LAA TYPE ACCEPTANCE DATA SHEET
TADS 339
VANS RV-10

Issue 7	Addition of Vans SBs. Amend UK RV Sqn contact, added more engine options and hyperlinks, further standard option added, aileron RoM amended, update maintenance section 3.1, reformat sections 3.2 and 3.3, added info to section 3.4, ICA updated	Dated 18/11/20	JP
Revision A	Addition of Whelen light option in section 3.2. Addition of Vans SLs to section 3.3. Addition of standard modification section 3.6.	Dated 04/10/21	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 the aircraft in an airworthy 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

There is no UK agent. Contact Van's direct:

Van's Aircraft, Inc
14401 NE Keil Road
Aurora
OR 97002
USA

Tel: 001 (503) 678 6545
Website: www.vansaircraft.com

UK Van's Aircraft owners club – further details at www.rvuk.co.uk or email the 'RV Squadron' RVSqn+subscribe@groups.io

1.2 Description

The Van's Aircraft RV-10 is a single-engine, four-seat monoplane design of all metal construction, originating from the USA. The aircraft is a direct development of the Van's line of single and two seat aircraft, most of which have previously been investigated by the LAA and built in numbers in the UK.

The aircraft is constructed from a kit, and unlike some of the other RV designs, is only available in nosewheel undercarriage configuration.

The aircraft is a low-wing monoplane of conventional layout. The fuselage is of monocoque construction with sheet aluminium skins. The design methodology borrows heavily from the Van's RV-3, -4, -6/-6A, -7/-7A, –8/-8A and -9/9A designs. Unusually, however, the cabin top and windscreen pillars are manufactured as a one-piece fibreglass moulding, and twin gull-wing doors are fitted allowing straightforward access to both rows of side-by-side seating. A large rear baggage locker is incorporated, which is accessed via a hinged baggage door on the left-hand side of the aircraft. Full dual controls are fitted.
The aircraft is designed to use six-cylinder Lycoming IO-540 type engines. LAA administered examples of the type must be fitted with a certified engine and propeller combination.

Hartzell and MT propellers have been approved by LAA Engineering for installation on the RV-10. 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.

The Van's RV-10 is an SEP Aeroplane (colloquially known as 'Group A category') with a maximum gross weight of 2700 lb (1225 kg).

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. Condition No 3 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 fast build 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

RV-10 Assembly Manual and RV-10 drawings. Most of the revisions to the RV-10 drawings issued since 2004 can be found in the RV-10 Service Information and Revisions section of the Van's Aircraft website.

Van's Aircraft newsletter, the RVator, provides useful additional guidance. Although no longer produced (Van's publish more information on their website and on 'social media', the past RVators still provide useful information.

2.3 Build Inspections

Build inspection schedule 56 (Van's RV-10 aircraft).

Inspector approval codes A-A, A-M or K.

As a four-seat aircraft, the inspector must also be specifically accepted by the LAA for inspecting the build of a Van's RV-10 type aircraft. Inspector signing off final inspection also requires 'first flight' endorsement.

2.4 Flight and Maintenance Manuals

A Pilot's Operating Handbook specific to each aircraft must be compiled using a template available from LAA Engineering.

A maintenance schedule specific to each aircraft must be agreed with LAA Engineering prior to initial issue of a Permit to Fly. This must include scheduled 50 hour/6 month checks.

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)

The following modifications are required to be installed:

Reference	*Description*
MOD-339-001	The addition of a restraint system or barrier to prevent baggage in the baggage compartment moving forward into the cabin area during an accident. Standard Modification SM12569 gives a standard method of achieving this.
MOD-339-002	To minimise the risk of trim servo runaway causing control difficulties in flight, the electric trim systems must be fitted with an isolator switch easily accessible to the pilot in flight.
MOD-339-003	An acceptable stall warner system must be fitted to provide artificial stall warning.
MOD-339-004	To minimise the possibility of elevator trim tab flutter due to the Teleflex cable attachment failing at the back end, an acceptable improved design of attachment must be fitted replacing the standard Van's part WD-415-1 which consists of a nut edge-welded to a steel plate. An acceptable alternative is the alternative machined rear anchor for the elevator trim cable available from after-market suppliers 'Rivethead', however, 'Rivethead' is no longer trading. The equivalent part as supplied by 'IFLYRV10' is also acceptable.
MOD-339-005	To minimise the loss of strength in the critical section of the composite cabin top at elevated temperatures, the cabin top must be painted white in the vicinity of the shoulder harness attachments.

