

1.3 Primary and Secondary Structures

Primary structures include:

- wing spars and root ribs
- wing shells
- fuselage tail boom from wing mounting area to fin
- fin and horizontal stabilizer
- all rigging fittings and control linkage parts
- engine mount bed and propeller support assy.

Secondary structures are:

- control surfaces and flaps
- fuselage in the cockpit area
- engine compartment doors.

1.4 Specifications

Wings

Span	18 m	(59.06 ft)
Wing area	11.68 m ²	(125.72 sqft)
Aspect Ratio	27.74	
Dihedral (control surface hinges)	3.0°	
Sweepback: (both inner wing tapers)	0.0°	
(outboard wing taper)	+3.0°	
Flap settings	-1°, 0°, +10°, +23°, + 38°	
Airfoil section: Wing	DU 89-134/14 (13.4 % thickness)	
Winglet, bottom	DU 98-125M1	
Winglet, top	DU 98-100M1	
Winglet height (as of wing chord)	0.45 m	(1.48 ft)
Winglet area	0.0647 m ²	(0.70 sqft)
Winglet sweepback (leading edge)	30°	

1.4 Description and Technical Data

The ASH 26 is a high performance single-seater sailplane designed for a future 18 Meter Class of the FAI. Its high performance potential makes the ASH 26 suitable for record breaking and competition flying.

Not least, its pleasant flying characteristics make the ASH 26 suitable for use in performance-orientated clubs.

The installation of the compact power-plant, a single rotor engine, type AE50R, increases the operational range of this sailplane. It allows the flight to be extended to different kinds of terrain - so long as they offer outlanding possibilities - and their meteorological conditions, which would be out of reach of a pure sailplane.

The ASH 26 E is a shoulder wing sailplane with damped T-tail and sprung, retractable landing gear with hydraulic disc brake. The wing is equipped with trailing edge flaps extending over the full span, to allow a choice of optimum wing camber in relation to drag throughout the speed range. With landing flap selected the deflection of these flaps will generate high drag combined with good control which, together with the airbrake paddles on the upper wing side, permits very short landing approaches.

The engine and the exhaust silencer of this new designed power-plant are fitted stationary in the fuselage. Only the rigid twin-bladed propeller of this self-launching sailplane is extended electrically. The power-plant has an extremely low noise and vibration level and is fitted behind the wing in the fuselage. The 37 kW engine provides excellent rates of climb even at maximum all-up weight.

more than 200 RPM.

Allow engine to warm through at 4000 RPM for 3 to 4 minutes on ground; the coolant temperature should then be around 60 °C (140 °F). This way it will be ensured that the engine will smoothly accelerate to max. RPM.

With temperatures below -10 °C (14 °F) the engine should not be started because there is the danger with a very cold engine that the lubricant oil is too thick and thus the oil feed into the engine could be interrupted.

(3) Self-Launch

For a safe self-launch maximum engine revolutions should come up to at least 7000 rpm on the ground. With lower revolutions the pilot must face longer take-off distances than indicated in Section 5.2.3.

WARNING: If maximum revolutions reached on the ground are distinctly below 7000 rpm, the aircraft must not take off any longer. First the carburettor adjustment must be checked and again a test run of the power-plant on the ground must be done.

Experienced pilots should start their take-off run at the most negative flap setting 1. This flap setting affords excellent lateral control. At an indicated air speed of about 50 km/h = 27 kts the flap should be increased to Flap 4 (+23 °). For the remainder of the climb Flap 4 should be maintained.

For pilots without experience of flapped aircraft, we recommend setting Flap 4 both during take-off and throughout the climb.

For the acceleration run and actual lift-off, the following

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For the acceleration run and actual lift-off, the following practises apply for different runway characteristics:

- Concrete runways:

Accelerate with "Wide Open" throttle in flap setting 2 and slightly push the stick until the tail wheel is unloaded. Up to a speed of about 50 km/h (27 kts) acceleration continues on the main wheel, then set flap 4 and at the same time gently pull the stick until the aircraft lifts off. After lift-off, climb to between 1 m and 2 m (3 and 6 ft) and accelerate then slowly to v_Y .

But in case of crosswind the procedure differs and the tailwheel is loaded by slightly pulling the stick in order to increase directional stability during the ground run.

- Soft surface runways:

Use flap setting 2 and by pulling the stick try to keep the tail wheel in contact with the ground until the aircraft lifts off. This is in order to reduce the load on the main wheel.

As early as possible change to flap 4 and at the same time gently pull the stick until the aircraft lifts off. After lift-off, climb to between 1 m and 2 m (3 and 6 ft) and accelerate then slowly to v_Y .

Maximum acceptable crosswind components are stated in Section 5.3.1.

(4) Climbing Flight

During climbing flight, the engine should be run at maximum 7500 rpm at $v_Y = 95 \text{ km/h} = 51 \text{ kts}$ (blue line on ASI scale).

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Try to keep the tail wheel in contact with the ground until the aircraft lifts off. This increases not only directional stability during the ground run, but helps the aircraft to lift off at the earliest possible moment.

After lift-off, climb to between 1 m and 2 m (3 and 6 ft) in order to avoid pitch oscillations caused by ground effect and slip stream turbulence from the tug.

NOTE: Inform tug pilot of minimum towing speed.

T/Off Mass

Recommended Towing Speed

430 kg (948 lb)

115 km/h (62 kts)

525 kg (1158 lb)

125 km/h (68 kts)

Maximum acceptable crosswind component: 20 km/h
= 10.8 kts.

4.5.4 Free Flight

CAUTION: Flights in conditions conducive to lightning strikes must be avoided as aircraft certified under JAR 22 are not approved for such conditions.

Use of Flaps

Flap control allows improved adaptation of the aircraft to suit changing flight attitudes.

Flap settings 1, 2 and 3 are straight flight settings and are the best settings in high speed flight throughout overlapping speed ranges.

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Flap setting 4 is purely for use while circling.

The optimum flap settings at various speeds depend very much on the wing loading. The effect of the take-off mass at any one time on the appropriate speeds for the various different flap settings is shown in the diagram in Section 5.3.4 (Optimum-Performance Flap-Setting Ranges).

As the flap setting will directly influence the amount of lift generated over the whole of the wing, a sudden, jerky operation of the flaps will cause a sudden drop or climb; therefore, care should be exercised in this respect, especially when flying close to the ground, or circling near other sailplanes.

When circling, remember that the stalling speed will increase compared to that in straight flight at the same flap setting.

As a general guideline, you should expect the stalling speed to increase by 10 % at about 30° bank, and by 20 % at about 45° bank.

Low Speed Flight and Stalling Behaviour

The ASH 26 E behaves normally in slow and stalled flight. With all C.G. positions flow detachment at the fuselage and horizontal tail buffeting will give warning of an impending stall.

With all C.G. positions, about half of maximum aileron deflection can still be applied, with rudder centralised, to maintain the aircraft in straight stalled flight. It would, of course, be more appropriate to control the aircraft by means of rudder alone, and to leave the ailerons centered.