

# CHECK FLIGHT CERTIFICATE



Single/Twin Seat, Piston-Engined Light Gyroplanes

CFS 301 Iss 4

|       |       |           |               |
|-------|-------|-----------|---------------|
| Date: | Crew: | Observer: | Registration: |
|-------|-------|-----------|---------------|

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

**Defects**

| No. | Defect | -/R/FT | Action? |
|-----|--------|--------|---------|
|     |        |        |         |
|     |        |        |         |
|     |        |        |         |
|     |        |        |         |
|     |        |        |         |
|     |        |        |         |
|     |        |        |         |
|     |        |        |         |
|     |        |        |         |

(use a continuation sheet as necessary)

|                             |
|-----------------------------|
| <b>Conclusions/Comments</b> |
|-----------------------------|

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 approved by the CAA.

*Reg:* Enter the aircraft registration mark. If the aircraft is not on the UK register, add the manufacturers serial number and expected UK registration (if known).

*Pilot:* Captain and co-pilot (where applicable).

*Airfield:* Departure airfield.

*Start Weight:* Actual all up weight at engine start. Also delete Kg or Lbs as appropriate.

*Takeoff cg:* Actual cg at lift-off.

### Performance

*Climb:* Enter in these columns data from the climb.

*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.

*Margin:* The difference between the Scheduled and Achieved rates of climb (negative if achieved is lower than scheduled).

*Permitted Margin:* The maximum allowable difference between the Scheduled and Achieved rates of climb.

### Defects

Enter all defects from the flight.

*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. Items requiring rectification 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'.

### 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

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



Single/Twin Seat, Piston-Engined Light Gyroplanes

CFS 301 Issue 4

Registration

Test Date(s)

Type: \_\_\_\_\_

Modification State: \_\_\_\_\_

Constructors No: \_\_\_\_\_

Permit to Test Granted: (date) \_\_\_\_\_

Duration of Test: \_\_\_\_\_

## 1. Introduction

It is assumed that the routine operation of the gyroplane serves as a continuing check on the function of all normal controls. If any special device or control is fitted, which is not in use on every flight, it must be carefully checked in the course of the functioning tests which are included in this schedule.

The Flight Test must be carried out by a pilot experienced on the type.

Should there be any query about the Flight Test or its results, the local CAA Surveyor or the Flight Section of the CAA, Airworthiness Division can be consulted, but only general advice can be offered as no performance data or any information on the functioning of the equipment, has been established.

## 2. Loading

The gyroplane must be loaded as close to MAXIMUM WEIGHT as possible. A briefed observer should be used if available but passengers should not be used in lieu of ballast.

Aircraft weight from logbook: \_\_\_\_\_ lb/kg Pilot Weight: \_\_\_\_\_ lb/kg

Obs/Ballast Weight: \_\_\_\_\_ lb/kg Fuel contents: \_\_\_\_\_ lb/kg

Take-off weight: \_\_\_\_\_ lb/kg

If Max Weight not achieved explain why:

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**3. Pre-flight Information**

Engine type/No: \_\_\_\_\_

Engine/Airframe hours since new/Overhaul: \_\_\_\_\_

Propellor type: \_\_\_\_\_

Pilot: \_\_\_\_\_ Licence No: \_\_\_\_\_

Location: \_\_\_\_\_ Air temp: \_\_\_\_\_ deg.C Surface wind: \_\_\_\_\_/\_\_\_\_\_

**4. Pre-flight Inspection**

Carry out all normal pre-flight inspection procedures, commenting on the following:

|   |           |
|---|-----------|
| Seat, Safety Harness and Nacelle;               | Sat/Unsat |
| Cyclic controls - freedom, travel, condition;   | Sat/Unsat |
| Rudder system - freedom, travel, condition;     | Sat/Unsat |
| Throttle controls - freedom, travel, condition; | Sat/Unsat |
| Placarding: legibility and accuracy;            | Sat/Unsat |
| Propeller condition;                            | Sat/Unsat |
| Rotor pre-spin mechanism (if fitted);           | Sat/Unsat |

**5. Start-up**

Check for any difficulty or abnormality on start-up, Check ignition for any sign of rough running at idling and check for dead cut.

