



FLIGHT TEST SCHEDULE

**NEW BUILDS, MAJOR MODIFICATION,
LAA TRANSFER OR REPAIR**

**LAA/FT- NEW
Issue 8**

A/C Type:	Reg:	Engine:	Gearbox ratio: : 1
Propeller Type/ Designation:		Dia: Inch/mm*	
Fixed pitch propellers. Pitch: _____ inches/mm, or _____ degrees measured at _____ % radius/tip*		In-flight adjustable propellers. Controller Type/Make:	

* Delete as appropriate

WARNING

It is illegal to carry passengers on a test flight without a Permit to Fly in force, except persons performing duties in the aircraft in connection with the flight (normally the pilot and one observer).

Check flights entail greater risk than normal flight, and although it may be legal to carry passengers on a test flight with a Permit to Fly in force, it is strongly recommended that the pilot in command should, before accepting any other persons on a test flight, inform them that the risk is greater than on an ordinary flight.

A full seat harness or a diagonal shoulder strap must be fitted for spinning. A parachute should be worn.

Special Note for First Flights of Series Aircraft built by Amateur Constructors only.

1. The first flight should be approximately 10-20 minutes duration, after which the aircraft should be inspected at all the main attachment points and the engine installation. Repeat the flight until satisfied that the aircraft is flying satisfactorily enough to undertake the test programme without other than strictly necessary maintenance.
2. Before commencing the Flight Test Schedule, the aircraft must be flown not less than five hours total flying time and must include fifteen satisfactory landings. During this total period, one flight of at least two hour's duration, or maximum safe endurance, whichever is the shorter must be made.

1. INTRODUCTION

This schedule is applicable to all aircraft qualifying for issue of a Permit to Fly. It is not applicable to aircraft types not previously LAA approved, for which a separate schedule will be issued.

The intention of this schedule is to allow a general check of an aircraft against the stated operation in the Aircraft Flight Manual (AFM), Pilot's Operating Handbook (POH) or equivalent.

Complete the sections within dashed boxes before commencing the flight test.

It is recommended that the tests are made in the sequence given. The results are to be written in ink in the spaces provided or elsewhere by deleting the appropriate statement.

For safety and legal reasons the aeroplane and its engine are at all times to be operated within the limits stated on the Permit Flight Release Certificate (PFRC), by cockpit placards and instrument colour coding, and by the Aircraft Flight Manual / Pilot's Operating Handbook. The normal operating checks and drills given in the Manual must be followed. Any variations should be investigated prior to submitting the application.

During the flight test, the crew must monitor the behaviour of all equipment and report any unserviceable items. In particular, if the test flight follows maintenance work, it is important to make sure that the items involved function satisfactorily, and that no additional faults have resulted accidentally.

Item 11 (Spinning) must be completed unless the aircraft is prohibited from spinning. This may be performed on a separate flight without an observer (note that weight and centre of gravity (CG) restrictions for spinning certain types mean that spinning must be conducted separately).

2. **GENERAL**

Aircraft Owner:			Aerodrome:		
Aerodrome Elevation:	ft	Aerodrome Temp:	°C	QNH:	mb

Weather significant to tests (eg. Cloud base, wind speed/direction, any turbulence, etc).

3. **LOADING**

Unless it is impractical to do so, the aircraft should be loaded to maximum take-off weight or maximum landing weight if it is lower. Ballast should be used in order to comply with any prescribed loading requirements. Any CG position is acceptable provided that it remains within the limits stated on the PFRC from take-off and throughout the flight as fuel is consumed. *If data entered exceeds the weight or CG position limits stated in the PFRC, this application will fail.*

Max Take Off/ Max Landing Weight (lb/kg)	lb kg	Permissible CG range (in/mm – fwd/aft* of datum)	in Fwd/Aft* mm	in Fwd/Aft* mm
Max Weight for spinning - Utility Category (lb/kg)	lb kg	Permissible CG range (in/mm – fwd/aft* of datum)	in Fwd/Aft* mm	in Fwd/Aft* mm
Take-off Weight (actual) (lb/kg)	lb kg	Take-off CG position (in/mm – fwd/aft* of datum)	in Fwd / Aft* mm	

