CHECK FLIGHT CERTIFICATE

Airbus A319/A320/A321 with CFM 56 Engines **CFS 246 Issue 1**

Date:	Crew:	Observer:	Registration:

Performance	Climb #1	Climb #2	
Average Weight			
Average Altitude			ft
Average Temp.			°C
Speed			KIAS
Achieved Rate			fpm
Scheduled Rate			fpm
Margin			fpm
Permitted Margin	-80	-120	fpm

Airfield:	
Start Weight	Kg/Lbs*:
Takeoff cg:	

Performance:

SATIS/UNSATIS/NOT APPLICABLE*

*(delete as applicable)**

Defects

No.	Defect	-/R/FT	Action?

(use a continuation sheet as necessary)

Conclusions/Comments

I CERTIFY that I have tested the above aircraft and have detailed the deficiencies and unsatisfactory features above. Those items annotated R or FT must be dealt with as shown in the notes on the reverse side.

Name:	Signed:	Date:	Licence No.:
For CAA Use only	Report Logged by:	Date:	Report No.:

NOTES

General

Only CAA personnel or pilots specifically briefed to carry out CAA check flights may conduct the test.

General notes on test conduct can be found in the CAA Check Flight Handbook.

This sheet replaces any check flight certificate given in the schedule.

Registration: If the aircraft is not on the UK register, add the manufacturers serial number and expected UK registration (if known).

Crew: Captain, co-pilot, Flight engineer (where applicable).

Airfield: Departure airfield.

Start Weight: Actual all up weight at first engine start. Also delete Kg or Lbs as appropriate.

Takeoff cg: Actual cg at lift-off, preferably as a % of the Mean Aerodynamic Chord.

Performance

A full description of climb analysis is given in the CAA Check Flight Handbook.

Climb#1/Climb#2: Enter in these columns data from the first and second climbs.

Average Weight: The aircraft all up weight at the midpoint of the measured climb.

Average Altitude: The altitude at which the line drawn to average the measured points passes through at the mid time.

Average Temp: The temperature at which the line drawn to average the measured points passes through at the mid time.

Speed: The target climb speed (Indicated Airspeed.)

Achieved Rate: The climb rate as given by the slope of the line drawn to average the measured altitude points in feet per minute.

Scheduled Rate: The expected gross rate of climb read from the appropriate graph in the Flight Manual with any adjustments for configuration differences. For large aircraft, the basic gross data are normally to be found in a separate supplement labelled 'Additional Flight Test Data'.

Margin: The difference between the Scheduled and Achieved rates of climb (negative if achieved is lower than scheduled).

Defects

Enter all defects from the flight. All defects must also be entered in the Technical Log. Procedural items entered in the Technical Log (such as re-stowing oxygen masks) need not be entered here. Items affecting flight safety which were known before the flight, whether or not they were deferred should be entered. In the latter case, the defect should be annotated accordingly after the details.

No.: The first column is to allow the items to be numbered.

Defect: Enter details of the defect.

-/R/FT: Classify each defect according to its impact on safety, regardless of whether it can be deferred according to the MEL. Any deferrals should be dealt with in the normal way in the Technical Log. Items requiring rectification (or deferral under the MEL) before further flight for hire or reward or before the issue of the CofA should be marked 'R'. Additionally, items that require re-checking in-flight following rectification (such as inadequate climb performance) should be marked 'FT'. Items requiring both should be marked 'R/FT'.

Action?: This column should be left blank unless further information is required from the engineers or the item is considered to be of sufficient import that CAA action is considered necessary, then the person/department/agency from whom further action is required should be noted in this column. Annotate accordingly if an MOR or similar report is to be raised.

Conclusions/Comments

Any conclusions, notes or comments useful for tracking defects may be entered.

Name: Only the pilot who carried out the test may sign this sheet.

CAA Check Flight Schedules

All CAA Check Flight Schedules (CFSs) are prepared based on a design standard which, before September 2003, was the UK Type Certificate. Following the creation of EASA there may be different design standards in service within the European Union (EU) - this may include modifications approved in any EU country.

It is the responsibility of the flight crew to ensure that the exercises and limitations in the CFS are correct for the aircraft under test.

The prime source of information will be the aircraft flight manual and in the event of conflict the flight manual should be taken as overriding.

CAA policy is that pilots who conduct check flights on the behalf of the Authority must be acceptable to the Authority, must have been briefed on techniques and safety considerations before carrying out the tests in these schedules and must have carried out an airtest within the last 4 years.

The CAA does not accept responsibility for the use of a CAA CFS on a test flight not directly under their control.

CHECK FLIGHT SCHEDULE

Airbus A319/A320/A321 with CFM 56 Engines **CFS 246 Issue 1**

Registration	
Flight Date	

INTRODUCTION

This schedule is applicable only to Airbus A319, A320 or A321 aircraft fitted with CFM 56 engines.

The schedule is based on the assumption that the everyday operation of the aircraft serves as a continuous check on the functioning of all normal services. On these check flights, however, the crew are expected generally to monitor the behaviour of all equipment and to report any unserviceable items. In addition to completing all the required tests in the schedule, any characteristics which are considered unsafe or undesirable must be recorded.

MINIMUM CREW

The minimum flight crew shall be increased by one observer to record the results of the tests. The pilot conducting the tests shall be specifically approved by the CAA(SRG) for carrying out check flights on Airbus A319/A320/A321 aircraft.

PASSENGERS

Commanders are reminded that it is illegal to carry passengers on a check flight made under 'A' Conditions, except where they are required to perform duties in the aircraft in connection with the flight. While it is legal to carry passengers on a test flight of an aircraft with a valid Certificate of Airworthiness, the practice is not recommended. If passengers are carried, however, they should be informed that the risk is greater than on an ordinary flight.

OXYGEN

Oxygen shall be available to all persons on board. All Passenger Service Unit oxygen mask covers should be latched before flight.

CHECK FLIGHT SCHEDULE

The pilot conducting the tests must be familiar with the contents of this schedule before flight. All members of the required minimum crew must be provided with copies of the schedule for use in flight.

The data contained in this schedule is correct at the time of writing, but might not be in agreement with subsequent Flight Manual amendments or FCOM; in cases of conflict, the Flight Manual is overriding, and CAA (SRG) Flight Test Department must be informed. In particular, pilots are recommended to check the latest FCOM to confirm power settings given at figure 2. The altitude conditions in the schedule must be observed to ensure adequate safety and validity of the test results. The tests should, if possible, be carried out in the sequence as written.

LOADING

Load the aircraft to a ramp weight as shown below and a C.G. which will remain within Flight Manual Limitations at all times.

A319-111	50000 Kg to 56000 Kg
A320-111	55000 Kg to 60000 Kg
A320-211,-212,-214	55000 Kg to 62000 Kg
A321-211	60000 Kg to 75000 Kg

Record:

Zero Fuel Weight	Kg
Ramp Weight	Kg
Ramp CG	% MAC

PRE-FLIGHT INFORMATION

Record: - Total airframe hours

Record:

- Engine serial no.

Port	Starboard

Except where otherwise indicated, the flight techniques are those associated with normal operation of the aircraft (for example yaw damper engaged). Fuel symmetry must be maintained, particularly when aircraft handling is being assessed.

1. PRE-FLIGHT

1.1 Flight Deck Markings and Placards

Check for presence, accuracy and legibility of all flight deck markings and placards. Record any deficiencies.	SAT/UNSAT

1.2 Emergency Generator Check

Before engine start carry out the following:.

BLUE PUMP OVRD (Top overhead panel)	ON
EMER GEN TEST	Press and hold
Check on ECAM ELEC page:	
AC ESS green with SHED on and supplied by EMER GEN	SAT/UNSAT
DC ESS green with SHED on and supplied by ESS TR from EMER GEN	SAT/UNSAT
EMER GEN volts between 110 and 120	SAT/UNSAT
EMER GEN frequency between 390 and 410 hz	SAT/UNSAT
EMER GEN TEST	Release
BLUE ELEC PUMP	OFF then AUTO

1.3 Pre-flight Checks

Carry out all normal pre-flight checks, recording any abnormal items. Keep APU running.	SAT/UNSAT

2. TAKE-OFF

Carry out normal TOGA take-off. (Bump Ratings need not be used).

Record any unusual behaviour.

Select pressurisation landing elevation to 8000 ft.

3. PERFORMANCE AND ENGINE RELIGHTING

3.1 Second Segment Climb

Start Altitude not above FL60

Carry out a second segment climb on a constant heading clear of cloud and turbulence, recording data for 5 minutes. Recording shall not commence until the aircraft is stabilised at the test conditions with the ß target command satisfied and the rudder force trimmed out as far as possible.

Configuration	Slats/Flaps	Conf 3
	Gear	UP
	No.1 Engine	Idle
	No.2 Engine	TOGA
	Air Conditioning/Pressurisation	One Air Cond. Pack only from APU
	Airframe/Engine Anti-icing	OFF
	APU BLEED	ON
	Captains Altimeter	1013 mb

V_2 climb speed for Weight from Fig. 1 _____ kts

Record: Scheduled TOGA N_1 from Fig. 2 and ECAM TOGA N_1 when TOGA is first selected. (Max. difference ± 0.5% N_1)

Altitude FT	TAT °C	IAS - KTS	ECAM TOGA N1%	Sched TOGA N_1 %

SAT/UNSAT

Second Segment Climb

Start Altitude not above FL60

START WEIGHT kg

V2 kts

TIME MINS	ALTITUDE - FT.	IAS - KTS	SAT °C	N1%
0				
0.5				
1.0				
1.5				
2.0				
2.5				
3.0				
3.5				
4.0				
4.5				
5.0				

RUDDER TRIM

NO. 2 ENGINE DATA AT 3 MINUTES

N1	%	N2	%
EGT	°C	FUEL FLOW	kg/hr

FINISH WEIGHT kg

MEAN CLIMB WEIGHT kg

3.2 Engine Out En-route Climb

Starting Altitude FL80-FL150

CAUTION: DO NOT OPERATE BELOW 8000 FT AGL WITH ONE ENGINE SHUTDOWN

Ensure APU is running prior to this test.

Leave the appropriate engine idling for at least 3 minutes before performing the pre-cautionary shut-down drill.

Carry out an engine out en-route climb for 5 minutes, on a constant heading, clear of cloud and significant turbulence. Recording shall not commence until the aircraft is stabilised at the test conditions with the rudder force trimmed out.

Configuration	Slats/Flaps	UP
	Gear	UP
	No.1 Engine	MCT
	No.2 Engine	Shutdown
	Air Conditioning/Pressurisation	From No.1 Engine (Single Pack)
	Airframe/Engine Anti-icing	OFF
	APU	Running, bleed off
	Captains Altimeter	1013 mb

V_{ER} climb speed for Weight from Fig. 1 _____ kts

Note: The en-route climb speeds given in Figs. 1 are based on a fixed factor of stall speed and will not necessarily equal green dot speed in the test conditions.