Comment: \_\_\_\_\_  
\_\_\_\_\_

Stable idling rpm: \_\_\_\_\_

Engine Test rpm: \_\_\_\_\_

Carb Heat Test (if Fitted) rpm drop: \_\_\_\_\_

Dual ignition (if fitted) rpm drop; Left \_\_\_\_\_ Right \_\_\_\_\_

VP Prop test (if applicable) \_\_\_\_\_

Wheel Brake/s hold gyro up to: \_\_\_\_\_ rpm (engine)

With the engine warmed up and all temperatures stabilised, check and record the following at engine test rpm and again at take-off;

|                     | rpm | T.O. | Limitation |
|---------------------|-----|------|------------|
| Engine rpm          |     |      |            |
| Manifold pressure   |     |      |            |
| Engine Oil temp.    |     |      |            |
| Engine Oil Pressure |     |      |            |
| Cylinder Head temp. |     |      |            |

Wheel Brake/s (taxying): Sat/Unsat

Wheel Brakes from Rear Cockpit Sat/Unsat

Throttle response (taxying); Sat/Unsat

Rudder/Steering response (taxying); Sat/Unsat

Tendency to Nose wheel shimmy? \_\_\_\_\_

Best Turning Radii approx: \_\_\_\_\_

### 5.1. Take-Off

Carry out a normal take-off in accordance with Pilots Handbook procedures. Record the following:

Wheel Brakes Sat/Unsat

Pre rotator Sat/Unsat

Rotor spin up Sat/Unsat

Acceleration Sat/Unsat

Unstick & climb out Sat/Unsat

General comments (include max rotor rpm achieved at what engine rpm Note wind speed through the disc. Comment on vibration levels experienced)

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**6. Performance and Handling**

Make a careful assessment of the performance and handling characteristics under the conditions listed below. DO NOT attempt to exceed the boundaries of the known and safe 'Flight Envelope' for the particular machine.

**6.1 Performance Climb**

With the altimeter set to 1013 mb, climb at maximum engine power (with prop set to "Climb" /fine) at the optimum climb speed for the machine for 3 mins with zero sideslip(string central). When a stable, yaw free heading has been achieved, in conditions as calm as possible, record the following:

| Time min. | Alt. Ft. | OAT deg C / F | IAS kts/ mph | Rotor RPM | CHT deg C / F | Eng Oil Temp | Eng Oil Press | Engine RPM | MAP |
|-----------|----------|---------------|--------------|-----------|---------------|--------------|---------------|------------|-----|
| 0.00      |          |               |              |           |               |              |               |            |     |
| 0.30      |          |               |              |           |               |              |               |            |     |
| 1.00      |          |               |              |           |               |              |               |            |     |
| 1.30      |          |               |              |           |               |              |               |            |     |
| 2.00      |          |               |              |           |               |              |               |            |     |
| 2.30      |          |               |              |           |               |              |               |            |     |
| 3.00      |          |               |              |           |               |              |               |            |     |

N.B. To achieve scheduled performance, ensure correct Flight Manual/POH configuration is used.

Delete or insert instrument units (i.e. mph) as appropriate. Obtain OAT from Meteorological Office if no gauge fitted.

Comment on the rate of climb, engine temperatures etc., should they appear in any way abnormal for the engine/machine in question.

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## 6.2 Cruise

With normal cruise power stabilised (and prop set up for cruise), trim the gyroplane for straight and level flight and then record:

|  |  |                |
|--|--|----------------|
| IAS  |  | kts/mph        |
| Altitude   |  | feet (1013 mb) |
| OAT (if known)   |  | deg C / F      |
| Stable engine temp, CHT  |  | deg C / F      |
| Stable engine oil temp   |  | deg C / F      |
| Stable engine oil pressure   |  |                |
| Average engine rpm   |  |                |
| MAP  |  |                |
| Pitch trim set for   |  | kts/mph        |
| Rudder trim tab needs adjustment?  |  |                |
| Left/Right rudder needed?  |  |                |
| Rotor tracking error (Estimate any split)  |  | (2 inches max) |
| Vibration level  |  |                |
| Can a positive rate of climb be achieved with prop fully coarse and full throttle? |  |                |

## 6.3 Steep Turns

Carry out steep turns (AOB dependant on type but normally 45°) in both directions with engine at full power. Check the controls for normal response, travel and position, noting general vibration levels.