* Delete as appropriate

If take-off is not at Max Take-Off Weight explain why:

4. **PRE-FLIGHT**

(i) Aircraft conforms to legal requirement to be currently UK registered	YES / NO
(ii) Valid Permit Flight Release Certificate (PFRC)	YES / NO
(iii) Pilot's requirements satisfied	YES / NO
(iv) Third party insurance valid	YES / NO

Check that the following items are on board: -

(v) Shoulder harness installed	SATISFACTORY / UNSAT
(vi) Cabin fire extinguisher	SAT / UNSAT / NOT FITTED
(vii) Placards	SAT / UNSAT

5. **GROUND TESTS**

5.1 **Equipment**

Check the following items for security and correct functioning: -

Safety harness/lap straps	SAT / UNSAT
Door/canopy fastening	SAT / UNSAT
Adjustment of pilots' seats and locking	SAT / UNSAT
Adjustment of rudder pedals and locking	SAT / UNSAT

5.2 **Flying Controls and Engine Controls**

Flying Controls - Check for full and free travel in the correct sense and backlash with harness on and tight: -

Elevator/Stabilizer	SAT / UNSAT	Elevator/Stabilizer trimmer	SAT / UNSAT
Ailerons	SAT / UNSAT	Aileron trimmer	SAT / UNSAT
Rudder	SAT / UNSAT	Rudder trimmer	SAT / UNSAT
Wing flaps	SAT / UNSAT	Slats (including locking)	SAT / UNSAT

Engine Controls (including friction/locking mechanisms)

Throttle	SAT / UNSAT	Carburettor heat	SAT / UNSAT
Propeller pitch	SAT / UNSAT	Cooling flap	SAT / UNSAT
Mixture	SAT / UNSAT	Fuel booster pump	SAT / UNSAT
Fuel selector valve	SAT / UNSAT	Choke	SAT / UNSAT

5.3 Engine Run

The aeroplane should face cross-wind.

If wind strength makes parking cross-wind hazardous, face into wind.

Outside air temperature	°C
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5.3.1 **Magneto check:-** Run engine to normal operating temperature – check RPM, pressures, temps, mag drops, carb heat drop. Check operation of engine and fuel controls.

FROM AFM, POH		MEASURED	
Magneto test RPM or RPM at which tested		No.1 magneto off RPM drop	
Max Drop Permitted		No.2 magneto off RPM drop	
Max Split Permitted		Hot air or Alternate air RPM drop	
Carburettor Hot air or Alternate air test RPM			

5.3.2 Maximum power check

RPM data entered that exceeds the maximum permitted on the Operating Limitations sheet or PFRC will fail the application. It should not be possible to exceed maximum permitted RPM. If it is, then something is wrong – check tach. Otherwise an inappropriate propeller may be fitted.

(FROM AFM, POH)		(MEASURED)	
MAX ALLOWABLE ENGINE RPM		MAX ACHIEVED STATIC RPM	
MAX ALLOWABLE OIL TEMPERATURE	_____ °C _____ °F	ACTUAL OIL TEMPERATURE	_____ °C _____ °F
MIN/MAX ALLOWABLE OIL PRESSURE	/ bar/psi*	ACTUAL MIN/MAX OIL PRESSURE	/ bar/psi*
MAX ALLOWED TEMP (CHT OR COOLANT)*	_____ °C _____ °F	ACTUAL MAX TEMP CHT/COOLANT*	_____ °C _____ °F
MAX ALLOWABLE EGT	_____ °C _____ °F	ACTUAL MAX HOTTEST EGT	_____ °C _____ °F
		MANIFOLD PRESSURE	In/Hg
		FUEL PRESSURE	/ bar/psi*

* Delete as appropriate

6. TAXYING

Parking brake (including Lock and Release)	SAT / UNSAT
Brakes (including freedom from binding and normal ability to hold aircraft at high engine power)	SAT / UNSAT
Taxying (including nose-wheel steering/ tail-wheel steering/differential braking)	SAT / UNSAT

7. **TAKE-OFF:** to be made with full power and flaps (if fitted) at the take-off position.

