

PERFORMANCE

THRUST RATINGS

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A318/A319/A320/A321
FLIGHT CREW
OPERATING MANUAL

PERFORMANCE

THRUST RATINGS

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MEXICANA 

A318/A319/A320/A321

FLIGHT CREW
OPERATING MANUAL

PERFORMANCE

THRUST RATINGS

GENERAL

GENERAL

Applicable to: ALL

The thrust rating charts have been established for:

- Maximum takeoff
- Maximum go around
- Flexible takeoff
- Maximum continuous
- Maximum climb
- Maximum cruise



A318/A319/A320/A321
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**PERFORMANCE
THRUST RATINGS**

GENERAL

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A318/A319/A320/A321

FLIGHT CREW
OPERATING MANUAL

PERFORMANCE

THRUST RATINGS

MAXIMUM TAKEOFF

DEFINITION

Applicable to: ALL

It is the maximum thrust certified for takeoff and is normally limited to five minutes.

This time is extended to ten minutes for engine out contingency, as authorized by the approved AFM.



A318/A319/A320/A321

FLIGHT CREW
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THRUST RATINGS

MAXIMUM TAKEOFF

CFM56-5B4 TAKE OFF N1 NO AIR BLEED MACH=.000	N1 CORRECTIONS FOR AIR BLEED										OAT < CORNER POINT	OAT > CORNER POINT
	AIR CONDITIONING ON										-7	-7
ENGINE ANTI-ICE ON										0.0	-1.6	
ENGINE ANTI-ICE AND WING ANTI-ICE ON										0.0	-2.4	
OAT (C)	PRESSURE ALTITUDE (FT)											
	7000.	8000.	9000.	9200.	10000.	11000.	12000.	13000.	14000.	14500.		
-54.0	87.6	88.2	88.0	88.0	87.8	88.2	88.4	88.6	88.6	88.5		
-50.0	88.3	88.9	88.8	88.7	88.6	88.9	89.2	89.3	89.3	89.3		
-46.0	89.0	89.7	89.5	89.5	89.3	89.7	89.9	90.1	90.1	90.0		
-42.0	89.8	90.4	90.2	90.2	90.0	90.4	90.7	90.8	90.8	90.8		
-38.0	90.5	91.1	90.9	90.9	90.7	91.1	91.4	91.5	91.5	91.5		
-34.0	91.2	91.8	91.6	91.6	91.4	91.8	92.1	92.2	92.2	92.2		
-30.0	91.9	92.5	92.3	92.3	92.1	92.5	92.8	92.9	92.9	92.9		
-26.0	92.5	93.2	93.0	93.0	92.8	93.2	93.5	93.6	93.6	93.6		
-22.0	93.2	93.9	93.7	93.7	93.5	93.9	94.1	94.3	94.3	94.3		
-18.0	93.9	94.6	94.4	94.4	94.2	94.6	94.8	95.0	95.0	95.0		
-14.0	94.6	95.3	95.1	95.1	94.9	95.3	95.5	95.7	95.7	95.7		
-10.0	95.3	95.9	95.7	95.7	95.6	95.9	96.2	96.3	96.3	96.3		
-6.0	95.9	96.6	96.4	96.4	96.2	96.6	96.9	97.0	97.0	97.0		
-2.0	96.6	97.3	97.1	97.0	96.9	97.3	97.5	97.6	97.7	97.6		
2.0	97.2	97.9	97.7	97.7	97.5	97.9	98.2	98.3	98.3	98.3		
6.0	97.9	98.6	98.4	98.3	98.2	98.6	98.8	99.0	99.0	98.9		
10.0	98.5	99.2	99.0	99.0	98.8	99.2	99.5	99.6	99.2	98.8		
14.0	99.2	99.9	99.7	99.6	99.1	99.0	98.6	98.0	97.1	96.6		
18.0	99.8	100.1	99.1	98.8	97.9	97.6	97.0	96.1	95.7	95.6		
22.0	99.4	99.1	97.9	97.7	96.7	96.2	95.9	95.7	95.4	95.2		
26.0	98.5	98.0	96.8	96.6	96.0	95.9	95.6	95.3	95.0	94.8		
30.0	97.6	97.3	96.5	96.4	95.8	95.7	95.4					
34.0	97.1	97.0	96.2	96.1	95.6							
38.0	96.7	96.6										
42.0												
46.0												
50.0												
54.0												
										OAT < CORNER POINT		
										OAT > CORNER POINT		



A318/A319/A320/A321
FLIGHT CREW
OPERATING MANUAL

PERFORMANCE

THRUST RATINGS

MAXIMUM TAKEOFF

MAXIMUM TAKEOFF

Applicable to: MSN 1429-1750

CFM56-5B6	N1 CORRECTIONS FOR AIR BLEED										OAT < ISA + 30	OAT ≥ ISA + 30
	TAKE OFF											
	N1											
	NO AIR BLEED											
	ENGINE ANTI ICE ON										-0.7	-0.7
	ENGINE ANTI ICE ON										0.0	-1.4
	ENGINE ANTI ICE AND WING ANTI ICE ON										0.0	-2.1
OAT (°C)	PRESSURE ALTITUDE (FT)											
	-2000.	-1000.	0.	1000.	2000.	3000.	4000.	5000.	6000.	7000.		
-54.0	73.7	74.7	75.8	76.7	77.6	78.7	79.3	79.8	80.4	80.8		
-50.0	74.4	75.4	76.4	77.4	78.3	79.3	79.9	80.5	81.1	81.5		
-46.0	75.0	76.1	77.1	78.0	79.0	80.0	80.6	81.2	81.8	82.2		
-42.0	75.7	76.7	77.8	78.7	79.6	80.7	81.3	81.9	82.4	82.9		
-38.0	76.3	77.4	78.4	79.4	80.3	81.4	82.0	82.6	83.1	83.6		
-34.0	76.9	78.0	79.0	80.0	80.9	82.0	82.6	83.2	83.8	84.2		
-30.0	77.5	78.6	79.7	80.6	81.6	82.7	83.3	83.9	84.4	84.9		
-26.0	78.1	79.2	80.3	81.3	82.2	83.3	83.9	84.5	85.1	85.6		
-22.0	78.8	79.9	80.9	81.9	82.8	84.0	84.6	85.2	85.7	86.2		
-18.0	79.4	80.5	81.6	82.5	83.5	84.6	85.2	85.9	86.4	86.9		
-14.0	80.0	81.1	82.2	83.2	84.1	85.3	85.9	86.5	87.0	87.5		
-10.0	80.6	81.7	82.8	83.8	84.7	85.9	86.5	87.1	87.7	88.2		
-6.0	81.2	82.3	83.4	84.4	85.3	86.5	87.1	87.7	88.3	88.8		
-2.0	81.7	82.9	84.0	85.0	85.9	87.1	87.7	88.4	88.9	89.4		
2.0	82.3	83.5	84.6	85.6	86.6	87.7	88.3	89.0	89.5	90.0		
6.0	82.9	84.1	85.2	86.2	87.2	88.3	89.0	89.6	90.1	90.6		
10.0	83.5	84.6	85.8	86.8	87.8	88.9	89.6	90.2	90.8	91.3		
14.0	84.1	85.2	86.4	87.4	88.4	89.5	90.2	90.8	91.4	91.9		
18.0	84.6	85.8	86.9	88.0	88.9	90.1	90.8	91.4	92.0	92.5		
22.0	85.2	86.4	87.5	88.5	89.5	90.7	91.4	92.0	92.6	93.1		
26.0	85.7	86.9	88.1	89.1	90.1	91.3	91.9	92.6	93.2	93.7		
30.0	86.3	87.5	88.6	89.7	90.7	91.9	92.5	93.2	93.7	94.3		
34.0	86.8	88.0	89.2	90.2	91.2	92.4	93.1	93.8	94.1	94.0		
38.0	87.4	88.6	89.7	90.8	91.8	93.0	93.4	93.5	93.5	93.4		
42.0	88.0	89.2	90.3	91.4	92.1	92.8	92.9	93.0	92.9			
46.0	88.5	89.7	90.6	91.1	91.6							
50.0	88.7	89.4	90.0	90.6	91.1							
54.0	88.2	88.8	89.5									
											OAT < ISA + 30	
											OAT ≥ ISA + 30	



A318/A319/A320/A321
 FLIGHT CREW
 OPERATING MANUAL

PERFORMANCE
THRUST RATINGS
 MAXIMUM TAKEOFF

MAXIMUM TAKEOFF

Applicable to: MSN 0164-0447

V2500-A1	TAKEOFF EPR										NO AIR BLEED		MACH = .000	
EPR CORRECTIONS FOR AIR BLEED												OAT < 10 (°C)	OAT ≥ 10 (°C)	
AIR CONDITIONING ON												-010	-010	
ENGINE ANTI ICE ON												0.0	-017	
ENGINE ANTI ICE AND WING ANTI ICE ON												-007	-024	
OAT (°C)	PRESSURE ALTITUDE (FT)													
	-1000.	0.	1000.	2000.	3000.	4000.	5000.	6000.	7000.	8000.	8500.			
-60.0	1.380	1.397	1.412	1.428	1.443	1.458	1.474	1.484	1.494	1.504	1.509			
-40.0	1.380	1.397	1.412	1.428	1.443	1.458	1.474	1.484	1.494	1.504	1.509			
-20.0	1.380	1.397	1.412	1.428	1.443	1.458	1.474	1.484	1.494	1.504	1.509			
-10.0	1.380	1.397	1.412	1.428	1.443	1.458	1.474	1.484	1.494	1.504	1.509			
0.0	1.380	1.397	1.412	1.428	1.443	1.458	1.474	1.484	1.494	1.504	1.509			
10.0	1.380	1.397	1.412	1.428	1.443	1.458	1.474	1.484	1.494	1.504	1.509			
12.0	1.380	1.397	1.412	1.428	1.443	1.458	1.474	1.484	1.494	1.504	1.509			
14.0	1.380	1.397	1.412	1.428	1.443	1.458	1.474	1.484	1.494	1.504	1.507			
16.0	1.380	1.397	1.412	1.428	1.443	1.458	1.474	1.484	1.494	1.497	1.497			
18.0	1.380	1.397	1.412	1.428	1.443	1.458	1.474	1.484	1.487	1.487	1.487			
20.0	1.380	1.397	1.412	1.428	1.443	1.458	1.474	1.477	1.477	1.477	1.477			
22.0	1.380	1.397	1.412	1.428	1.443	1.458	1.468	1.468	1.468	1.468	1.468			
24.0	1.380	1.397	1.412	1.428	1.443	1.452	1.458	1.458	1.458	1.458	1.458			
26.0	1.380	1.397	1.412	1.428	1.437	1.443	1.448	1.448	1.448	1.448	1.448			
28.0	1.380	1.397	1.412	1.421	1.427	1.433	1.439	1.439	1.439	1.439	1.439			
30.0	1.380	1.397	1.406	1.412	1.418	1.424	1.429	1.429	1.429	1.429	1.429			
32.0	1.380	1.391	1.397	1.403	1.409	1.415	1.420	1.420	1.420	1.420	1.420			
34.0	1.380	1.382	1.389	1.395	1.400	1.406	1.411	1.411	1.411	1.411	1.411			
36.0	1.373	1.374	1.380	1.386	1.391	1.397	1.402	1.402	1.402	1.402	1.402			
38.0	1.365	1.366	1.372	1.377	1.382	1.388	1.393	1.393	1.393	1.393	1.393			
40.0	1.357	1.358	1.363	1.368	1.374	1.379	1.384	1.384	1.384	1.384	1.384	1.384	1.384	
42.0	1.349	1.349	1.355	1.360	1.365	1.370	1.375	1.375	1.375	1.375	1.375	1.375	1.375	
44.0	1.341	1.341	1.346	1.352	1.357	1.362	1.367	1.367	1.367	1.367	1.367	1.367	1.367	
46.0	1.333	1.333	1.338	1.344	1.349	1.354	1.359	1.359	1.359	1.359	1.359	1.359	1.359	
48.0	1.325	1.325	1.331	1.336	1.341	1.346	1.351	1.351	1.351	1.351	1.351	1.351	1.351	
50.0	1.317	1.318	1.323	1.328	1.333	1.338	1.343	1.343	1.343	1.343	1.343	1.343	1.343	
52.0	1.310	1.310	1.316	1.321	1.326	1.330	1.335	1.335	1.335	1.335	1.335	1.335	1.335	
54.0	1.303	1.303	1.309	1.313	1.318	1.322	1.327	1.327	1.327	1.327	1.327	1.327	1.327	
56.0	1.296	1.297	1.301	1.306	1.310	1.314	1.318	1.322	1.326	1.330	1.334	1.338	1.342	
58.0	1.290	1.290	1.294	1.298	1.302	1.306	1.310	1.314	1.318	1.322	1.326	1.330	1.334	
60.0	1.283	1.283	1.287	1.291	1.295	1.299	1.303	1.307	1.311	1.315	1.319	1.323	1.327	
62.0	1.276	1.276	1.280	1.284	1.288	1.292	1.296	1.300	1.304	1.308	1.312	1.316	1.320	
64.0														
66.0														
68.0														

