TST-13 JUNIOR

TST-13 Junior is a single-seat light composite glider with an engine installed in the front part of the fuselage. The aircraft is suitable for cross country flights and leisure thermal flying.

The goal of the development work on the TST-13 was to design a light aircraft for pleasur flying and feature aerodynamics to allow utilization of thermal conditions for gliding and motorless flights. The concept of the TST-13 is based on the high-performance TST-10 Atlas glider. We used the 15 m wing of the TST-10 and modified the fuselage to enable the installation of the propulsion unit with a propeller in the front part of the fuselage. The fuselage of the TST-13 features an instrument panel and design conforming to the category of light motorless aircraft. The landing gear is fitted with two wheels with a steerable tailwheel.

The combination of the proven high-quality wings and the classic concept of motorized aircraft allowed us to build a very convenient motorized glider for both long flights using an engine as well as trouble-free motorless thermal flights.

To improve the aerodynamic performance, the aircraft can be equipped with a featherable inflight adjustable propeller.

Instrumentation for the TST-13 Junior glider is fully customizable - the customer can either choose instruments from our list of avionics manufacturers or he/she can supply the instrumentation himself/herself during the production of the ordered aircraft.

The Junior can be delivered with an entire range of accessories.

Brief glider characteristics

* 15 meter wing span
* Long-life all-composite structure
* Power unit - Rotax 447 or Rotax 503
* Adjustable propeller including feathering
* Performance allowing long thermal flights with the engine switched off
* Glide ratio 29
* Up to 6 hours of economy powered flight
* Easy assembly, disassembly and transport
* Easy maintenance

TeST, spol. s r.o.

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TST-13 JUNIOR

TECHNICAL DESCRIPTION

TST-13 Junior is a one-seated, mid-winged monoplane with a cantilever wing, T-shaped tail and two-wheel undercarriage. Its composite structure is made in negative molds.

THE WINGS with sandwich structure are equipped with ailerons and air brakes on the upper surface. The strength of the wing is formed by the main spar, the aileron spar and the root rib. The wing profile of the sandwich structure forms a torsion box.

The wings are interconnected by fittings and two horizontal pins. The connection wing-fuselage is made by means of pins and fittings placed in the fuselage and the wing root rib. The composite ailerons are hung by four hinges with the turning axis on the upper side. Air brakes on the upper side of the wing are made of aluminium and are retracted into pits.

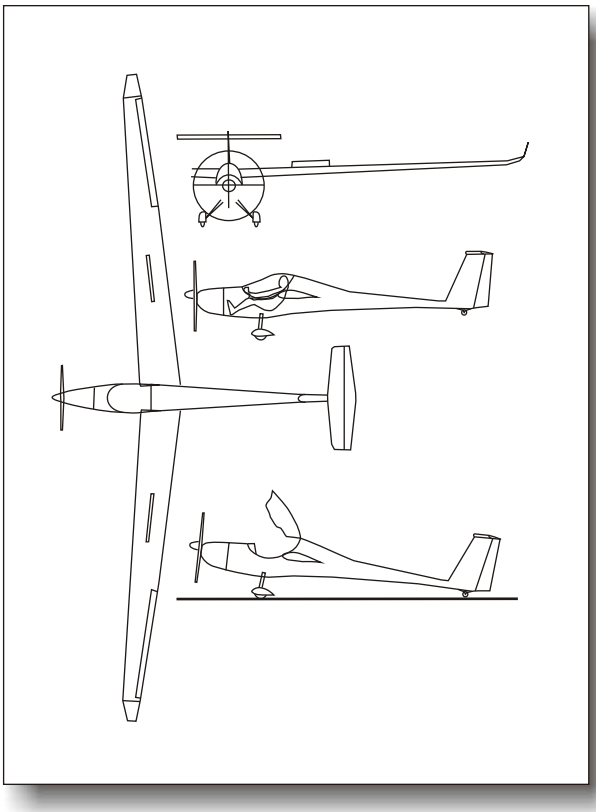
THE FUSELAGE with a shell structure is made in a negative mold together with the fin.

THE TAIL is a T-shaped sandwich structure.

THE CONTROLS, enabling pitch, roll, air brake and trim control, are of lever design, with a push-pull rod system. The relevant backstops are placed on the stick. Yaw control is transmitted via cables and includes adjustable foot pedals. The airplane can be trimmed by a torsional member in the elevator drive that is controlled by a lever.

THE UNDERCARRIAGE with two wheels (300 x 100 mm) is housed in a flexible dural leg. The lever placed on the stick controls the brake. The tail landing gear is provided with turnable tail wheel (120 x 30 mm).

THE POWER PLANT is alternatively a Rotax 447 or 503 with electric starter and reducer B, ratio 1:2. The propeller is wooden, two-bladed, on the ground adjustable, dia 1600 mm. Alternatively, propeller SPORTPROP adjustable to a flag position for soaring.



TECHNICAL PARAMETERS

Number of seats	1
Wing span	15 m
Wing area	10.03 m^2
Aspect ratio	22,4
Length	7.45 m
Weight of pilot and fuel	65 - 115,5 kg
MTOW with BRS	322,5 kg
V_{NE}	200 km/h
Max maneuvring speed	140 km/h
Stall speed	65 km/h
Max. glide ration with winglets	31
Max. calculated load factor	+4.8 / -2.8
Engine	Rotax 447 alt. Rotax 503
Cooling	Air
Power	29,5 kW resp. 34 kW
Starter	Electric
Carburetor	2x membrane
Propeller	1600 mm
Reducer	Type B
Fuel tank capacity	40 liters
Fuel cons. when climbing	11 liters / h
Fuel cons. at cruise speed	6.6 liters / h

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