Record: Scheduled MCT N_1 from Fig. 2 and ECAM MCT N_1 when MCT is first selected. (Max. difference ± 0.5% N_1)

Altitude FT	TAT °C	IAS - KTS	ECAM MCT N1%	Sched MCT N_1 %

SAT/UNSAT

Engine Out En-route Climb

Starting Altitude FL80-FL150

START WEIGHT kg

V_{ER} kts

TIME MINS	ALTITUDE - FT.	IAS - KTS	SAT °C	N1%
0				
0.5				
1.0				
1.5				
2.0				
2.5				
3.0				
3.5				
4.0				
4.5				
5.0				

RUDDER TRIM

NO. 2 ENGINE DATA AT 3 MINUTES

N1	%	N2	%
EGT	°C	FUEL FLOW	kg/hr

FINISH WEIGHT kg

MEAN CLIMB WEIGHT kg

3.3 Engine Relight

On completing the climb, relight the No.2 engine at 160 kt. Leave the engine at idle for at least 2 minutes before restoring power.

Altitude		ft		
Windmilling	N1	%	N2	%
Time to EGT rise			sec	
Max EGT			°C	
Time to stabilised Flight Idle			sec	

SHUTDOWN APU

4. PRESSURISATION

Not Above FL 200

4.1 Oxygen Masks

Check all flight deck oxygen masks for satisfactory flow and microphone operation. SAT/UNSAT

4.2 Cabin Altitude Warning and Passenger Oxygen Dropout

Switch Packs 1 and 2 OFF and allow the cabin leak rate to depressurise the cabin. The depressurisation rate may be increased by using MANUAL mode, if desired, providing CABIN PRESS MODE SEL is reset to AUTO before the anticipated warning is reached. Leak rate can be increased by opening the ventilation BLOWER and EXTRACT pushbuttons to OVRD

Check and record:

- cabin altitude when EXCESS CAB ALT warning occurs

(Limits 9200 ft to 9900 ft) ft

- cabin altitude when passenger oxygen dropout occurs

(Limits 13500 ft to 14000 ft) ft

Record location of any Passenger Service Units that failed to open, including toilet and cabin attendant areas.

With LDG ELEV to AUTO and with cabin altitude reducing, climb to FL390.

4.3 Maximum Cabin Differential Pressure

FL390

a) AUTO mode

In level flight at FL390, with pressurisation MODE SEL and LDG ELEV set to AUTO, check and record the stabilised maximum cabin differential pressure.

(Limits 7.8 to 8.3 psi) psi

b) MANUAL mode Safety Valve operation.

Select MAN mode on the MODE SEL switch (LDG ELEV may remain at AUTO) and reduced cabin altitude on the MAN V/S CTL switch. Check and record the cabin differential pressure when safety valve operations occurs.

(Limits 8.2 to 9.0 psi and more than 0.1psi above pressure in auto) psi

CAUTION : DO NOT EXCEED 9.2 psi

Reduce cabin differential pressure to the value recorded in 4.3(a) and reset the MODE SEL to AUTO.

5. APU RELIGHT

FL390/Max Relight Altitude

Check the ability to relight the APU at 0.78M and FL390 or the maximum relight altitude if lower SAT/UNSAT

6. HIGH MACH

FL350-FL300

Clear of cloud and turbulence and using up to maximum continuous thrust if required, accelerate in a shallow dive to M0.84. In order that M0.85 is not exceeded, do not accelerate faster than 0.5 knots per second (trend vector 5 knots length)

Check and record:

- satisfactory operation of overspeed warning SAT/UNSAT
- satisfactory operation of overspeed protection SAT/UNSAT

Speed brakes Deploy near M0.84

Confirm no abnormal roll or pitch SAT/UNSAT

(Satisfactory operation of the overspeed protection laws is indicated if full forward side stick is reached before M0.84 or if the aircraft slowly pitches up and speed reduces when the side stick is released to neutral near M0.84).

DO NOT EXCEED 0.85 IMN

7. NO.1 ENGINE RELIGHT, ELECTRICAL FUNCTIONING

Close No.1 thrust lever and allow No.1 engine to stabilise at idle for 3 minutes, then shut it down. Initiate a drift down at or above the minimum relight speed, using thrust on No.2 engine to control rate of descent to around 500 ft/min.

With No.1 engine shutdown, check and record satisfactory electrical operation:

- using No.2 engine and APU generators together SAT/UNSAT

On reaching the maximum relight altitude given in the AFM and after at least 2 mins shut down, relight No.1 engine using the windmill relight procedure at the slowest windmill relight speed at this altitude(around 250 KIAS). The X BLEED valve should be SHUT and the APU BLEED off.

Altitude		ft		
Windmilling	N1	%	N2	%

Time to EGT rise	sec
Max EGT	°C
Time to stabilised Flight Idle	sec

SAT/UNSAT

Leave the engine idling for at least 2 minutes before restoring power.

APU Shutdown

8. HIGH IAS

Starting FL180

Clear of cloud and turbulence and using up to maximum continuous thrust if required, accelerate in a shallow dive to 360 KIAS or maximum speed achievable if lower. In order that 365 KIAS is not exceeded, do not accelerate faster than 0.5 knots per second (trend vector 5 knots length)

Check and record:

- satisfactory operation of overspeed warning SAT/UNSAT

- satisfactory operation of overspeed protection SAT/UNSAT

Speed brakes Deploy near 360 KIAS

Confirm no abnormal roll or pitch SAT/UNSAT

(Satisfactory operation of the overspeed protection laws is indicated if full forward side stick is reached before 360 KIAS or if the aircraft pitches up and speed reduces when the side stick is slowly released to neutral near 360 KIAS).

DO NOT EXCEED 365 KIAS

9. HIGH INCIDENCE PROTECTION

Recommended FL130 Limits 10000ft AGL to FL140

These tests are to be carried out clear of cloud and turbulence with normal control laws and protection functions operating. Both engine generators must have been on line for at least 3 minutes before starting these tests.

In each required configuration the aircraft should be decelerated smoothly with idle thrust at around 1 knot/second until full back stick is achieved. No attempt should be made to maintain constant altitude; clearance should be obtained to operate in an altitude block of about 5000 ft. Once the operation of the alpha floor has been noted, it should be inhibited and the steady idle thrust deceleration resumed. Scheduled V_{MIN} speeds are given in Fig. 1. The scheduled V_{MIN} speeds are not valid above FL140.

The tests must be discontinued in the event of:

- airspeed reducing to V_{MIN} -5 knots; or
- operation of aural stall warning; or
- abnormal aircraft behaviour.

Where specified, automatic retraction of speedbrakes should also be checked.

9.1 Clean Configuration

With speedbrakes extended, commence a deceleration from not less than V_{MIN} +30 knots.

Check and record:

- Aircraft Weight _____ kg

- Alpha Floor Operation _____ kts

	Scheduled kts	Achieved kts
VMIN		

- automatic speedbrake retraction during deceleration SAT/UNSAT

- any abnormal behaviour SAT/UNSAT

On recovery, return the speedbrake lever to the retracted position.

9.2 Configuration 3, Gear up

Commence a deceleration from not less than V_{MIN} + 20 knots. After recovery, check speedbrake auto-retract when landing flap is selected.

Check and record:

- Aircraft Weight	kg
- Alpha Floor Operation	kts

	Scheduled kts	Achieved kts
VMIN		

- any abnormal behaviour SAT/UNSAT

On recovery, accelerate to V_{MIN} + 30 knots, using thrust as necessary. A321 select conf2, and on all select gear down and speedbrakes extended. Select slats/flaps to FULL.

Check and record

-automatic speedbrake retraction on flaps beyond conf 3 (A319/320), beyond conf 2 (A321) SAT/UNSAT

Return the speedbrake lever to the retracted position.

9.3 Configuration Full, Gear Down

Commence a deceleration from not less than V_{MIN} + 20 knots.

Check and record:

- Aircraft Weight	kg
- Alpha Floor Operation	kts

	Scheduled kts	Achieved kts
VMIN		

- any abnormal behaviour

RESET CLEAN CONFIGURATION

10. STALL WARNING

Limits 10000ft AGL to FL150

The following tests are to be carried out clear of any cloud and turbulence. Decelerations are to be performed at idle thrust (inhibit alpha floor) at around 1 knot/second until the onset of aural stall warning. Scheduled stall warning speeds (V_{SW}) are given at Figure 1.

The tests must be discontinued in the event of:-

- airspeed reducing to V_{SW} -5 knots; or
- abnormal aircraft behaviour.

Select
- Clean Configuration
- FAC 1 and 2 OFF

CAUTION: ALTERNATE CONTROL LAWS IN OPERATION. PROTECTION FUNCTIONS LOST

10.1 Clean Configuration

Commence a deceleration from not less than V_{SW} + 15 knots.

Check and record:

- Aircraft Weight _____ kg

	Scheduled kts	Achieved kts
Vsw		

- any abnormal behaviour

10.2 Configuration 3, Gear Up

Commence a deceleration from not less than V_{SW} + 15 knots.

- Aircraft Weight _____ kg

	Scheduled kts	Achieved kts
Vsw		

- any abnormal behaviour

10.3 Configuration 3, Gear down

CAUTION: DIRECT CONTROL LAWS IN OPERATION

Trim the aircraft manually at V_{SW} + 15 knots and commence a deceleration at about 1 kt per second.

Check and record:

- Aircraft Weight	kg
Trim Speed (Vsw+15)	KIAS

	Scheduled kts	Achieved kts
Vsw		

- any abnormal behaviour

Select - FAC 1 and 2 ON
CONFIRM normal control laws restored

11. LANDING GEAR GRAVITY EXTENSION

Clean configuration with airspeed and altitude as convenient but within gear limiting speeds. With the normal gear lever up, select gear extension on the gravity extension handle.

Confirm satisfactory gear extension. SAT/UNSAT

Select - normal gear lever down

- gravity extension handle returned to normal (wind fully anti-clockwise)

Note: The gear may be left extended in preparation for the next test.

12. ENGINE ACCELERATIONS

Below FL 85

Conditions:
- Slats/Flaps FULL, Gear Down
- Airspeed VLS
- Air Conditioning/Pressurisation ON (Both Packs)
- All anti-ice off

On each engine in turn, close the thrust lever and allow the engine to stabilise at idle. Record the idle N1 and N2. Rapidly open the thrust lever to the TOGA position and record the acceleration time to go-around N_1.

TAT ____ °C Altitude ____ ft

Scheduled Go-Around N_1 (Fig. 2) ____ % ECAM Go-Around N_1 ____ %

Engine	No.1	No2
Idle N1		
Idle N2		
Acceleration Time		

(Limit acceleration time 10 seconds max.)

SAT/UNSAT

13. RAT EXTENSION

Blue Hydraulic Electric pump OFF

With landing gear up, confirm satisfactory deployment of RAT, using RAT MAN ON switch on Hydraulic panel. SAT/UNSAT

Blue system pressure between 2200 psi and 2600 psi SAT/UNSAT

Blue Hydraulic Electric pump ON

14. LANDING

Carry out a normal landing.

Note any unusual characteristics.

