LAA TYPE ACCEPTANCE DATA SHEET TADS 055

TAYLOR JT-1 MONOPLANE

Issue 1 Initial Issue dated 8.1.07

1. UK contact

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

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 is normally fitted with VW engines of between 1500 and 1834cc capacity. A single UK example has been fitted with a Walter Micron engine.

3. Fast Build Kit 51% Compliance

Not applicable – plans built aircraft.

4. Build Manual

Nil. Construction drawing set provides all required information, 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 (3 piece wing)
11	Wing section and 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.

5. 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

6. Maintenance Manual

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

7. Flight Manual

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

8. Mandatory Permit Directives

None applicable specifically to this aircraft type, but note

MPD: 1998-019-R1 Flexible Fuel Tubing Applies to all permit aircraft

9. LAA Mandatory Modifications

MOD/055/001This modification rescinded the previous LAA prohibition on the use of flaps following a satisfactory investigation on G-BDAD.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 supercedes note LAA-55/issue 1 dated 24/8/78

10. Service Bulletins

Nil known

11. Accepted 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 9 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.

12. 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 being not 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 sparcely 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 sparcely 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.

13. Operating Limitations and Placards

Maximum number of occupants authorised to be carried: One
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:

Aerobatic Limitations

Intentional spinning is prohibited
Aerobatic manoeuvres are prohibited

Loading Limitations

Maximum Total weight Authorised: 700 Lbs (735 Lbs accepted by LAA 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

Engine Limitations

Maximum Engine RPM: 3300

Airspeed Limitations

Maximum Indicated Airspeed: 108 kts
Maximum Indicated Airspeed with flaps extended: 69 kts

Other Limitations

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

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

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

14. Additional Engine Limitations/Placards

With VW:
Max CHT: 225C Max
EGT: 800C Max
Oil temp: 90C Max
Oil pressure Min 2.5 Kg/sq cm @3000 RPM

15. 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.

16. Special Test Flying Issues

Satisfactory engine cooling

17. Control surface deflections

Ailerons	Up:	25 degrees
	Down:	'very little' due to differential action
Elevators	Up:	25 degrees
	Down:	25 degrees
Rudder	Left	30 degrees
	Right	30 degrees

18. Significant Airworthiness Approval Notes

LAA-055-483 Incorporation of flaps, altered tailplane incidence, 735 Lbs max gross weight

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Approved :

F.R.Donaldson
Chief Engineer

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