

	Performance	II	
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1. RATINGS OF THE JT8D-217A

a) Takeoff Thrust

Two thrust levels have been certified for this engine:

- **Normal Takeoff Thrust**

This is the thrust value normally used for takeoff with Automatic Reserve Thrust (ART) operative.

- **Maximum Takeoff Thrust**

This is the highest value applicable for takeoff when ART is inoperative.

b) Go-Around Thrust

This is the same rating as Maximum Takeoff Thrust.

c) Maximum Climb Thrust (MCL)

This is the maximum thrust available for climb. All climb charts are based on MCL.

d) Maximum Cruise Thrust (MCR)

Maximum allowable thrust in cruise with both engines operating.

e) Maximum Continuous Thrust (MCT)

Maximum thrust which may be used continuously in case of one engine failure.

f) Bleed corrections

Whenever necessary EPR corrections are given to account for bleed and anti-ice configurations.

2. SPEED REGIMES

- The climb speed schedule is:

250 KIAS below 10000 ft

290 KIAS up to 26900 ft

.72 MACH above 26900 ft

- The schedule cruise speeds are:

250 KIAS (FL50 to 90)

300 KIAS (FL100 to 270)

.75 MACH (FL280 to 370)

LRC (FL50 to 370)

- The speed schedule 300 KIAS / .75 MACH is recommended as standard economical cruising. LRC is used for the diversion to the alternate.

- The schedule descent speeds are:

A) Mach .75 above 33900 ft; 260 KIAS below 33900 ft; 250 KIAS below 10000 ft

B) Mach .75 above 29000 ft; 290 KIAS below 29000 ft; 250 KIAS below 10000 ft

Schedule "A" is recommended from the economy fuel standpoint.

Schedule "B" shall be used for normal operations and for flight planning.

3. RCAM

Runway Contaminant	PIREP	Friction Coefficient	Braking Action	COND Selection in PERF	Maximum Wind Components	
					XW	TW
Dry	Dry			DRY	Aircraft Limits	Aircraft Limits
Damp Wet, up to 3mm (1/8") of water Slush, up to 3mm (1/8") Dry snow, up to 3mm (1/8") Wet snow, up to 3mm (1/8") Frost	Good	> .39	95	GOOD	Aircraft Limits	Aircraft Limits
Compacted snow (OAT at or below -15°)	Good to Medium	.36 - .39	94	GOOD/MED	20kts	10kts
Compacted snow (OAT above -15°) Dry snow, more than 3mm (1/8") Wet snow, more than 3mm (1/8") Dry/Wet snow over compacted snow Slippery when wet	Medium	.30 - .35	93	MED	20kts	10kts
Water, more than 3mm (1/8") Slush, more than 3mm (1/8")	Medium to Poor	.26 - .29	92	MED/POOR	10kts	0
Ice	Poor	.20 - .25	91	TAKEOFF AND LANDING NOT ALLOWED		
--	Unreliable	< .20	//			

