

AIRBUS A319-113/114

FCOM Vol.3 Excerpt

A319-114 (23.5K)

A318/A319/A320/A321 Siberia <small>FLIGHT CREW OPERATING MANUAL</small>	IN FLIGHT PERFORMANCE		3.05.06	P 3
	THRUST RATINGS		SEQ 035	REV 25

TAKEOFF

CFM56-5A5		N1 CORRECTIONS FOR AIR BLEED						OAT < ISA+ 22		OAT ≥ ISA+ 22					
TAKE OFF															
N1		AIR CONDITIONING ON						-7		-7					
NO AIR BLEED		ENGINE ANTI ICE ON						0.0		-1.2					
MACH=.000		ENGINE ANTI ICE AND WING ANTI ICE ON						0.0		-1.8					
OAT (°C)	PRESSURE ALTITUDE (FT)														
	-2000.	-1000.	0.	1000.	2000.	3000.	4000.	5000.	6000.	7000.					
-54.0	78.9	79.9	81.0	81.5	82.0	82.5	83.2	83.9	84.6	85.0					
-50.0	79.6	80.6	81.6	82.2	82.7	83.2	83.9	84.6	85.3	85.8					
-46.0	80.2	81.3	82.3	82.9	83.4	83.9	84.6	85.3	86.0	86.5					
-42.0	80.9	82.0	83.0	83.6	84.1	84.6	85.3	86.0	86.7	87.2					
-38.0	81.5	82.6	83.7	84.3	84.8	85.3	86.0	86.7	87.4	87.9					
-34.0	82.2	83.3	84.3	84.9	85.5	86.0	86.7	87.4	88.1	88.6					
-30.0	82.8	83.9	85.0	85.6	86.2	86.6	87.4	88.0	88.8	89.3					
-26.0	83.5	84.6	85.7	86.2	86.8	87.3	88.0	88.7	89.5	90.0					
-22.0	84.1	85.2	86.3	86.9	87.5	88.0	88.7	89.4	90.2	90.6					
-18.0	84.7	85.9	87.0	87.5	88.1	88.6	89.4	90.1	90.8	91.3					
-14.0	85.4	86.5	87.6	88.2	88.8	89.3	90.0	90.7	91.5	92.0					
-10.0	86.0	87.1	88.2	88.8	89.4	89.9	90.7	91.4	92.2	92.7					
-6.0	86.6	87.7	88.9	89.5	90.1	90.6	91.3	92.0	92.8	93.3					
-2.0	87.2	88.3	89.5	90.1	90.7	91.2	91.9	92.7	93.5	94.0					
2.0	87.8	89.0	90.1	90.7	91.3	91.8	92.6	93.3	94.1	94.6					
6.0	88.4	89.6	90.7	91.3	91.9	92.4	93.2	94.0	94.8	95.3					
10.0	89.0	90.2	91.3	91.9	92.5	93.1	93.8	94.6	95.4	95.9					
14.0	89.6	90.8	91.9	92.5	93.2	93.7	94.5	95.2	96.0	96.5					
18.0	90.2	91.4	92.5	93.1	93.8	94.3	95.1	95.8	96.7	97.2					
22.0	90.7	91.9	93.1	93.7	94.4	94.9	95.7	96.4	97.3	97.8					
26.0	91.3	92.5	93.7	94.3	95.0	95.5	96.3	97.1	97.7	97.7					
30.0	91.9	93.1	94.3	94.9	95.6	96.1	96.7	96.9	97.3	97.4					
34.0	92.5	93.7	94.9	95.5	95.9	96.0	96.3	96.6	96.9	97.1					
38.0	93.0	94.2	95.2	95.3	95.4	95.5	95.9	96.1	96.4	96.7					
42.0	93.3	93.9	94.5	94.7	94.9	95.1	95.4	95.7	96.0						
46.0	92.7	93.3	93.9	94.1	94.4	OAT < ISA + 22									
50.0	92.0	92.7	93.3	93.6	93.9						OAT ≥ + 22				
54.0	91.4	92.0	92.6												