DATA GIVEN ABOVE ISA+40 ARE TO BE USED FOR FLEX TAKEOFF ONLY



A318/A319/A320/A321

FLIGHT CREW
OPERATING MANUAL

**PERFORMANCE
THRUST RATINGS**

MAXIMUM TAKEOFF

V2500-A1	TAKEOFF EPR										NO AIR BLEED		MACH = .000	
EPR CORRECTIONS FOR AIR BLEED												OAT < 10 (°C)	OAT ≥ 10 (°C)	
AIR CONDITIONING ON												-.015	-.015	
ENGINE ANTI ICE ON												-.021	-.021	
ENGINE ANTI ICE AND WING ANTI ICE ON												-.031	-.031	
OAT (°C)	PRESSURE ALTITUDE (FT)													
	8500.	9000.	9500.	10000.	10500.	11000.	11500.	12000.	13000.	14000.	14500.			
-60.0	1.509	1.514	1.519	1.524	1.529	1.534	1.539	1.544	1.554	1.564	1.569			
-12.0	1.509	1.514	1.519	1.524	1.529	1.534	1.539	1.544	1.554	1.564	1.569			
-10.0	1.509	1.514	1.519	1.524	1.529	1.534	1.539	1.544	1.554	1.564	1.569			
-8.0	1.509	1.514	1.519	1.524	1.529	1.534	1.539	1.544	1.554	1.564	1.569			
-6.0	1.509	1.514	1.519	1.524	1.529	1.534	1.539	1.544	1.554	1.564	1.569			
-4.0	1.509	1.514	1.519	1.524	1.529	1.534	1.539	1.544	1.554	1.564	1.569			
-2.0	1.509	1.514	1.519	1.524	1.529	1.534	1.539	1.544	1.554	1.564	1.569			
0.0	1.509	1.514	1.519	1.524	1.529	1.534	1.539	1.544	1.554	1.564	1.569			
2.0	1.509	1.514	1.519	1.524	1.529	1.534	1.539	1.544	1.554	1.564	1.568			
4.0	1.509	1.514	1.519	1.524	1.529	1.534	1.539	1.544	1.554	1.558	1.558			
6.0	1.509	1.514	1.519	1.524	1.529	1.534	1.539	1.544	1.548	1.548	1.548			
8.0	1.509	1.514	1.519	1.524	1.529	1.534	1.537	1.537	1.537	1.537	1.537			
10.0	1.509	1.514	1.519	1.524	1.527	1.527	1.527	1.527	1.527	1.527	1.527			
12.0	1.509	1.514	1.517	1.517	1.517	1.517	1.517	1.517	1.517	1.517	1.517			
14.0	1.507	1.507	1.507	1.507	1.507	1.507	1.507	1.507	1.507	1.507	1.507			
16.0	1.497	1.497	1.497	1.497	1.497	1.497	1.497	1.497	1.497	1.497	1.497			
18.0	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487			
20.0	1.477	1.477	1.477	1.477	1.477	1.477	1.477	1.477	1.477	1.477	1.477			
22.0	1.468	1.468	1.468	1.468	1.468	1.468	1.468	1.468	1.468	1.468	1.468			
24.0	1.458	1.458	1.458	1.458	1.458	1.458	1.458	1.458	1.458	1.458	1.458			
26.0	1.448	1.448	1.448	1.448	1.448	1.448	1.448	1.448	1.448	1.448	1.448			
28.0	1.439	1.439	1.439	1.439	1.439	1.439	1.439	1.439	1.439	1.439	1.439			
30.0	1.429	1.429	1.429	1.429	1.429	1.429	1.429	1.429	1.429	1.429	1.429			
32.0	1.420	1.420	1.420	1.420	1.420	1.420	1.420	1.420	1.420	1.420	1.420			
34.0	1.411	1.411	1.411	1.411	1.411	1.411	1.411	1.411	1.411	1.411	1.411			
36.0	1.402	1.402	1.402	1.402	1.402	1.402	1.402	1.402	1.402					
38.0	1.393	1.393	1.393	1.393	1.393	1.393	1.393							
40.0	1.384	1.384	1.384	1.384	1.384									
42.0	1.375	1.375												
44.0	1.367													
<i>DATA GIVEN ABOVE ISA +35 ARE TO BE USED FOR FLEX TAKEOFF ONLY</i>														



A318/A319/A320/A321
 FLIGHT CREW
 OPERATING MANUAL

PERFORMANCE

THRUST RATINGS

MAXIMUM TAKEOFF

MAXIMUM TAKEOFF WITH BUMP

Applicable to: MSN 0164-0447

V2500-A1	BUMP TAKEOFF EPR							NO AIR BLEED		MACH = .000	
EPR CORRECTIONS FOR AIR BLEED								OAT < 10 (°C)	OAT ≥ 10 (°C)		
AIR CONDITIONING ON								-01	-01		
ENGINE ANTI ICE ON								0.0	-017		
ENGINE ANTI ICE AND WING ANTI ICE ON								-007	-024		
OAT (°C)	PRESSURE ALTITUDE (FT)										
	-1000.	0.	1000.	2000.	3000.	4000.	5000.	6000.	7000.	8000.	8500.
-60.0	1.380	1.397	1.412	1.428	1.456	1.481	1.502	1.512	1.522	1.532	1.535
-40.0	1.380	1.397	1.412	1.428	1.456	1.481	1.502	1.512	1.522	1.532	1.535
-20.0	1.380	1.397	1.412	1.428	1.456	1.481	1.502	1.512	1.522	1.532	1.535
-10.0	1.380	1.397	1.412	1.428	1.456	1.481	1.502	1.512	1.522	1.532	1.535
0.0	1.380	1.397	1.412	1.428	1.456	1.481	1.502	1.512	1.522	1.532	1.535
10.0	1.380	1.397	1.412	1.428	1.456	1.481	1.502	1.512	1.522	1.532	1.535
12.0	1.380	1.397	1.412	1.428	1.456	1.481	1.502	1.512	1.522	1.532	1.535
14.0	1.380	1.397	1.412	1.428	1.456	1.481	1.502	1.512	1.522	1.532	1.534
16.0	1.380	1.397	1.412	1.428	1.456	1.481	1.502	1.512	1.522	1.525	1.524
18.0	1.380	1.397	1.412	1.428	1.456	1.481	1.502	1.512	1.515	1.515	1.514
20.0	1.380	1.397	1.412	1.428	1.456	1.481	1.502	1.505	1.505	1.505	1.504
22.0	1.380	1.397	1.412	1.428	1.456	1.481	1.495	1.495	1.495	1.496	1.494
24.0	1.380	1.397	1.412	1.428	1.456	1.474	1.485	1.485	1.485	1.486	1.485
26.0	1.380	1.397	1.412	1.428	1.449	1.464	1.475	1.475	1.475	1.476	1.475
28.0	1.380	1.397	1.412	1.421	1.440	1.455	1.464	1.465	1.465	1.467	1.464
30.0	1.380	1.397	1.406	1.412	1.431	1.445	1.454	1.455	1.455	1.453	1.451
32.0	1.380	1.391	1.397	1.403	1.422	1.436	1.444	1.444	1.443	1.439	1.437
34.0	1.380	1.382	1.389	1.395	1.413	1.425	1.433	1.432	1.429	1.425	1.423
36.0	1.373	1.374	1.380	1.386	1.403	1.414	1.422	1.419	1.415	1.411	1.409
38.0	1.365	1.366	1.372	1.377	1.392	1.403	1.409	1.406	1.402	1.397	1.395
40.0	1.357	1.358	1.363	1.368	1.382	1.391	1.396	1.392	1.388		
42.0	1.349	1.349	1.355	1.360	1.372	1.380	1.383	1.379			
44.0	1.341	1.341	1.346	1.352	1.362	1.368	1.371				
46.0	1.333	1.333	1.338	1.344	1.353	1.357					
48.0	1.325	1.325	1.331	1.336	1.343						
50.0	1.317	1.318	1.323	1.328							
52.0	1.310	1.310	1.316								
54.0	1.303	1.303									
56.0	1.296										
58.0											



A318/A319/A320/A321

FLIGHT CREW
OPERATING MANUAL

PERFORMANCE

THRUST RATINGS

MAXIMUM GO AROUND

DEFINITION

Applicable to: ALL

It is the maximum permissible thrust during go-around.