15. POST-FLIGHT ACTIONS

15.1 Complete the statement of defects and sign the Flight Test Certificate and state whether or not the aeroplane needs to be re-flown.

15.2 Plot the results of the performance climbs and compare the measured rates of climb with the gross data scheduled in Flight Manual.

15.3 Pass the completed Flight Test report to the Surveyor-in-Charge of the CAA Area Office.

SPEEDS - A319-100

Weight - KG	Conf 3 V2 KIAS	Clean VER KIAS	VMIN KIAS			V Stall Warning		
			Clean	Conf. 3 Gear Up	Conf. Full Gear Dn	Clean	Conf. 3 Gear Up	Conf. 3 Gear Dn
56000	127	200	151	108	104	174	117	119
55000	126	197	150	107	103	173	116	118
54000	125	195	148	105	102	172	115	117
53000	123	192	147	105	101	171	114	116
52000	122	190	145	103	100	168	112	114
51000	121	188	144	102	99	166	111	113
50000	120	186	143	101	98	165	110	112
49000	118	184	142	100	97	163	109	111
48000	117	181	141	99	96	161	109	111
47000	116	179	139	98	95	159	108	110
46000	115	177	138	97	94	158	106	108
45000	113	175	136	96	93	156	105	107
44000	112	173	134	95	92	155	103	105

VMIN Speed Tolerances: ± 4 kt

Stall Warning Tolerances: ± 5 kt

FIG. 1A A319

SPEEDS - A320-111

Weight - KG	Conf 3 V2 KIAS	Clean VER KIAS	VMIN KIAS			V Stall Warning	
			Clean 10000	Conf. 3 Gear Up	Conf. Full Gear Dn	Clean	Conf. 3
60000	140	206	159	114	112	182	120
59000	138	204	157	113	111	181	119
58000	137	203	156	112	110	179	118
57000	136	201	154	111	109	178	117
56000	135	199	153	110	108	176	116
55000	134	198	151	109	107	174	115
54000	133	196	150	108	106	173	114
53000	131	194	148	107	105	171	113
52000	130	192	147	106	104	170	112
51000	129	190	145	105	103	168	110
50000	128	189	144	104	102	166	109
49000	127	187	142	103	101	165	108
48000	125	185	141	102	100	163	106

VMIN Speed Tolerances : ± 4 kt

FIG. 1B A320-111

SPEEDS - A320-211, -212, -214

Weight - KG	Conf 3 V2 KIAS	Clean VER KIAS	VMIN KIAS			V Stall Warning	
			Clean 10000	Conf. 3 Gear Up	Conf. Full Gear Dn	Clean	Conf. 3
62000	138	209	164	115	113	186	122
61000	136	206	163	114	112	184	121
60000	135	204	161	113	111	182	120
59000	134	202	160	112	110	181	119
58000	133	201	158	111	109	179	118
57000	132	199	156	110	108	178	117
56000	131	198	155	110	107	176	116
55000	130	196	153	109	106	174	115
54000	128	195	151	107	105	173	114
53000	127	192	150	106	104	171	113
52000	126	191	148	105	103	170	112
51000	125	189	147	104	102	168	110
50000	123	186	145	102	101	166	109
49000	122	185	143	101	100	165	108

VMIN Speed Tolerances : ± 4 kt

FIG. 1C A320-211, -212, -214

SPEEDS - A321-211

Weight - KG	Conf 3 V2 KIAS	Clean VER KIAS	VMIN KIAS			V Stall Warning	
			Clean 10000	Conf. 3 Gear Up	Conf. Full Gear Dn	Clean	Conf. 3
80	148	241	185	122	121	195	126
78	146	236	182	120	119	193	124
76	144	232	179	119	118	190	123
74	142	228	176	117	116	188	121
72	140	224	173	116	115	186	119
70	139	220	170	114	113	183	118
68	137	215	167	112	111	180	116
66	135	211	165	110	109	177	114
64	133	207	163	108	107	174	112
62	131	204	161	106	105	171	110
60	128	200	158	103	102	168	107
58	125	196	155	102	101	165	105
56	123	193	151	100	99	162	103
54	120	190	148	99	98	159	102
52	118	186	145	97	96	156	100
50	115	182	142	96	95	153	98

VMIN Speed Tolerances : ± 4 kt

FIG. 1D A321-211

Figure 2A

-5A1

GO AROUND

R

CFM56-5A1	N1 CORRECTIONS FOR AIR BLEED	OAT < ISA + 15	OAT ≥ ISA + 15
GO AROUND N1	AIR CONDITIONING OFF	.6	.6
AIR CONDITIONING ON	ENGINE ANTI ICE ON	0.0	−1.2
MACH=.225	ENGINE ANTI ICE AND WING ANTI ICE ON	0.0	−1.8

TAT (°C)	PRESSURE ALTITUDE (FT) -1000.	0.	1000.	2000.	3000.	4000.	5000.	6000.	7000.	8000.	9000.	9200.
-54.0	81.4	82.5	82.9	83.3	83.7	84.2	84.6	84.9	85.3	85.4	85.6	85.6
-50.0	82.1	83.2	83.6	84.1	84.5	84.9	85.3	85.7	86.0	86.2	86.3	86.4
-46.0	82.8	83.9	84.3	84.8	85.2	85.6	86.0	86.4	86.7	86.9	87.0	87.1
-42.0	83.5	84.6	85.0	85.5	85.9	86.3	86.7	87.1	87.4	87.6	87.8	87.8
-38.0	84.2	85.3	85.7	86.1	86.6	87.0	87.4	87.8	88.2	88.3	88.5	88.5
-34.0	84.8	85.9	86.4	86.8	87.3	87.7	88.1	88.5	88.9	89.0	89.2	89.2
-30.0	85.5	86.6	87.1	87.5	87.9	88.4	88.8	89.2	89.6	89.7	89.9	89.9
-26.0	86.1	87.3	87.7	88.2	88.6	89.1	89.5	89.9	90.2	90.4	90.6	90.6
-22.0	86.8	87.9	88.4	88.9	89.3	89.7	90.2	90.6	90.9	91.1	91.3	91.3
-18.0	87.4	88.6	89.1	89.5	90.0	90.4	90.9	91.2	91.6	91.8	91.9	92.0
-14.0	88.1	89.3	89.7	90.2	90.6	91.1	91.5	91.9	92.3	92.4	92.6	92.6
-10.0	88.7	89.9	90.4	90.8	91.3	91.7	92.2	92.6	92.9	93.1	93.3	93.3
-6.0	89.4	90.5	91.0	91.5	91.9	92.4	92.8	93.2	93.6	93.8	93.9	94.0
-2.0	90.0	91.2	91.6	92.1	92.6	93.0	93.5	93.9	94.3	94.4	94.6	94.6
2.0	90.6	91.8	92.3	92.7	93.2	93.7	94.1	94.5	94.9	95.1	95.3	95.3
6.0	91.2	92.4	92.9	93.4	93.8	94.3	94.8	95.2	95.6	95.7	95.9	95.9
10.0	91.8	93.0	93.5	94.0	94.5	94.9	95.4	95.8	96.2	96.4	96.5	96.6
14.0	92.4	93.7	94.2	94.6	95.1	95.6	96.0	96.4	96.8	97.0	97.2	97.2
18.0	93.0	94.3	94.8	95.2	95.7	96.2	96.7	97.1	97.5	97.4	97.0	97.0
22.0	93.6	94.9	95.4	95.9	96.3	96.8	97.3	97.4	97.3	96.9	96.6	96.5
26.0	94.2	95.5	96.0	96.5	96.9	97.2	97.1	97.0	96.8	96.5	96.1	96.1
30.0	94.8	96.1	96.6	96.8	96.7	96.7	96.6	96.4	96.4	96.0	95.7	95.6
34.0	95.4	96.4	96.4	96.3	96.2	96.1	96.0	96.0	95.9	95.6	95.2	95.1
38.0	95.2	96.0	95.9	95.8	95.7	95.6	95.6	95.5	95.4	95.1	94.7	94.6
42.0	94.6	95.5	95.4	95.3	95.2	95.1	95.1	95.0	95.0	94.6		
46.0	94.0	95.0	94.9	94.8	94.7	94.6	94.6	94.5				
50.0	93.5	94.4	94.3	94.2	94.2	94.1						
54.0	92.9	93.8	93.8	93.7								
58.0	92.3	93.2										

OAT < ISA + 15
OAT ≥ ISA + 15

MAXIMUM CONTINUOUS

CFM56−5A1/A3	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	79.5	81.9	83.4	84.7	86.0	85.8	86.9	87.7	88.5	89.2	88.6
−50.0	80.2	82.6	84.1	85.4	86.7	86.5	87.6	88.5	89.3	90.0	89.3
−46.0	80.9	83.3	84.8	86.1	87.5	87.3	88.3	89.2	90.0	90.7	90.1
−42.0	81.5	83.9	85.5	86.8	88.2	88.0	89.1	90.0	90.8	91.5	90.8
−38.0	82.2	84.6	86.2	87.5	88.9	88.7	89.8	90.7	91.5	92.2	91.5
−34.0	82.8	85.3	86.9	88.2	89.6	89.4	90.5	91.4	92.3	92.9	92.3
−30.0	83.5	86.0	87.6	88.9	90.3	90.1	91.2	92.1	93.0	93.7	93.0
−26.0	84.1	86.6	88.2	89.6	91.0	90.8	91.9	92.9	93.7	94.4	93.7
−22.0	84.8	87.3	88.9	90.3	91.7	91.5	92.6	93.6	94.4	94.9	94.4
−18.0	85.4	87.9	89.6	91.0	92.4	92.2	93.3	94.3	95.1	94.8	94.5
−14.0	86.0	88.6	90.2	91.6	93.1	92.8	94.0	94.9	95.1	94.7	94.3
−10.0	86.6	89.2	90.9	92.3	93.7	93.5	94.7	95.1	94.9	94.5	94.2
−6.0	87.3	89.9	91.5	92.9	94.4	94.2	95.3	94.9	94.7	94.3	93.9
−2.0	87.9	90.5	92.2	93.6	95.1	94.8	95.2	94.8	94.6	94.1	93.6
2.0	88.5	91.1	92.8	94.2	95.7	95.0	95.0	94.7	94.5	94.1	93.6
6.0	89.1	91.7	93.4	94.9	96.4	94.7	94.6	94.4	94.4	94.1	93.6
10.0	89.7	92.3	94.1	95.5	96.2	94.4	94.3	94.1	94.0	93.8	93.5
14.0	90.3	93.0	94.7	96.0	95.9	94.0	93.9	93.7	93.6		
18.0	90.9	93.6	95.3	95.6	95.6	93.7	93.6	93.4			
22.0	91.4	94.2	95.4	95.3	95.3	93.3	93.3				
26.0	92.0	94.8	95.1	95.0	95.0	93.0					
30.0	92.6	94.6	94.7	94.6	94.6	92.5					
34.0	93.2	94.1	94.3	94.2	94.2						
38.0	92.7	93.7	93.9	93.9							
42.0	92.1	93.2	93.4	93.4							
46.0	91.5	92.7	93.0								
50.0	90.9	92.2	92.5								
54.0	90.3	91.6									

