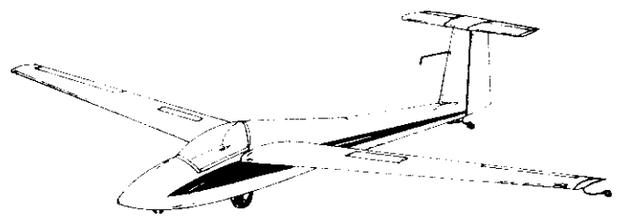
PILOT'S OPERATING MANUAL



SCHWEIZER "SPRITE"
SGS 1-36

SCHWEIZER AIRCRAFT
CORPORATION
Elmira, N.Y.

SGS 1-36 "SPRITE"

The SGS 1-36 "Sprite" is approved in the high performance sailplane category.

Form No. F-120

Schweizer Aircraft Corp.
P.O. Box 147
(Chemung County Airport)
Elmira, NY 14902

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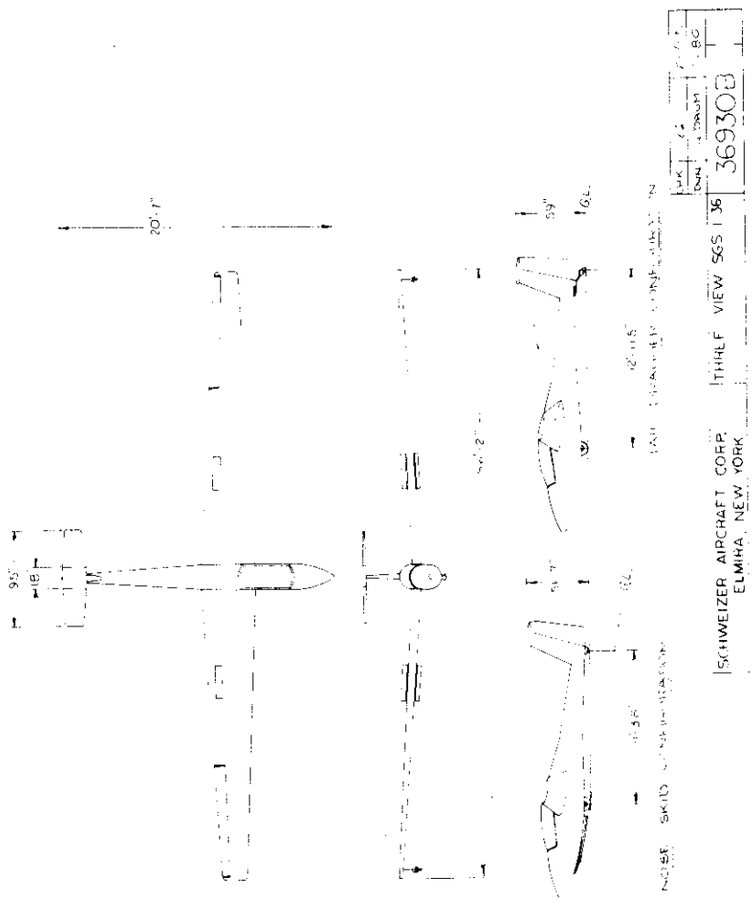
PILOT'S OPERATING MANUAL

LOG OF REVISIONS

Revision Number and Date	Revised Pages	Description of Revision
Rev. 1 Date _____	2-2, 2-3 2-4, 3-1 3-2, 4-2 4-3, 4-6 4-8, 8-13	Add 36115B Trim Latch and Operating Limitations Of Trim with Latch System



SECTION 1

GENERAL

This Pilot's Operating Manual provides information useful to pilots and owners of the SGS 1-36 "Sprite" sailplane. It provides recommended procedures for operating, flying and maintaining the aircraft. It is divided into 9 Sections.

This Section of the Pilot's Operating Manual presents basic data and information of general interest to the pilot which is useful in loading, sheltering, handling and routine preflight checking of the sailplane. In addition, it provides definitions or explanations of symbols, abbreviations and terminology used in the manual.

The SGS 1-36 Sailplane is an all-metal, high performance single-seat sailplane with cantilever wings, monocoque fuselage and T-tail. It is built in two configurations:

36901.1 with forward wheel position which makes the ship a "tail dragger". A spring tail wheel is fitted with this version and the nose skid is eliminated. The attitude of the aircraft on the ground with the pilot on board is tail down.

36903.3 with aft wheel position which makes this a "nose skid" sailplane in which the attitude of the aircraft on the ground with the pilot on board is nose down. A non-spring tail wheel and nose skid are fitted.

All data in this publication pertains to both models of the Sprite unless specificaly noted.

MAXIMUM CERTIFICATED WEIGHTS

The maximum certificated airplane weights are as follows:

a. Maximum gross weight 710 lbs.

b. Maximum takeoff weight 710 lbs.

c. Maximum landing weight 710 lbs.

d. Standard empty weight 475 lbs.
(weight of a typical sailplane with standard interior, airspeed indicator, altimeter and compass)

e. Maximum useful load 235 lbs.
(the difference between the max. takeoff weight and the standard empty weight)

The SGS 1-36 "Sprite" does not allow for the carriage of specific baggage.

CABIN & ENTRY DIMENSIONS

The maximum interior and entrance dimensions of the 1-36 "Sprite' are as follows:

a. Cabin width (max.) 20.5"

b. Cabin length (max.) 49"

c. Cabin height (max.) 34"

d. Entry width (min.) 20.5"

e. Entry length (min.) 33"

The maximum wing loading of the 1-36 "Sprite", (at gross weight) is 5.05 lbs/sq. ft.

CAS Calibrated Airspeed means the indicated speed of an aircraft, corrected for position and instrument error. Calibrated airspeed is equal to true airspeed in standard atmosphere at sea level. CAS values published in this Manual assume zero instrument error.

GS Ground Speed is the speed of an aircraft relative to the ground.

IAS Indicated Airspeed is the speed of an aircraft as shown in the airspeed indicator. See indicator manufactuer's calibration data for instrument error.

TAS True Airspeed is the airspeed of an airplane relative to undisturbed air which is the CAS corrected for altitude, temperature and compressibility.

V_A	Maneuvering Speed is the maximum speed at which application of full available aerodynamic control will not overstress the airplane.
V_{NE}	Never Exceed Speed is the speed limit that may not be exceeded at any time.
V_C	Maximum Cruising Speed is the speed that should not be exceeded except in smooth air and then only with caution.
V_S	Stalling Speed or the minimum steady flight speed at which the airplane is controllable.
V_{SO}	Stalling Speed or the minimum steady flight speed at which the airplane is controllable in the landing configuration with dive brakes open.
$V_{L/D\ (max.)}$	Glide Ratio Speed is the airspeed which delivers the least loss of altitude in the longest possible horizontal distance.
$V_{min.\ sink}$	Minimum sink speed is the airspeed which delivers the least loss in altitude (min. sink) in the longest possible time.
Demonstrated cross wind velocity	The demonstrated crosswind velocity is the velocity of the crosswind component for which adequate control of the airplane during takeoff and landing was actually demonstrated during certification tests.
Ref. Datum	An imaginary vertical plane from which all horizontal distances are measured for balance purposes.
Station	A location along the airplane fuselage usually given in terms of distance from the reference datum.
Arm	The horizontal distance from the reference datum to the center of gravity (C.G.) of an item.
Moment	The product of the weight of an item multiplied by its arm. (moment divided by a constant is used to simplify balance calculations by reducing the number of digits.)
Center of Gravity (C.G.)	The point at which an airplane would balance if suspended. Its distance from the reference datum is found by dividing the total moment by the total weight of the airplane.
C.G. Arm	The arm obtained by adding the airplane's individual moments and dividing the sum by the total weight.
C.G. Limits	The extreme center of gravity locations within which the airplane must be operated at a given weight.
Std. Empty Weight	Weight of a standard airplane with interior.
Payload	Weight of occupant and parachute.
Useful Load	Difference between takeoff weight and standard empty weight.
Max. Takeoff Weight	Maximum weight approved for the start of the takeoff run.
Max. Landing Weight	Maximum weight approved for the landing touchdown.

PREFLIGHT INSPECTION

CHECK ALL POINTS AS LISTED

Fuselage and Cockpit

a. Flight controls for free and normal movement.
b. Rudder pedal adjustment.
c. Seat adjustment.
d. Release hook and linkage.
e. Instruments, radio, lines, pitot-static openings, static line drain.
f. Canopy - hinges and latch, head clearance.
g. Safety belt and shoulder harness.
h. Wing pins - main spar, and aft carry-thru.
i. Aileron control attachment, fuselage to wing.
j. Dive brake attachment.
k. Tire condition and inflation (31 psi).
l. Wheel and brake operation.
m. Nose skid attachment and condition.
n. General condition exterior surfaces.

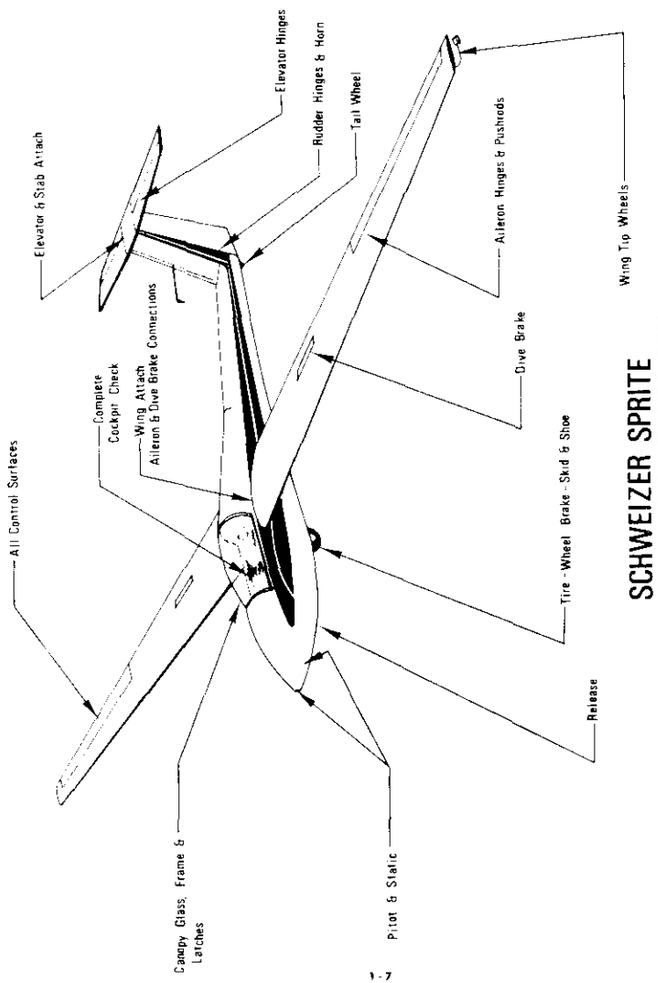
Wing

a. Aileron hinge and pushrod connection.
b. Dive brake and mechanism.
c. General surface condition.
d. Tip wheel springs and wheel.

