McDonnell Douglas MD-80 Performance ▫
(JT8D-217A)

Compiled by Matt Zagoren

PREFACE

STANDARD TAKE-OFF THRUST

Use standard thrust take-offs where permitted. Use of standard thrust will improve engine reliability, lengthen engine life, and substantially reduce operating costs. If an engine failure occurs at or after V1, Standard Thrust on the remaining engine will satisfy the required take-off criteria. If deemed necessary, the remaining engine may be advanced to Max or Reserve Takeoff Thrust.

Standard Takeoff Thrust is not authorized under the following conditions:

- Any runway that requires the use of Maximum power.
- Standard power is greater than Max power.
- Tailwind.
- With snow, slush, ice or standing water on the runway.
- When deicing/anti-icing fluid has been applied to the airplane and the temperature is at or below 6°C.
- Engine anti-ice is on.
- Airplane is placarded with and MEL or CDL item that requires a take-off weight penalty.

To compute Standard power, the flight planning system begins by taking the Planned Takeoff Weight (PTOW) and adding a 2,000 pound cushion to arrive at an Assumed Takeoff Weight (ATOW). Using ATOW, the system enters the airport analysis tables for a particular runway and determines the maximum temperature at which the ATOW can be accommodated on that runway. That temperature is referred to as the Assumed Temperature (AT). This assumed temperature is the basis for calculating a Standard power setting.

FLIGHT PLANNING SYSTEM

The Flight Planning System utilizes numerous constants as controls. Speed is controlled via standard, maximum and minimum Mach numbers.

MAX - .79
STD - .76
MIN* - .66

* A long range cruise "floor" is utilized in all cases for minimum plan Mach.

The system logic utilizes STD Mach to develop an initial plan time/fuel and cost. Should the plan block time at STD be less than schedule block time, a new plan is generated at a new, lower Mach number. This iteration continues until the LRC "floor" is reached or the planned block time equals schedule block time.

CRUISE INFORMATION

Cruise EPR tables are provided for various Mach numbers and true airspeeds at standard temperatures. To correct true airspeed for other than standard temperature add one knot for each degree above standard or subtract on knot for degree below standard.

A 320 knot cruise table is provided for use at altitudes below the 320 knot/Mach crossover point. The lowest altitude show on each cruise Mach chart is at or slightly above the 320 knot/Mach crossover point.

The shaded areas indicate the optimum altitude for the table Mach number. This altitude provides the best specific range during cruise (most nautical miles per 1000 pounds of fuel burn) for that Mach number in zero wind conditions.

Operation above or below the zero wind optimum altitude will result in a decrease in specific range in still air. Headwinds or tailwinds may allow selection of an altitude above or below zero wind optimum. This may result in an increase in specific range when ground speed is used instead of true airspeed.

DEPARTURE PLAN

DEVELOPMENT

Airport Analysis
An airport analysis for each departure is accomplished automatically based on:

- Planned Takeoff Weight (PTOW).
- Field temperature (estimated for departure time) and pressure altitude.
- Runway(s) in use.
- Planned flap setting.

Results of the analysis are printed in the form of a Departure Plan which provides the flight crew with the planned load, takeoff power and V-speeds.

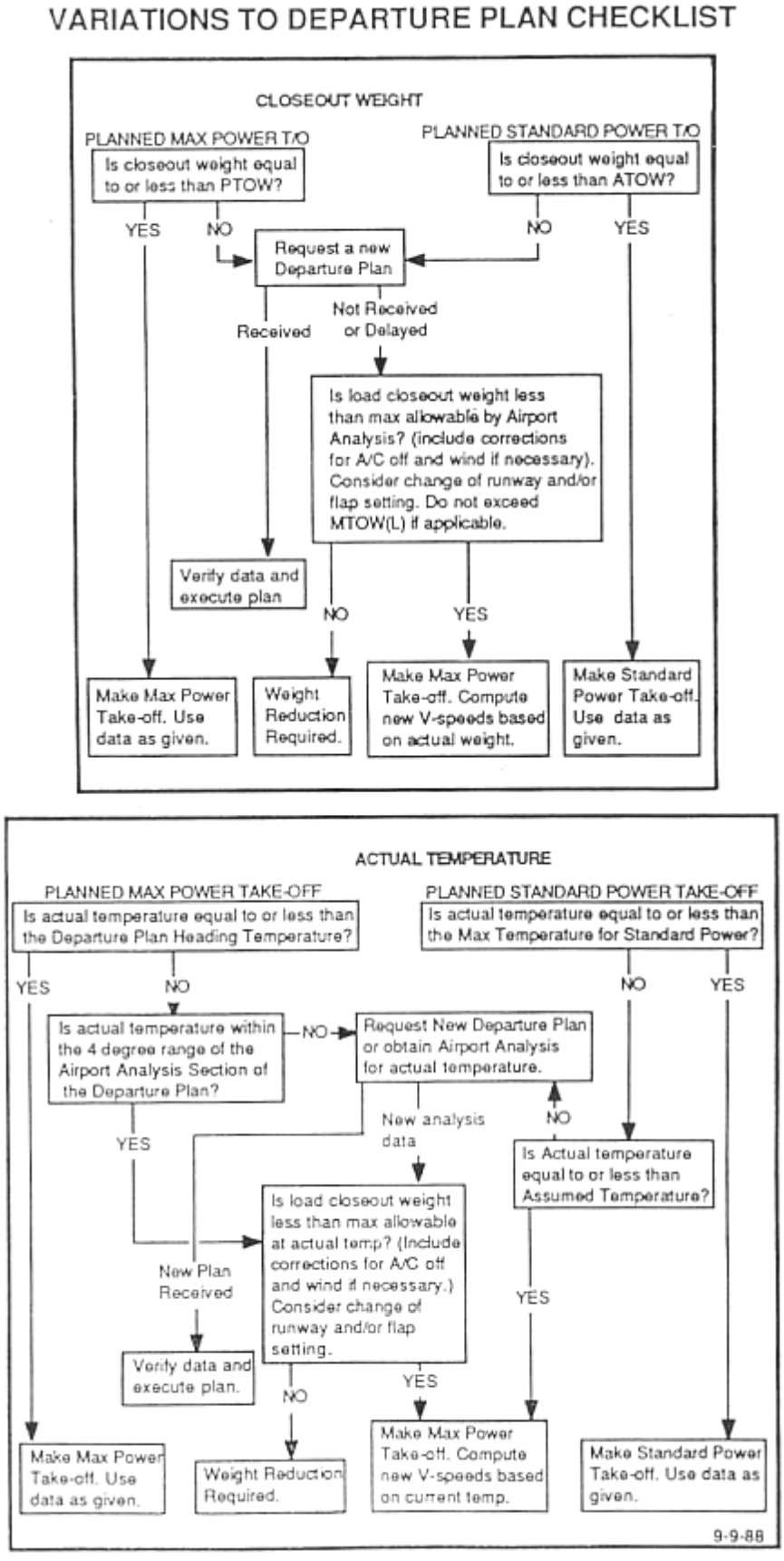
The Departure Plan does not account for takeoffs from runways contaminated by snow, slush, ice or standing water. In such cases, the Operating Manual is used to determine adjustments to V1 and the airport analysis is used to determine if an adjustment to the PTOW is required.