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4. MOTNE

RUNWAY DESIGNATOR		EXAMPLE
Single Runways	RWY 23	<u>R23</u> /590738
Multiple Runways (Parallel runways are designated by letters L (left), C (center), and R (right runway))	RWY 23R	<u>R23R</u> /590738
	RWY 23C	<u>R23C</u> /590738
R88 is used for all runways at Airport		<u>R88</u> /590738
R99 means a repetition of the last message due to missing new report		<u>R99</u> /590738
TYPE OF RUNWAY DEPOSIT		EXAMPLE
0 = Clear and dry	6 = Slush	R33/ <u>5</u> 90738
1 = Damp	7 = Ice	
2 = Wet or water patches	8 = Compact or rolled snow	
3 = Rime or frost (depth normally less than 1mm)		
4 = Dry snow	9 = Frozen ruts or ridges	
5 = Wet snow	/ = Type of deposit not reported (e.g. due to runway clearance in progress)	
EXTENT OF RUNWAY CONTAMINATION		EXAMPLE
1 = ≤ 10 %	9 = ≥ 51 %	R33/ <u>5</u> 90738 R33/ <u>5/</u> 0738
2 = 11 – 25 %	/ = Not reported (e.g. due to runway clearance in progress)	
5 = 26 – 50 %		
DEPTH OF DEPOSIT RUNWAY		EXAMPLE
00 = < 1 mm	95 = 25 cm	R33/59 <u>07</u> 38 R33/59/ <u>//</u> 38
01 – 90 = depth in mm	96 = 30 cm	
92 = 10 cm	97 = 35 cm	
93 = 15 cm	98 = 40 cm or more	
94 = 20 cm		
99 = Runway not operational due to snow, slush, ice, large drifts or runway clearance		
// = Depth of deposit operationally not significant or not measurable		
FRICTION COEFFICIENT (FC) OR BRAKING ACTION (BA)		EXAMPLE
FC denoted in two digits, e.g. 38 = FC 0.38		R33/5907 <u>38</u>
If FC is not avail, BA will be denoted in two digits, e.g. 93 = BA 93		
95 = Good	92 = Medium to poor	R33/5907 <u>93</u>
94 = Good to medium	91 = Poor	
93 = Medium		
99 = Unreliable (FC or BA where the measurement is not satisfactory or reliable. This may be the case when a runway is contaminated with wet snow, slush or loose snow).		R33/5907 <u>99</u>
// = Braking action not reported; Runway not operational, Aerodrome closed etc.		R33/5907 <u>//</u>

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5. FLEXIBLE TAKEOFF THRUST

a) General

The MTOW values given in the Runway Length Limitation tables are based on the use of the "NORMAL T.O. THRUST".

Although the "NORMAL T.O. THRUST" is already lower than the maximum usable, an additional reduction in thrust will furthermore improve the engine life.

Therefore, whenever the "ACTUAL TOW" is lower than the "MTOW", it is recommended the use of the "FLX T.O. THRUST".

The procedure is based upon the determination of a higher "assumed temperature" for which the performance limited takeoff weight is equal to the actual takeoff weight. This "assumed temperature" is used instead of the actual temperature to determine the T.O. EPR.

b) Operating Limitations

Flexible takeoff thrust is only allowed when:

- Runway weight limitation table is available.
- The runway is not contaminated by Snow, Slush or standing Water.
- De-icing/Anti-icing fluid has not been used.
- ART system is OFF.
- Airfoil A/I is not used.
- All EPR gauges are operative.

c) Method for determining reduced T.O. EPR

The method has to be used in conjunction with Fixed Flap given in Runway tables for DRY and WET runway conditions.

1) Determine the max temperature (Assumed TEMP) at which $MTOW \geq ACT\ TOW$.

When QNH is different from 1013hpa, apply the ACT TOW correction as described below, before determining the "Assumed TEMP".

2) Check if ACT OAT is equal to or lower than the value between brackets just under the "Assumed TEMP" found.

ACT OAT is equal or lower:

The "Assumed TEMP" shall be used in determining the T.O. EPR.

ACT OAT is greater than the max value or NA is found:

In this case the FLX T.O. is not allowed and NORMAL T.O. must be used.

Weight Correction:

		DRY	WET
QNH < 1013	(kg/hpa)	-80	-80
QNH > 1013	(kg/hpa)	+30	+30

Max Δ hpa is 2 for table 1800m, 1 for tables 2300m÷3300m, 0 for table 3800m.