OAT < ISA + 10
OAT ≥ ISA + 10

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

To account for speed differences, increase N1 by 0.5 for the check at item 3.2

Figure 2B

-5A3

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GO AROUND

R

CFM56-5A3 GO AROUND N1 AIR CONDITIONING ON MACH=.225	N1 CORRECTIONS FOR AIR BLEED	OAT < ISA + 15	OAT ≥ ISA + 15
	AIR CONDITIONING OFF	.6	.6
	ENGINE ANTI ICE ON	0.0	−1.2
	ENGINE ANTI ICE AND WING ANTI ICE ON	0.0	−1.8

TAT (°C)	PRESSURE ALTITUDE (FT) -1000.	0.	1000.	2000.	3000.	4000.	5000.	6000.	7000.	8000.	9000.	9200.
-54.0	82.5	83.3	83.8	84.2	84.6	85.5	86.4	87.3	87.8	88.0	87.5	87.4
-50.0	83.2	84.1	84.5	84.9	85.3	86.2	87.1	88.0	88.5	88.8	88.2	88.1
-46.0	83.9	84.8	85.2	85.6	86.0	86.9	87.9	88.7	89.3	89.5	89.0	88.9
-42.0	84.6	85.5	85.9	86.3	86.7	87.7	88.6	89.5	90.0	90.3	89.7	89.6
-38.0	85.3	86.1	86.6	87.0	87.4	88.4	89.3	90.2	90.7	91.0	90.4	90.3
-34.0	86.0	86.8	87.3	87.7	88.1	89.1	90.0	90.9	91.4	91.7	91.1	91.0
-30.0	86.6	87.5	88.0	88.4	88.8	89.8	90.7	91.6	92.2	92.4	91.9	91.7
-26.0	87.3	88.2	88.6	89.1	89.5	90.5	91.4	92.3	92.9	93.2	92.6	92.4
-22.0	88.0	88.9	89.3	89.7	90.2	91.1	92.1	93.0	93.6	93.9	93.3	93.1
-18.0	88.6	89.5	90.0	90.4	90.8	91.8	92.8	93.7	94.3	94.6	94.0	93.8
-14.0	89.3	90.2	90.6	91.1	91.5	92.5	93.5	94.4	95.0	95.3	94.7	94.5
-10.0	89.9	90.8	91.3	91.7	92.1	93.2	94.2	95.1	95.6	95.9	95.3	95.2
-6.0	90.6	91.5	91.9	92.4	92.8	93.8	94.8	95.8	96.3	96.6	96.0	95.9
-2.0	91.2	92.1	92.6	93.0	93.5	94.5	95.5	96.5	97.0	97.3	96.7	96.6
2.0	91.8	92.7	93.2	93.7	94.1	95.1	96.2	97.1	97.7	98.0	97.4	97.2
6.0	92.4	93.4	93.8	94.3	94.7	95.8	96.8	97.8	98.3	98.6	98.0	97.9
10.0	93.1	94.0	94.5	94.9	95.4	96.4	97.5	98.4	99.0	99.3	98.7	98.5
14.0	93.7	94.6	95.1	95.6	96.0	97.1	98.1	99.1	99.6	100.0	99.3	99.2
18.0	94.3	95.2	95.7	96.2	96.6	97.7	98.7	99.7	100.3	*100.3*	*99.1*	*98.8*
22.0	94.9	95.9	96.3	96.8	97.3	98.3	99.4	*100.1*	*100.1*	*99.7*	*98.5*	*98.2*
26.0	95.5	96.5	97.0	97.4	97.9	*98.7*	*99.2*	*99.6*	*99.5*	*99.1*	*97.9*	*97.7*
30.0	96.1	97.1	97.6	*97.8*	*97.8*	*98.3*	*98.7*	*99.0*	*98.9*	*98.5*	*97.5*	*97.3*
34.0	96.7	*97.5*	*97.5*	*97.5*	*97.5*	*97.9*	*98.3*	*98.5*	*98.5*	*98.1*	*97.0*	*96.8*
38.0	*96.6*	*97.2*	*97.2*	*97.2*	*97.2*	*97.5*	*97.8*	*98.0*	*98.0*	*97.5*	*96.6*	*96.4*
42.0	*96.3*	*96.9*	*96.8*	*96.7*	*96.7*	*97.0*	*97.3*	*97.5*	*97.4*	*97.0*		
46.0	*95.9*	*96.2*	*96.2*	*96.1*	*96.2*	*96.5*	*96.9*	*97.0*				
50.0	*95.1*	*95.5*	*95.5*	*95.6*	*95.7*	*96.0*						
54.0	*94.4*	*94.7*	*94.8*	*95.0*								
58.0	*93.6*	*93.9*										
62.0												

OAT < ISA + 15

OAT ≥ ISA + 15

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MAXIMUM CONTINUOUS

CFM56−5A1/A3 MAXIMUM CONTINUOUS N1 AIR CONDITIONING ON * IAS=230 KT	N1 CORRECTIONS FOR AIR BLEED	OAT < ISA + 10	OAT ≥ ISA + 10
	AIR CONDITIONING OFF	.8	.8
	ENGINE ANTI ICE ON	0.0	−.9
	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	79.5	81.9	83.4	84.7	86.0	85.8	86.9	87.7	88.5	89.2	88.6
−50.0	80.2	82.6	84.1	85.4	86.7	86.5	87.6	88.5	89.3	90.0	89.3
−46.0	80.9	83.3	84.8	86.1	87.5	87.3	88.3	89.2	90.0	90.7	90.1
−42.0	81.5	83.9	85.5	86.8	88.2	88.0	89.1	90.0	90.8	91.5	90.8
−38.0	82.2	84.6	86.2	87.5	88.9	88.7	89.8	90.7	91.5	92.2	91.5
−34.0	82.8	85.3	86.9	88.2	89.6	89.4	90.5	91.4	92.3	92.9	92.3
−30.0	83.5	86.0	87.6	88.9	90.3	90.1	91.2	92.1	93.0	93.7	93.0
−26.0	84.1	86.6	88.2	89.6	91.0	90.8	91.9	92.9	93.7	94.4	93.7
−22.0	84.8	87.3	88.9	90.3	91.7	91.5	92.6	93.6	94.4	*94.9*	94.4
−18.0	85.4	87.9	89.6	91.0	92.4	92.2	93.3	94.3	95.1	*94.8*	*94.5*
−14.0	86.0	88.6	90.2	91.6	93.1	92.8	94.0	94.9	*95.1*	*94.7*	*94.3*
−10.0	86.6	89.2	90.9	92.3	93.7	93.5	94.7	*95.1*	*94.9*	*94.5*	*94.2*
−6.0	87.3	89.9	91.5	92.9	94.4	94.2	*95.3*	*94.9*	*94.7*	*94.3*	*93.9*
−2.0	87.9	90.5	92.2	93.6	95.1	94.8	*95.2*	*94.8*	*94.6*	*94.1*	*93.6*
2.0	88.5	91.1	92.8	94.2	95.7	*95.0*	*95.0*	*94.7*	*94.5*	*94.1*	*93.6*
6.0	89.1	91.7	93.4	94.9	96.4	*94.7*	*94.6*	*94.4*	*94.4*	*94.1*	*93.6*
10.0	89.7	92.3	94.1	95.5	*96.2*	*94.4*	*94.3*	*94.1*	*94.0*	*93.8*	*93.5*
14.0	90.3	93.0	94.7	*96.0*	*95.9*	*94.0*	*93.9*	*93.7*	*93.6*		
18.0	90.9	93.6	95.3	*95.6*	*95.6*	*93.7*	*93.6*	*93.4*			
22.0	91.4	94.2	*95.4*	*95.3*	*95.3*	*93.3*	*93.3*				
26.0	92.0	94.8	*95.1*	*95.0*	*95.0*	*93.0*					
30.0	92.6	*94.6*	*94.7*	*94.6*	*94.6*	*92.5*					
34.0	*93.2*	*94.1*	*94.3*	*94.2*	*94.2*						
38.0	*92.7*	*93.7*	*93.9*	*93.9*							
42.0	*92.1*	*93.2*	*93.4*	*93.4*							
46.0	*91.5*	*92.7*	*93.0*								
50.0	*90.9*	*92.2*	*92.5*								
54.0	*90.3*	*91.6*									

OAT < ISA + 10

OAT ≥ ISA + 10

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

To account for speed differences, increase N1 by 0.5 for the check at item 3.2

Figure 2C

GO AROUND

CFM56-5A4 GO AROUND N1 AIR CONDITIONING ON MACH=.225	N1 CORRECTIONS FOR AIR BLEED	OAT < ISA + 30	OAT ≥ ISA + 30
	AIR CONDITIONING OFF	.6	.6
	ENGINE ANTI ICE ON	0.0	−1.2
	ENGINE ANTI ICE AND WING ANTI ICE ON	0.0	−1.7

TAT (°C)	PRESSURE ALTITUDE (FT) -2000.	-1000.	0.	1000.	2000.	3000.	4000.	5000.	6000.	7000.
-54.0	77.6	78.6	79.5	80.3	81.0	81.5	82.3	83.1	83.8	84.1
-50.0	78.3	79.3	80.2	81.0	81.7	82.2	83.0	83.8	84.5	84.8
-46.0	79.0	79.9	80.9	81.6	82.4	82.9	83.7	84.5	85.2	85.5
-42.0	79.6	80.6	81.5	82.3	83.1	83.6	84.4	85.2	85.9	86.2
-38.0	80.2	81.2	82.2	83.0	83.7	84.2	85.1	85.9	86.6	86.9
-34.0	80.9	81.9	82.8	83.6	84.4	84.9	85.7	86.6	87.3	87.6
-30.0	81.5	82.5	83.5	84.3	85.1	85.6	86.4	87.2	88.0	88.3
-26.0	82.1	83.2	84.1	84.9	85.7	86.2	87.1	87.9	88.6	88.9
-22.0	82.8	83.8	84.8	85.6	86.4	86.9	87.7	88.6	89.3	89.6
-18.0	83.4	84.4	85.4	86.2	87.0	87.5	88.4	89.2	90.0	90.3
-14.0	84.0	85.0	86.0	86.8	87.7	88.2	89.0	89.9	90.6	91.0
-10.0	84.6	85.6	86.6	87.5	88.3	88.8	89.7	90.5	91.3	91.6
-6.0	85.2	86.2	87.3	88.1	88.9	89.4	90.3	91.2	91.9	92.3
-2.0	85.8	86.9	87.9	88.7	89.5	90.1	91.0	91.8	92.6	92.9
2.0	86.4	87.5	88.5	89.3	90.2	90.7	91.6	92.5	93.2	93.5
6.0	87.0	88.0	89.1	89.9	90.8	91.3	92.2	93.1	93.9	94.2
10.0	87.6	88.6	89.7	90.5	91.4	91.9	92.8	93.7	94.5	94.8
14.0	88.2	89.2	90.3	91.1	92.0	92.5	93.4	94.3	95.1	95.4
18.0	88.7	89.8	90.9	91.7	92.6	93.1	94.1	94.9	95.7	96.1
22.0	89.3	90.4	91.4	92.3	93.2	93.7	94.7	95.6	96.3	96.7
26.0	89.9	91.0	92.0	92.9	93.8	94.3	95.3	96.2	97.0	97.3
30.0	90.4	91.5	92.6	93.5	94.4	94.9	95.9	96.8	97.6	97.9
34.0	91.0	92.1	93.2	94.1	94.9	95.5	96.5	97.4	*98.2*	*98.5*
38.0	91.5	92.7	93.7	94.6	95.5	96.1	*97.0*	*98.0*	*98.3*	*98.1*
42.0	92.1	93.2	94.3	95.2	*96.1*	*96.7*	*97.1*	*97.5*	*97.7*	*97.6*
46.0	92.6	93.8	*94.9*	*95.8*	*96.1*	*96.1*	*96.5*	*97.0*	*97.2*	
50.0	*93.2*	*94.3*	*94.8*	*95.1*	*95.4*	*95.5*	*95.9*			
54.0	*93.0*	*93.5*	*94.0*	*94.4*	*94.7*					
58.0	*92.0*	*92.6*	*93.2*							
62.0	*91.0*									

