CHECK FLIGHT CERTIFICATE

Canadair CL600-2B19 Regional Jet	**CFS 298 Issue 1**	Registration:

Date:	Crew:	Observer:

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	-100	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 flight test 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 airtests 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

CANADAIR CL600-2B19 REGIONAL JET (CF 34-3B1 engines) **CFS 298, ISSUE 1**

INTRODUCTION

This schedule is applicable to Canadair Regional Jet aircraft. It 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 test flights, however, the crew are expected generally to monitor the behaviour of all equipment and report any unserviceable items. In addition to completing all the required tests in this schedule any characteristics which are considered unsafe or undesirable must be recorded.

The minimum flight crew for this test flight shall be two pilots and one observer to record the results of the tests. Passengers may not be carried. Oxygen shall be available for all persons on board. The tests should, if possible, be carried out in the sequence as written; altitude conditions must be observed.

The data contained in this schedule is correct at the time of writing, but might not be in agreement with subsequent Flight Manual amendments. In cases of conflict the current Flight Manual is over-riding, and CAA should be informed.

The limitations and procedures in the supplementary data in the Flight Manual must be observed.

<u>Loading and calculation of weight</u>

The aircraft is to be loaded with fuel to achieve a take-off weight as required with the cg within normal limits.

RECORD:

AIRCRAFT REGISTRATION			
DATE			
CAPTAIN		CO-PILOT	
ZERO FUEL WEIGHT		AIRFIELD	
TOTAL FUEL			
START WEIGHT		START CG	

Engine variant:	**Basic**	(Airplane option code 0005)
(delete one)	**Hot & High**	(Airplane option code 0068)

1. BEFORE TAKE-OFF

1.1 BEFORE ENGINE START

1.1.1 CONTROL DISCONNECTS

Pull the pitch disconnect. Move each control column in turn.
Confirm that each column moves only the elevator on the
same side but does not move the opposite column.
Reconnect the control columns. **SAT/UNSAT**
Pull the aileron disconnect. Move each control wheel in turn.
Confirm that each wheel moves the aileron on the same side
and the opposite spoiler and does not move the opposite wheel.
Reconnect the aileron disconnect. **SAT/UNSAT**

1.1.2 EFIS REVERSION

Check the following for correct indications:

ATT/HDG-select 1	4xMAG1 & 2xATT1 (yellow)	**SAT/UNSAT**
-select 2	4xMAG2 & 2xATT2 (yellow)	**SAT/UNSAT**
AIR DATA-select 1 then 2	2xADC1 (ADC2) (yellow)	**SAT/UNSAT**
DISP CONT-select 1 then 2	4xDCP1 (DCP2) (yellow)	**SAT/UNSAT**
EICAS-select ED1	ED2 blanks	**SAT/UNSAT**
-select ED2	Primary page transfers to ED2	**SAT/UNSAT**
Return all selections to NORM	No common source annunciations	**SAT/UNSAT**

Set 6000 feet as a landing altitude.

1.2 AFTER ENGINE START

1.2.1 TAKE-OFF CONFIGURATION WARNING

With the stabiliser trim in the green band, spoilers in and
flaps 8 or 20, advance any one throttle to > 70%N_1 and **SAT/UNSAT**
check no warning with “TO CONFIG OK” message.

Check that warnings correctly occur for:-

STAB TRIM - outside green band, but by less than 1 div.	**SAT/UNSAT**
AIL TRIM - outside green band, but by less than 1 div.	**SAT/UNSAT**
RUD TRIM - outside green band, but by less than 1 div.	**SAT/UNSAT**
FLAPS - UP	**SAT/UNSAT**
FLAPS - 30 and 45	**SAT/UNSAT**
AUTOPILOT - on	**SAT/UNSAT**
PARK BRAKE - set	**SAT/UNSAT**
FLIGHT SPOILERS - OUT	**SAT/UNSAT**

Return throttles to idle, stabiliser trim and flaps to the required take-off settings and spoilers in.

