150	38° / 151	34° / 151	138	139	140	38° / 141	34° / 141
	MAX TEMP	50° / 149	46° / 150	42° / 150			50° / 140	46° / 140	42° / 140		
V _R	≤ 10°C	146	147	147	148	149	136	137	138	139	140
	20°C	146	147	148	149	150	136	137	138	139	140
	30°C	146	147	149	150	151	137	138	139	140	141
	40°C	148	149	149	38° / 151	34° / 151	138	139	140	38° / 141	34° / 141
	MAX TEMP	50° / 149	46° / 150	42° / 150			50° / 140	46° / 140	42° / 140		
V ₂ / V _{2GA}	157 / 155					145					
Flap Retraction	169 (Flaps 1)		191 (Flaps 0)			157 (Flaps 8)	165 (Flaps 1)		191 (Flaps 0)		

Additional speeds											
Approximate Single Engine Driftdown Altitude – FL220											
Altitude (FL)	<10,000	210	230	250	270	290	310	330	350	370	390
V _{FTO} / V _{ENR}	206	210	214	219	221	224	227	231	235	239	243
V _{MD} /Min Hold	239	240	240	242	245	248	253	260	256	-	-

81,000lbs / 36,741 kgs						
Landing (overweight)						
Flaps	0°	1°	8°	20°	30°	45°
Min Maneuvering	197	181	175	169	165	157
V _{REF}	187	171	165	159	155	147

Takeoff											
Add 1 kt to V ₁ & V _R for Wing & Cowl A/I ON											
Flaps	8°					20°					
Press. Alt.	0	2000	4000	6000	8000	0	2000	4000	6000	8000	
V ₁	≤ 10°C	147	148	148	149	150	137	138	139	140	141
	20°C	147	148	149	150	151	137	138	139	140	141
	30°C	147	148	150	151	152	137	139	140	141	141
	40°C	149	150	151	38° / 152	34° / 152	139	140	141	38° / 142	34° / 141
	MAX TEMP	50° / 150	46° / 151	42° / 151			50° / 141	46° / 140	42° / 141		
V _R	≤ 10°C	147	148	148	149	150	137	138	139	140	141
	20°C	147	148	149	150	151	137	138	139	140	141
	30°C	147	148	150	151	152	138	139	140	141	141
	40°C	149	150	151	38° / 152	34° / 152	139	140	141	38° / 142	34° / 141
	MAX TEMP	50° / 150	46° / 151	42° / 151			50° / 141	46° / 140	42° / 141		
V ₂ / V _{2GA}	158 / 156					146					
Flap Retraction	170 (Flaps 1)		192 (Flaps 0)			158 (Flaps 8)	166 (Flaps 1)		192 (Flaps 0)		

Additional speeds											
Approximate Single Engine Driftdown Altitude – FL220											
Altitude (FL)	<10,000	210	230	250	270	290	310	330	350	370	390
V _{FTO} / V _{ENR}	207	211	216	220	223	226	229	232	236	240	245
V _{MD} /Min Hold	240	242	242	243	247	250	256	262	257	-	-

82,000lbs / 37,195 kgs						
Landing (overweight)						
Flaps	0°	1°	8°	20°	30°	45°
Min Maneuvering	198	182	176	170	166	158
V _{REF}	188	172	166	160	156	148

Takeoff											
Add 1 kt to V ₁ & V _R for Wing & Cowl A/I ON											
Flaps	8°					20°					
Press. Alt.	0	2000	4000	6000	8000	0	2000	4000	6000	8000	
V ₁	≤ 10°C	148	149	150	150	151	138	139	140	141	142
	20°C	148	149	150	151	152	138	139	140	141	142
	30°C	148	150	151	152	151	138	140	141	142	143
	40°C	150	151	152	38° / 153	34° / 151	140	141	142	38° / 143	34° / 143
	MAX TEMP	50° / 152	46° / 152	42° / 152			50° / 142	46° / 141	42° / 142		
V _R	≤ 10°C	148	149	150	150	151	138	139	140	141	142
	20°C	148	149	150	151	152	138	139	140	141	142
	30°C	148	150	151	152	153	139	140	141	142	143
	40°C	150	151	152	38° / 153	34° / 153	140	141	142	38° / 143	34° / 143
	MAX TEMP	50° / 152	46° / 152	42° / 152			50° / 142	46° / 141	42° / 142		
V ₂ / V _{2GA}	159 / 158					147					
Flap Retraction	171 (Flaps 1)		193 (Flaps 0)			159 (Flaps 8)	167 (Flaps 1)		193 (Flaps 0)		

Additional speeds											
Approximate Single Engine Driftdown Altitude – FL210											
Altitude (FL)	<10,000	210	230	250	270	290	310	330	350	370	390
V _{FTO} / V _{ENR}	208	213	217	222	224	227	230	234	238	-	-
V _{MD} /Min Hold	241	243	243	245	248	253	258	262	257	-	-

83,000lbs / 37,648 kgs						
Landing (overweight)						
Flaps	0°	1°	8°	20°	30°	45°
Min Maneuvering	199	183	177	171	167	159
V _{REF}	189	173	167	161	157	149

