



SPECIFIC AIRWORTHINESS SPECIFICATION

for

PIK-20D

as specified in Section I

This Specific Airworthiness Specification is issued in accordance with Regulation (EC) 1592/2002 Article 15(1)(b). There is no valid Type Certificate for this aircraft type. The former type certificate holder was Eiravion Oy (formerly Molino Oy)

CONTENT

SECTION 1: Aircraft Design Definition

Variant 1 PIK-20D

1.I General

SAILPLANE SPECIFICATION No. P-6

This specification which is a part of the type certificate No. P-6 prescribes conditions and limitations under which the product for which the type certificate was issued meets the airworthiness requirements of Finland.

Type Certificate Holder Eiriavion Oy
38800 Jämijärvi
Finland

1.II Certification Basis

OSTIV Airworthiness Requirements for Sailplanes, September 1971, Utility Category

1.III Technical Characteristics and Operational Limitations

Model PIK-20D, Approved September 21, 1976

Serial Nos. 20504 and up

Maximum Weight 450 kg (990 lbs) including water ballast

Water Ballast Two water ballast tanks at station 2130 mm (83.9 in) each 70 kg (154 lbs)

Control Surface Movements

		Up	Down
Flaps		$12^{\circ} \pm 1^{\circ}$	$16^{\circ} \pm 1^{\circ}$
Ailerons	+16° flap	$13^{\circ} \begin{smallmatrix} +2^{\circ} \\ -1^{\circ} \end{smallmatrix}$	$12,5^{\circ} \begin{smallmatrix} +2^{\circ} \\ -1^{\circ} \end{smallmatrix}$
	0° flap	$12^{\circ} \begin{smallmatrix} +2^{\circ} \\ -1^{\circ} \end{smallmatrix}$	$11^{\circ} \begin{smallmatrix} +2^{\circ} \\ -1^{\circ} \end{smallmatrix}$
	-12° flap	$11^{\circ} \begin{smallmatrix} +2^{\circ} \\ -1^{\circ} \end{smallmatrix}$	$9,5^{\circ} \begin{smallmatrix} +2^{\circ} \\ -1^{\circ} \end{smallmatrix}$
Aileron neutral position travels with flaps up $12^{\circ} \pm 1^{\circ}$ thru down $16^{\circ} \pm 1^{\circ}$			
Elevator		Up $20^{\circ} \pm 1^{\circ}$	Down $20^{\circ} \pm 1^{\circ}$
Rudder		Right $33^{\circ} \pm 2^{\circ}$	Left $33^{\circ} \pm 2^{\circ}$

Airspeed Limits (I.A.S.)

Never exceed (V_{NE}) 292 km/h (181 mph, 158 kts)

Gusty conditions (V_B)

with full water ballast
or 450 kg(990 lbs) flying weight 240 km/h (149 mph, 130 kts)

without water ballast 200 km/h (124 mph, 108 kts)

(airspeed limit changes linearly depending on the water ballast amount)

Maneuvering (V_A) 190 km/h (118 mph, 103 kts)

On aero tow (V_T) 190 km/h (118 mph, 103 kts)

On winch tow (V_W) 125 km/h (77 mph, 67 kts)

Down deflected flaps (V_F) 150 km/h (93 mph, 81 kts)

C.G. Range 20% to 40 %MAC; 2085 mm to 2225 mm; 82.1 in to 87.6 in

Empty Weight C.G. Range None

Datum 1900 mm (74.8 in) forward of wing leading edge at wing root rib

Levelling Means Slope of rear top surface of fuselage between stations 3500 mm (140 in) and 4500 mm (180 in) 1000 to 28 tail down

No. of Seats One adjustable seat, pilot's C.G. range
1400 mm to 1460 mm; 55.2 in. to 57.5 in

Fixed Ballast Station 230 mm; 9 in
Max 10 kg (22 lb) lead plates, attaching by bolts and nuts or inserts

Rated Load on Winch and Aero Tow 500 kg (1100 lb)

This sailplane must be operated in compliance with the operating limitations as stated in the form of markings, placards and in the PIK-20D Flight Manual. All aerobatic maneuvers including spins must be accomplished in accordance with PIK-20D Flight Manual.

1.IV Operating and Service Instructions

Required Equipment

The basic required equipment as prescribed in the application airworthiness regulations (see Certification Basis) must be installed in the sailplane for standard airworthiness certification. In addition the following equipment must be installed:

1. Instruments (non-cloud flying)
 - (a) Airspeed indicator
 - (b) Altimeter
 - (c) Magnetic compass
 - (d) Ball type slip indicator
2. Additional instruments for cloud flying
 - (a) Turn and slip indicator
 - (b) Variometer
 - (c) Clock
3. An accelerometer for acrobatic flying
4. PIK-20D Flight Manual (containing Flight, Service and Repair Manual) approved by the National Board of Aviation, Finland

Inspections, Maintenance, Repairs, and Repaintings must be accomplished in accordance with Eiriavion Oy's PIK-20D Flight Manual Section 2 (Service Manual) and Section 3 (Repair Manual).