Control response; \_\_\_\_\_

Control position; \_\_\_\_\_

Vibration levels; \_\_\_\_\_

Estimated bank angle (max); \_\_\_\_\_

Maximum 'g' recorded (if meter fitted): \_\_\_\_\_

#### 6.4 Maximum and Minimum Speed

At a safe altitude, (with prop set up for cruise) increase airspeed to the placarded  $V_{NE}$ . Check control response turning up to 10 °AOB and note vibration level. Slow (setting prop to climb/fine) to  $V_{min}$  or  $V_{mc(power\ on)}$  if faster. Record:

Altitude: \_\_\_\_\_ feet (1013 mb)  
OAT: \_\_\_\_\_ deg C / F  
Placard  $V_{NE}$  \_\_\_\_\_ kts/mph  
Manifold Pressure (if known): \_\_\_\_\_  
Engine rpm: \_\_\_\_\_  
Rotor rpm: \_\_\_\_\_  
Achieved speed \_\_\_\_\_ kts/mph  
Control response: \_\_\_\_\_ Sat/Unsat  
Vibration level: \_\_\_\_\_  
Min speed (level flight): \_\_\_\_\_ kts/mph  
Engine rpm \_\_\_\_\_  
Manifold Pressure \_\_\_\_\_

#### 6.5 Descent at Idle Power

From a height of not less than 2000 ft AGL, in a suitable area, reduce progressively the engine rpm to idle and record the following in the ensuing glide, which should be at the recommended airspeed for the particular machine.

Comment on speed, attitude changes and controllability on entry;

\_\_\_\_\_

Vibration levels; \_\_\_\_\_  
IAS \_\_\_\_\_ kts/mph  
Medium turns \_\_\_\_\_ Sat/Unsat  
Rotor rpm \_\_\_\_\_  
Engine rpm \_\_\_\_\_



**6.6 Descent at V<sub>MC(Power Off)</sub>**

From a height of not less than 2000 ft AGL, in a suitable area, from an Idle Power (prop fine) descent reduce progressively the aircraft speed to V<sub>MC(Power Off)</sub>. Ensuring the aircraft can be yawed in each direction using the rudder pedals. Commence recover to power on climbing flight by 1000 ft AGL. NB: This test is carried out at Idle rpm; the engine is not required to be stopped.

Vibration levels; \_\_\_\_\_  
IAS \_\_\_\_\_ kts/mpH  
Approx Yaw Rate \_\_\_\_\_ left \_\_\_\_\_ right  
Rotor rpm \_\_\_\_\_  
Engine rpm \_\_\_\_\_

