CHECK FLIGHT CERTIFICATE

DH104 Dove

CFS 147 Iss 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	-50	-50	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
Pilots using this document should be familiar with the tests and techniques needed. If the results are to be submitted to the CAA the pilot must be specifically briefed on techniques and safety considerations by the CAA and must have carried out a Check Flight within the last 4 years.

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
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

DH104 Dove 1	(2 Gipsy Queen 70-2 engines)	CFS 147 Issue 1
DH104 Dove 2	(2 Gipsy Queen 70-3 engines)	
DH104 Dove 1B & 2B	(2 Gipsy Queen 70-4 engines)	
DH104 Dove 5 & 6	(2 Gipsy Queen 70 Mk 2 engines)	
DH104 Dove 7, 8 & 8A	(2 Gipsy Queen 70 Mk 3 engines)	

Registration [ ] Test Date(s) [ ]

INTRODUCTION

This schedule is applicable to all of the above Dove variants.

The data contained in this schedule is correct at the time of issue but may not be in agreement with subsequent Performance Schedule amendments. In cases of conflict the current Performance Schedule data is overriding. Any such variations must be reported.

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 this test Flight, however, 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 the schedule, any handling or functioning characteristics, which are considered to be unsafe, or undesirable, must be recorded.

MINIMUM CREW

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

LOADING

The aircraft is to be loaded as near as practicable to the following: A.U.W. 8,000 lb. and C.G. 0.274 S.M.G. (3.6" A.O.D.)	
ACTUAL AUW	
ACTUAL CG	

PRE-FLIGHT INFORMATION

Record:

Engine	**Left**	**Right**
Total airframe hours and for each engine.		
Serial No. position and hours run.		

PERFORMANCE

The climbs should be made clear of clouds and turbulence.

For measuring rates of climb, record altimeter readings on 1013 mbs and IAS against time every half minute; record I.O.A.T. every minute. The climb results should be reduced and compared with the relevant gross performance information scheduled in the Performance Schedule.

POST FLIGHT ACTION

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

CAUTION

All speeds quoted in this scheduled only apply for the loading specified above. If for any reason the weight is not as specified the speeds will have to be revised. The Performance Schedule for the type contains the relevant data except for the stall trimming speeds. This speed is 1.4 V_{SI} for the configuration.

1. GROUND TESTS

Run up each engine in turn to full throttle and maximum r.p.m.

Record – for each engine:

Engine	**Left**	**Right**	
R.P.M.			2,800 - 1, 2 and 2B & 3,000 - 5, 6, 7, 8 & 8A
Boost			+ 6 lb/sq.in. 42” Hg - 1, 1B, 2 & 2B, + 7 lb/sq.in. 45” Hg - 5 & 6 and + 8.3 lb/sq.in. 46.6” Hg - 7, 8 & 8A
Oil Pressure			55 - 60 lb/sq.in. - 1, 1B, 2 & 2B, 50 - 55 lb/sq.in. - 5, 6, 7, 8 & 8A
Oil Temperature			30 -100ºC - 1, 1B, 2 & 2B, 105ºC max - 5, 6, 7, 8 & 8A
Cylinder Temperature			280ºC max. - 1, & 2, 290ºC max. - 1B, 2B, 5, 6, 7, 8 & 8A
Fuel Pressure			27 lb/sq.in. ± all variants

Check the pneumatic system for correct functioning and pressures:

Record:

Operating Pressure		400 - 600 lb/sq.in.
Brake Pressure		175 - 180 lb.sq.in.
Emergency Air Bottle		700 - 800 lb/sq.in.