Wing flap setting	degrees	
Unstick speed	kts	mph
Engine RPM		
Oil Pressure	bar	psi
Oil Temperature	°C	°F
CHT/Coolant Temp	°C	°F

Behaviour during take-off:- Record any abnormal features, eg. unusual tendency to swing, ease or difficulty of raising nose wheel/tail wheel, control forces (including any unusual control forces) or wing heaviness.

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Was artificial stall warner triggered?	YES / NO
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8. **CLIMB**

Flight conditions: Clear of cloud and turbulence and well clear of any hills which could produce wave conditions.

Configuration: Normal for best rate of climb (see Manual).

Power: Maximum Continuous with air intake in 'Cold' or 'Ram' air position.

Altimeter: 1013 mb (29.92 in Hg).

Speed: (IAS) : Scheduled best rate of climb speed (V_y); Establish the aircraft in the climb at best rate of climb speed and maintain heading and speed \pm 2 knots/mph throughout. (From AFM, POH)

Notes:

1. Sustained 5 minute climb is normally required to be carried out to establish adequacy of cooling, proper functioning at altitude and to provide sufficient data points to calculate a reliable rate of climb figure.
2. However, where the rate of climb exceeds 1500 ft/min, or an aircraft with a Cirrus Minor or Gipsy Major engine is fitted, then a 3 minute climb will be accepted.
3. Do not allow engine to exceed limits.
4. A spreadsheet to plot climb performance is available from the flight testing section of the LAA website: if possible, send a copy of the completed plot with this test report.

TIME (min)	ALTITUDE (FT) 1013 mb	IAS knots / mph*	RPM	OIL TEMP °C / °F*	OIL PRESS bar / psi*	CHT/CLNT °C / °F*	EGT °C / °F*
0							
1							
2							
3							
4							
5							

* Delete as appropriate

Towards the end of the climb, record:

MANIFOLD PRESSURE	in Hg	FUEL PRESSURE	bar/psi*
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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.

RPM data entered that exceeds the maximum permitted in the PFRC will fail the application. See 5.3.2 above.

9. **HANDLING**

9.1 **Stalls**

To be made with propeller control fully fine and throttle closed at a safe altitude with wings level and in balance. Trim the aircraft to approximately 40% above stall speed.

Stall	1	2 ⁽¹⁾	3
Landing Gear (unless fixed) Flaps	Up Up	Up Take-Off	Down Landing
Stall warning (knots/mph IAS)			
Type of stall warning (eg horn, lamp, natural buffet etc.)			
Stall (knots/mph IAS)			
Did control column reach back stop?			
Sequence of nose and wing drop (if any)			
Total angle of wing drop (see notes below)			
Other characteristics (eg buffet prior to stall)			

(1) To be made on aeroplanes where a take-off wing-flap setting is specified.

Notes: Deceleration to stall to be at 1 kt/sec (1 mph/sec) until either a clear nose (and/or wing drop) occurs or until full aft stick is reached.

Required limits -

- Stall warning 4 KIAS to 12 KIAS (4 mph to 14 mph) above measured stall speed.
- Wing drop to be contained within 20° of roll (note that it is permissible to use small amounts of aileron).

9.2 **Lateral and Directional Stability**

The aircraft is to be flown at normal approach speed, power off with full flaps. Medium rudder sideslips are to be carried out to port and starboard. The aileron and rudder controls are then to be released in turn and the ability for the down wing to rise and the nose to swing into the turn is to be checked respectively.

	Port Sideslip (port wing low)	Stbd Sideslip (stbd wing low)	COMMENTS
Ailerons released	SAT / UNSAT	SAT / UNSAT	
Rudder released	SAT / UNSAT	SAT / UNSAT	

9.3 **Simulated Baulked Landing.** Set the aircraft in the approach configuration and record behaviour in simulated overshoot.

Engine RPM		Trim changes	
Oil Pressure		Throttle response	

10. **Cruise Checks**

10.1 **Vibration**

Check for signs of vibrations or buffeting throughout the rpm range and in all phases of ground running as well as in flight. This may result if the natural frequency of vibration of the engine on its mount rubbers, or the tail surfaces or fuselage, or of the engine/reduction drive should happen to couple in an unfortunate way with the resonant frequency of the propeller blades in bending, or the aerodynamic buffet coming from the slipstream. It may also indicate that the propeller is out of track or out of balance.

