



RECREATIONAL AVIATION AUSTRALIA INC

3 December 2013

RECREATIONAL AIRCRAFT AIRWORTHINESS NOTICE

AIRWORTHINESS NOTICE IDENTIFICATION NUMBER – AN021213

MODELS AFFECTED - Thrusters TST and T300 Models

To: All owners of RA-Aus registered Thrusters 25 registered TST and T300 aircraft models.

Background: A recent audit has highlighted the possibility of TST and T300 Thrusters aircraft models that, over the years, have had engine changes from the early Rotax 503 to 532 and 582 engines without obtaining the appropriate engineering orders to approve the modifications.

Overview:

The RA-Aus Tech team is working on a Tech manual re-write to be forwarded to CASA for review. Amongst many other changes, we will be including engineering processes to address the requirement for ongoing engineering approvals and to capture and approve the missing engineering DATA to gain compliance.

Action Required:

1. If your aircraft is otherwise compliant with the attached CAA UK Type certificate, then there is no further action required on your part. Your aircraft will be re-registered.
2. If your aircraft has undergone an engine change or modification, then Details of the modification must be forwarded to the Tech manager for consideration and review to determine the registration renewal requirements (if any).

NOTE: The RA-Aus Technical Manager may at any time consider grounding an aircraft if suitable engineering measures cannot be reached.

If you require any other information please contact the RA-Aus Technical Manager by phone 02 6280 4700 or by email tech@raa.asn.au

Darren Barnfield
Technical Manager

Defect Reporting is one of the primary ways we have in ensuring continued safety in our operations.



TYPE: Thruster T300

- (1) MANUFACTURER: Tempest Aviation (UK)
Continued Support: Thruster Aircraft LLP
North Hanger
Wickenby Airfield
Langworth, Lincolnshire
LN3 5AX
- (2) UK IMPORTER: N/A
- (3) CERTIFICATION: BCAR Section S Advance Issue March 1983 plus
paper D37/112/1 dated 11th October, 1988
- (4) DEFINITION OF BASIC STANDARD: Thruster T300 Mk 1 Master G/A Drawing 05-005
1.2, Issue 1 dated 6.9.1988 and Drawings list Form
F33A latest issue 26.2.1991
- (5) COMPLIANCE WITH THE MICROLIGHT DEFINITION

	401 Basic	401 Basic Aerofoil Strut	251 Basic Aerofoil Strut	251 Basic Aerofoil Strut Wide Ailerons	
(a) MTOW	361	380	380	390	
(b) No. Seats	2	2	2	2	
(c) Maximum Wing Loading	25	25	25	25	kg/m ²
(d) V _{so}	32	32	32	32	kn CAS
(e) Permitted range of seat loading*	55-86	55-86	55-86	55-86	kg per seat
(f) Typical Empty Weight (ZFW)	174	182	190	200	kg
(g) Max ZFW + 172 kg crew + 1 hr fuel (18litres / 13kg)	361	369	370	370	
(h) Max ZFW + 86 kg pilot + full fuel (18litres / 13 kg)	288	308	297	307	
(i) Max ZFW at initial permit issue	176	195	195	203	

* Note It is the Pilot's responsibility that the aircraft is not flown outside the permitted MTOW



CIVIL AVIATION AUTHORITY – SAFETY REGULATION GROUP

MICROLIGHT TYPE APPROVAL DATA SHEET (TADS)