2. TAKE-OFF

Carry out a normal take-off.

Record any unusual characteristics.

3. ENGINE ACCELERATIONS (about 4000 feet)

With the aircraft in level flight, at the trim speed above with flaps 45, gear down, accelerate each engine in turn from idle to the target N_1 figure.

10th stage bleeds and ACU's on.

Record:

Zero fuel weight	Kg.
Fuel contents	Kg.
Aircraft weight	Kg.
Altitude	feet
SAT	°C
From table 1 determine trim speed knots	knots
Target N_1 from Table 1	%

Record:

ENGINE	LEFT	RIGHT	LIMITS
IDLE N_1	%	%	
ACCELERATION TIME	secs	secs	<8 secs

4. **PERFORMANCE CLIMB (start altitude 3000 to 8000 feet)**

Carry out an engine idle take-off climb for 5 minutes on a constant heading clear of cloud and significant turbulence.

Configuration

GEAR-UP
FLAP-20
PRESSURISATION-OFF
ANTI-ICE OFF
LEFT ENGINE IDLE
APR OFF
RIGHT ENGINE - TAKE-OFF THRUST
(see table 2)
ALTIMETER - 1013 SET
APU - ON

%N1

Record:

Zero fuel weight	kg
Fuel contents	kg
Start weight	kg
Climb speed (Table 2)	knots

TIME	ALTITUDE	IAS	SAT	TAT
0				
½				
1				
1½				
*2				
2½				
3				
3½				
4				
4½				
5				

*ENGINE READINGS	L	R
N_1 %		
ITT °C		
N_2 %		
FUEL FLOW KG/HR		
OIL TEMP °C		
OIL PRESS PSI		
FUEL TEMP °C		
VIBRATION		
TRIMS: STABILISER		
AIL	RUD	
TURBULENCE		

Zero fuel weight	kg
Fuel contents	kg
Finish weight	kg

5. PERFORMANCE CLIMB (start altitude below 16000 feet)

Carry out a single engine en-route climb for 5 minutes on a constant heading, clear of clouds and turbulence. Cool the right engine at idle for 5 minutes before shutting it down.

Configuration
GEAR-UP
FLAP-UP
PRESSURISATION-ON (10th stage and ACU ON)
ANTI-ICE OFF
LEFT ENGINE - MAXIMUM CONTINUOUS THRUST (see table 3)
APR OFF
RIGHT ENGINE - SHUT DOWN
ALTIMETER - 1013 SET
APU - ON

Record:

Zero fuel weight	kg
Fuel contents	kg
Start weight	kg
Climb speed (Table 3)	knots

TIME	ALTITUDE	IAS	SAT	TAT
0				
½				
1				
1½				
*2				
2½				
3				
3½				
4				
4½				
5				

*ENGINE READINGS	L	R
N_1 %		
ITT °C		
N_2 %		
FUEL FLOW KG/HR		
OIL TEMP °C		
OIL PRESS PSI		
FUEL TEMP °C		
VIBRATION		
TRIMS: STABILISER		
AIL	RUD	
TURBULENCE		

Zero fuel weight	kg
Fuel contents	kg
Finish weight	kg

6. ENGINE RELIGHT

At the end of the en-route climb, at the en-route climb speed, carry out a cross-bleed start.

Record:

		LIMITS
ALTITUDE	FEET	
IAS	KNOTS	
WINDMILL N_2	%	
TIME TO 20% N_2	SECS	
TIME TO ITT RISE	SECS	25 secs
MAX ITT	°C	
TIME TO IDLE	SECS	2 minutes
IDLE N_2	%	

Keep engine at idle for 5 minutes before applying power. Shut down the APU.