A318/A319/A320/A321
 FLIGHT CREW
 OPERATING MANUAL

PERFORMANCE
THRUST RATINGS

MAXIMUM GO AROUND

MAXIMUM GO AROUND

Applicable to: MSN 3304

CFM56-5B4	N1 CORRECTIONS FOR AIR BLEED										OAT < CORNER POINT	OAT ≥ CORNER POINT	
	GO AROUND										0.7	0.7	
	N1												
	AIR CONDITIONING OFF												
ENGINE ANTI ICE ON										0.0	-1.6		
MACH = .225										0.0	-2.4		
TAT (°C)	PRESSURE ALTITUDE (FT)												
	-2000.	-1000.	0.	1000.	2000.	3000.	4000.	5000.	6000.	7000.			
-54.0	77.7	78.7	79.6	80.2	80.9	82.1	83.4	84.8	86.2	86.8			
-50.0	78.4	79.4	80.3	80.9	81.6	82.8	84.2	85.5	86.9	87.6			
-46.0	79.1	80.1	81.0	81.6	82.3	83.5	84.9	86.2	87.6	88.3			
-42.0	79.8	80.7	81.7	82.3	83.0	84.2	85.6	87.0	88.4	89.0			
-38.0	80.4	81.4	82.3	83.0	83.6	84.9	86.3	87.6	89.1	89.7			
-34.0	81.1	82.0	83.0	83.6	84.3	85.5	86.9	88.3	89.7	90.4			
-30.0	81.7	82.7	83.6	84.3	85.0	86.2	87.6	89.0	90.4	91.1			
-26.0	82.4	83.3	84.3	85.0	85.6	86.9	88.3	89.7	91.1	91.8			
-22.0	83.0	84.0	84.9	85.6	86.3	87.5	89.0	90.4	91.8	92.5			
-18.0	83.7	84.6	85.6	86.3	86.9	88.2	89.6	91.1	92.5	93.2			
-14.0	84.3	85.3	86.2	86.9	87.6	88.9	90.3	91.7	93.2	93.9			
-10.0	84.9	85.9	86.8	87.5	88.2	89.5	90.9	92.4	93.8	94.5			
-6.0	85.5	86.5	87.5	88.2	88.8	90.1	91.6	93.0	94.5	95.2			
-2.0	86.1	87.1	88.1	88.8	89.5	90.8	92.2	93.7	95.1	95.8			
2.0	86.7	87.7	88.7	89.4	90.1	91.4	92.9	94.3	95.8	96.5			
6.0	87.3	88.3	89.3	90.0	90.7	92.0	93.5	94.9	96.4	97.1			
10.0	87.9	88.9	89.9	90.6	91.3	92.6	94.1	95.6	97.1	97.8			
14.0	88.5	89.6	90.5	91.3	91.9	93.3	94.8	96.2	97.7	98.4			
18.0	89.1	90.1	91.1	91.8	92.5	93.9	95.4	96.8	98.3	99.0			
22.0	89.7	90.7	91.7	92.4	93.1	94.5	96.0	97.4	99.0	99.6			
26.0	90.3	91.3	92.3	93.0	93.7	95.1	96.6	98.1	99.0	99.0			
30.0	90.8	91.9	92.9	93.6	94.3	95.7	97.2	98.7	99.0	98.5			
34.0	91.4	92.5	93.5	94.2	94.9	96.3	97.7	97.4	97.9	97.7			
38.0	92.0	93.0	94.0	94.8	95.5	96.7	96.9	96.9	97.2	97.0			
42.0	92.6	93.6	94.6	95.4	96.1	96.3	96.2	96.0	96.3	96.2			
46.0	93.1	94.2	95.2	95.7	95.7	95.5	95.3	95.2	95.4				
50.0	93.7	94.5	94.8	94.8	94.8	94.6	94.4						
54.0	93.3	93.6	93.9	94.0	93.9								
58.0	92.4	92.8	93.1										
62.0	91.6												
											OAT < CORNER POINT		
											OAT ≥ CORNER POINT		



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CFM56-5B4 GO AROUND N1 AIR CONDITIONING ON MACH = .225	N1 CORRECTIONS FOR AIR BLEED										OAT < CORNER POINT	OAT > CORNER POINT
	AIR CONDITIONING OFF										0.7	0.7
ENGINE ANTI-ICE ON										0.0	-1.6	
ENGINE ANTI-ICE AND WING ANTI-ICE ON										0.0	-2.4	
TAT (C)	PRESSURE ALTITUDE (FT)											
	7000.	8000.	9000.	9200.	10000.	11000.	12000.	13000.	14000.	14500.		
-54.0	86.8	87.3	87.0	87.0	86.7	87.0	87.3	87.4	87.4	87.4		
-50.0	87.6	88.1	87.8	87.7	87.5	87.8	88.0	88.1	88.2	88.2		
-46.0	88.3	88.8	88.5	88.4	88.2	88.5	88.8	88.9	88.9	88.9		
-42.0	89.0	89.6	89.2	89.2	88.9	89.3	89.5	89.6	89.7	89.6		
-38.0	89.7	90.2	89.9	89.9	89.6	89.9	90.2	90.3	90.3	90.3		
-34.0	90.4	90.9	90.6	90.6	90.3	90.6	90.9	91.0	91.0	91.0		
-30.0	91.1	91.6	91.3	91.2	91.0	91.3	91.6	91.7	91.7	91.7		
-26.0	91.8	92.3	92.0	91.9	91.7	92.0	92.3	92.4	92.4	92.4		
-22.0	92.5	93.0	92.7	92.6	92.4	92.7	93.0	93.1	93.1	93.1		
-18.0	93.2	93.7	93.4	93.3	93.1	93.4	93.6	93.8	93.8	93.8		
-14.0	93.9	94.4	94.1	94.0	93.8	94.1	94.3	94.5	94.5	94.5		
-10.0	94.5	95.1	94.7	94.7	94.4	94.7	95.0	95.1	95.2	95.1		
-6.0	95.2	95.7	95.4	95.3	95.1	95.4	95.6	95.8	95.8	95.8		
-2.0	95.8	96.4	96.0	96.0	95.7	96.0	96.3	96.4	96.5	96.4		
2.0	96.5	97.0	96.7	96.6	96.4	96.7	96.9	97.1	97.1	97.1		
6.0	97.1	97.7	97.3	97.3	97.0	97.3	97.6	97.7	97.8	97.7		
10.0	97.8	98.3	98.0	97.9	97.7	98.0	98.2	98.4	98.4	98.4		
14.0	98.4	99.0	98.6	98.6	98.3	98.6	98.9	98.6	98.0	97.7		
18.0	99.0	99.6	99.3	99.1	98.2	98.1	97.7	97.2	96.4	95.9		
22.0	99.6	99.5	98.5	98.2	97.4	97.0	96.5	95.9	95.6	95.4		
26.0	99.0	98.7	97.6	97.4	96.5	96.1	95.8	95.5	95.1	94.9		
30.0	98.4	97.9	96.9	96.7	95.9	95.7	95.4	95.0	94.6			
34.0	97.7	97.3	96.3	96.2	95.5	95.3	95.0					
38.0	97.0	96.6	95.8	95.6	95.1							
42.0	96.2	95.9										
46.0												
50.0												
54.0												
											OAT < CORNER POINT	
											OAT > CORNER POINT	



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THRUST RATINGS

MAXIMUM GO AROUND

MAXIMUM GO AROUND

Applicable to: MSN 1429-1750

CFM56-5B6	N1 CORRECTIONS FOR AIR BLEED										OAT < ISA + 30	OAT ≥ ISA + 30	
	GO AROUND										.6	.6	
	N1												
	AIR CONDITIONING OFF												
ENGINE ANTI ICE ON										0.0			-1.3
MACH = .225										ENGINE ANTI ICE AND WING ANTI ICE ON		0.0	-1.9
TAT (°C)	PRESSURE ALTITUDE (FT)												
	-2000.	-1000.	0.	1000.	2000.	3000.	4000.	5000.	6000.	7000.			
-54.0	74.7	75.6	76.5	77.2	77.8	78.3	79.1	79.8	80.4	80.9			
-50.0	75.3	76.3	77.2	77.8	78.5	79.0	79.8	80.5	81.1	81.6			
-46.0	76.0	76.9	77.8	78.5	79.2	79.7	80.4	81.2	81.8	82.3			
-42.0	76.6	77.6	78.5	79.2	79.9	80.4	81.1	81.8	82.5	83.0			
-38.0	77.3	78.2	79.1	79.8	80.5	81.0	81.8	82.5	83.1	83.7			
-34.0	77.9	78.8	79.8	80.5	81.1	81.7	82.4	83.2	83.8	84.3			
-30.0	78.5	79.5	80.4	81.1	81.8	82.3	83.1	83.8	84.5	85.0			
-26.0	79.1	80.1	81.1	81.7	82.4	83.0	83.7	84.5	85.1	85.7			
-22.0	79.8	80.7	81.7	82.4	83.1	83.6	84.4	85.1	85.8	86.3			
-18.0	80.4	81.4	82.3	83.0	83.7	84.3	85.0	85.8	86.4	87.0			
-14.0	81.0	82.0	83.0	83.7	84.4	84.9	85.7	86.4	87.1	87.6			
-10.0	81.6	82.6	83.6	84.3	85.0	85.5	86.3	87.0	87.7	88.3			
-6.0	82.2	83.2	84.2	84.9	85.6	86.1	86.9	87.7	88.3	88.9			
-2.0	82.8	83.8	84.8	85.5	86.2	86.8	87.5	88.3	88.9	89.5			
2.0	83.4	84.4	85.4	86.1	86.8	87.4	88.1	88.9	89.6	90.1			
6.0	83.9	85.0	86.0	86.7	87.4	88.0	88.8	89.5	90.2	90.7			
10.0	84.5	85.6	86.6	87.3	88.0	88.6	89.4	90.1	90.8	91.4			
14.0	85.1	86.2	87.2	87.9	88.6	89.2	90.0	90.7	91.4	92.0			
18.0	85.7	86.7	87.7	88.5	89.2	89.8	90.6	91.3	92.0	92.6			
22.0	86.2	87.3	88.3	89.0	89.8	90.4	91.1	91.9	92.6	93.2			
26.0	86.8	87.9	88.9	89.6	90.3	90.9	91.7	92.5	93.2	93.8			
30.0	87.4	88.4	89.4	90.2	90.9	91.5	92.3	93.1	93.8	94.4			
34.0	87.9	89.0	90.0	90.8	91.5	92.1	92.9	93.7	94.4	95.0			
38.0	88.5	89.5	90.6	91.3	92.1	92.7	93.5	94.3	94.4	94.4			
42.0	89.0	90.1	91.1	91.9	92.6	93.2	93.6	93.8	93.8	93.7			
46.0	89.6	90.7	91.7	92.5	92.7	92.8	93.1	93.2	93.1				
50.0	90.1	91.2	91.8	92.1	92.3	92.4	92.6						
54.0	90.2	90.7	91.3	91.6	91.8								
58.0	89.6	90.2	90.8										
62.0	89.0												
OAT < ISA + 30											OAT ≥ ISA + 30		



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MAXIMUM GO AROUND

CFM56-5B6		N1 CORRECTIONS FOR AIR BLEED										OAT < ISA + 30		OAT ≥ ISA + 30	
GO AROUND N1		AIR CONDITIONING OFF										.6		.6	
AIR CONDITIONING ON		ENGINE ANTI ICE ON										0.0		-1.3	
MACH = .225		ENGINE ANTI ICE AND WING ANTI ICE ON										0.0		-1.9	
TAT (°C)	PRESSURE ALTITUDE (FT)														
	7000.	8000.	9000.	9200.	10000.	11000.	12000.	13000.	14000.	14500.					
-54.0	80.9	81.5	82.0	82.1	82.5	83.0	83.6	84.1	84.6	84.8					
-50.0	81.6	82.2	82.7	82.8	83.2	83.7	84.3	84.8	85.3	85.5					
-46.0	82.3	82.9	83.4	83.5	83.9	84.5	85.0	85.5	86.0	86.3					
-42.0	83.0	83.6	84.1	84.2	84.7	85.2	85.7	86.2	86.7	87.0					
-38.0	83.7	84.2	84.8	84.9	85.3	85.8	86.4	86.9	87.4	87.7					
-34.0	84.3	84.9	85.5	85.6	86.0	86.5	87.1	87.6	88.1	88.4					
-30.0	85.0	85.6	86.1	86.2	86.7	87.2	87.7	88.3	88.8	89.0					
-26.0	85.7	86.2	86.8	86.9	87.3	87.8	88.4	88.9	89.5	89.7					
-22.0	86.3	86.9	87.5	87.6	88.0	88.5	89.1	89.6	90.1	90.4					
-18.0	87.0	87.6	88.1	88.2	88.7	89.2	89.8	90.3	90.8	91.1					
-14.0	87.6	88.2	88.8	88.9	89.3	89.9	90.4	91.0	91.5	91.8					
-10.0	88.3	88.9	89.4	89.5	90.0	90.5	91.1	91.6	92.1	92.4					
-6.0	88.9	89.5	90.0	90.2	90.6	91.1	91.7	92.3	92.8	93.0					
-2.0	89.5	90.1	90.7	90.8	91.2	91.8	92.3	92.9	93.4	93.7					
2.0	90.1	90.7	91.3	91.4	91.9	92.4	93.0	93.5	94.1	94.3					
6.0	90.7	91.4	91.9	92.0	92.5	93.0	93.6	94.2	94.7	95.0					
10.0	91.4	92.0	92.6	92.7	93.1	93.7	94.2	94.8	95.3	95.6					
14.0	92.0	92.6	93.2	93.3	93.7	94.3	94.9	95.4	96.0	96.2					
18.0	92.6	93.2	93.8	93.9	94.4	94.9	95.5	96.1	96.6	96.9					
22.0	93.2	93.8	94.4	94.5	94.9	95.5	96.1	96.7	96.6	96.5					
26.0	93.8	94.4	95.0	95.1	95.5	96.1	96.7	96.0	95.8	95.8					
30.0	94.4	95.0	95.6	95.6	95.5	95.4	95.3	95.2	95.1						
34.0	95.0	95.0	94.9	94.9	94.7	94.6	94.5								
38.0	94.4	94.2	94.1	94.1	93.9										
42.0	93.7	93.5													
46.0															
50.0															
54.0															
58.0															
62.0															

