Harmony LSA is aerodynamically controlled, single-engine, two-seated, low-wing plane with a fixed tricycle undercarriage. The plane is combination of classic metal primary corrosion proofed all metal airframe, riveted and bonded, and composites parts to achieve elegant external contours. The model is based on a successful aircraft SportStar.

The plane meets ASTM Consensus Standards and FAA Sport Pilot rule.

1. GENERAL DESCRIPTION OF THE PLANE

1.1. Fuselage

The fuselage has a semimonocoque construction formed with reinforcements and duralumin skins. The fuselage cross-section is rectangular in the lower section, elliptical in the upper one. The tail fin is an integral part of the fuselage. In the middle section of the fuselage there is a two-man crew cockpit accessible after unfolding the one-part perspex overlap canopy. The engine section is separated from the crew by a firewall in the nose, which the engine bed is attached to.

1.2. Wing

The rectangular wing is a monospar construction with an auxiliary spar for the ailerons and flaps attachments. All the elements are riveted together. At the ends of the wings are riveted fiberglass wing tips.

1.3. Horizontal tail unit (HTU)

The HTU consists of a stabilizer and elevator with a trim tab. The semimonocoque construction of the HTU consists of duralumin ribs, spar and skin. The shape of the HTU is rectangular. The width of 2.5 m (8.22 ft) enables transport on a trailer without dismantling.

1.4. Vertical tail unit (VTU)

The VTU has a trapezoidal shape. Its fin part is an integral part of the fuselage rear. The rudder is attached to the fin part by two hinges. The construction of the VTU is composed of a metal sheet spar and a duralumin skin.

1.5. Landing gear

The plane has a fixed undercarriage with a nose wheel. The main undercarriage legs are composed of a fiberglass springs. The wheels on both undercarriage legs are standardly equipped with 15x6 tires and with hydraulic disc brakes, controlled by toe brake pedals on the rudder pedals. Rudder pedals have improved ergonomic – co-pilot left pedal moved away of the pilot right pedal. There is easier adjustment of rudder pedals position by small levers. Main wheels have external brake caliper for easy and fast brake pads replacement. The main wheel spacing is extended to improve stability at taxiing. The undercarriage leg of the nose wheel is produced from steel tube and spring-loaded by bungee. Damping of the nose wheel is hardened by installation of a larger tire, stronger bungee and an additional rubber pad. A steerable nose wheel enables easy taxiing of the aircraft on the ground. Sensitivity of the nose wheel steering is reduced for easier training.

1.6. Control

The plane is equipped with a classic dual control system. The ailerons and elevator are controlled by control sticks, connecting push-pull rods and bell cranks. The rudder is controlled by pedals and cables. Adjustment of rudder pedals position is easier, controlled by small levers. There are anti-skid bands on the pedals. Geometry of toe-brake pedals is improved to minimize possible unintentional braking.

The flaps are controlled mechanically; the flaps control lever is located between the seats. The elevator trim tab is standardly mechanical, operated by a trim control lever located between the seats. Electric flaps and longitudinal as well as lateral electric trims with dual control switches are on request.

1.7. Power plant

Standard power plant consists of Rotax 912 ULS (100 HP) engine and a composite ground adjustable propeller Propuls AES 1700/3/R with a conical spinner. Rotax 912 is a four-cylinder, four-stroke horizontally opposed engine with a central camshaft and OHV distribution. The engine is attached to the engine bed suspended on the firewall. Engine cooling is combined, the cylinder heads are liquid cooled, and the cylinders are air-cooled. Dry sump forced lubrication. Two spark electronic ignition. The engine is equipped with an electric starter, an AC generator and a mechanic fuel pump. An integrated reduction gear box through which a propeller is driven has a gear ratio 2.43 for the 100 HP version. Installation of other propellers on request.

1.8. Fuel system

Fuel system consists of two wing integral tanks in total amount of approximately 118 liters (31 USgal), a fuel tank selector, a filter and a fuel pump on the engine. Each tank has a sump and drain valve. The fuel tank venting outlet is under the wing tips.

1.9. Electric system

Electric system is single-wire type with the negative connected to the chassis. As a power source serve the single-phase generator integrated to the engine and the 12V maintenance less battery located on the firewall. The system is protected by the main circuit breaker positioned on the instrument panel. Circuit breakers guard the circuits of the particular sections separately.

1.10 Seats and seatbelts

The plane has two side-by-side seats, which are fixed, thin-cushioned, each equipped with seatbelts. Shoulder harnesses are attached to the sides for easier access to the luggage compartment with upholstered arm supports.

1.11 Baggage compartment

Behind the backrests located baggage compartment is designed for maximum 25 kg (55 lbs) load.