OAT < ISA + 30
OAT ≥ ISA + 30

MAXIMUM CONTINUOUS

CFM56-5A4/A5 MAXIMUM CONTINUOUS N1 AIR CONDITIONING ON* IAS=230 KT	N1 CORRECTIONS FOR AIR BLEED	OAT < ISA + 10	OAT ≥ ISA + 10
	AIR CONDITIONING OFF	.8	.8
	ENGINE ANTI ICE ON	0.0	-.9
	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	89.6
-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	*96.6*	*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.

To account for speed differences, increase N1 by 0.5 for the check at item 3.2

-5A4

Figure 2D

-5A5

GO AROUND

CFM56-5A5 GO AROUND N1 AIR CONDITIONING ON MACH=.225	N1 CORRECTIONS FOR AIR BLEED	OAT < ISA + 22	OAT ≥ ISA + 22
	AIR CONDITIONING OFF	.6	.6
	ENGINE ANTI ICE ON	0.0	−1.2
	ENGINE ANTI ICE AND WING ANTI ICE ON	0.0	−1.7

TAT (C)	PRESSURE ALTITUDE (FT) -2000.	-1000.	0.	1000.	2000.	3000.	4000.	5000.	6000.	7000.
-54.0	79.4	80.4	81.4	82.2	83.0	83.5	84.1	84.8	85.5	86.0
-50.0	80.0	81.1	82.1	82.9	83.7	84.2	84.9	85.5	86.3	86.7
-46.0	80.7	81.8	82.8	83.6	84.4	84.9	85.6	86.2	87.0	87.4
-42.0	81.4	82.4	83.5	84.3	85.1	85.6	86.3	87.0	87.7	88.1
-38.0	82.0	83.1	84.2	85.0	85.8	86.3	87.0	87.7	88.4	88.9
-34.0	82.7	83.8	84.8	85.6	86.4	87.0	87.7	88.4	89.1	89.6
-30.0	83.3	84.4	85.5	86.3	87.1	87.6	88.4	89.0	89.8	90.3
-26.0	84.0	85.1	86.2	87.0	87.8	88.3	89.0	89.7	90.5	91.0
-22.0	84.6	85.7	86.8	87.6	88.5	89.0	89.7	90.4	91.2	91.6
-18.0	85.2	86.4	87.5	88.3	89.1	89.7	90.4	91.1	91.9	92.3
-14.0	85.9	87.0	88.1	88.9	89.8	90.3	91.0	91.8	92.5	93.0
-10.0	86.5	87.6	88.7	89.6	90.4	91.0	91.7	92.4	93.2	93.7
-6.0	87.1	88.2	89.4	90.2	91.1	91.6	92.4	93.1	93.9	94.3
-2.0	87.7	88.9	90.0	90.9	91.7	92.3	93.0	93.7	94.5	95.0
2.0	88.3	89.5	90.6	91.5	92.3	92.9	93.6	94.4	95.2	95.7
6.0	88.9	90.1	91.2	92.1	93.0	93.5	94.3	95.0	95.8	96.3
10.0	89.5	90.7	91.8	92.7	93.6	94.1	94.9	95.7	96.5	97.0
14.0	90.1	91.3	92.4	93.3	94.2	94.8	95.5	96.3	97.1	97.6
18.0	90.7	91.9	93.0	93.9	94.8	95.4	96.2	96.9	97.7	98.2
22.0	91.3	92.5	93.6	94.6	95.4	96.0	96.8	97.5	98.4	98.9
26.0	91.9	93.1	94.2	95.2	96.0	96.6	97.4	98.2	99.0	99.5
30.0	92.4	93.7	94.8	95.7	96.6	97.2	98.0	98.8	99.1	99.2
34.0	93.0	94.2	95.4	96.3	97.2	97.8	98.1	98.4	98.7	98.9
38.0	93.6	94.8	96.0	96.9	97.3	97.4	97.7	98.0	98.3	98.5
42.0	94.1	95.4	96.0	96.4	96.8	97.0	97.3	97.6	97.9	98.1
46.0	94.2	94.8	95.4	95.9	96.3	96.6	96.9	97.1	97.4	
50.0	93.5	94.2	94.8	95.3	95.8	96.1	96.4			
54.0	92.9	93.5	94.1	94.7	95.3					
58.0	92.2	92.9	93.4							
62.0	91.6									

OAT < ISA + 22
OAT ≥ ISA + 22

MAXIMUM CONTINUOUS

CFM56-5A4/A5 MAXIMUM CONTINUOUS N1 AIR CONDITIONING ON* IAS=230 KT	N1 CORRECTIONS FOR AIR BLEED	OAT < ISA + 10	OAT ≥ ISA + 10
	AIR CONDITIONING OFF	.8	.8
	ENGINE ANTI ICE ON	0.0	-.9
	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	89.6
-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	96.6	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.

To account for speed differences, increase N1 by 0.5 for the check at item 3.2

Figure 2E

GO AROUND

R

CFM56-5B1 GO AROUND N1 AIR CONDITIONING ON MACH=.225	N1 CORRECTIONS FOR AIR BLEED	OAT < ISA + 15	OAT ≥ ISA + 15
	AIR CONDITIONING OFF	1.0	1.0
	ENGINE ANTI ICE ON	0.0	−2.0
	ENGINE ANTI ICE AND WING ANTI ICE ON	0.0	−2.8

TAT (°C)	PRESSURE ALTITUDE (FT) -1000.	0.	1000.	2000.	3000.	4000.	5000.	6000.	7000.	8000.	9000.	9200.
-54.0	81.6	82.6	83.1	83.6	84.1	84.7	85.2	85.8	86.5	86.7	87.3	87.4
-50.0	82.4	83.4	83.8	84.3	84.9	85.4	85.9	86.6	87.2	87.5	88.0	88.1
-46.0	83.1	84.1	84.6	85.0	85.6	86.1	86.6	87.3	87.9	88.2	88.7	88.9
-42.0	83.8	84.8	85.3	85.7	86.3	86.8	87.4	88.0	88.7	88.9	89.5	89.6
-38.0	84.4	85.5	85.9	86.4	87.0	87.5	88.0	88.7	89.3	89.6	90.2	90.3
-34.0	85.1	86.1	86.6	87.1	87.7	88.2	88.7	89.4	90.0	90.3	90.9	91.0
-30.0	85.8	86.8	87.3	87.8	88.3	88.9	89.4	90.1	90.7	91.0	91.6	91.7
-26.0	86.4	87.5	88.0	88.4	89.0	89.6	90.1	90.8	91.4	91.7	92.2	92.4
-22.0	87.1	88.1	88.6	89.1	89.7	90.2	90.8	91.5	92.1	92.4	92.9	93.1
-18.0	87.8	88.8	89.3	89.8	90.4	90.9	91.5	92.1	92.8	93.1	93.6	93.7
-14.0	88.4	89.5	90.0	90.5	91.0	91.6	92.1	92.8	93.5	93.8	94.3	94.4
-10.0	89.0	90.1	90.6	91.1	91.7	92.2	92.8	93.5	94.1	94.4	95.0	95.1
-6.0	89.7	90.7	91.2	91.7	92.3	92.9	93.4	94.1	94.8	95.1	95.6	95.7
-2.0	90.3	91.4	91.9	92.4	93.0	93.5	94.1	94.8	95.4	95.7	96.3	96.4
2.0	90.9	92.0	92.5	93.0	93.6	94.2	94.7	95.4	96.1	96.4	96.9	97.0
6.0	91.5	92.6	93.1	93.6	94.2	94.8	95.4	96.1	96.7	97.0	97.6	97.7
10.0	92.2	93.3	93.8	94.3	94.9	95.4	96.0	96.7	97.4	97.7	98.2	98.3
14.0	92.8	93.9	94.4	94.9	95.5	96.1	96.6	97.3	98.0	98.3	98.9	99.0
18.0	93.4	94.5	95.0	95.5	96.1	96.7	97.3	98.0	98.6	98.6	98.4	98.3
22.0	94.0	95.1	95.6	96.1	96.7	97.3	97.9	98.3	98.2	97.7	97.5	97.5
26.0	94.6	95.7	96.2	96.7	97.3	97.7	97.7	97.6	97.6	97.2	96.9	96.9
30.0	95.2	96.3	96.8	97.1	97.1	97.2	97.2	97.2	97.1	96.7	96.5	96.4
34.0	95.8	96.6	96.6	96.6	96.6	96.7	96.8	96.7	96.6	96.2	96.0	95.9
38.0	95.6	96.1	96.1	96.0	96.1	96.2	96.2	96.0	95.9	95.6	95.5	95.5
42.0	95.2	95.6	95.6	95.4	95.5	95.4	95.4	95.2	95.1	95.0		
46.0	94.6	95.0	94.8	94.7	94.7	94.6	94.5	94.4				
50.0	93.9	94.2	94.0	93.8	93.8	93.8						
54.0	93.1	93.3	93.2	93.0								
58.0	92.2	92.5										

OAT < ISA + 15

MAXIMUM CONTINUOUS

CFM56−5B1/−5B2 MAXIMUM CONTINUOUS N1 AIR CONDITIONING ON * IAS=230 KT	N1 CORRECTIONS FOR AIR BLEED	OAT < ISA + 10	OAT ≥ ISA + 10
	AIR CONDITIONING OFF	1.2	1.2
	ENGINE ANTI ICE ON	0.0	−1.6
	ENGINE ANTI ICE AND WING ANTI ICE ON	0.0	−3.1

