

CHECK FLIGHT CERTIFICATE



Alouette, SE 3130, SA 313B, Lama SA 315B

CFS 164 Issue 1

Date:	Crew:	Observer:	Registration:
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Performance	Climb #1			Airfield:
	Average Weight			Start Weight Kg/Lbs*:
	Average Altitude		ft	
	Average Temp.		°C	Takeoff cg:
	Speed		KIAS	Performance: SATIS/UNSATIS/NOT APPLICABLE* <i>(delete as applicable)*</i>
	Achieved Rate		fpm	
	Scheduled Rate		fpm	
	Margin		fpm	
Permitted Margin	-70		fpm	

Defects

No.	Defect	-/R/FT	Action?

(use a continuation sheet as necessary)

Conclusions/Comments

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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 airtests may conduct the test.

General notes on test conduct can be found in the CAA Handbook for Airworthiness Flight Testing.

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 Handbook for Airworthiness Flight Testing.

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



Alouette, SE 3130, SA 313B, Lama SA 315B

CFS 164 issue 1

Registration

Test Dates

Aircraft Type/Variant

1. INTRODUCTION

This scheduled is applicable only to Alouette SE 3130 SA 313B, and Lama SA 315B Helicopters. It is based on the assumption that the every day operation of the helicopter services as a continuous check on the functioning of all normal services.

The Flight Test must be carried out by an experienced pilot acceptable to the CAA in accordance with this schedule and the general guidance given in the CAA Handbook for Airworthiness Flight Testing. The crew are expected generally to monitor the behaviour of all equipment and report any unserviceable items. In addition to completing all the tests in this schedule any characteristics which are considered to be unsafe or undesirable must be recorded.

The minimum crew for this flight is to be increased by a flight observer.

WARNING

1. It is illegal to carry passengers on a test flight made without a current Certificate of Airworthiness except passengers performing duties in the aircraft in connection with the flight. Although it may be legal to carry passengers on a test flight with a C of A in force it is strongly recommended, for Check Flights and other tests entailing greater risk than normal flight, that:
 - 1) It is preferable to use ballast, and
 - 2) Before accepting any passengers on a test flight the pilot in command should inform them that the risk is greater than on an ordinary flight.
2. Under no circumstances are the limitations contained in the CAA approved Flight Manual to be exceeded.
3. If a clipboard or kneeboard is used to record the results there is a possibility of fouling the controls especially the duals, if fitted. To reduce this possibility, the pilot must have briefed the observer on the need to ensure that the clipboard is well clear of the controls especially during manoeuvres requiring large control deflections such as low speed envelope and autorotation. The pilot should monitor the position of the clipboard during the flight to ensure that it is not in a potentially hazardous position. Whenever possible, flexible, rather than rigid, clipboards should be used. Consideration should be given to removing the dual controls if flying with an inexperienced observer.

Should there be any query about the Flight Test or its results, the local CAA Surveyor or the Helicopter Flight Test Section, Aviation House, Gatwick must be consulted.

It is recommended that the tests are made in the sequence given. The results are to be written in ink in the spaces provided.

Operator/Maintenance Organisation	<input type="text"/>	Registration	<input type="text"/>
		Flight Date(s)	<input type="text"/>
Aerodrome	<input type="text"/>	Pilot	<input type="text"/>
		Observer	<input type="text"/>
Aerodrome pressure altitude	<input type="text"/>	QFE/QNH	<input type="text"/>
Wind velocity/direction	<input type="text"/>	OAT	<input type="text"/>
Weather	<input type="text"/>		
Take-off time	<input type="text"/>	Landing Time	<input type="text"/>

2. LOADING

The aircraft is to be loaded to achieve a take-off weight close to 3300 lb (SE 3130 model) or 3500 lb (SA 313B model) or 1950 kg (SA 315B model). The C.G. should be approximately in the neutral position.