NO: BM 34 ISSUE: 9

(6) POWER PLANTS

Designation	<i>T300 MK 1</i>	<i>T300 MK 1</i>	<i>T300 MK 1</i>	<i>T300 MK 1</i>	<i>T300 MK 1</i>	<i>T300 MK 1</i>	<i>T300 MK 1</i>	<i>T300 MK 1</i>
Engine Type	<i>Rotax 503 2v FA SS or DCDI- 2V</i>	<i>Rotax 532 2v</i>	<i>Rotax 582 2v</i>	<i>Rotax 503 2v FA SS</i>	<i>Rotax 503 2v DCDI</i>	<i>Rotax 532 2v</i>	<i>Rotax 582 2v DCDI</i>	<i>Rotax 503 2v FA SS or DCDI- 2V</i>
Reduction Gear	<i>B-Type 2.58:1</i>	<i>B-Type 2.58:1</i>	<i>B-Type 2.58:1</i>	<i>B-Type 2.58:1</i>	<i>B-Type 2.58:1</i>	<i>B-Type 2.58:1</i>	<i>B-Type 2.58:1</i>	<i>B-Type 2.58:1</i>
Exhaust System	<i>Rotax straight. No After Muffler</i>	<i>Rotax straight. No After Muffler</i>	<i>Rotax straight. After Muffler Optional</i>	<i>Rotax straight. After Muffler Optional</i>	<i>Rotax straight. After Muffler Optional</i>	<i>Rotax straight. After Muffler Optional</i>	<i>Rotax straight. After Muffler Optional</i>	<i>Rotax straight. After Muffler Optional</i>
Intake System	<i>Air Filter</i>	<i>Air Filter</i>	<i>Air Filter</i>	<i>Air Filter</i>	<i>Air Filter</i>	<i>Air Filter</i>	<i>Air Filter</i>	<i>Air Filter</i>
Propeller Type	<i>Catto 2 Blade Catto or GSC 3 Blade</i>	<i>Catto 2 Blade Catto or GSC 3 Blade</i>	<i>Catto 2 Blade Catto or GSC 3 Blade</i>	<i>Brolga 3 Blade</i>	<i>Brolga 3 Blade</i>	<i>Brolga 3 Blade</i>	<i>Brolga 3 Blade</i>	<i>Brolga 2 Blade</i>
Propeller Dia x Pitch	<i>64" x 37" 64" x 30"</i>	<i>64" x 42" 64" x 36"</i>	<i>64" x 42" 64" x 36"</i>	<i>68" x 09°</i>	<i>60" x 16°</i>	<i>68" x 12°</i>	<i>68" x 12°</i>	<i>68" x 13°</i>
Noise Type Cert No.	<i>44M</i>	<i>44M</i>	<i>44M</i>	<i>44M</i>	<i>44M</i>	<i>44M</i>	<i>44M</i>	<i>44M</i>
AAN approving configuration	<i>21883 23586</i>	<i>21883 21885 23586</i>	<i>21883 21885 23586</i>	<i>21883 25244</i>	<i>21883 25244</i>	<i>21883 21885 25244</i>	<i>21883 23586 25244</i>	<i>21883 25244 26863</i>

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MICROLIGHT TYPE APPROVAL DATA SHEET (TADS)

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(7) MANDATORY LIMITATIONS:

	<u>Basic</u>	<u>+ Airfoil</u>	<u>Airfoil + Wide Ailerons</u>	
(A) Max Take-Off Weight	361	380	390	Kg
(B) CG Limits	Aft Limit: 500 mm Aft of datum FWD Limit: 390mm Aft of datum			
(C) CG datum	Front of wing leading edge tube (see annex C).			
(D) Cockpit Loadings	<u>Port</u>	<u>Starboard</u>	<u>Total</u>	
	Min 55	- 0	kg	
	Max 90	- 90	kg	
(E) Never Exceed Speed	80 KIAS			
(F) Manoeuvring Speed	70 KIAS			
(G) Permitted Manoeuvres	30° Nose up / 30° nose down Non Aerobatic Normal acceleration limits, +4 / -2g			
(H) Fuel Contents (Max Useable)	25 lt or 39.8lt Depending on tank fitted			
(I) Power Plant	See Table			

Engine	<i>Rotax 503 2v FA SS and DCDI-2V</i>	<i>Rotax 532 2v</i>	<i>Rotax 582 2v DCDI</i>	
Max RPM	6800/6500*	6800/6500*	6800/6500*	
MAX CHT	250°C(480°F)	-na-	-na-	
MAX EGT	650°C (1200°F)	650°C (1200°F)	650°C (1200°F)	
Fuel Spec	83 MON or 90 RON minimum unleaded to BS(EN)228 or 97+ octane 4-star /MOGAS leaded fuel to BS 4040, or AVGAS 100LL.			
Engine Oil Spec	Two stroke	Two stroke	Two stroke	
Gearbox oil spec	SAE 140-API-GL5	SAE 140-API-GL5	SAE 140-API-GL5	
Fuel/Oil Mix	50:1	50:1	50:1	
Coolant Temperature	-na-	80°C(175°F)	80°C(175°F)	
Oil Pressure	-na-	-na-	-na-	
Oil Temperature	-na-	-na-	-na-	
Fuel Pressure	-na-	-na-	-na-	