Explanation of the table fields

DRY	FLAP 15 ①			
OAT °C	WIND (kt)			
	-10	-5 ②	0	10
③	NO T/O	56.4 ⑥		
④	⑤	14.0 ⑦		

- ① Flap settings to be used
- ② Tail (negative) or head (positive) wind component
- ③ Assumed Temperature
- ④ Actual OAT limit. If actual OAT is higher than this value, or NA is found, FLEX T.O. is not allowed.
- ⑤ When NO T/O is found, take off is not permitted due to tail wind component
- ⑥ Actual TOW
- ⑦ One engine out attitude (deg)

Examples (use table for 2300m)

Example 1

GIVEN: Rwy Cond. DRY
 OAT 17°
 Wind -6 kt
 QNH 1013 hpa
 ACT TOW 60 ton

FIND: a) Determine the max temp (Assumed Temp) at which MTOW ≥ ACT TOW from -10 kt wind column: 31° (MTOW=60.1 ton, -10 kt wind column)
 b) Check if Act OAT is equal or lower than the value in brackets: in this case N.A. is found so FLEX T.O. cannot be used.

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Example 2

GIVEN: Rwy Cond. DRY
 OAT 21°
 Wind 0 kt
 QNH 1003 hpa
 ACT TOW 56 ton

FIND: Since QNH is different from 1013 a correction to Act TOW is required before determining the Assumed Temp: $56000 + (80 \cdot 10) = 56800$ kg.

- a) Assumed Temp = 45° (MTOW=57.0)
- b) Check if Act OAT is equal or lower than the value in brackets: 21° is lower than 37° so the Assumed Temp can be used to calculate take off thrust for a FLEX T.O.

Example 3

GIVEN: Rwy Cond. WET
 OAT 27°
 Wind +11 kt
 QNH 1017 hpa
 ACT TOW 60 ton

FIND: a) Assumed Temp = 37° (MTOW=60.3, 10 kt wind column)
 b) Check if Act OAT is equal or lower than the value in brackets: 27° is lower than 30° so the Assumed Temp can be used to calculate take off thrust for a FLEX T.O.

NOTE
 In real life airlines compile Runway Tables for each runway that is flown by their MD82 fleet. The values on the tables are calculated taking into account not only the runway length, but also the slope, the presence of obstacles, etc. Since it is impossible for us to provide the data for every runway we have simplified the tables in order to take into account only the field length. A real Runway Table will also give the corrected V_1 , V_R and V_2 values for the specific runway/condition that we have omitted.



Runway Length: 6000ft – 1800m

DRY		FLAP 15			
OAT °C		WIND (kt)			
		-10	-5	0	10
27	NO T/O	56.4	58.8	60.1	
(NA)		14.0	13.5	13.5	
29	NO T/O	56.2	58.5	59.8	
(NA)		14.0	13.5	13.5	
31	NO T/O	55.7	58.0	59.3	
(NA)		14.0	13.5	13.5	
33	NO T/O	55.2	57.5	58.7	
(NA)		14.0	13.5	13.5	
35	NO T/O	54.7	56.9	58.2	
(NA)		14.0	13.5	13.5	
37	NO T/O	54.1	56.3	57.6	
(30)		14.0	13.5	13.5	
39	NO T/O	53.6	55.7	56.9	
(32)		14.0	13.5	13.5	
41	NO T/O	53.0	55.1	56.3	
(33)		14.0	13.5	13.5	
43	NO T/O	52.3	54.4	55.6	
(35)		14.0	13.5	13.5	
45	NO T/O	51.7	53.8	54.9	
(37)		14.0	13.5	13.5	
47	NO T/O	51.1	53.1	54.3	
(39)		13.5	13.5	13.0	
49	NO T/O	50.6	52.6	53.7	
(41)		13.5	13.5	13.0	
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49		50.0	52.0	53.0	
		14.0	13.5	13.5	
49		48.0	50.0	51.0	
		14.0	14.0	13.5	
49		46.0	48.0	49.0	
		14.5	14.0	14.0	
49		44.0	46.0	47.0	
		15.0	14.5	14.5	
49		42.0	44.0	45.0	
		15.5	15.0	14.5	
49		40.0	42.0	43.0	
		15.5	15.5	15.0	
49			40.0	41.0	
			15.5	15.5	

