

CHECK FLIGHT CERTIFICATE



CESSNA 560 CITATION V ULTRA (P&W JT 15D-5D Engines)

CFS 319 Issue 1

Registration:

Date:	Crew:	Observer:
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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* <i>(delete as applicable)*</i>

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



CESSNA 560 CITATION V ULTRA (P&W JT 15D-5D Engines)

CFS 319, Issue 1

Operator / Maintenance Organisation		
Aerodrome	QNH	
Altitude	Temperature	QFE
Registration		
Flight Date		
Pilots		
Observer		

INTRODUCTION

This schedule is applicable only to Cessna 560 Citation V Ultra aircraft and is based on the assumption that the correct functioning of all normal services is checked in the course of everyday operation. The tests in the schedule are intended to cover those items, including emergency systems, which are not routinely checked. On this test flight, however, the crew are expected generally to monitor the behaviour of all equipment and to report any unserviceable items. In particular, any characteristics which are considered to be unsafe or undesirable must be recorded.

The tests should, if possible, be flown in the sequence of the schedule and altitude conditions must be observed. Except where otherwise indicated, the flight techniques shall be those associated with normal operation of the aeroplane

The limitations and procedures of the Flight Manual must be observed. The data in this schedule was correct at the time of issue, but may not agree with later Flight Manual amendments. In case of conflict, observe current Flight Manual and report the inconsistency to CAA Flight Department.

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.

CREW

The minimum crew shall be as specified in the Flight Manual preferably supplemented by one observer to record the results. However, the second crew member may act as the observer.

LOADING

The aircraft should be loaded to remain within the weight and CG envelope at all stages of the flight using, if possible, full fuel and start CG of about 24% MAC. When the aircraft weight is required to be recorded for a particular test, it should be calculated from the fuel gauges which should be read in steady level flight.

Record:	Zero Fuel Weight	lb.
	Ramp Weight	lb.
	CG Position	in AOD / %MAC

PREPARATION

The roof panels in the passenger cabin holding the oxygen drop-out masks may be lightly taped along both fore and aft edges, ensuring that sufficient movement is available to confirm correct operation of the system.

PRE-FLIGHT INFORMATION

Record:	- total airframe hours	Hrs.
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	Port	Starboard
Engine Serial Number		
Hours Run		

TEST SCHEDULE

1 PRE-FLIGHT CHECK

Carry out a comprehensive external and internal pre-flight check.

SAT/UNSAT

Record any deficiencies below:

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2 TAKE-OFF

Before take-off set 9000ft on the Cabin Pressure Control in preparation for test 6.

Carry out a normal take-off recording any unusual characteristics below.

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3 ENGINE ACCELERATIONS

Recommended FL40 (Limits 3,000ft AGL to FL 100)

- With: Flaps 15
- Pressurisation source NORMAL
- Anti-ice OFF
- Airspeed 120 KIAS

Extract from AFM the scheduled fan rpm for take-off thrust, reduced by 10%

With ignition OFF, on each engine in turn,

Altitude		ft
RAT		C
TO Power-10%		%

(a) close throttle and establish stabilised

idle turbine/fan RPM

(b) carry out a slam acceleration and throttle

back immediately the scheduled fan

RPM - 10% is seen. The acceleration

should be smooth and surge free.

	LEFT	RIGHT
Fan RPM		
Turbine RPM		
Accel Time		

If the acceleration time is greater than 7 seconds then the above test should be repeated with ignition ON.

	LEFT	RIGHT
Fan RPM		
Turbine RPM		
Accel Time		

(Slam acceleration time 7 sec)

4 PERFORMANCE

Carry out the performance climbs for 5 minutes, on a constant heading, clear of cloud and significant turbulence. Start recording when in stabilised, trimmed condition at the scheduled speed using not more than 5 degrees of bank towards the live engine. Aim to keep IAS within ± 2 kts of scheduled speed, and adjust the live engine as necessary to maintain the scheduled thrust setting.

4.1 Engine Idle Take-Off Climb Recommended FL50 (Limits 3,000ft AGL to FL 70)

Configuration	No.1 Engine	Take-off Thrust (AFM)
	No.2 Engine	Idle
	Gear	Up
	Flap	Take-off (7 degrees)
	Anti-ice	OFF
	Pressurisation source	NORMAL
	V2 for weight	<input type="text"/> Kts
	Captains Altimeter	set to 1013mb

RIGHT ENGINE IDLE TAKE-OFF CLIMB

ZERO FUEL WEIGHT		lb.
FUEL CONTENTS		lb.
START WEIGHT		lb.