7. FUEL MANUAL CROSSFLOW

Check the fuel manual crossflow for correct indications and operation as follows:

AUTO OVERRIDE	IN	MANUAL CROSSFLOW (status)	
		AUTO OVERRIDE MANUAL PBA	**SAT/UNSAT**
L X FLOW	IN	L XFLOW ON (status) & PBA Left XFLOW SOV indicates OPEN APU flowline (green)	
		Left fuel quantity increases, Right fuel quantity decreases	**SAT/UNSAT**
L X FLOW	OUT	L XFLOW ON (status) & PBA both out	**SAT/UNSAT**
R X FLOW	IN	R XFLOW ON (status) Right XFLOW SOV indicates OPEN APU flowline (green)	
		Right fuel quantity increases, Left fuel quantity decreases	**SAT/UNSAT**
L X FLOW	IN	R XFLOW ON (status) out L XFLOW ON (status) OUT L XFLOW SOV (caution) - after 20 seconds R XFLOW SOV (caution) - after 20 seconds L&R XFLOW SOVs indicate CLOSED APU flowline (green) L XFLOW FAIL PBA	
		R XFLOW FAIL PBA	**SAT/UNSAT**
L&R XFLOW	OUT	L&R XFLOW FAIL PBA out	
		L&R XFLOW SOV (caution) out	**SAT/UNSAT**
AUTO OVERRIDE	OUT	MANUAL XFLOW (status) & PBA out	
		Fuel system normal, fuel transfer from centre to main tanks	**SAT/UNSAT**

8. FUNCTIONING (17000 feet)

With the pressurisation in manual check control select manual control to UP.

Record:	ALTITUDE	LIMITS
Altitude when the CABIN ALT (caution) occurs		(8200-8800 feet)
Altitude when the CABIN PRESSURE (voice) occurs		(9700-10300 feet)
Altitude when the CABIN ALT (warning) occurs		(9700-10300 feet)

Confirm crew oxygen masks and microphone operation **SAT/UNSAT**

Stabilise the cabin at 13000 feet in manual.

Select the emergency depressurisation and record Amber ON light, and EICAS EMER DEPRESS. **SAT/UNSAT**

Cabin attitude when stable		(13500-15000 feet)
Altitude when the PASS OXY ON (caution) occurs		(13700-14300 feet)

Deselect the emergency depressurisation.

Select manual control to DOWN and the rate to MID.

Reduce rate as required and return pressure control to AUTO MODE. Set a low cabin altitude.

Pull PAX OX AUTO DEPLOY CB and reset to delete the PAX OXYGEN message.

9. CLIMB

Continue the climb to FL300

Check all controls for breakout loads, centering, backlash weight and response. **SAT/UNSAT**

Check all trimmers for friction backlash and response. **SAT/UNSAT**

Check each AFCS in turn, autopilot off, yaw damper disengaged. Excite Dutch roll, engage yaw damper. Repeat for other AFCS. **SAT/UNSAT**

10. FUNCTIONING **DO NOT EXCEED 8.9 PSI**

In level flight at FL300, with 10th stage bleeds and ACU's on:

Record:			
	Aircraft altitude		
	Cabin altitude		(4000-4600 feet)

Select manual pressurisation control and increase differential pressure.

Record:			
	Maximum differential achieved	PSI	(8.4 - 8.8 PSI)

Return pressurisation to auto.

EICAS warning DIFF PRESS may be displayed with voice message "CABIN PRESSURE".

11. HIGH MACH RUN

When level at FL350 and 0.7 MACH apply a high power and accelerate to 0.88 Mach.

Record:	Mach meter reading at overspeed warning (greater than 0.85 Mach)	CAPTAIN
		CO-PILOT

Handling at 0.88 Mach is normal. **SAT/UNSAT**

No abnormal roll on selecting full spoiler. **SAT/UNSAT**

12. APU RELIGHT (FL 300)

At 300 knots, 30000 feet relight the APU.

Record:	Time to start light out	secs	(30 secs maximum)
	Maximum EGT	°C	(968°C below 50% RPM 846°C above 87% RPM)
	Maximum RPM	RPM	(110% maximum)
	Time to ready light on	secs	(60 secs maximum)

Shut down the APU before test 14 (high IAS).

