

SGS 1-26 Type Check



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I _____ have read the attached documents and received a pre-flight briefing by a CFIG prior to solo.

Reviewed by (CFIG)

Reviewed by (CFI-ACES)



SGS 1-26 Pre-Solo Test

Name: _____

Date: _____

Instructions: Fill in all blanks, answers can be found in the aircraft operating handbook (SGS 1-26 Flight – Erection – Maintenance Manual). Review and correct all questions with any CFGI qualified on the aircraft make/model.

General SGS 1-26

Length: _____

Wing Span: _____

Height: _____

Speeds

Best L/D Speed: _____

Min. Sink Speed: _____

Stall Speed: _____

Max Speed(s): (Vne) _____

Vne, Dive Brakes Open: _____

Vne, Auto/Winch Tow: _____

Vne, Aero Tow: _____

Maneuvering Speed: _____

A/C Weight/Balance

Empty Weight: _____

Max Flying Weight: _____

Max Pilot Weight: _____

Min Pilot Weight: _____

Recommended approach speed: _____

Reviewed By: _____

Date: _____



SGS 1-26 Flight Report

DATE: _____ TIME-UP _____ HRS TIME DOWN _____ HRS PILOT _____

A/C REGISTRATION _____ RELEASE HEIGHT _____

GROUND CHECKS

A/C LOG _____	D.I. _____
W&B _____	
CONTROLS _____	AILERON _____
ELEVATOR _____	RUDDER _____
SPOILERS _____	

AERO TOW

CONTROL RESPONSIVENESS _____

AIRSPED: GLIDER _____ TOW PLANE _____

INSTRUMENTS VSI _____ ALTIMETER _____ COMPASS _____

FREE-FLIGHT

STABILITY: LONGITUDINAL _____

DIRECTIONAL _____

LATERAL _____

STALL SPEEDS

#1 – Clean Config. _____

AIRCRAFT HANDLING

TURNS 360 LEFT _____ RIGHT _____

ROLL Rate 45 to 45 _____

LANDING

AIRCRAFT BRAKING _____

ADDITIONAL COMMENTS:

Transitioning to a New Sailplane

Transitioning to a new type is always an interesting challenge. If it's a two-seater, the best approach is obvious: take along someone who knows the machine for instant in-flight help. However, a first flight in a new single-seater can be a bit more intimidating, especially if it's your first single-seater. This article has a few thoughts that may help.

Read the manual: First off, find the flight manual and read it from cover to cover. This won't take long; many glider manuals are depressingly thin and combine breathless hyperbole from the marketing department (the 1-34 manual proclaims that "Pilot fatigue...has been virtually eliminated because of the semi-reclining adjustable seat...") with blinding glimpses of the obvious (we learn that the Pegasus "tail is a T type"). Machines from non-English-speaking countries have novel features described in equally novel English (when flying the L-23 you should "reckon with the mild sailplane emerging in the case of the higher approaching speed"). Persevere: buried in amongst all these distractions will be nuggets of hard data that you actually need to know. For instance, have you ever wondered why the yellow "minimum approach speed" bug on the Blanik L-23 air speed indicator is at an infeasibly low 41 knot indicated air speed? Page 4.14 of the flight manual reveals all: this is apparently the minimum approach speed with the air brakes closed. If you're one of those demanding pilots who actually uses air brakes, stay with that 50 knot indicated air speed still-air minimum approach speed your instructor told you about.

Get a briefing: OK, so you've distilled all the useful information out of the flight manual. Your next step is to find an experienced pilot who's familiar with the aircraft and whose judgment you trust, so he can brief you on the tricky details the manufacturer left out of the book. For instance, the trimmer in the 1-26 is basically useless, but the handbook merely hints obliquely that it is "... used only for nose heaviness." Ask how effective the air brakes are. What are the stalling characteristics like? If you're buying the glider, your insurance company will usually demand that you get this briefing from an instructor. Similarly, if you're a solo student, the FAA insists that an instructor sign your student license before you fly solo in a new type.