For painting of exterior surfaces must be used only two component paints with ultra-violet protection as listed in Repair Manual.

Major repairs must be performed in accordance with repair methods approved by Eiriavion Oy.

Fatigue inspection shall be made according to Fatigue Inspection Program PIK-20D-FIP Rev0.

1.V Notes, including serial number applicability

Note 1. The following placards and markings must be displayed in a conspicuous place on the sailplane:

a. Maximum speed

In calm weather (V_{NE})	292 km/h	181 mph	158 kts
In rough air (V_B)			
with full water ballast or 450 kg(990 lbs) flying weight	240 km/h	149 mph	130 kts
without water ballast	200 km/h	124 mph	108 kts
Maneuvering (V_A)	190 km/h	118 mph	103 kts
On aero tow (V_T)	190 km/h	118 mph	103 kts
On winch tow (V_W)	125 km/h	77 mph	67 kts
Down deflected flaps (V_F)	150 km/h	93 mph	81 kts

b. Weights

Gross weight 450 kg (990 lb) including water ballast

If the pilot's weight with the parachute is below 75 kg (165 lb) ballast weight must be installed in the nose (see Flight Manual and Weight and Balance Data Sheet)

c. Pre-flight check

Tail dolly	.....removed
Barograph (if installed)	.....on
Loading and ballast	..... checked
Parachute	.....secured
Seat and rudder pedals	.....adjusted
Safety belts	.....secured
Canopy	.....locked
Altimeter	.....set
Electrical instruments	.....on
Flaps	.....in take-off position
Airbrakes	..... closed and locked
Trim	.....set for take-off
Tow rope	..... coupled in
Controls	.....free

d. Before landing

Water ballast	.....drained
Landing gear	..... down
Flaps	..... 12°... 16° down
Trim	.....set for landing

e. Operating limitations

- This sailplane must be operated in compliance with the operating limitations as stated in the form of markings, placards and in the PIK-20D Flight Manual. All acrobatic maneuvers including spins must be accomplished in accordance with PIK-20D Flight Manual
- Night flying prohibited.

f. The controls or handles for tow coupling release, canopy opening and jettisoning, landing gear, flaps, airbrakes, trim tab, pedals, ventilating and water ballast draining must be equipped with unmistakable symbol or text placards.

- g. The flight speed limitations must be marked on the dial of the air speed indicator in accordance with the Flight Manual,
- h. The load factor limitations must be marked on the accelerometer with red radial lines.
- i. Other markings
 - Near the tow coupling "Rated Load 500 kg (1100 lb.)"
 - Above the main wheel "2.5 Aty (35 psi)"
 - Above the tail wheel "2.0 Aty (28 psi)"
 - On fuselage nose (inside) "BALLAST"
 - Adjacent to static pressure entry on fuselage skin "STATIC PRESSURE KEEP CLEAR"
 - On rudder, elevator and flaps "DO NOT PUSH"
 - Adjacent to oxygen control valve (if installed) "DURATION TABLE"

Note 2. Inspections, Maintenance, Repairs, and Repaintings must be accomplished in accordance with Eiriavion Oy's PIK-20D Flight Manual Section 2 (Service Manual) and Section 3 (Repair Manual).

Note 3. For painting of exterior surfaces must be used only two component polyurethane paints with an aliphatic isocyanate hardener, based on National CAA STC grandfather rights (July 26th 1999).

Note 4. Major repairs must be performed in accordance with repair methods approved by Eiriavion Oy.

Note 5. Tailplane and rudder of sailplanes S/Ns 20566 and up have been modified according to manufacturer's drawings Nos. 0-20D-52-100a, 1-20D-53-100b, 1-20D-58-100b and 1-20D-59-100c.

Note 6. All PIK-20 D sailplanes are approved for full acrobatic category provided that the following modifications are made.

- a) A recording accelerometer with red radials at +6.6 and at -4.6 shall be installed into the sailplane.
- b) Foot straps should be installed to the slits existing in the pedals. (optional requirement)
- c) An additional placard shall be installed on the right hand side of the cockpit near the original limitation placard:
"Guidance and limitations for acrobatic category are given in flight manual supplement."
- d) The aircraft flight manual supplement for acrobatic category shall be appended to the original aircraft flight manual.

This acceptance is based on a design change approved by the Finnish Civil Aviation Authority May 7th 1997.