2. TAKE-OFF

Carry out a normal take-off. Note any unusual characteristics. As soon as possible after unstuck, and with the gear down, note the following engine parameters for each engine:

Engine	**Left**	**Right**
R.P.M.		
Boost		
Oil Pressure		
Oil Temperature		
Cylinder Temperature		
Fuel Pressure		

3. PERFORMANCE

3.1 Two Engine Climb

Starting height not below 2.000 ft. above terrain. Climb for 3 minutes in the following configuration:

- Flaps : 20º
- Gear : Extended
- Cooling Flaps : Fully Open
- Power : Take-off power
  : 78 kts. I.A.S. (Series 1, 1B, 2 & 2B)
  : 84 kts. I.A.S. (Series 5, 6, 7, 8 & 8A)

Fuel Contents	
Weight (kg/lb) at start of Climb	

Wing-flap Position	
Engine Cooling – Flap Position	

Time (min)	**Altitude (ft) (1013 mb.)**	**IAS (knots/mph)**	**OAT (ºC)**
0			
½			X
1			
1½			X
2			
2½			X
3			

NOTE: If no Outside Air Temperature gauge is fitted, obtain the temperature at the climb altitude for the local area from the Meteorological Office. State whether the figure quoted is forecast (F) or indicated (I).

Towards the end of the climb record:-

Engine	Left / Right
Boost	
RPM	
Oil Pressure	
Oil Temperature	

Fuel Pressure/Flow	
Cylinder Head Temperature	

Trimmer Positions with control loads trimmed out (and any residual forces):-

Elevator/stabilator [ ] Rudder [ ] Aileron [ ]

If there is any difficulty in recording these figures during the timed climb, maintain the climb speed and power, and record them at the end of the climb.

3.2 Single Engine En-route Climb (No. 2 Engine Inoperative)

Feather the right engine:

Feathering Time	secs	10 secs. Max.

Starting height not below 4,000 ft. above terrain. Climb for 5 minutes in the following configuration:

Flaps and gear	:	Up
Airspeed	:	91 Kts. I.A.S.
Cooling Flaps	:	Left Engine - open, and shut on Right Engine.
Power	:	Maximum continuous : ie.
Series 1 & 2	:	2,600 r.p.m. + 3 lb/sq.in. boost below F.T. height
Series 1B & 2B	:	2,600 r.p.m. + 5 lb/sq.in. boost below F.T. height
Series 5 & 6	:	2,700 r.p.m. + 6 lb/sq.in. boost below F.T. height
Series 7, 8 & 8A	:	2,800 r.p.m. + 6 lb/sq.in. boost below F.T. height

All control loads are to be trimmed out and the trimmer position noted.

Fuel Contents	
Weight (kg/lb) at start of Climb	

Wing-flap Position	
Engine Cooling – Flap Position	

Time (min)	Altitude (ft) (1013 mb.)	IAS (knots/mph)	OAT (ºC)
0			
½			X
1			
1½			X
2			
2½			X
3			
3½			X
4			
4½			X
5			

NOTE: If no Outside Air Temperature gauge is fitted, obtain the temperature at the climb altitude for the local area from the Meteorological Office. State whether the figure quoted is forecast (F) or indicated (I).

Towards the end of the climb record:-

Engine	Left / Right
Boost	
RPM	
Oil Pressure	
Oil Temperature	

Fuel Pressure/Flow	
Cylinder Head Temperature	

Trimmer Positions:-

Elevator/stabilator		Rudder		Aileron	
Record residual forces					

If there is any difficulty in recording these figures during the timed climb, maintain the climb speed and power, and record them at the end of the climb.

Restart Engine and record:-

Unfeathering time		(10 seconds max.)
Unfeathering behaviour, including any excessive vibration or roughness.		

3.3 Propellers

At not less than 4,000 ft. above terrain, feather and unfeather the left engine.

Feathering Time		(10 seconds. max.)
Unfeathering Time		(10 seconds. max.)
Unfeathering behaviour, including any excessive vibration or roughness.		

4. FULL THROTTLE HEIGHT AT MAXIMUM CONTINUOUS POWER

The aircraft is to be climbed at the speed in the table below through the full throttle height. Both engines are to be at maximum continuous power (ref. Para. 3.2 above). The height at which the boost begins to fall off should be noted together with the corresponding air temperature.