Empennage

a. Horizontal tail surface attach and safety.
b. Elevator - hinges, pushrod attach, fabric.
c. Rudder - hinges and fabric.
d. Remove inspection plate - check rudder and elevator control linkages.
e. Tail wheel, spring and tire.
f. Total energy probe.
g. General condition of surfaces and aft fuselage.

Refer to accompanying drawing 36933A for a guide to walk-around, pre-flight inspections.

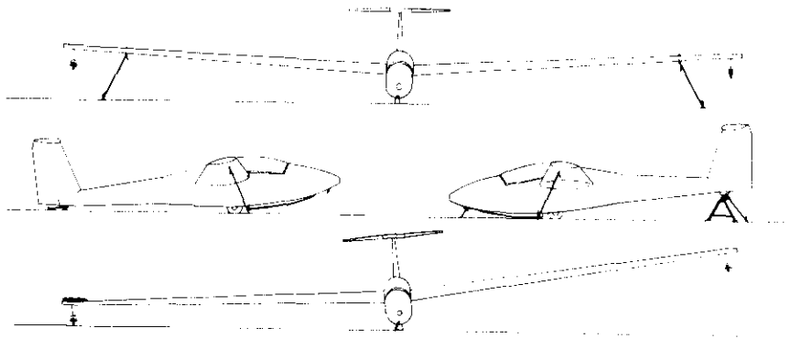


SCHWEIZER SPRITE
1-36 PRE-FLIGHT INSPECTION

1-7

Issued

SAILPLANE TIE DOWNS



A sailplane is, by its very nature, susceptible to the efects of winds. More sailplanes are damaged on the ground by the wind than in accidents during flight. This is usually because of either leaving the ship unsecured, or from the use of inadequate tie-downs. Therefore, it is important that adequate tie downs be provided.

The following recommendations, based on experience, may be used as a guide.

Sheltered Area

Tail down, ropes (*), at wings and tail (**).

Unsheltered Area

Facing into prevailing wind. Rope at wings and tail and chain tie down to release hook.

Unsheltered - High Wind Hazard

Tail supported on padded stand. Rope to wings and two ropes to tail. Short chain (5/16" welded link), tie down to tow hook.

Flightline Tie Down

Short chain tie down to tow hook (tail in air). Water filled tire tube on end of one wing.

NOTE

* Minimum size recommended ropes - 5/16" nylon, or 1/2" manila - renewed each season. (Knots can reduce rope strength by 50%.)

** Ground anchor size and style will depend on soil composition and type of sailplane. In light sandy soils, anchor arm or chain longer and set deeper. A ground anchor should be able to withstand a vertical pull of at least 2,000#. Should not be located directly under tie-downs.

Rudderlock - recommended if control locks are not used. Ailerons and elevator can be secured with seat belt around control stick.

Securing the spoilers or dive brakes "open" will decrease lifting forces.

SECTION 2

LIMITATIONS

This Section of the Pilot's Operating Manual presents the various operating limitations, the significance of such limitations, instrument markings, color coding and basic information necessary for the safe operation of the airplane, standard systems and standard equipment.

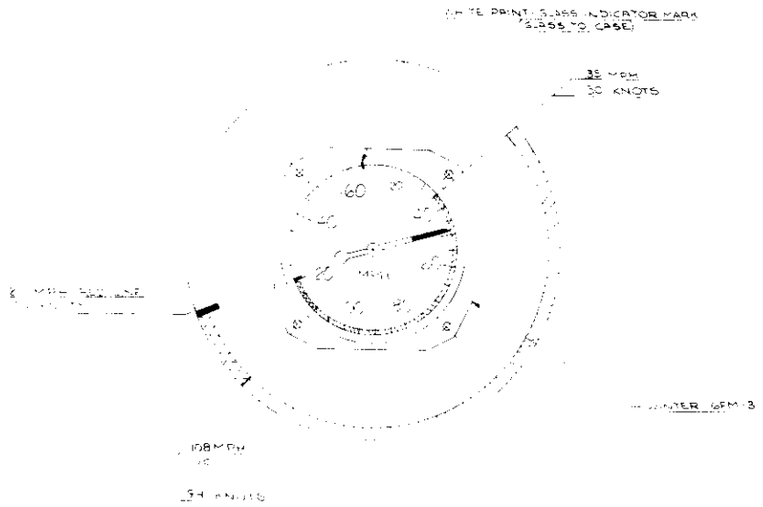
AIRSPEED LIMITATIONS
Speeds Listed in MPH and (Knots)

NOSE STATIC SYSTEM ONLY
ALL SPEEDS ASSUME ZERO INSTRUMENT ERROR

SPEED		IAS	CAS	REMARKS
Maneuvering Speed V_A	mph	64	65	(specify weight) Do not make full or abrupt control movements above this speed.
	(knots)	(56)	(57)	
Never Exceed Speed V_{NE}	mph	121	123	Do not exceed this speed in any operation.
	(knots)	(105)	(107)	
Maximum Cruising Speed V_C		108	110	Do not exceed this speed except in smooth air and then only with caution. Trim must be engaged above this speed.
	(knots)	(94)	(96)	
Stalling Speed V_S	mph	35	36	The aircraft will not maintain normal flight and will stall below this speed.
	(knots)	(30)	(31)	
Stalling Speed (dive brakes open) V_{SO}	mph	39	39	The aircraft will not maintain normal flight and will stall below this speed when the dive brakes are open.
	(knots)	(34)	(34)	
Maximum Aero Tow Speed V_{TA}	mph	98	100	Do not tow behind an airplane above this speed.
	(knots)	(85)	(87)	
V_{TAW}	mph	78	78	Do not tow on any ground launch (auto, winch, etc.) above this speed.
	(knots)	(68)	(68)	
V_{DB}	mph	121	123	Dive brakes should not normally be used above this speed.
	(knots)	(105)	(107)	

AIRSPEED INDICATOR MARKINGS

MARKING	IAS VALUE OR RANGE	SIGNIFICANCE
Green Arc	35 - 108 mph (30 - 94 kts.)	Normal Operating Range
Yellow Arc	108 - 121 mph (94 - 105 kts.)	Operations must be conducted with caution and only in smooth air. Trim must be engaged for operations within this arc.
Red Line	121 mph (105 kts.)	Maximum speed for all operations.



WEIGHT LIMITS

Maximum gross weight is 710 lbs.

CENTER OF GRAVITY LIMITS

The aircraft shall not be flown less than 76.96" aft of the datum nor more than 82.71" aft of the datum.

The datum is measured from an intersection within the nose cap assembly which is depicted on drawings 36935B and 36936B. For reference, the nose cone mounting bulkhead is located at Sta. +7.0. The nose of the aircraft is Sta. 7.86. For complete weight and balance operational information, refer to Section 6.

MANEUVER AND FLIGHT LIMITS

The 1-36 "Sprite" is designed for a maximum maneuver or gust limit of 5.33 and a negative limit of 2.67 g which should not be exceeded in flight. The ultimate load is +8.0 g and negative -4.0 g.

Flight should be conducted within the flight envelope. Refer to Page 5-77.

TRIM LIMITATIONS

The 1-36 "Sprite" (S/N 41 & up 1-40 Optional) are equipped with a latch mounted on the control stick which is used to disengage the trim system. This allows the pilot less stick force during the soaring portion of the flight. The trim must be engaged for takeoff and landing and all operations above V_C (108 mph).
IAS

FLIGHT LIMITATIONS

In any aircraft, it is important to know the operating limits and that exceeding these limits can highly endanger the aircraft and its occupants. The following information is provided for the 1-36 at 710 lbs. gross weight.

In the Sprite, at speeds over 64 mph, the pilot must maneuver with caution. The maximum load factor which should be attained in flight is 5.33G, and the pilot can easily exceed this in abrupt maneuvers at speeds over 64 mph. The speeds between 64 mph and the 123 mph placard should be treated as a cautionary range and maneuvering within this range should be gradually reduced to minimum as velocity increases.

The 1-36 limit load factor of 5.33 should not be exceeded in operation. A safety factor of 1.5 is required by the FAA which gives an ultimate load factor of 8.0, but this safety factor is required to allow for material variations and inadvertent atmospheric conditions. Because of its light wing loading, a sailplane can develop very high loads if speed limitations are not rigidly adhered to. Normal category light airplanes are usually certified to a limit load factor of 3.8 G.

UNDERSTANDING THE FLIGHT ENVELOPE

The FAA required design flight envelope is presented on Page 5-77. On the horizontal axis are indicated velocities in miles per hour, and on the vertical axis are load factors expressed in "G" units.

The straight lines labeled "gust load factors" represent the effect of the FAA required 24 ft. pr second gust on the sailplane as speed varies. They diverge from the one "G" situation where the glider would be at rest or in perfectly balanced level flight. The curved lines diverging from zero "G" represent forces which can be induced by moving the elevator (or other) control abruptly at various speeds. As you can see, the faster you fly, the more effect moving your controls will have. Gusts will also have more effect as speed increases.

The speed for maneuvering with caution occurs where "G" loading from an abruptly moved control meets the 5.33 limit load factor. Assuming smooth and limited movement of the controls, the placard or "red line" speed occurs where gusts could meet the 5.33 limit load factor without any maneuvering.

Normal placard speeds are reduced 10% from design speeds to provide an extra margin of safety. Thus, on the graph, the diagonal hatched area indicates speeds at which you must use caution in maneuvers. You should neither maneuver nor fly so fast as to expose your ship to loads within the cross-hatched area marked, "NO".