Assess conditions: So, the appointed day for your type conversion flight has arrived. Don't let any plans you've previously made get in the way of a safe flight; don't rush things, and especially, don't think that you have to do the conversion that day because that's what everyone's expecting. A disproportionate number of accidents take place on type conversion flights. Yes, you could cope with that crosswind in an aircraft you know, but would it really be wise to do a first-on-type? Take your time, and get it right. It may be worth going round the circuit once in a glider you know, just to get the feel for the conditions.

Take a closer look at the machine: Next, take a walk round the glider looking for design features that may cause you problems, which could include almost anything unfamiliar. For instance, the Glassflugel Hornet has a trigger-operated trimmer on the control stick, operated by pulling the trigger to set the trim while flying at the desired air speed; or at least, that's the theory.

Where's the tow hook? Many glass fiber gliders don't have a nose hooks, so have to be aero towed from the rear (CG) hook. This means they have less tendency to follow the tow plane, so you'll need to be more positive with the rudder to stay straight during the ground roll, and it may be advisable to hold the tail on the ground with a little back elevator, to prevent weather cocking in any cross-wind. When aero towing from a CG hook it's also easier to get out of position, both laterally and (critically)

vertically; don't forget that getting above the tow plane can pull its tail up uncontrollably, which is extremely dangerous for the tow-pilot.

Get comfortable in the cockpit: Next, and still before you get anywhere near the launch queue, put on your parachute (if you're using one), strap yourself in, close the canopy, and get comfortable. Can you easily reach all the controls without stretching? Try moving everything--except the undercarriage lever (if any). There are machines where the undercarriage will happily retract on the ground. Very embarrassing. On the other hand, you want to be sure you know which lever is which--flying the approach cycling the undercarriage and wondering why you're not coming down is also no fun. How much grunt does it take to open the brakes? A friend of mine discovered during her first pre-flight checklist that she couldn't open the air brakes on her new Ventus 2 because the over-center lock was too "positive" (sic).

Modern high-performance gliders seat you in a slumped position that would definitely irritate your mother ("sit up straight!"), and the view on landing is very different from most training machines. With the canopy closed, have a couple of helpers hold the glider in the correct landing attitude (wings level, appropriate pitch attitude) and spend 30 seconds getting familiar with the view. This is what the world will look like as you complete the round out and the glider is about to touch down. Exactly what counts as the "correct landing attitude" can be the topic for vigorous debate. Fabric and aluminum machines tend to be forgiving, and can be plunked down in a variety of ways without significant loss of face. Some are said to have tails that are too fragile to allow them to be landed two-point (that is, main and tail wheel touching down together), but this is often an exaggeration. On the other hand, there certainly are machines that cannot be landed main-wheel-first (the so-called "wheel landing"). One such is the Astir CS 77, where executing anything other than a perfect two-point touchdown results in the tail pitching down and the aircraft taking off again, followed by an increasingly frequent series of mini-landings and much good-natured ribbing in the bar afterwards. I suggest aiming for a fully-held-off two-point landing unless the flight manual explicitly forbids it.

While we're on the subject of glass fiber, if you've trained on fabric or metal gliders (including our Blanik L-23s), converting to high-performance glass is a big step. If you can, it's worth getting some time on a representative glassfibre two-seater like the Grob 103. Glass machines are relatively heavy and slippery, so that speed control for the approach is a lot more demanding: small changes in pitch attitude quickly lead to large changes in speed, and washing off any surplus speed after rounding out consumes prodigious quantities of runway. It's also a lot easier to find yourself with slack rope during the tow in a high-performance glass machine.

The launch: Once you've spent a few minutes sitting in the cockpit and have achieved spiritual union with the machine (sort of), it's finally time to go out to the launch queue. By this point you've probably been deluged with information (not least by this article?), so try to hold on to just the two or three most important points as you get ready to go. If this is your conversion flight to your first single-seater, here's one thought to keep uppermost in your mind: almost all single-seat machines are more sensitive in pitch than the two-seaters you've trained on, so avoid making flamboyant elevator inputs during the first few seconds after take-off.

