LAA TYPE ACCEPTANCE DATA SHEET
055
Taylor JT.1 Monoplane

Issue 1	Initial Issue	Dated 08/01/09	FD
Revision A	Update of TADS format	Dated 09/06/20	MR

This TADS is intended as a summary of available information about the type and should be used during the build, operation and permit revalidation phases to help owners and inspectors. Although it is hoped that this document is as complete as possible, other sources may contain more up to date information, e.g. the manufacturer's website.

Section 1 contains general information about the type.
Section 2 contains information about the type that is **MANDATORY** and must be complied with.
Section 3 contains advisory information that owners and inspectors should review to help them maintain and operate the aircraft in an airworthy and safe condition. If due consideration and circumstances suggest that compliance with the requirements in this section can safely be deferred, is not required or not applicable, then this is a permitted judgement call. This section also provides a useful repository for advisory information gathered through defect reports and experience.

Section 1 - Introduction

1.1 UK contact

Mr T Taylor, 79 Springwater Road, Leigh on Sea, Essex, SS9 5BW
Tel: 01702 521484

Website: www.taylortitch.co.uk

1.2 Description

The Taylor Monoplane is a small single-seat low wing homebuilt aircraft of British origin, of conventional all-wood design and construction which has been built in substantial numbers in the UK and abroad. The prototype and one or two early examples were originally fitted with JAP engines, but as these engines became obsolete, they have been replaced with VW units. Aircraft are normally fitted with VW engines of between 1500 and 1834cc capacity. A single UK example has been fitted with a Walter Micron engine.

Note that the only propeller(s) approved for an individual aircraft are those listed on the individual aircraft's Operating Limitations document or in the PTL/1 (Propeller Type List) for the type.

Aircraft are classified as SEP ('Group A') aeroplanes in the UK.

Section 2 – Mandatory information for owners, operators and inspectors

At all times, responsibility for the maintenance and airworthiness of an aircraft rests with the owner. A Condition of a Permit to Fly requires that: *"the aircraft shall be maintained in an airworthy condition".*

2.1 Fast Build Kit 51% Compliance

Not applicable - plans-built aircraft.

2.2 Build Manual

None. Construction drawing set provides all the information required, consisting of the following:

Sheet	*Title*
1	Fuselage general
2	Fuselage details
3	Undercarriage
4	Fuselage
5	Fuel tank
6	Tail unit
7	Flying controls
8	Aileron mechanism
9	Aileron and spar joint details
10	Standard 2-piece wings
10A	Extended centre section
11	Wing section & joint
12	General arrangement 3-view

1 sheet of photographs also included with drawings

Caution – Old issue drawings showed weaker wing spars and other important differences. Ensure latest drawing set in use.

2.3 Build Inspections

Build inspection schedule 1 (wooden aircraft).
Inspector approval codes A-A or A-W Inspector signing off final inspection also requires 'first flight' endorsement.

2.4 Flight Manual

Nil. An information pack available from LAA Engineering includes details of flying characteristics.

2.5 Mandatory Permit Directives

None applicable specifically to this aircraft type.

Also check the LAA website for MPDs that are non-type specific (TL2.22).

2.6 LAA Required Modifications (including LAA issued AILs, SBs, etc)

MOD/055/001 This modification rescinded the previous LAA prohibition on the use of flaps following a satisfactory investigation on G-BDAD. However,

G-BDAD incorporated modified flap linking arrangements and flap operating system. Both features would need to be checked by LAA Engineering on any subsequent example incorporating flaps.

This modification also changed the recommended tail incidence angle to between –2 and –3 degrees relative to the fuselage datum line. Previously the LAA called for a more negative incidence (-2.5 to –5 degrees), this resulted in the elevator not being in line with the tailplane in cruise flight.

This modification sheet supersedes note LAA-55/issue 1 dated 24/8/7

2.7 Additional engine operating limitations to be placarded or shown by instrument markings

Notes:
- Refer to the engine manufacturer's latest documentation for the definitive parameter values and recommended instruments.
- Where an instrument is not fitted, the limit need not be displayed.

With VW:
Max CHT: 225°C
Max EGT: 800°C
Max oil temp: 90°C
Min oil pressure: 2.5 kg/cm² @3000 RPM

2.8 Control surface deflections

Ailerons	Up: 25° Down: Very little due to differential action
Elevators	Up: 25° Down: 25°
Rudder	Left: 30° Right: 30°

2.9 Operating Limitations and Placards

(Note that the wording on an individual aircraft's Operating Limitations document takes precedence, if different.)

1. Maximum number of occupants authorised to be carried: One

2. The aircraft must be operated in compliance with the following operating limitations, which shall be displayed in the cockpit by means of placards or instrument markings:

   2.1 Aerobatic Limitations
   Aerobatic manoeuvres are prohibited.
   Intentional spinning is prohibited.

   2.2 Loading Limitations

Maximum Total Weight Authorised: 700 lbs (735 lbs accepted on some examples.)
CG Range: 11.4 inches to 14.0 inches aft of datum (previous cleared aft cg limit 13.0" AOD. CG positions aft of 13.0" AOD to be explored incrementally and with due care)
Datum Point is: Leading edge of wing.