Airport Analysis Computations
The objective in airport analysis computations is to determine it a PTOW can be accommodated on a particular runway and within the airplanes performance and structural limits by computing the Maximum Takeoff Weight (MTOW) for that runway. The computed MTOW is based on the lesser of three limited weights: Aircraft Limit, Runway Limit or Structural Limit.

Based on the PTOW and flap setting, the system computes an MTOW for the primary runway (first runway on the Departure Plan). The system then does an analysis to determine if Standard Power can be used on that runway. If Standard Power cannot be used, the system will check to see if the use of Maximum Power would be sufficient; if not, an A/C OFF correction is applied. If it is still insufficient, a correction for headwind, if applicable, is applied.

Takeoff cannot be made from a runway for which airport analysis information is not available.

MD-80 Variations to Departure Plan Checklist



POWER SETTING CHARTS

MD-82 Reserve Takeoff EPR

Based On:
A/C Pack ON
Airfoil Anti-Ice ON or OFF
Engine Anti-Ice ON or OFF

OAT °F	PRESSURE ALTITUDE - 1000 FEET						
	-1000	SL	1000	2000	3000	4000	5000 & Above
60 Or Below	1.94	1.98	2.00	2.02	2.04	2.05	2.07
70	1.94	1.98	2.00	2.02	2.04	2.05	2.05
80	1.94	1.98	2.00	2.02	2.02	2.02	2.02
90	1.94	1.96	1.97	1.97	1.97	1.97	1.97
100	1.91	1.91	1.91	1.91	1.91	1.91	1.91
110	1.87	1.87	1.87	1.87	1.87	1.87	1.87
120	1.83	1.83	1.83	1.83	1.83	1.83	1.83
122	1.82	1.82	1.82	1.82	1.82	1.82	1.82
130	1.78	1.78	1.78	1.78	1.78	1.78	1.78
140	1.72	1.72	1.72	1.72	1.72	1.72	1.72

CORRECTION: A/C Pack OFF +.025
NOTE: The EPR Correction For A/C Pack Off should not be included when manually computing T.O. EPR unless Airport Analysis requires A/C OFF.

MD-82 Reserve Takeoff N1

Based On:
A/C Pack ON
Airfoil Anti-Ice ON or OFF
Engine Anti-Ice ON or OFF

OAT °F	PRESSURE ALTITUDE - 1000 FEET						
	-1000	SL	1000	2000	3000	4000	5000 & Above
-40	81.0	83.1	83.8	84.9	85.8	86.8	87.8
-30	81.9	84.0	84.8	85.9	86.8	87.9	88.9
-20	82.9	85.0	85.8	86.9	87.8	88.9	89.9
-10	83.8	86.0	86.8	87.9	88.8	89.9	90.9
0	84.8	86.9	87.7	88.9	89.8	90.9	91.9
10	85.7	87.9	88.7	89.8	90.8	91.9	92.9
20	86.6	88.8	89.6	90.8	91.7	92.8	93.9
30	87.5	89.7	90.5	91.7	92.7	93.8	94.9
40	88.4	90.6	91.5	92.7	93.6	94.8	95.8
50	89.3	91.5	92.4	93.6	94.6	95.7	96.8
60	90.1	92.4	93.3	94.5	95.5	96.6	97.7
70	91.0	93.3	94.2	95.4	96.4	97.6	97.7
80	91.8	94.2	95.1	96.3	96.4	96.4	96.4
90	92.7	93.7	94.5	94.5	94.5	94.5	94.5
100	92.3	92.3	92.2	92.2	92.2	92.2	92.2
110	91.5	91.5	91.5	91.5	91.5	91.5	91.5
120	90.9	90.9	90.9	90.9	90.9	90.9	90.9
122	90.8	90.8	90.8	90.8	90.8	90.8	90.8

CORRECTION: A/C Pack OFF +.9%
NOTE: The N1 Correction For A/C Pack Off should not be included when manually computing T.O. N1 unless Airport Analysis requires A/C OFF.

