



**LAA TYPE ACCEPTANCE DATA SHEET**  
**TADS 330**  
**ALPI PIONEER 300 AND PIONEER 300 HAWK**

Issue 11	Addition of contact details for UK agent. Minor editorial changes. Addition of Safety Spot articles.	Dated 26/11/19	JV
Rev A	MOD/330/004 and MOD/330/004 up-issued to issue 3	Dated 14/07/20	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

Alpi Aviation UK Ltd, Hangar 2, Earls Colne Airfield, Earls Colne, Essex, CO6 2NS.

Tel: 01787 222668

Email: [info@flypioneer.uk](mailto:info@flypioneer.uk)

Website: [www.flypioneer.uk](http://www.flypioneer.uk)

Note that earlier kits were supplied by the previous agent, Pioneer Aviation UK Ltd.

Manufacturer's website: [www.alpiaviation.com](http://www.alpiaviation.com)

### 1.2 Description

The Pioneer 300 is a small two-seat, low-wing aircraft, with an airframe mainly of wooden construction. The aircraft is supplied in the form of a fast-build kit for amateur construction. The fuselage is fitted with composite shells which provide the external shape. A sliding canopy and electrical retracting tricycle undercarriage are fitted.

The Pioneer 300 Hawk is a later variant with fully ply-covered wings, an improved design of noseleg, undercarriage doors and an increased max gross weight of 560 Kg with slightly revised cg limits.

The only engines currently accepted by the LAA are the Rotax 912-ULS and Rotax 912iS (typically fitted with an Avtek AVY 2HS or GT-2/169.5/VQS propeller) and the Jabiru 3300A. 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.



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With a maximum gross weight of 530 Kg the Pioneer 300 is only eligible as an SEP Aeroplane in the UK, not a microlight.

**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

Technical leaflet TL.11 shows the contents of the accepted fast build kit.

2.2 Build Manual

A special UK Build Manual has been created by Pioneer Aviation.

2.3 Build Inspections

Build inspection schedule 52 (Pioneer 300 aircraft).  
Inspector approval codes A-A or A-W or A-K. Inspector signing off final inspection also requires 'first flight' endorsement.

2.4 Flight Manual

Special UK Flight Manual supplied with kit.

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)

A great many modifications were required to the Italian design to qualify for LAA acceptance, too many to list here. These modifications are incorporated in the kit as supplied by Pioneer Aviation UK. Due to the extent of the modifications, it would not be feasible to retrospectively modify a kit or finished aircraft that was not supplied to the UK specification.

<i>Reference</i>	<i>Description</i>	<i>Applicability</i>
<a href="#">MOD/330/002 issue 2</a>	Visual inspection of main spar attachment bolts and boltholes	Pioneer 300
<a href="#">MOD/330/003 issue 1 (SB09/04)</a>	Undercarriage – Modification to system	Pioneer 300
<a href="#">MOD/330/004 issue 3</a>	Inspection and wire-locking of flight control hinge attachment	Pioneer 300



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<a href="#">MOD/330A/002 issue 1</a>	bolts (ref <a href="#">LAA/AWA/20/16</a> ) Visual inspection of main spar attachment bolts and boltholes	Pioneer 300 Hawk
<a href="#">MOD/330A/003 issue 1 (SB09/04)</a>	Undercarriage – Modification to system	Pioneer 300 Hawk
<a href="#">MOD/330A/004 issue 3</a>	Inspection and wire-locking of flight control hinge attachment bolts (ref <a href="#">LAA/AWA/20/16</a> )	Pioneer 300 Hawk

**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.

**With Rotax 912-ULS engine:**

Maximum CHT: 135°C  
 Max Coolant Temp: 120°C (with 50/50 Glycol/water coolant)  
 Oil Temp Limits: 50°C to 130°C (Normal 90-110°C)  
 Oil Pressure: 2-5 bar  
 Minimum Fuel Pressure: 0.15 bar

**With Rotax 912iS engine:**

Maximum EGT: 950°C  
 Max Coolant Temp: 120°C  
 Oil Temp Limits: 50°C to 130°C (Normal 90-110°C)  
 Oil Pressure: 0.8-7 bar  
 Fuel Pressure: 2.8-3.2 bar

**With Jabiru 3300 engine:**

Maximum CHT: 180°C (200° for five minutes)  
 Oil Temp Limits: 50°C to 118°C (Normal 80-100°C)  
 Oil Pressure: 32-76 psi  
 Minimum Fuel Pressure: 0.75 psi

**2.8 Control surface deflections**

**Before kit serial number 382:**

Ailerons	Up: 95mm min Down: 65mm min	(Measured at tip trailing edge, both ailerons identical)
Elevators	Up: 19° -1/+2° Down: 14° -1/+2°	
Elevator tab	Up: 16° Down: 16°	
Rudder	Left 20° -1/+2° Right 20° -1/+2°	
Flap	Down 0° - 12° - 20° - 30°	