It can be inferred from the graph that abrupt maneuvering in gusty conditions is dangerous and can lead to very high "G" loads.

In normal operation the major cases of high "G" loads are tight spirals in thermals which would not normally exceed 2, or 2.5 G's. 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 ground launch climb is obtained at speeds well below placard limits.

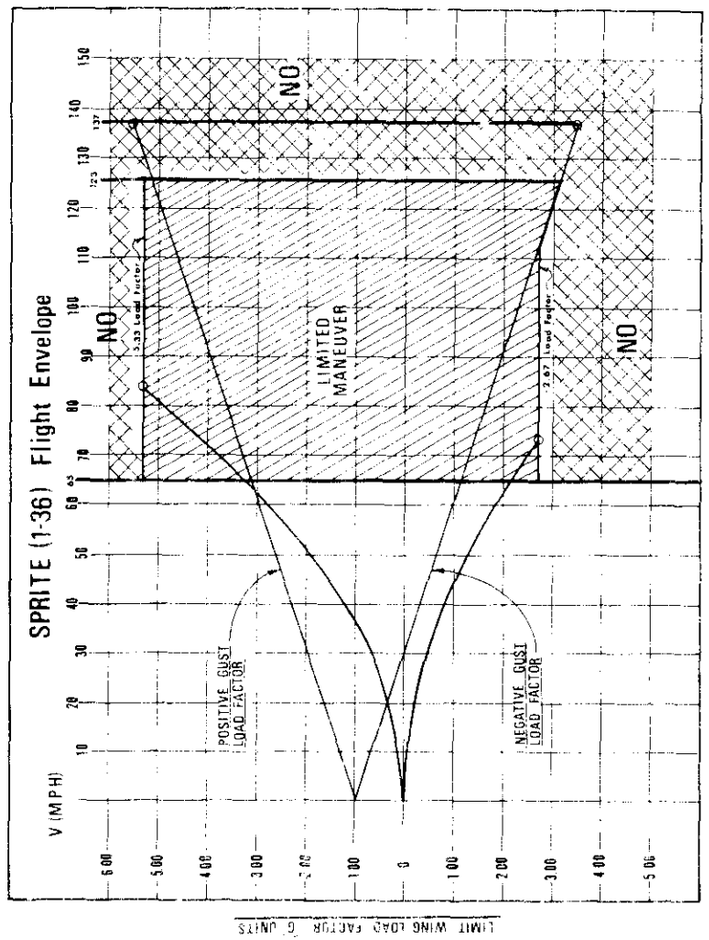
Aerobatics should be done with extreme caution since it is very easy to greatly exceed the placard or cautionary speeds in improperly executed maneuvers. They should not be done without previous instruction in two-place aircraft.

The Sprite is approved for the following aerobatics:

Spins - See Section 4.13, Page 5-84
Loops - Entry Speed 90 mph IAS
Wingovers - Entry Speed 90 mph IAS

The following precision maneuvers are also approved:

Chandelles
Lazy 8's



36937A

SECTION 3

EMERGENCY PROCEDURES

3.1 This Section describes the recommended procedures for coping with various emergencies or critical situations. The Sprite is a normal sailplane so all good flying practices, rules and Federal Aviation Regulations should prevail.

3.2 ROPE BREAKS

In all cases, it is recommended to obtain/maintain flying speed before maneuvering toward a suitable landing area. When the ship is very close to the ground, however, it is frequently best to assume the landing flared-out attitude until the ship touches down. Care must be taken not to fly the ship into the ground.

The Sprite is a normal sailplane in all respects and specific rope break procedures should be as published for the airport at which the ship is flown.

3.3 INFLIGHT INSTRUMENT OR RADIO FAILURE

In the case of electrical failure, check the master switch and the instrument switch for proper indication. In any case, if the instrument failure poses a hazard to further flight, the sailplane should be flown at its best glide speed and landed at the first convenience.

3.4 SMOKE OR FIRE

Smoking is prohibited in the 1-36 Sprite unless a suitable ash tray is provided. If smoke or fire occurs, all electrical switches should be turned off and the sailplane landed immediately.

3.5 EMERGENCY DESCENT

Emergency descent should be accomplished at V_C-108 mph with the dive brakes full open and the trim engaged. The glide ratio is very low in this configuration, so one should plan an emergency descent very close to the airport or field where he intends to land. When recovering from an emergency descent it is advisable to slow the sailplane before closing the dive brakes. During the descent, maneuvering should be limited. During turbulent conditions, descent should be made at 64 mph.

3.6 GLIDE

The maximum glide ratio of the 1-36 Sprite is 31:1 @ 53 mph at gross wt. For cruising and soaring performance information, please refer to Page 5-88, Section 5.5.

3.7 APPROACH PROCEDURE

It is normal procedure to add the speed of the wind to the best L/D speed to arrive at the best approach speed. The normal approach speed of the 1-36 Sprite is 55 mph. During wind or mildly turbulent conditions, when wind is 5 - 7 mph, it is recommended that the approach speed be increased to 60 - 62 mph. During windier or more turbulent conditions, when wind is 10 - 13 mph, the approach speed should be increased to 65 - 68 mph. Faster speeds should only be used at the pilot's discretion in exceptional conditions. Note: Trim should be engaged for approach and landing.

3.8 PRECAUTIONARY LANDING

Short Field

Enter pattern at lower than normal altitude depending on length of field. The approach speed should be at best L/D using dive brakes and slip, as necessary, to land as short as possible. Use the wheel brake to stop, if necessary.

Soft Field

Fly a normal pattern and approach according to size of field. Landing should be made as slow as possible without stalling. On contact, if ground is very soft or muddy, the 1-36 may have a tendency to nose over, therefore, use back pressure on stick to help prevent this.

3.9 EXCESSIVE SPEED

If airspeed exceeds redline on spin recovery, or for any other reason, very slowly and carefully ease stick back and return to level flight attitude. Do not make an abrupt recovery. Dive brakes may be used smoothly and gently to slow very excessive speeds.

3.10 DIVE BRAKE FAILURE

If dive brakes become inoperative during flight, enter the traffic pattern at lower than normal altitude and utilize slip as necessary to hold desired glide path. Use a lower than normal altitude and airspeed on final approach, slipping as necessary. The actual landing should be normal, however, the sailplane will float much longer before touch down. Use wheel brake, as necessary.

3.11 BAILOUT EMERGENCY

Should it ever become necessary to bail out of the 1-36 Sprite, the procedure is as follows:

1. Pull the emergency left-hand side canopy hinge pins toward the center, releasing the left side of the canopy.

2. Unlatch the right hand side of the canopy, releasing the right side and jettisoning the canopy.

   (If canopy restrainer is attached, this should be released, before unlatching the canopy sides.)

3. Release the seat belt and shoulder harness.

4. Depart the aircraft over the cabin side wall away from any spin and avoiding hitting the empennage or tail planes.

5. When completely clear of the aircraft, pull the ripcord and make a normal parachute descent.

3-12

ICE, FROST OR SNOW

Ice, frost or snow on a sailplane can be dangerous in that it greatly increases stalling speed. All ice, frost and snow must be removed from the sailplane prior to flight. Do not attempt to takeoff with any ice, frost or snow on the wings.

Heavy scraping of precipitation from the wings is likely to scratch the sailplane's finish, or possibly gouge the skin. It is best to gently wipe or scrape off any excess precipitation, then let the sun melt the rest.

The 1-36 Sprite should not be flown into known icing conditions. If ice does form during flight, it is best to return to sunshine, and if the ice does not melt immediately, proceed at a higher than normal airspeed (to prevent an inadvertent stall) and make a precautionary landing.

SECTION 4

NORMAL PROCEDURES

This Section describes the recommended procedures for the conduct of normal operations.

4.1 RECOMMENDED OPERATIONAL SPEEDS (INDICATED AIRSPEED)

Normal aero tow airspeed	60-70 mph
Normal auto/winch tow airspeed	55 - 60 mph
Normal landing approach airspeed	55 mph
Landing during windy or mildy turbulent conditions	60 - 62 mph
Landing during very windy or turbulent conditions	65 - 68 mph
Max. demonstrated crosswind velocity	15 mph

Stall speeds straight and level and in banks:

35 mph	Level
36 mph	20° Bank
39 mph	30° Bank
42 mph	45° Bank
51 mph	60° Bank

Stall speed dive brakes open (level flight)	39 mph
$V_{L/D}$ (max.) Speed for max. glide ratio	53 mph - L/D = 31:1
$V_{min. sink}$ Speed for min. sink	42 mph - sink = 2.25 fps 135 fpm

4.2 GROUND HANDLING TO AND FROM TIE DOWN

The sailplane should be towed by the tow hook with at least the upwind wing tip walked. When towing down hill at least one wing tip walker should be used with a guard either at the nose, or on the opposite wing.

In high winds, use an attendant at each wing tip and have a pilot in the cockpit to hold the nose down. It is also advisable to move the sailplane by hand backwards, if the wind is very high.

4.3 PREFLIGHT INSPECTION

See Page 5-69.

4.4 COCKPIT CHECKLIST BEFORE TAKEOFF

Altimeter and instruments set - adjust seating
Belt and harness on and secured
Canopy - closed and latched
Cable and tow release checked
Dive brakes closed and locked

4.5 COCKPIT CHECKLIST BEFORE LANDING

Wind, traffic and field surface check
Dive brakes - check for operation
Trim - set
Radio - call, if applicable

4.6 GENERAL TAKEOFF PROCEDURE

Aero Tow - 36903-1 "Forward Wheel Position"

The main landing wheel on the 1-36 is well forward and it is quite heavy on the tail wheel, about a 35 - 40 mph IAS is required to raise the tail which is its approx. T/O speed. Therefore, the recommended takeoff attitude is a two point one - main wheel and tail wheel. Normal cross wind takeoff techniques apply, which require judicious use of aileron, rudder and elevator. Note: Trim should be engaged and set to neutral before takeoff.

Aero Tow - 36903-3 "Aft Wheel Position"

The takeoff roll is normal for nose-skid equipped sailplanes. As soon as elevator control is gained, the skid should be lifted off the ground and the aircraft held in the takeoff attitude. At about 35 - 40 mph the aircraft will takeoff by itself in this attitude. Note: Trim should be engaged and set to neutral before takeoff.