MAXIMUM CONTINUOUS

CFM56-5A4/A5		N1 CORRECTIONS FOR AIR BLEED						OAT < ISA + 10		OAT ≥ ISA + 10		
MAXIMUM CONTINUOUS N1								AIR CONDITIONING OFF		.8		.8
AIR CONDITIONING ON*		ENGINE ANTI ICE ON						0.0		-.9		
IAS=230 KT		ENGINE ANTI ICE AND WING ANTI ICE ON						0.0		-2.1		
TAT (°C)	PRESSURE ALTITUDE (FT)											
	-1000.	3000.	7000.	11000.	15000.	19000.	23000.	27000.	31000.	35000.	39000.	
-54.0	78.3	80.8	82.9	84.7	86.3	86.1	87.2	88.1	88.9	89.5	88.9	
-50.0	78.9	81.5	83.6	85.5	87.1	86.8	87.9	88.8	89.6	90.3	89.8	
-46.0	79.6	82.2	84.3	86.2	87.8	87.6	88.7	89.6	90.4	91.0	90.4	
-42.0	80.2	82.9	85.0	86.9	88.5	88.3	89.4	90.3	91.1	91.8	91.1	
-38.0	80.9	83.6	85.7	87.6	89.2	89.0	90.1	91.0	91.9	92.5	91.9	
-34.0	81.5	84.2	86.4	88.3	89.9	89.7	90.8	91.8	92.6	93.3	92.6	
-30.0	82.2	84.9	87.1	89.0	90.6	90.4	91.5	92.5	93.3	94.0	93.3	
-26.0	82.8	85.5	87.8	89.7	91.3	91.1	92.3	93.2	94.0	94.7	94.0	
-22.0	83.4	86.2	88.4	90.3	92.0	91.8	93.0	93.9	94.7	95.3	94.8	
-18.0	84.1	86.8	89.1	91.0	92.7	92.5	93.6	94.6	95.4	95.2	94.8	
-14.0	84.7	87.5	89.7	91.7	93.4	93.2	94.3	95.3	95.4	95.0	94.7	
-10.0	85.3	88.1	90.4	92.4	94.1	93.8	95.0	95.5	95.3	94.9	94.5	
-6.0	85.9	88.7	91.0	93.0	94.7	94.5	95.7	95.3	95.1	94.6	94.3	
-2.0	86.5	89.3	91.7	93.7	95.4	95.2	95.5	95.2	95.0	94.4	94.0	
2.0	87.1	90.0	92.3	94.3	96.1	95.4	95.3	95.1	94.9	94.5	93.9	
6.0	87.7	90.6	92.9	95.0	96.7	95.1	94.9	94.8	94.7	94.5	94.0	
10.0	88.3	91.2	93.6	95.6	96.8	94.7	94.6	94.5	94.3	94.1	93.9	
14.0	88.9	91.8	94.2	96.0	96.3	94.4	94.3	94.1	94.0			
18.0	89.4	92.4	94.8	95.7	96.0	94.1	94.0	93.8				
22.0	90.0	93.0	94.9	95.3	95.7	93.7	93.6					
26.0	90.6	93.6	94.4	94.9	95.3	93.3						
30.0	91.2	93.3	94.0	94.6	95.0	92.9						
34.0	91.7	92.8	93.5	94.2	94.6							
38.0	91.1	92.3	93.1	93.8								
42.0	90.5	91.8	92.7	93.4								
46.0	89.9	91.2	92.2									
50.0	89.2	90.6	91.7									
54.0	88.5	90.0										
								OAT < ISA + 10				
								OAT ≥ ISA - 10				

R * One engine inoperative - 1 pack operative on remaining engine.