Explore the envelope: Make your first tow a high one, at least 3,000 feet, so that even if there's no lift you'll have a chance to find out how the machine flies. Apart from generally flying around getting the feel of the controls, it's also worth doing a few upper-air exercises to explore some of the out-of-the-way corners of the flight envelope. Find the un-accelerated stalling speed, which of the various stall warning signs the aircraft exhibits, and whether it tends to drop a wing. Trim for approach speed, then open the brakes while flying hands-off, to find out whether there's any speed change you'll need to be

aware of during the approach; for instance, the 1-34 immediately pitches up and slows down, while the Grob 103 insidiously pitches down, eventually adding 10 knots or more.

Still with the brakes open, try to gauge their effectiveness: how quickly are you coming down? You'll be happy to discover that many gliders have much better airbrakes than the L-23, so that the idea of a "half airbrake approach" suddenly starts to have meaning. It's also worth doing a stall with the brakes open--some aircraft stall at a considerably higher speed in this configuration. Now close the brakes and see how the machine behaves in slow flight, which is basically anything below minimum sink speed. Lastly, try flying close to maneuvering speed then carefully opening the airbrakes again--in some machines (such as Astir and Grob 103) they can suck open quite powerfully at high speed.

If conditions are good, by all means go soaring, but don't stretch it out all day: doing your first landing on type when exhausted after some heroic exploit could lead to silly mistakes.

Lastly, don't get complacent after a few flights on the new type. You may believe you've mastered your new craft, but this may not be the case, and you may still be discovering things about the glider after 20 flights. I was on my tenth flight on the Cambridge club Discus before I encountered its tendency for the rudder to lock hard over in side slips; not serious, since it only takes a little pressure on the other pedal to correct, but a bit of a shock nonetheless. So don't get over-confident after a few successful circuits: your new conquest may still have the ability to bite back!

Good luck with your type conversion.

1-26 Check-Out Briefing

What is so wonderful about a 1-26?

First it is just plain fun to fly. The seating position and responsive controls contribute to that great feeling of man and machine working together. It is possible to soar in weak, small diameter thermals because the 1-26 has a favorable sink rate at very low airspeeds. Great structural strength helps the pilot's peace of mind while flying in strong turbulence.

How can a pilot accustomed to flying a 2-33 safety transition to this lively single place? The flight instructor is the key to this operation. The following notes will also be helpful and should be digested by the aspiring 1-26 pilot before the actual check out session with his instructor. Obtain a copy of the 1-26 flight manual. Note that there are five different models : A through E. Memorize the airspeeds for minimum sink and best glide. Consider proper approach speeds for varying surface winds and turbulence. The model variations consist of structural changes, gross weight, and placard airspeed. There are mechanical differences in spoiler locks also. Be aware that the wheel brake is not built into the wheel but is a shoe in contact with the tire. This works fine but a puddle of water or wet grass can greatly reduce brake action. Plan your landings accordingly. Never in any aircraft depend on the brakes!

Next is the preflight inspection. If possible do a dry run on this before your actual check out with your instructor. The manual will show you what to check. Notice how differently the cantilever wings are attached as compared with the strut braced 2-33. At this time be sure you understand the center of gravity and gross weight limitations of your particular glider. If you are a light weight you may need seat ballast under your cushion, or should you be a heavy weight see if seat ballast was removed after a previous flight. The 1-26 seating is designed to accommodate nearly any size pilot. The seat back can adjust fore and aft as well as the back angle. Find a comfortable position and see if you can easily reach and operate all the controls. You should be able to get full rudder travel without full leg extension. See if you can easily bring the spoiler handle back to the wheel brake position. Because of the low empty weight ground handling is easy. Position yourself on the left side of the nose and pull glider forward with the shoulder strap, use your right arm inside the opened canopy. To turn, push nose down with left hand and pivot on wheel to desired direction. This method protects the canopy from being blown shut accidentally.