* Brolga Propeller Limitation

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(8) INSTRUMENTS REQUIRED:

ASI	Altimeter	RPM	CHT / EGT	Compass	Coolant temp	Fuel Pressure	VSI	Slip ball
Required 0 to 100 kts	Required	Required	Required	Optional	Water cooled only	-na-	Optional	Optional

(9) CONTROL DEFLECTIONS: (3- AXIS SYSTEMS)

Elevator UP:	30°+/- 2°	Tailplane trim UP:	-na-
Elevator DOWN:	30°+/- 2°	Tailplane trim DOWN:	-na-
Ailerons UP:	40°+/- 2°	Rudder LEFT:	25°+/- 2°
Ailerons DOWN:	30°+/- 2°	Rudder RIGHT:	25°+/- 2°

(10) PILOT'S NOTES, MAINTENANCE MANUALS REFERENCES:

10.1 Manuals approved for use with this aircraft.

Thruster T300 Pilots and Operators Handbook Part No. 210-051

- (a) * Change Sheet 2 is required with Brolga propellers.
- (b) * Change Sheet 4 is required for Ultralam Coverings

10.2 The following placards are to be fitted:-

- (a) Flight Limitations Placard (to be visible to pilot)
See Annex D.
- (b) Engine Limitations Placard (to be located near to engine instruments)
See Annex D.
- (c) Fuel Limitations Placard (to be located near to filler cap)

A placard is to be fitted showing fuel capacity (litres), fuel type(s), fuel:oil ratio (if relevant) and if MTOW can be exceeded with full fuel and maximum cockpit weight, the fuel loads at MTOW for cockpit weights of 180kg / 170kg / 160kg etc. at 10kg intervals down to the maximum fuel load. An example is shown at Annex D.

- (d) Switches
See Annex D.

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Issue History

<u>Issue No.</u>	<u>Reason and signatory</u>
1	22/08/03 Initial Issue F J TUCKER
2	28/11/90 F J TUCKER
3	22/08/95 Alternative engine added. Alternative propeller added. Service Bulletin TAS/SB02 for return to compliance with BCAR Section S added, together with alternative fuel tanks, modified area accounting with wing aerofoil lift struts, and wide chord ailerons together with permission to use 86 kg per occupant allowed increase in MTWA. A C LOVE
4	13/06/97 Propeller options (with 6500 rpm limit) added to Modification TAS 004 (AAN 25244). A C LOVE
5	10/05/99 Propeller option added to modification TAS 009 (AAN 26863). A J MAXWELL
6	15/06/99 Alternative material for wing and empennage skins - modification TAS 010 (AAN 26144) A J MAXWELL
7	03/09/03 Revised to new format A J MAXWELL
8	06/11/07 Editorial Corrections A J MAXWELL
9	05/05/12 Editorial Corrections, Corrections to Cockpit Loading, Control Deflections, AAIB Safety action addition of “Area Of Special Attention” ANNEX E


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CIVIL AVIATION AUTHORITY – SAFETY REGULATION GROUP

MICROLIGHT TYPE APPROVAL DATA SHEET (TADS)

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Illustration of Aircraft - 3 View