WET		FLAP 15			
OAT °C		WIND (kt)			
		-10	-5	0	10
-10	NO T/O	NO T/O	60.6	61.9	
(NA)			13.5	13.0	
-5	NO T/O	NO T/O	60.1	61.3	
(NA)			13.5	13.0	
0	NO T/O	NO T/O	59.5	60.9	
(NA)			13.5	13.5	
5	NO T/O	NO T/O	59.0	60.4	
(NA)			13.5	13.5	
10	NO T/O	NO T/O	58.8	60.1	
(NA)			13.5	13.5	
15	NO T/O	NO T/O	58.3	59.6	
(NA)			13.5	13.5	
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15			58.0	59.0	
			13.5	13.5	
15			56.0	57.0	
			14.0	14.0	
15			54.0	55.0	
			14.0	14.0	
15			52.0	53.0	
			14.5	14.5	
15			50.0	51.0	
			15.0	14.5	
15			48.0	49.0	
			15.5	15.0	
15			46.0	47.0	
			15.5	15.5	
15			44.0	45.0	
			15.5	15.5	
15			42.0	43.0	
			15.5	15.5	
15			40.0	41.0	
			15.5	15.5	

**Runway Length: 7500ft – 2300m**

DRY		FLAP 15			
OAT °C		WIND (kt)			
	-10	-5	0	10	
27	60.9	62.5	63.2	63.6	
(NA)	13.5	13.0	13.0	13.0	
29	60.7	62.5	63.1	63.5	
(NA)	13.5	13.0	13.0	13.0	
31	60.1	61.8	62.4	62.8	
(NA)	13.5	13.0	13.0	13.0	
33	59.6	61.1	61.7	62.1	
(NA)	13.5	13.0	13.0	13.0	
35	59.0	60.3	61.0	61.4	
(NA)	13.0	13.0	13.0	13.0	
37	58.4	59.4	60.1	60.5	
(30)	13.0	13.0	13.0	13.0	
39	57.8	58.7	59.3	59.7	
(32)	13.0	13.0	13.0	13.0	
41	57.1	58.0	58.6	58.9	
(33)	13.0	13.0	13.0	13.0	
43	56.4	57.2	57.8	58.2	
(35)	13.0	13.0	13.0	13.0	
45	55.7	56.4	57.0	57.4	
(37)	13.0	13.0	13.0	13.0	
47	54.8	55.5	56.1	56.5	
(39)	13.0	13.0	13.0	13.0	
49	53.9	54.5	55.2	55.6	
(41)	13.0	13.0	13.0	13.0	
49	53.0	54.0	55.0	55.0	
	13.5	13.0	13.0	13.0	
49	51.0	52.0	53.0	53.0	
	13.5	13.5	13.5	13.5	
49	49.0	50.0	51.0	51.0	
	14.0	14.0	13.5	13.5	
49	47.0	48.0	49.0	49.0	
	14.5	14.0	14.0	14.0	
49	45.0	46.0	47.0	47.0	
	14.5	14.5	14.5	14.5	
49	43.0	44.0	45.0	45.0	
	15.0	15.0	14.5	14.5	
49	41.0	42.0	43.0	43.0	
	15.5	15.5	15.0	15.0	
49		40.0	41.0	41.0	
		15.5	15.5	15.5	

