



LAA TYPE ACCEPTANCE DATA SHEET
TADS 074
RUTAN VARIEZE

Issue 2	Deletion in Section 2.6 of requirement to replace fuel pump per CP57 and aileron bellhorn per CP58, which were intended for the Long-EZ aircraft. Addition of requirement to fit wing leading edge vortilons per CP 48. Correction to control surface deflection measurements and CG ranges.	Dated 01/07/21	AD
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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

Rutan Aircraft Factory no longer in operation and drawings are no longer available. Electronic copies of most of the *Canard Pushers (CP)*, electronically searchable by keywords, and much other useful information is also available from the web at <http://www.cozybuilders.org>. Another source of useful information is the EZ Squadron's web site <http://www.ez.org>. A UK Facebook group exists and may be able to provide information on the operation and ownership of Rutan canards. <https://en-gb.facebook.com/UnitedKingdomEzGroupSquadronIII/>.

1.2 Description

The Rutan VariEze is a canard aircraft of pusher configuration fitted with a fixed main undercarriage, retractable nosewheel and a belly mounted airbrake. The airframe is of all composite construction, using wet lay-up epoxy/glass over hot-wire cut foam cores. The fuel is carried in integral tanks within the wing strakes, adjacent to the two-seat tandem cockpit.

Drawings were produced and sold by the Rutan Aircraft Factory until 1985 when RAF ceased supplying plans to the homebuilt market, however support for the type continued until 2002 via the RAF newsletter, the *Canard Pusher*. The last edition of the *Canard Pusher* received by the LAA was 109.

The VariEze is designed for VW conversion engines, using a two-bladed wooden fixed-pitch propeller. UK examples are powered by Continental O-200s, PC-60's, and Lycoming O-235's.

|The aircraft may be built with a GU section canard with a span of either 150" or 142",



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depending on the engine weight and pilot weight, with different CG limits being applicable.

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 Rutan VariEze is categorised as an SEP aeroplane (commonly referred to as a 'Group A') 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. 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

Not applicable – the Rutan VariEze is built from drawings rather than a kit.

2.2 Build Manual

The Rutan VariEze build documentation comes in 5 major sections detailed below. The *Canard Pusher* magazine also details any changes to the plans. For the VariEze *Canard Pusher* 10-109 are required.

Section	Contents
1	Manufacturing Manual
2a	Engine installation
2b	Volkswagen engine installation manual
2c	Alternate engine installation manual
3	Avionics/electrics manual
4	Owner's manual
5	Composite aircraft finishing manual

2.3 Build Inspections

Build inspection schedule 11 (VariEze and Long-EZ aircraft).
Inspector approval codes A-A or A-C2. Inspector signing off final inspection also requires 'first flight' endorsement.

2.4 Flight Manual

Rutan Aircraft Factory supplied a manual titled 'VariEze Owner's Manual' which includes maintenance instructions and a maintenance schedule.

2.5 Mandatory Permit Directives

None applicable specifically to this aircraft type:



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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)

PFA-074-001 Corrosion in Wing Joiner plates (CP 53 and 55)