1.12 Cockpit canopy (wide, light brown tinted)

The plane has a new composite sturdy tip-up canopy. Canopy shape is aerodynamically optimized to reduce drag. Cockpit is roomy and light. Canopy and airframe are also designed for turnover conditions. The canopy is attached to the nose section of the fuselage by two pins, on which it may be tilted forward. For easier manipulation, the weight of the canopy is counterbalanced by two gas struts, which allow it to open effortlessly. On the lower frame there are handles outside the canopy. The canopy is equipped with a sturdy automotive type latch with open canopy indication. Efficient cockpit ventilation through eye-ball vents is connected to the NACA scoops. There is a new design of cockpit heating system with separate regulation of warm and cold air volume and air distribution inside the cockpit and a new design of windshield defrost and demist system, including sides for safe taxiing. There are handles in dashboard cover for easier disembarkation.

1.13 Pitot-static system

The Pitot-static head to read air pressure is located under the left wing. Pressure distribution to individual instruments is done through flexible plastic hoses.

1.14 Painting versions

Standard versions: one color only (white), 3× registration marks (foil), 2× type of aircraft (foil), 2× Harmony LSA logo (foil).

Other versions are defined in paint catalogue. Special customer design can be ordered separately.

1.15 Standard aircraft specification

Standard Harmony LSA aircraft is ready to fly aircraft with the following equipment:

ENGINE INSTRUMENTS	FLIGHT INSTRUMENTS
RPM indicator	Air speed indicator (knots or km/h)
Cylinder head temperature indicator (℃ or ℉)	Alti meter (feet)
Electric fuel indicator	Magnetic compass
Oil temperature indicator (℃ or ℉)	Vertical speed indicator (ft/min or m/s)
Oil pressure indicator (MPa or psi)	Bank indicator

CONTROLS	FIREWALL FORWARD
Dual hydraulic brakes (4 pumps)	Propeller Woodcomp Propuls AES 1700/3/R, composite, ground adjustable, spinner
Dual control sticks	Rotax 912 ULS (100 HP inclusive slip clutch)
Mechanical flaps + Mechanical elevator trim	12 V battery
Throttle control with friction lock	Exhaust system
Adjustable pedals	Combined engine cooling
New design of instrument panel	Dry sump forced lubrication
Press-button circuit breaker	Two spark electronic ignition system
Nose wheel steering	Electric starter
Combined starting switch	AC generator
Choke lever	Engine oil check cap

INTERIOR	EXTERIOR
Eye-ball vents	Advanced all metal anodized and corrosion-proofed airframe
12 volt auxiliary outlet	All joints of construction riveted as well as bonded for long service life
Four points safety points-belts (with shoulder straps)	All heads of pop rivets filled with mastic for longevity of riveted joints
Deluxe lined interior and upholstery seats	Painting (white color only)
Arm rests, side map pockets	Main and nose tires 15x6.00-6
Aft baggage compartment with luggage nets	Tricycle landing gear with steerable nosewheel
Wide aft baggage space	Tinted canopy Automotive type latching mechanism with separate canopy lock
Open/closed canopy alert	118 l (31.2 USgal) fuel tank

ACCESSORIES
Pilot operating handbook
Maintenance manual
Log book
Ground equipment inclusive canopy cover
Set of aircraft test records

NOTE: Other modification you can see in price list as an extras.

2. TECHNICAL SPECIFICATION

Wing span	9,25 m	30 ft 4”
Length	6.11 m	20 ft ½”
Cabin width	1.18 m	46 ½”
Height	2.48 m	8 ft 2”
Basic empty weight	310 kg	683 lb
Useful load	290 kg	637 lb

MTOW	600 kg	1320 lb
Load factors (Ultimate)	+6g / -3g	
Glide ratio	1:10	
Baggage capacity	25 kg	55 lb
Fuel tank capacity	118 l	31,2 USgal

3. PERFORMANCES

Engine	Rotax 912 ULS (100 HP)	
Never exceed speed V_{ne}	270 km/h	146 KIAS
Maximum level speed	222 km/h	120 KCAS
Cruising speed at 75% engine power	204 km/h	110 KCAS
Stall speed no flaps v_{s1}	83 km/h	45 KCAS
Stall speed with flaps v_{s0}	74 km/h	40 KCAS
Rate of climb v_z	5,2 m/s	1.020 ft/min
Service ceiling	4720 m	15,500 ft
Take-off run (concrete RWY)	190 m	620 ft
Landing run	180 m	590 ft
Average fuel consumption	15 l/h	4.0 USgal/h
Range no reserve	1300 km	700 NM
Endurance no reserve	8:30 h	

4. PRICE AND OPTIONAL AVIONICS AND INSTRUMENTATION

The prices are binding for the aircraft being manufactured during price list validity. The Producer reserves the right of keeping price validity further to aircraft term manufacture.

All prices are EXW EVEKTOR – AEROTECHNIK a.s. Kunovice, Czech Republic

5. WARANTY CONDITIONS

200 flight hours or 24 months, which event comes first.

All other details available in

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