MAXIMUM CLIMB

CFM56-5A4/A5		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		-.7	
		ENGINE ANTI ICE AND WING ANTI ICE ON										0.0		-1.1	
TAT (°C)	PRESSURE ALTITUDE (FT)														
	-1000.	3000.	7000.	11000.	15000.	19000.	23000.	27000.	31000.	35000.	39000.				
-54.0	77.8	80.3	81.8	82.4	83.7	84.8	85.5	86.3	87.3	88.7	88.8				
-50.0	78.5	81.0	82.5	83.1	84.4	85.5	86.3	87.0	88.1	89.5	89.5				
-46.0	79.1	81.7	83.2	83.8	85.1	86.2	87.0	87.7	88.8	90.3	90.3				
-42.0	79.8	82.4	83.9	84.5	85.8	86.9	87.7	88.5	89.5	91.0	91.0				
-38.0	80.4	83.0	84.6	85.2	86.5	87.6	88.4	89.2	90.3	91.7	91.8				
-34.0	81.1	83.7	85.2	85.9	87.7	88.3	89.1	89.9	91.0	92.5	92.5				
-30.0	81.7	84.4	85.9	86.6	87.9	89.0	89.8	90.6	91.7	93.2	93.2				
-26.0	82.3	85.0	86.6	87.2	88.6	89.7	90.5	91.3	92.4	93.9	94.0				
-22.0	82.9	85.7	87.2	87.9	89.2	90.4	91.2	92.0	93.1	94.6	94.7				
-18.0	83.6	86.3	87.9	88.5	89.9	91.0	91.9	92.7	93.8	95.3	95.2				
-14.0	84.2	86.9	88.5	89.2	90.6	91.7	92.6	93.3	94.5	95.5	95.0				
-10.0	84.8	87.6	89.1	89.8	91.2	92.4	93.2	94.0	95.2	95.4	94.9				
-6.0	85.4	88.2	89.8	90.5	91.9	93.0	93.9	94.7	95.5	95.2	94.7				
-2.0	86.0	88.8	90.4	91.1	92.5	93.7	94.6	95.4	95.4	95.1	94.5				
2.0	86.6	89.4	91.0	91.7	93.2	94.3	95.2	95.2	95.2	94.8	94.2				
6.0	87.2	90.0	91.7	92.4	93.8	95.0	95.5	95.2	95.1	94.7	94.2				
10.0	87.8	90.6	92.3	93.0	94.4	95.3	95.5	95.2	95.1	94.7	94.2				
14.0	88.3	91.2	92.9	93.6	95.0	95.0	95.2	95.3	95.0	94.6	94.0				
18.0	88.9	91.8	93.5	94.2	94.8	94.7	94.8	95.0	94.9						
22.0	89.5	92.4	94.0	94.3	94.5	94.4	94.5	94.6	94.5						
26.0	90.1	93.0	93.6	94.0	94.1	94.1	94.2	94.2	94.1						
30.0	90.6	93.1	93.1	93.6	93.8	93.7	93.8	93.9							
34.0	91.2	92.7	92.7	93.3	93.4	93.4	93.5								
38.0	90.9	92.2	92.3	92.8	93.0	92.9									
42.0	90.3	91.6	91.8	92.4	92.5										
46.0	89.7	91.1	91.3	92.0	92.1										
50.0	89.0	90.5	90.7	91.5											
54.0	88.4	89.9													
												OAT < ISA + 10			
												OAT ≥ ISA + 10			