OAT < ISA + 30
OAT ≥ ISA + 30



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MAXIMUM GO AROUND

MAXIMUM GO AROUND

Applicable to: MSN 0164-0447

V2500-A1	GO AROUND EPR										AIR COND ON		MACH = .225		
EPR CORRECTIONS FOR AIR BLEED											TAT < 10 (°C)		TAT ≥ 10 (°C)		
AIR CONDITIONING OFF											.010		.010		
ENGINE ANTI ICE ON											0.000		-.017		
ENGINE ANTI ICE AND WING ANTI ICE ON											-.007		-.024		
TAT (°C)	PRESSURE ALTITUDE (FT)														
	-1000.	0.	1000.	2000.	3000.	4000.	5000.	6000.	7000.	8000.	8500.				
-60.0	1.355	1.372	1.387	1.402	1.417	1.432	1.448	1.457	1.467	1.477	1.482				
-40.0	1.355	1.372	1.387	1.402	1.417	1.432	1.448	1.457	1.467	1.477	1.482				
-20.0	1.355	1.372	1.387	1.402	1.417	1.432	1.448	1.457	1.467	1.477	1.482				
-10.0	1.355	1.372	1.387	1.402	1.417	1.432	1.448	1.457	1.467	1.477	1.482				
0.0	1.355	1.372	1.387	1.402	1.417	1.432	1.448	1.457	1.467	1.477	1.482				
10.0	1.355	1.372	1.387	1.402	1.417	1.432	1.448	1.457	1.467	1.477	1.482				
12.0	1.355	1.372	1.387	1.402	1.417	1.432	1.448	1.457	1.467	1.477	1.482				
14.0	1.355	1.372	1.387	1.402	1.417	1.432	1.448	1.457	1.467	1.477	1.482				
16.0	1.355	1.372	1.387	1.402	1.417	1.432	1.448	1.457	1.467	1.477	1.482				
18.0	1.355	1.372	1.387	1.402	1.417	1.432	1.448	1.457	1.467	1.472	1.472				
20.0	1.355	1.372	1.387	1.402	1.417	1.432	1.448	1.457	1.462	1.462	1.461				
22.0	1.355	1.372	1.387	1.402	1.417	1.432	1.448	1.453	1.452	1.451	1.451				
24.0	1.355	1.372	1.387	1.402	1.417	1.432	1.443	1.442	1.442	1.441	1.441				
26.0	1.355	1.372	1.387	1.402	1.417	1.428	1.433	1.433	1.432	1.431	1.431				
28.0	1.355	1.372	1.387	1.402	1.413	1.418	1.423	1.423	1.422	1.422	1.421				
30.0	1.355	1.372	1.387	1.398	1.403	1.409	1.414	1.413	1.413	1.412	1.412				
32.0	1.355	1.372	1.383	1.389	1.394	1.399	1.404	1.404	1.403	1.403	1.402				
34.0	1.355	1.368	1.374	1.380	1.385	1.390	1.395	1.394	1.394	1.393	1.393				
36.0	1.355	1.360	1.365	1.371	1.376	1.381	1.386	1.385	1.385	1.384	1.384				
38.0	1.351	1.351	1.357	1.362	1.367	1.372	1.377	1.376	1.375	1.375	1.375				
40.0	1.343	1.343	1.348	1.353	1.358	1.363	1.368	1.367	1.367	1.366	1.366				
42.0	1.335	1.335	1.340	1.345	1.350	1.354	1.359	1.358	1.358	1.357					
44.0	1.327	1.327	1.332	1.337	1.341	1.346	1.350	1.350	1.349						
46.0	1.319	1.319	1.324	1.328	1.333	1.338	1.342	1.342							
48.0	1.311	1.311	1.316	1.320	1.325	1.330	1.334								
50.0	1.303	1.303	1.308	1.313	1.317	1.322									
52.0	1.296	1.296	1.301	1.305	1.310										
54.0	1.289	1.289	1.293	1.298											
56.0	1.282	1.282	1.286												
58.0	1.275	1.275													
60.0	1.269														
62.0															



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PERFORMANCE

THRUST RATINGS

MAXIMUM GO AROUND

V2500-A1	GO AROUND EPR										AIR COND ON		MACH = .225	
CORRECTIONS FOR AIR BLEED											TAT < 10 (°C)	TAT ≥ 10 (°C)		
AIR CONDITIONING OFF											0.015	0.015		
ENGINE ANTI-ICE ON											- 0.021	- 0.021		
ENGINE ANTI-ICE AND WING ANTI-ICE ON											- 0.031	- 0.031		
TAT (°C)	PRESSURE ALTITUDE (FT)													
	5000.	6000.	7000.	8000.	9000.	10000.	11000.	12000.	13000.	14000.	14500.			
-60.0	1.448	1.457	1.467	1.477	1.487	1.497	1.507	1.516	1.526	1.536	1.541			
-40.0	1.448	1.457	1.467	1.477	1.487	1.497	1.507	1.516	1.526	1.536	1.541			
-20.0	1.448	1.457	1.467	1.477	1.487	1.497	1.507	1.516	1.526	1.536	1.541			
-10.0	1.448	1.457	1.467	1.477	1.487	1.497	1.507	1.516	1.526	1.536	1.541			
0.0	1.448	1.457	1.467	1.477	1.487	1.497	1.507	1.516	1.526	1.536	1.541			
2.0	1.448	1.457	1.467	1.477	1.487	1.497	1.507	1.516	1.526	1.536	1.541			
4.0	1.448	1.457	1.467	1.477	1.487	1.497	1.507	1.516	1.526	1.536	1.541			
6.0	1.448	1.457	1.467	1.477	1.487	1.497	1.507	1.516	1.526	1.531	1.531			
8.0	1.448	1.457	1.467	1.477	1.487	1.497	1.507	1.516	1.521	1.520	1.520			
10.0	1.448	1.457	1.467	1.477	1.487	1.497	1.507	1.511	1.510	1.509	1.509			
12.0	1.448	1.457	1.467	1.477	1.487	1.497	1.502	1.501	1.500	1.498	1.498			
14.0	1.448	1.457	1.467	1.477	1.487	1.492	1.491	1.490	1.489	1.488	1.487			
16.0	1.448	1.457	1.467	1.477	1.482	1.481	1.480	1.479	1.478	1.477	1.477			
18.0	1.448	1.457	1.467	1.472	1.471	1.471	1.470	1.469	1.468	1.467	1.466			
20.0	1.448	1.457	1.462	1.462	1.461	1.461	1.460	1.459	1.458	1.456	1.456			
22.0	1.448	1.453	1.452	1.451	1.451	1.450	1.449	1.448	1.447	1.446	1.446			
24.0	1.443	1.442	1.442	1.441	1.441	1.440	1.439	1.438	1.437	1.436	1.436			
26.0	1.433	1.433	1.432	1.431	1.431	1.430	1.429	1.428	1.427	1.426	1.426			
28.0	1.423	1.423	1.422	1.422	1.421	1.421	1.420	1.419	1.418	1.416	1.416			
30.0	1.414	1.413	1.413	1.412	1.412	1.411	1.410	1.409	1.408	1.407				
32.0	1.404	1.404	1.403	1.403	1.402	1.401	1.400	1.399	1.398					
34.0	1.395	1.394	1.394	1.393	1.393	1.392	1.391	1.390						
36.0	1.386	1.385	1.385	1.384	1.383	1.383	1.382							
38.0	1.377	1.376	1.375	1.375	1.374	1.374								
40.0	1.368	1.367	1.367	1.366	1.366									
42.0	1.359	1.358	1.358	1.357										
44.0	1.350	1.350	1.349											
46.0	1.342	1.342												
48.0	1.334													
50.0														



A318/A319/A320/A321
FLIGHT CREW
OPERATING MANUAL

PERFORMANCE

THRUST RATINGS

MAXIMUM GO AROUND

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A318/A319/A320/A321

FLIGHT CREW
OPERATING MANUAL

PERFORMANCE

THRUST RATINGS

FLEXIBLE TAKEOFF

DEFINITION

Applicable to: MSN 0164-0447

It is a reduced takeoff thrust as compared to the maximum permissible. The related EPR is calculated as a function of the flexible temperature entered in the FMGS MCDU. The flexible temperature is a function of the aircraft weight and environmental conditions.

It guarantees that the regular performance requirements are met.

DEFINITION

Applicable to: MSN 1429-3304

It is a reduced takeoff thrust as compared to the maximum permissible. The related N1 is calculated as a function of the flexible temperature entered in the FMGS MCDU. The flexible temperature is a function of the aircraft weight and environmental conditions.

It guarantees that the regular performance requirements are met.



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FLIGHT CREW
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PERFORMANCE
THRUST RATINGS
FLEXIBLE TAKEOFF

FLEXIBLE TAKEOFF

Applicable to: MSN 3304



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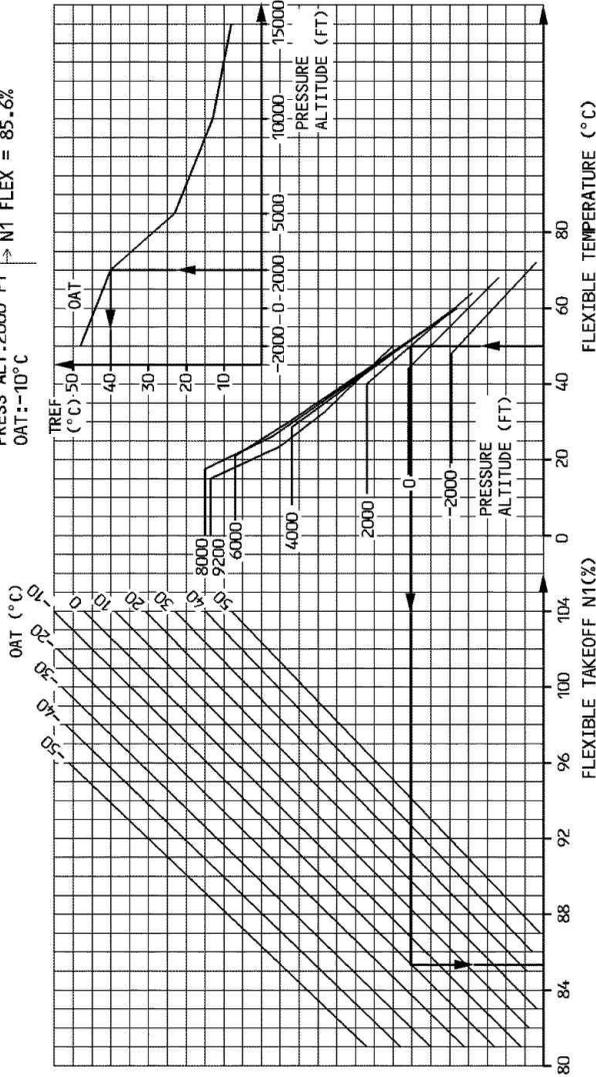
FLIGHT CREW
OPERATING MANUAL