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

Ailerons	*Up*	*25 to 32°*
	Down	*15 to 17°*
Elevators	*Up*	*25 to 30°*
	Down	*20 to 25°*
Rudder	*Left*	*30 to 35°*
	Right	*30 to 35°*
Flap	*Down*	*30-33°*
Port elevator tab	*Up*	*0°*
	Down	*32-35°*
Stbd elevator tab	*Up*	*23-25°*
	Down	*32-35°*

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: Four

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: 2700 lb (1225 kg)
   CG Range: 107.84" to 116.24" (273.9 cm to 295.3 cm) aft of datum
   Datum Point is: a point 99.44" (252.6 cm) forward of the leading edge of the wing
   Maximum baggage weight: 100 lb (45 kg)

   2.3 Engine Limitations
   Maximum Engine RPM: 2700

   2.4 Airspeed Limitations
   Maximum Indicated Airspeed (V_{NE}): 230 mph (200 kts)

Maximum Indicated Airspeed (Rough Air): 180 mph (157 kts)
Max Indicated Airspeed Flaps Extended: 0-18°: 110 mph (96 kts)
19-33°: 100 mph (87 kts)

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

N/A

Section 3 – Advice to owners, operators and inspectors

3.1 Maintenance Manual

A maintenance schedule specific to each aircraft is required and must be agreed with LAA Engineering prior to initial issue of a Permit to Fly. In addition to standard annual inspections, the maintenance schedule must include 50 hour/6 month checks.

Further details on maintenance documentation can be found in the Aircraft Maintenance section of the LAA website.

3.2 Manufacturer's/Standard Options

Vans offer a great number of options in their catalogue of accessories, the majority of which are accepted by the LAA. Refer to LAA Technical Leaflet TL 3.08 for details.

The following items are also permitted to be fitted as optional equipment, without further reference to LAA Engineering. Installations must be inspected by an LAA Inspector against the supplied installation instructions and a PMR entered into the logbook.

Note: Contact LAA Engineering for further details of a specific referenced mod.

Manufacturer/Supplier	Description	LAA Mod No
Andair	Fuel pump PX375-TC (on fuel injected engines only and only pump serial numbers 30453 and on)	n/a
Andair	Lockable fuel caps	n/a
Dynon	Heated pitot/AoA head on a Gretz mount	Mod 14324
Dynon	Heated pitot/AoA head on a Safeair1 mount	Mod 12551
Garmin	GAP 26 pitot head on a Safeair1 mount	Mod 14084
Whelen	Microburst series nav and strobe lights	n/a

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.

Copies of RV-10 continuing airworthiness, service information and plans revisions can be downloaded from the Van's Aircraft website: RV-10 Service Information and Revisions.

Notifications and Service Letters:

Reference ID	*Dated*	*Description*
SL-00003	4 Feb 21	Optional removal of F-1054 tank attach angles
SL-00033 rev 1	4 Feb 21	Landing gear component field assessment
N 14-07-03	03 Jul 14	SAIB HQ-14-16 (all-metal lock nuts)
N Fuel Lever II Installation	20 Dec 11	Fuel valve lever II installation
N Buying a Flying RV	19 Apr 11	Buying a flying RV
N RV-10 Door Latch Switches	13 Feb 08	Door latch switches
SL Soft Rivets	26 Nov 07	Soft rivets
N Master Switch	16 Nov 07	Inspect master switch
SL RV-10 Motor Mount	15 Jan 07	Motor/motor mount interference
N Nosewheel Torque	06 Sep 07	Tricycle gear aircraft Matco nose wheel torque
N Battery Cables	08 Oct 06	#2 Battery cables
N U-1023	21 Sep 06	U-1023 nose wheel bearing spacers
N Tunnel Temp	12 Jun 06	Fuselage tunnel temperature
N RV-10 Spur Gear	18 May 06	Door handle spur gear
N 60 Amp Alternator Wiring	13 Feb 06	60 Amp alternator
N Axle Nuts	09 Jan 06	Axle nut thread depth
N FAB SB 05	01 Oct 05	Filtered Airbox advisory
N Buying a Used RV Kit	11 Aug 04	Buying a second-hand RV kit
N Buying a Flying RV	30 Jun 04	Buying a flying RV (see also 19 Apr 11 above)
N CT-83F	14 Nov 01	CT82F and CT83F throttle quadrants
N Anti-Rotation Bracket	12 Jun 00	Fuel pickup tube anti-rotation bracket (the RV-10 design uses a different arrangement and this letter is therefore not applicable)

Service Bulletins:

Reference	*Dated*	*Description*
SB-00002	05 Nov 20	Bottom rudder hinge bracket change & inspection method
SB 00006	06 May 20	Potential leaking of Kavlico pressure sensors
SB 19-09-09	26 Feb 20	RV-10 updated nose leg
SB 18-05-21	21 May 18	Proper installation of gauge plug in fuel spider
SB 18-03-30	30 Mar 18	Elevator control stop inspection
SB 16-03-28	28 Mar 16	Cracking of wing aft spar web at the inboard aileron hinge bracket attach rivets (note that the rectification actions

