

1-26 Sailplane Manual

The SGS 1-26

The SGS 1-26 is a single-place all metal, fabric covered intermediate type sailplane by Schweizer Aircraft Corp. at Elmira, New York. Overall dimensions are:

LENGTH - 21' 3"

SPAN - 40'

HEIGHT - 7' 2.5"



FLIGHT CONTROLS

1. TOW RELEASE
Located at center bottom of instrument panel. A pull of approximately 1 inch is required to release the tow rope.
2. SPOILER Brake is a "T" handle located at bottom left of instrument panel. This control is spring loaded, therefore it is necessary to hold on the amount of spoiler necessary.
3. CONTROL STICK A conventional stick mounted on a single torque tube for elevator and elevator control.
4. RUDDER PEDALS Are conventional type and are not adjustable.
5. TRIM LEVER Is a small "T" handle located under the bottom right side of the instrument panel. This is a bungee type or spring loaded mechanism, attached to the elevator system. It is an any position control used only for nose heaviness. Turn left (ccw) to unlock and right (cw) to lock into position.
6. INSTRUMENTS ASI is required. Additional instruments are optional, up to full panel, as desired.

PRE – FLIGHT

1. WING Check spoiler hinges and connections. Check aileron hinge points and push rods. Check fabric.
2. TAIL ASSEMBLY Check all hinge points. Check pushrod attachment to elevator horn. Check stabilizer attachment to fuselage. Check rudder cable attachment to rudder horn. Check tail wheel assembly. Check fabric.
3. FUSELAGE Check all controls for free movement including release. Check instruments. Check canopy attach points. Check safety belt and shoulder harness. Check fabric. Check wheel, tire, and brake. Check static and pitot tubes for water or foreign objects. Check wing and control attachments.
4. CHECK TOW ROPE

AERO TOWING 1-26

1. The aileron and elevator controls are quite sensitive and caution is needed to keep from over controlling. The control feel on the stick is much lighter than on most sailplanes, therefore, after once getting used to sensitivity and light touch, you will find that towing is easier than ever.
2. Towing procedure is normal.
3. Recommended towing speed is (50 – 60 MPH)

WINCH OR AUTO TOWS

PRE – CAUTIONS

1. Be sure equipment is suitable for purpose.
2. Person driving car or operating winch should be experienced with equipment and know towing characteristics of a 1-26.
3. NEVER attach rope or wire to empty sailplane.

Winch or auto tows may be executed in the usual manner with either the forward or CG release, although, a higher altitude is reached with the CG release. There is no tendency to oscillate with either release. Maximum auto or winch towing speed is (60 MPH).

CAUTION:

1. Do not climb at full back stick position until a safe altitude for stall recovery is reached.
2. Level out before releasing.
3. Be sure airspeed is indicating less than placard speed for winch or auto tow.

FREE FLIGHT

FLYING SPEEDS

Best Gliding Speed (L/D) (45 MPH) 23:1

Speed at Lowest Sink (38 MPH) 2.6 FPS

PLACARD SPEEDS

Dive 104 MPH

Aero Tow 95 MPH

Spoiler Open 104 MPH

Auto or Winch Tow 60 MPH

USEFUL LOADS

Placard weights on instrument panel should be complied with.

EXAMPLE:

Minimum Pilot Weight 135 pounds

Maximum Pilot Weight 220 pounds

Note:

Seat ballast should be used if necessary.

AEROBATICS

The 1-26 is fully aerobatic but extreme care should be used to not exceed the placard speed when entering or recovering from any maneuver.

STALLS

Straight ahead. The 1-26 generally falls straight through without tendency to fall off on a wing.

In a turn. The 1-26 always falls in the direction of the turn with no tendency to go over the top.

A pronounced buffeting will occur before the stall.

STALL RECOVERY

Increase flying speed by easing stick forward until nose falls through horizon and then resume desired speed. Directional control maintained with rudder.

SPINS

May be entered by use of full back stick and full rudder. It is nose down with no danger of flat spin if placard weight is complied with. The further forward the CG, the more nosedown the spin will be. This will result in a higher air speed while spinning and during recovery.

SPIN RECOVERY

Normal

NOTE 1

Do not use excess forward stick. The 1-26 accelerates very rapidly and could exceed placard speed.

NOTE 2

It is highly recommended that pilots without aerobatic experience, refrain from any type of inverted flight or difficult maneuvers without adequate dual in same.

SPIRALLING IN THERMALS

In order to remain aloft or gain altitude, it is necessary to spiral. The average thermal diameter is quite small, therefore, a fairly steep bank is required. Although this is a general practice, it is not necessary in areas where large diameter thermals are found. The best flying speed in any thermal, at any degree of bank, is one or two miles per hour above the buffet before the stall.