PERFORMANCE

THRUST RATINGS

FLEXIBLE TAKEOFF

EXAMPLE : PRESS ALT : 2000 FT OAT=-10°C. FLX T=50°C.
- FLX TEMP 50°C > FLAT RATING TEMP (ISA+29=40°C)
PRESS ALT:2000 FT → N1 FLEX = 85.6%



CFM56-5B4	N1 CORRECTIONS FOR AIR BLEED	
FLEX TAKEOFF	AIR CONDITIONING ON	- .7
N1	ENGINE ANTI ICE ON	0.0
MACH = .000	ENGINE AND WING ANTI ICE ON	0.0



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FLIGHT CREW
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PERFORMANCE
THRUST RATINGS
FLEXIBLE TAKEOFF

FLEXIBLE TAKEOFF

Applicable to: MSN 1429-1750

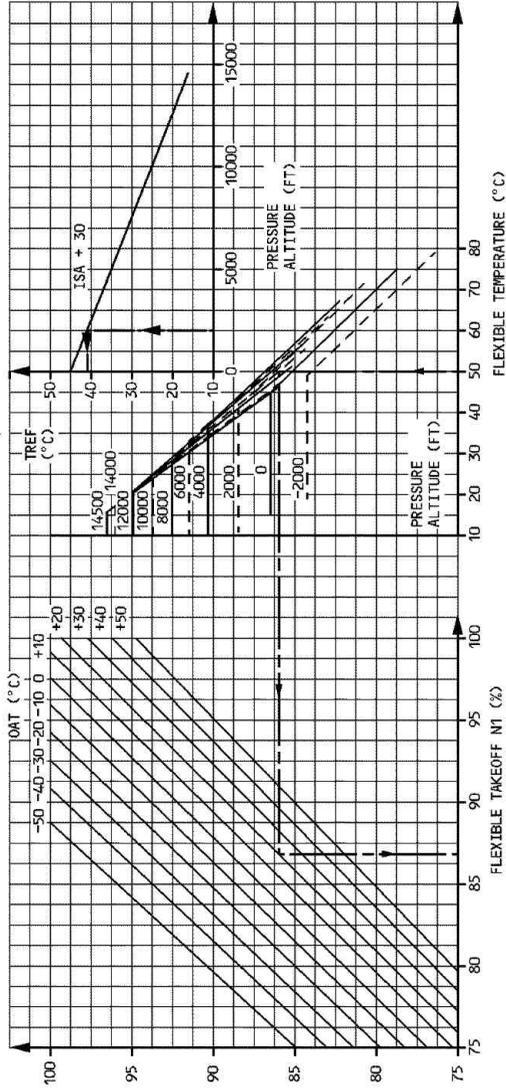


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FLIGHT CREW
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**PERFORMANCE
THRUST RATINGS
FLEXIBLE TAKEOFF**

EXAMPLE : PRESS ALT : 2000 FT OAT=+20°C. FLX T=50°C.
 - FLX TEMP 50°C > FLAT RATING TEMP (ISA+30=41°C)
 PRESS ALT:2000 FT → N1 FLEX = 87%



CFW56-5B6	N1 CORRECTIONS FOR AIR BLEED
FLEX TAKEOFF N1	AIR CONDITIONING ON - 0.700
MACH = .000	ENGINE ANTI ICE ON 0.000
	ENGINE AND WING ANTI ICE ON 0.000



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FLEXIBLE TAKEOFF

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THRUST RATINGS
MAXIMUM CONTINUOUS

DEFINITION

Applicable to: ALL

It is the maximum thrust certified for continuous use. This rating should be used, at the pilot's discretion, only when required to ensure safe flight (engine failure).

MAXIMUM CONTINUOUS

Applicable to: MSN 3304

CFM56-5B4		N1 CORRECTIONS FOR AIR BLEED								OAT < ISA + 10		OAT ≥ ISA + 10												
		MAXIMUM CONTINUOUS N1 AIR CONDITIONING ON*								0.9		0.9												
TAT (°C)		PRESSURE ALTITUDE (FT)																						
		-1000.		3000.		7000.		11000.		15000.		19000.		23000.		27000.		31000.		35000.		39000.		
		-54.0		-50.0		-46.0		-42.0		-38.0		-34.0		-30.0		-26.0		-22.0		-18.0		-14.0		-10.0
		75.6	77.6	79.2	81.1	85.2	87.3	87.0	83.2	84.3	85.1	84.1												
		76.2	78.3	79.9	81.8	85.9	88.0	87.7	84.0	85.0	85.8	84.9												
		76.9	79.0	80.6	82.6	86.6	88.8	88.5	84.7	85.7	86.6	85.6												
		77.6	79.6	81.2	83.3	87.4	89.5	89.2	85.4	86.4	87.3	86.3												
		78.2	80.3	81.9	83.9	88.0	90.2	89.9	86.1	87.1	88.0	87.0												
		78.8	80.9	82.5	84.6	88.7	90.9	90.6	86.7	87.8	88.6	87.7												
		79.5	81.6	83.2	85.2	89.4	91.6	91.3	87.4	88.5	89.3	88.3												
		80.1	82.2	83.8	85.9	90.1	92.3	92.0	88.1	89.2	90.0	89.0												
		80.7	82.8	84.5	86.6	90.8	93.0	92.7	88.7	89.8	90.5	89.7												
		81.4	83.5	85.1	87.2	91.5	93.7	93.4	89.4	90.5	91.3	90.6												
		82.0	84.1	85.8	87.9	92.1	94.3	94.0	90.1	91.4	92.0	91.3												
		82.6	84.7	86.4	88.5	92.8	95.0	94.7	90.3	91.4	92.0	91.3												
		83.2	85.3	87.0	89.1	93.4	95.6	95.3	90.0	91.7	92.0	91.3												
		83.8	85.9	87.6	89.8	94.1	96.3	94.6	89.7	91.0	91.6	91.3												
		84.4	86.5	88.3	90.4	94.7	96.3	93.9	89.0	90.4	91.0	90.6												
		85.0	87.1	88.9	91.0	95.4	95.4	93.3	88.4	89.8	90.4	90.0												
		85.5	87.8	89.5	91.6	94.8	94.8	92.8	87.8	89.2	89.8	89.4												
		86.1	88.4	90.1	92.0	94.0	94.2	92.4	87.1	88.5	89.1	88.7												
		86.7	88.9	90.7	91.5	93.3	93.6	91.9	86.5															
		87.3	89.5	90.7	91.0	92.8	93.1	91.3																
		87.8	90.1	90.2	90.5	92.2	92.5	92.0																
		88.4	89.8	89.7	90.0	91.5	92.0																	
		89.0	89.3	89.5	89.4	90.9																		
		88.5	88.9	89.1	88.8																			
		88.0	88.7	88.7	88.1																			
		87.4	88.3	88.2																				
		86.8	87.9	87.7																				
		86.2	87.5																					

* One engine inoperative – 1 pack operative on remaining engine.



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PERFORMANCE

THRUST RATINGS

MAXIMUM CONTINUOUS

MAXIMUM CONTINUOUS

Applicable to: MSN 1429-1750

CFM56-5B5/B6	N1 CORRECTIONS FOR AIR BLEED										OAT < ISA + 10	OAT ≥ ISA + 10
	MAXIMUM CONTINUOUS N1										.8	.8
	AIR CONDITIONING ON*											
	ENGINE ANTI ICE ON											
IAS = 230 KT										0.0	-2.5	
TAT (°C)	PRESSURE ALTITUDE (FT)											
	-1000.	3000.	7000.	11000.	15000.	19000.	23000.	27000.	31000.	35000.	39000.	
-54.0	73.4	76.1	78.4	80.4	81.8	81.4	82.2	83.2	84.3	85.1	84.1	
-50.0	74.1	76.8	79.1	81.1	82.6	82.1	83.0	84.0	85.0	85.8	84.9	
-46.0	74.7	77.4	79.8	81.8	83.3	82.8	83.7	84.7	85.7	86.6	85.6	
-42.0	75.4	78.1	80.5	82.5	84.0	83.5	84.4	85.4	86.4	87.3	86.3	
-38.0	76.0	78.7	81.1	83.1	84.6	84.2	85.0	86.1	87.1	88.0	87.0	
-34.0	76.6	79.4	81.8	83.8	85.3	84.8	85.7	86.7	87.8	88.6	87.7	
-30.0	77.2	80.0	82.4	84.5	86.0	85.5	86.4	87.4	88.5	89.3	88.3	
-26.0	77.8	80.6	83.1	85.1	86.6	86.1	87.0	88.1	89.2	90.0	89.0	
-22.0	78.5	81.3	83.7	85.8	87.3	86.8	87.7	88.7	89.8	90.5	89.7	
-18.0	79.1	81.9	84.4	86.4	88.0	87.5	88.4	89.4	90.5	90.3	89.6	
-14.0	79.7	82.5	85.0	87.1	88.6	88.1	89.0	90.1	90.4	90.0	89.3	
-10.0	80.3	83.1	85.6	87.7	89.3	88.8	89.7	90.3	90.1	89.6	89.0	
-6.0	80.8	83.7	86.2	88.3	89.9	89.4	90.3	90.0	89.7	89.0	88.2	
-2.0	81.4	84.3	86.9	88.9	90.5	90.0	90.0	89.7	89.0	88.4	87.5	
2.0	82.0	84.9	87.5	89.6	91.1	90.2	89.7	89.0	88.4	87.7	86.9	
6.0	82.6	85.5	88.1	90.2	91.8	89.9	89.3	88.4	87.8	87.0	86.3	
10.0	83.2	86.1	88.7	90.8	91.5	89.5	88.6	87.8	87.2	86.2	85.7	
14.0	83.8	86.7	89.3	91.2	91.1	89.0	87.9	87.1	86.5			
18.0	84.3	87.3	89.9	90.8	90.7	88.4	87.2	86.5				
22.0	84.9	87.8	90.0	90.4	90.3	87.6	86.5					
26.0	85.4	88.4	89.7	89.9	89.5	86.8						
30.0	86.0	88.5	89.5	89.3	88.8	86.0						
34.0	86.5	88.5	89.0	88.6	88.0							
38.0	86.7	88.4	88.4	87.9								
42.0	86.9	88.1	87.8	87.2								
46.0	87.0	87.5	87.1									
50.0	86.7	86.8	86.4									
54.0	86.0	86.2										
									OAT < ISA + 10			
									OAT ≥ ISA + 10			

(*) One engine inoperative - 1 pack operative on remaining engine.