Normal crosswind techniques apply which required judicious use of aileron, rudder and elevator.

4.7 WINCH OR AUTO TOW

The 1-36 Sprite will be certified for winch or auto tow with the optional center of gravity tow hook installation.

4.8 GENERAL LANDING PROCEDURE

Use normal pattern speed of 55 mph and dive brake, as necessary. The landing should be made slightly tail low in a manner similar to other Schweizer sailplanes, i.e., 1-26E, 2-32, 1-34. It will land slightly tail wheel first if held off the ground too long after the flare-out. The dive brake effectiveness is approximately the same as on the 1-26E and a generous amount can be used during the approach and landing.

Faster approach speeds can be used in windy or turbulent conditions. Note: Trim should be engaged for approach and landings.

36903-1 "Forward Wheel Position"

During the landing roll after touch-down, the tail wheel will slowly lower until the sailplane is rolling on the main wheel and the spring tail wheel. Directional control should be maintained with judicious use of all flight controls. Care should be exercised when using the wheel brake not to use it too strongly which could make the sailplane to nose, causing damage to the nose skins and nose cap.

36903-3 "Aft Wheel Position"

During the landing roll after touch-down, the nose skid will slowly lower until the sailplane is rolling on the main wheel and the nose skid is contacting the ground. Directional control should be maintained with judicious use of all flight controls.

When using the wheel brake, the skid will tend to contact the ground heavily, but there should be not tendency for the ship to nose-over. Very gentle back pressure on the control stick during braking will save wear on the skid.

4.9 SLIPS

The 1-36 Sprite can be slipped both straight and in turns. It is normal practice to use full rudder counteracted by enough opposite aileron to cause the ship to fly the course desired.

Since most slipping is done on the landing approach, normal approach speed is recommended for best efficiency and safety in the maneuver. At least 50 feet above ground should be remaining when the slip recovery is initiated.

Judicious use of the effective dive brakes should relieve the need for slips close to the ground.

4.10 GLIDING PROCEDURES FOR COVERING GROUND IN HIGH WINDS (PENETRATION)

The Sprite will cover more distance across the ground against a headwind when it is flown above its best glide-ratio speed. Although this is normal practice for all sailplanes, the recommended speeds to fly the Sprite are listed in Section 5, "Performance".

4.11 GLIDING PROCEDURE FOR COVERING GROUND IN STRONG SINK CONDITIONS

It is a well-known fact that a sailplane should be accelerated to greater than its best glide-ratio speed to allow it to fly rapidly through the sink and into hopefully still or rising air. Although it is a matter of judgement as to when or if the sailplane can be brought back into still or rising air, speeds to fly can be calculated from the performance curve which serve as guidelines for flying through sink. The recommended speeds to fly are listed in Section 5, "Performance".

4.12 STALLS AND STALL RECOVERIES

Stall entries, stalls and stall recoveries are normal in all respect. Most stalls occur straight ahead; however, if lack of coordination or turbulence affect the ship, the Sprite may drop one wing. Recovery from a stall is made by relaxing back pressure, and moving the stick slightly forward. Any turn can be corrected by coordinated use of rudder and aileron. Continued holding back of the stick will aggravate the stall, and a spin or secondary stall may develop.

4.13 SPINS AND SPIN RECOVERY

Entries

Spin entries can be made with wings held level from coordinated turns, from a skidding turn or accelerated stalls.

Rotation

The spin rotation is normal, however, when the 1-36's CG is at or near the forward limits, it will not maintain rotation for more than 1½ turns. The rotation is fastest when ailerons are held into the direction of the spin and slowest when held against it.

Stopping Rotation

Normal spin recovery techniques are as follows: Full opposite rudder and stick pushed forward slowly until rotation stops (¼ to ½ turn).

Final Recovery - The attitude after the rotation stops will be a steep diving turn with airspeed building up rapidly.

1. Neutralize rudder.

2. Simultaneously, with coordinated controls, level the wings and ease the stick back being careful not to overload the sailplane. DO NOT use large and abrupt control input. Not until the 1-36 is back at straight and level flight is the recovery completed.

4.14 SPIRALLING IN THERMALS

Thermalling should be done with approximately a 45° bank. The rate of roll is very good for turning into thermals and for making necessary corrections. Although the minimum sinking speed of the 1-36 is 2.25 fps at 42 mph, the best speed to fly while spiralling is 43-46 mph, depending on the steepness of the bank and the turbulence in the thermal. Thermalling too slowly will result in the loss of laminar flow across the wind, high sink and attendant degraded climb performance. It also increases the likelihood of an inadvertent stall. See Section 5, "Performance", for further explanation.

4.15 GLIDING SPEEDS

Speed for best glide ratio L/D is 53 mph ($V_{L/D\ (max)}$)

Speed for minimum sink is 42 mph ($V_{min.\ sink}$)

These speeds are for the Sprite at gross weight of 710 lbs. in level flight. For further discussion, see Section 5, "Performance".

4.16 AEROBATICS

The 1-36 is stressed for mild aerobatics, however, due to its cleanness and tendency to build up speed rapidly, it is recommended that only very experienced aerobatic pilots do them.

All maneuvering must be within the Flight Envelope. See pages 5-76 and 5-77.

COCKPIT LAYOUT AND CONTROL OPERATION

Opening the Canopy

Access to the cockpit is gained from the right hand side of the ship. The canopy is unlatched when the airfoil shaped latch-handle is rotated clockwise until it is pointing up at right angles to the cockpit longeron.

FLIGHT CONTROLS

Control Stick

The single bent control stick is conventional for aileron and elevator control.

Rudder Pedals

Rudder pedals are conventional with a three position adjustment bayonnet located on each rudder cable. Care should be taken that the adjusters are even before take-off.

Trim Control (longitudinal)

The cockpit control is a ratchet lever located just left of the control stick. It is actuated by a gentle pull rearward, and is locked by releasing that pull. A latch on the control stick will allow the trim to be disengaged for portions of the flying. See Trim Limitations Pg. 5-75.

Tow Release Control

The release control is a knob located below center of the instrument panel. Pull the knob fully aft to actuate the tow hook release.

Dive Brake Control

Dive brakes are actuated by a level located at the forward left hand side of the cockpit. Lever is pulled slightly inboard to unlock and aft to the desired

degree of dive brake application. To close and lock dive brakes, push the lever forward until it snaps into the locked position. When dive brakes are first actuated, a very slight nose-up pitching tendency may be noticed.

Main Wheel Brake

The main wheel brake is a hydraulically actuated disc type and is applied by unlocking the dive brake lever and pulling to the full aft position. The wheel brake is actuated during the final few inches of the dive brake control lever travel. Extra pull force is needed to achieve wheel-braking action.

Instrumentation

An airspeed indicator, sensitive altimeter and magnetic compass are required. Additional instruments, up to a full panel, are optional at the owner's discretion.

A total energy receptacle is fitted into the fin of each Sprite. This system may be connected to any normally available total energy probe, and then to one or more variometers. When connected, the total energy variometer should indicate the actual total sink of the sailplane independent of short-term changes in the airspeed.

Static Line Drain

Provision for draining of any accumulation of water from the airspeed static line is made by a spring-loaded valve located at the lower right hand side of center console. To open the drain valve, push forward on the handle pins and turn counter-clock-wise approximately ¼ turn. To close valve, turn handle pins ¼ turn clockwise and release.

Factory flight tests have shown that with this valve open in flight, airspeed readings are reduced slightly. Flight with this valve inadvertently in the open position is therefore not particularly hazardous, and, in an emergency, may be used as an alternate source of static pressure.

Canopy Latch (normal)

Located on right side center bottom canopy frame. Push rearward and down to latch canopy. Reverse to unlatch - the handle is at right angle to the longeron in the unlatched position.

Canopy Emergency Release

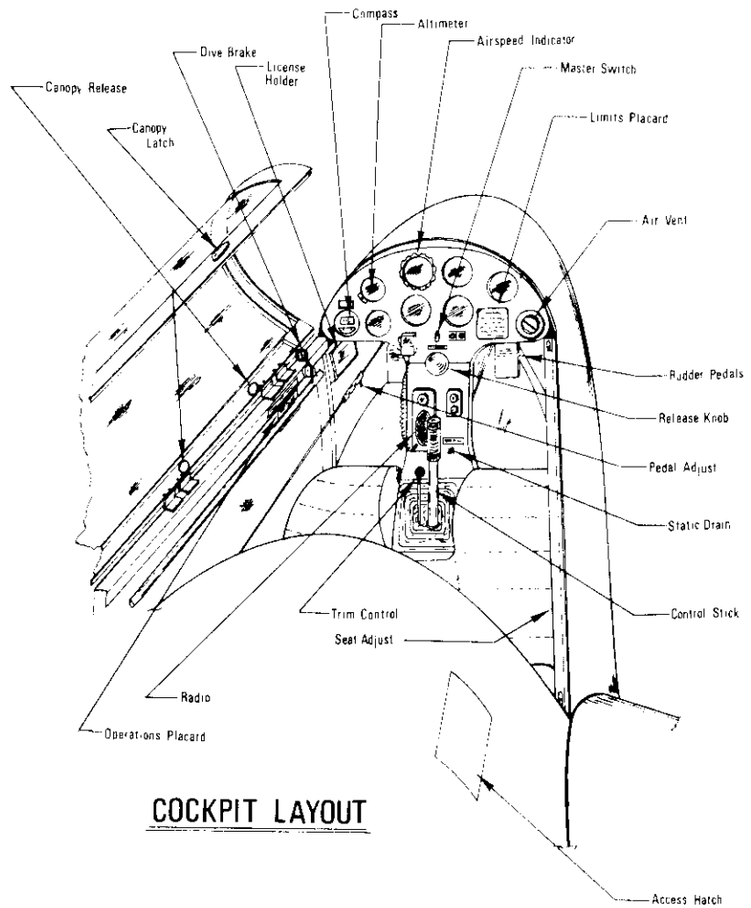
Two hinge pins with curved ends for handles are located in hinges on the left side of canopy frame. Pull both pins toward center to release.

Cockpit Ventilation

Located at top right side of panel. Adjust valve as desired.

Seat-Back Adjustment Lever

Located on right hand cockpit wall, near seat back. Rotate locking pin to unlatch, move seat back to desired location, and re engage locking pin.