WET		FLAP 15			
OAT °C		WIND (kt)			
	-10	-5	0	10	
-10	61.7	62.4	63.1	63.4	
(NA)	13.0	13.0	13.0	13.0	
-5	61.6	62.4	63.0	63.4	
(NA)	13.0	13.0	13.0	13.0	
0	61.6	62.4	63.0	63.4	
(NA)	13.0	13.0	13.0	13.0	
5	61.4	62.4	63.0	63.4	
(NA)	13.0	13.0	13.0	13.0	
10	61.3	62.4	63.0	63.4	
(NA)	13.0	13.0	13.0	13.0	
15	60.8	62.3	63.0	63.4	
(NA)	13.5	13.0	13.0	13.0	
20	60.3	62.2	63.0	63.4	
(NA)	13.5	13.0	13.0	13.0	
25	59.8	61.8	63.0	63.3	
(NA)	13.5	13.0	13.0	13.0	
27	59.6	61.6	63.0	63.3	
(NA)	13.5	13.0	13.0	13.0	
29	59.3	61.3	62.9	63.3	
(NA)	13.5	13.0	13.0	13.0	
31	58.8	60.8	62.2	62.6	
(NA)	13.5	13.0	13.0	13.0	
33	58.3	60.3	61.5	61.9	
(NA)	13.5	13.0	13.0	13.0	
35	57.7	59.7	60.7	61.1	
(NA)	13.5	13.0	13.0	13.0	
37	57.1	59.0	59.9	60.3	
(30)	13.5	13.0	13.0	13.0	
39	56.4	58.3	59.1	59.5	
(32)	13.5	13.0	13.0	13.0	
41	55.7	57.6	58.3	58.7	
(33)	13.5	13.0	13.0	13.0	
41	55.0	57.0	58.0	58.0	
	13.5	13.0	13.0	13.0	
41	53.0	55.0	56.0	56.0	
	14.0	13.5	13.5	13.5	
41	51.0	53.0	54.0	54.0	
	14.0	14.0	13.5	13.5	
41	49.0	51.0	52.0	52.0	
	14.5	14.0	14.0	14.0	
41	47.0	49.0	50.0	50.0	
	15.0	14.5	14.5	14.5	
41	45.0	47.0	48.0	48.0	
	15.5	15.0	14.5	14.5	
41	43.0	45.0	46.0	46.0	
	15.5	15.5	15.0	15.0	

**Runway Length: 9000ft – 2800m**

DRY		FLAP 15			
OAT °C		WIND (kt)			
	-10	-5	0	10	
27	62.5	63.7	64.8	65.4	
(NA)	13.0	13.0	13.0	13.0	
29	62.4	63.5	64.7	65.3	
(NA)	13.0	13.0	13.0	13.0	
31	61.8	62.9	63.9	64.6	
(NA)	13.0	13.0	13.0	13.0	
33	61.1	62.2	63.2	63.8	
(NA)	13.0	13.0	13.0	13.0	
35	60.4	61.5	62.5	63.1	
(NA)	13.0	13.0	13.0	13.0	
37	59.6	60.7	61.7	62.3	
(30)	13.0	13.0	13.0	13.0	
39	58.8	59.9	60.9	61.5	
(32)	13.0	13.0	13.0	13.0	
41	58.1	59.1	60.2	60.8	
(33)	13.0	13.0	13.0	13.0	
43	57.3	58.4	59.3	59.9	
(35)	13.0	13.0	13.0	13.0	
45	56.6	57.6	58.5	59.0	
(37)	13.0	13.0	13.0	13.0	
47	55.7	56.7	57.6	58.2	
(39)	13.0	13.0	13.0	13.0	
49	54.8	55.9	56.8	57.3	
(41)	13.0	13.0	13.0	13.0	
49	54.0	55.0	56.0	57.0	
	13.0	13.0	13.0	13.0	
49	52.0	53.0	54.0	55.0	
	13.5	13.5	13.0	13.0	
49	50.0	51.0	52.0	53.0	
	14.0	13.5	13.5	13.5	
49	48.0	49.0	50.0	51.0	
	14.0	14.0	14.0	13.5	
49	46.0	47.0	48.0	49.0	
	14.5	14.5	14.0	14.0	
49	44.0	45.0	46.0	47.0	
	15.0	14.5	14.5	14.5	
49	42.0	43.0	44.0	45.0	
	15.5	15.0	15.0	14.5	
49	40.0	41.0	42.0	43.0	
	15.5	15.5	15.5	15.0	
49			40.0	41.0	
			15.5	15.5	

