CHECK FLIGHT CERTIFICATE

CESSNA 560 CITATION Encore (P&W 535A Engines)	**AFTS 320 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	-70	-70	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.

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 Airworthiness 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 Encore (P&W 535A Engines) CFS 320, Issue 1

Operator or Maintenance Organisation	
Aerodrome	
Registration	
Flight Date	
Pilots	
Observer	

INTRODUCTION

This schedule is applicable only to Cessna 560 Citation Encore 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 & LOADING

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

TEST SCHEDULE

1 PRE-FLIGHT CHECK

Carry out a comprehensive external and internal pre-flight check. SAT/UNSAT
Record any deficiencies below:

2 TAKE-OFF

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

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

Flaps up
Pressurisation source NORM
Anti-ice OFF
Airspeed 150 KIAS
Extract from AFM the scheduled fan rpm for take-off thrust (using RAT minus 4ºC as SAT) reduced by 6%

Altitude		ft
RAT		C
TO Power-6%		%

(a) Close throttle and establish stabilised idle turbine/fan RPM
(b) On each engine in turn, carry out a slam to Take-off power. The acceleration should be smooth and surge free. Time to the take-off power minus 6% should be less than 7.5 seconds.

	LEFT	RIGHT	
Fan RPM			
Turbine RPM			
Accel Time			< 7.5 seconds

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	Left Engine	Take-off Thrust	
	Right Engine	Idle	
	Gear	Up	
	Flap	15 degrees	
	Anti-ice	OFF	
	Pressurisation source	NORM	
	V2 for weight		Kts
	Captains Altimeter	set to 1013mb	

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

TIME	ALTIMETER	ASI P1	RAT	FAN RPM
0				%
½				
1				%
1½				
2				%
2½				
3				%
3½				
4				%
4½				
5				%

TRIM POSITIONS

AILERON	
RUDDER	
ELEVATOR	

AIRSPEED COMPARISON

PILOT	
CO-PILOT	

ENGINE DATA AT 3 MINUTES

N1	
ITT	
TURB. RPM	

FUEL FLOW	
OIL PRESSURE	
OIL TEMP.	

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

MEAN WEIGHT	lb.

4.2 Engine Out En-route Climb

Prior to engine shutdown, allow the engine to cool at idle for 2 to 3 minutes.

Configuration:	Left Engine	HP Cock Closed (windmilling)
	Right Engine	Max. Cont. Thrust
	Gear	Up
	Flap	Up
	Anti-ice	OFF
	Pressurisation source	NORMAL
	Speedbrakes	Retracted
	En-Route Climb Speed	160 knots
	Captains Altimeter	set to 1013mb

Engine Out En-route Climb

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

TIME	ALTIMETER	ASI P1	RAT	FAN RPM
0				%
½				
1				%
1½				
2				%
2½				
3				%
3½				
4				%
4½				
5				%

TRIM POSITIONS

AILERON	
RUDDER	
ELEVATOR	

AIRSPEED COMPARISON

PILOT	
CO-PILOT	

ENGINE DATA AT 3 MINUTES

N1	
ITT	
TURB. RPM	

FUEL FLOW	
OIL PRESSURE	
OIL TEMP.	

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

MEAN WEIGHT	lb.

5 ENGINE RELIGHT **below 20,000 feet**

Relight left engine at 125 KIAS using the starter assisted technique at the altitude existing and an appropriate flap for the speed.

Record:

Altitude [ ] IOAT [ ]

Windmilling N1 [ ] N2 [ ]

Time to ITT rise		sec (10 sec max)
Max ITT		ºC (700ºC max)
Time to stabilised Flight Idle		sec

Any abnormality during relight, spool up SAT/UNSAT

Following the relight, allow the engine to warm up before selecting a high power setting. Pay particular attention to the oil pressure indication when applying power, to ensure it is maintained within limits and it may be necessary to apply power in steps to achieve this.

6 CLIMB **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. Check speedbrakes for normal operation. 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

7 FUNCTIONING FL 350

7.1 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 maximum cruise power and then rapidly throttle back to the idle position. As the turbine rpm decelerates through 85% N_2, rapidly re-open the throttle to maximum continuous power. 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 one 'pop' is acceptable.

7.2 Maximum differential pressure .

At FL 350 and 170 KIAS monitor the differential pressure gauge and record the stabilised maximum differential pressure (8.7 to 8.9 psi) and cabin altitude

Select the PRESS SOURCE switch to LH/RH in turn. Note the transient change and record the stabilised differential pressure on each selection.

LH	RH
PSI	PSI

Set 9000ft on the Cabin Pressure Control in preparation for test 11.

8 HIGH MACH RUN **above FL 250**

NOTE: This test must not be carried out in turbulent conditions.
Carry out an acceleration to 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 apply small elevator and aileron inputs in turn checking for normal response. 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	

9 ENGINE SHUTDOWN AND RELIGHT **Recommended FL300 (Max FL300)**

Idle the right engine for 2 minutes and then shut it down. Start the stop watch. Accept a drift down with MCT set on the operating engine aiming to re-light using the windmill technique at 210 KIAS after a 3 minute shutdown period with the ITT <100ºC.