13. ENGINE RELIGHT (FL 200)

At 300 knots above FL200, idle left engine for 5 minutes before shutting it down. When the ITT is below 90°C, and N_2 13% or greater, carry out a windmill relight at FL200. It may be necessary to descend to achieve the minimum N_2 and speed may need to be increased to V_{MO}. Keep the engine at idle for 5 minutes before applying power.

Record:	ALTITUDE	FEET	
	IAS	KNOTS	
	WINDMILL N_2	%	
	TIME TO ITT RISE	SECS	(20 seconds)
	TIME TO 20% N_2	SECS	
	MAX ITT	°C	
	TIME TO IDLE	SECS	(2 minutes)
	IDLE N_2	%	

14. HIGH IAS (FL 200)

In the clean configuration accelerate to 345 knots.

Record:	Airspeed at overspeed warning (not less than 335 knots)	CAPTAIN
		CO-PILOT

15. STALLING (below FL 150)

Stalls should be carried with the autopilot disengaged, yaw damper on from a trim speed of 1.4 V_S (see table 4) with idle power.

Record:	Zero fuel weight	lbs
	Fuel contents	lbs
	Aircraft weight	lbs

Flap	Gear	Trim		Stall Warning		Stick Push		
		Speed	Position	Scheduled	Achieved	Scheduled	Achieved	
Up	**Up**							**Sat/Unsat**
20	**Up**							**Sat/Unsat**
45	**Down**							**Sat/Unsat**

Stall behaviour	

Retract flaps and gear as required

16. FUNCTIONING (FL100)

At 165 knots.

Record :

Time for flap movement 0 to 45	secs	(17 secs max)
Time for flap movement 45 to 0	secs	(17 secs max)

Select flap 8

Time for gear down	secs	(16 secs max)
Time for gear up	secs	(16 secs max)

Retract flaps

With the No. 3 hydraulic system OFF, carry out an emergency gear extension. **SAT/UNSAT**

Select normal gear lever down, stow emergency gear handle.
Nose gear door open message stays on.

No. 3 hydraulic system ON. **SAT/UNSAT**
Select gear up.

With the airspeed below 185 knots, gear and flap up, individually retard each power lever to idle and verify that the landing gear horn sounds. **SAT/UNSAT**

17. LANDING

Carry out a normal landing **SAT/UNSAT**

18. AFTER ENGINE SHUT-DOWN

Before the flight test certificate is completed (first page) both climbs should be checked to ensure that the achieved rate-of-climb is within the allowable tolerance. Results worse than the allowable tolerance should be investigated before the flight test is signed off as being successfully completed.

TABLE 1 Engine acceleration data - CF34-3B1

Target N1 for engine accelerations (Target N_1 is 1% below the scheduled value.)

OAT °C	Pressure altitude (feet x 1000) 0	2	4	6	8	10
-40	82.1	83.0	83.8	84.8	85.8	86.8
-35	83.0	83.8	84.7	85.7	86.7	87.7
-30	83.8	84.6	85.6	86.5	87.6	88.6
-25	84.6	85.5	86.4	87.4	88.5	89.5
-20	85.5	86.3	87.3	88.3	89.4	90.4
-15	86.3	87.2	88.1	89.1	90.3	91.3
-10	87.1	88.0	89.0	90.0	91.1	92.2
-5	87.9	88.9	89.8	90.9	92.0	93.1
0	88.8	89.7	90.7	91.8	92.9	93.3
5	89.6	90.6	91.5	92.6	93.0	93.1
10	90.4	91.4	92.3	92.6	92.7	92.6
15	91.3	92.0	92.3	92.3	92.2	92.1
20	91.7	91.9	91.8	91.7	91.7	91.4
25	91.5	91.4	91.3	91.2	91.0	90.7
30	91.1	91.0	90.8	90.6	90.3	90.0
35	90.4	90.3	90.1	89.8	89.5	-
40	89.4	89.4	89.3	89.0	-	-
45	88.5	88.5	88.5	-	-	-
50	87.7	87.6	-	-	-	-