MAXIMUM CRUISE

CFM56-5A4/A5		N1 CORRECTIONS FOR AIR BLEED						OAT < ISA + 10		OAT ≥ ISA + 10	
MAXIMUM CRUISE N1								AIR CONDITIONING OFF		.8	
AIR CONDITIONING ON		ENGINE ANTI ICE ON						0.0		-.7	
250/300/.78		ENGINE ANTI ICE AND WING ANTI ICE ON						0.0		-1.1	
TAT (°C)	PRESSURE ALTITUDE (FT)										
	-1000.	3000.	7000.	11000.	15000.	19000.	23000.	27000.	31000.	35000.	39000.
-54.0	75.4	77.9	79.4	80.0	81.3	82.4	83.1	83.9	84.9	86.3	86.4
-50.0	76.1	78.6	80.1	80.7	82.0	83.1	83.9	84.6	85.7	87.1	87.1
-46.0	76.7	79.3	80.8	81.4	82.7	83.8	84.6	85.3	86.4	87.9	87.9
-42.0	77.4	80.0	81.5	82.1	83.4	84.5	85.3	86.1	87.1	88.6	88.6
-38.0	78.0	80.6	82.2	82.8	84.1	85.2	86.0	86.8	87.9	89.3	89.4
-34.0	78.7	81.3	82.8	83.5	84.8	85.9	86.7	87.5	88.6	90.1	90.1
-30.0	79.3	82.0	83.5	84.2	85.5	86.6	87.4	88.2	89.3	90.8	90.8
-26.0	79.9	82.6	84.2	84.8	86.2	87.3	88.1	88.9	90.0	91.5	91.6
-22.0	80.5	83.3	84.8	85.5	86.8	88.0	88.8	89.6	90.7	92.2	92.3
-18.0	81.2	83.9	85.5	86.1	87.5	88.6	89.5	90.3	91.4	92.9	92.8
-14.0	81.8	84.5	86.1	86.6	88.2	89.3	90.2	90.9	92.1	93.7	92.6
-10.0	82.4	85.2	86.7	87.4	88.8	90.0	90.8	91.6	92.8	93.0	92.5
-6.0	83.0	85.8	87.4	88.1	89.5	90.6	91.5	92.3	93.7	92.8	92.3
-2.0	83.6	86.4	88.0	88.7	90.1	91.3	92.2	93.0	93.0	92.7	92.1
2.0	84.2	87.0	88.6	89.3	90.6	91.9	92.6	92.8	92.8	92.4	91.8
6.0	84.8	87.6	89.3	90.0	91.4	92.6	93.7	92.8	92.7	92.3	91.8
10.0	85.4	88.2	89.9	90.6	92.0	92.9	93.7	92.8	92.7	92.3	91.8
14.0	85.9	88.8	90.5	91.2	92.6	92.8	92.8	92.9	92.6	92.2	91.6
18.0	86.5	89.4	91.1	91.8	92.4	92.3	92.4	92.6	92.5		
22.0	87.1	90.0	91.6	91.9	92.1	92.0	92.1	92.2	92.1		
26.0	87.7	90.6	91.2	91.6	91.7	91.7	91.8	91.8	91.7		
30.0	88.2	90.7	90.7	91.2	91.4	91.3	91.4	91.5			
34.0	88.8	90.3	90.3	90.9	91.0	91.0	91.1				
38.0	89.5	89.8	89.9	90.4	90.6	90.5					
42.0	87.9	89.2	89.4	90.0	90.1						
46.0	87.3	88.7	88.9	89.6	89.7						
50.0	86.6	88.1	88.3	89.1							
54.0	86.0	87.5									
DAT < ISA + 10											
DAT ≥ ISA + 10											