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From kit serial number 382 (follow procedure PL 9001 AO for jacking aircraft and PD 9047 A0 for levelling):

Ailerons	Up: 20° ±2° Down: 18° ±2°	Ref procedure PC 9007 AO
Elevators	Up: 20° ±2° Down: 12° ±2°	Ref procedure PC 9009 AO
Elevator tab	Up: 25° Down: 25°	Ref procedure PC 9010 A0
Rudder	Left 22° ±2° Right 22° ±2°	Ref procedure PC 9006 A0
Flap	0°, 12° ±1°, 20° ±2°, 33° ±3° Ref procedure PC 9008 A0	

**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: two
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 (Pioneer 300)**

Maximum Total Weight Authorised: 530 kg  
 CG Range: Forward limit 730 mm aft of datum at gross weights up to 420 kg, 800 mm aft of datum at 530 kg, with linear variation between these points at intermediate weights. Aft limit 895 mm aft of datum.  
 Datum Point is: front face of the firewall

Loading Limitations (Pioneer 300 Hawk or Pioneer 300 with Hawk noseleg)

Maximum Total Weight Authorised: 560 kg  
 CG Range: Forward limit 730 mm aft of datum at gross weights up to 420 kg, 820 mm aft of datum at 560 kg, with linear variation between these points at intermediate weights. Aft limit 895 mm aft of datum.  
 Datum Point is: front face of the firewall

**2.3 Engine Limitations**

Maximum Engine RPM: 5800 (Rotax 912-ULS & 912iS), 3300 (Jabiru 3300)  
 Maximum continuous engine RPM: 5500 (Rotax 912-ULS & 912iS)

**2.4 Airspeed Limitations**

Maximum Indicated Airspeed (V<sub>NE</sub>): 150 knots IAS



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Max Indicated Airspeed Flaps Extended: 80 knots IAS

- 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

<i>Model</i>	<i>Engine</i>	<i>Maximum empty weight</i>
Pioneer 300	Rotax 912-ULS	345 kg
Pioneer 300 Hawk (or Pioneer 300 fitted with Hawk noseleg)	Rotax 912-ULS	375 kg

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

3.1 Maintenance Manual

Operator’s Manual includes manufacturer’s maintenance schedule for the airframe. For airframe rigging information consult build manual. For engine maintenance consult engine manufacturer’s schedule.

Manual PD9095 rev 5.10 (2015) or later gives advice on 25 hour and 100 hour checks.

3.2 Standard Options

- Individual toe brakes (taking the place of standard dual hand brake)
- GT fixed pitch propeller rather than VP propeller
- If the Pioneer 300 is fitted with the Pioneer 300 Hawk noseleg, the maximum gross weight can be increased to 560 Kg and cg range amended to match that of Pioneer Hawk 300.

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.

The following bulletins are highly recommended by the LAA (unless mandated above); the indicated compliance level is as recommended by the factory.



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<i>Ref</i>	<i>Date</i>	<i>Description</i>	<i>Factory compliance status</i>	<i>Applicability</i>
<a href="#">OSB1</a>		Brake disc holding bolts to be drilled and wire-locked.		All models
002		Undercarriage microswitch.	N/A	None [Cancelled 11/2006]
<a href="#">2016-03</a>		Replacement of bolts (ref MOD/330/004 & MOD/330A/004)	Mandatory	All models

### 3.4 Special Inspection Points

- With Rotax engine fitted, Rotax 912 series installation checklist to be completed as part of final inspections prior to applying for Permit to Fly.
- Adequate over-centre on undercarriage retraction system.
- Reduction of friction in elevator control system. With a spring balance lifting the elevator trailing edge near the aircraft centerline, the force required to raise the elevator through neutral should be no more than 0.15 kg more than the force required to allow it to fall gently through neutral (e.g. 1.4 kg to fall, 1.55 kg to raise)
- Inclusion of stall warner system.
- Microswitch fitted to switch off the gear warning horn when the power is above cruise setting.
- Undercarriage retract switch must have a double-action détente.
- When fitting wing panels, take care not to over-size the holes for the wing attachment pins.
- With fixed pitch propeller, nose ballast is likely to be required to achieve a satisfactory centre of gravity position.
- Check that electric cables in nosewheel bay cannot snag on noseleg and prevent undercarriage lowering. Cables must be properly restrained clear of all moving parts.