MD-82 Max Takeoff EPR

Based On:
A/C Pack ON
Airfoil Anti-Ice ON or OFF
Engine Anti-Ice ON or OFF

OAT °F	PRESSURE ALTITUDE - 1000 FEET						
	-1000	SL	1000	2000	3000	4000	5000 & Above
60 Or Below	1.88	1.93	1.95	1.97	1.99	2.02	2.04
70	1.88	1.93	1.95	1.97	1.99	2.02	2.02
80	1.88	1.93	1.95	1.97	1.98	1.98	1.98
90	1.88	1.90	1.92	1.92	1.92	1.92	1.92
100	1.86	1.86	1.86	1.86	1.86	1.86	1.86
110	1.81	1.81	1.81	1.81	1.81	1.81	1.81
120	1.77	1.77	1.77	1.77	1.77	1.77	1.77
122	1.76	1.76	1.76	1.76	1.76	1.76	1.76

CORRECTION: A/C Pack OFF +.025
NOTE: The EPR Correction For A/C Pack Off should not be included when manually computing T.O. EPR unless Airport Analysis requires A/C OFF.

MD-82 Max Takeoff N1

Based On:
A/C Pack ON
Airfoil Anti-Ice ON or OFF
Engine Anti-Ice ON or OFF

OAT °F	PRESSURE ALTITUDE - 1000 FEET						
	-1000	SL	1000	2000	3000	4000	5000 & Above
-40	78.8	80.6	81.6	82.6	83.6	84.7	85.9
-30	79.7	81.6	82.6	83.6	84.6	85.7	86.9
-20	80.7	82.5	83.5	84.6	85.6	86.7	87.9
-10	81.6	83.5	84.5	85.5	86.5	87.7	88.9
0	82.5	84.4	85.4	86.5	87.5	88.6	89.9
10	83.4	85.3	86.3	87.4	88.4	89.6	90.9
20	84.3	86.2	87.3	88.3	89.4	90.6	91.8
30	85.1	87.1	88.2	89.2	90.3	91.5	92.8
40	86.0	88.0	89.1	90.1	91.2	92.4	93.7
50	86.9	88.9	89.9	91.0	92.1	93.3	94.7
60	87.7	89.7	90.8	91.9	93.0	94.3	95.6
70	88.5	90.6	91.7	92.8	93.9	95.2	95.3
80	89.4	91.4	92.6	93.7	93.8	93.8	93.8
90	90.2	90.9	91.9	91.9	91.9	91.9	91.9
100	90.3	90.3	90.3	90.3	90.3	90.3	90.3
110	89.7	89.7	89.7	89.7	89.7	89.7	89.7
120	89.1	89.1	89.1	89.1	89.1	89.1	89.1
122	89.0	89.0	89.0	89.0	89.0	89.0	89.0

CORRECTION: A/C Pack OFF +.9%
NOTE: The N1 Correction For A/C Pack Off should not be included when manually computing T.O. N1 unless Airport Analysis requires A/C OFF.

MD-82 Max Climb EPR

Based On:
A/C Pack ON
Engine and Airfoil A/I OFF

PRESS ALT FEET	RAT °C							
	-20 AND BELOW	-10	0	+10	+20	+30	+40	+50
SL	1.96	1.96	1.92	1.86	1.78	1.74	1.73	1.61
1000	1.97	1.97	1.92	1.86	1.78	1.75	1.73	1.61
2000	2.00	1.99	1.92	1.86	1.78	1.77	1.73	1.61
3000	2.02	1.99	1.92	1.86	1.78	1.78	1.73	1.61
4000	2.04	1.99	1.92	1.86	1.79	1.79	1.73	1.61
5000	2.06	1.99	1.92	1.86	1.80	1.80	1.73	1.61
10000	2.06	1.99	1.92	1.86	1.84	1.82	1.73	1.61
15000	2.05	1.99	1.92	1.88	1.88	1.81	1.73	1.61
20000	2.05	1.98	1.91	1.90	1.87	1.80	-	-
25000	2.05	1.98	1.97	1.94	1.87	1.80		
30000 AND ABOVE	2.05	2.02	2.00	1.94	-	-	-	-

CORRECTIONS:
A/C Pack OFF Below 1000 Feet +.02
Anti-Ice, Engine -.08
Anti-Ice, Airfoil, 2 Engines Operating -.02
Anti-Ice, Airfoil, 1 Engine Operating -.04

MD-82 Max Cruise EPR

Based On:
A/C Pack ON
Engine and Airfoil A/I OFF

PRESS ALT FEET	RAT °C							
	-30 AND BELOW	-20	-10	0	+10	+20	+30	+40
5000	2.06	2.00	1.93	1.86	1.79	1.71	1.61	1.52
10000	2.06	2.00	1.93	1.86	1.79	1.71	1.61	1.51
20000	2.04	1.98	1.91	1.84	1.77	1.69	1.59	1.49
23000	2.04	1.97	1.90	1.83	1.77	1.68	1.58	1.49
25000	2.03	1.97	1.90	1.83	1.76	1.68	1.58	1.48
27000	2.05	1.99	1.92	1.85	1.78	1.70		
29000	2.07	2.01	1.93	1.86	1.80	1.71	-	-
31000	2.07	2.01	1.94	1.87	1.80	1.72		
33000	2.07	2.01	1.94	1.87	1.80	1.72		
35000 AND ABOVE	2.06	2.00	1.93	1.86	1.79	1.71	-	-

CORRECTIONS:
A/C Pack OFF:

PRESS ALT	
5000 10000	+.02 +.02
20000 23000 25000	+.04 +.05 +.05
27000 29000 31000	+.03 +.01 +.01
33000 35000 AND ABOVE	+.01 +.02

Airfoil A/I ON:

Below 15000	-.02
Above 15000	-.03

Engine A/I ON: All Altitudes -.08

MD-82 Go-Around EPR

Based On:
Both A/C Packs On
Eng Anti-Ice ON or OFF

AIRPORT PRESS ALT - FT	REPORTED GROUND TEMP °F						
	70 AND BELOW	80	90	100	110	120	122
-1000	1.92	1.92	1.92	1.92	1.88	1.83	1.82
SL	1.96	1.96	1.96	1.92	1.88	1.83	1.82
1000	1.98	1.98	1.98	1.92	1.88	1.83	1.82
2000	2.00	2.00	1.98	1.92	1.88	1.83	1.82
3000	2.02	2.02	1.98	1.92	1.88	1.83	1.82
4000	2.04	2.03	1.98	1.92	1.88	1.83	1.82
5000 & ABOVE	2.06	2.03	1.98	1.92	1.88	1.83	1.82

