
CONFIGURATION CHECKS FOR THE PW5

Note:

This document, formerly an appendix of SC3 Annex A, has been preserved for historical reasons.

One of the objectives of the World Class and the World Class glider is to give equal chances to the pilots participating in a competition.

The World Class glider is actually (January 2002) the PW-5, designed and manufactured in Poland. It was selected by FAI-IGC on March 1994 after the results of a design & prototype competition taking place at Oerlinghausen, Germany, September/October 1992.

The PW-5 will maintain its status of World Class glider till March 2009, i.e., for 15 years since type certification in March 1994, unless before then one or more of the conditions of the Agreement between FAI and the Warsaw University of Technology (September 1997) is no longer complied with.

As requested by FAI-IGC the PW-5 is fully certificated by the Polish airworthiness authority on the basis of the JAR-22 requirements, category U, cloud flying and limited aerobatics allowed.

The Flight Manual limits are:

Maximum mass:	300 kg
Maximum empty mass:	190 kg
Maximum cockpit load:	110 kg
Minimum pilot + parachute mass:	55 kg

A general description of the aircraft, including a 3-view drawing, is given in the Flight Manual, pages 1.3 and 1.4.

The PW-5 is actually (January 2002) produced by two manufacturers, both in Poland: PZL Swidnik (since 1994) and PZL Bielsko 1 (since 2000). The two versions have a few different features and accessories but, as specified by FAI, the external geometry and the mass of the gliders is the same.

TECHNICAL CHECKS

In order to ensure that competing gliders in the same competition have the same flight performance, two basic checks have to be made:

1. A check of the external geometry, intended to verify that the shape, size, state of the external surface of the gliders are the same so that the airflow over the external surfaces occurs with the same characteristics; and
2. A check of the glider masses, intended to verify that the take-off weight is the same for all gliders.

According to Annex A of the Sporting Code, "Each sailplane shall be made available to the Organizers at least 72 hours before the briefing on the first championship day for an acceptance check in the configuration in which it will be flown. This configuration shall be kept unchanged during the whole competition."

1. Geometry Checks

The following geometry checks should be carried out:

Wing Span The nominal value of 13440 mm shall be checked assuming a reasonable tolerance due to thermal effects. The measurement shall be made in compliance with the Sporting Code – Sec.3, para.7.1.3.

Wing Sections High precision templates are available to check the airfoil contour at three different stations along the semi span of each wing.

Wing-Fuselage Fairing A template is available to check the correct size and shape of the fairing at the trailing edge of each wing.

Wheel Fairings Templates are available to check the correct size and shape of the fairings of the front wheel and the rear (main) wheel.

Alteration to Airflow Checks shall be made to verify compliance with the Sporting Code-Sec. 3, para.7.7.5, which states: “Any alteration affecting airflow around the glider is prohibited. This includes, but is not limited to, the use of turbulator devices, fairings, and special surface treatment. The only exceptions are:

- (i) A yaw string,
- (ii) A total energy probe,
- (iii) Adhesive tape to seal gaps between wings, fuselage and tail.

Sealing between moveable control surface and the airframe is not permitted.”

Additional Inspection Verify by visual inspection any abnormality on the external surface and shape of the glider.

2. Mass Checks

The following mass checks should be carried out:

Scales Two scales at least shall be available, located at the front and main wheel, respectively, allowing two contemporary measurements the sum of which gives the total mass. The scales shall be adequate in range (up to 350 kg at least) and accuracy (± 1 kg at 300 kg).

Take-Off Mass During the training period, three days at least before the start of the competition, the Director shall fix the glider take-off mass, which shall be identical for all competing gliders. It is likely that the value of this mass has to be 300 kg, i.e. equal to the maximum permitted mass. This is due to the existence of at least one heavy pilot among the competitors, reaching the mass limit without the addition of any ballast (as has occurred in all three World Championships so far, at the present time of January 2002). To attain the specified mass each glider shall incorporate the required amount of fixed ballast to be accommodated under the pilot’s seat. Tail ballast is permitted.

Additional Weighing it is strongly recommended that the following additional weighing operations are made and that the results are recorded and made available to the pilot concerned:

- a. Glider empty, i.e., without pilot and parachute but including loose items such as thermos, drinks, tie-down equipment, additional clothing etc.;
- b. Pilot;
- c. Parachute.

CENTRE OF GRAVITY CONTROL

Verify compliance with Sporting Code – Sec.3, para. 7.7.5 d which reads: “Any device capable of altering the centre of gravity location of the glider during flight is prohibited.”

ELECTRICAL DEVICES

According to the Sporting Code – Sec.3, para. 7.7.5 b “Electrical and electronic devices are allowed, including instruments and navigational aids.”

RANDOM CHECKS

During the competition days, when the gliders are on the way from the parking area to the grid, at the choice of an official designated by the Director of the competition, random checks of the glider’s weight are carried on.

Cases of non-compliance with the preset value of the glider weight are reported to the Director.