### 3.5 Operational Issues

- Variable pitch propeller schedule if VP propeller fitted.
- As a result of the original UK flight testing, the friction in the elevator circuit has been reduced, the centre of gravity range has been amended, an artificial stall warner fitted, a microswitch added to switch off the gear warning horn when the power is above cruise setting, the undercarriage retract switch has been replaced by one with a double-action detente and the operating procedure associated with the switching on of the electrical gyro instruments has been amended to allow them to be switched on before take off.
- Problems have been experienced with maintaining the rather delicate adjustment of the undercarriage down stop microswitches. In order to ensure that the electric gear retraction system is pressing the undercarriage fully against the over-centre down stop, it is recommended that from time to time the pilot lowers the gear in flight with the electric system and then uses the emergency mechanical retraction system handle to check that the gear is fully down and cannot be moved harder against the stop manually. Any further movement available from the mechanical system indicates that the electric system microswitch stops are out of adjustment



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- and may not be providing the proper over-centre position, which could lead to gear collapse particularly under heavy sideloads when taxiing.
- If the optional toe brakes are fitted, be careful not to operate the toe brakes inadvertently when the rudder is deflected. Due to the geometry of the toe brake system, as one rudder pedal is pushed, the brake pedal on the other pedal moves back towards the pilot and can press against the pilots foot without him realising it, leading to braking on the side opposite to the way the pilot wishes to turn. This can lead to difficulty with apparent loss of rudder authority on take off and landing. To avoid this problem, ensure that feet are well clear of brake pedals except when braking is required.
  - If problems are experienced with longitudinal stability, which manifests itself in finding that the aircraft flies at a wide range of airspeeds in trim without having to alter the trimmer setting, check elevator friction is not excessive, it must comply with the range specified under 'special inspection points' above in order for the aircraft to be stable at aft cg.

The following *Safety Spot* articles are relevant to Pioneer aircraft:

*Light Aviation* [May 2019](#)

*Pioneer 300 & 400 Control Restriction.*

Elevator restriction caused by top hinge attachment bolt winding its way out. It is advised to check all the flight control hinges, especially as some bolts pass through wood structures and are prone to corrosion.

*Light Aviation* [Dec 2018](#), [Nov 2018](#) *Pioneer exhaust failures.*  
and [Jul 2017](#)

Pioneer exhaust systems failing, causing fume events and discussion of best types of exhaust and construction.

*Light Aviation* [Mar 2017](#)

*Pioneer 300: Undercarriage issues investigated.*

An overview and investigation of the undercarriage issues on Pioneer 300 aircraft.

*Light Aviation* [July 2016](#)

*Pioneer 300 failed undercarriage support.*

Undercarriage support structure found with severe crack just by looking into the undercarriage bay. Likely caused by faster than normal landings.

*Light Aviation* [Dec 2014](#)

*Moving part lubrication.*

Elevator bellcrank that is preassembled requires disassembly and lubrication before fitment as it comes without any applied.

*Light Aviation* [Jul 2014](#)

*Pioneer 200 – Water Damage to Structure*

Severe water damage to structure resulted in requirement of significant repair. If the TMS had covered regular inspection this may not have been required

*Light Aviation* [June 2012](#)

*Loss of control on start-up in pioneer 300.*

Rotax carburettor biasing to Wide Open Throttle resulted in accidental run up to full power on start-up and subsequent runaway.

*Light Aviation* [Feb 2012](#)

*Pioneer 300 inner wing rib joint.*

Wing rib glue joint failures requires small gusset fitted to strengthen this area.

*Light Aviation* [Feb 2012](#)

*Pioneer 300 undercarriage side stay.*

Gouge found in undercarriage side stay may have resulted in failure of the undercarriage. This was caused by an overlong screw holding the down indicator



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microswitch. Regular on jacks checks required to spot these defects.

*Light Aviation [Nov 2011](#) and [May 2011](#) Alpi Pioneer finger filter.*

Finger fuel filters failed due to over drilling of the AN fitting to accept the brass tube thus reducing the supporting material. This can't be seen until disassembly and replacement requires wing removal.

*Light Aviation [Nov 2010](#) Broken exhaust manifold.*

Broken exhaust manifold found on Pioneer 300 after smoke smell detected in cockpit. There were multiple tragedies in other aircraft where smoke/fume inhalation was a factor.

*Light Aviation [Aug 2010](#) Fuel selector corrosion.*

Fuel selector found with significant corrosion on the non-aircraft spec components of the system. Commercial steel fittings attached to the selector body were likely designed for compressed air.

*Light Aviation [Jul 2010](#) Pioneer undercarriage cracking.*

Pioneer 300 undercarriage leg found with cracks. Its important to ensure there is no play in the system as this can alter the load path and cause early failures.

*Light Aviation [Oct 2009](#) Pioneer 300 main spar update & undercarriage issues.*

Nose gear collapse caused by failure for the system to go over centre results in overload of the jackscrew. Care must be taken to ensure the system is aligned and the down lock indication works.

*Light Aviation [Sep 2009](#) Main spar bolt hole elongation.*

Pioneer spar plates found with stretched holes likely caused by owners struggling to refit the wings and opening the hole up with a drill bit. This will cause stress raisers and may cause overloading in the attachment bolts.

*Light Aviation [Jul 2008](#) Pioneer 200 – Wrong Bolt Lead to gear failure*

Incorrect spec bolts used in the undercarriage lead to its failure. The use of non aviation grade components may be not appropriately sized and of adequate strength.

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