



**LAA TYPE ACCEPTANCE DATA SHEET**  
**TADS 193**  
**RANS S4 AND S5**

Issue 2			
Revision A	New format. Change of UK agent contact details.	Dated 03/02/21	JV

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

Skycraft Ltd., Riverside House, Bloodfold Farm, Ravens Bank, Holbeach, PE12 8SR.

Tel: 01406 371779  
Email: [sales@sky-craft.co.uk](mailto:sales@sky-craft.co.uk)  
Website: [www.sky-craft.co.uk](http://www.sky-craft.co.uk)

### 1.2 Description

The Rans S4 and S5 are very simple high-wing, single-seat microlights with an enclosed cockpit, and are available in kit form for amateur construction from Rans Inc of Kansas, and was formerly distributed by Sportair UK at Felixkirk. The Rans dealership has now been taken over by Skycraft.

The airframe is mainly of bolted and riveted aluminium tube construction. The entire airframe is covered by pre-sewn stitched Dacron envelopes. The Rans S4 and S5 are essentially identical except that the S4 has a tailwheel undercarriage while the S5 has a nosewheel undercarriage. The only engine model currently approved in the UK for use in the S4 and S5 is the Rotax 447.

Most Rans S4 and S5 aircraft built in the UK have utilised the Rans 'B wing'. The Rans S4 (C Wing) is a variant of the Rans S4 having a wing of greater chord, relatively larger span ailerons and smaller flaps. G-MYWV is the only UK built example of the Rans S4 or S5 to feature a C type wing. The B wing is no longer in production.

The chord of the B wing is 49", while the C wing's chord is 54". The wing leading edge tube is attached at the same position on the fuselage irrespective of the type of wing, but the rear spar attachment to the fuselage boom tube is moved aft 5" to accommodate the increased spar spacing on the C wing. Ailerons and flaps on the C type wing are of equal spanwise length. On the B wing the flaps are approximately 20" longer than the ailerons.



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The majority of the Rans S4 and S5 aircraft were built in the UK in the late 1980s or early 1990s. According to Rans, various changes have been made to the Rans S4 and S5 since 1993 when the last kit was supplied to a UK builder. These include changes to the doors, fuel tanks, wing tip ribs, wing tensioning rib, introduction of tailcone side channels, lengthened engine mount and cowling. These changes need to be investigated during the build of any subsequent imported kit.

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.

### **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

The contents of the standard kit is accepted as compliant with the 51% 'major portion' requirements on the basis that it is the same kit standard that has been accepted as 51% compliant by the FAA.

#### 2.2 Build Manual

Rans provide a comprehensive build manual for the S4 and S5.

#### 2.3 Build Inspections

Build inspection schedule 9 (tubular aircraft).  
Inspector approval codes A-A, A-M, K or M. Inspector signing off final inspection also requires 'first flight' endorsement.

#### 2.4 Flight Manual

A set of pilot's notes for the Rans S4 and S5 are included in the build manual.

#### 2.5 Mandatory Permit Directives

Applicable specifically to this aircraft type:

[2003-016](#) Revised seat suspension

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



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

Five modifications were required by the LAA for acceptance of the type in the UK, as follows:

<a href="#">MOD-193-001</a>	Fuel system mods
<a href="#">MOD-193-002</a>	Fire precautions
<a href="#">MOD-193-003</a>	Placards
<a href="#">MOD-193-004</a>	Airframe mods

In addition, following a fatal accident in the 1980s, compliance with Rans SB 08289-01 was mandated by LAA. This service bulletin introduced a pair of rollers alongside the cantilevered sliding shaft at the forward end of the elevator pushrod, to prevent it bending under pilot effort loads and prevent possible jamming of the elevator controls.

In-service bulletins:

<a href="#">MOD-193-005</a>	Seat suspension cable (MPD 2003-016 refers)
<a href="#">MOD-193-006</a>	Inspections of tail bracing wire attachment tangs

### 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.

### 2.8 Control surface deflections

TBC

### 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

The aeroplane is permitted to fly only for non-aerobatic operation. In this context, non-aerobatic operation includes:

- i) any manoeuvre necessary for normal flying.
  - ii) intentional stalls from level flight.
  - iii) steep turns in which the angle of bank does not exceed 60 degrees.
- Intentional spinning is prohibited.