Take-off weight (actual)	<input type="text"/>
Fuel contents	<input type="text"/>
C.G. position	<input type="text"/>

3. PRE-FLIGHT INFORMATION

Aircraft model	<input type="text"/>
Constructors No.	<input type="text"/>
Total airframe hours	<input type="text"/>

Landing gear type/floats	<input type="text"/>
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Engine model	<input type="text"/>
Serial number	<input type="text"/>
Hours run since new	<input type="text"/>
Hours run since overhaul	<input type="text"/>

4. PRE-FLIGHT CHECKS

Carry out the normal pre-flight inspection.

Doors and transparencies: Conditions and operation
 Seats and harnesses
 Placarding: Legibility and accuracy

Instruments: Legibility and accuracy of colour bands and markings. General condition.

ASI
 Dual Tachometer
 T4
 All other instruments

Freedom, range of travel, friction of:

- Cyclic control :
- Collective control:

Fuel flow control lever movement over full range.

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Freedom, range of travel, adjustment of yaw control

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Audio/Visual Warnings

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5. START-UP:

Max T4 on start
 Acceleration
 Idling RPM engine

Rotor Engagement:

Blades start to move (erpm)
 Engagement complete in (sec)
 Generator cuts in (erpm)
 Vacuum pressure (if applicable)
 Voltage reading
 T4
 Engine RPM
 Rotor RPM
 Oil pressure

Oil temperature
Cabin heater operation
Gyro instrument stability
Main rotor vibration
Radio/intercom

6. HOVER CHECKS (5 ft AGL)

Wind speed
Pitch setting
T4
Oil pressure
Oil temperature
Eng RPM
Rotor RPM

7. POWER CHECK (5ft HOVER)

T4 correction Total =
Pitch setting
OAT
Chart T4
Difference

8. LOW SPEED ENVELOPE

Turns on spot
Sideways flight up to an estimated 18 kts.
Rearwards flight up to an estimated 18 kts.
Vibration level

9. CLIMB PERFORMANCE

With the altimeter set to 1013 mb climb at the stated power at the scheduled en-route climb speed (Vy) for three minutes. Climbs should be carried out in stable, non-turbulent conditions away from clouds. Do not start to record until established in the climb on condition.

Associated conditions:

Model	Vy Kts	Collective	T4 °C	N ₁ %
313B / SE 3130	48 KIAS	14°	550	34,000
315B	50 KIAS	See Flight Manual Limitations. (0.8 above zero ft density altitude rising linearly to 0.85 at 3300 DA etc.)	550	33,500

Time at start of climb	
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Time	Alt	OAT	IAS	Coll Pitch	T4	N ₁	Engine Oil Temp	Engine Oil Press	Fuel
0									
0.30									
1.00									
1.30									
2.00									
2.30									
3.00									

After the climb, obtain an accurate OAT by flying at approximately mid-climb altitude at approximately Vy in level flight for 1 min. to allow OAT to stabilise

Alt	
OAT	

10. HANDLING

10.1 Cruise

10.1.1 At a normal cruising speed and power, check and record the following items:

ALT	OAT	ASI	Coll Pitch	T4	Engine speed	FUEL

Correct functioning of lateral trim (if fitted)

10.1.2 Carry out steep turns L & R (approx 45°) at normal cruise speed and power. Do not exceed 30° of bank at speeds close to Vne.

Note: Vibration level
Control response

10.1.3 Servo unit failure.

Reduce speed to 65 Kts, check satisfactory control response with hydraulic servo system off in straight flight and gentle turns L & R (20° bank).

Increase to typical cruise speed, gentle turns. Reduce speed to 65 Kts and reset servo system open.

10.2. Maximum Speed Test

10.2.1 Increase speed progressively to **placarded** V_{NE} using maximum permitted collective pitch.
Speed
Pitch

10.2.2 Carry out gentle turns L & R (20° bank)

Note: Vibration level
Control response

10.3 Autorotation

NOTE 1

Several separate autorotations may be required to complete the items listed below; in particular do not attempt the rapid recovery (10.3.3) unless there is adequate height to recover from a possible engine problem such as surge.

