

TYPE ACCEPTANCE DATA SHEET TADS 333 / 333A

TECNAM P 2002 SIERRA AND P2002-RG SIERRA

Issue 8			
Revision A	New format, additional manufacturer's service bulletin.	Dated 11/3/11	JV
Revision B	Optional MTOW increase to 600 kg on –EA variants, amended flap speeds. Corrected control deflections. Additional Standard Modifications.	Dated 14/7/11	JV

Section 1 - Introduction

1.1 Contact

Tel: [+39 0823 622297](tel:+390823622297)
Email: airworthiness@tecnam.com
Website: www.tecnam.com

1.2 Description

The Tecnam P2002 Sierra is a low-wing aircraft of all-metal construction. It is a kit-built version of the Tecnam P2002-JF, a type-certificated factory-built aircraft, manufactured by the Costruzioni Aeronautiche Tecnam company of Naples. The Tecnam P2002-RG Sierra, a kit built version of the P2002-JR, is identical to the P2002 model, except that it is fitted with pneumatically operated retractable undercarriage.

With a maximum gross weight of 580 kg for the P2002 and 600 kg for the P2002-RG they are only eligible as SEP Aeroplanes in the UK, not as microlights. The P2002-EA may optionally be operated at a maximum gross weight of 600 kg provided this is shown on the Operating Limitations document for individual aircraft: flap speeds are also changed for this weight.

The Tecnam P2002 Sierra is a cantilever low-wing aircraft of conventional configuration, seating two side-by-side in an enclosed cockpit. The airframe of the P2002 Sierra is identical to that of the P2002-JF but the P2002 Sierra substitutes various equivalent non-certified components which are not required to be certified for an amateur build aircraft, including the engine and propeller, instruments, wheels and electrical wiring.

The wings, tailplane, fin and all control surfaces are of conventional riveted aluminium alloy construction. The forward fuselage structure consists of a welded steel tube truss, aluminium clad, while the rear fuselage is a riveted aluminium alloy sheet monocoque. A moulded fibreglass fairing forms the rear turtledeck.

The wings are of single spar construction, entirely aluminium alloy covered. The ailerons and flaps are of riveted aluminium alloy construction.

The wing roots contain twin fuel tanks each of 50 litre capacity. The fuel contents are monitored using float type senders connected to gauges situated on the instrument panel.

The flaps are operated using an electric ram, the position being indicated by a cable-operated mechanical gauge. The ailerons, all-flying tailplane and rudder are operated by

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a conventional system of cables, pulleys, bellcranks and pushrods. The all-flying tailplane is fitted with an anti-balance tab which also functions as a pitch trim tab, operated via a MAC electric servo controlled via a cockpit rocker switch. Trim position is indicated by an electric indicator.

The P2002 variant is fitted with a tricycle type undercarriage, the main legs being of cantilever spring type and the steerable noseleg being a trailing link sprung by rubber bushes in compression.

On the –RG variant, the undercarriage is of conventional tricycle layout with the main undercarriage mounted in the wings and the nose undercarriage mounted to an extension of the engine mounting frame structure. The main undercarriage is of trailing link design using multiple rubber bushes in compression for springing. Each main undercarriage retracts outboard into a well in the wing leading edge and has a pair of doors that cover all but the lower portion of the wheel and tyre. The nose undercarriage, which has oleo/pneumatic suspension, retracts aft into a tunnel in the fuselage and has a single door that covers the leg leaving the front portion of the tyre exposed and protruding slightly below the fuselage. A bellcrank directly linked to the rudder pedals via push-rods drives a bellcrank attached to the nose leg when it is extended to provide nose wheel steering. The undercarriage retraction/extension system is powered by compressed air driven actuators.

The only engine model currently approved in the UK for use in the P2002 and P2002-RG Sierra aircraft is the Rotax 912-ULS. The standard propeller used in the P2002 is the GT-2/173/155 fixed pitch wood propeller, whereas the standard propeller for the P2002-RG is the GT-2 VEB/GT-2 V14S 177R-FW80SRTC electric in-flight adjustable propeller.

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

2.1 Fast Build Kit 51% Compliance

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

2.2 Build Manual

Tecnam P2002 Build Manual.
Tecnam P2002-RG supplement.