What are the differences in flying a 1-26 compared to a 2-33 and how does the pilot cope with these differences? First, you will notice the limited pitch attitude changes that are possible while rolling on the ground. While seated in the glider with the canopy closed have an assistant hold the tail wheel down to the ground. This is your landing attitude, then let the nose skid down so you can see what these attitudes will look like. Now have him hold a position between these extremes. This is level attitude and will be used in take offs and landings. Sight over the nose and note its position relative to the horizon. Next the transitioning pilot will find that the flight controls, especially the elevators, are more sensitive than the 2-33. Although this makes a joy to fly it also can embarrass the beginner by causing him to make pitch oscillations during take off and landings. While still seated in the glider, position the stick so that the elevator trailing edge is depressed about 2 inches at the center line. Note the corresponding stick position relative to some feature in the cockpit. You want to be able find this position later as you start your take off. The greatly reduced overall weight of the 1-

26 means quicker take offs and less ability to continue rolling after touch down. Nothing new to learn here, just something to be aware of. You will notice that the 1-26 has a lower pitch attitude than the 2-33. The wings are mounted at a different angle of incidence. You will see much more in front of you for the same airspeed. **If you fly at minimum sink pitch attitude for the 2-33 in the 1-26 you will be at or near the stall speed.** When you get off tow fly at various pitch attitudes to see what airspeed it wants to fly at. One last difference, your view of the touch down area will be blocked by the wing as you fly past it on the downwind leg in the pattern. Decide where to turn base ahead of time. As soon as you bank into you turn from downwind to base everything comes back into view and you can still adjust your pattern at this time if necessary.

Now for that first take off and a description of one method that will assure a smooth one. We will assume that you have moved your glider into the take off area and have completed your pre-take off check list. Now is the time to position the stick in the take off position previously discussed. It is important that the stick be in this position and held there during the take off roll. This is done by holding it between the thumb and finger tips with your forearm solidly braced against your leg. Lateral control is maintained by moving hand and leg from side to side as a unit. Practice this motion a few times. The take off will be made without moving the stick fore and aft. Upon becoming airborne maintain tow plane on horizon by trimming the nose up or down using finger tips only and forearm still braced against leg. After reaching a safe altitude, relax and see how easy it is to fly a 1-26 on tow. For your first flight it is suggested that you tow to at least 3000 feet. Even in no lift conditions this will give you time to fly all your training maneuvers and feel at ease. Particularly practice slow flight, imminent stalls and some steep turns. Concentrate on coordination.

Time to land so soon? Simply fly the pattern in the same way and at the same airspeed that you would use for this wind condition when flying solo in a 2-33. Grasp the stick as you did for take off and plan to make any pitch attitude changes slowly. Maintain your final approach speed until time to level off for landing. Remember the two point (main and tail) attitude during preflight? This is the attitude you will have at touchdown and during the roll out. Try to plan your approach so that the last part of your approach and landing are made with half spoilers.

In-flight emergencies are always a possibility even on your first 1-26 flight. The procedures you learned in the 2-33 will work equally well in the 1-26. For example a tow line break on take off should be handled in the same manner as in the 2-33. A different problem would be presented by an inoperative airspeed indicator. What must be done now is to find a nose position that will equate to a safe airspeed for your landing approach. First put the nose in the level attitude previously discussed and practiced on the ground. Now note the apparent distance from the top of the instrument panel to the horizon. Lower the nose to double this distance. This should equate to 50-52 mph. If the air is smooth this airspeed will give you approximately 200 fpm down on the vario. This method will provide a safe speed for your landing approach. Plan your landing for the grass runway (unless too soft) so that the entire length of the airport is available to you. Now for some final thought on safety. All aircraft have different flying characteristics but all respond similarly to the basics. Remember you are flying a 1-26 not a 2-33. You will find much lighter and more responsive controls in a 1-26. Keep a light touch and fly by nose attitude relative to the horizon. **Fly coordinated.** A 1-26 will spin more readily than a 2-33. In all your flying, plan ahead and think safety.

HAVE FUN! Check out the 1-26 Association Web Site