Aircraft Type	Climb Speed I.A.S.	Approx. F.T. Height (feet)
Series 1 & 2	100 Kts	8,000
Series 1B & 2B	100 Kts	5,000
Series 5 & 6	91 Kts	4,000
Series 7, 8 & 8A	91 Kts	5,000

	Left	Right
Full Throttle Height		

5. CRUISE – Recommended Altitude 7.000 ft.

The aircraft should be trimmed in level flight at 7,000 ft. with maximum weak mixture cruising power (2,400 r.p.m., +2 lb/sq.in. boost). When the cruise has stabilised record:

Elevator Trimmer	
Rudder Trimmer	
Achieved I.A.S.	Kts
Indicated O.A.T.	°C

Engine Parameters

Engine	Left	Right
RPM		
Boost		
Oil Pressure		
Oil Temperature		
Cylinder Temperature		
Fuel Pressure		

6. STALLING AND FUNCTIONING

At a commencing altitude not less than 5,000 ft. above terrain carry out the following checks in the order shown. The approach rate for the stall should be approximately 1 kt/sec. The functioning checks should be made at the maximum placarded speed for the configuration.

Time the Flaps from Up to Take-off (20º)	Secs	8 secs. Max.

- Trim the aircraft at 83 kts., gear up, flaps take-off, power off.
- Straight, power off, flaps take-off stall.

Aircraft Weight	Lbs
Buffet Onset Speed	Kts
Achieved Stall Speed	Kts
Behaviour at and before the Stall	

Time the Flaps from Take-off to Landing	Secs	12 secs. Max.

Time the Gear Up to Down	Secs	7 secs. Max.

- Trim the aircraft at 73 kts., gear down, flaps landing, power off.
- Straight, power off, flaps landing, gear down stall.

Aircraft Weight	Lbs
Buffet Onset Speed	Kts
Achieved Stall Speed	Kts
Behaviour at and before the Stall	

Time the Gear Down to Up	Secs	7 secs. Max.

Time the Flaps from Landing to Take-off	Secs	12 secs. Max.

Time the Flaps from Take-off to Up	Secs	14 secs. Max.

7. HIGH I.A.S. (V_{NE})

This test must not be made in turbulent air conditions.

The aircraft is to be trimmed in level flight at 130 kts. (150 m.p.h.) I.A.S. with the engine set at zero boost and 2,000 r.p.m. The speed must then be increased slowly to the limiting speed of 206 kts. (237 m.p.h.) I.A.S. Record:

The response of the aircraft to small control movements.	
Whether the control forces appear normal.	
General control behaviour.	
The maximum r.p.m. and powerplant behaviour.	
The behaviour of the C.S.U. governing.	

8. FUNCTIONING

8.1 Controls

Check the flying controls and trimming controls at various speeds for friction, backlash and heaviness.	**SAT / UNSAT**

8.2 Powerplant

Check the engine controls for correct functioning and lining up of the throttles.	**SAT / UNSAT**