TAT (°C)	PRESSURE ALTITUDE (FT) −1000.	3000.	7000.	11000.	15000.	19000.	23000.	27000.	31000.	35000.	39000.
−54.0	80.3	82.2	83.7	85.3	87.4	87.1	86.6	86.8	87.7	89.1	88.4
−50.0	81.0	82.9	84.4	86.0	88.1	87.8	87.3	87.5	88.5	89.8	89.1
−46.0	81.7	83.7	85.2	86.8	88.9	88.6	88.0	88.2	89.2	90.6	89.9
−42.0	82.4	84.4	85.9	87.5	89.6	89.3	88.8	89.0	89.9	91.3	90.6
−38.0	83.0	85.0	86.5	88.2	90.3	90.0	89.5	89.6	90.6	92.0	91.3
−34.0	83.7	85.7	87.2	88.9	91.0	90.7	90.2	90.3	91.3	92.7	92.0
−30.0	84.4	86.4	87.9	89.5	91.7	91.4	90.8	91.0	92.0	93.4	92.7
−26.0	85.0	87.0	88.6	90.2	92.4	92.1	91.5	91.7	92.7	94.1	93.4
−22.0	85.7	87.7	89.2	90.9	93.1	92.8	92.2	92.4	93.4	94.5	94.1
−18.0	86.3	88.4	89.9	91.6	93.8	93.5	92.9	93.1	94.1	93.6	93.5
−14.0	87.0	89.0	90.6	92.3	94.5	94.2	93.6	93.8	93.5	92.7	92.6
−10.0	87.6	89.7	91.2	92.9	95.1	94.8	94.3	93.8	92.7	91.7	91.6
−6.0	88.2	90.3	91.9	93.6	95.8	95.5	94.9	93.0	91.9	90.8	90.9
−2.0	88.8	90.9	92.5	94.2	96.4	96.1	94.2	92.3	91.2	90.3	90.3
2.0	89.5	91.5	93.1	94.9	97.1	96.1	93.5	91.7	90.7	89.9	89.8
6.0	90.1	92.2	93.8	95.5	97.7	95.5	92.9	91.2	90.2	89.4	89.3
10.0	90.7	92.8	94.4	96.1	97.2	94.8	92.5	90.7	89.7	88.9	88.8
14.0	91.3	93.4	95.1	96.6	96.6	94.4	92.0	90.2	89.2		
18.0	91.9	94.0	95.7	96.2	95.9	94.0	91.6	89.8			
22.0	92.5	94.6	95.7	95.7	95.5	93.6	91.1				
26.0	93.1	95.2	95.3	95.1	95.0	93.2					
30.0	93.7	94.9	94.9	94.5	94.4	92.7					
34.0	94.3	94.4	94.1	94.0	93.9						
38.0	93.7	93.8	93.5	93.4							
42.0	93.1	93.1	93.0	92.8							
46.0	92.4	92.5	92.5								
50.0	91.8	92.0	91.9								
54.0	91.3	91.5									

OAT < ISA + 10

OAT ≥ ISA + 10

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

To account for speed differences, increase N1 by 0.5 for the check at item 3.2

-5B1

GO AROUND

R

CFM56-5B2 GO AROUND N1 AIR CONDITIONING ON MACH=.225	N1 CORRECTIONS FOR AIR BLEED	OAT < ISA + 15	OAT ≥ ISA + 15
	AIR CONDITIONING OFF	1.0	1.0
	ENGINE ANTI ICE ON	0.0	−2.0
	ENGINE ANTI ICE AND WING ANTI ICE ON	0.0	−2.8

TAT (°C)	PRESSURE ALTITUDE (FT) -1000.	0.	1000.	2000.	3000.	4000.	5000.	6000.	7000.	8000.	9000.	9200.
-54.0	82.6	83.7	84.2	84.7	85.4	86.1	86.8	87.5	88.1	88.3	88.6	88.7
-50.0	83.4	84.4	84.9	85.4	86.1	86.8	87.5	88.2	88.8	89.1	89.4	89.4
-46.0	84.1	85.1	85.6	86.1	86.9	87.6	88.3	88.9	89.6	89.8	90.1	90.2
-42.0	84.8	85.8	86.3	86.8	87.6	88.3	89.0	89.7	90.3	90.6	90.9	90.9
-38.0	85.5	86.5	87.0	87.5	88.3	89.0	89.7	90.4	91.0	91.3	91.6	91.6
-34.0	86.1	87.2	87.7	88.2	88.9	89.7	90.4	91.1	91.7	92.0	92.3	92.3
-30.0	86.8	87.9	88.4	88.9	89.6	90.4	91.1	91.8	92.4	92.7	93.0	93.0
-26.0	87.5	88.5	89.1	89.6	90.3	91.1	91.8	92.4	93.1	93.4	93.7	93.7
-22.0	88.1	89.2	89.7	90.2	91.0	91.7	92.5	93.1	93.8	94.1	94.3	94.4
-18.0	88.8	89.9	90.4	90.9	91.7	92.4	93.2	93.8	94.5	94.8	95.0	95.1
-14.0	89.5	90.6	91.1	91.6	92.4	93.1	93.8	94.5	95.2	95.4	95.7	95.8
-10.0	90.1	91.2	91.7	92.2	93.0	93.8	94.5	95.2	95.8	96.1	96.4	96.5
-6.0	90.7	91.8	92.4	92.9	93.7	94.4	95.1	95.8	96.5	96.8	97.1	97.1
-2.0	91.4	92.5	93.0	93.5	94.3	95.1	95.8	96.5	97.1	97.4	97.7	97.8
2.0	92.0	93.1	93.6	94.2	94.9	95.7	96.4	97.1	97.8	98.1	98.4	98.4
6.0	92.6	93.7	94.3	94.8	95.6	96.4	97.1	97.8	98.5	98.7	99.0	99.1
10.0	93.3	94.4	94.9	95.4	96.2	97.0	97.7	98.4	99.1	99.4	99.7	99.7
14.0	93.9	95.0	95.6	96.1	96.9	97.6	98.4	99.1	99.8	100.0	100.3	100.4
18.0	94.5	95.6	96.2	96.7	97.5	98.3	99.0	99.7	100.4	100.3	99.9	99.8
22.0	95.1	96.2	96.8	97.3	98.1	98.9	99.6	100.0	99.9	99.4	99.1	99.0
26.0	95.7	96.8	97.4	97.9	98.7	99.2	99.1	99.1	99.0	98.6	98.2	98.2
30.0	96.3	97.4	98.0	98.2	98.4	98.4	98.4	98.4	98.2	97.8	97.6	97.5
34.0	96.9	97.8	97.8	97.7	97.8	97.9	97.9	97.7	97.5	97.2	97.1	97.0
38.0	96.7	97.2	97.2	97.1	97.2	97.2	97.1	96.9	96.8	96.6	96.5	96.5
42.0	96.2	96.7	96.6	96.5	96.4	96.4	96.3	96.1	96.0	96.0		
46.0	95.7	95.9	95.8	95.7	95.6	95.5	95.4	95.3				
50.0	94.8	95.1	95.0	94.8	94.8	94.7						
54.0	94.0	94.3	94.2	94.0								
58.0	93.2	93.5										

OAT < ISA + 15

MAXIMUM CONTINUOUS

CFM56−5B1/−5B2 MAXIMUM CONTINUOUS N1 AIR CONDITIONING ON * IAS=230 KT	N1 CORRECTIONS FOR AIR BLEED	OAT < ISA + 10	OAT ≥ ISA + 10
	AIR CONDITIONING OFF	1.2	1.2
	ENGINE ANTI ICE ON	0.0	−1.6
	ENGINE ANTI ICE AND WING ANTI ICE ON	0.0	−3.1

TAT (°C)	PRESSURE ALTITUDE (FT) −1000.	3000.	7000.	11000.	15000.	19000.	23000.	27000.	31000.	35000.	39000.
−54.0	80.3	82.2	83.7	85.3	87.4	87.1	86.6	86.8	87.7	89.1	88.4
−50.0	81.0	82.9	84.4	86.0	88.1	87.8	87.3	87.5	88.5	89.8	89.1
−46.0	81.7	83.7	85.2	86.8	88.9	88.6	88.0	88.2	89.2	90.6	89.9
−42.0	82.4	84.4	85.9	87.5	89.6	89.3	88.8	89.0	89.9	91.3	90.6
−38.0	83.0	85.0	86.5	88.2	90.3	90.0	89.5	89.6	90.6	92.0	91.3
−34.0	83.7	85.7	87.2	88.9	91.0	90.7	90.2	90.3	91.3	92.7	92.0
−30.0	84.4	86.4	87.9	89.5	91.7	91.4	90.8	91.0	92.0	93.4	92.7
−26.0	85.0	87.0	88.6	90.2	92.4	92.1	91.5	91.7	92.7	94.1	93.4
−22.0	85.7	87.7	89.2	90.9	93.1	92.8	92.2	92.4	93.4	94.5	94.1
−18.0	86.3	88.4	89.9	91.6	93.8	93.5	92.9	93.1	94.1	93.6	93.5
−14.0	87.0	89.0	90.6	92.3	94.5	94.2	93.6	93.8	93.5	92.7	92.6
−10.0	87.6	89.7	91.2	92.9	95.1	94.8	94.3	93.8	92.7	91.7	91.6
−6.0	88.2	90.3	91.9	93.6	95.8	95.5	94.9	93.0	91.9	90.8	90.9
−2.0	88.8	90.9	92.5	94.2	96.4	96.1	94.2	92.3	91.2	90.3	90.3
2.0	89.5	91.5	93.1	94.9	97.1	96.1	93.5	91.7	90.7	89.9	89.8
6.0	90.1	92.2	93.8	95.5	97.7	95.5	92.9	91.2	90.2	89.4	89.3
10.0	90.7	92.8	94.4	96.1	97.2	94.8	92.5	90.7	89.7	88.9	88.8
14.0	91.3	93.4	95.1	96.6	96.6	94.4	92.0	90.2	89.2		
18.0	91.9	94.0	95.7	96.2	95.9	94.0	91.6	89.8			
22.0	92.5	94.6	95.7	95.7	95.5	93.6	91.1				
26.0	93.1	95.2	95.3	95.1	95.0	93.2					
30.0	93.7	94.9	94.9	94.5	94.4	92.7					
34.0	94.3	94.4	94.1	94.0	93.9						
38.0	93.7	93.8	93.5	93.4							
42.0	93.1	93.1	93.0	92.8							
46.0	92.4	92.5	92.5								
50.0	91.8	92.0	91.9								
54.0	91.3	91.5									

OAT < ISA + 10
OAT ≥ ISA + 10

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

To account for speed differences, increase N1 by 0.5 for the check at item 3.2

Figure 2F

-5B2

Figure 2G

-5B3

GO AROUND

R

CFM56-5B3 GO AROUND N1 AIR CONDITIONING ON MACH=.225	N1 CORRECTIONS FOR AIR BLEED	OAT < ISA + 15	OAT ≥ ISA + 15
	AIR CONDITIONING OFF	.9	.9
	ENGINE ANTI ICE ON	0.0	−1.9
	ENGINE ANTI ICE AND WING ANTI ICE ON	0.0	−2.7