WET		FLAP 15			
OAT °C		WIND (kt)			
	-10	-5	0	10	
-10	62.2	63.3	64.4	65.0	
(NA)	13.0	13.0	13.0	13.0	
-5	62.1	63.2	64.2	64.9	
(NA)	13.0	13.0	13.0	13.0	
0	62.0	63.1	64.1	64.8	
(NA)	13.0	13.0	13.0	13.0	
5	61.8	63.0	64.0	64.7	
(NA)	13.0	13.0	13.0	13.0	
10	61.8	62.9	64.0	64.7	
(NA)	13.0	13.0	13.0	13.0	
15	61.7	62.8	63.9	64.6	
(NA)	13.0	13.0	13.0	13.0	
20	61.5	62.7	63.7	64.4	
(NA)	13.0	13.0	13.0	13.0	
25	61.4	62.6	63.6	64.3	
(NA)	13.0	13.0	13.0	13.0	
27	61.4	62.5	63.6	64.3	
(NA)	13.0	13.0	13.0	13.0	
29	61.3	62.4	63.5	64.1	
(NA)	13.0	13.0	13.0	13.0	
31	60.6	61.8	62.8	63.4	
(NA)	13.0	13.0	13.0	13.0	
33	59.9	61.1	62.1	62.7	
(NA)	13.0	13.0	13.0	13.0	
35	59.2	60.4	61.4	62.0	
(NA)	13.0	13.0	13.0	13.0	
37	58.4	59.6	60.6	61.3	
(30)	13.0	13.0	13.0	13.0	
39	57.7	58.8	59.9	60.5	
(32)	13.0	13.0	13.0	13.0	
41	57.0	58.1	59.1	59.7	
(33)	13.0	13.0	13.0	13.0	
41	55.0	58.0	59.0	59.0	
	13.5	13.0	13.0	13.0	
41	53.0	56.0	57.0	57.0	
	14.0	13.5	13.0	13.0	
41	51.0	54.0	55.0	55.0	
	14.0	13.5	13.5	13.5	
41	49.0	52.0	53.0	53.0	
	14.5	14.0	14.0	14.0	
41	47.0	50.0	51.0	51.0	
	15.0	14.5	14.0	14.0	
41	45.0	48.0	49.0	49.0	
	15.0	14.5	14.5	14.5	
41	43.0	46.0	47.0	47.0	
	15.5	15.0	15.0	15.0	



Runway Length: 11000ft – 3300m

DRY		FLAP 15			
OAT		WIND (kt)			
°C	-10	-5	0	10	
27	68.4	68.4	68.4	68.4	
(NA)					
29	68.4	68.4	68.4	68.4	
(NA)					
31	67.5	67.5	67.5	67.5	
(NA)					
33	66.7	66.7	66.7	66.7	
(NA)	12.5	12.5	12.5	12.5	
35	65.9	65.9	65.9	65.9	
(NA)	12.5	12.5	12.5	12.5	
37	64.9	64.9	64.9	64.9	
(30)	12.5	12.5	12.5	12.5	
39	64.1	64.1	64.1	64.1	
(32)	12.5	12.5	12.5	12.5	
41	63.2	63.2	63.2	63.2	
(33)	12.5	12.5	12.5	12.5	
43	62.3	62.3	62.3	62.3	
(35)	12.5	12.5	12.5	12.5	
45	61.5	61.5	61.5	61.5	
(37)	12.5	12.5	12.5	12.5	
47	60.5	60.5	60.5	60.5	
(39)	12.5	12.5	12.5	12.5	
49	59.5	59.5	59.5	59.5	
(41)	12.5	12.5	12.5	12.5	
49	59.0	59.0	59.0	59.0	
	12.5	12.5	12.5	12.5	
49	57.0	57.0	57.0	57.0	
	13.0	13.0	13.0	13.0	
49	55.0	55.0	55.0	55.0	
	13.0	13.0	13.0	13.0	
49	53.0	53.0	53.0	53.0	
	13.5	13.5	13.5	13.5	
49	51.0	51.0	51.0	51.0	
	13.5	13.5	13.5	13.5	
49	49.0	49.0	49.0	49.0	
	14.0	14.0	14.0	14.0	
49	47.0	47.0	47.0	47.0	
	14.5	14.5	14.5	14.5	
49	45.0	45.0	45.0	45.0	
	14.5	14.5	14.5	14.5	
49	43.0	43.0	43.0	43.0	
	15.0	15.0	15.0	15.0	