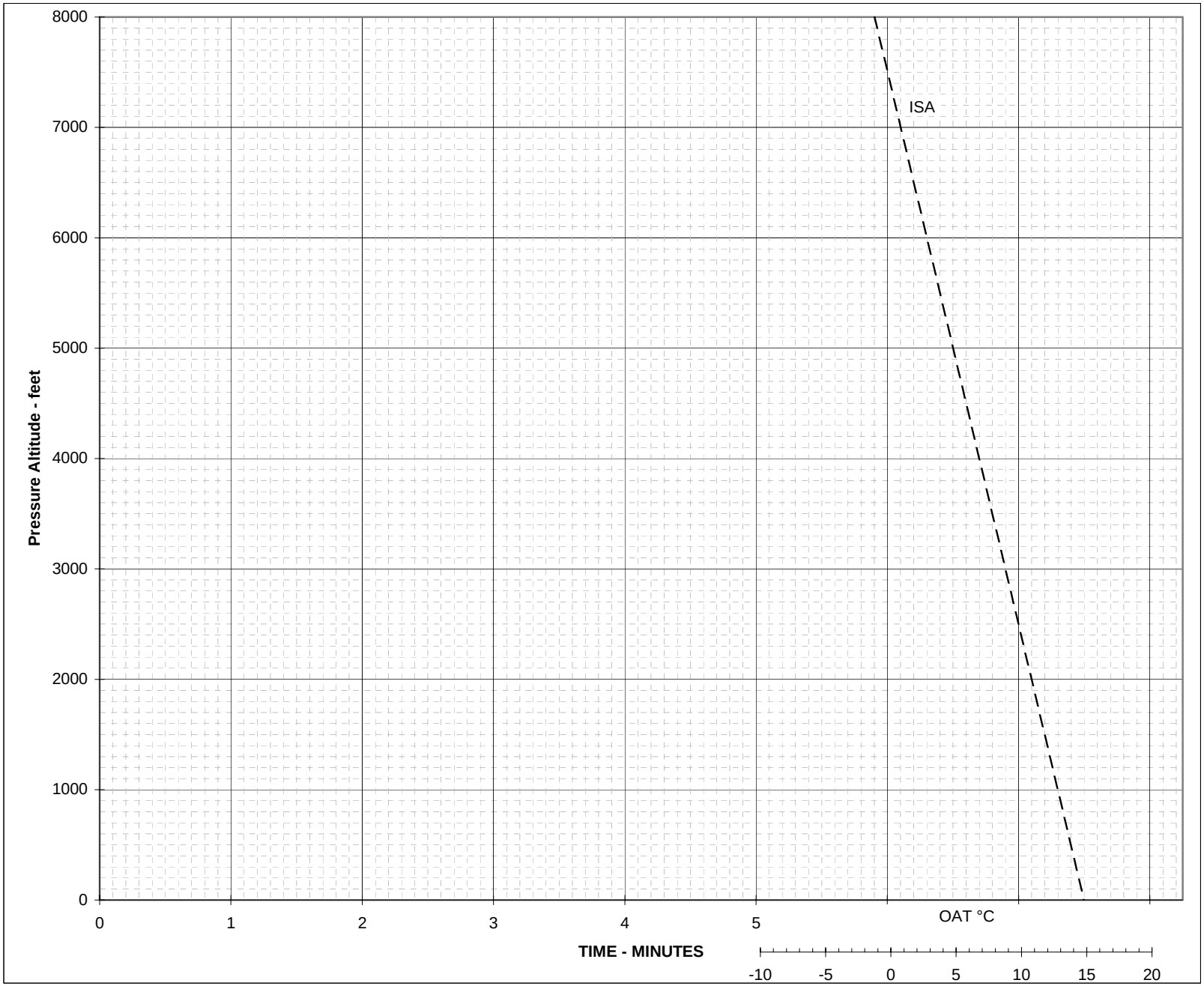
8.4 Fuel Cross Feed

At not less than 4,000 ft. above terrain check satisfactory operation of the fuel cross feed to each engine in turn.	**SAT / UNSAT**