SAT	UNSAT	COMMENTS:
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10.2 **Fast Cruise Condition in Level Flight**

At a constant altitude not above 2000 feet, after at least 2 minutes at each of the throttle settings required (provided that this has no detrimental effect on the engine), record:-

POWER SETTING	RPM	MAN PRESS	IAS kts/mph*	OIL T °C /°F*	OIL P bar/psi*	CHT/CLN T °C/°F*	EGT °C/°F	FUEL FLOW Lit/Gal*/ hr
WOT or MAX RPM								
MAX CONT. or CRUISE								
ECONOMY CRUISE								

* Delete as appropriate

10.3 **Dive to V_{NE}**

THIS TEST MUST ONLY BE FLOWN IN SMOOTH AIR CONDITIONS

The purpose of this test is to demonstrate safe handling of the aircraft at V_{NE} and to check this can be achieved without exceeding max permitted RPM. The V_{NE} speed is stated in the PFRC or Operating Limitations sheet. Never exceed the V_{NE}. Beware of false reading ASI. Airspeed or RPM data entered that exceeds the maximum permitted will fail the application. See 5.3.2 above. It is permitted to conduct the V_{NE} dive solo.

Increase speed up to V_{NE} at shallowest dive angle possible by maintaining sufficient power but keeping RPM within maximum permissible. If any unusual airframe or control vibration is felt, immediately reduce speed by closing the throttle and gradually pulling the control column back. Record:-

Scheduled V _{NE} (from PFRC/Operating Limitations)	knots	mph
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Any unusual behaviour.	
Whether the control forces and responses over small angles are normal.	
Steadiness of propeller governing (if applicable).	
Maximum IAS	knots mph
Record maximum engine RPM	

Regain cruising flight by closing throttle and gradually pulling the control column back. Record:-

Engine behaviour on closing throttle:

SAT / UNSAT

Propeller governing (if applicable):

SAT / UNSAT

11. **SPINS (Applicable only to aeroplanes cleared for deliberate spinning).**

Note that it may not be possible to conduct this item on the same flight as the other items due to loading / CG restrictions. If flown separately:

Date	A/C weight	CG
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A minimum of one spin is to be made in each direction. Recovery should be initiated after two turns.

Direction of rotation	Left	Right
Whether spin or spiral dive		
Turns to recover		
Any abnormality of spin or recovery	SAT / UNSAT	SAT / UNSAT

12 **FUNCTIONING CHECKS**

When appropriate during the flight, check the following: -

12.1 **Flying Controls**

	Friction	Backlash	Are control forces normal?
Elevator/Stabilizer	SAT / UNSAT	SAT / UNSAT	YES / NO
Aileron	SAT / UNSAT	SAT / UNSAT	YES / NO
Rudder	SAT / UNSAT	SAT / UNSAT	YES / NO
Elevator/Stabilizer Trimmer	SAT / UNSAT	SAT / UNSAT	YES / NO
Aileron Trimmer	SAT / UNSAT	SAT / UNSAT	YES / NO
Rudder Trimmer	SAT / UNSAT	SAT / UNSAT	YES / NO

During normal cruise, check that the aeroplane: -

(a)	can be trimmed to fly level	YES / NO
(b)	has no tendency to fly one wing low	SAT / UNSAT
(c)	flies straight with slip indicator central	YES / NO

12.2 **Flight Instruments**

Check for satisfactory functioning. Record unsatisfactory items: -

12.3 **Gyro Instruments**

Check behaviour of gyro instruments. Record unsatisfactory items: -

If air-pump driven, record: -

Press gauge

during cruise at

RPM

12.4 **Other Instruments**

Check for satisfactory functioning. Record unsatisfactory items: -

12.5 **Electrical/Avionics Systems**

Check all electrical and avionics equipment for satisfactory operation and that no equipment, instrumentation or indications are adversely affected due to electromagnetic interference: -

Record generator charging rate under maximum electrical load.

Amps

12.6 **Engine**

Check all indicators, controls and responses to be normal and that there is no undue vibration.