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CRUISE - M.78												
MAX. CRUISE THRUST LIMITS NORMAL AIR CONDITIONING ANTI-ICING OFF							ISA CG=33.0%		N1 (%) KG/H/ENG NM/1000KG		MACH IAS (KT) TAS (KT)	
WEIGHT (1000KG)	FL290		FL310		FL330		FL350		FL370		FL390	
50	84.0	.780	84.0	.780	84.0	.780	84.1	.780	84.7	.780	85.9	.780
	1276	302	1189	289	1112	277	1044	264	992	252	955	241
	180.9	462	192.5	458	204.0	454	215.4	450	225.6	447	234.1	447
52	84.2	.780	84.2	.780	84.3	.780	84.5	.780	85.1	.780	86.3	.780
	1288	302	1202	289	1127	277	1060	264	1011	252	977	241
	179.2	462	190.3	458	201.4	454	212.0	450	221.3	447	229.0	447
54	84.4	.780	84.5	.780	84.6	.780	84.8	.780	85.5	.780	86.9	.780
	1300	302	1216	289	1142	277	1079	264	1031	252	1003	241
	177.5	462	188.1	458	198.6	454	208.4	450	217.0	447	223.1	447
56	84.7	.780	84.8	.780	84.9	.780	85.2	.780	85.9	.780	87.6	.780
	1314	302	1231	289	1159	277	1097	264	1052	252	1036	241
	175.7	462	185.9	458	195.7	454	204.8	450	212.6	447	216.0	447
58	84.9	.780	85.1	.780	85.2	.780	85.6	.780	86.4	.780	88.3	.780
	1328	302	1246	289	1176	277	1117	264	1075	252	1070	241
	173.9	462	183.6	458	192.8	454	201.3	450	208.1	447	209.0	447
60	85.2	.780	85.3	.780	85.6	.780	85.9	.780	86.9	.780	89.2	.780
	1342	302	1262	289	1195	277	1137	264	1102	252	1110	241
	172.0	462	181.3	458	199.8	454	197.6	450	203.0	447	201.5	447
62	85.5	.780	85.6	.780	85.9	.780	86.3	.780	87.6	.780	90.1	.780
	1357	302	1279	289	1214	277	1158	264	1135	252	1153	241
	170.1	462	178.8	458	186.8	454	194.1	450	197.1	447	194.0	447
64	85.7	.780	85.9	.780	86.2	.780	86.7	.780	88.2	.780		
	1373	302	1297	289	1234	277	1182	264	1170	252		
	168.2	462	176.4	458	183.8	454	190.2	450	191.2	447		
66	86.0	.780	86.2	.780	86.6	.780	87.2	.780	89.0	.780		
	1389	302	1316	289	1254	277	1209	264	1209	252		
	166.2	462	173.9	458	180.9	454	186.0	450	185.0	447		
68	86.2	.780	86.5	.780	86.9	.780	87.8	.780	89.8	.780		
	1406	302	1335	289	1275	277	1242	264	1252	252		
	164.2	462	171.4	458	177.9	454	181.0	450	178.7	447		
70	86.5	.780	86.8	.780	87.3	.780	88.4	.780	90.8	.780		
	1424	302	1355	289	1299	277	1277	264	1298	252		
	162.1	462	168.9	458	174.6	454	176.1	450	172.3	447		
72	86.8	.780	87.1	.780	87.7	.780	89.0	.780				
	1442	302	1375	289	1325	277	1314	264				
	160.0	462	166.4	458	171.7	454	171.1	450				
74	87.1	.780	87.5	.780	88.2	.780	89.8	.780				
	1462	302	1397	289	1357	277	1358	264				
	157.9	462	163.9	458	167.1	454	165.7	450				
76	87.4	.780	87.8	.780	88.8	.780	90.5	.780				
	1482	302	1419	289	1392	277	1400	264				
	155.8	462	161.3	458	162.9	454	160.5	450				
LOW AIR CONDITIONING ΔFUEL = - 0.5 %					ENGINE ANTI ICE ON ΔFUEL = + 2 %				TOTAL ANTI ICE ON ΔFUEL = + 5 %			

A318/A319/A320/A321 Siberia <small>FLIGHT CREW OPERATING MANUAL</small>	IN FLIGHT PERFORMANCE CRUISE	3.05.15 SEQ 110	P 14 REV 31