9. AFTER LANDING

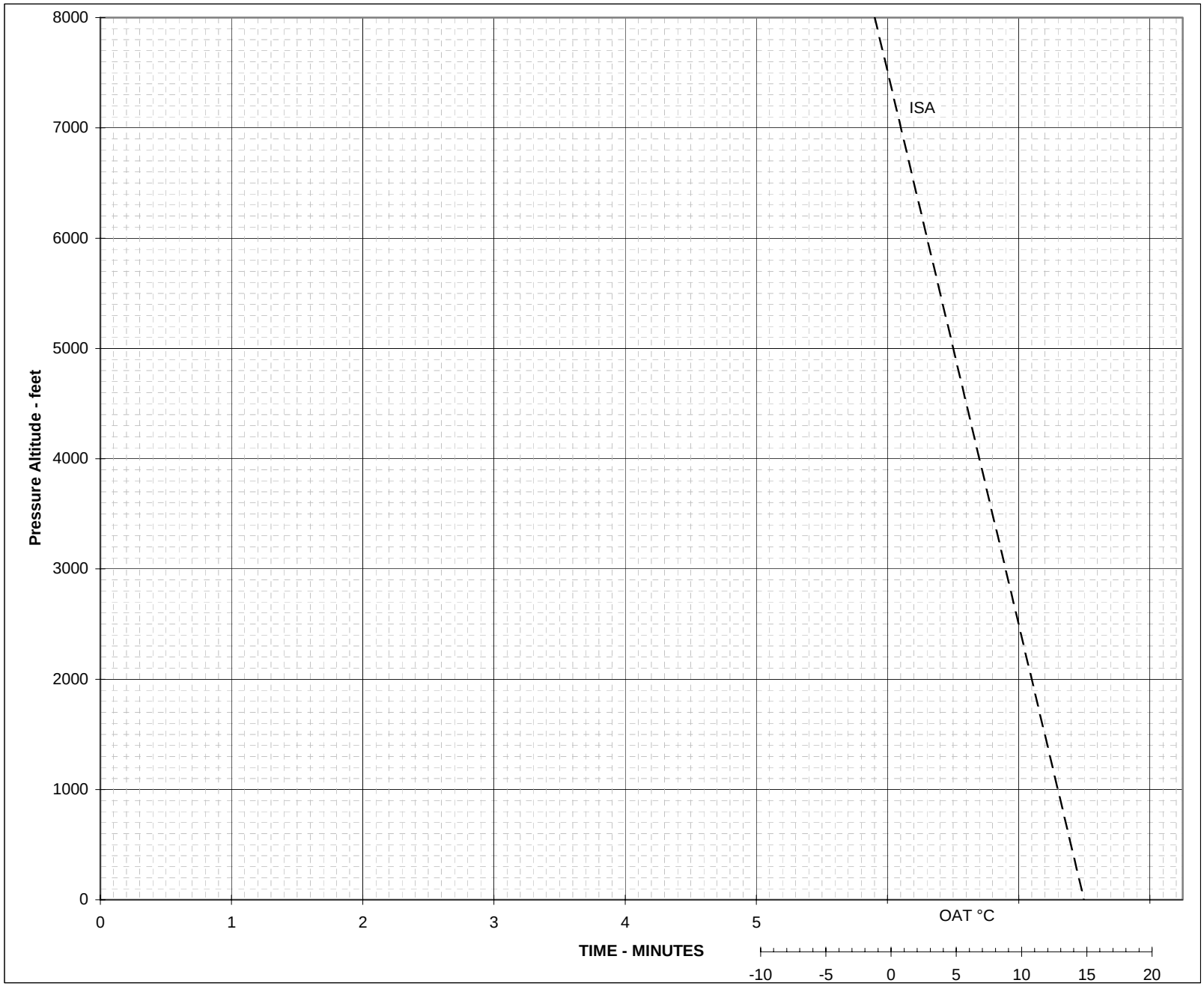
Check:

- All cockpit placarding.
- Complete the Check Flight Certificate at the front of this document.



AIRCRAFT TYPE
REGISTRATION
DATE OF TEST

Mean Weight	_____ Kg/lb
Mean Altitude	_____ feet
Mean OAT	_____ °C
SCHEDULED ROC	
Basic	_____ ft/min
Correction	_____ ft/min
Correction	_____ ft/min
Final SROC	_____ ft/min
Observed ROC	_____ ft/min
Difference from Scheduled	_____ ft/min (Observed ROC minus Final SROC)



AIRCRAFT TYPE
REGISTRATION
DATE OF TEST

Mean Weight	_____ Kg/lb
Mean Altitude	_____ feet
Mean OAT	_____ °C
SCHEDULED ROC	
Basic	_____ ft/min
Correction	_____ ft/min
Correction	_____ ft/min
Final SROC	_____ ft/min
Observed ROC	_____ ft/min
Difference from Scheduled	_____ ft/min (Observed ROC minus Final SROC)