Approach speed Flaps 45	
Weight	Vref
Kg	Knots
15400	120
16000	122
17000	126
18000	130
19000	133
20000	137
21000	140
22000	144
23000	147
24000	151

Basic engine
Airplane Option Code 0005

OAT °C	Pressure altitude (feet x 1000) 0	2	4	6	8	10
-40	82.2	83.1	84.0	84.8	85.8	86.9
-35	83.0	84.0	84.9	85.7	86.7	87.8
-30	83.9	84.8	85.7	86.6	87.6	88.7
-25	84.8	85.7	86.6	87.5	88.5	89.6
-20	85.6	86.6	87.5	88.4	89.4	90.5
-15	86.5	87.4	88.3	89.3	90.3	91.4
-10	87.3	88.3	89.2	90.1	91.2	92.3
-5	88.1	89.1	90.0	91.0	92.0	93.1
0	88.9	89.9	90.9	91.8	92.9	94.0
5	89.8	90.7	91.7	92.6	93.7	94.5
10	90.6	91.6	92.5	93.5	94.0	94.5
15	91.4	92.4	93.3	93.7	93.9	93.6
20	92.1	93.1	93.5	93.3	92.9	92.4
25	92.7	93.1	93.0	92.5	92.1	92.1
30	92.7	92.6	92.3	91.9	91.7	91.6
35	91.6	91.6	91.4	91.2	91.0	-
40	90.7	90.7	90.6	90.5	-	-
45	89.7	89.7	89.4	-	-	-
50	88.6	88.4	-	-	-	-

Approach speed Flaps 45	
Weight	Vref
Kg	Knots
15400	120
16000	122
17000	126
18000	130
19000	133
20000	137
21000	140
22000	144
23000	147
24000	151

"Hot & High" engine
Airplane Option Code 0068

TABLE 2 Climb data - CF34-3B1 engines

OAT	Pressure altitude (feet x 1000)					
°C	0	2	4	6	8	10
-40	81.3	82.1	82.9	83.9	84.9	85.9
-35	82.1	83.0	83.8	84.8	85.8	86.8
-30	83.0	83.8	84.7	85.6	86.6	87.7
-25	83.8	84.7	85.5	86.5	87.5	88.6
-20	84.7	85.5	86.4	87.4	88.4	89.5
-15	85.5	86.3	87.2	88.2	89.3	90.3
-10	86.3	87.1	88.0	89.1	90.1	91.2
-5	87.1	88.0	88.9	89.9	91.0	92.0
0	87.9	88.8	89.7	90.7	91.8	92.9
5	88.7	89.6	90.5	91.5	92.6	93.3
10	89.5	90.4	91.3	92.4	92.7	92.7
15	90.3	91.1	92.1	92.1	92.2	92.1
20	91.0	91.7	91.7	91.7	91.7	91.6
25	91.3	91.3	91.3	91.3	91.2	91.0
30	90.9	90.9	90.8	90.7	90.5	90.3
35	90.3	90.3	90.1	90.0	89.8	-
40	89.4	89.5	89.4	89.2	-	-
45	88.6	88.6	88.7	-	-	-
50	87.7	87.8	-	-	-	-

Flaps 20°	V_2 (knots IAS)				
Weight	Pressure altitude (feet)				
Kg	<2000	4000	6000	8000	10000
15400	117	117	117	117	117
16000	119	119	119	119	119
17000	123	123	123	123	123
18000	126	126	126	126	127
19000	130	130	130	130	131
20000	133	133	133	133	135
21000	136	136	137	138	139
22000	140	140	140	142	143
23000	143	143	145	145	147
24000	146	147	148	149	152