CORRECTIONS:
1 Pack Only ON +.02
Airfoil Anti-Ice ON, 2 Engines Operating -.02
Airfoil Anit-Ice ON, 1 Engine Operating -.04

TAKEOFF CHARTS

MD-82 V1 - VR - V2 - Departure Speeds, Flaps 4 and 11

	PRESS ALT 1000 FT	TEMPERATURE °F																	
	7 to 8 6 to 7										76 or less			76 or less 77 to 85			77 to 85 86 to 94		
	5 to 6 4 to 5							67 or less 85 or less			68 to 85 86 to 94			86 to 94 95 to 103			95 to 103 104 to 122		
	3 to 4 2 to 3	76 or less			76 or less 77 to 85			77 to 85 86 to 94			86 to 94 95 to 103			95 to 103 104 to 122			104 to 122		
	1 to 2 -1 to 1	85 or less 94 or less			86 to 94 95 to 103			95 to 112 104 to 112			113 to 122 113 to 122								
	TOGW 1000 LBS	**V1**	**VR**	**V2**	**V1**	**VR**	**V2**	**V1**	**VR**	**V2**	**V1**	**VR**	**V2**	**V1**	**VR**	**V2**	**V1**	**VR**	**V2**
FLAPS 4	90 100	112 121	122 129	130 138	113 122	122 130	130 138	114 123	123 131	130 138	115 125	124 132	130 138	116 126	124 132	130 138	116 127	125 132	130 138
	110 120	129 137	137 145	145 152	131 138	137 145	145 152	132 139	138 145	145 152	133 141	138 146	145 152	134 142	139 146	145 152	135 143	140 147	145 152
	130 140	145 152	151 158	158 164	146 153	151 158	158 164	147 155	152 158	158 164	149 157	153 158	158 164	150 157	153 159	158 164	151 158	153 160	158 164
	150 160	158 167	164 170	170 177	160 168	165 170	170 177	161 170	165 171	170 177	163 172	165 172	170 177	164 173	166 173	170 177	166 175	167 175	170 177
FLAPS 11	90 100	103 111	119 121	127 129	103 112	117 119	125 127	104 113	115 119	123 127	106 114	115 119	121 127	107 115	115 121	121 127	108 116	115 122	121 127
	110 120	119 125	125 131	133 139	120 126	125 132	133 139	121 128	126 132	133 139	122 129	126 132	133 139	123 130	127 133	133 139	124 130	128 134	133 139
	130 140	132 138	137 143	144 150	133 140	138 144	144 150	135 142	138 144	144 150	136 143	138 144	144 150	137 144	139 147	144 150	138 145	139 148	144 150
	150 160	145 152	149 154	155 161	146 154	149 154	155 161	148 155	149 155	155 161	149 157	149 157	155 161	150 158	150 158	155 161	152 160	152 160	155 161

Note: V1, Vr and V2 values that are in red, after applying correction factors that follow, must be compared to the minimum V1/Vmcg, Vr and V2 tables below.

V1 Slope Correction
+3 kt each 1% upslope
-1.5 kt each 1% downslope

Departure Speeds

	GROSS WEIGHT - 1000 POUNDS							
	90	100	110	120	130	140	150	160
0 / EXT FLAP RET.	V2 + 5							
0 / RET SLAT RET.	157	165	173	181	188	195	202	209
0 / RET MIN. MAN.	194	205	215	225	234	243	251	260

Target Pitch Attitudes

TOGW 1000 LBS	FLAPS	
	4	11
	PTICH ATTITUDE - °	
90	24	23
110	22	21
130	20	19
150	18	17
160	16	15

Target Pitch Attitudes are approximate sea level reference in degrees for V2 + 10 climb and will decrease slightly at higher elevations.

MD-82 V1 - VR - V2 - Departure Speeds, Flaps 17 and 24

	PRESS ALT 1000 FT	TEMPERATURE °F																	
	7 to 8 6 to 7										76 or less			76 or less 77 to 85			77 to 85 86 to 94		
	5 to 6 4 to 5							67 or less 85 or less			68 to 85 86 to 94			86 to 94 95 to 103			95 to 103 104 to 122		
	3 to 4 2 to 3	76 or less			76 or less 77 to 85			77 to 85 86 to 94			86 to 94 95 to 103			95 to 103 104 to 122			104 to 122		
	1 to 2 -1 to 1	85 or less 94 or less			86 to 94 95 to 103			95 to 112 104 to 112			113 to 122 119 to 122								
	TOGW 1000 LBS	**V1**	**VR**	**V2**	**V1**	**VR**	**V2**	**V1**	**VR**	**V2**	**V1**	**VR**	**V2**	**V1**	**VR**	**V2**	**V1**	**VR**	**V2**
FLAPS 17	90 100	99 106	115 115	126 126	99 107	116 116	124 124	100 108	114 114	122 122	102 109	112 112	120 122	103 110	110 110	118 122	104 111	108 114	116 122
	110 120	114 120	120 126	128 134	115 122	120 127	128 134	115 123	120 127	128 134	116 124	120 127	128 134	117 125	120 128	128 134	118 126	121 128	128 134
	130 140	127 134	132 138	139 145	129 135	132 138	139 145	130 137	132 138	139 145	132 139	133 139	139 145	133 140	133 140	139 145	135 142	135 142	139 145
	150	141	144	150	143	144	150	144	145	150	146	146	150	148	148	150	150	150	150
FLAPS 24	90 100	95 102	115 115	123 123	96 103	113 113	120 120	97 104	111 111	118 118	98 106	109 109	116 116	99 107	109 109	116 116	100 107	109 109	116 116
	110 120	109 116	115 121	123 128	110 116	114 121	122 128	111 116	115 121	122 128	111 117	115 121	122 128	112 119	115 122	122 128	113 120	115 122	122 128
	130 140	122 129	126 131	133 138	123 130	126 131	133 138	125 132	126 132	133 138	127 134	127 134	133 138	128 135	128 135	133 138	130 137	130 137	133 138
	150	136	137	143	137	137	143	139	139	143	141	141	143	142	142	143	146	146	146