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- 2.2 Loading Limitations  
Maximum Total Weight Authorised: 587 lbs  
CG Range, B wing: 58.5" to 62.0" aft of datum (originally cleared with 61.0" aft limit)  
CG Range, C wing: 60.0" to 62.5" aft of datum  
Datum Point is: rear face of propeller
- 2.3 Engine Limitations  
Maximum Engine RPM: 6800
- 2.4 Airspeed Limitations  
Maximum Indicated Airspeed ( $V_{NE}$ ): 80 mph  
Max Indicated Airspeed Flaps Extended: 50 mph
- 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.

As a microlight aircraft, additional microlight weight placard must be fitted as described in TL 2.11/3.16 regarding empty weight and payload.

**2.10 Maximum permitted empty weight**

180 kg (398 lbs) with full fuel

Due to differing fuel tank capacities, max permitted empty weight varies from one example to another. It is therefore necessary to specify max permitted weight with no pilot but all fuel tanks full.

Fuel tank(s) must be sufficient in capacity to allow an hour's flying at max continuous power. With a Rotax 447 this is a minimum of 11 kg of fuel (3.5 imp gallons).

**Section 3 – Advice to owners, operators and inspectors**

**3.1 Maintenance Manual**

Nil. In the absence of a manufacturer's maintenance schedule for the airframe a customised version of the LAA Generic Maintenance Schedule should be used. Further information on maintenance schedules can be found in the [Aircraft Maintenance](#) section of the LAA website. Refer to build manual for rigging instructions.

**3.2 Manufacturer's/Standard Options**

Optional additional overhead fuel tank in fuselage.



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

In the absence of any over-riding LAA classification, inspections and modifications published by the manufacturer should be satisfied according to the recommendation of the manufacturer. It is the owner's responsibility to be aware of and supply such information to their Inspector.

SB 012390-03	Control linkage rod end connectors
SB 82091-011	Saddles – incorrect stand-off dimension
SB 061291-01	Pulley cable keepers
SB 092190-01	Lock rings on tail cable turnbuckles
SB 092090-01	Elevator hinge bolts
SB 082890-01	Elevator control – addition of rollers
SB 113	Longeron/main gear attachment point reinforcement
Assembly-Alert 135	Wing flap compression tube, incorrect bolt holes
Assembly-Alert 133	Expansion of rotationally moulded fuel tank
Assembly-Alert 125	Fuel cap venting
Assembly-Alert 109	Aft lift strut shim

3.4 Special Inspection Points

- Fabric life is limited and strength can degrade quite rapidly under adverse conditions particularly on surfaces exposed to sunlight. The Bettsometer is standard device for assessing fabric strength.
- A fatal accident with a Rans S4 occurred due to the control system jamming in the down elevator position, as a result of which Rans issued a service bulletin which introduced a mandatory safety modification, SB#08289-01 which added rollers to the sliding shaft of the elevator pushrod to prevent it becoming bent under maximum pilot effort loads. It is essential to ensure that the rollers remain fitted throughout the operational life of the aircraft.
- Check bracing wire attachment tangs carefully for signs of cracking in service, particularly on tail bracing wires, see MOD/193/006.

3.5 Operational Issues

The Rans S4 and S5 have been assessed as possessing adequate handling characteristics but it was found that the longitudinal static stability of the aircraft at the aft cg limit becomes essentially neutral at the high speed end of the envelope if the aircraft is trimmed to an unusually high speed cruise condition. Stability is positive at approach and climb out speeds and normal cruise speed. The trim range is restricted and the aircraft cannot be trimmed for high speed cruise at aft cg positions. This has been assessed as similar to many other microlight aircraft and adequate for this class of aircraft.

*Safety Spot* reference

The following *Safety Spot* articles are relevant to Rans S4/S5 aircraft:

*Light Aviation* [August 2010](#) *Blocked fuel outlet*

Fuel tank outlet partially blocked by residue.



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3.6 Standard Modifications

None

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Please report any errors or omissions to LAA Engineering: [engineering@laa.uk.com](mailto:engineering@laa.uk.com)