Takeoff											
Add 1 kt to V ₁ & V _R for Wing & Cowl A/I ON											
Flaps	8°					20°					
Press. Alt.	0	2000	4000	6000	8000	0	2000	4000	6000	8000	
V ₁	≤ 10°C	149	150	151	151	152	139	140	141	142	143
	20°C	149	150	151	152	152	139	140	141	142	143
	30°C	149	151	152	153	149	139	141	142	143	144
	40°C	151	152	153	38° / 153	34° / 149	141	142	143	38° / 143	34° / 144
	MAX TEMP	50° / 153	46° / 153	42° / 153			50° / 143	46° / 142	42° / 143		
V _R	≤ 10°C	149	150	151	151	152	139	140	141	142	143
	20°C	149	150	151	152	153	139	140	141	142	143
	30°C	149	151	152	153	154	140	141	142	143	144
	40°C	151	152	153	38° / 154	34° / 154	141	142	143	38° / 143	34° / 144
	MAX TEMP	50° / 153	46° / 153	42° / 153			50° / 143	46° / 142	42° / 143		
V ₂ / V _{2GA}	159 / 158					147					
Flap Retraction	171 (Flaps 1)		194 (Flaps 0)			159 (Flaps 8)		167 (Flaps 1)		194 (Flaps 0)	

Additional speeds											
Approximate Single Engine Driftdown Altitude – FL210											
Altitude (FL)	<10,000	210	230	250	270	290	310	330	350	370	390
V _{FTO} / V _{ENR}	209	214	219	223	226	229	232	235	239	-	-
V _{MD} /Min Hold	243	245	245	247	250	255	260	263	258	-	-

84,000lbs / 38,102 kgs						
Landing (overweight)						
Flaps	0°	1°	8°	20°	30°	45°
Min Maneuvering	200	184	178	182	168	160
V _{REF}	190	174	168	162	158	150

Takeoff											
Add 1 kt to V ₁ & V _R for Wing & Cowl A/I ON											
Flaps	8°					20°					
Press. Alt.	0	2000	4000	6000	8000	0	2000	4000	6000	8000	
V ₁	≤ 10°C	150	151	152	152	153	140	141	142	143	144
	20°C	150	151	152	153	151	140	141	142	143	144
	30°C	150	152	153	153	148	140	142	143	144	145
	40°C	152	153	154	38° / 153	34° / 148	142	143	144	38° / 144	34° / 145
	MAX TEMP	50° / 149	46° / 149	42° / 154			50° / 144	46° / 143	42° / 144		
V _R	≤ 10°C	150	151	152	152	153	140	141	142	143	144
	20°C	150	151	152	153	154	140	141	142	143	144
	30°C	150	152	153	154	155	141	142	143	144	145
	40°C	152	153	154	38° / 155	34° / 155	142	143	144	38° / 144	34° / 145
	MAX TEMP	50° / 154	46° / 154	42° / 154			50° / 144	46° / 143	42° / 144		
V ₂ / V _{2GA}	160 / 159					148					
Flap Retraction	172 (Flaps 1)		196 (Flaps 0)			160 (Flaps 8)	168 (Flaps 1)	196 (Flaps 0)			

Additional speeds											
Approximate Single Engine Driftdown Altitude – FL210											
Altitude (FL)	<10,000	210	230	250	270	290	310	330	350	370	390
V _{FTO} / V _{ENR}	211	216	220	225	227	230	233	237	241	-	-
V _{MD} /Min Hold	244	246	246	249	252	257	263	264	258	-	-

85,000lbs / 38,555 kgs						
Landing (overweight)						
Flaps	0°	1°	8°	20°	30°	45°
Min Maneuvering	200	184	178	182	168	160
V _{REF}	190	174	168	162	158	150

Takeoff											
Add 1 kt to V ₁ & V _R for Wing & Cowl A/I ON											
Flaps	8°					20°					
Press. Alt.	0	2000	4000	6000	8000	0	2000	4000	6000	8000	
V ₁	≤ 10°C	151	152	153	153	154	141	142	143	144	145
	20°C	151	152	153	154	150	141	142	143	144	145
	30°C	151	153	154	153	147	141	143	144	145	145
	40°C	153	154	155	38° /	34° /	143	144	144	38° /	34° /
	MAX TEMP	50° / 145	46° / 145	42° / 155	153	147	50° / 145	46° / 144	42° / 144	145	145
V _R	≤ 10°C	151	152	153	153	154	141	142	143	144	145
	20°C	151	152	153	154	155	141	142	143	144	145
	30°C	151	153	154	155	156	142	143	144	145	145
	40°C	153	154	155	38° /	34° /	143	144	144	38° /	34° /
	MAX TEMP	50° / 155	46° / 155	42° / 155	155	156	50° / 145	46° / 144	42° / 144	145	145
V ₂ / V _{2GA}	161 / 159					149					
Flap Retraction	173 (Flaps 1)		197 (Flaps 0)			161 (Flaps 8)		169 (Flaps 1)		197 (Flaps 0)	

Additional speeds											
Approximate Single Engine Driftdown Altitude – FL200											
Altitude (FL)	<10,000	210	230	250	270	290	310	330	350	370	390
V _{FTO} / V _{ENR}	212	217	222	226	229	232	235	238	242	-	-
V _{MD} /Min Hold	246	247	248	251	254	259	265	265	-	-	-