**7. Functioning Tests**

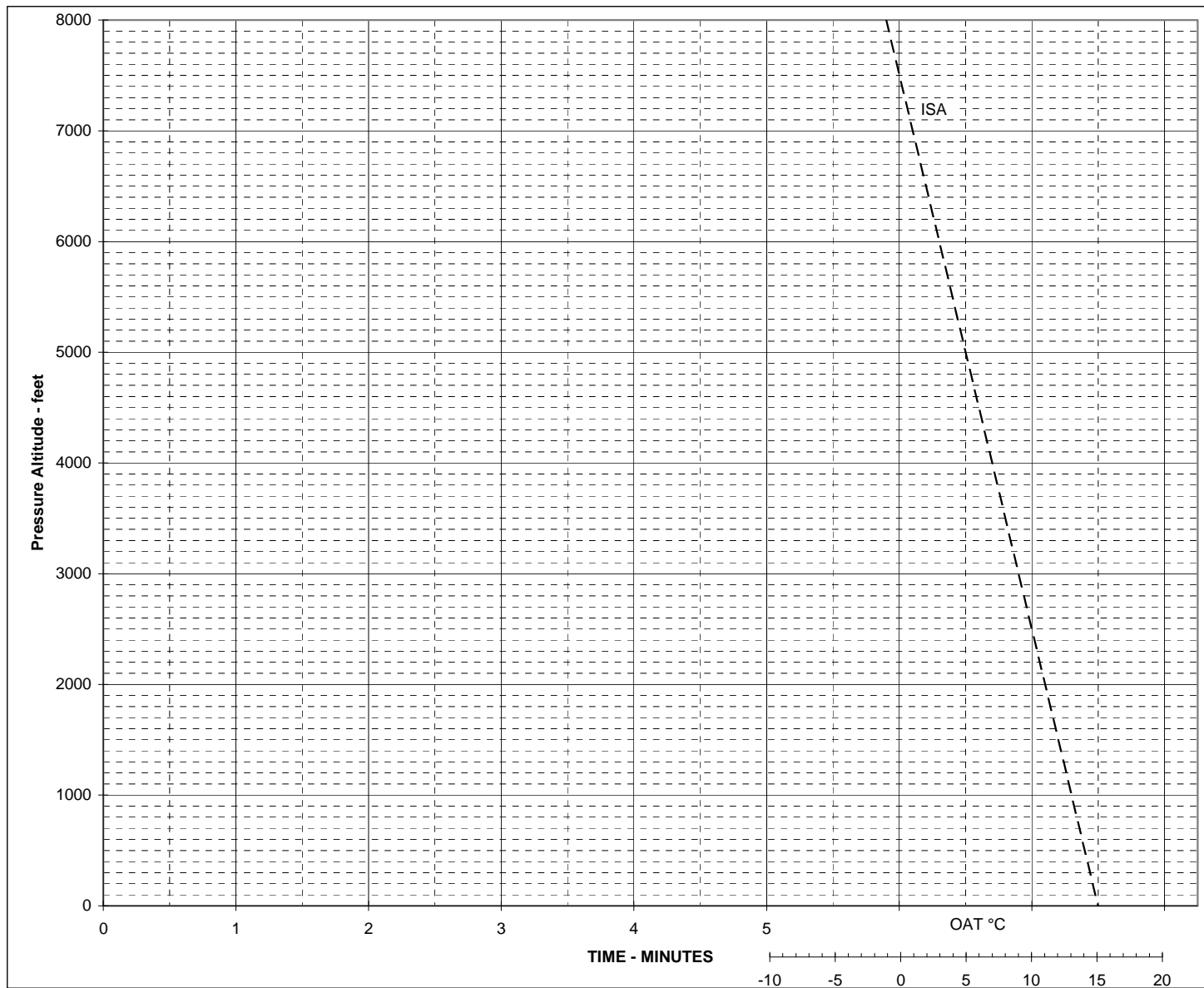
Check the following items at appropriate time during the flight, where applicable.

|   |           |
|---|-----------|
| ASI   | Sat/Unsat |
| Altimeter   | Sat/Unsat |
| Engine rpm tachometer                                       | Sat/Unsat |
| Engine Oil Pressure gauge                                   | Sat/Unsat |
| Engine Oil Temperature gauge                                | Sat/Unsat |
| Rotor rpm tachometer  | Sat/Unsat |
| Compass (check headings if possible)                        | Sat/Unsat |
| Fuel contents gauge   | Sat/Unsat |
| Carburettor hot air system                                  | Sat/Unsat |
| Rotor brake   | Sat/Unsat |
| Drift Indicator   | Sat/Unsat |
| Radio   | Sat/Unsat |
| Landing gear  | Sat/Unsat |
| Variable Pitch Prop   | Sat/Unsat |
| Any other gauge/system including all avionics, list below.. |           |
| _____   | Sat/Unsat |
| _____   | Sat/Unsat |
| _____   | Sat/Unsat |

On touchdown, check that the landing gear functions correctly and, in particular, that there is no nose-wheel 'shimmy'. Sat/Unsat

Estimated landing run, after touchdown \_\_\_\_\_ feet/metres.

**8 Post Flight** Fuel shut off control Sat/Unsat



|                      |
|----------------------|
| <u>AIRCRAFT TYPE</u> |
| <u>REGISTRATION</u>  |
| <u>DATE OF TEST</u>  |

|             |             |
|-------------|-------------|
| Mean Weight | _____ Kg/lb |
|-------------|-------------|

|               |            |
|---------------|------------|
| Mean Altitude | _____ feet |
|---------------|------------|

|          |          |
|----------|----------|
| Mean OAT | _____ °C |
|----------|----------|

|                      |              |
|----------------------|--------------|
| <b>SCHEDULED ROC</b> |              |
| Basic                | _____ ft/min |
| Correction           | _____ ft/min |
| Correction           | _____ ft/min |
| Final SROC           | _____ ft/min |

|              |              |
|--------------|--------------|
| Observed ROC | _____ ft/min |
|--------------|--------------|

|  |              |
|--|--------------|
| Difference from Scheduled                      | _____ ft/min |
| <small>(Observed ROC minus Final SROC)</small> |              |