TAT (°C)	PRESSURE ALTITUDE (FT) -2000.	-1000.	0.	1000.	2000.	3000.	4000.	5000.	6000.	7000.
-54.0	83.7	85.0	86.3	87.1	87.9	88.3	88.8	89.2	89.4	89.7
-50.0	84.4	85.7	87.0	87.8	88.6	89.1	89.5	89.9	90.2	90.4
-46.0	85.1	86.4	87.7	88.6	89.3	89.8	90.3	90.7	90.9	91.2
-42.0	85.8	87.2	88.5	89.3	90.1	90.5	91.0	91.4	91.7	91.9
-38.0	86.5	87.8	89.2	90.0	90.8	91.2	91.7	92.1	92.4	92.6
-34.0	87.2	88.5	89.9	90.7	91.5	91.9	92.4	92.8	93.1	93.3
-30.0	87.8	89.2	90.5	91.4	92.2	92.6	93.1	93.5	93.8	94.0
-26.0	88.5	89.9	91.2	92.1	92.8	93.3	93.8	94.2	94.5	94.7
-22.0	89.2	90.6	91.9	92.7	93.5	94.0	94.5	94.9	95.2	95.4
-18.0	89.9	91.3	92.6	93.4	94.2	94.7	95.2	95.6	95.9	96.1
-14.0	90.5	91.9	93.3	94.1	94.9	95.4	95.9	96.3	96.6	96.8
-10.0	91.2	92.6	93.9	94.8	95.6	96.1	96.5	97.0	97.2	97.5
-6.0	91.8	93.2	94.6	95.4	96.2	96.7	97.2	97.7	97.9	98.1
-2.0	92.4	93.9	95.2	96.1	96.9	97.4	97.9	98.3	98.6	98.8
2.0	93.1	94.5	95.9	96.7	97.5	98.0	98.5	99.0	99.2	99.5
6.0	93.7	95.1	96.5	97.4	98.2	98.7	99.2	99.6	99.9	100.1
10.0	94.3	95.8	97.2	98.0	98.9	99.3	99.8	100.3	100.5	100.8
14.0	95.0	96.4	97.8	98.7	99.5	100.0	100.5	100.9	101.2	101.4
18.0	95.6	97.0	98.5	99.3	100.1	100.6	101.1	101.6	101.8	102.1
22.0	96.2	97.6	99.1	99.9	100.8	101.3	101.7	102.2	*102.1*	*101.8*
26.0	96.8	98.3	99.7	100.5	101.4	101.9	*102.0*	*101.8*	*101.4*	*101.0*
30.0	97.4	98.9	100.3	101.2	*101.5*	*101.2*	*101.0*	*100.9*	*100.6*	*100.0*
34.0	98.0	99.5	*100.5*	*100.4*	*100.2*	*100.1*	*100.1*	*100.1*	*99.5*	*98.8*
38.0	*98.3*	*99.0*	*99.4*	*99.4*	*99.3*	*99.3*	*99.2*	*98.9*	*98.4*	*98.0*
42.0	*97.6*	*98.1*	*98.6*	*98.5*	*98.4*	*98.3*	*98.2*	*98.0*	*97.5*	*97.1*
46.0	*96.9*	*97.3*	*97.7*	*97.6*	*97.4*	*97.3*	*97.2*	*97.0*	*96.6*	
50.0	*96.1*	*96.5*	*96.7*	*96.6*	*96.5*	*96.3*	*96.2*			
54.0	*95.2*	*95.5*	*95.8*	*95.6*	*95.5*					
58.0	*94.3*	*94.6*	*94.8*							
62.0	*93.4*									

OAT < ISA + 15
OAT ≥ ISA + 15

MAXIMUM CONTINUOUS

CFM56-5B3 MAXIMUM CONTINUOUS N1 AIR CONDITIONING ON* IAS=230 KT	N1 CORRECTIONS FOR AIR BLEED	OAT < ISA + 10	OAT ≥ ISA + 10
	AIR CONDITIONING OFF	1.2	1.2
	NACELLE ANTI ICE ON	0.0	− 1.6
	NACELLE ANTI ICE AND WING ANTI ICE ON	0.0	− 2.9

TAT (°C)	PRESSURE ALTITUDE (FT) -1000.	3000.	7000.	11000.	15000.	19000.	23000.	27000.	31000.	35000.	39000.
-54.0	80.3	82.2	83.7	85.3	87.4	87.1	86.6	86.8	87.7	89.1	88.4
-50.0	81.0	82.9	84.4	86.0	88.1	87.8	87.3	87.5	88.5	89.8	89.1
-46.0	81.7	83.7	85.2	86.8	88.9	88.6	88.0	88.2	89.2	90.6	89.9
-42.0	82.4	84.4	85.9	87.5	89.6	89.3	88.8	89.0	89.9	91.3	90.6
-38.0	83.0	85.0	86.5	88.2	90.3	90.0	89.5	89.6	90.6	92.0	91.3
-34.0	83.7	85.7	87.2	88.9	91.0	90.7	90.2	90.3	91.3	92.7	92.0
-30.0	84.4	86.4	87.9	89.5	91.7	91.4	90.8	91.0	92.0	93.4	92.7
-26.0	85.0	87.0	88.6	90.2	92.4	92.1	91.5	91.7	92.7	94.1	93.4
-22.0	85.7	87.7	89.2	90.9	93.1	92.8	92.2	92.4	93.4	*94.5*	94.1
-18.0	86.3	88.4	89.9	91.6	93.8	93.5	92.9	93.1	94.1	*93.6*	*93.5*
-14.0	87.0	89.0	90.6	92.3	94.5	94.2	93.6	93.8	*93.5*	*92.7*	*92.6*
-10.0	87.6	89.7	91.2	92.9	95.1	94.8	94.3	*93.8*	*92.7*	*91.7*	*91.6*
-6.0	88.2	90.3	91.9	93.6	95.8	95.5	*94.9*	*93.0*	*91.9*	*90.8*	*90.9*
-2.0	88.8	90.9	92.5	94.2	96.4	96.1	*94.2*	*92.3*	*91.2*	*90.3*	*90.3*
2.0	89.5	91.5	93.1	94.9	97.1	*96.1*	*93.5*	*91.7*	*90.7*	*89.9*	*89.8*
6.0	90.1	92.2	93.8	95.5	97.7	*95.5*	*92.9*	*91.2*	*90.2*	*89.4*	*89.3*
10.0	90.7	92.8	94.4	96.1	*97.2*	*94.8*	*92.5*	*90.7*	*89.7*	*88.9*	*88.8*
14.0	91.3	93.4	95.1	*96.6*	*96.6*	*94.4*	*92.0*	*90.2*	*89.2*		
18.0	91.9	94.0	95.7	*96.2*	*95.9*	*94.0*	*91.6*	*89.8*			
22.0	92.5	94.6	*95.7*	*95.7*	*95.5*	*93.6*	*91.1*				
26.0	93.1	95.2	*95.3*	*95.1*	*95.0*	*93.2*					
30.0	93.7	*94.9*	*94.9*	*94.5*	*94.4*	*92.7*					
34.0	*94.3*	*94.4*	*94.1*	*94.0*	*93.9*						
38.0	*93.7*	*93.8*	*93.5*	*93.4*							
42.0	*93.1*	*93.1*	*93.0*	*92.8*							
46.0	*92.4*	*92.5*	*92.5*								
50.0	*91.8*	*92.0*	*91.9*								
54.0	*91.3*	*91.5*									

OAT < ISA + 10
OAT ≥ ISA + 10

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

To account for speed differences, increase N1 by 0.5 for the check at item 3.2

Figure 2H

-5B4

GO AROUND

R

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) -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	97.7	98.5	98.4
34.0	91.4	92.5	93.5	94.2	94.9	96.3	97.2	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

MAXIMUM CONTINUOUS

R

CFM56-5B4 MAXIMUM CONTINUOUS N1 AIR CONDITIONING ON* IAS=230 KT	N1 CORRECTIONS FOR AIR BLEED	OAT < ISA + 10	OAT ≥ ISA + 10
	AIR CONDITIONING OFF	.9	.9
	ENGINE ANTI ICE ON	0.0	−1.4
	ENGINE ANTI ICE AND WING ANTI ICE ON	0.0	−3.2

TAT (°C)	PRESSURE ALTITUDE (FT) -1000.	3000.	7000.	11000.	15000.	19000.	23000.	27000.	31000.	35000.	39000.
-54.0	75.6	77.6	79.2	81.1	85.2	87.3	87.0	83.2	84.3	85.1	84.1
-50.0	76.2	78.3	79.9	81.8	85.9	88.0	87.7	84.0	85.0	85.8	84.9
-46.0	76.9	79.0	80.6	82.6	86.6	88.8	88.5	84.7	85.7	86.6	85.6
-42.0	77.6	79.6	81.2	83.3	87.4	89.5	89.2	85.4	86.4	87.3	86.3
-38.0	78.2	80.3	81.9	83.9	88.0	90.2	89.9	86.1	87.1	88.0	87.0
-34.0	78.8	80.9	82.5	84.6	88.7	90.9	90.6	86.7	87.8	88.6	87.7
-30.0	79.5	81.6	83.2	85.2	89.4	91.6	91.3	87.4	88.5	89.3	88.3
-26.0	80.1	82.2	83.8	85.9	90.1	92.3	92.0	88.1	89.2	90.0	89.0
-22.0	80.7	82.8	84.5	86.6	90.8	93.0	92.7	88.7	89.8	90.5	89.7
-18.0	81.4	83.5	85.1	87.2	91.5	93.7	93.4	89.4	90.5	90.3	89.6
-14.0	82.0	84.1	85.8	87.9	92.1	94.3	94.0	90.1	90.4	90.0	89.3
-10.0	82.6	84.7	86.4	88.5	92.8	95.0	94.7	90.3	90.1	89.6	89.0
-6.0	83.2	85.3	87.0	89.1	93.4	95.6	95.3	90.0	89.7	89.0	88.2
-2.0	83.8	85.9	87.6	89.8	94.1	96.3	94.6	89.7	89.0	88.4	87.5
2.0	84.4	86.5	88.3	90.4	94.7	96.3	93.9	89.0	88.4	87.7	86.9
6.0	85.0	87.1	88.9	91.0	95.4	95.6	93.3	88.4	87.8	87.0	86.3
10.0	85.5	87.8	89.5	91.6	94.8	94.8	92.8	87.8	87.2	86.2	85.7
14.0	86.1	88.4	90.1	92.0	94.0	94.2	92.4	87.1	86.5		
18.0	86.7	88.9	90.7	91.5	93.3	93.6	91.9	86.5			
22.0	87.3	89.5	90.7	91.0	92.8	93.1	91.3				
26.0	87.8	90.1	90.2	90.4	92.2	92.5					
30.0	88.4	89.8	89.7	89.8	91.5	92.0					
34.0	89.0	89.3	89.1	89.1	90.9						
38.0	88.5	88.8	88.4	88.4							
42.0	88.0	88.2	87.8	87.7							
46.0	87.4	87.6	87.1								
50.0	86.8	86.9	86.4								
54.0	86.1	86.2									