		given in this bulletin are acceptable to LAA and no separate repair application is necessary)
SB 14-12-22	22 Dec 14	Nose stop flange installation
SB 14-8-29	29 Aug 14	Engine mount elastomer plate
SB 11-9-13	13 Sep 11	Fuel tank slosh inspection
SB 10-1-4	04 Jan 10	Install door safety latch (not mandatory on UK fleet)
SB 08-6-1	01 Jun 08	F-1010 bulkhead reinforcement
SB 07-4-12	12 Apr 07	Securing flap motor rod end bearing (included in RV-10 drawings)
SB 07-2-6	06 Feb 07	Affixing the passenger control stick permanently (included in RV-10 drawings)
SB 06-9-20	20 Sep 06	Trim cable anchor (MOD-339-004 covers this)
SB 06-2-3	03 Feb 06	Vertical stabilizer
SB 04-3-1	01 Mar 04	Electric flap motor recall
SB 04-2-1	01 Feb 04	Inspect fuel tanks
SB 02-12-1	01 Dec 02	Pre-manufactured hoses
SB 96-10-1	01 Oct 96	Filtered airbox

3.4 Special Inspection Points

1. Check and inspect elevator trim systems with rear empennage fairing removed for correct operation and security, including servo and associated drive and electrical system.

2. Builders not familiar with the form of solid construction used in this type are encouraged to practise on scrap test pieces to learn techniques of riveting before starting on actual construction.

3. These are high-performance aircraft and top-quality workmanship is essential.

4. The engine compartments of these aircraft are fairly cramped and care should be taken to avoid overheating problems, charring of the cowlings near the exhaust, vapour-lock due to pre-heating of fuel in gascolator, etc. Insulating the exhaust pipes has been found to help, but can cause problems with premature and hidden corrosion of the exhaust pipes underneath.

5. The flaps are operated by rod-ends on the operating pushrods without any back-up capturing feature and therefore the rod-ends must be checked carefully for wear to ensure that there is no possibility of a rod-end coming adrift from a flap.

6. Take care to minimise operating friction in flying controls by careful attention to hinges, rod-ends, lubrication etc.

7. To avoid problems with the nosewheel jamming in the spat it is important to trim the nosewheel spat to ensure generous clearance between the tyre and the wheel aperture in the spat (circa half an inch), and to maintain the correct nosewheel tyre pressure. It is also important to maintain suitable preload on the nosewheel axle bearings, torqueing up the axle nut gently as required in the absence of a conventional spacer between the bearings. Note that the wheel spats are used as part of the locking system for the axle nuts, so if the aircraft is operated with spats removed, alternative means of locking the axle nuts is required. Later type

nosewheel forks provided by Van's seek to improve this issue by raising the ground clearance of the nose leg.

8. Engine mount cracks have been reported in the vicinity of the undercarriage leg sockets on tailwheel RV-6s, especially when operated from grass fields. Cracks may also occur at other points on the engine mount and they must be carefully and regularly inspected. For repairs to engine mounts, consult with LAA Engineering and prior to carrying out any repairs, submit a LAA/MOD 8: Repair Proposal form unless otherwise directed by LAA Engineering. Note: Nigel Reddish has approval to carry out repairs to RV engine mounts without further reference to LAA Engineering under Mod Number 11076 (Email: sreddishandson@btconnect.com; Telephone: 01623 810300).

9. Longitudinal levelling datum for weight is the longerons in the cockpit area. Aircraft should be weighed with the cockpit doors closed.

3.5 Operational Issues

The following Safety Spot articles are relevant to Vans RV-10 aircraft:

1 *Light Aviation* issue January 2011 *Undercarriage Mount Cracks*

Cracks found in nose undercarriage mount caused by rocking in elastomer separation plates.

2 *Light Aviation* issue March 2014 *Checks for empennage cracks*

Relevant to RV-10. Four RV-6s found with cracks in the tail plane, all cracks slightly different and if found contact LAA engineering with repair program so it could be looked at by structures specialists. Cross refer also to LAA/AWA/14/02 and LAA/AWA/14/03.

3 *Light Aviation* issue June 2016 *Rear spar web cracks*

Van's SB 16-03-28 released detailing possibility of cracking at the inboard aileron hinge bracket. More likely found on high use examples of type.

4 *Light Aviation* issue April 2017 *Water ingestion to autopilot servo*

Autopilot servo suffering from jerky operation damaged beyond repair caused by water ingestion.

5 *Light Aviation* issue January 2012 *Wear on autopilot driveshaft*

Trio EZ autopilot servo drive shaft wear and retaining pin looseness could cause disconnection and control restriction or jam.

Other Operational Issues and Notes

1. These are high-performance aircraft but nevertheless the designs are well developed and thanks to good handling characteristics they have achieved a good accident-free record.

3.6 Standard Modifications

The following Standard Modifications have been approved on the type. The Standard Modification leaflet associated with each modification (published on the website) must be followed and an LAA/MOD1 form completed and return to LAA Engineering in each case (see also TL 3.06).

Standard Mod no.	*Issue*	*Description*
12569	1	Luggage compartment forward bulkhead restraint

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