TIME	ALTIMETER	ASI P1	RAT	FAN RPM
0				%
0.5				
1.0				%
1.5				
2.0				%
2.5				
3.0				%
3.5				
4.0				%
4.5				
5.0				%

TRIM POSITIONS	AILERON		AIRSPEED COMPARISON
	RUDDER		
	ELEVATOR		
		PILOT	
		CO-PILOT	

ENGINE DATA AT 3 MINUTES

N1		FUEL FLOW	
ITT		OIL PRESSURE	
TURB. RPM		OIL TEMP.	

ZERO FUEL WEIGHT		lb.
FUEL CONTENTS		lb.
END WEIGHT		lb.
MEAN WEIGHT		lb.

4.2 Engine Out En-route Climb

Altitude 8,000 ft. to FL200

Configuration	No.1 Engine	HP Cock Closed
	No.2 Engine	Max. Cont. Thrust (AFM)
	Gear	Up
	Flap	Up
	Anti-ice	OFF
	Pressurisation source	NORMAL
	En-Route Climb Speed	<input type="text" value="160"/> Kts
	Captains Altimeter	set to 1013mb

LEFT ENGINE OUT EN-ROUTE CLIMB

ZERO FUEL WEIGHT		lb.
FUEL CONTENTS		lb.
START WEIGHT		lb.

TIME	ALTIMETER	ASI P1	RAT	FAN RPM
0				%
0.5				
1.0				%
1.5				
2.0				%
2.5				
3.0				%
3.5				
4.0				%
4.5				
5.0				%

TRIM POSITIONS	AILERON		AIRSPEED COMPARISON
	RUDDER		
	ELEVATOR		
		PILOT	
		CO-PILOT	

ENGINE DATA AT 3 MINUTES

N1		FUEL FLOW	
ITT		OIL PRESSURE	
TURB. RPM		OIL TEMP.	

ZERO FUEL WEIGHT		lb.
FUEL CONTENTS		lb.
END WEIGHT		lb.
MEAN WEIGHT		lb.

5 ENGINE RELIGHT

At or below FL200

Relight No 1 engine at 125 KIAS, with the appropriate flap setting for the speed, using the starter assisted technique.

Record:

Altitude	<input type="text"/>	IOAT	<input type="text"/>
Windmilling	N1	<input type="text"/>	N2
Time to ITT rise		<input type="text"/>	sec (10 sec max)
Max ITT			C
Time to stabilised Flight Idle			sec
Any abnormality during relight, spool up		SAT/UNSAT	

6 FUNCTIONING - PRESSURISATION AND OXYGEN

below FL200

Carry out the following checks:

6.1 Crew oxygen equipment check

Put on crew oxygen masks, and check satisfactory oxygen flow and functioning of mask mikes.

SAT/UNSAT

6.2 Cabin altitude warning check

Select the 'PRESS SOURCE SELECT' switch to 'OFF' and record the cabin altitude at which the 'CAB ALT 10,000' caption illuminates (10,000±350').

 ft

6.3 Passenger oxygen drop-out

Monitor the cabin rate of climb and record the cabin altitude at which passenger oxygen mask drop-out occurs (13,500±600').

 ft

It may be necessary to climb the aircraft to achieve this.

Re-pressurise with a cabin altitude of 9,000 ft and minimum rate selected. Do not exceed FL 200 until normal pressurisation is restored. Re-select maximum rate. When the pressurisation rate has stabilised at a comfortable level, wind down the cabin altitude selector to the subsequent landing setting and re-select maximum rate.

7 CLIMB

Up to FL350

Continue a normal climb to FL 350. During the climb check each flying control for backlash, breakout force, centring, weight and response. Check trimmers for correct functioning, backlash, and friction. Record any unusual characteristics.

Accurate aircraft trim

Elevator Aileron Rudder

Controls for backlash, weight, response, centring, breakout loads SAT/UNSAT

Trimmers for effectiveness, friction and backlash SAT/UNSAT

8 FUNCTIONING

FL 350

8.1 Engine surge check - 150 KIAS, FL 350

Prior to check ensure that the only engine bleed in use is cabin. Carry out the test on each engine in turn setting up the other engine as required to maintain 150 KIAS at the start condition. Stabilise the test engine at 98% fan rpm and then rapidly throttle back to the idle position. As the turbine rpm decelerates through 80%, rapidly re-open the throttle to achieve 90% fan rpm. Ensure that there is no tendency for either engine to surge or compressor to stall repeatedly.