2.3 Build Inspections

Build inspection schedule 41B (Tecnam P2002 aircraft).
Inspector approval codes A-A, A-M, or K. Inspector signing off final inspection also requires 'first flight' endorsement

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2.4 Flight Manual

Tecnam P2002 Sierra Flight Manual equally applicable to P2002 version.
Tecnam P2002-JR Flight Manual equally applicable to P2002-RG version, noting that the -RG has a pneumatically actuated landing gear retraction system rather than the hydraulic system of the -JR.

2.5 Mandatory Permit Directives

None applicable specifically to this aircraft type.

Also check the LAA website for MPDs that are non-type specific (TL 2.22).

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

Several modifications are required by the LAA for acceptance of the type in the UK, as follows:

MOD-333-001	Addition of seat stop bolts through seat slides to prevent excessive seat range of travel.
MOD-333-002	Stainless steel firewall to be fitted, as on P2002-JF model.
MOD-333-003	Addition of steady at centre of elevator pushrod to prevent pushrod buckling under pilot effort jam case loads. Parts provided by Tecnam UK Ltd.
LAA-333-004	Warning placards added adjacent to cowling latches to alert owners to correct fastening procedure, 'ensure lever is engaged under flange before securing camloc'.
LAA-333-005	Aileron control link pushrod tube at base of control column assembly reinforced by the addition of welded 4130N finger straps over bushes at each end to avoid reliance on weld in tension for integrity of control circuit.
LAA-333-006	Finger strainers fitted to fuel tank outlets.
LAA-333-007	Commercial marine turnbuckles in rudder cables substituted by suitable MS21251 aircraft turnbuckles as fitted to P2002-JF model.
LAA-333-008	Flap travel restricted to a maximum of 33 degrees to avoid a wing drop at the stall. Flap travel restricted by adjustment of the limit stop microswitches, using a template provided by Tecnam to determine the aileron and flap neutral positions. Flap position indicator label altered to match the reduced travel.
LAA-333-009	Addition of large diameter safety washers adjacent to control system rod-end bearings (except those trapped within a fork fitting) to prevent rod coming adrift if spherical bearing slips out of socket when worn.
LAA-333-010	Addition of starter engaged warning light (wired in parallel with starter motor) and suitable cockpit placard adjacent to warning light on instrument panel 'starter engaged warning light'.
LAA-333-011	Addition of washers under nuts on flap and aileron hinge bolts in accordance with normal aviation practise.
LAA-333-012	ASI sector markings altered to correspond with airspeeds as approved by LAA.
LAA-333-013	Addition of retraction lever latch (-RG only).

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2.7 Additional engine operating limitations to be placarded (or shown by instrument markings)

Refer to the engine manufacturer's latest documentation for the definitive parameter values.)

With Rotax 912-ULS engine:

Maximum CHT: 135°C

Max Coolant Temp: 120°C (with 50/50 Glycol/water coolant)

Oil Temp Limits: 50C to 130°C (Normal 90-110C)

Oil Pressure: 2-5 bar

Minimum Fuel Pressure: 0.15 bar

2.8 Control surface deflections

Ailerons	Up: 18-22° Down: 13-17°
Elevators	Up: 14-16° Down: 2-4°
Elevator trim tab	Up: 1-3° Down: 8-10°
Rudder	Left 28-32° Right 28-32°
Flap	Down 32-33°

2.9 Operating Limitations and Placards

(Note that the wording on an individual aircraft's Operating Limitations document takes precedence, if different.)

P2002-EA

Maximum number of occupants authorised to be carried: Two

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:

Aerobatic Limitations

Intentional spinning is prohibited.

Aerobatic manoeuvres are prohibited.

Loading limitations

Maximum Total Weight Authorised: 580 kg (or 600 kg)

CG Range: 356mm to 445mm aft of datum.

Datum Point is: 1337mm aft of the front face of the propeller flange.

