



LAA TYPE ACCEPTANCE DATA SHEET
TADS 047
PIETENPOL AIRCAMPER

Issue 6			
Revision A	New format. Amendment to control surface deflections.	Dated 17/6/11	JV
Revision B	Addition of standard option to section 3.2, undercarriage safety cables. Formatting/ editorial changes.	Dated 21/6/13	JV

These TADS are 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. The annual Permit to Fly renewal (revalidation) process requires a Declaration by the inspector and owner that the Requirements of Section 2 have been 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

J K Wills, 3 Peter Barrett Close, Fakenham, Norfolk, NR21 8HP (plans supply)
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1.2 Description

The Pietenpol Air Camper is a two-seat vintage open-cockpit parasol monoplane of US origin, designed in the late 1920s and originally fitted with a Ford Model A car engine. Being one of the very earliest homebuilt aircraft designs, the original drawings are lacking in detail by modern standards.

Mr Wills has produced modification sheets showing improvements to the wing and wing strut arrangements, an alternative improved undercarriage and an approved engine mount for fitting Continental type engines of between 65 and 100 BHP, all of which have been subject to detailed stress analysis. These drawings are considered by the LAA to be part of the design standard for the Air Camper.



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The most popular engine for the Air Camper in the UK is the Continental C90 or O-200, without starter or alternator to save weight. The Continental A65 has been used but this results in a degraded climb rate and necessitated a reduction in allowable maximum gross weight, and hence reduced payload. Lycoming O-235 engines of 115 and 118 BHP have been used on two examples, but use of this heavier, more powerful engine necessitates up-rating the forward fuselage and engine mounting attachment fittings.

An alternative design of fuselage, of welded steel construction, has been available as a ready-welded frame from Aviation Metalcraft. This fuselage is not of Pietenpol design. The Aviation Metalcraft fuselage is accepted by the LAA.

The Grega Aircamper is an outwardly similar aircraft to the Pietenpol Air Camper but quite different in detail design. The Grega Aircamper has not been assessed or cleared by the LAA and is not covered by this TADS.

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 to plans-built aircraft.

2.2 Build Manual

No build manual known. Construction drawing set provides required information, consisting of the following:

Original Pietenpol Drawings:

- General arrangement/specifications
- Fuselage
- 1966 Lengthened fuselage (necessary for Continental and Lycoming engines)
- Tail assembly
- Dual control assembly
- Wing

Required Wills Revision drawings:

- Mod Dwg. 47-001 Detachable wing panels & fittings
- Mod Dwg. 47-002 Beam spars & wing assembly detail
- Mod Dwg. 47-003 Cub type undercarriage (for 1966 Fuselage), lift struts and fittings
- Mod Dwg. 47-004 Continental engine mount, cabane struts, lift struts and fittings, upper motor mount compression strut.

The following Pietenpol drawings are not LAA accepted:

- Pietenpol steel tube fuselage supplement (Note – the welded steel tube fuselage shown on this drawing is entirely different to the Aviation Metalcraft steel tube fuselage)



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Pietenpol split axle landing gear
Conversion of Model A motor
Complete motor mount details
Corvair motor mount

2.3 Build Inspections

Build inspection schedule 1 ('wooden aircraft').
Inspector approval codes A-A or A-W. Inspector signing off final inspection also requires 'first flight' endorsement.

2.4 Flight Manual

Not available.

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)

Jim Wills drawings 47-001, 47-002, 47-003 and 47-004 show design improvements which LAA considers part of the standard Air Camper design as covered by this TADS. Any builders who propose NOT to follow these four drawings (for example wishing to use the wooden undercarriage legs, one-piece wing or plank-type wing spars from the original Pietenpol drawings) must send full details to LAA to determine the acceptability of their proposals. This includes proposals to incorporate any features from Grega Air Camper drawings.

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

MOD-47-006 Mandatory addition of jury struts to front lift struts

MOD-47-008 Mandatory improved seat belts attachments, definition of spec for cabane roll wires, recommended deletion of joggles from lift carry-through straps

In addition, a further modification is mandatory if the aircraft has been fitted with wing lift strut attachment plates of extended length, to allow the wing strut attachment bolt to be clear of the wing fabric. The standard length plates as specified on the Wills drawings are acceptable as drawn:

MOD-47-005 Lift strut attachment straps - presents three acceptable options

MOD-47-007 Lift strut attachment plates - superseded by MOD-47-005

In addition, notes accompanying Wills drawings include two further alterations to the original Air Camper design which LAA consider mandatory:



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- Tail bracing wires to be manufactured from 3/32" 7 x 17 stranded steel cable rather than piano wire.
- Aileron hinges to be manufactured from 4" lengths of aircraft piano hinge rather than strap type hinges.
- Specify equivalent UK spec materials and gauges to be used for steel fittings

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.)