LEFT	RIGHT
SAT/UNSAT	SAT/UNSAT

Note: Surge or compressor stall is characterised by a light, regular popping noise from the engine. Be prepared for this, and if it occurs, immediately throttle back and record it. A maximum of three 'pops' is acceptable. Monitor the engine ITT and be prepared to shut down the engine if it cannot be controlled.

8.2 Maximum differential pressure check

At FL 350 ensure the cabin altitude selector is below 5,000 ft with maximum rate selected. Monitor the differential pressure gauge and record the stabilised maximum differential

Pressure. (8.9 ± 0.1 psi).

Warning: In the event of the maximum differential pressure controller failing to control, do not exceed the maximum differential limit as indicated by the red line on the differential pressure gauge.

8.3 'PRESS SOURCE SELECT' switch check

Select 'PRESS SOURCE SELECT' switch to LH, RH and EMER in turn noting the transient change on the cabin ROC indicator.

Record: stabilised differential pressure on each setting, although when emergency is selected, it is only necessary to confirm correct operation.

LEFT	RIGHT	EMERGENCY

9 HIGH MACH RUN

FL300 to FL350

NOTE: This test must not be carried out in turbulent conditions.

Carry out an acceleration to not greater than 0.77 Indicated Mach Number (IMN) aiming to complete by FL 300. Use maximum continuous thrust (MCT) and an initial pitch attitude of 10 degrees nose down is likely to be required to achieve the appropriate acceleration. At 0.77 IMN close throttles to idle for recovery and extend the speedbrakes.

IMN at which high speed warning (HSW) first sounds on (0.75 - 0.76) both combined speed indicators (CSI)

any abnormal trim changes during acceleration or speedbrake selection SAT/UNSAT

any unusual control characteristics or engine behaviour. SAT/UNSAT

10 ENGINE SHUTDOWN AND RELIGHT

Max FL350

Shut down the No.2 engine and start the stop watch. Accept a drift down with MCT set on the operating engine aiming to re-light using the windmill technique at or above FL 250 at 210 KIAS after a 3 minute shutdown period.

Record:

Altitude	<input type="text"/>	IOAT	<input type="text"/>
Windmilling	N1 <input type="text"/>	N2	<input type="text"/>
Time to ITT rise	<input type="text"/>		sec (10 sec max)
Max ITT	<input type="text"/>		dg C
Time to stabilised Flight Idle	<input type="text"/>		sec
Any abnormality during relight, spool up	SAT/UNSAT		

11 HIGH IAS RUN

FL 220 to FL 160

NOTE: Flying conditions must not be significantly turbulent for this test.

Between FL 220 and 160 carry out an acceleration to not greater than 305 KIAS (290KIAS for high ZFW aircraft). Trim in all axes up to. Close throttles during recovery and extend the speedbrakes

Record:

ASIR at which HSW first sounds on both CSIs	<input type="text"/>	(288.5 to 301.5 or 273 to 285KIAS {HZFW})
Any buffet or unusual vibrations	SAT/UNSAT	
Engine behaviour	SAT/UNSAT	
Trim change on speedbrake selection	SAT/UNSAT	

If the aircraft has a different VMO at lower altitudes (i.e. below 12,000 ft), repeat the acceleration up to HSW

ASIR at which HSW first sounds on both CSIs	<input type="text"/>	(VMO +6/-0 KIAS)
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12. STALLING

FL150 to 8000ft AGL

Prior to each stall trim the aircraft at 1.3 times the stall speed for the appropriate weight and configuration with power at idle. Aim for a steady speed reduction of 1 kt/sec on the approach to the stall, and accept the descending flight path that this will give. Note that a minimum speed defined by stick hard back may be reached before the aircraft performs a classic stall (nose drop). Recovery should be made when full back stick is reached or a nose drop is identified.

Tolerances Stall Warning \pm 4 kts
 Stall Speed \pm 4 kts

Stall with Flap 0, Gear Up and Idle Power.

Zero Fuel Weight	lb	Fuel Contents	lb
Aircraft Weight			
Trim Speed	kts	Elevator Trim	
Scheduled Stall Warning	kts	Actual Stall Warning	kts
Scheduled Stall Speed	kts	Stall Speed	kts
		Stall Warning Margin	kts
Stalling Behaviour			

Stall with Flap 15 'TO and APPR', Gear Up and Power Idle.