Engine Limitations

Maximum Engine RPM: 5800

Maximum continuous engine RPM: 5500

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Airspeed Limitations

Maximum Ind. Airspeed:	138 kts
Maximum Ind. Airspeed flaps extended 0-12 degrees:	70 kts (99 kts if MTWA is 600 kg)
12-33 degrees:	67 kts (68 kts if MTWA is 600 kg)
Maximum Ind. Airspeed, rough air (V_{NO}):	110 kts

Other Limitations

The aircraft shall be flown by day and under Visual Flight Rules only.
Smoking in the aircraft is prohibited.
Maximum baggage weight: 20 kg

Additional Placard

"Occupant Warning – This Aircraft has not been Certificated to an International Requirement"

Fireproof identification plate must be fitted to fuselage, engraved or stamped with aircraft's registration letters.

P2002-RG

Maximum number of occupants authorised to be carried: Two

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:

Aerobatic Limitations

Intentional spinning is prohibited.
Aerobatic manoeuvres are prohibited.

Loading limitations

Maximum Total Weight Authorised: 600 kg
CG Range: Limits 1664mm to 1842mm aft of the datum point.
Datum Point is: 1390mm forward of the wing leading edge at a point 15mm inboard of the rib 7 rivet line.

Engine Limitations

Maximum Engine RPM: 5800
Maximum continuous engine RPM: 5500

Airspeed Limitations

Maximum Ind. Airspeed:	144 kts
Maximum Ind. Airspeed flaps extended 0-12 degrees:	70 kts
12-33 degrees:	67 kts
Maximum Ind. Airspeed, rough air (V_{NO}):	110 kts
Maximum Ind. Airspeed, undercarriage extended (V_{LO}):	70 kts

Other Limitations

The aircraft shall be flown by day and under Visual Flight Rules only.
Smoking in the aircraft is prohibited.
Maximum baggage weight: 20 kg

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Additional Placard

“Occupant Warning – This Aircraft has not been Certificated to an International Requirement”

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2.10 Maximum permitted empty weight

<i>Model</i>	<i>Engine</i>	<i>Maximum empty weight</i>
P2002 (580 kg MTWA)	Rotax 912-ULS	395 kg
P2002 (600 kg MTWA)	Rotax 912-ULS	415 kg
P2002-RG	Rotax 912-ULS	415 kg

Section 3 – Advice to owners, operators and inspectors

3.1 Maintenance Manual

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

3.2 Standard Options

The listing below shows the factory options that have been accepted by the LAA:

- Standard Modification [SM12748](#) – Fuel Flow Monitoring Systems.
- Standard Modification [SM11789](#) – Installation of Trio Pro Dual Axis Auto-pilot
- Standard Modification [SM12781](#) – Installation of Fuel Tank Drains

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.

<i>Ref</i>	<i>Date</i>	<i>Description</i>	<i>Factory compliance status</i>	<i>Applicability</i>
06-UL	19/11/2007	Seat structure inspection	Mandatory	Up to s/n 308
07-UL	6/12/2007	Main landing gear attachment bolts	Recommended	All –EA aircraft
09-UL	15/2/2008	Brake system hose substitution	Information	All aircraft
010-UL	23/2/2008	Exhaust silencer spring attachments	Recommended	All aircraft
013-UL	26/11/2008	Main landing gear spring replacement	Recommended	All –RG aircraft
019-UL	20/9/2010	Wing caps inspection	Recommended*	Up to s/n 459

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3.4 Special Inspection Points (carburettor engine)

- The throttle spring on the carburettor must be adjusted so that the system does not have a strong tendency to spring to 'full throttle' when the throttle knob is released, or require a strong pull to keep it in the closed position.
- With Rotax engine fitted, Rotax 912 series installation checklist to be completed (apart from flight test section) as part of final inspections prior to applying for Permit to Fly.
- Check flap rigging carefully for symmetry of flap deployment as this may affect lateral trim and stall characteristics.
- Note LAA requirement to restrict flap travel to 33 degrees which is less than the standard Tecnam figure for the P2002-JF and -JR.

3.5 Special Test Flying Issues

- Rotax 912 series flight test schedule with Rotax engine fitted.
- Special check on the wing drop at the stall, including at all flap settings, and setting up of stall strips on wing leading edges to achieve satisfactory stall characteristics per Tecnam UK instructions.
- Note that wheel spats act as restraint against wheel retaining nuts coming loose therefore flight without wheel spats not approved unless an alternative means of wheel nut locking is provided.
- Emergency undercarriage lowering system to be tested.

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