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 FLIGHT CREW
 OPERATING MANUAL

PERFORMANCE

THRUST RATINGS

MAXIMUM CONTINUOUS

MAXIMUM CONTINUOUS

Applicable to: MSN 0164-0447

V2500-A1	MAXIMUM CONTINUOUS EPR AIR COND ON * IAS=230 KT										
EPR CORRECTIONS FOR AIR BLEED											
AIR CONDITIONING OFF										.017	
ENGINE ANTI ICE ON										-.017	
ENGINE ANTI ICE AND WING ANTI ICE ON										-.037	
TAT (°C)	PRESSURE ALTITUDE (FT)										
	-1000.	3000.	7000.	11000.	15000.	19000.	23000.	27000.	31000.	35000.	39000.
-54.0	1.278	1.311	1.364	1.426	1.470	1.464	1.439	1.469	1.493	1.509	1.494
-50.0	1.278	1.311	1.364	1.426	1.470	1.464	1.439	1.469	1.493	1.509	1.494
-46.0	1.278	1.311	1.364	1.426	1.470	1.464	1.439	1.469	1.493	1.509	1.494
-42.0	1.278	1.311	1.364	1.426	1.470	1.464	1.439	1.469	1.493	1.509	1.494
-38.0	1.278	1.311	1.364	1.426	1.470	1.464	1.439	1.469	1.493	1.509	1.494
-34.0	1.278	1.311	1.364	1.426	1.470	1.464	1.439	1.469	1.493	1.509	1.494
-30.0	1.278	1.311	1.364	1.426	1.470	1.464	1.439	1.469	1.493	1.509	1.494
-26.0	1.278	1.311	1.364	1.426	1.470	1.464	1.439	1.469	1.493	1.509	1.494
-22.0	1.278	1.311	1.364	1.426	1.470	1.464	1.439	1.469	1.493	1.505	1.494
-18.0	1.278	1.311	1.364	1.426	1.470	1.464	1.439	1.469	1.493	1.485	1.477
-14.0	1.278	1.311	1.364	1.426	1.470	1.464	1.439	1.469	1.473	1.463	1.454
-10.0	1.278	1.311	1.364	1.426	1.470	1.464	1.439	1.457	1.449	1.440	1.430
-6.0	1.278	1.311	1.364	1.426	1.470	1.464	1.439	1.433	1.424	1.416	1.406
-2.0	1.278	1.311	1.364	1.426	1.470	1.464	1.414	1.407	1.399	1.394	1.383
2.0	1.278	1.311	1.364	1.426	1.470	1.454	1.389	1.381	1.376	1.372	1.360
6.0	1.278	1.311	1.364	1.426	1.470	1.430	1.364	1.357	1.353	1.349	1.338
10.0	1.278	1.311	1.364	1.426	1.449	1.406	1.339	1.335	1.330	1.327	1.315
14.0	1.278	1.311	1.364	1.422	1.425	1.382	1.318	1.312	1.308		
18.0	1.278	1.311	1.364	1.401	1.402	1.359	1.296	1.291			
22.0	1.278	1.311	1.357	1.381	1.378	1.337	1.276				
26.0	1.278	1.311	1.344	1.361	1.357	1.316					
30.0	1.278	1.301	1.331	1.342	1.336	1.295					
34.0	1.278	1.289	1.320	1.323	1.317						
38.0	1.264	1.278	1.305	1.305							
42.0	1.251	1.268	1.288	1.287							
46.0	1.239	1.253	1.273								
50.0	1.228	1.239	1.258								
54.0	1.215	1.226									

* One engine inoperative – 1 pack operative on remaining engine.



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THRUST RATINGS

MAXIMUM CONTINUOUS

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PERFORMANCE

THRUST RATINGS

MAXIMUM CLIMB

DEFINITION

Applicable to: ALL

It is the maximum thrust approved for normal climb.

MAXIMUM CLIMB

Applicable to: MSN 3304

CFM56-5B4		N1 CORRECTIONS FOR AIR BLEED										OAT < ISA + 10	OAT ≥ ISA + 10
MAXIMUM CLIMB N1 AIR CONDITIONING ON 250/300/.78		AIR CONDITIONING OFF										.8	.8
		ENGINE ANTI ICE ON										0.0	-1.3
		ENGINE ANTI ICE AND WING ANTI ICE ON										0.0	-2.4
		PRESSURE ALTITUDE (FT)											
TAT (°C)	-1000.	3000.	7000.	11000.	15000.	19000.	23000.	27000.	31000.	35000.	39000.		
-54.0	73.5	75.4	77.0	77.8	78.8	79.8	80.7	81.5	82.5	83.9	83.9		
-50.0	74.2	76.1	77.6	78.4	79.5	80.5	81.4	82.2	83.3	84.6	84.6		
-46.0	74.8	76.8	78.3	79.1	80.2	81.2	82.1	82.9	84.0	85.3	85.3		
-42.0	75.5	77.4	79.0	79.8	80.9	81.9	82.8	83.6	84.7	86.0	86.0		
-38.0	76.1	78.1	79.6	80.5	81.5	82.5	83.5	84.3	85.3	86.7	86.7		
-34.0	76.7	78.7	80.3	81.1	82.2	83.2	84.1	84.9	86.0	87.4	87.4		
-30.0	77.3	79.3	80.9	81.7	82.8	83.8	84.8	85.6	86.7	88.1	88.1		
-26.0	77.9	80.0	81.5	82.4	83.5	84.5	85.4	86.2	87.4	88.7	88.7		
-22.0	78.6	80.6	82.2	83.0	84.1	85.1	86.1	86.9	88.0	89.4	89.4		
-18.0	79.2	81.2	82.8	83.7	84.8	85.8	86.7	87.6	88.7	90.1	89.9		
-14.0	79.8	81.8	83.5	84.3	85.4	86.4	87.4	88.2	89.4	90.3	89.6		
-10.0	80.4	82.4	84.1	84.9	86.0	87.1	88.0	88.9	90.0	90.1	89.4		
-6.0	81.0	83.0	84.7	85.5	86.6	87.7	88.7	89.5	90.3	90.0	88.8		
-2.0	81.5	83.6	85.3	86.1	87.2	88.3	89.3	90.1	90.1	89.5	88.0		
2.0	82.1	84.2	85.9	86.7	87.9	88.9	89.9	90.1	90.0	88.8	87.4		
6.0	82.7	84.8	86.5	87.3	88.5	89.5	90.0	89.9	89.6	88.2	86.8		
10.0	83.3	85.4	87.1	87.9	89.1	89.8	89.8	89.7	89.0	87.5	86.2		
14.0	83.9	86.0	87.7	88.6	89.7	89.6	89.7	89.2	88.4	86.8	85.6		
18.0	84.4	86.6	88.2	89.1	89.4	89.3	89.2	88.6	87.7				
22.0	85.0	87.1	88.7	89.2	89.0	88.6	88.6	87.9	87.0				
26.0	85.5	87.7	88.3	88.9	88.7	88.5	88.0	87.2	86.3				
30.0	86.1	87.8	87.9	88.5	88.2	87.8	87.2	86.6					
34.0	86.6	87.4	87.3	87.8	87.5	87.1	86.5						
38.0	86.4	86.9	86.6	87.1	86.8	86.4							
42.0	85.9	86.2	85.9	86.4	86.0								
46.0	85.3	85.4	85.2	85.7	85.3								
50.0	84.5	84.7	84.4	85.0									
54.0	83.7	84.0											
										OAT < ISA + 10			
										OAT ≥ ISA + 10			



A318/A319/A320/A321
FLIGHT CREW
OPERATING MANUAL

PERFORMANCE
THRUST RATINGS
MAXIMUM CLIMB

MAXIMUM CLIMB

Applicable to: MSN 0164-0447

V2500-A1	MAXIMUM CLIMB EPR										AIR COND ON	250/300/.78
CORRECTIONS FOR AIR BLEED												
AIR CONDITIONING OFF											.018	
ENGINE ANTI ICE ON											-.018	
ENGINE ANTI ICE AND WING ANTI ICE ON											-.030	
TAT (°C)	PRESSURE ALTITUDE (FT)											
	-1000.	3000.	7000.	11000.	15000.	19000.	23000.	27000.	31000.	35000.	39000.	
-54.0	1.262	1.296	1.322	1.318	1.344	1.372	1.382	1.407	1.439	1.484	1.489	
-50.0	1.262	1.296	1.322	1.318	1.344	1.372	1.382	1.407	1.439	1.484	1.489	
-46.0	1.262	1.296	1.322	1.318	1.344	1.372	1.382	1.407	1.439	1.484	1.489	
-42.0	1.262	1.296	1.322	1.318	1.344	1.372	1.382	1.407	1.439	1.484	1.489	
-38.0	1.262	1.296	1.322	1.318	1.344	1.372	1.382	1.407	1.439	1.484	1.489	
-34.0	1.262	1.296	1.322	1.318	1.344	1.372	1.382	1.407	1.439	1.484	1.489	
-30.0	1.262	1.296	1.322	1.318	1.344	1.372	1.382	1.407	1.439	1.484	1.489	
-26.0	1.262	1.296	1.322	1.318	1.344	1.372	1.382	1.407	1.439	1.484	1.489	
-22.0	1.262	1.296	1.322	1.318	1.344	1.372	1.382	1.407	1.439	1.484	1.489	
-18.0	1.262	1.296	1.322	1.318	1.344	1.372	1.382	1.407	1.439	1.484	1.484	
-14.0	1.262	1.296	1.322	1.318	1.344	1.372	1.382	1.407	1.439	1.470	1.460	
-10.0	1.262	1.296	1.322	1.318	1.344	1.372	1.382	1.407	1.439	1.445	1.436	
-6.0	1.262	1.296	1.322	1.318	1.344	1.372	1.382	1.407	1.429	1.420	1.411	
-2.0	1.262	1.296	1.322	1.318	1.344	1.372	1.382	1.407	1.404	1.395	1.386	
2.0	1.262	1.296	1.322	1.318	1.344	1.372	1.382	1.387	1.379	1.371	1.364	
6.0	1.262	1.296	1.322	1.318	1.344	1.372	1.367	1.362	1.354	1.349	1.341	
10.0	1.262	1.296	1.322	1.318	1.344	1.364	1.344	1.338	1.329	1.326	1.319	
14.0	1.262	1.296	1.322	1.318	1.344	1.341	1.321	1.314	1.308	1.304	1.297	
18.0	1.262	1.296	1.322	1.318	1.323	1.319	1.298	1.292	1.286			
22.0	1.262	1.296	1.320	1.307	1.301	1.297	1.277	1.271	1.265			
26.0	1.262	1.296	1.300	1.287	1.280	1.276	1.256	1.250	1.245			
30.0	1.262	1.288	1.281	1.267	1.259	1.256	1.236	1.230				
34.0	1.262	1.271	1.263	1.248	1.241	1.237	1.217					
38.0	1.251	1.254	1.247	1.230	1.223	1.219						
42.0	1.235	1.238	1.232	1.214	1.206							
46.0	1.220	1.223	1.218	1.199	1.191							
50.0	1.205	1.210	1.204	1.184								
54.0	1.192	1.197										



A318/A319/A320/A321
FLIGHT CREW
OPERATING MANUAL

PERFORMANCE

THRUST RATINGS

MAXIMUM CLIMB

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 <p>A318/A319/A320/A321 FLIGHT CREW OPERATING MANUAL</p>	<p>PERFORMANCE</p> <p>THRUST RATINGS</p> <p>MAXIMUM CRUISE</p>
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DEFINITION

Applicable to: MSN 0164-0447

It is the maximum thrust approved for normal cruise.
 There is no thrust lever position corresponding to this thrust rating.
 It is not displayed to the pilot, and the EPR limit which is displayed in cruise is the maximum climb EPR.
 The FMGS uses the maximum cruise EPR to compute the aircraft maximum speed.
 In manual thrust setting, in cruise, the pilot should limit EPR to the maximum cruise EPR that is equal to the displayed maximum climb EPR minus 0.07.

DEFINITION

Applicable to: MSN 1429-3304

It is the maximum thrust approved for normal cruise.
 There is no thrust lever position corresponding to this thrust rating.
 It is not displayed to the pilot, and the N1 limit which is displayed in cruise is the maximum climb N1.
 The FMGS uses the maximum cruise N1 to compute the aircraft maximum speed.
 In manual thrust setting, in cruise, the pilot should limit N1 to the maximum cruise N1 that is equal to the displayed maximum climb N1 minus 1.9 %.