V_2 climb - 20 flap

Take-off thrust setting
$\%N_1$
Zero engine bleed

Basic Engine
Airplane Option
Code 0005

OAT	Pressure altitude (feet x 1000)					
°C	0	2	4	6	8	10
-40	81.3	82.2	83.1	83.9	85.0	86.1
-35	82.2	83.0	83.9	84.8	85.9	87.0
-30	83.1	83.9	84.8	85.7	86.8	87.9
-25	83.9	84.7	85.7	86.6	87.7	88.7
-20	84.7	85.6	86.5	87.4	88.5	89.6
-15	85.5	86.4	87.3	88.3	89.4	91.5
-10	86.4	87.2	88.2	89.1	90.3	91.4
-5	87.2	88.0	89.0	89.9	91.1	92.2
0	88.0	88.8	89.8	90.8	91.9	93.0
5	88.8	89.6	90.6	91.6	92.8	93.9
10	89.5	90.4	91.4	92.4	93.6	94.7
15	90.3	91.2	92.2	93.2	94.1	93.8
20	91.1	91.9	93.0	93.4	93.0	92.7
25	91.6	92.5	92.7	92.3	91.9	92.0
30	91.9	91.7	91.5	91.2	91.1	91.1
35	90.5	90.6	90.5	90.4	90.3	90.2
40	89.6	89.7	89.6	89.5	-	-
45	88.7	88.7	88.6	-	-	-
50	87.7	87.6	-	-	-	-

Flaps 20°	V_2 (knots IAS)				
Weight	Pressure altitude (feet)				
Kg	<2000	4000	6000	8000	10000
15400	117	117	117	117	117
16000	119	119	119	119	119
17000	123	123	123	123	123
18000	126	126	126	126	127
19000	130	130	130	130	131
20000	133	133	133	133	135
21000	136	136	137	138	139
22000	140	140	140	142	143
23000	143	143	145	145	147
24000	146	147	148	149	152

V_2 climb - 20 flap

Take-off thrust setting
$\%N_1$
Zero engine bleed

"Hot & High" engine
Airplane Option
Code 0068

TABLE 3 Climb data - CF34-3B1 engines

En-Route Climb

Maximum continuous thrust setting

%N_1

Pack on

OAT	Pressure altitude (feet x1000)					
°C	**0**	**5**	**10**	**15**	**20**	**25**
-60	-	-	-	-	-	88.7
-55	-	-	-	-	-	89.6
-50	-	-	-	-	89.2	90.5
-45	-	-	-	88.5	90.1	91.5
-40	82.2	84.4	86.6	89.4	91.1	92.5
-35	83.0	85.2	87.5	90.3	92.1	93.4
-30	83.8	86.1	88.4	91.2	93.0	94.3
-25	84.7	87.0	89.3	92.2	94.0	95.2
-20	85.5	87.8	90.2	93.1	94.9	94.8
-15	86.3	88.7	91.1	94.0	95.1	94.2
-10	87.1	89.5	92.0	94.9	94.5	93.5
-5	88.0	90.4	92.8	94.7	93.7	92.7

Flaps up	
Weight	**V_{FTO}**
Kg	Knots
15400	151
16000	154
17000	158
18000	163
19000	168
20000	172
21000	176
22000	180
23000	184
24000	188

Basic engine
Airplane Option
Code 0005

En-Route Climb

Maximum continuous thrust setting

%N_1

Pack on

OAT	Pressure altitude (feet x1000)					
°C	**0**	**5**	**10**	**15**	**20**	**25**
-60	-	-	-	-	-	89.7
-55	-	-	-	-	88.8	91.7
-50	-	-	-	-	89.8	91.7
-45	-	-	-	88.8	90.7	92.7
-40	82.3	84.7	87.0	89.7	91.7	93.7
-35	83.2	85.6	87.9	90.6	92.7	94.6
-30	84.1	86.5	88.8	91.6	93.6	95.6
-25	84.9	87.3	89.7	92.5	94.6	96.3
-20	85.7	88.2	90.6	93.4	95.5	95.5
-15	86.6	89.1	91.5	94.3	95.9	95.0
-10	87.4	89.9	92.3	95.2	95.3	94.2
-5	88.2	90.8	93.2	95.5	94.5	93.3