Note: V1, Vr and V2 values that are in red, after applying correction factors that follow, must be compared to the minimum V1/Vmcg, Vr and V2 tables below.

V1 Slope Correction
+3 kt each 1% upslope
-1.5 kt each 1% downslope

Departure Speeds

	GROSS WEIGHT - 1000 POUNDS						
	90	100	110	120	130	140	150
0 / EXT FLAP RET.	V2 + 15						
0 / RET SLAT RET.	157	165	173	181	188	195	202
0 / RET MIN. MAN.	194	205	215	225	234	243	251

Target Pitch Attitudes

TOGW 1000 LBS	FLAPS 17 AND 24
	PITCH ATTITUDE - °
100	22
110	20
130	18
150	16

Target Pitch Attitudes are approximate sea level reference in degrees for V2 + 10 climb and will decrease slightly at higher elevations.

MD-82 Minimum V1/Vmcg - Vr - V2

MINIMUM V1/Vmcg

OAT °F	PRESSURE ALTITUDE				
	-1000 TO S.L.	2000	4000	6000	8000
-40 TO 65	116	113	111	107	103
70	116	113	111	106	102
80	116	113	109	104	101
90	115	111	107	103	99
100	113	108	104	11	97
110	110	106	102	98	-
120	108	103	-	-	-
122	107	103	-	-	-

MINIMUM Vr

OAT °F	PRESSURE ALTITUDE				
	-1000 TO S.L.	2000	4000	6000	8000
-40 TO 65	121	119	117	114	110
70	121	119	117	112	109
80	121	119	115	111	107
90	120	117	112	109	105
100	118	114	110	106	103
110	116	112	108	104	-
120	114	110	-	-	-
122	113	109	-	-	-

MINIMUM V2

OAT °F	PRESSURE ALTITUDE				
	-1000 TO S.L.	2000	4000	6000	8000
-40 TO 65	131	127	124	121	117
70	131	127	124	120	116
80	131	127	123	119	114
90	130	125	121	117	112
100	127	122	118	114	110
110	125	120	115	112	-
120	122	118	-	-	-
122	121	117	-	-	-

Manually calculated V1, Vr and V2 speeds that are depicted in red must be compared to their minimum value using the following steps:

1. Compare calculated V1 with Minimum V1/Vmcg.
   Use the greater value as V1.

2. Compare calculated Vr with Minimum Vr.
   Use the greater value as Vr.

3. Increase calculated V2 by the same amount as Vr was increased in step 2, then compare adjusted V2 to Minimum V2.
   Use the greater value as V2.

Note: Minimum V1/Vmcg - Vr - V2 Departure Speeds are applicable for all flap settings.

MD-82 320 Knot Cruise

BASED ON: 250 KIAS to 10,000 feet / 320 KIAS above 10,000 feet

PRESS ALT 1000 FT.	STD DAY TAS	IAS KTS	STD TEMP °C	GROSS WEIGHT - 1000 LBS.														
				146	142	138	134	130	126	122	118	114	110	106	102	98	94	
25	458	320	-34	1.71 56.2	1.70 56.9	1.69 57.6	1.68 58.3	1.67 58.9	1.66 59.5	1.65 60.2	1.64 60.8	1.63 61.4	1.62 62.0	1.62 62.5	1.61 63.0	1.60 63.5	1.60 64.0	1.59 64.5
23	445	320	-31	1.65 55.0	1.64 55.6	1.63 56.3	1.62 56.9	1.61 57.5	1.60 58.0	1.60 58.6	1.59 59.1	1.58 59.6	1.57 60.2	1.57 60.7	1.56 61.2	1.56 61.7	1.55 62.2	1.55 62.7
21	432	320	-27	1.60 53.2	1.59 53.8	1.58 54.3	1.57 54.8	1.57 55.4	1.56 56.0	1.55 56.5	1.55 57.0	1.54 57.6	1.53 58.1	1.52 58.6	1.52 59.1	1.51 59.5	1.51 60.0	1.50 60.4
19	419	320	-23	1.56 51.3	1.55 51.8	1.54 52.3	1.53 52.9	1.53 53.4	1.52 53.9	1.52 54.4	1.51 54.9	1.50 55.4	1.50 55.9	1.49 56.3	1.48 56.6	1.48 57.2	1.47 57.6	1.47 58.1
17	407	320	-19	1.52 49.6	1.51 50.1	1.50 50.6	1.49 51.0	1.49 51.4	1.48 51.8	1.48 52.2	1.47 52.6	1.47 53.1	1.46 53.6	1.46 54.0	1.45 54.4	1.44 54.8	1.44 55.2	1.43 55.7
15	395	320	-15	1.48 47.6	1.47 48.1	1.46 48.6	1.45 49.0	1.45 49.4	1.44 49.8	1.44 50.2	1.43 50.6	1.43 51.0	1.42 51.5	1.42 52.0	1.41 52.5	1.41 52.9	1.40 53.4	1.40 53.9
13	384	320	-11	1.44 45.9	1.43 46.4	1.43 46.8	1.42 47.2	1.42 47.6	1.41 48.0	1.41 48.4	1.40 48.8	1.40 49.2	1.39 49.6	1.39 50.0	1.38 50.4	1.38 50.8	1.37 51.2	1.37 51.6
11	373	320	-7	1.41 44.2	1.40 44.6	1.39 45.0	1.39 45.4	1.38 45.8	1.38 46.2	1.37 46.6	1.37 47.0	1.36 47.4	1.36 47.8	1.36 48.1	1.35 48.4	1.35 48.8	1.34 49.2	1.34 49.5
9	285	250	-3	1.33 41.9	1.32 42.6	1.31 43.3	1.30 44.0	1.29 44.6	1.28 45.2	1.28 45.8	1.27 46.4	1.27 47.0	1.26 47.6	1.26 48.2	1.25 48.8	1.25 49.4	1.24 50.0	1.24 50.6
7	276	250	1	1.30 39.9	1.29 40.5	1.28 41.1	1.27 41.7	1.27 42.3	1.26 42.9	1.26 43.5	1.25 44.1	1.25 44.7	1.24 45.3	1.24 45.9	1.23 46.5	1.23 47.1	1.22 47.7	1.22 48.2
5	268	250	5	1.27 37.6	1.26 38.2	1.26 38.8	1.25 39.4	1.25 40.0	1.24 40.6	1.24 41.2	1.23 41.8	1.23 42.4	1.22 43.0	1.22 43.6	1.21 44.2	1.21 44.8	1.20 45.4	1.20 46.0