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 OPERATING MANUAL

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THRUST RATINGS
 MAXIMUM CRUISE

MAXIMUM CRUISE

Applicable to: MSN 0164-0447

V2500-A1	MAXIMUM CRUISE EPR										AIR COND ON	250/300/.78
CORRECTIONS FOR AIR BLEED												
AIR CONDITIONING OFF											.018	
ENGINE ANTI ICE ON											-.018	
ENGINE ANTI ICE AND WING ANTI ICE ON											-.030	
TAT (°C)	PRESSURE ALTITUDE (FT)											
	-1000.	3000.	7000.	11000.	15000.	19000.	23000.	27000.	31000.	35000.	39000.	
-54.0	1.192	1.226	1.252	1.248	1.274	1.302	1.312	1.337	1.369	1.414	1.419	
-50.0	1.192	1.226	1.252	1.248	1.274	1.302	1.312	1.337	1.369	1.414	1.419	
-46.0	1.192	1.226	1.252	1.248	1.274	1.302	1.312	1.337	1.369	1.414	1.419	
-42.0	1.192	1.226	1.252	1.248	1.274	1.302	1.312	1.337	1.369	1.414	1.419	
-38.0	1.192	1.226	1.252	1.248	1.274	1.302	1.312	1.337	1.369	1.414	1.419	
-34.0	1.192	1.226	1.252	1.248	1.274	1.302	1.312	1.337	1.369	1.414	1.419	
-30.0	1.192	1.226	1.252	1.248	1.274	1.302	1.312	1.337	1.369	1.414	1.419	
-26.0	1.192	1.226	1.252	1.248	1.274	1.302	1.312	1.337	1.369	1.414	1.419	
-22.0	1.192	1.226	1.252	1.248	1.274	1.302	1.312	1.337	1.369	1.414	1.419	
-18.0	1.192	1.226	1.252	1.248	1.274	1.302	1.312	1.337	1.369	1.414	1.414	
-14.0	1.192	1.226	1.252	1.248	1.274	1.302	1.312	1.337	1.369	1.400	1.390	
-10.0	1.192	1.226	1.252	1.248	1.274	1.302	1.312	1.337	1.369	1.375	1.366	
-6.0	1.192	1.226	1.252	1.248	1.274	1.302	1.312	1.337	1.359	1.350	1.341	
-2.0	1.192	1.226	1.252	1.248	1.274	1.302	1.312	1.337	1.334	1.325	1.316	
2.0	1.192	1.226	1.252	1.248	1.274	1.302	1.312	1.317	1.309	1.301	1.294	
6.0	1.192	1.226	1.252	1.248	1.274	1.302	1.297	1.292	1.284	1.279	1.271	
10.0	1.192	1.226	1.252	1.248	1.274	1.294	1.274	1.268	1.259	1.256	1.249	
14.0	1.192	1.226	1.252	1.248	1.274	1.271	1.251	1.244	1.238	1.234	1.227	
18.0	1.192	1.226	1.252	1.248	1.253	1.249	1.228	1.222	1.216			
22.0	1.192	1.226	1.250	1.237	1.231	1.227	1.207	1.201	1.195			
26.0	1.192	1.226	1.230	1.217	1.210	1.206	1.186	1.180	1.175			
30.0	1.192	1.218	1.211	1.197	1.189	1.186	1.166	1.160				
34.0	1.192	1.201	1.193	1.178	1.171	1.167	1.147					
38.0	1.181	1.184	1.177	1.160	1.153	1.149						
42.0	1.165	1.168	1.162	1.144	1.136							
46.0	1.150	1.153	1.148	1.129	1.121							
50.0	1.135	1.140	1.134	1.114								
54.0	1.122	1.127										



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**FLIGHT CREW
OPERATING MANUAL**

PERFORMANCE

THRUST RATINGS

N1 MODE THRUST CONTROL

N1 MODE THRUST CONTROL

Applicable to: MSN 0164-0447

In case of no EPR available, the thrust control automatically reverts to N1 mode (rated or unrated).

Refer to PRO-ABN-70-H ENG 1(2) EPR MODE FAULT.

If the N1 rated mode is lost on both engines, refer to the power management tables given on the following pages.

The herebelow table gives the N1 to be set in cruise to maintain M 0.78.

FLIGHT LEVEL						
WEIGHT (1 000 KG)	290	310	330	350	370	390
50	79.7	79.5	79.5	79.6	80.1	81.4
52	79.9	79.8	79.8	80.0	80.6	81.9
54	80.1	80.0	80.1	80.3	81.0	82.5
56	80.3	80.3	80.4	80.6	81.5	83.1
58	80.5	80.6	80.8	81.0	82.0	83.8
60	80.7	80.9	81.1	81.4	82.5	84.5
62	81.0	81.2	81.4	81.9	83.1	85.6
64	81.2	81.4	81.8	82.3	83.7	
66	81.5	81.7	82.1	82.9	84.3	
68	81.8	82.0	82.5	83.3	85.1	
70	82.0	82.3	82.9	83.9	86	
72	82.3	82.7	83.3	84.5		
74	82.5	83.0	83.8	85.1		
76	82.9	83.4	84.4	85.9		
						N1 (%)

Drift Down ceilings and go around performance are affected as follows:

Drift down ceiling:

Actual Weight (1 000 Kg)	40	50	60	70
Ceiling Penalty (ft)	4 000	4 700	5 300	6 000

Go around weight:

Normal go around Weight (1 000 Kg)	40	45	50	55	60	65	70	75	80	85
Weight Penalty (1 000 Kg)	5.2	5.9	6.5	7.2	7.8	8.5	9.1	9.8	10.4	11



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PERFORMANCE

THRUST RATINGS

N1 MODE THRUST CONTROL

MAXIMUM TAKEOFF N1

Applicable to: MSN 0164-0447

V2500-A1	TAKEOFF N1										NO AIR BLEED	MACH = .000
N1 CORRECTIONS FOR AIR BLEED											OAT < 10 (°C)	OAT > 10 (°C)
AIR CONDITIONING ON											-4	-4
ENGINE ANTI ICE ON											0.0	-7
ENGINE ANTI ICE AND WING ANTI ICE ON											-3	-1.0
OAT (°C)	PRESSURE ALTITUDE (FT)											
	-1000.	0.	1000.	2000.	3000.	4000.	5000.	6000.	7000.	8000.	8500.	
-54.0	77.5	78.3	79.0	79.7	80.4	81.2	81.9	82.4	82.8	83.3	83.6	
-50.0	78.2	79.0	79.7	80.5	81.2	81.9	82.6	83.1	83.6	84.1	84.3	
-46.0	78.9	79.7	80.4	81.2	81.9	82.6	83.4	83.8	84.3	84.8	85.1	
-42.0	79.6	80.4	81.2	81.9	82.6	83.4	84.1	84.6	85.1	85.6	85.8	
-38.0	80.3	81.1	81.9	82.6	83.3	84.1	84.8	85.3	85.8	86.3	86.6	
-34.0	81.0	81.8	82.5	83.3	84.0	84.8	85.5	86.0	86.5	87.0	87.3	
-30.0	81.6	82.5	83.2	84.0	84.7	85.5	86.3	86.7	87.2	87.8	88.0	
-26.0	82.3	83.2	83.9	84.7	85.4	86.2	87.0	87.5	88.0	88.5	88.7	
-22.0	83.0	83.8	84.6	85.4	86.1	86.9	87.7	88.2	88.7	89.2	89.5	
-18.0	83.6	84.5	85.3	86.0	86.8	87.6	88.4	88.9	89.4	89.9	90.2	
-14.0	84.3	85.2	85.9	86.7	87.5	88.3	89.1	89.6	90.1	90.6	90.9	
-10.0	84.9	85.8	86.6	87.4	88.2	88.9	89.7	90.2	90.8	91.3	91.6	
-6.0	85.6	86.5	87.2	88.0	88.8	89.6	90.4	90.9	91.5	92.0	92.3	
-2.0	86.2	87.1	87.9	88.7	89.5	90.3	91.1	91.6	92.1	92.7	93.0	
2.0	86.8	87.8	88.5	89.3	90.1	90.9	91.8	92.3	92.8	93.4	93.6	
6.0	87.5	88.4	89.2	90.0	90.8	91.6	92.4	92.9	93.5	94.0	94.3	
10.0	88.1	89.0	89.8	90.6	91.4	92.3	93.1	93.6	94.2	94.7	95.0	
14.0	88.7	89.6	90.5	91.3	92.1	92.9	93.7	94.3	94.8	95.4	95.7	
18.0	89.3	90.3	91.1	91.9	92.7	93.6	94.4	94.9	95.5	95.6	95.6	
22.0	89.9	90.9	91.7	92.5	93.4	94.2	95.0	95.2	95.2	95.2	95.2	
26.0	90.6	91.5	92.3	93.2	94.0	94.4	94.7	94.7	94.7	94.7	94.7	
30.0	91.2	92.1	92.9	93.4	93.7	94.0	94.3	94.3	94.3	94.3	94.3	
34.0	91.8	92.3	92.7	93.0	93.3	93.6	93.9	93.9	93.9	93.9	93.9	
38.0	92.0	92.0	92.3	92.7	93.0	93.2	93.5	93.5	93.5	93.5	93.5	
42.0	91.7	91.7	92.0	92.3	92.6	92.9	93.2	93.2				
46.0	91.3	91.3	91.7	92.0	92.3	92.6						
50.0	90.7	90.7	91.1	91.5								
54.0	90.1	90.2										



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THRUST RATINGS

N1 MODE THRUST CONTROL

MAXIMUM GO AROUND N1

Applicable to: MSN 0164-0447

V2500-A1	GO AROUND N1										AIR COND ON			MACH=.225		
N1 CORRECTIONS FOR AIR BLEED													TAT<10 (°C)		TAT>10 (°C)	
AIR CONDITIONING OFF													.5		.5	
ENGINE ANTI ICE ON													0.0		-0.8	
ENGINE ANTI ICE AND WING ANTI ICE ON													-4		-1.2	
TAT (°C)	PRESSURE ALTITUDE (FT)															
	-1000.	0.	1000.	2000.	3000.	4000.	5000.	6000.	7000.	8000.	8500.					
-60.0	76.1	76.9	77.6	78.2	78.9	79.6	80.3	80.7	81.2	81.6	81.8					
-56.0	76.8	77.6	78.3	79.0	79.6	80.3	81.0	81.5	81.9	82.4	82.6					
-52.0	77.5	78.3	79.0	79.7	80.4	81.1	81.8	82.2	82.7	83.1	83.4					
-48.0	78.2	79.0	79.7	80.4	81.1	81.8	82.5	83.0	83.4	83.9	84.1					
-44.0	78.9	79.7	80.4	81.1	81.8	82.5	83.3	83.7	84.2	84.6	84.9					
-40.0	79.6	80.4	81.1	81.8	82.5	83.3	84.0	84.4	84.9	85.4	85.6					
-36.0	80.3	81.1	81.8	82.5	83.2	84.0	84.7	85.1	85.6	86.1	86.3					
-32.0	81.0	81.8	82.5	83.2	83.9	84.7	85.4	85.9	86.3	86.8	87.1					
-28.0	81.6	82.5	83.2	83.9	84.6	85.4	86.1	86.6	87.0	87.5	87.8					
-24.0	82.3	83.1	83.8	84.6	85.3	86.1	86.8	87.3	87.7	88.2	88.5					
-20.0	82.9	83.8	84.5	85.3	86.0	86.7	87.5	88.0	88.4	88.9	89.2					
-16.0	83.6	84.4	85.2	85.9	86.7	87.4	88.2	88.7	89.1	89.6	89.9					
-12.0	84.2	85.1	85.8	86.6	87.3	88.1	88.9	89.4	89.8	90.3	90.6					
-8.0	84.9	85.7	86.5	87.3	88.0	88.8	89.6	90.0	90.5	91.0	91.3					
-4.0	85.5	86.4	87.1	87.9	88.7	89.4	90.2	90.7	91.2	91.7	92.0					
0.0	86.2	87.0	87.8	88.6	89.3	90.1	90.9	91.4	91.9	92.4	92.6					
4.0	86.8	87.7	88.4	89.2	90.0	90.8	91.6	92.0	92.5	93.1	93.3					
8.0	87.4	88.3	89.1	89.8	90.6	91.4	92.2	92.7	93.2	93.7	94.0					
12.0	88.0	88.9	89.7	90.5	91.3	92.1	92.9	93.4	93.9	94.4	94.7					
16.0	88.6	89.5	90.3	91.1	91.9	92.7	93.5	94.0	94.5	95.1	95.2					
20.0	89.3	90.2	90.9	91.7	92.5	93.4	94.2	94.7	94.8	94.7	94.7					
24.0	89.9	90.8	91.6	92.4	93.2	94.0	94.4	94.4	94.3	94.3	94.3					
28.0	90.5	91.4	92.2	93.0	93.4	93.7	94.0	93.9	93.9	93.9	93.9					
32.0	91.1	92.0	92.4	92.7	93.0	93.3	93.6	93.5	93.5	93.5	93.5					
36.0	91.7	91.7	92.1	92.4	92.6	92.9	93.2	93.1	93.1	93.1	93.1					
40.0	91.4	91.4	91.7	92.0	92.3	92.5	92.8	92.7	92.7	92.7	92.7					
44.0	91.0	91.0	91.4	91.6	91.9	92.2	92.4	92.4	92.4							
48.0	90.4	90.4	90.8	91.1	91.5	91.8	92.1									
52.0	89.8	89.8	90.2	90.6	90.9											
56.0	89.4	89.4	89.7													