Flaps up	
Weight	**V_{FTO}**
Kg	Knots
15400	151
16000	154
17000	158
18000	163
19000	168
20000	172
21000	176
22000	180
23000	184
24000	188

"Hot & High" engine
Airplane Option
Code 0068

TABLE 4

STALL SPEEDS - FLAPS UP/GEAR UP - TRIM/WARNING/STALL - KNOTS IAS											
Aircraft weight (kg)	Pressure altitude in feet										
	5000	6000	7000	8000	9000	10000	11000	121000	13000	14000	15000
22000	189/144/135	189/144/135	189/144/135	189/144/135	189/145/135	189/145/135	189/145/135	190/146/136	190/147/136	192/148/137	192/149/137
21500	188/143/134	188/143/134	188/143/134	188/143/134	188/143/134	188/143/134	188/143/134	188/144/134	188/145/134	189/146/135	189/147/135
21000	185/141/132	185/141/132	185/141/132	185/141/132	185/141/132	185/141/132	185/141/132	185/142/132	185/143/132	186/143/133	186/144/133
20500	183/139/131	183/139/131	183/139/131	183/139/131	183/139/131	183/139/131	183/139/131	183/140/131	183/141/131	183/141/131	185/142/132
20000	181/138/129	181/138/129	181/138/129	181/138/129	181/138/129	181/138/129	181/138/129	181/138/129	181/138/129	181/139/129	182/140/130
19500	178/136/127	178/136/127	178/136/127	179/136/128	179/136/128	179/136/128	179/136/128	179/136/128	179/136/128	179/137/128	179/138/128
19000	176/134/126	176/134/126	176/134/126	176/134/126	176/134/126	176/134/126	176/134/126	176/134/126	176/134/126	176/135/126	176/135/130
18500	174/132/124	174/133/124	174/133/124	174/133/124	174/133/124	174/133/124	174/133/124	174/133/124	174/133/124	174/133/124	174/133/124
18000	172/131/122	172/131/122	172/131/122	172/131/122	172/131/122	172/131/122	172/131/122	172/131/122	172/131/122	172/131/122	172/131/122
17500	169/129/121	169/129/121	169/129/121	169/129/121	169/129/121	169/129/121	169/129/121	169/129/121	169/129/121	169/129/121	169/129/121
17000	167/127/119	167/127/119	167/127/119	167/127/119	167/127/119	167/127/119	167/127/119	167/127/119	167/127/119	167/127/119	167/127/119
16500	164/125/117	164/125/117	164/125/117	164/125/117	164/125/117	164/125/117	164/125/117	164/125/117	164/125/117	164/125/117	164/125/117
16000	162/123/115	162/123/115	162/123/115	162/123/115	162/123/115	162/123/115	162/123/115	162/123/115	162/123/115	162/123/115	162/123/115

TABLE 4 (cont)