COCKPIT LAYOUT

SECTION 5

PERFORMANCE

This Section contains information on the gliding performance of the 1-36 Sprite. It also presents information on indicated vs. calibrated airpseeds, and stalling speeds.

PERFORMANCE CURVE

The performance curve of the 1-36 Sprite is presented in Figure 36904A. The upper curve presents the glide ratio (L/D) at various indicated speeds (mph). The lower curve presents the sinking speeds at various indicated speeds (mph). This graph assumes stable air and is calculated for no-wind conditions, at gross weight.

5.4 SINKING SPEED

Thermaling

Although the minimum sinking speed of the 1-36 Sprite occurs at 42 miles per hour, it is frequently desirable to fly at higher speeds to allow for maneuvering within the thermal, high bank angles, and protection from inadvertent stalling due to turbulence.

The following table presents approximate recommended speeds for thermaling:

	0° Bank	20° Bank	30° Bank	45° Bank	60° Bank
Stall Speed	35	36	39	42	51
Thermaling	42	43	45	51	56

Wave Soaring

Because of the usually smooth conditions found in waves, the minimum sinking speed of 42 mph should apply where the headwind does not require a higher speed.

Ridge Soaring

For maximum height above the ridge, in non-banked ridge soaring, the minimum sinking speed of 42 mph should be flown in smooth conditions. If turbulence or the need to penetrate upwind dictate, higher speeds should be used.

GLIDING PERFORMANCE

Procedures For Covering Ground Against The Wind (Penetration)

The following table presents speeds for penetrating agains winds and still maintaining the best effective glide ratio. This graph assumes smooth air with no lift or sink.

Speeds to Fly for Headwinds or Tailwinds

For Wind MPH	Fly Speed (IAS) MPH	Effective Glide Ratio
-20 (tailwind)	53	17
-10 (tailwind)	53	27
0	53	34
+10 (headwind)	59	25
+20 (headwind)	66	20
+30 (headwind)	71	16
+40 (headwind)	79	12

Procedures for Covering Ground in Sinking Air

The following table presents approximate recommended speeds to fly through sinking air to achieve the overall best glide ratio when approximates a final glide to a destination or to an area of lesser sink or lift air.

Speeds To Fly In Sinking Air

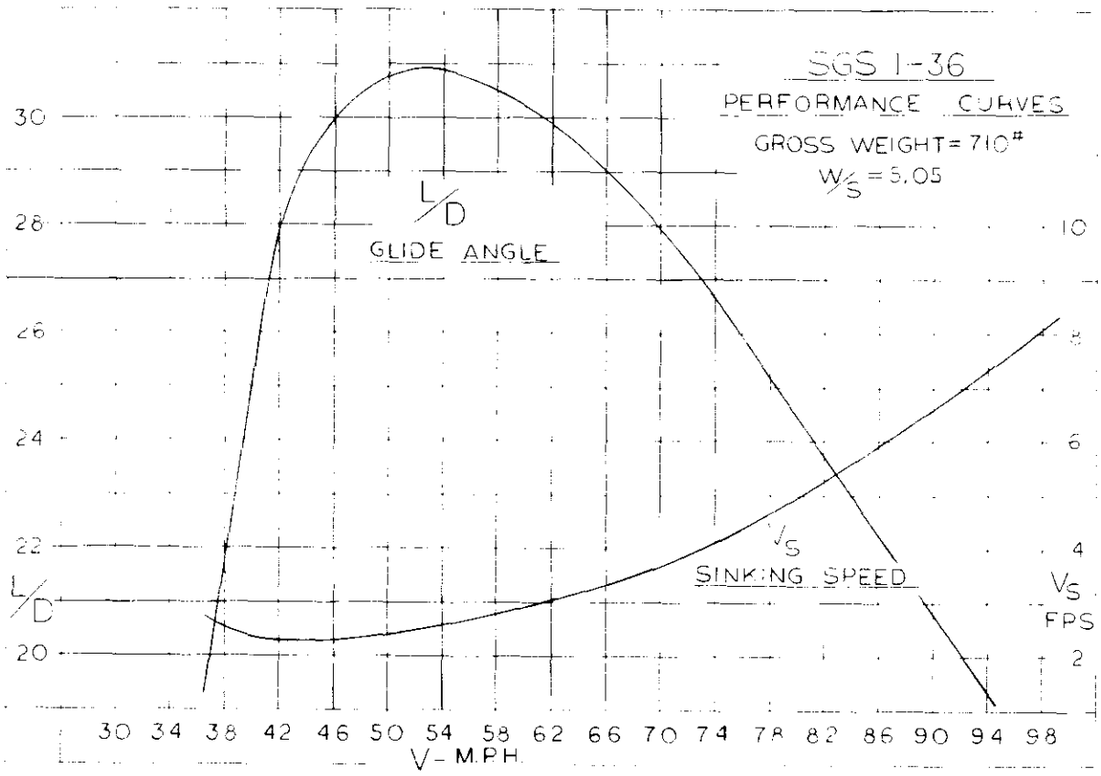
For Sink (air mass movement) FPM	Fly Speed (IAS) MPH	Total Sink (Resultant Vario. Reading) FPM	Effective Glide Ratio
0	53	350	34
100 down	62	280	19
200 down	68	420	14
300 down	74	550	12
400 down	78	690	10
500 down	82	845	9

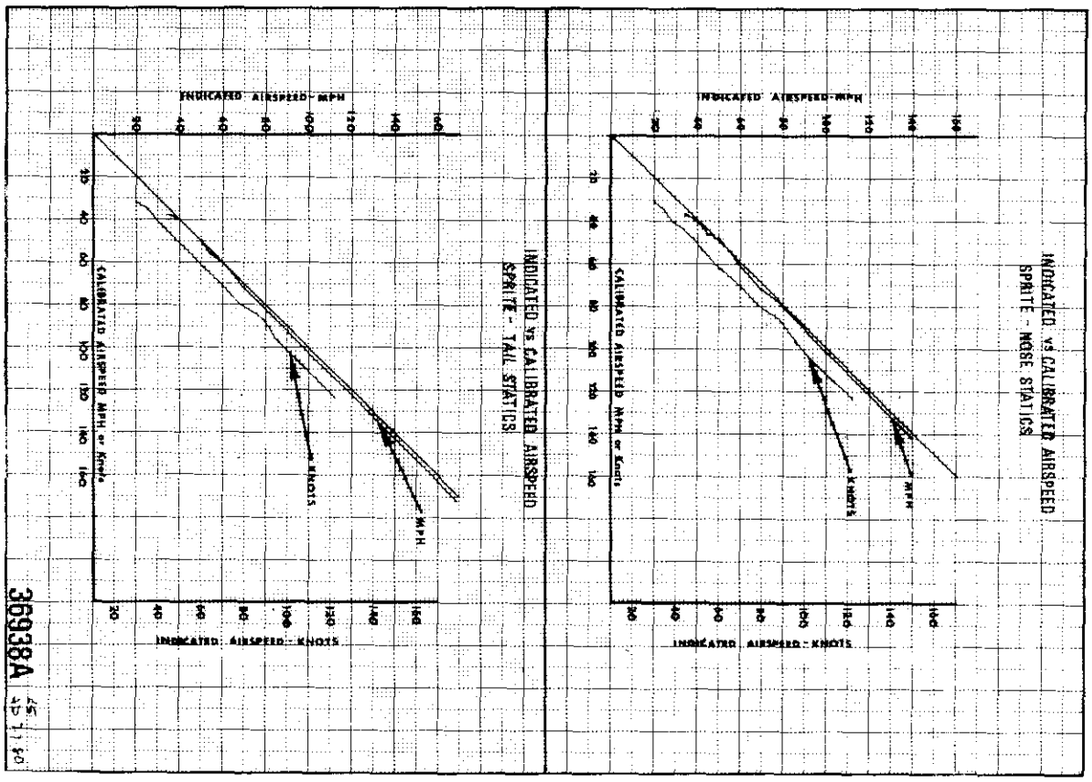
If, in penetrating through sinking air it becomes obvious that sink cannot be avoided, and an off-field landing is imminent, it is, of course, practical to slow down and execute a safe landing rather than to continue on at a high speed.

5.5 CROSS COUNTRY OPTIMUM CRUISING SPEED

From the performance curve can be calculated various "best speeds to fly" to achieve optimum cross-country average speeds, or to arrive at a given point with the maximum altitude. Since these techniques and theories vary from author to author, they are not covered in this Manual.

Most cruising speed theories depend on "expected lift or sink" and are a function of pilotage rather than just of the sailplane itself. The performance and sink curves depicted in this Section should provide enough information for the interested pilot to plot his own optimum cruising speeds and speed ring functions.


SGS 1-36
PERFORMANCE CURVES
GROSS WEIGHT = 710#
W/S = 5.05
L/D
GLIDE ANGLE
VS
SINKING SPEED
VS FPS
L/D
30
28
26
24
22
20
10
8
6
4
2
30 34 38 42 46 50 54 58 62 66 70 74 78 82 86 90 94 98
V - M.P.H.


INDICATED AIRSPEED - MPH
CALIBRATED AIRSPEED MPH or Knots
INDICATED AIRSPEED - KNOTS
KNOTS
MPH
INDICATED VS CALIBRATED AIRSPEED
SPRITE - TAIL STATICS
INDICATED VS CALIBRATED AIRSPEED
SPRITE - NOSE STATICS
36938A

SECTION 6

WEIGHT AND BALANCE CALCULATIONS

SGS 1-36

GENERAL INFORMATION

1. Allowable center of gravity (C.G.) range is between stations 76.98 and 82.71 or 25% to 40% M.A.C. (mean aerodynamic chord)

2. Maximum gross weight = 710 lbs.

3. Weight W_1 is obtained with an accurate scale placed under the main wheels with the aircraft in level position (see page 5-94)

4. Weight W_2 is obtained with an accurate scale placed under the tail wheel with the aircraft in level position (see page 5-94) NOTE. Subract the weight of added on parts, such as wheel blocks, on each scale to arrive at W_1 and W_2.