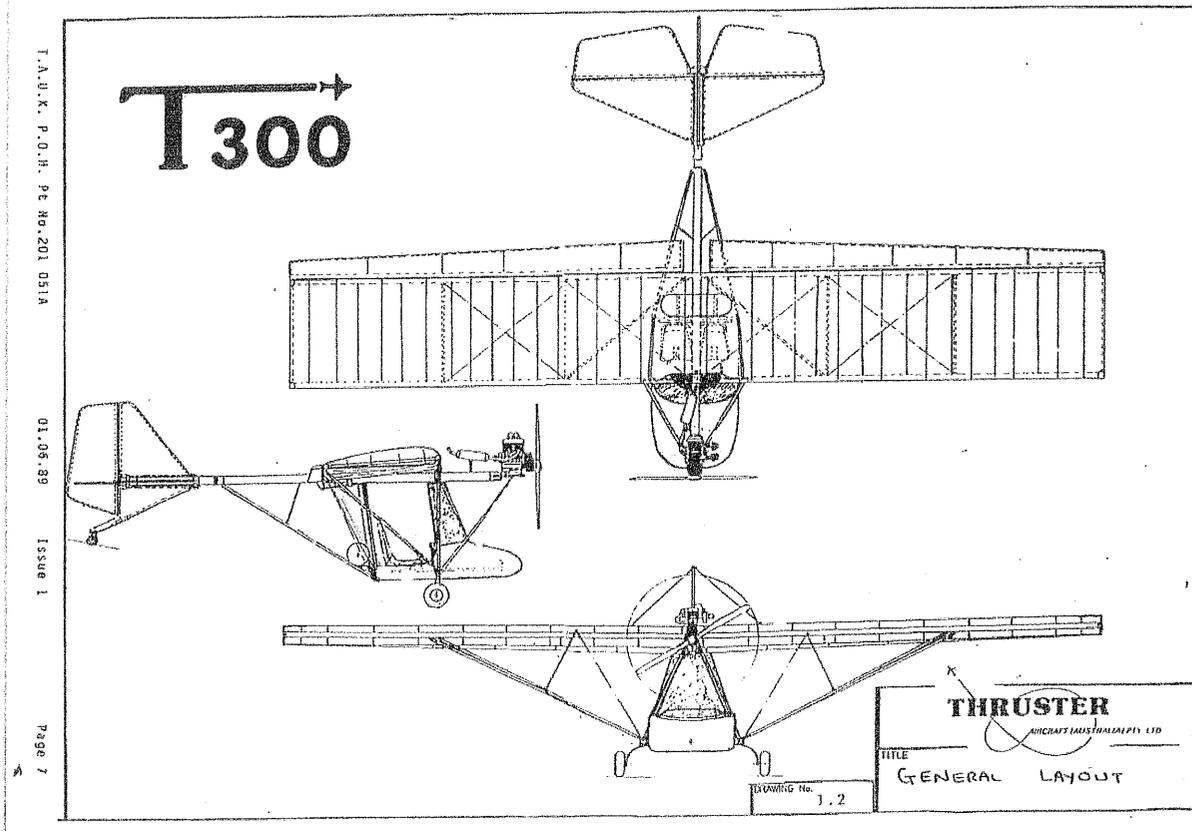


Illustration of Aircraft - Photograph

Picture to follow

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ANNEX A – MANDATORY MODIFICATIONS

1. TAS/SB02 Issue 1 Return to compliance with BCAR Section S

Note: A definitive list of Mandatory actions is to be obtained by reference to CAA published Mandatory Permit Directories. The list on this TADS is not necessarily up-to-date. Also see Thruster website @ www.thruster.co.uk for latest information

ANNEX B - APPROVED OPTIONAL MODIFICATIONS

Below is a list of minor modifications approved by Thruster Air Services. The installation of all optional modifications is to be inspected by a BMAA inspector and an entry made in the appropriate logbook(s). *Note that other approved modifications may exist which are not listed here. Also see Thruster website @ www.thruster.co.uk for latest information.*

<u>Thruster Mod</u>	<u>Date</u>	<u>Title</u>
TUKM-001		Rear fuselage boom brace tubes
TUKM-002		Revised Rudder Pedal assy
TUKM-003		Introduces steel tube tail plane assy
TUKM-004		Ground Adjustable seat
TUKM-005		Angles rear “A” Frame
TUKM-006		Change to Control Stick Ali to Steel
TUKM-007		Details of Aileron root and tip fittings
TUKM-008		Details changes to wing Jury struts
TUKM-009		Detail changes to Throttle lever system
TUKM-10		Introduction of Ali instrument Panel
TUKM-011		Introduce extra stiffening sleeve Wing Bay
TUKM-012		Introduce Separate exhaust mounting Brkt
TUKM-21-032		Mod to main axle and spring
TUKM-21-033		Detail change to rear jury strut
TUKM-21-034		Revised Tailwheel steering
TUKM-21-035		re-Rout Ruder Cables
TUKM-21-036		Improve Throttle Torque Tube
TUKM-21-037		Changes to main “A”frame/Fuse Brkt
TUKM-21-038		Introduce Ali fuel Tank
TUKM-21-041		Overhead Instrument Panel
TUKM-21-044		Subframe and seat rail changes
TUKM-21-045		Elevator Crank Improvement
TUKM-22		Electric Start Facility