2.3 Engine Limitations
Maximum Engine RPM: 3300

2.4 Airspeed Limitations
Maximum Indicated Airspeed (V_{NE}): 108 knots
Max Indicated Airspeed Flaps Extended: 69 knots

2.5 Other Limitations
The aircraft shall be flown by day and under Visual Flight Rules only.
Smoking in the aircraft is prohibited.

Additional Placards:

"Occupant Warning - This Aircraft has not been Certificated to an International Requirement"

A fireproof identification plate must be fitted to fuselage, engraved or stamped with aircraft's registration letters.

2.10 Maximum permitted empty weight

Fuel tank contents may vary slightly between examples so it is not possible to define a universal maximum empty weight. With full fuel tank, aircraft must be able to carry a pilot weighing 170 lbs without exceeding max permitted gross weight.

Section 3 – Advice to owners, operators and inspectors

3.1 Maintenance Manual

Nil. In the absence of a manufacturer's schedule, recommend using LAMS schedule.

3.2 Standard Options

- Two piece or three-piece wings, as shown on Taylor drawings.
- Open or enclosed cockpit, as shown on Taylor drawings
- Optional wing flaps as per Taylor drawings (but see section 2.6 above)
- Optional reduced wingspan by 25" per Taylor drawings.
- Several examples have been fitted with cantilever spring type undercarriages rather than the telescopic type shown on the drawings. Several different designs have been used.

3.3 Manufacturer's Information (including Service Bulletins, Service Letters, etc)

None known.

3.4 Special Inspection Points

- Suitable choice of aircraft steel for manufacturing fittings. Early drawings specified strength figures only. Later drawings specify 4130N material. One aircraft was built with S515 material for wing attach fittings and due to the material not being heat treated to high strength S514 condition, wing lug came very close to failing in flight.
- With VW engine, design of conversion to be agreed with LAA Engineering as there is no standard design of VW conversion. 'Peacock' VW conversion drawings are available from LAA Engineering, but these drawings are now many years old and not all parts called up are still available. Dual ignition system (of an accepted type) required. LAA VW Engine Build checklist to be completed during build-up of engine to record critical measurements. Refer to SPARS section on VW engines. Oil cooler may be required, and careful ducting to achieve adequate cylinder cooling. Compression ratio must be set up (usually no more than 8.0:1) using choice of cylinder base shims if required. With 1834cc conversions, failing to use base shims usually results in excessively high compression ratio and consequent excessively short engine life.
- With VW conversion, if gravity feed is used, check gravity flow from downstream side of carburettor float valve (by removing float chamber bowl or float chamber drain plug) rather than at carburettor fuel inlet. If an automotive carburettor (e.g. Stromberg CD150) is used with gravity feed, the carburettor float valve is often found to provide inadequate or very marginal flow. This is because automotive carburettors are set up for use with a pump-fed installation not gravity feed. The fuel pressure from a pump allows a carb float jet of only about 1.5 mm diameter to be used, this restricts the flow too much with the much lesser fuel pressure in a typical gravity fed system. This is a common cause of lean running and engine failure. This is cured by fitting a larger diameter jet to the float valve, (typically 2.5 to 3mm diameter) or carefully opening up the existing jet and lapping it in with a household brass polish
- With VW engine, quality of fit of propeller hub on crankshaft nose is critical to security of propeller mounting in flight.
- Builder interpretation of areas which are sparsely detailed on the drawings, such as canopy hinges, canopy latches, fuel tank, engine controls, exhaust system, cowlings, wheel brakes, cockpit harness, flap system etc. Due to the lack of details on the drawings, inspectors must ensure that these areas are dealt with in accordance with normal light aircraft design practises. Refer to Bingelis's books 'Firewall Forward', 'The Sportplane Builder' and 'Sportplane Construction Techniques' for examples of standard aviation practises. If in doubt, consult LAA Engineering for advice.
- Adequacy of harness attachment points which are sparsely detailed on drawings. Refer to additional LAA information sheet on harness attachments to wood airframes.
- Adequacy of flap linking arrangement and flap operating system, both of which were changed on G-BDAD, the first UK example to be accepted with flaps.
- Ensure that friction is minimised in the flying control system otherwise the very light control forces are likely to be masked by friction, degrading the handling characteristics. Proper attention to lubricating hinges and careful setting of control cables tensions required to give optimum results.
- Careful jigging of wings and centre section is required to achieve proper line-up of wing attach bolts and to avoid building warps into the wings during construction.

3.5 Operational Issues

- Ensure satisfactory engine cooling.

Safety Spot references

The following *Safety Spot* articles are relevant to this type:

Light Aviation Mar 2011	*Taylor JT1 Monoplane*
Light Aviation Feb 2010	*Taylor Monoplane: Cylinder head failure.*

3.6 Standard Modifications

None

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Please report any errors or omissions to LAA Engineering: engineering@laa.uk.com