NOTE 2

Care must be taken not to increase collective too quickly during the rapid recovery; carry out practice collective pulls at a slow rate first and progressively increase rate.

10.3.1 The following test may need to be carried out at a lower weight to avoid exceeding maximum rotor rpm. Carry out a steady autorotative descent at 50 kts (SE 3130, 313B) 65 kts (SA 315B) with the collective lever fully down if possible. The fuel flow control lever should **NOT** be decreased. Record the following when stabilised.

ALT	OAT	IAS	N _R	Engine RPM	Fuel Weight

NOTE 3:

Do not exceed power off rotor rpm limitations (max 420 rpm).

NOTE 4

If the rotor rpm has not risen above the engine rpm (i.e. needles split condition) it is not possible to determine the autorotation rpm as the engine may still be driving the rotor. If this is the situation a re-fly will be required at either a higher weight and/or after collective adjustment.

10.3.2 Carry out turns L&R in autorotation (20° bank).

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10.3.3 Carry out rapid recovery from autorotation; engine and rotor rpm needles just joined to 12° collective pitch (SE 3130, 313B) 0.70 coll pitch (SA 315B) in not less than 3 seconds).

Note: Engine response
Transient droop

erpm

11. LANDING/SHUTDOWN

11.1 Confirm no tendency to resonance during a smooth landing with a gentle collective lowering

NOTE Should any divergent oscillations be noted, lift off immediately and carry out a normal landing, consider repositioning the helicopter.

11.2 Power fail warning erpm

11.3 Time for engine to stop (min 45 secs for Alouette)

12. EQUIPMENT OPERATION

Control friction	<input type="text"/>
Louvres	<input type="text"/>
Doors, locks and seats	<input type="text"/>
Rotor brake	<input type="text"/>
Gyro instruments	<input type="text"/>
Cargo hook operation (if applicable)	<input type="text"/>
Heater/demisting	<input type="text"/>
Anti-collision light	<input type="text"/>
Navigation lights	<input type="text"/>
Landing light(s)	<input type="text"/>

13. POST FLIGHT ACTION

13.1 Performance Climb

Plot out the data on the analysis sheet provided and determine the achieved rate of climb (RoC). The scheduled performance must be obtained from the flight manual and compared with the achieved performance.

Achieved rate of climb - Scheduled RoC =

Tolerance = - 20 fpm, no action required, up to - 70 fpm investigation required but may be acceptable. Greater than - 70 fpm not acceptable.

13.2 Power Check

Use the Power Check Chart in the Flight Manual to determine the scheduled T4.