- 1 Deleted.
- 2 Due to the risk that in the event of an engine fire the aluminium AN fittings in the fuel system in the engine bay could melt and release fuel, feeding the fire, it is mandatory to replace all aluminium AN fuel system fittings between the gascolator and the carburettor with the equivalent AN steel fittings per CP 31. See also fuel system fireproofing – inspection CP49.
- 3 Deleted.
- 4 Due to failures of the -3 size rod ends in service, it is mandatory to replace any -3 size rod ends on the elevator and aileron pushrods with the stronger -4 size rod ends before next flight, per CPs 20, 102 and 103. The -3 size rod ends can be identified by the fact that the thread size is 10-32, compared with ¼-28 on the -4 size. With a lathe, it may be possible with care to drill out the existing 10-32 threads in the pushrod inserts and re-tap ¼-28 threads – alternatively the inserts can be removed and replaced with new inserts already tapped ¼-28.
- 5 Due to the possibility of the original aileron pushrods which were of aluminium construction melting in the event of an engine fire in flight, before next flight it is mandatory to replace the aileron pushrods which enter the engine bay with ½” OD x 0.028” or 0.035” wall steel tube pushrods with steel CS-50 threaded inserts. If 1/2” x 0.035 tubing is used, the CS-50 steel inserts will need the outside diameter turning down to suit. (CP 49 and CP 95).
- 6 Due to cases of the rudder cable attachment to the rudder pedals failing through cracking, it is mandatory to fit reinforcement brackets to the cable attachment to the rudder pedals as shown in CP 30 before next flight.
- 7 Due to cases of the nylon brake lines becoming embrittled and failing due to brake heat, it is mandatory to either fit aluminium heat shields between the brakes and the brake lines or to replace the nylon brake lines with conventional brake lines per CP 45, 47, 48, 99 and 100.
- 8 Due to a manufacturing error with the Brock-supplied canard lift tabs part number NC-CLT, before next flight these parts must be replaced with correctly made lift tabs. (CP47)
- 9 Separate independent fuel tank vents are a mandatory change to the plans. Redundancy is vital should one vent become clogged by a wasp as detailed in CP 47 and CP 48.
- 10 Per CP 48, it is mandatory to fit wing leading edge vortilons, as described in CP 42 and CP 43, before next flight.

The headrest on the VariEze is not designed to act as a roll bar (CP 30, 44 and 65). The improved roll over protection available from the RAF composite rollover bar or the Bill Allen welded steel tube roll over bar as described in CP 102, 103 are recommended but non-mandatory for LAA aircraft.

Oil pressure lines in VariEzes. Substandard parts to be replaced as per CP 31 page 8



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Brake calliper clearance to gear strut must be 1/16". The calliper must not be able to touch the wheel pant or strut as this may cause an intermittent brake failure. The drawing has been updated from Section I page 9-1 as per CP 30

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

Elevators/Ailerons/Airbrake

Ailerons	1.9" ±0.3" between aileron outboard trailing edge to wing trailing edge.
Elevators	Trailing edge up 20° and trailing edge down 22° max.
Rudder	2.0" max between rudder tip trailing edge and winglet trailing edge. (independent rudders)

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: 2
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: 1050 lbs
CG Range:
142" span canard: 96.2" to 102.2" aft of the datum.
150" span canard: 95.0" to 101.0" aft of the datum.
Datum Point is: 18.6" forward of the leading edge of the canard.
 - 2.3 Engine Limitations for (Continental O-200)
Maximum Engine RPM: 2750.
 - 2.4 Airspeed Limitations
Maximum Indicated Airspeed (V_{NE}): 190 knots
Max Indicated Airspeed Airbrake Extended: 90 knots
Maximum Indicated Gear Actuation Airspeed: 152 knots
Maximum Manoeuvring Speed (V_a): 120 knots



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- 2.5 Other Limitations
The aircraft shall be flown by day and under Visual Flight Rules only.
Smoking in the aircraft is prohibited.
Maximum normal acceleration not to exceed +2.5g or -1.5g.

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

Not applicable.

Section 3 – Advice to owners, operators and inspectors

3.1 Maintenance Manual

Rutan Aircraft Factory supplied a manual titled 'VariEze Owner's Manual' which includes maintenance instructions and a maintenance schedule.

3.2 Manufacturer's/Standard Options

There are no standard options for the type.

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

As the aircraft is a USA homebuilt type no official service bulletins were issued, however builders were mandated by Rutan Aircraft Factory to subscribe to the *Canard Pusher* magazine which is considered to be equivalent to Service Bulletins and Service Letters.

3.4 Special Inspection Points

Airbrake should close with 40 lbs applied aft at lower edge when extended.

Canard Pusher contains a range of accident reports and operational notes on Rutan canard aircraft.

Also see TADS 074A Rutan Long-EZ for special inspection points.

3.5 Operational Issues

Canard Pusher contains a range of accident reports and operational notes on Rutan canard aircraft.



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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](#)).

<i>Standard Mod no.</i>	<i>Issue</i>	<i>Description</i>
SM11188	1	Main Wing Trailing Edge Flow Straighteners

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