2.8 Control surface deflections

These are not shown on the drawings; however, the control surface deflections listed below are typical of the type:

Ailerons	Up: 15° Down: 20°
Elevators	Up: 20° Down: 20°
Rudder	Left: 30° Right: 30°

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
Maximum Total Weight Authorised: 1200 lb (with Wills wing and strut modifications, and depending on choice of engine fitted)
CG Range: 15.1 inches to 19.6 inches aft of datum
Datum Point is: leading edge of the wing
 - 2.3 Engine Limitations
Maximum Engine RPM (Continental C90): 2625
Maximum continuous engine RPM (Continental C90): 2475
 - 2.4 Airspeed Limitations
Maximum Indicated Airspeed (V_{NE}): 115 mph (100 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.

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

None available. In the absence of a specific schedule, refer to LAMS schedule. For the engine, refer to the engine manufacturer's information.

3.2 Standard Options

- The Jim Wills drawing 47-001 'detachable wing panels' includes an auto-disconnect arrangement for the aileron control system, for use with the 3-piece wing. The inclusion of the auto-disconnect bellcranks is optional if the wing panels are not to be frequently removed.
- The Jim Wills drawing 47-001 'detachable wing panels' includes transport fittings to allow the wing panels to be hung from the fuselage for stowage. The outboard fittings are optional if builders do not intend to stow the aircraft wings in this configuration. The inboard fittings are required as they are also used for the jury strut attachments.

The following modifications have been carried out by previous builders and approved by the LAA, and are also available for incorporation by other LAA builders. Builders are encouraged to use these standard modifications rather than devise their own alternatives. Copies are available through UK Pietenpol Club:

Steerable tailwheel operating horns	LAA mod 10353
Surface mounted control horns	LAA mod 10495
Revised aileron system crank	LAA mod 10531
Wing rib modified truss (to alleviate Control cable foul)	LAA concession 0451
Wing rib repositioning (to alleviate clash with wing bolts)	LAA concession 0348
Spoked mainwheels	LAA mod 12654



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Tailwheel installation	LAA mod 12655
Centre section trailing edge cut out	LAA mod 11453
Centre section trailing edge flap	LAA mod 11453
Improved seat harness mountings	LAA mod 11452
Alternative rudder pedals	LAA mod 12706
Undercarriage safety cables	LAA mod 13061

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

Nil known.

3.4 Special Inspection Points

- Due to the lack of details of such things as engine installation, brakes, pitot-static system, fuel system, exhaust system etc on the drawings, inspectors must ensure that these areas are dealt with in accordance with normal light aircraft design practises. Refer to Bingelis's books 'Firewall Forward', 'The Sportplane Builder' and 'Sportplane Construction Techniques' for examples of standard aviation practises. If in doubt, consult LAA Engineering for advice.
- Careful setting of tension in control cables is required to provide an acceptable compromise between excessive control system friction and unduly sloppy controls.
- The standard drawing shows both fuselage and wing centre section tank. Gravity feed from fuselage tank has been found to be marginally sufficient with low fuel level and in some cases causes several gallons of fuel in tank to have to be treated as unusable.
- The sloping drag struts of the cabane strut system are intended to be fabricated after the preliminary weight and balance has been carried out, to allow the wing to be located in the ideal fore and aft position for balance purposes. With the Continental engine and Wills engine mount, the centre of gravity tends to be slightly aft, consequently the cabane struts end up raked rearwards to compensate, i.e. moving the wing rearward. Rigging the cabane struts vertical is likely to result in the cg being too far aft relative to the wing leading edge, leading to degraded flight handling.

3.5 Special Test Flying Issues

- Due to the lack of details on the drawings of the engine installation, all engine installations will be unique and engine cooling, efficiency of carb heat system, etc, will need particular attention during the flight test program.
- Due to the lack of detail on the drawings on pilot's controls and windscreen arrangements, evaluating pilots must check that ergonomics of controls are adequate. Adjustments to screen rake and size may be needed to minimise buffet in the cockpit.

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