OAT < ISA + 10
OAT ≥ ISA + 10

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

To account for speed differences, increase N1 by 0.5 for the check at item 3.2

Figure 2I

-5B5

A319/320/321 FLIGHT CREW OPERATING MANUAL	IN FLIGHT PERFORMANCE THRUST RATINGS	3.05.06 SEQ 070	P 5 REV 27

GO AROUND

CFM56-5B5 GO AROUND N1 AIR CONDITIONING ON MACH=.225	N1 CORRECTIONS FOR AIR BLEED	OAT < ISA + 30	OAT ≥ ISA + 30
	AIR CONDITIONING OFF	.6	.6
	ENGINE ANTI ICE ON	0.0	−1.3
	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	73.0	74.0	74.8	75.5	76.1	76.6	77.3	78.0	78.6	79.0
-50.0	73.7	74.6	75.5	76.2	76.8	77.3	78.0	78.7	79.3	79.7
-46.0	74.3	75.3	76.2	76.8	77.5	77.9	78.7	79.4	80.0	80.3
-42.0	75.0	75.9	76.8	77.5	78.1	78.6	79.3	80.0	80.7	81.0
-38.0	75.6	76.5	77.5	78.1	78.8	79.3	80.0	80.7	81.3	81.7
-34.0	76.2	77.2	78.1	78.7	79.4	79.9	80.6	81.3	82.0	82.3
-30.0	76.8	77.8	78.7	79.4	80.0	80.5	81.3	82.0	82.6	83.0
-26.0	77.4	78.4	79.3	80.0	80.7	81.2	81.9	82.6	83.3	83.6
-22.0	78.1	79.0	80.0	80.6	81.3	81.8	82.5	83.3	83.9	84.3
-18.0	78.7	79.6	80.6	81.3	81.9	82.4	83.2	83.9	84.6	84.9
-14.0	79.3	80.3	81.2	81.9	82.6	83.1	83.8	84.6	85.2	85.6
-10.0	79.9	80.8	81.8	82.5	83.2	83.7	84.4	85.2	85.8	86.2
-6.0	80.4	81.4	82.4	83.1	83.8	84.3	85.0	85.8	86.4	86.8
-2.0	81.0	82.0	83.0	83.7	84.3	84.9	85.6	86.4	87.1	87.4
2.0	81.6	82.6	83.6	84.3	84.9	85.5	86.2	87.0	87.7	88.0
6.0	82.2	83.2	84.1	84.9	85.5	86.1	86.8	87.6	88.3	88.6
10.0	82.8	83.8	84.7	85.4	86.1	86.7	87.4	88.2	88.9	89.3
14.0	83.3	84.3	85.3	86.0	86.7	87.3	88.0	88.8	89.5	89.9
18.0	83.9	84.9	85.9	86.6	87.3	87.8	88.6	89.4	90.1	90.5
22.0	84.4	85.5	86.5	87.2	87.9	88.4	89.2	90.0	90.7	91.0
26.0	85.0	86.0	87.0	87.7	88.4	89.0	89.8	90.5	91.2	91.6
30.0	85.5	86.6	87.6	88.3	89.0	89.6	90.3	91.1	91.8	92.2
34.0	86.1	87.1	88.1	88.9	89.6	90.1	90.9	91.7	92.4	92.8
38.0	86.6	87.7	88.7	89.4	90.1	90.7	91.5	92.3	*92.4*	*92.2*
42.0	87.2	88.2	89.3	90.0	90.7	91.3	*91.6*	*91.7*	*91.6*	*91.5*
46.0	87.7	88.8	89.8	90.5	*90.8*	*90.8*	*91.0*	*91.0*	*90.9*	
50.0	*88.2*	*89.3*	*89.9*	*90.1*	*90.3*	*90.3*	*90.4*			
54.0	*88.3*	*88.8*	*89.3*	*89.5*	*89.8*					
58.0	*87.7*	*88.2*	*88.7*							
62.0	*87.1*									

OAT < ISA + 30

OAT ≥ ISA + 30

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MAXIMUM CONTINUOUS

CFM56-5B5/B6 MAXIMUM CONTINUOUS N1 AIR CONDITIONING ON* IAS=230 KT	N1 CORRECTIONS FOR AIR BLEED	OAT > ISA + 10	OAT > ISA + 10
	AIR CONDITIONING OFF	.8	.8
	ENGINE ANTI ICE ON	0.0	-1.1
	ENGINE ANTI ICE AND WING ANTI ICE ON	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

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

To account for speed differences, increase N1 by 0.5 for the check at item 3.2

Figure 2J

GO AROUND

CFM56-5B6 GO AROUND N1 AIR CONDITIONING ON MACH=.225	N1 CORRECTIONS FOR AIR BLEED	OAT < ISA + 30	OAT ≥ ISA + 30
	AIR CONDITIONING OFF	.6	.6
	ENGINE ANTI ICE ON	0.0	−1.3
	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

MAXIMUM CONTINUOUS

CFM56-5B5/B6 MAXIMUM CONTINUOUS N1 AIR CONDITIONING ON* IAS=230 KT	N1 CORRECTIONS FOR AIR BLEED	OAT > ISA + 10	OAT > ISA + 10
	AIR CONDITIONING OFF	.8	.8
	ENGINE ANTI ICE ON	0.0	-1.1
	ENGINE ANTI ICE AND WING ANTI ICE ON	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

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

To account for speed differences, increase N1 by 0.5 for the check at item 3.2

-5B6

Figure 2K

-5B7

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	THRUST RATINGS	SEQ 095	REV 29

GO AROUND

CFM56-5B7 GO AROUND N1 AIR CONDITIONING ON MACH=.225	N1 CORRECTIONS FOR AIR BLEED	OAT < ISA + 30	OAT > ISA + 30
	AIR CONDITIONING OFF	.6	.6
	ENGINE ANTI ICE ON	0.0	-1.3
	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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	THRUST RATINGS	SEQ 145	REV 30

MAXIMUM CONTINUOUS

R

CFM56-5B7 MAXIMUM CONTINUOUS N1 AIR CONDITIONING ON * IAS=230 KT	N1 CORRECTIONS FOR AIR BLEED	OAT < ISA + 10	OAT ≥ ISA + 10
	AIR CONDITIONING OFF	.9	.9
	ENGINE ANTI ICE ON	0.0	-1.4
	ENGINE ANTI ICE AND WING ANTI ICE ON	0.0	-3.2

TAT (C°)	PRESSURE ALTITUDE (FT) -1000.	3000.	7000.	11000.	15000.	19000.	23000.	27000.	31000.	35000.	39000.	41000.
-54.0	75.6	77.6	79.2	81.1	85.2	87.3	87.0	84.7	87.5	89.0	88.4	87.8
-50.0	76.2	78.3	79.9	81.8	85.9	88.0	87.7	85.4	88.3	89.7	89.1	88.5
-46.0	76.9	79.0	80.6	82.6	86.6	88.8	88.5	86.1	89.0	90.5	89.9	89.2
-42.0	77.6	79.6	81.2	83.3	87.4	89.5	89.2	86.8	89.8	91.2	90.6	90.0
-38.0	78.2	80.3	81.9	83.9	88.0	90.2	89.9	87.5	90.5	91.9	91.3	90.7
-34.0	78.8	80.9	82.5	84.6	88.7	90.9	90.6	88.2	91.1	92.6	92.0	91.4
-30.0	79.5	81.6	83.2	85.2	89.4	91.6	91.3	88.9	91.8	93.3	92.7	92.1
-26.0	80.1	82.2	83.8	85.9	90.1	92.3	92.0	89.6	92.5	94.0	93.4	92.8
-22.0	80.7	82.8	84.5	86.6	90.8	93.0	92.7	90.2	93.2	*94.4*	94.1	93.5
-18.0	81.4	83.5	85.1	87.2	91.5	93.7	93.4	90.9	93.9	*93.5*	*93.5*	*93.8*
-14.0	82.0	84.1	85.8	87.9	92.1	94.3	94.0	91.6	*93.3*	*92.6*	*92.6*	*92.9*
-10.0	82.6	84.7	86.4	88.5	92.8	95.0	94.7	*91.7*	*92.5*	*91.6*	*91.6*	*91.9*
-6.0	83.2	85.3	87.0	89.1	93.4	95.6	*95.3*	*91.2*	*91.7*	*90.7*	*90.8*	*91.1*
-2.0	83.8	85.9	87.6	89.8	94.1	96.3	*94.6*	*90.6*	*91.0*	*90.2*	*90.3*	*90.5*
2.0	84.4	86.5	88.3	90.4	94.7	*96.3*	*93.9*	*90.0*	*90.5*	*89.8*	*89.8*	*90.0*
6.0	85.0	87.1	88.9	91.0	95.4	*95.6*	*93.3*	*89.4*	*90.0*	*89.3*	*89.3*	*89.5*
10.0	85.5	87.8	89.5	91.6	*94.8*	*94.8*	*92.8*	*88.8*	*89.5*	*88.8*	*88.8*	*89.0*
14.0	86.1	88.4	90.1	*92.0*	*94.0*	*94.2*	*92.4*	*88.2*	*89.0*			*88.5*
18.0	86.7	88.9	90.7	*91.5*	*93.3*	*93.6*	*91.9*	*87.6*				
22.0	87.3	89.5	*90.7*	*91.0*	*92.8*	*93.1*	*91.3*					
26.0	87.8	90.1	*90.2*	*90.5*	*92.2*	*92.5*						
30.0	88.4	*89.8*	*89.7*	*90.0*	*91.5*	*92.0*						
34.0	*89.0*	*89.3*	*89.5*	*89.4*	*90.9*							
38.0	*88.5*	*88.9*	*89.1*	*88.8*								
42.0	*88.0*	*88.7*	*88.7*	*88.1*								
46.0	*87.4*	*88.3*	*88.2*									
50.0	*86.8*	*87.9*	*87.7*									
54.0	*86.2*	*87.5*										

OAT < ISA + 10

OAT ≥ ISA + 10

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

To account for speed differences, increase N1 by 0.5 for the check at item 3.2

Annex No. 1

AIRBUS A319/A320/A321 with CFM 56 Engines

For standard check flights on the following variants fitted with CFM 56 engines, the single engine climbs may be omitted as shown below. Where the En Route Climb (item 3.2) is omitted, substitute an engine shutdown and relight as shown below.

A319-111 (CFM56-5-B5)	Omit both
A320-111 (CFM56-5-A1)	Omit both
A320-211 (CFM56-5-A1)	Omit both
A320-212 (CFM56-5-A3)	Omit En-route Climb item 3.2 only
A321-211 (CFM56-5-B3)	Omit Takeoff Climb item 3.1 only

For new or imported aircraft refer to CAA Flight Department for advice.

To omit the Takeoff Climb:

Item 3.1 Delete

To omit the En-Route Climb:

Item 3.2 Delete and substitute the following:

<u>Engine Shutdown</u>

Leave the No.2 Engine at idle for 3 minutes then shut it down at any convenient speed and altitude above 8000 ft AGL

Allow 2 minutes shutdown before proceeding with a starter assist relight at item 3.3

Allow 2 minutes at idle after the relight