EXAMPLE:

	Stalling Speed Level Flight – (28 MPH)			
Stall Speeds	20* BANK – 28.9	30* BANK – 30.1	45* BANK – 33.4	60* BANK – 39.6
Buffeting Speeds	Up to 35 MPH	Up to 37 MPH	Up to 39 MPH	Up to 43 MPH
Spiralling Speeds	36 – 37 MPH	38 – 39MPH	40 – 41 MPH	44 – 45 MPH

Keep in mind that the steeper the spiral is, the higher the minimum sink and stalling speed will be. It is very often necessary to sacrifice slow speed and low sink to remain within the limits of the thermal. This is specifically true in strong, small diameter thermals.

SLIPPING

The 1-26 can be slipped both forward and while turning. Both procedures are normal. Best slipping speed is (45 – 50 MPH).

LANDING

PATTERN

It is general procedure to fly a rectangular traffic pattern. Downwind and base legs and approach. Extra air speed is also used depending on wind velocity and gust conditions. It is good practice to add (1 MPH) of airspeed for each MPH of wind.

SPOILER

Approach should always be made high with generous use of spoilers. Spoilers increase sink which in turn makes a steeper and more controllable glide path. They can also be used to lose altitude rapidly at any time during a flight or during tow to take up slack rope or to lower sailplane from a too high position.

TOUCHDOWN WITH SPOILERS

The glide path with spoilers on is quite steep, therefore, it is necessary to flareout 2-5 feet above the ground at (42 – 45 MPH). Spoilers should also be closed to 1/3 to ½ open. If spoilers are not partially closed, it results in a tail first landing. Full spoilers can be used on touchdown if landing speed is increased to (50 MPH).

CAUTION:

Do not flare out too high and drop or stall in.

TOUCHDOWN WITHOUT SPOILERS

Is executed by letting sailplane land itself at (42 – 45 MPH). If it is done at a slower speed, it will result in a tail first landing. Use extra care not to ease stick back after touchdown. This will increase angle of attack and the sailplane will become airborne again.

TAXIING AFTER TOUCHDOWN

Even though the sailplane is on the ground, it is very important to fly it to a complete stop. The wheel brake may be used if a quick stop is desired or needed. There is no danger of nosing over.

GETTING OUT OF THE 1-26

When on the ground, the tail is down when empty and nose down with pilot aboard. When pilot gets out, he should keep his weight on side of cockpit until he is in position to lower tail gently.

GENERAL FLIGHT PROCEDURE IN HIGH WIND

1. Be extra careful during ground handling operation. Keep tail high when going to and from tie down area.
2. Keep well upwind of takeoff and landing area.
3. When flying against wind, it is good practice to add the wind velocity to speed at best L/D.

EXAMPLE

Speed At Best L/D - - - - - 45 MPH

Wind Velocity - - - - - 10 MPH

Desired Speed - - - - - 60 MPH This speed will give a better L/D than a slower one.

- Land into the wind whenever possible. Crosswind landing – crab into the wind just enough to maintain desired path over ground and at the last moment straighten ship in line of flight and touchdown. Be careful while ship is rolling. Downwind landing – land with brake full on and maintain control as long as possible.

TIE DOWNS

Special tie down rings are used to secure the 1-26. One is used at 3/16" holes at each wing tip and tail wheel bracket. Be sure rope used to secure ship is adequate and in good condition.

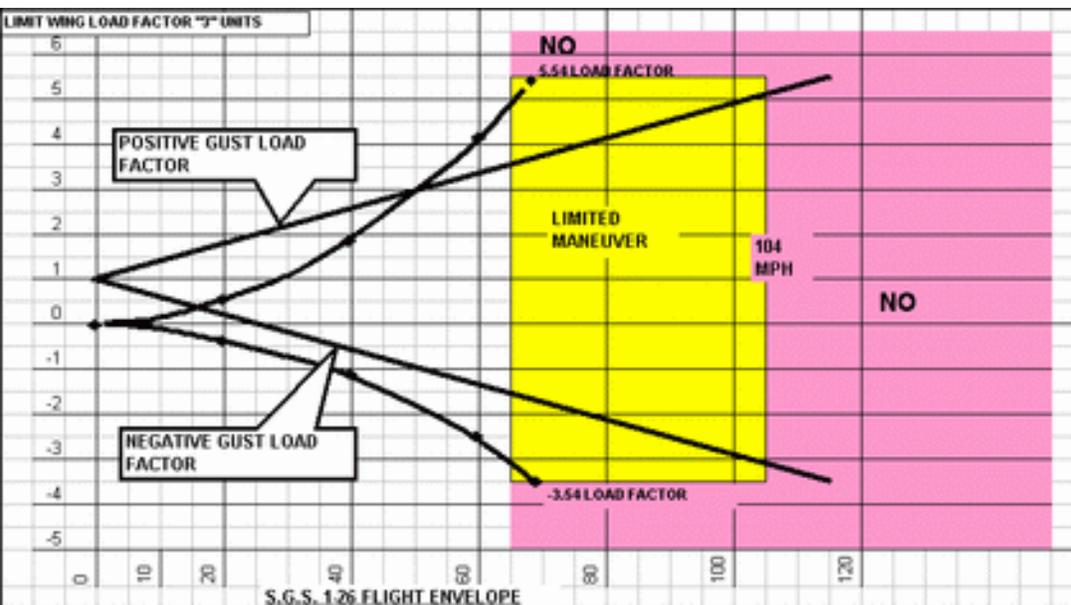
USE OF TAPE (Masking or Electrical). The 1-26 will fly more quietly and the buffet will be reduced by several MPH if the wing-root-fuselage junction and back canopy hatch are sealed with tape.