5. Pilot C.G. varies from 54.25 for a light, short pilot with seat forward to 57.25 for a heavy, tall pilot, with seat aft

CALCULATIONS (FOR NOSE SITTER)

$$\frac{W_1 \times 82.71 + W_2 \times 217.8}{W_1 + W_2} = \text{center of gravity (C.G.) of empty aircraft}$$

$W_1 + W_2$ = empty weight of aircraft

Example: $W_1 = 480$, $W_2 = 21$

$W_1 + W_2 = 501$

$$\frac{480 \times 82.71 + 21 \times 217.8}{501} = 88.37 \text{ inches aft of station 0.00 or station 88.37 (empty weight C.G.)}$$

$$\frac{W_1 \times 82.71 + W_2 \times 217.8 + \text{pilot weight} \times \text{pilot C.G.}}{W_1 + W_2 + \text{pilot weight}} = \text{C.G. of loaded aircraft}$$

Example: Pilot weight = 204 lbs

$$\frac{480 \times 82.71 + 21 \times 217.8 + 204 \times 57.25}{705} = 79.37 \text{ inches aft of sta. 0.000 or sta. 79.37 (C.G. of loaded aircraft)}$$

Example = C.G. within allowable C.G. Range (Sta. 76.98 to 82.71

CALCULATE MINIMUM PILOT WEIGHT

$$\frac{(\text{C.G. empty} - 82.71) \times \text{empty weight}}{82.71 - \text{Pilot C.G.}} = \_\_\_\_\_ \text{lbs}$$

Example: $\frac{88.37 - 82.71 \times 501}{82.71 - 54.25} = 99.64$ lbs

CALCULATE MAXIMUM PILOT WEIGHT

Gross weight - empty weight = maximum pilot weight

Example: 710 - 501 = 209 lbs

CALCULATIONS (FOR TAIL SITTER)

$$\frac{W_1 \times 69 + W_2 \times 223.1}{W_1 + W_2} = \text{C.G. (empty)}$$

$$\frac{W_1 \times 69 + W_2 \times 223.1 + \text{pilot weight} \times \text{pilot C.G.}}{W_1 + W_2 + \text{pilot weight}} = \text{C.G. (Loaded)}$$

$$\frac{(\text{C.G. empty} - 82.71) \times (\text{empty weight})}{82.71 - \text{pilot C.G.}} = \text{minimum pilot weight}$$

Form I-4741-1 (T)

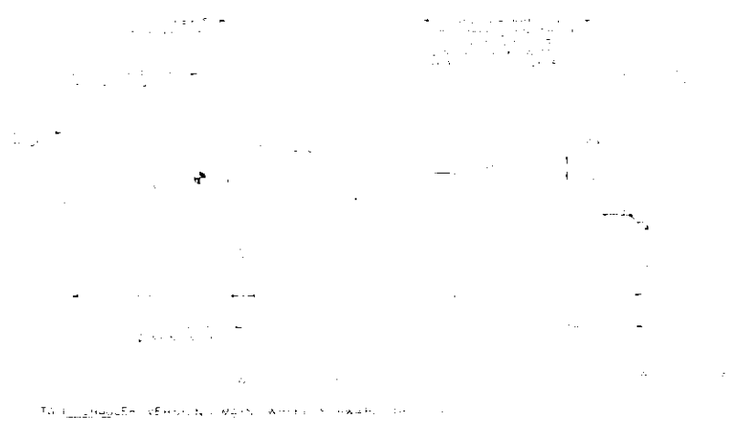
SCHWEIZER AIRCRAFT CORP.
Elmira, New York 14902

FORWARD WHEEL POSITION

WEIGHT & BALANCE, SGS 1-36 _____

REGISTRATION NO. _____ SERIAL NO. _____

Allowable center of gravity (C.G.) range (aircraft loaded) is between Stations 76.96 and 82.71 or 25% to 40% mean aerodynamic chord (MAC)
L.E. MAC is Sta. 67.382 (MAC 38.32 in.)
Max. Gross Weight = 710 lbs.



$W_1 + W_2$ = Weight Empty (w/equipment as listed on Sheet 2)

_____ # + _____ # = _____ # (Weight Empty)

Step 1: $\frac{W_1 \times 69 + W_2 \times 223.1}{W_1 + W_2}$ = Aircraft C.G. (Empty)

$\frac{\text{_____ \# x 69 + _____ \# x 223.1}}{\text{_____ \# + _____ \#}}$ = Sta. _____" Aircraft (Empty)

Step 2: $\frac{W_1 \times 69 + W_2 \times 223.1 + \text{Pilot Wt.} \times \text{Pilot C.G.}}{W_1 + W_2 + \text{Pilot Weight}}$ = Aircraft C.G. (Loaded)

$\frac{\text{_____ \# x 69 + _____ \# x 223.1 + _____ \# x _____ \#}}{\text{_____ \# + _____ \# +}}$ = Sta. _____" Aircraft C.G. (Loaded)

Step 3: Min. Pilot Wt. $\frac{\text{(C.G. Empty - 82.71) x Empty Weight}}{\text{82.71 - Pilot C.G.}}$ = Min. Pilot Weight

$\frac{\text{(_____" - 82.71 x _____ \#}}{\text{82.71 - _____"}}$ = _____ # (Min. Pilot Weight)

Step 4: Max. Pilot Wt. 710 - Empty Weight = Max Pilot Weight
710 - _____ # = _____ # Max. Pilot Weight

Placard Limits:
Min. Wt. Pilot from Step 3 _____
Max. Wt. Pilot (Use Wt. from Step 4) _____

Wt. & Bal. Calc. by _____ Date _____

Wt. & Bal. Checked by _____ Date _____

Issued: [illegible] '93 Sheet 1 of 2

Form I-4741-1 (N)

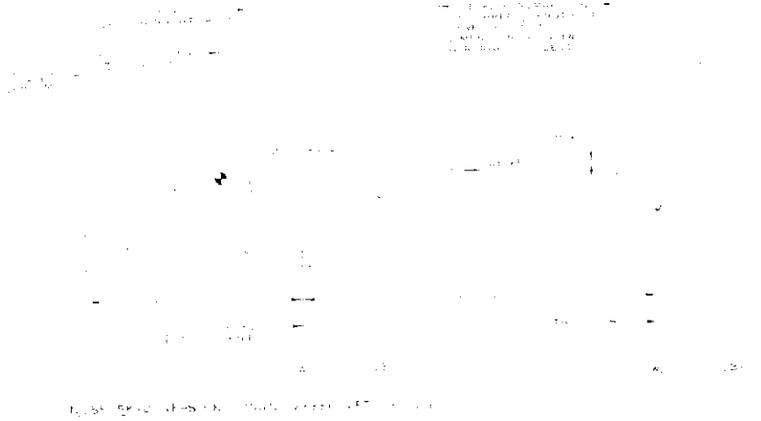
SCHWEIZER AIRCRAFT CORP.
Elmira, New York 14902

AFT WHEEL POSITION

WEIGHT & BALANCE, SGS 1-36 _____

SERIAL NO. _____ REGISTRATION NO. _____

Allowable center of gravity (C.G.) range (aircraft loaded) is between Stations 76.96 and 82.71 or 25% to 40% mean aerodynamic chord (MAC)
L.E. MAC is Sta. 67.382 (MAC 38.32 in.)
Max. Gross Weight = 710 lbs.



$W_1 + W_2$ = Weight Empty (w/equipment as listed on Sheet 2)

_____ # + _____ # = _____ # (Wt. empty)

Step 1: $\frac{W_1 \times 82.71 + W_2 \times 217.80}{W_1 + W_2}$ = Aircraft C.G. (empty)

$\frac{\text{_____ \# x 82.71 + _____ \# x 217.80}}{\text{_____ \# + _____ \#}}$ = Sta. _____ Aircraft C.G. empty)

Step 2: $\frac{W_1 \times 82.71 + W_2 \times 217.8 + \text{Pilot Weight} \times \text{Pilot C.G.}}{W_1 + W_2 + \text{Pilot Weight}}$ = Aircraft C.G. (Loaded)

$\frac{\text{_____ \# x 82.71 + _____ \# x 217.8 + _____ \# x _____ \#}}{\text{_____ \# + _____ \# + _____ \#}}$ = Sta. _____ Aircraft C.G. Loaded)

Step 3: $\frac{\text{Min. Pilot Wt. (C.G. Empty - 82.71) x Empty Weight}}{\text{82.71 - Pilot C.G.}}$ = Min. Pilot Weight

$\frac{\text{(_____" - 82.71) x _____ \#}}{\text{82.71 - _____"}}$ = _____ #

Step 4: Max. Pilot Wt. 710 - Empty Weight = Max Pilot Wt.
710 - _____ # = _____ # Max. Pilot Wt.

Placard Limits:
Min. Wt. Pilot from Step 3 _____
Max. Wt. Pilot (Use Wt. from Step 4) _____