Corrected T4 - Scheduled T4 =

Max permitted SE 3130 and SA 313B ~ 30° SA 315B ~ 40°

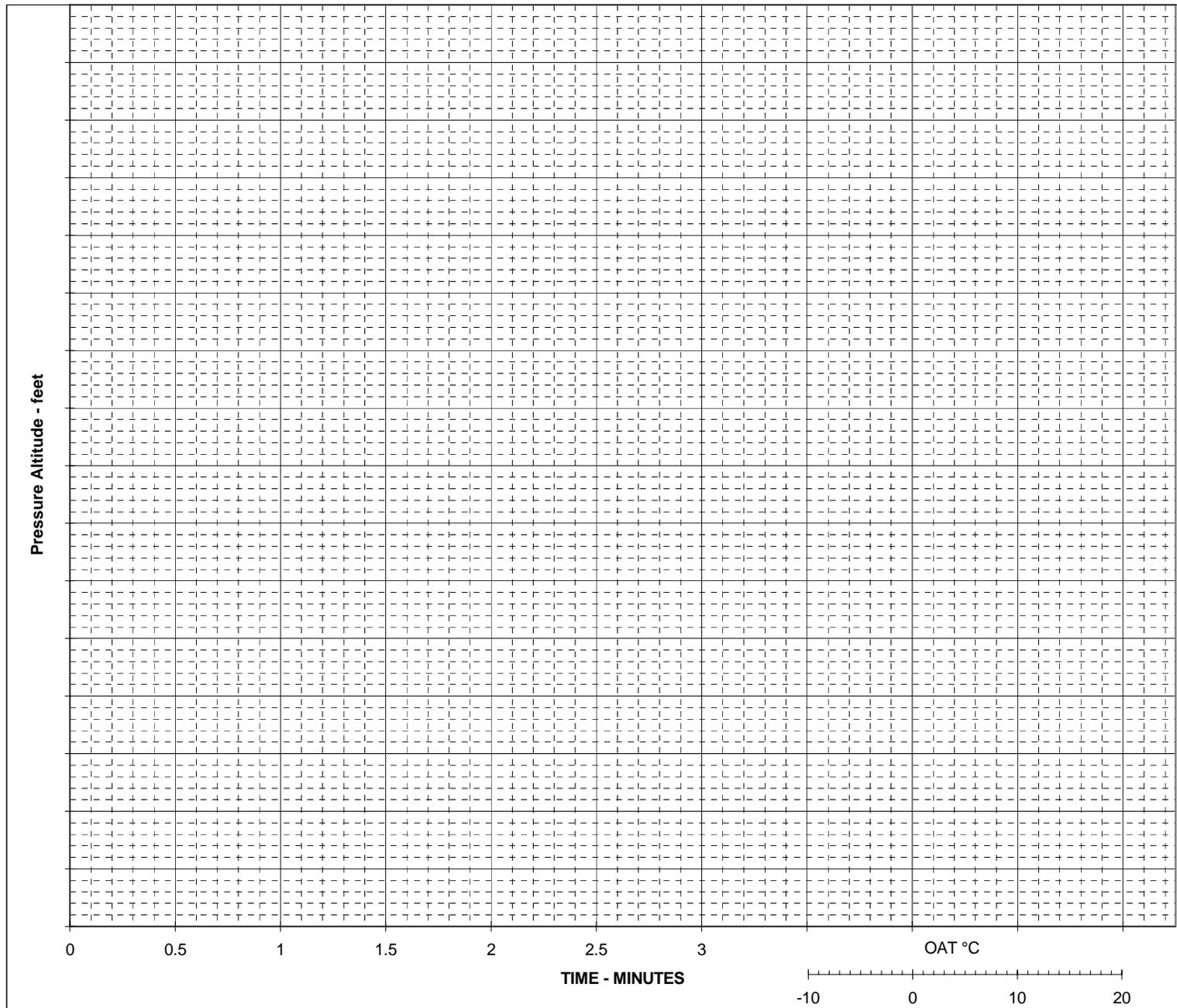
13.3 Autorotation RPM

Determine the scheduled rotor rpm from the Flight Manual:
SE 3130, 313B Section 2-6 Tests,
SA 315B Appendix Additional Performance Data

Achieved rpm - Scheduled rpm =

Note that if the rotor rpm had not split from the engine rpm (risen above) the test may not be valid as the engine may still be driving.

Note that for helicopters fitted with the LOM L3160-100 main rotor blades the autorotation rpm may be greater than that specified for the metal blades (there is no specific autorev data in the RFM Supplement).



AIRCRAFT TYPE

REGISTRATION

DATE OF TEST

Mean Weight

_____ lb

Mean Altitude

_____ feet

Mean OAT

_____ °C

SCHEDULED ROC

Basic _____ ft/min

Correction _____ ft/min
(if applicable)

Correction _____ ft/min
(if applicable)

Final SROC _____ ft/min

Observed ROC

_____ ft/min

Difference from Scheduled

_____ ft/min
(Observed ROC minus Final SROC)

Amendment Record

Changes made at Issue 3

New combined Flight Test Certificate/Flight Test Report and notes added at front and previously embedded Certificate deleted. Duplicated boxes at 'Introduction' deleted. Pages re-numbered.

Changes made at Issue 4

Paragraph 10.1.1: Lateral trim check added.

Paragraph 10.3.1: Instruction to not reduce fuel flow control lever added. NOTE 4 added.

Paragraph 13.3: Note added. Pages re-numbered.