WET		FLAP 15			
OAT		WIND (kt)			
°C	-10	-5	0	10	
-10	68.0	68.0	68.0	68.0	
(NA)					
-5	67.8	68.0	68.0	68.0	
(NA)					
0	67.5	68.0	68.0	68.0	
(NA)					
5	67.3	68.0	68.0	68.0	
(NA)					
10	67.2	68.0	68.0	68.0	
(NA)					
15	66.9	68.0	68.0	68.0	
(NA)	12.5				
20	66.6	67.9	68.0	68.0	
(NA)	12.5				
25	66.4	67.7	68.0	68.0	
(NA)	12.5				
27	66.3	67.6	68.0	68.0	
(NA)	12.5				
29	66.1	67.4	68.0	68.0	
(NA)	12.5				
31	65.4	66.8	67.5	67.5	
(NA)	12.5	12.5			
33	64.7	66.1	66.7	66.7	
(NA)	12.5	12.5	12.5	12.5	
35	64.0	65.3	65.9	65.9	
(NA)	12.5	12.5	12.5	12.5	
37	63.2	64.5	64.9	64.9	
(30)	12.5	12.5	12.5	12.5	
39	62.4	63.6	64.1	64.1	
(32)	12.5	12.5	12.5	12.5	
41	61.7	62.9	63.2	63.2	
(33)	12.5	12.5	12.5	12.5	
41	60.0	62.0	63.0	63.0	
	12.5	12.5	12.5	12.5	
41	59.0	60.0	61.0	61.0	
	13.0	13.0	12.5	12.5	
41	57.0	58.0	59.0	59.0	
	13.0	13.0	13.0	13.0	
41	55.0	56.0	57.0	57.0	
	13.5	13.5	13.0	13.0	
41	53.0	54.0	55.0	55.0	
	14.0	13.5	13.5	13.5	
41	51.0	52.0	53.0	53.0	
	14.0	14.0	14.0	14.0	
41	49.0	50.0	51.0	51.0	
	14.5	14.5	14.0	14.0	



Runway Length: 12500ft – 3800m

DRY		FLAP 15			
OAT °C	-10	WIND (kt)			
		-5	0	10	
27 (NA)	68.5	68.5	68.5	68.5	
29 (NA)	68.4	68.4	68.4	68.4	
31 (NA)	67.6	67.6	67.6	67.6	
33 (NA)	66.7	66.7	66.7	66.7	
35 (NA)	65.9	65.9	65.9	65.9	
37 (30)	65.0	65.0	65.0	65.0	
39 (32)	64.1	64.1	64.1	64.1	
41 (33)	63.3	63.3	63.3	63.3	
43 (35)	62.4	62.4	62.4	62.4	
45 (37)	61.5	61.5	61.5	61.5	
47 (39)	60.5	60.5	60.5	60.5	
49 (41)	59.6	59.6	59.6	59.6	
49	59.0	59.0	59.0	59.0	
49	57.0	57.0	57.0	57.0	
49	55.0	55.0	55.0	55.0	
49	53.0	53.0	53.0	53.0	
49	51.0	51.0	51.0	51.0	
49	49.0	49.0	49.0	49.0	
49	47.0	47.0	47.0	47.0	
49	45.0	45.0	45.0	45.0	
49	43.0	43.0	43.0	43.0	

