CHECK FLIGHT CERTIFICATE

DHC 6 SERIES 310 TWIN OTTER (Two PT6A-27 Engines) CFS 172 Issue 1

Date:	Crew:	Observer:	Registration:

Performance Climb #1

Average Weight			
Average Altitude			ft
Average Temp.			°C
Speed			KIAS
Achieved Rate			fpm
Scheduled Rate			fpm
Margin			fpm
Permitted Margin	-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

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

DHC6 SERIES 310 TWIN OTTER (Two PT6A-27 Engines) CFS 172 issue 1

INTRODUCTION

This schedule is applicable only to DHC6 Series 310 Twin Otter aircraft. It is based on the assumption that the aircraft under test fully incorporates all the Modifications which may be required for UK type certification and it is essential in the interests of flight safety that no attempt be made to test an aircraft to this schedule if it is not so compliant. The tests are intended to cover items, including emergency systems, which are not routinely checked; however, the crew are expected generally to monitor the behaviour of all equipment and report any unserviceable items. In addition to noting items arising directly from tests in the schedule, any other characteristics which are considered unsafe or undesirable must be recorded.

The aircraft and its engines must be operated at all times within its Flight Manual limitations. Unless specified in this Schedule, normal operating procedures and checks should be used.

The minimum flight crew for this test should, whenever possible, be increased by one observer to record the results of the tests. The tests should be carried out in the sequence as written; altitude conditions must be observed.

Aircraft commanders are reminded that it is illegal to carry passengers on a flight made without a current Certificate of Airworthiness and that while it is legal to carry passengers on a test flight made with a valid C of A, the practice is not recommended. If necessary it is strongly recommended that ballast is used however, if passengers are carried, they must be informed that the risk is greater than that on a normal scheduled flight.

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 (Flight Department) should be informed.

The crew of the aircraft must be familiar with the contents of this schedule before flight and the pilot conducting the tests must be specifically approved by the CAA for airworthiness test flights on DHC 6 Series 310 Twin Otter aircraft.

LOADING

The aircraft should be loaded with full fuel and any necessary ballast to achieve at take-off a weight not less than 10,500 lb. (4760 kg) and a c.g. between 30% and 34% MAC.

PRE FLIGHT ACTION

If passenger oxygen masks are fitted and are to be deployed, it is acceptable to prevent their complete deployment by the use of appropriate clips or tape; any such mechanism must, however, allow sufficient movement to verify correct functioning of the system.

POST FLIGHT ACTION

The Check Flight Certificate must be completed and signed by the pilot carrying out the test.

1. PRE-FLIGHT INFORMATION

Total Airframe hours	

Engine	Left	Right
Serial number		
Hours run since new		
Hours run since overhaul		

2. GROUND TESTS

Check all flying controls and trimmers for full travel, freedom of movement and correct functioning.	

Check engine and propeller controls for travel freedom of movement and correct functioning including reverse and autofeather.	

3. TAXYING

Parking brake (including lock and release).	
Brakes (including freedom from binding and normal ability to hold aircraft at high engine power.	
Taxying (including nosewheel steering/differential braking)	

4. TAKE-OFF

Carry out a normal take-off. Note any unusual characteristics.	

5. ENGINE-OUT EN-ROUTE CLIMB PERFORMANCE

6.1 At not below 3,000 ft above terrain shut down the No. 1 engine at 100 kt.

Time to feather | | secs |

6.2 Carry out an engine-out en-route climb for 5 minutes clear of cloud and turbulence, with :

- Flaps 10°
- No. 1 engine inoperative, propeller feathered
- No. 2 engine at maximum continuous power
- Intake deflectors retracted
- 80 knots IAS
- Altimeter set to 1013 mb. (29.92 in. Hg.)

Record the altitude, ASI and OAT every ½ minute and after 3 minutes the operative engine instrument readings.

Time (mins)	Altitude (ft.)	IAS (knots)	IOAT (°C)
0			
½			
1			
1 ½			
2			
2 ½			
3			
3 ½			
4			
4 ½			
5			

Fuel Gone	(lb/kg.)
fwd.	aft.
Trimmer settings:	
Rudder	
Aileron	
Elevator	
Weather conditions:	

Torque Pressure	ITT	GC RPM	Propeller RPM	Fuel Flow	Oil Temp.	Oil Pressure
psi	°C	%	%		°C	psi

6.3 Restart No. 1 engine at 100 kt. and record :-

Time to relight | | secs | Max. ITT | | °C |

7. STALLS AND FLAP OPERATIONS

At a height of at least 5000 ft. above terrain carry out the following stalls and flap operations.

7.1 Stall the aircraft, flaps 0°, power off, from a trim speed 1.4 times the scheduled stall speed (see page 9 for scheduled stall warning and stalling speeds).

Aircraft Weight	Trim Speed	Elevator Trim	Stall Warning Speed		Stalling Speed	
			Scheduled	Achieved	Scheduled	Achieved
lb/kg	kt.		kt.	kt.	kt.	kt.