EPR REQUIRED
SPECIFIC RANGE (NM/1000 LB)

TO OBTAIN TOTAL FUEL FLOW:
Total Fuel Flow = TAS ÷ Specific Range x 1000

Correct STD TAS for deviation from standard temperature before computing total fuel flow. To correct table STD DAY TAS for temperature deviation from standard, add 1 kt per °C above standard or subtract 1 kt per °C below standard.

MD-82 Mach .76 Cruise

PRESS AL 1000 FT	STD TAS KTS	IAS KTS	STD RAT °C	GROSS WEIGHT - 1000 POUNDS 146	142	138	134	130	126	122	118	114	110	106	102	98	94	90
37	436	245	-33	-	-	-	-	-	-	-	1.88 79.5	1.85 82.0	1.83 84.0	1.81 86.4	1.79 88.5	1.77 90.5	1.75 92.5	1.73 94.5	1.71 96.3
35	438	257	-30	-	-	-	-	1.88 72.4	1.86 74.5	1.84 76.2	1.82 78.1	1.79 79.9	1.78 81.5	1.76 83.2	1.74 84.8	1.72 86.4	1.71 87.9	1.69 89.5	1.68 91.2
33	442	269	-26	-	1.88 66.4	1.86 68.1	1.84 69.5	1.82 71.0	1.80 72.6	1.78 73.9	1.76 75.3	1.75 76.7	1.73 78.0	1.72 79.3	1.70 80.5	1.69 81.9	1.67 83.2	1.66 84.6	1.65 85.9
31	446	281	-21	1.83 63.7	1.81 65.1	1.79 66.4	1.78 67.5	1.76 68.6	1.75 69.7	1.74 70.8	1.72 71.9	1.71 72.9	1.70 74.1	1.68 75.2	1.67 76.3	1.66 77.4	1.65 78.5	1.64 79.6	1.63 80.6
29	450	294	-17	1.78 61.8	1.76 62.8	1.75 63.7	1.74 64.7	1.72 65.6	1.71 66.5	1.70 67.3	1.69 68.3	1.68 69.2	1.67 70.2	1.66 71.1	1.65 72.0	1.64 72.9	1.63 73.7	1.62 74.5	1.61 75.4
27	454	306	-13	1.73 59.3	1.72 60.1	1.71 60.8	1.70 61.5	1.69 62.3	1.68 63.1	1.67 63.9	1.66 64.7	1.65 65.4	1.64 66.2	1.63 66.9	1.62 67.6	1.62 68.3	1.61 69.0	1.60 69.6	1.60 70.3

EPR REQUIRED
SPECIFIC RANGE (NM/1000 LB)

TO OBTAIN TOTAL FUEL FLOW:
Total Fuel Flow = TAS ÷ Specific Range x 1000

Correct STD TAS for deviation from standard temperature before computing total fuel flow. To correct table STD DAY TAS for temperature deviation from standard, add 1 kt per °C above standard or subtract 1 kt per °C below standard.

MD-82 Mach .78 Cruise

PRESS AL 1000 FT	STD TAS KTS	IAS KTS	STD RAT °C	GROSS WEIGHT - 1000 POUNDS 146	142	138	134	130	126	122	118	114	110	106	102	98	94	90
37	447	253	-31	-	-	-	-	-	-	-	1.94 74.9	1.91 77.5	1.89 79.9	1.86 82.1	1.83 84.3	1.81 86.5	1.79 88.4	1.77 90.4	1.75 92.3
35	450	264	-29	-	-	-	-	1.94 68.2	1.91 70.3	1.89 72.4	1.87 74.2	1.84 76.0	1.82 77.9	1.80 79.5	1.78 81.1	1.76 82.7	1.75 84.3	1.73 85.9	1.72 87.5
33	454	277	-24	-	1.93 69.6	1.91 64.3	1.89 66.0	1.87 67.5	1.85 69.0	1.83 70.6	1.81 72.0	1.79 73.3	1.77 74.6	1.76 76.0	1.74 77.3	1.73 78.6	1.71 79.9	1.70 81.2	1.68 82.5
31	458	289	-20	1.88 60.6	1.86 61.8	1.85 63.1	1.83 64.4	1.81 65.6	1.79 66.7	1.78 67.8	1.76 68.9	1.75 70.0	1.74 71.1	1.72 72.1	1.71 73.2	1.70 74.3	1.68 75.4	1.67 76.4	1.66 77.4
29	462	302	-16	1.82 59.1	1.81 60.0	1.79 60.9	1.78 61.8	1.76 62.8	1.75 63.7	1.74 64.6	1.73 65.5	1.71 66.4	1.70 67.3	1.69 68.3	1.68 69.1	1.67 69.9	1.66 70.8	1.65 71.6	1.64 72.3
27	466	315	-11	1.78 56.7	1.76 57.5	1.75 58.3	1.74 59.0	1.73 59.8	1.72 60.5	1.71 61.3	1.70 62.1	1.69 62.8	1.68 63.5	1.67 64.2	1.66 64.9	1.65 65.6	1.64 66.2	1.64 66.8	1.63 67.4