Altitude [ ] IOAT [ ]

Windmilling N1 [ ] N2 [ ] (minimum 8%)

Time to ITT rise	[ ]	sec (10 sec max)
Max ITT	[ ]	º C (700 ºC maximum)
Time to stabilised Flight Idle	[ ]	sec

Any abnormality during relight, spool up SAT/UNSAT

Following the relight, allow the engine to warm up before selecting a high power setting. Pay particular attention to the oil pressure indication when applying power, to ensure it is maintained within limits and it may be necessary to apply power in steps to achieve this.

10 HIGH IAS RUN **FL 240 to FL 160**

NOTE: Flying conditions must not be significantly turbulent for this test. Between FL 240 and 160 carry out an acceleration to 300 KIAS. Trim in all axes up to Vmo and make small control inputs above Vmo to assess the control characteristics. Close throttles during recovery and extend the speedbrakes

ASIR at which HSW first sounds on both CSIs [ ] (288-296 KIAS)

Any buffet or unusual vibrations SAT/UNSAT
Engine behaviour SAT/UNSAT
Trim change on speedbrake selection SAT/UNSAT

11 FUNCTIONING - PRESSURISATION AND OXYGEN **below FL170**

Carry out the following checks:

11.1 Crew oxygen equipment check put on crew oxygen masks, and check satisfactory oxygen flow and functioning of mask mikes.

SAT/UNSAT

11.2 Cabin altitude warning check
With the pressurisation mode in AUTO, Select the 'PRESS SOURCE ' switch to 'OFF' and record the cabin altitude at which the 'CAB ALT ' caption illuminates.

(9,650 - 10,350 feet)) [ ] ft

11.3 Passenger oxygen drop-out

Monitor the cabin rate of climb and record the cabin altitude at ____ ft which passenger oxygen mask drop-out occurs (14,000 - 15,000 feet). It may be necessary to climb the aircraft to achieve this.

11.4 When the cabin reaches 15,000 feet select PRESS SOURCE to NORM and verify that the EMER PRESS annunciator illuminates and that the emergency pressurisation cycles off at not less than 12,000 feet. Re-pressurise with a cabin altitude of 9,000 ft and minimum rate selected. Do not exceed FL 170 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 5,000 ft. and re-select maximum rate.

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). If this happens, recover no more than 2 seconds after reaching full back stick and record the speed when full back stick is reached, which is the scheduled stall speed, and the minimum speed reached..

Tolerances Stall Warning ± 4 kts
Stall Speed ± 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 7º, 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 15º, 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 35º, 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

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 160 KIAS. Pull the gear control C/B and then select the gear handle down. Pull the mechanical uplocks 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 and increase speed to 180 KIAS to lock the main wheels down. Reset the release handle to its normal position 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: (flap limit speed 173 KIAS)

gear down		(max 5 seconds)
flap 'UP' to 'LAND'		(max 20 seconds)
flap 'LAND' to 'UP'		(max 21 seconds)
gear up		(max 6 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.

Confirm satisfactory braking action. SAT/UNSAT

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

16 Check for the presence and legibility of all placards.

17 Analyse the performance climb data and record in the information on the front sheet.

Scheduled speeds

V2 (FLAPS 15º) Knots IAS

AUW LBS	Altitude feet				
	3000	4000	5000	6000	7000
16,500	114	115	114	114	114
16,000	112	113	114	114	113
15,555	112	113	113	113	113
15,000	112	113	114	114	113
14,500	112	113	114	114	114
14,000	112	114	114	114	114
13,500	113	114	115	115	114
13,000	114	115	115	116	115
12,500	114	115	116	117	116
12,000	115	116	117	118	117
11,500	116	117	117	118	117
11,000					

Stall speeds Knots IAS

AUW LBS	Flaps up			Flaps 7º			Flaps 15º			Flaps 35º		
	Trim	Warn	Stall	Trim	Warn	Stall	Trim	Warn	Stall	Trim	Warn	Stall
16,500	127	109	98	123	106	95	118	103	91	113	97	87
16,000	125	108	96	122	105	94	117	101	90	112	95	86
15,555	124	106	95	120	103	92	116	100	89	109	94	84
15,000	121	104	93	118	101	91	113	98	87	108	92	83
14,500	120	103	92	117	100	90	112	97	86	107	91	82
14,000	117	101	90	114	98	88	111	95	85	104	89	80
13,500	116	99	89	113	96	87	108	93	83	103	88	79
13,000	113	97	87	111	95	85	107	92	82	101	87	78
12,500	111	95	85	109	93	84	104	90	80	99	85	76
12,000	109	94	84	107	91	82	103	88	79	98	83	75
11,500	107	92	82	104	90	80	100	87	77	95	82	73
11,000	104	90	80	103	88	79	99	85	76	94	80	72