7.2 Time the flaps from 0° to 10° at 100 kt. secs

7.3 Stall the aircraft, flaps 10°, power off, from a trim speed 1.4 times the scheduled stall speed.

Aircraft Weight	Trim Speed	Elevator Trim	Stall Warning Speed		Stalling Speed	
			Scheduled	Achieved	Scheduled	Achieved
lb/kg	kt.		kt.	kt.	kt.	kt.

7.4 Time the flaps from 10° to 37½° at 90 kt. secs

7.5 Stall the aircraft, flaps 37½°, power off, from a trim speed of 1.4 times the scheduled stall speed.

Aircraft Weight	Trim Speed	Elevator Trim	Stall Warning Speed		Stalling Speed	
			Scheduled	Achieved	Scheduled	Achieved
lb/kg	kt.		kt.	kt.	kt.	kt.

7.6 Time the flaps from 37½° to 10° at 90 kt. secs

7.7 Time the flaps from 10° to 0° at 100 kt. secs

8. CRUISE

At about 5000 ft. with a typical high cruise power, trim the aircraft accurately in level flight and record the following :-

8.1 Indicated altitude _____ ft. IAS _____ kt. IOAT _____ °C

8.2 Trimmer settings: Rudder _____ Aileron _____ Elevator _____

8.3

Engine No.	Torque Pressure	ITT	GG RPM	Propeller RPM	Fuel Flow	Oil Temp.	Oil Pressure
1	psi	°C	%	%		°C	psi
2	psi	°C	%	%		°C	psi

8.4

Flying Control	Break-out Load	Centering	Backlash	Weight	Response
Rudder					
Aileron					
Elevator					

8.5

Trimmers	Friction	Backlash	Response
Rudder			
Aileron			
Elevator			

9. MAXIMUM SPEED CHECK

From the trimmed condition of 9 increase speed to V_{MO} (166 kt. up to 6700 ft.) and check :-

Control forces and aircraft response to small control movements _____

Engines and propellers for any abnormal behaviour _____

10. NO. 2 ENGINE SHUT DOWN AND RELIGHT

Shut down the No. 2 engine at 100 kt. and record :-

Time to feather _____ secs

After about 2 minutes re-start the No. 2 engine at 100 kt. and record :-

Time to relight _____ secs Max. ITT _____ °C

11. EMERGENCY HYDRAULIC SYSTEM

Pull c/b 35 and reduce hydraulic pressure by operating flaps.

Check that the pressure can be restored by operating hand pump (approx. 36 double strokes)	
Check flap operation	

Reset c/b 35 and re-check hydraulic pressure.

12. APPROACH AND LANDING

Carry out a normal approach and landing with full flap at the scheduled approach speed.

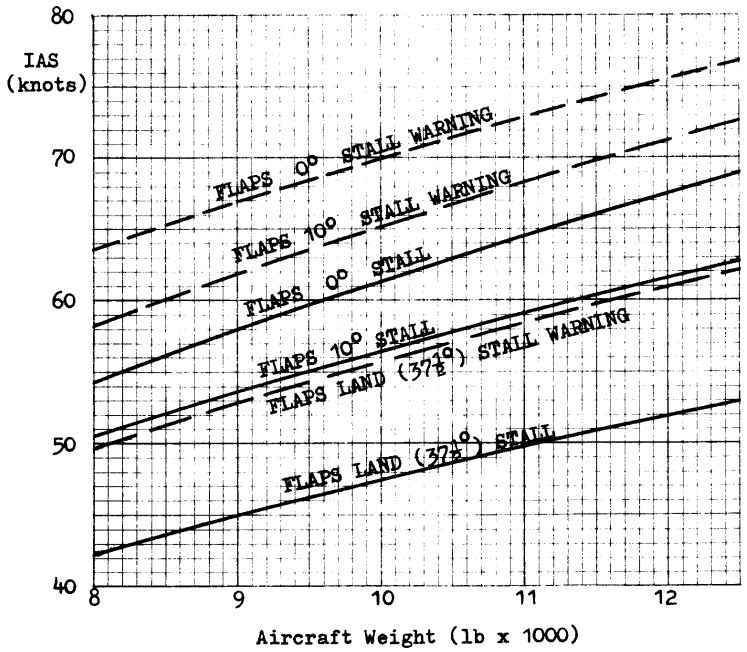
Record any unusual characteristics	
After landing, select reverse thrust on both engines and check for symmetrical operation.	

13. AFTER LANDING

13.1 Check all placard for presence, accuracy and legibility.

13.2 Climb performance evaluation. Plot the altitude and IOAT recorded during the climb against time. Determine the mean achieved rate of climb, evaluate the scheduled rate of climb from the Flight Manual and record the result on the Check Flight Certificate at the front of this document.

STALL WARNING AND STALL SPEEDS



TOLERANCES

Stall warning.
Speed ±3 knots

Stalling (+3 knots
Speed (-6 knots

Minimum margin between stall warning and stall = 5 knots.