EPR REQUIRED
SPECIFIC RANGE (NM/1000 LB)

TO OBTAIN TOTAL FUEL FLOW:
Total Fuel Flow = TAS ÷ Specific Range x 1000

Correct STD TAS for deviation from standard temperature before computing total fuel flow. To correct table STD DAY TAS for temperature deviation from standard, add 1 kt per °C above standard or subtract 1 kt per °C below standard.

MD-82 Cruise Mach / 280 KIAS Descent

Based On:
800 fpm rate of descent at Cruise Mach (0.76) down to Mach Crossover (31,000 feet - 280 KIAS).
280 knot descent thereafter with idle power down to 10,000 feet.
250 knots or less (idle power) below 10,000 feet down to initial approach configuration.
Clean configuration above 2000 feet.
Add 80 pounds fuel burn for each minute of terminal area maneuvering.

PRESSURE ALTITUDE	TO SEA LEVEL		
	DISTANCE NM	TIME MINS.	FUEL POUNDS
37000	150	27.0	1500
35000	132	24.5	1320
33000	115	22.0	1050
31000	96	19.8	900
29000	89	18.2	860
27000	82	17.0	820
25000	75	16.0	790
23000	69	15.1	760
21000	63	14.3	730
19000	58	13.5	700
17000	53	12.6	680
15000	48	11.7	660
13000	43	10.9	640
11000	38	10.1	620
10000	33	9.5	600

MD-82 Holding Speeds and Fuel Flow

Holding speeds vary with gross weight and altitude as given in the following chart. These speeds provide the minimum practical fuel flow and corresponding performance (40% stall margin in 30° bank, 50% in level flight) required to guard against speed instability and buffet. Note: When descending to an assigned holding fix, use holding speeds for descent to holding fix, if practicable. Fuel flow includes increments required to hold speed flying a race track pattern.

PRESS ALT 1000 FT	STD TEMP °C	GROSS WEIGHT - 1000 POUNDS										
		140	135	130	125	120	115	110	105	100	95	90
		HOLDING SPEED - KIAS										
		242	236	233	229	224	220	215	210	205	200	194
37*	-57	-	-	-	-	-	5.3	5.0	4.8	4.6	4.3	4.1
35*	-54	-	-	-	5.8	5.5	5.2	5.0	4.7	4.5	4.3	4.0
33*	-50	6.6	6.3	6.0	5.7	5.5	5.2	5.0	4.7	4.4	4.2	4.0
31	-46	6.5	6.3	5.9	5.7	5.4	5.1	4.9	4.6	4.4	4.2	4.0
29	-42	6.4	6.2	5.9	5.7	5.4	5.1	4.9	4.6	4.4	4.2	4.0
27	-38	6.4	6.2	5.9	5.7	5.4	5.1	4.9	4.6	4.4	4.2	4.0
25	-35	6.3	6.1	5.9	5.7	5.4	5.1	4.9	4.7	4.4	4.2	4.0
23	-31	6.3	6.1	5.8	5.6	5.4	5.1	4.9	4.7	4.5	4.3	4.1
21	-27	6.3	6.1	5.8	5.6	5.4	5.2	4.9	4.8	4.5	4.3	4.1
19	-23	6.3	6.1	5.9	5.6	5.4	5.2	5.0	4.8	4.6	4.4	4.2
17	-19	6.4	6.2	6.0	5.7	5.5	5.3	5.1	4.9	4.6	4.4	4.2
15	-15	6.5	6.3	6.1	5.8	5.6	5.4	5.2	5.0	4.7	4.5	4.3
13	-11	6.6	6.4	6.2	5.9	5.6	5.4	5.2	5.0	4.8	4.6	4.4
11	-7	6.7	6.5	6.3	6.0	5.7	5.5	5.3	5.1	4.9	4.7	4.5
9	-3	6.8	6.6	6.4	6.1	5.8	5.6	5.4	5.2	5.0	4.8	4.6
7	+1	6.9	6.6	6.4	6.2	5.9	5.7	5.5	5.3	5.1	4.9	4.7
5	+5	7.0	6.7	6.5	6.3	6.0	5.8	5.6	5.4	5.2	5.0	4.8
3	+9	7.1	6.7	6.6	6.4	6.1	5.9	5.7	5.5	5.3	5.1	4.9
1	+13	7.2	6.8	6.7	6.5	6.3	6.0	5.8	5.6	5.4	5.2	5.0

* Add 5 knots to given holding speed (10 knots for 3 red-shaded values) when holding above 32,000 feet.

CORRECTIONS:
Increase (decrease) fuel flow by 100 pounds (0.1) for every 10°C above (below) Standard temperature.
Increase fuel flow by 5%, 200-300 lbs/hr (0.2-0.3), for engine anti-ice ON.
Increase fuel flow by 20%, 800-1300 lbs/hr (0.8-1.3) for engine and wing anti-ice ON.