Note 7. In addition to the original resin material Rütapox L 02 (L20) + H 91/SL (H91, SL50, SL) the following resins are approved data based on National CAA STC grandfather rights:

- a. Ciba-Geigy – Araldite LY 5052 + HY 5052 (June 29th 2000)
- b. Scheufler – L285 + Hä285 (March 21st 2000)

Note 8. Repair methods guided in the Structural Repair Manual of PIK-20's are:

- i. broken monocoque structure
- ii. broken outer surface of sandwich plate
- iii. hole in sandwich plate

In addition the following repair instructions are approved data based on National CAA STC grandfather rights:

- iv. defect in sandwich core material (June 29th 2000)
- v. depression in sandwich core (December 10th 1993)
- vi. repairing fuselage belly by bevelling (July 26th 1999)
- vii. repairing of ribs and inner structures (December 10th 1993)
- viii. repairing of wing spar flange (July 27th 1983)
- ix. heat-treatment of repaired area (July 27th 1983)
- x. finishing (July 26th 1999)
- xi. general instructions for composite structure repairs

as described in document:

Korhonen H., LUJITEMUOVI ILMA-ALUSTEN MATERIAALINA JA SEN KORJAUSMENETELMÄT, Raisio 2007, 141 p. (in Finnish, title in English: Composites as aircraft structural material and its repair methods).

Note 9. There has been a maintenance requirement of 1000 hours life limit for rudder cables. The following alternative method to maintenance requirements is approved data based on National CAA STC grandfather rights:

In annual inspection (July 2nd 1998)

- Check the condition of rudder cables on both ends and especially on the pedal S-curved diversion. If 1/3 of wire thickness has been consumed or if any wires are cut then replace the cable in whole.

Note 10. Some aircraft on the French register had been considered as Annex II aircraft for several years by DGAC France but are now confirmed as EASA types. Because DGAC-F has used the technical content of the SAS as the basis for their approval and because DGAC-F is accredited to perform these certification activities under the control of the Agency, the Agency has extended the applicable SAS to cover all changes and repairs approved by DGAC France up to 28th September 2009.

SECTION 2: **Airworthiness Directives**

The following ADs and additional data can be found at

http://www.trafi.fi/en/aviation/airworthiness/pik-20_support

Variant 1 **PIK-20D**

AD	Date	Heading	Ref.
	21.9.1976	Flight Manual , Service Manual	
	2/1977	Flughandbuch, Betriebshandbuch	
	15.4.1977	Airbrake control locking force (sn: 20504-20530)	M13
733	17.6.1977	Incorrect bonding in shear web (sn: 20510-20532, 20534-20540, 20542, 20543, 20544, 20548, 20552, 20555 and 20556)	M17
735	12.7.1977	Tost Europa G73/72 tow hook back release (sn: all)	
746	1.8.1977	Safety belts (sn: all)	M15
	20.3.1978	Lentokäsikirja, Hoito-ohjekirja	
	11.9.1978	Main wheel rubbing against the landing gear main fork. (sn: 20575 - 20610)	M19
	2.2.1979	Slow draining of the water ballast system (sn: all)	M21
	5.4.1979	Mounting of fuselage fairings (sn: all)	M23
	12.4.1980	Wing surface skin (sn: 20566-20593)	M20D-24
	8.5.1981	Inspection hole cover on fuselage (sn: all)	M20D-25
1232-1	14.5.1984	Rudder bottom hinge bracket (sn: all)	M20-26

SECTION 3: **Occurrence Reporting**

The Specific Airworthiness Specification may be used as a basis for the issue of a Restricted Certificate of Airworthiness in accordance with 21A.173(b)(2) under the following conditions:

- a) The holder of a Restricted Certificate of Airworthiness based on this Specific Airworthiness Specification shall report to the State of Registry all information related to occurrences associated with the operation of the aircraft which affects or could affect the safety of operation¹.
- b) Such reports shall be despatched within 72 hours of the time when the occurrence was identified unless exceptional circumstances prevent this.
- c) The State of Registry shall forward the information received under (a) to the Agency when it relates to failures, malfunctions, defects or other occurrences which cause or might cause adverse effects on the continuing airworthiness of the aircraft.

SECTION 4: **Other Limitations**

This aircraft is limited to non-commercial operation.

SECTION 5: **Change record**

Issue 1: Initial issue dated 22 August 2007

Issue 2: 28 September 2009. Note added to address design changes approved by DGAC-F prior to 28 September 2009.

Issue 3: 28 April 2011. Addition of notes 7 to 9, fallen out by mishap in the previous issue. Refinement of note 3 for exterior surface painting.

Issue 4: 03 February 2016. Addition of Fatigue Inspection Program in chapter 1.IV Operating- and Service Instructions.
URL to PIK 20 support updated, Section 2.

¹ AMC 20-8 contains guidance describing the occurrences which are to be reported