SAT / UNSAT

12.7 Unpowered and Powered Wing-flaps

Confirm no roll induced when operating flaps SAT / UNSAT

Ease of operation at flap limit speed, V_{FE} SAT / UNSAT

12.8 Powered Wing-flaps (Omit for unpowered flaps)

Operate as follows, recording time and any unusual change of longitudinal trim with flap position and any significant change in lateral trim.

12.8.1	Limit Speed	Time	Comments
From Up to Take-off *		(sec)	
From Take-off to Down *		(sec)	

** at about 5 kts/mph below limiting speed for setting.*

If the flap does not move to the full down position: -

- (a) Record angle at which flaps stops

degrees

- (b) With flap selected Down, reduce speed until flap reaches full down position. Record IAS.

knots/mph

12.8.2	Time	Comments
From Down to Take-off †	(sec)	
From Take-off to Up †	(sec)	

† at any convenient speed below limiting speeds.

12.9 Landing Gear - Normal Operation

Power-operated systems - time extension and retraction at limiting speed(s).

From Up to Down

--

 (sec) From Down to Up

--

 (sec)

Manually operated systems - check operation. SAT / UNSAT

Check landing gear unsafe warning. With landing gear retracted, select pitch control fully fine, flaps fully down, close throttle until warning sounds, record: -

RPM

--

 Manifold pressure

--

 in Hg

Confirm warning satisfactory. SAT / UNSAT

12.10 Fuel System

During flight, feed from each fuel tank or source in turn for not less than 3 minutes.

Record: -

System functioning on each tank.
(identify which)

Fuel selector

Fuel gauges

SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT
SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT

13. Radio – Type: (state if not fitted)

Check radio transmit/receive at 20nm distance at a height of 2000 ft above the ground station. At greater heights the range must be correspondingly greater.

Ground Station	Freq	A/C Position and distance from station	Alt	Signal TX	Signal RX

14. Emergency Extension of Landing Gear

(Note: This check should only be conducted if the normal system operation can be restored in-flight.)

Final extension of the gear before landing to be made on the emergency system.

Record operation: - SAT / UNSAT

15. LANDING

With landing gear extended and wing-flaps in the landing position, carry out a normal landing following an approach at the speed specified in the AFM: -

Behaviour during landing:
Record any abnormal features, eg. inability to trim, unusual control forces, difficulty in flaring, 'wheelbarrowing', porpoising or nose wheel shimmy after touchdown.

Was artificial stall warning triggered? YES / NO

16. **POST-FLIGHT**

16.1 **Placards**

Check that all Cockpit, Cabin, Baggage Space and external placards are fitted and legible.

16.2 **Lighting**

Check that all external and internal lighting is serviceable.

16.3 **Check Flight Certificate**

Complete the Check Flight Certificate at the end of this schedule.

INTENTIONALLY BLANK

FLIGHT TEST CERTIFICATE



**NEW BUILDS, MAJOR MODIFICATION,
LAA TRANSFER OR REPAIR**

**LAA/FTC
Issue 8**

Aircraft Type:			
Date:	Pilot:	Observer:	Reg:

Defects

No.	Defect	-/R/FT

(use a continuation sheet as necessary)

Conclusions/Comments

Total time flown:	
2 hour/max endurance flight time: *	
No. of satisfactory landings carried out: *	

I HEREBY CERTIFY that I have flown the above aircraft and that the characteristics are carefully and truthfully recorded. In my opinion this aircraft flies satisfactorily and shows no unsafe or abnormal characteristics and has recorded the flight time and number of satisfactory landings, where appropriate, as above. (* Refer to Special Note 2 on page 1).
I have detailed the deficiencies and unsatisfactory features above. Those items annotated R or FT must be dealt with as shown in the following notes.

Name:	Signed:	Date:	Licence No.:
For LAA Use only	Report Logged by:	Date:	Report No.:

NOTES

General

Pilots using this document should be familiar with the tests and techniques needed.

Reg: Enter the aircraft registration mark.

Pilot: Captain

Airfield: Departure airfield.

Weight: Actual all up weight. Also delete Kg or Lbs as appropriate.

CG: Actual centre of gravity expressed as distance from datum stated on Permit Flight Release Certificate (PFRC).

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 or before the issue of the Permit to Fly should be marked 'R'. Additionally, items that require *re-checking in-flight following rectification* 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.