MD-82 Minimum Control Speeds (Vmca) and Stall Speeds

MINIMUM CONTROL SPEEDS – VMCA

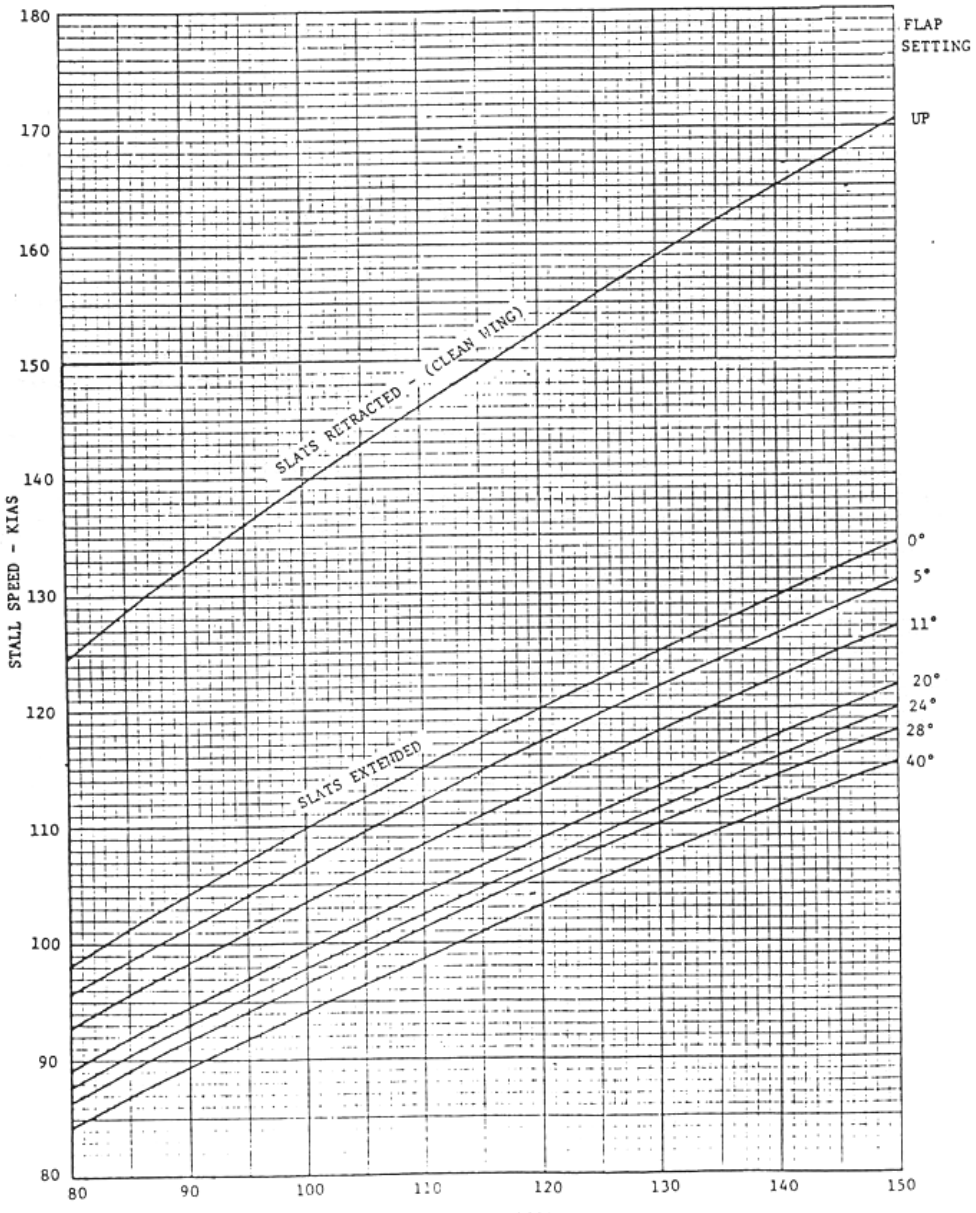
BASED ON:
Slats Extended
One Engine Inoperative
Max Reserve Thrust
Any Bleed Air Configuration

TEMP – °F	FLAPS 4/EXT	11/EXT	17/EXT	24/EXT
81 & BELOW	119	116	114	111
102	115	113	110	108
122	110	109	107	104

ADJUSTMENTS:

TEMP – °F	KNOTS PER 1000 FT ABOVE S.L.
81 & BELOW	–1.5
82 & ABOVE	–2

STALL SPEEDS



MD-82 Normal Flap/Slat Configuration Min Man and Reference Speeds

	GROSS WEIGHT - 1000 POUNDS																			
	86	90	94	98	102	106	110	114	118	122	126	130	134	138	142	146	150	154	158	160
0 / RET MIN MAN	190	194	199	203	207	211	215	219	223	227	230	234	237	241	244	248	251	255	258	260
0 / EXT MIN MAN	148	152	155	159	162	165	168	171	174	177	180	183	186	188	191	194	197	199	202	203
11 / EXT MIN MAN	130	133	136	139	142	145	147	150	153	155	158	160	163	165	167	169	172	174	176	177
15 / EXT MIN MAN	128	131	134	136	139	142	144	147	149	152	154	157	159	162	164	166	169	171	173	174
28 / EXT MIN MAN	119	122	124	127	130	132	135	137	139	142	144	146	149	151	153	155	157	159	161	162
40 / EXT MIN MAN	115	118	120	123	125	128	130	132	135	137	139	141	144	146	148	150	152	154	156	157
28 / EXT VREF	111	114	116	118	121	123	125	128	130	132	134	136	138	140	142	144	146	148	150	151
40 / EXT VREF	107	110	112	114	117	119	121	123	126	128	130	132	134	136	138	139	141	143	145	146

Note:
Approach Speed is the final approach speed. Normally, it is equal to Vref, adjusted for wind and gust as follows:
Approach Speed = Vref + ½ Wind + Gust.
Tailwinds are excluded.

Notes:
Minimum Approach Speed = Vref + 5
Maximum Approach Speed = Vref + 20