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<u>Thruster Mod</u>	<u>Date</u>	<u>Title</u>
91/01	17/07/1991	Aluminium Fuel Tank
91-02		Cockpit Pod new style
91-03		Cockpit Sub assy
91-04		Aileron Torque Tube
TAL-01		Catto 3 blade Propeller
TAL 03-3	12/02/1992	Rotax Exhaust After Muffler
TAL 03-9	12/02/1992	GRP Wheel Spats
TAL 03-20	12/02/1992	GRP Wing Tip Cap
TAS 010	10/07/1997	Ultralam Wing Skins
TAS 013	02/12/1997	Ivo Prop Installation
TAS 015	29/09/1997	Disabled Person Mod “Crip Kit”
TAS 017	10/09/1998	Fitting Back and Doors TST
TAS 030	01/03/2004	Carburettor Inlet Heater
TAS 031	01/03/2004	Wing Strobe Lights
TAS 034	01/03/2004	Battery Isolator Switch
TAS 037	01/03/2004	Wider Nose Wheel

ANNEX C

WEIGHING INFORMATION

1. CG Datum: Front of Wing Leading Edge Tube
2. Weighing attitude: Wings and Fuselage Level
3. Mainwheel moment arm: 31.5mm Aft of Datum
4. Tailwheel moment arm: 4075 (mm) (Aft) of datum
5. Fuel moment arm: 1030 (mm) (Aft) of datum
6. Crew moment arm: 410 (mm) (Aft) of datum (Front Seat position)
448 (mm) (Aft) of datum (Mid Seat Position)
486 (mm) (Aft) of datum (Rear Seat Position)
7. Crew weights: Minimum 55 kg / maximum 86 kg
(maximum reducible, not below 86 kg, if required)
8. Aft CG Limit: 500 (mm) (Aft) of datum
9. Fwd CG Limit: 390 (mm) (Aft) of datum

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ANNEX D
EXAMPLE PLACARDS

(a) Flight Limitations Placard (to be visible to pilot)

	<u>[Type]</u>	<u>[Engine]</u>	<u>[Registration]</u>
Never Exceed Speed:		80	KIAS
Manoeuvring Speed :		70	KIAS
Stall Speed:		32	KIAS
Best climb speed:		50	KIAS
Best glide speed:		45	KIAS
Pitch Limits:		30° nose down, 30° nose up.	
Bank angle limits:		+/- 60°	
Maximum Stall entry rate:		1 kn/s	
Normal Acceleration Limits:		+4 / -2g	
Empty Weight:		164 kg *	
Max Take-Off Weight:		361, 380 or 390kg	
Minimum Cockpit Weight:		55 kg	
Maximum Cockpit Weight:		86 kg in each seat.*	
Aerobatics and deliberate spinning prohibited.			

* This must match the most recent W&CG report for the aircraft.

(b) Engine Limitations Placard (to be located near to engine instruments))

A placard showing the limitations for all indicated engine parameters is to be mounted close to the engine instruments. This requirement need not be complied with for limitations shown as coloured markers (red for danger, amber for caution) on the instrument displays.

(c) Fuel Limitations Placard (to be located near to filler cap)

<u>FUEL</u>	
Capacity * Litres	
50:1 2 Stroke oil	
<u>Cockpit Weight (kg)</u>	<u>Max. Fuel Load (litres)</u>
180	
170	
....	
.... Or below	Full fuel
83 MON or 90 RON minimum unleaded to BS(EN)228 or 97+ octane 4-star / MOGAS leaded fuel to BS 4040, or AVGAS 100LL	

* Depending on Fuel Tank Fitted

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(d) Switches

All switches are to be marked with function and sense (up=on, down=off).

ANNEX E

Areas for Special Attention During Inspections

1. Carburettor Heating System to minimise risk of Carburettor Icing. An accident caused by Carburettor Icing has been reported which was due in part to the Electric Carburettor Heating system being fitted on the inlet of the Carburettor rather than the outlet in the vicinity of the butterfly valve. Check that the installation is correct and operational.