STALL SPEEDS - FLAPS 20/GEAR UP - TRIM/WARNING/STALL - KNOTS IAS											
Aircraft weight (kg)	Pressure altitude in feet										
	5000	6000	7000	8000	9000	10000	11000	121000	13000	14000	15000
22000	172/129/123	172/129/123	172/129/123	172/129/123	172/129/123	172/129/123	172/129/123	172/129/123	174/130/124	175/131/125	176/133/126
21500	169/127/121	169/127/121	169/127/121	169/127/121	169/127/121	169/127/121	169/128/121	169/128/121	169/128/121	172/129/123	174/130/124
21000	168/126/120	168/126/120	168/126/120	168/126/120	168/126/120	168/126/120	168/126/120	168/126/120	168/126/120	168/127/120	171/128/122
20500	165/124/118	165/124/118	165/124/118	165/124/118	165/124/118	165/124/118	165/125/118	165/125/118	165/125/118	165/125/118	168/126/120
20000	164/123/117	164/123/117	164/123/117	164/123/117	164/123/117	164/123/117	164/123/117	164/123/117	164/123/117	164/123/117	164/124/117
19500	161/121/115	161/121/115	161/121/115	161/121/115	161/121/115	161/121/115	161/121/115	161/121/115	161/121/115	161/122/115	161/122/115
19000	160/120/114	160/120/114	160/120/114	160/120/114	160/120/114	160/120/114	160/120/114	160/120/114	160/120/114	160/120/114	160/120/114
18500	157/118/112	157/118/112	157/118/112	157/118/112	157/118/112	157/118/112	157/118/112	157/118/112	157/118/112	157/118/112	157/118/112
18000	155/117/111	155/117/111	155/117/111	155/117/111	155/117/111	155/117/111	155/117/111	155/117/111	155/117/111	155/117/111	155/117/111
17500	153/115/109	153/115/109	153/115/109	153/115/109	153/115/109	153/115/109	153/115/109	153/115/109	153/115/109	153/115/109	153/115/109
17000	151/113/108	151/113/108	151/113/108	151/113/108	151/113/108	151/113/108	151/113/108	151/113/108	151/113/108	151/113/108	151/113/108
16500	148/112/106	148/112/106	148/112/106	148/112/106	148/112/106	148/112/106	148/112/106	148/112/106	148/112/106	148/112/106	148/112/106
16000	147/110/105	147/110/105	147/110/105	147/110/105	147/110/105	147/110/105	147/110/105	147/110/105	147/110/105	147/110/105	147/110/105

TABLE 4 (cont)

STALL SPEEDS - FLAPS 45/GEAR DOWN - TRIM/WARNING/STALL - KNOTS IAS											
Aircraft weight (kg)	Pressure altitude in feet										
	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000
22000	161/122/115	161/122/115	161/122/115	161/122/115	161/122/115	161/122/115	161/122/115	161/123/115	161/124/115	162/124/116	162/125/116
21500	158/121/113	158/121/113	158/121/113	158/121/113	158/121/113	158/121/113	158/121/113	160/121/114	160/122/114	160/122/114	161/123/115
21000	157/119/112	157/119/112	157/119/112	157/119/112	157/119/112	157/119/112	157/119/112	157/119/112	157/120/112	158/121/113	158/121/113
20500	155/118/111	155/118/111	155/118/111	155/118/111	155/118/111	155/118/111	155/118/111	155/118/111	155/118/111	155/119/111	157/119/112
20000	153/116/109	153/116/109	153/116/109	153/116/109	153/116/109	153/116/109	153/116/109	153/116/109	153/116/109	154/117/110	154/118/110
19500	151/115/108	151/115/108	151/115/108	151/115/108	151/115/108	151/115/108	151/115/108	151/115/108	151/115/108	151/115/108	151/116/108
19000	150/113/107	150/113/107	150/113/107	150/113/107	150/113/107	150/113/107	150/113/107	150/113/107	150/113/107	150/113/107	150/114/107
18500	147/112/105	147/112/105	147/112/105	147/112/105	147/112/105	147/112/105	147/112/105	147/112/105	147/112/105	147/112/105	147/112/105
18000	146/110/104	146/110/104	146/110/104	146/110/104	146/110/104	146/110/104	146/110/104	146/110/104	146/110/104	146/110/104	146/110/104
17500	143/109/102	143/109/102	143/109/102	143/109/102	143/109/102	143/109/102	143/109/102	143/109/102	143/109/102	143/109/102	143/109/102
17000	141/107/101	141/107/101	141/107/101	141/107/101	141/107/101	141/107/101	141/107/101	141/107/101	141/107/101	141/107/101	141/107/101
16500	139/106/99	139/106/99	139/106/99	139/106/99	139/106/99	139/106/99	139/106/99	139/106/99	139/106/99	139/106/99	139/106/99
16000	137/104/98	137/104/98	137/104/98	137/104/98	137/104/98	137/104/98	137/104/98	137/104/98	137/104/98	137/104/98	137/104/98

Stall speed tolerances : push -2 knots
warning +/- 3 knots