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N1 MODE THRUST CONTROL

MAXIMUM CONTINUOUS N1

Applicable to: MSN 0164-0447

V2500-A1	MAXIMUM CONTINUOUS N1										AIR COND ON *	IAS=230 KT
N1 CORRECTIONS FOR AIR BLEED												
AIR CONDITIONING OFF											.8	
ENGINE ANTI ICE ON											- .8	
ENGINE ANTI ICE AND WING ANTI ICE ON											-1.7	
TAT (°C)	PRESSURE ALTITUDE (FT)											
	-1000.	3000.	7000.	11000.	15000.	19000.	23000.	27000.	31000.	35000.	39000.	
-54.0	73.9	76.0	78.7	81.6	83.7	83.5	82.4	83.7	84.5	84.4	84.5	
-50.0	74.6	76.7	79.4	82.4	84.5	84.3	83.2	84.5	85.2	85.2	85.3	
-46.0	75.2	77.4	80.1	83.1	85.2	85.0	83.9	85.2	86.0	85.9	86.1	
-42.0	75.9	78.0	80.8	83.9	86.0	85.8	84.7	86.0	86.7	86.7	86.8	
-38.0	76.6	78.7	81.5	84.6	86.7	86.5	85.4	86.7	87.5	87.4	87.6	
-34.0	77.2	79.4	82.2	85.3	87.5	87.3	86.1	87.5	88.2	88.2	88.3	
-30.0	77.9	80.0	82.9	86.0	88.2	88.0	86.8	88.2	89.0	88.9	89.1	
-26.0	78.5	80.7	83.6	86.7	88.9	88.7	87.5	88.9	89.7	89.6	89.8	
-22.0	79.1	81.3	84.2	87.4	89.6	89.4	88.2	89.6	90.4	90.3	90.5	
-18.0	79.8	82.0	84.9	88.1	90.3	90.1	88.9	90.3	91.1	91.1	90.6	
-14.0	80.4	82.6	85.6	88.8	91.0	90.8	89.6	90.6	90.9	90.8	90.4	
-10.0	81.0	83.3	86.2	89.5	91.7	91.5	90.2	90.8	90.9	90.5	90.1	
-6.0	81.6	83.9	86.9	90.1	92.4	92.2	90.5	90.8	90.6	90.2	89.8	
-2.0	82.2	84.5	87.5	90.8	93.1	92.9	90.4	90.4	90.2	89.8	89.5	
2.0	82.8	85.1	88.2	91.5	93.8	92.7	90.1	90.0	89.8	89.5	89.2	
6.0	83.4	85.8	88.8	92.1	94.1	92.4	89.6	89.5	89.4	89.2	88.9	
10.0	84.0	86.4	89.4	92.8	93.8	91.9	89.2	89.1	89.0	88.9	88.5	
14.0	84.6	87.0	90.1	92.8	93.3	91.3	88.8	88.7	88.7			
18.0	85.2	87.6	90.7	92.4	92.7	90.8	88.4	88.4				
22.0	85.8	88.2	90.4	92.0	92.2	90.2	88.1					
26.0	86.4	88.7	90.1	91.6	91.7	89.7						
30.0	86.9	88.2	90.0	91.2	91.2	89.3						
34.0	87.3	88.0	89.9	90.9	90.8							
38.0	87.7	87.7	89.9	90.4								
42.0	87.3	87.7	89.7	90.0								
46.0	86.7	87.7	89.3									
50.0	86.0	87.4	89.0									
54.0	85.4	86.9										

Note : * One engine inoperative – 1 pack operative on remaining engine.



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THRUST RATINGS

N1 MODE THRUST CONTROL

MAXIMUM CLIMB N1

Applicable to: MSN 0164-0447

V2500-A1		MAXIMUM CLIMB N1										AIR COND ON
N1 CORRECTIONS FOR AIR BLEED												
AIR CONDITIONING OFF											.8	
ENGINE ANTI ICE ON											-.8	
ENGINE ANTI ICE AND WING ANTI ICE ON											-1.3	
TAT (°C)	PRESSURE ALTITUDE (FT)											
	-1000.	3000.	7000.	11000.	15000.	19000.	23000.	27000.	31000.	35000.	39000.	
-54.	73.8	75.0	76.4	77.7	79.0	80.1	80.6	81.8	83.0	84.6	84.8	
-50.	74.5	75.7	77.1	78.4	79.7	80.8	81.4	82.6	83.7	85.4	85.6	
-46.	75.1	76.4	77.8	79.1	80.4	81.6	82.1	83.3	84.5	86.1	86.3	
-42.	75.8	77.1	78.4	79.8	81.1	82.3	82.8	84.1	85.2	86.9	87.1	
-38.	76.4	77.7	79.1	80.5	81.8	83.0	83.5	84.8	85.9	87.6	87.8	
-34.	77.1	78.4	79.8	81.1	82.5	83.7	84.2	85.5	86.7	88.4	88.6	
-30.	77.7	79.0	80.4	81.8	83.2	84.4	84.9	86.2	87.4	89.1	89.3	
-26.	78.4	79.7	81.1	82.5	83.9	85.1	85.6	86.9	88.1	89.9	90.0	
-22.	79.0	80.3	81.8	83.2	84.5	85.8	86.3	87.6	88.8	90.6	90.8	
-18.	79.6	81.0	82.4	83.8	85.2	86.4	87.0	88.3	89.5	91.3	90.9	
-14.	80.2	81.6	83.1	84.5	85.9	87.1	87.7	89.0	90.2	91.0	90.7	
-10.	80.9	82.2	83.7	85.1	86.5	87.8	88.3	89.7	90.9	90.7	90.4	
-6.	81.5	82.9	84.3	85.8	87.2	88.5	89.0	90.4	90.8	90.4	90.0	
-2.	82.1	83.5	85.0	86.4	87.8	89.1	89.7	90.5	90.4	90.0	89.7	
2.	82.7	84.1	85.6	87.0	88.5	89.8	90.1	90.1	90.0	89.7	89.4	
6.	83.3	84.7	86.2	87.7	89.1	90.4	89.7	89.7	89.6	89.4	89.1	
10.	83.9	85.3	86.8	88.3	89.8	90.1	89.3	89.3	89.2	89.1	88.8	
14.	84.5	85.9	87.4	88.9	89.8	89.7	88.9	88.9	88.9	88.8		
18.	85.0	86.5	88.0	89.5	89.3	89.3	88.6	88.6	88.5			
22.	85.6	87.1	88.6	89.1	88.9	88.9	88.2	88.2	88.2			
26.	86.2	87.7	88.8	88.7	88.5	88.6	87.9	87.9				
30.	86.8	88.3	88.4	88.3	88.2	88.2	87.6					
34.	87.3	88.1	88.0	88.0	87.9	87.9						
38.	87.8	87.7	87.7	87.7	87.5	87.5						
42.	87.4	87.3	87.2	87.2	87.0							
46.	86.8	86.6	86.7	86.7								
50.	86.1	86.1	86.3									
54.	85.5	85.6										

Note: This table is valid for all aircraft speeds.



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N1 MODE THRUST CONTROL

MAXIMUM CRUISE N1

Applicable to: MSN 0164-0447

V2500-A1		MAXIMUM CRUISE N1										AIR COND ON	
N1 CORRECTIONS FOR AIR BLEED													
AIR CONDITIONING OFF											.8		
ENGINE ANTI ICE ON											- .8		
ENGINE ANTI ICE AND WING ANTI ICE ON											-1.3		
TAT (°C)	PRESSURE ALTITUDE (FT)												
	-1000.	3000.	7000.	11000.	15000.	19000.	23000.	27000.	31000.	35000.	39000.		
-54.	69.5	71.4	73.3	74.8	76.1	77.4	78.0	79.2	80.3	81.9	82.1		
-50.	70.1	72.0	73.9	75.4	76.8	78.1	78.7	79.9	81.1	82.7	82.8		
-46.	70.7	72.7	74.6	76.1	77.5	78.8	79.4	80.6	81.8	83.4	83.6		
-42.	71.4	73.3	75.3	76.8	78.2	79.5	80.1	81.3	82.5	84.2	84.3		
-38.	72.0	73.9	75.9	77.4	78.9	80.2	80.8	82.0	83.2	84.9	85.0		
-34.	72.6	74.6	76.5	78.1	79.5	80.8	81.4	82.7	83.9	85.6	85.8		
-30.	73.2	75.2	77.2	78.7	80.2	81.5	82.1	83.4	84.6	86.3	86.5		
-26.	73.8	75.8	77.8	79.4	80.9	82.2	82.8	84.1	85.3	87.0	87.2		
-22.	74.4	76.4	78.4	80.0	81.5	82.8	83.5	84.8	86.0	87.7	87.9		
-18.	75.0	77.0	79.1	80.7	82.2	83.5	84.1	85.5	86.7	88.4	88.1		
-14.	75.6	77.6	79.7	81.3	82.8	84.2	84.8	86.1	87.4	88.2	87.8		
-10.	76.1	78.2	80.3	81.9	83.4	84.8	85.4	86.8	88.0	87.9	87.5		
-6.	76.7	78.8	80.9	82.5	84.1	85.4	86.1	87.5	87.9	87.5	87.1		
-2.	77.3	79.4	81.5	83.1	84.7	86.1	86.7	87.6	87.5	87.1	86.8		
2.	77.9	80.0	82.1	83.8	85.3	86.7	87.1	87.2	87.0	86.8	86.4		
6.	78.4	80.5	82.7	84.4	85.9	87.3	86.8	86.7	86.6	86.4	86.1		
10.	79.0	81.1	83.3	85.0	86.6	87.0	86.3	86.2	86.1	86.0	85.7		
14.	79.5	81.7	83.9	85.6	86.5	86.6	85.9	85.8	85.7	85.6			
18.	80.1	82.3	84.5	86.1	86.0	86.1	85.4	85.3	85.3				
22.	80.6	82.8	85.0	85.7	85.6	85.6	84.9	84.8	84.9				
26.	81.2	83.4	85.1	85.0	84.8	85.0	84.3	84.4					
30.	81.7	83.9	84.3	84.3	84.2	84.4	83.8						
34.	82.3	83.4	83.5	83.6	83.6	83.9							
38.	82.6	82.6	82.8	83.0	83.1	83.4							
42.	81.8	81.9	82.2	82.5	82.6								
46.	81.0	81.3	81.7	81.9									
50.	80.3	80.5	81.0										
54.	79.4	79.8											

Note: This table is valid for all aircraft speeds.