WET		FLAP 15			
OAT °C	-10	WIND (kt)			
		-5	0	10	
-10 (NA)	68.0	68.0	68.0	68.0	
-5 (NA)	68.0	68.0	68.0	68.0	
0 (NA)	68.0	68.0	68.0	68.0	
5 (NA)	68.0	68.0	68.0	68.0	
10 (NA)	68.0	68.0	68.0	68.0	
15 (NA)	68.0	68.0	68.0	68.0	
20 (NA)	68.0	68.0	68.0	68.0	
25 (NA)	68.0	68.0	68.0	68.0	
27 (NA)	68.0	68.0	68.0	68.0	
29 (NA)	68.0	68.0	68.0	68.0	
31 (NA)	67.6	67.6	67.6	67.6	
33 (NA)	66.7	66.7	66.7	66.7	
35 (NA)	65.9	65.9	65.9	65.9	
37 (30)	65.0	65.0	65.0	65.0	
39 (32)	64.1	64.1	64.1	64.1	
41 (33)	63.3	63.3	63.3	63.3	
41	63.0	63.0	63.0	63.0	
41	61.0	61.0	61.0	61.0	
41	59.0	59.0	59.0	59.0	
41	57.0	57.0	57.0	57.0	
41	55.0	55.0	55.0	55.0	
41	53.0	53.0	53.0	53.0	
41	51.0	51.0	51.0	51.0	

LANDING SPEEDS NORMAL CONDITIONS

LANDING WEIGHT (ton)															Flaps/Slats		
40	42	44	46	48	50	52	54	56	58	60	62	64	66	68			
193	198	202	207	211	216	220	224	228	232	236	240	244	248	252	UP/RET 1.5 V _s	V _{MAN} (KIAS)	
150	154	158	161	165	168	172	175	178	182	185	188	191	194	197	0/EXT 1.5 V _s		
130	133	136	139	142	145	148	150	153	156	158	161	164	166	169	15/EXT 1.4 V _s		
121	124	127	130	132	135	138	141	143	146	148	151	154	156	158	28/EXT 1.4 V _s		
117	120	123	125	128	130	133	135	138	140	143	145	147	149	151	28/EXT 1.3 V _s + 5	V _{TH} (KIAS)	
113	116	116	121	124	126	129	131	133	136	138	140	142	144	146	40/EXT 1.3 V _s + 5		
1215	1250	1290	1330	1370	1410	1450	1490	1530	1565	1610	1645	1685	1725	1765	DRY	28/EXT 1.3V _s +5	Land Field Length (m)
1395	1440	1485	1530	1580	1620	1665	1710	1760	1800	1850	1890	1940	1980	2030	WET		

ABNORMAL CONDITIONS

SLATS RET (Abnormal Slats/No Flaps-No Slats)

LANDING WEIGHT (ton)															Flaps/Slats		
40	42	44	46	48	50	52	54	56	58	60	62	64	66	68			
193	198	202	207	211	216	220	224	228	232	236	240	244	248	252	UP/RET 1.5 V _s	V _{MAN} (KIAS)	
162	166	169	173	177	180	184	187	191	194	198	201	204	208	211	15/RET 1.4 V _s		
150	154	158	161	165	168	171	175	178	181	184	188	191	194	197	28/RET 1.4 V _s		
162	166	169	173	176	180	184	187	190	194	197	200	203	206	209	UP/RET 1.25 V _s	V _{TH} (KIAS)	
130	133	136	139	142	145	148	151	154	157	159	162	165	167	170	40/RET 1.3 V _s		

SLATS EXT (Abnormal Flaps)

LANDING WEIGHT (ton)															Flaps/Slats		
40	42	44	46	48	50	52	54	56	58	60	62	64	66	68			
150	154	158	161	165	168	172	175	178	182	185	188	191	194	197	0/EXT 1.5 V _s	V _{MAN} (KIAS)	
130	133	136	139	142	145	148	150	153	156	158	161	164	166	169	15/RET 1.4 V _s		
136	139	142	146	149	153	155	158	161	163	166	169	172	175	177	0/EX 1.35 V _s	V _{TH} (KIAS)	
121	124	127	129	132	135	138	141	143	146	148	151	153	156	158	15/EXT 1.3 V _s		