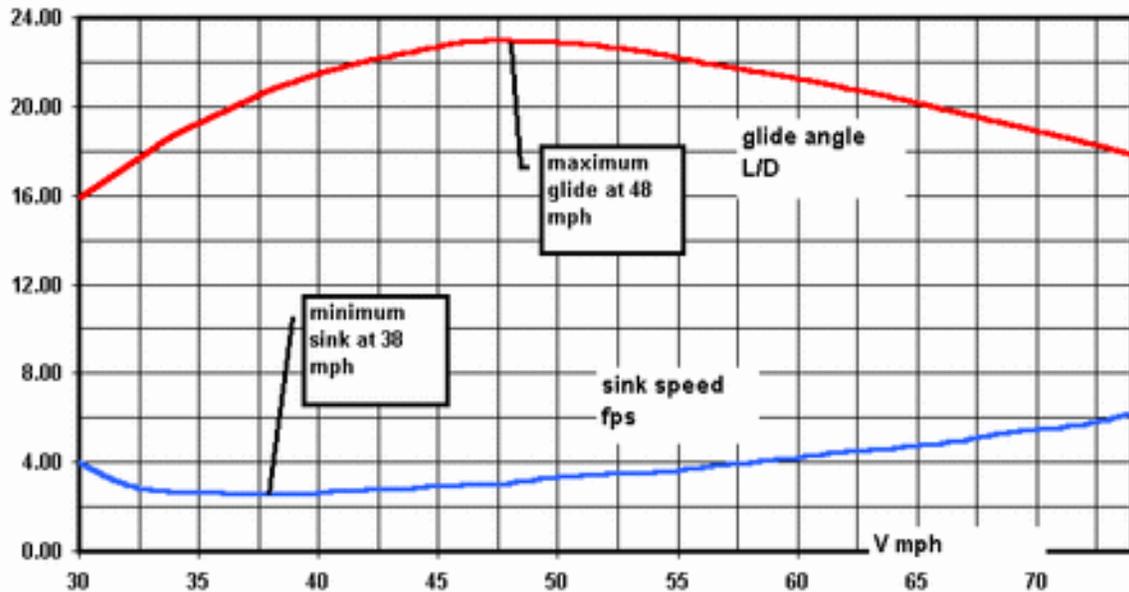
1-26 FLIGHT ENVELOPE

In any aircraft, it is important to know the operating limits and only sensible to keep load factors at a minimum. The 1-26 has a limit load factor of 5.54 which should not be exceeded in operation. A safety factor of 1.5 is required which gives an ultimate load factor of 8.3. The 1.5 safety factor is for inadvertent conditions and material variations. (A normal airplane has a limit load factor of 3.8 and an ultimate of 5.7). Due to the light wing loading, the glider can develop a high load factor if speed limitations are not observed.

In the 1-26, at speeds over (65 MPH), maneuver with caution. The maximum load factor to be obtained in flight is 5.4g. This could occur in abrupt maneuver at (70 MPH).

Refer to Flight Envelope Diagram. The area which is not shaded has no maneuvering limits. The yellow hatched area requires caution in maneuvers, and the area marked "NO" should never be intentionally entered. In normal operation, the principle cases of of high G loads are tight spirals in thermals which would not normally exceed 2 or 2.5g. Winch or Auto Towing can produce high loads, but if the Auto-Winch placard speed is observed, this will be within safe limits. The best climb is obtained at speeds well below placard limits.





The glider is designed for 25ft/sec (1,500 ft/min) gust at design VD (116 MPH). The placard is 10 percent less, or (104 MPH) and should not be exceeded intentionally. This design speed could produce a gust load factor of 5.4. In extreme turbulence, such as in some clouds, and wave roll clouds, the gust values are much higher. In such cases speed should be held to (10 to 15 MPH) miles/hour, above stall to minimize the affect of violent gusts.

Aerobatics should be done with extreme caution since it is very easy to greatly exceed the placard speeds in improperly executed maneuvers. They should not be done without previous instruction in two place aircraft.

Negative limits are similar. See Flight Envelope.