Zero Fuel Weight	lb	Fuel Contents	lb
Aircraft Weight			
Trim Speed	kts	Elevator Trim	
Scheduled Stall Warning	kts	Actual Stall Warning	kts
Scheduled Stall Speed	kts	Stall Speed	kts
		Stall Warning Margin	kts
Stalling Behaviour			

Stall with Flap 'Land', Gear Down, and Idle Power.

Zero Fuel Weight	lb	Fuel Contents	lb
Aircraft Weight			
Trim Speed	kts	Elevator Trim	
Scheduled Stall Warning	kts	Actual Stall Warning	kts
Scheduled Stall Speed	kts	Stall Speed	kts
		Stall Warning Margin	kts
Stalling Behaviour			

13 FUNCTIONING

Any convenient FL

13.1 Generator reset (This should have been achieved during the engine relights)

Trip and reset each generator in turn.

LEFT	RIGHT
SAT/UNSAT	SAT/UNSAT

13.2 Speedbrake operation

Select throttles to idle and speedbrakes out. Increase power on each engine in turn and check that the speedbrakes retract automatically before 88% turbine rpm.

LEFT	RIGHT
%	%

13.3 Gear free fall

Carry out this check at 150 KIAS. Pull the gear control C/B, select the normal gear selector to down, then the mechanical up-locks release handle. Check that the release handle will lock and unlock in the full aft position. Do not pull the inner ring (fires emergency air bottle). Check that the gear free falls and that three greens are obtained. It may be necessary to yaw the aircraft to lock the main wheels down. Reset the release handle to its normal position, select the normal gear lever down, and reset the gear control C/B. Select gear up on normal system. If for any reason the next test is omitted, the gear must be recycled on the normal system before selecting down for landing.

SAT/UNSAT

13.4 Normal operation of gear and flap

Time the following selections, all made at 170 KIAS: (limit speed 173 KIAS)

gear down		(2.5 to 4.5 seconds)
flap 'UP' to 'LAND'		(16 to 20 seconds)
flap 'LAND' to 'UP'		(17 to 21 seconds)
gear up		(2.5 to 5.5 seconds)

13.5 Emergency dump

Reduce cabin differential pressure to between 1.0 and 0.5 psi and operate emergency dump switch. The differential pressure should dissipate almost immediately. Reselect switch to normal.

SAT/UNSAT

14 LANDING

Carry out a normal landing. If thrust reversers are fitted, deploy within limitations to a high reverse thrust setting. Record any unusual aspects.

15 EMERGENCY BRAKE

When clear of the runway and at a slow taxi speed, progressively apply the pneumatic brakes. Note that there is no differential braking using this system. Record braking action.

SAT/UNSAT

Note: Brakes will require bleeding after use of pneumatic system.

16 Check for the presence and legibility of all placards.

SAT/UNSAT

17. **POST-FLIGHT**

17.1 Performance Climb Analysis

Plot the results of the performance climbs and compare the measured rates of climb with the gross data scheduled in the Flight Manual. Attach plots to report and summarise results on the front sheet.

17.2 Flight Test Certificate

Complete the statement of defects and sign the Flight Test Certificate and state whether or not the aeroplane needs to be reflown.

17.3 Pass the completed Flight Test report to the Regional Manager of the CAA Regional Office.

STALL SPEEDS

Aircraft Weight lb	Flap 0 Gear Up			Flap 15 Gear Up			Flap 35 Gear Down		
	Trim kts	Warning kts	Stall kts	Trim kts	Warning kts	Stall kts	Trim kts	Warning kts	Stall kts
16300	125	108	97	117	101	90	112	96	86
16000	124	107	96	116	100	89	111	95	85
15500	123	106	94	114	99	88	109	94	84
15000	121	104	93	112	97	87	107	92	82
14500	119	102	91	111	96	85	105	91	81
14000	117	101	90	109	94	84	103	89	79
13500	114	99	88	107	92	82	101	88	78
13000	112	97	87	105	91	81	99	86	77
12500	110	95	85	103	89	79	97	84	75
12000	108	93	83	101	87	78	96	83	74
11500	106	92	82	99	85	76	94	81	72
11000	104	90	80	97	84	74	92	79	71

The thrust setting charts are given in the AFM.