Wt. & Bal. Calc. by: _____ Date _____

Wt. & Bal. Checked by _____ Date _____

Issued: '93 Sheet 2 of 2

WEIGHT AND BALANCE FORM

Form 1-4741-2
7-80

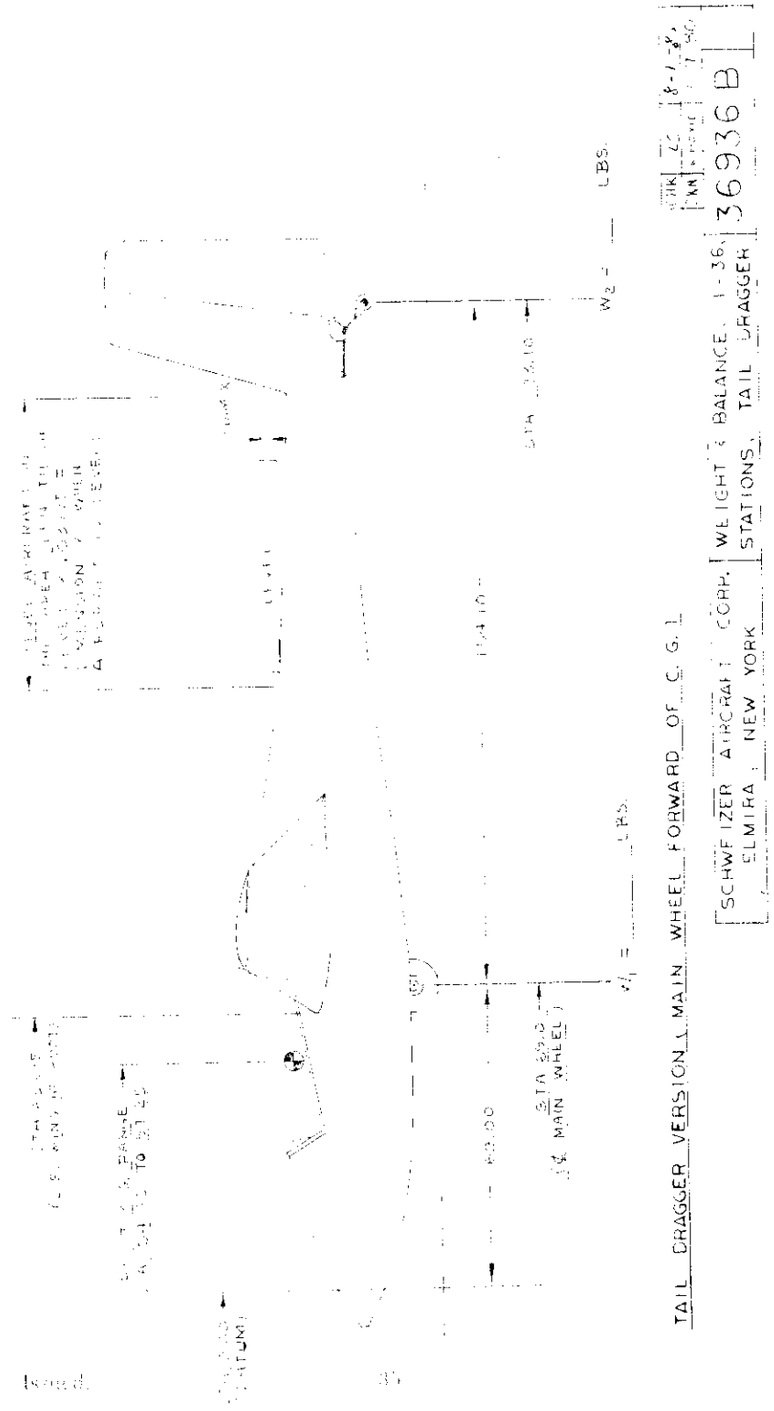
SCHWEIZER AIRCRAFT CORP.
Elmira, New York 14902

_____
Date

SGS 1-36_____ Serial No. _____ Reg. No. N- _____

The Empty Weight as listed on Sheet 1 includes the following equipment:

Item No.	Equipment	Weight	Arm	Moment
	Required:			
1.	Air Speed Indicator	1.00	34.00	34
2.	Sensitive Altimeter	1.25	34.00	42
3.	Magnetic Compass	1.00	34.00	34
	Optional:			



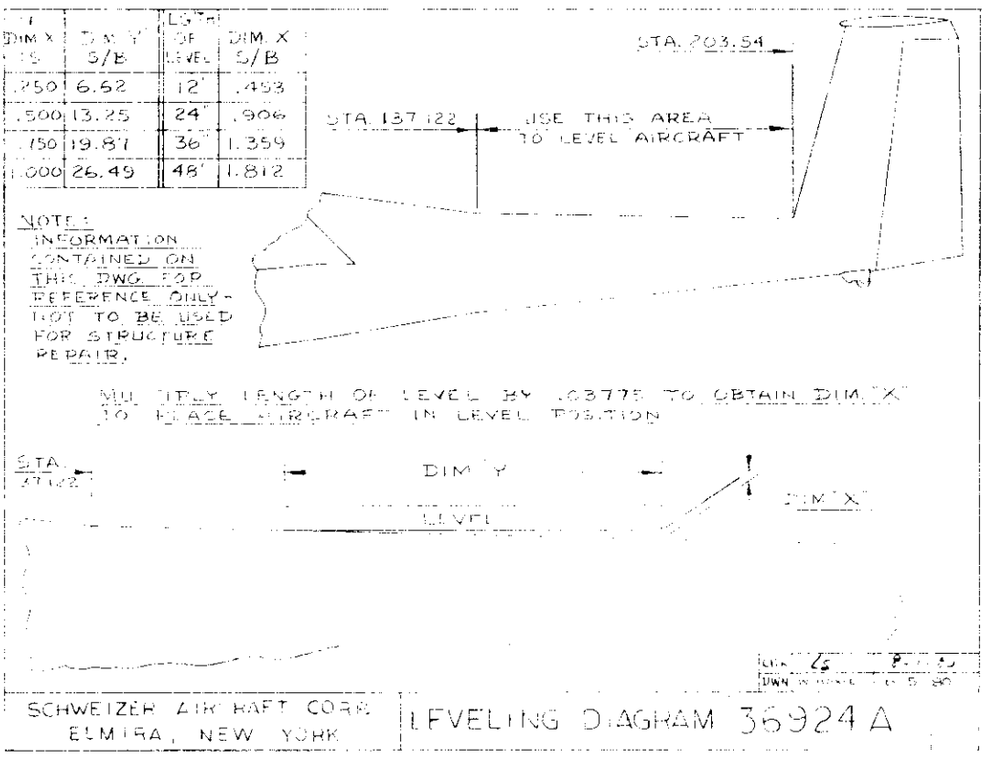
LEVELING

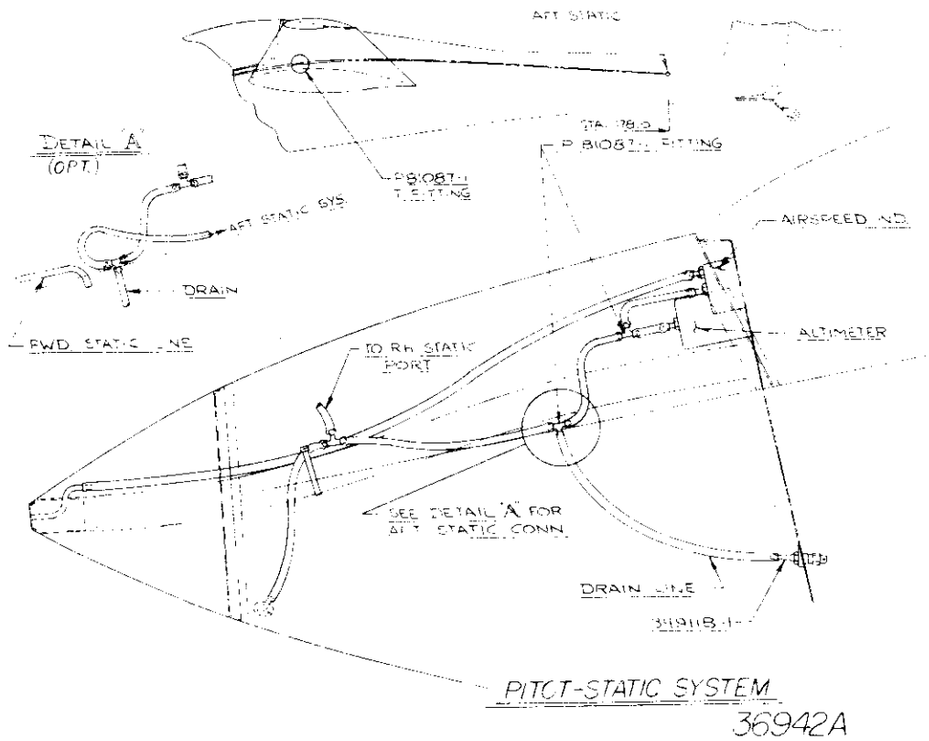
1. **Lateral**

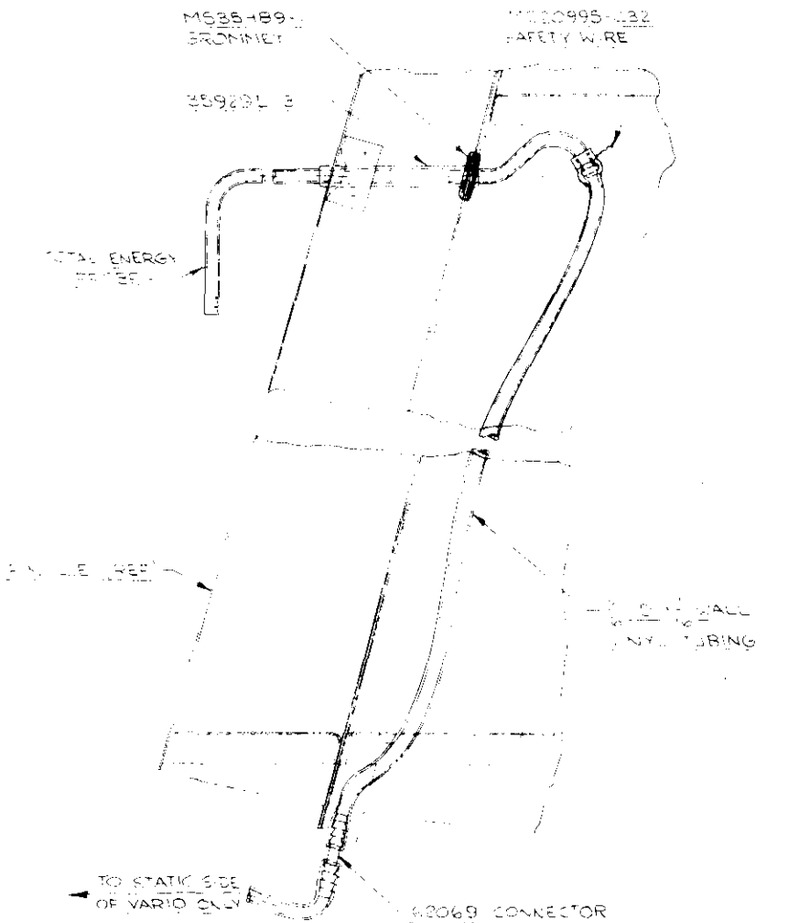
   Using adjustable supports under the wing tips, level the aircraft and check with a spirit level along the upper edge of the bulkhead aft of the seat.

2. **Longitudinal**

   Raise the tail of the sailplane and place a support under the tail wheel. Make a small block to fit under one end of the spirit level corresponding to dimension "X" as shown in accompanying Drawing 36936B. Place spirit level on the top rear portion of the fuselage as shown to level the aircraft.