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LONG RANGE CRUISE												
MAX. CRUISE THRUST LIMITS NORMAL AIR CONDITIONING ANTI-ICING OFF							ISA CG = 33.0%		N1 (%) KG/H/ENG NM/1000KG		MACH IAS (KT) TAS (KT)	
WEIGHT (1000KG)	FL290		FL310		FL330		FL350		FL370		FL390	
50	78.5	.653	80.3	.694	81.4	.715	82.4	.731	84.3	.768	85.9	.781
	956	249	977	255	962	252	944	246	966	248	959	241
	202.0	386	208.6	407	216.1	416	223.1	421	228.0	440	233.7	446
52	79.8	.674	81.0	.704	82.0	.721	83.2	.743	85.0	.776	86.6	.786
	1011	258	1011	259	982	254	986	251	1001	251	992	243
	197.5	399	204.3	413	211.4	420	217.2	428	222.1	445	227.2	451
54	80.5	.687	81.6	.711	82.6	.725	84.2	.764	85.5	.779	87.2	.787
	1051	263	1042	262	1020	255	1041	250	1030	252	1022	243
	193.4	406	200.1	417	206.7	422	211.4	440	217.1	447	220.9	451
56	81.2	.697	82.3	.718	83.4	.734	84.9	.772	86.1	.783	87.9	.788
	1097	267	1075	264	1059	259	1080	262	1062	254	1056	244
	189.7	412	196.0	421	201.7	427	206.2	445	211.6	449	214.0	452
58	81.9	.707	82.8	.721	84.2	.751	85.5	.777	86.7	.787	88.7	.790
	1126	272	1102	266	1111	266	1110	263	1095	255	1095	244
	165.9	419	192.0	423	196.6	437	201.7	448	206.2	452	206.9	453
60	82.4	.714	83.4	.727	85.1	.767	85.9	.780	87.3	.788	89.6	.790
	1159	274	1135	268	1162	272	1139	265	1124	255	1136	245
	182.3	423	187.9	427	192.0	446	197.5	450	201.0	452	199.5	453
62	83.0	.719	84.2	.738	85.7	.774	86.5	.784	87.9	.789	90.5	.791
	1190	277	1180	272	1198	274	1171	266	1160	256	1182	245
	178.9	426	183.6	433	187.8	450	192.9	452	195.1	453	191.9	454
64	83.5	.723	85.1	.761	86.2	.778	87.0	.787	88.7	.790	90.8	.792
	1219	278	1244	281	1228	276	1204	267	1198	256	1173	235
	175.5	428	179.4	446	184.2	452	188.5	454	189.2	453	186.4	437
66	84.1	.729	85.8	.769	86.6	.781	87.6	.788	89.4	.791		
	1255	281	1284	285	1257	277	1233	267	1238	256		
	172.0	432	175.6	451	180.6	454	184.1	454	183.1	453		
68	84.6	.740	86.3	.775	87.1	.784	88.1	.788	90.3	.791		
	1301	285	1320	287	1289	278	1267	268	1284	256		
	166.4	438	172.2	455	176.8	456	179.4	454	176.7	451		
70	85.7	.760	86.8	.778	87.5	.787	88.8	.790	91.0	.795		
	1364	294	1350	286	1322	279	1305	268	1312	254		
	164.9	450	169.1	457	173.1	458	174.3	455	171.6	450		
72	86.3	.767	87.2	.780	88.1	.788	89.5	.791				
	1404	297	1377	289	1352	280	1347	268				
	161.7	454	166.3	458	169.4	458	169.2	456				
74	86.8	.774	87.6	.783	88.6	.787	90.2	.791				
	1443	299	1409	290	1382	280	1390	268				
	156.7	458	163.1	460	165.7	458	163.9	456				
76	87.3	.777	88.1	.786	89.2	.789	91.0	.791				
	1473	301	1441	292	1422	280	1437	269				
	156.1	460	160.0	461	161.4	459	158.7	456				
LOW AIR CONDITIONING ΔFUEL = - 0.5 %					ENGINE ANTI ICE ON ΔFUEL = + 3 %					TOTAL ANTI ICE ON ΔFUEL = + 6 %		