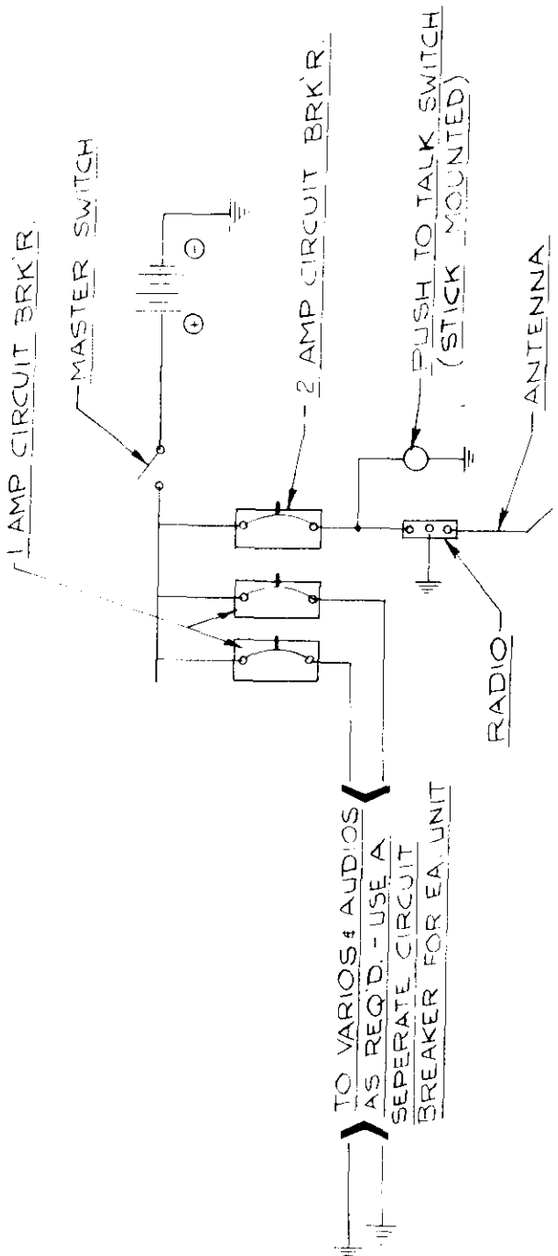

DIM X IS
DIM Y S/B
LG "A" OF LEVEL
DIM X S/B
.250 6.62 12" .453
.500 13.25 24" .906
.750 19.87 36" 1.359
1.000 26.49 48" 1.812
STA. 203.54
STA. 137.122
USE THIS AREA TO LEVEL AIRCRAFT
NOTE: INFORMATION CONTAINED ON THIS DWG FOR REFERENCE ONLY - NOT TO BE USED FOR STRUCTURE REPAIR.
MULTIPLY LENGTH OF LEVEL BY .03775 TO OBTAIN DIM. "X" TO PLACE AIRCRAFT IN LEVEL POSITION
STA. 271.42
DIM "Y"
LEVEL
DIM "X"
SCHWEIZER AIRCRAFT CORP.
ELMIRA, NEW YORK
LEVELING DIAGRAM 36924 A


AFT STATIC
DETAIL "A" (OPT.)
STA. 78.0
P BIO87-1 FITTING
P BIO87-1 T FITTING
AFT STATIC SYS.
AIRSPEED IND.
DRAIN
FWD. STATIC LINE
TO RH STATIC PORT
ALTIMETER
SEE DETAIL "A" FOR AFT STATIC CONN.
DRAIN LINE
PITOT-STATIC SYSTEM
36942A



TOTAL ENERGY
PROBE SYSTEM
(OPT.)

36941A



ELECTRICAL SYSTEM 36943A
(OPT.)

SECTION 8

HANDLING, SERVICING AND MAINTENANCE

SAILPLANE ASSEMBLY

WING TO FUSELAGE ASSEMBLY

1. Before placing the right wing on the fuselage, check that there is no dirt or grit on either spar butt or in the fuselage main or rear carry-thru fittings.

   The main and rear wing pin holes should also be clean as they are intended to have a close-tolerance fit.

   A clean soft cloth can be used to wipe these surfaces clean. A light grease should be used to lubricate the contacting parts and pins.

2. Support the fuselage in a normal upright position with the canopy removed.

3. Wings should be conveniently located on the ground, or on racks, on their repective sides of the fuselage. Assembly hardware (cleaned and greased) should also be placed near its point of use. The dive brake control lever in the cockpit must be in its forward position and locked in order for the dive brake slip-fittings to engage automatically.

4. Check to make sure that the four captive (3/8" dia.) L-shaped pins (2 for the rear carry-thru and one each upper side of the fuselage at the U-shaped yoke fitting), are completely disengaged by pulling the pins forward against the pin stops.

5. **The right hand wing** is to be installed **first.** Have one person level the fuselage standing on the right hand side of the fuselage. Two men pick up the wing, one at the tip and one at the root. The leading edge of the wing is handed to the man supporting the fuselage and the man carrying the wing root moves to support the training edge.

6. The spar butt is raised to clear the fuselage. Lower wing into the yoke fitting and have tip man push wing inboard. Engage the rear, then the forward L-shaped alignment pins.

   Extreme care must be exercised at this point so that the man guiding the rear carry-thru fitting into position does not have his fingers caught between the sharp wing skin and the fuselage.

7. After engagement of the alignment pins, safety each by turning the L-shaped handle portion to the vertical position. Lower the hinged-plate over the end of the handle and install a LSP-1 safety pin through the hole provided in the handle end.

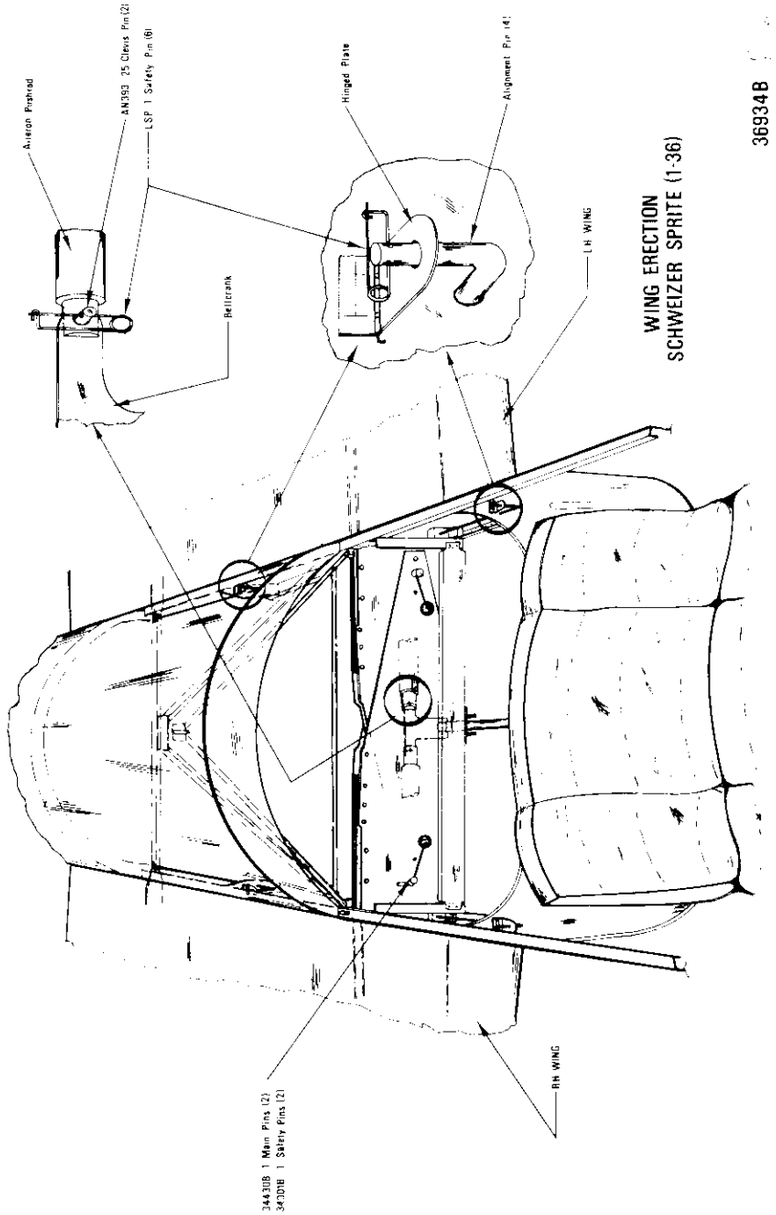
8. The right hand wing tip should now be held, or supported, in a nearly level position, while the three persons install the opposite wing in a similar manner to that outlined above.

9. Install the two main wing pins P/N 34430B-1. A slight rocking at the wing tip will aid in inserting each pin as will the convenient handle. Safety both main pins using the P/N 34901B-1 large safety pins; the two aileron pushrods are attached to the aileron idler horn by AN393-25 clevis pins, and are then safetied with (2) LSP-1 safety pins.

10. Check operation of dive brake doors and aileron control system to insure freedom of movement.

HORIZONTAL TAIL SURFACES TO FUSELAGE

Before placing stabilizer on the fuselage torque tube, check to make sure that all bearing surfaces are free of dirt or grit. A soft cloth should be used to wipe the surfaces clean. Each stabilizer/elevator attaches to the fin by sliding over the trunnions at the top of the fin, ensuring that the elevator engages the bayonets on the elevator control horn. With both stabilizers in place, push the lock-pin handle aft to secure the eye and the clevis fittings, and rotate the handle down. Insert the BLS4R05N safety pin down into the barrel, aft of the locking pin. Close the spring-loaded access door in the upper surface of the stabilizer fairing.



WING ERECTION
SCHWEIZER SPRITE (1-36)

36934B

GENERAL MAINTENANCE

The SGS 1-36 Sprite sailplane is of all-metal construction with the exception of fabric covered rudder and elevator surfaces, serving to minimize the line maintenance required for normal operation.

LUBRICATION

The pulleys in the various control systems are equipped with sealed anti-friction bearings and under normal operating conditions are considered to be permanently lubricated. This also applies to the main wheel bearings and the aileron push-tube guide rollers inside the wing. See accompanying Drawings 36923B, 36927B, 36929B, 36931B for major lubrication points. Lubricate as required, but at least each 100 hours and at Annual Inspection.

A good grade of engine lubricating oil (SAE #30) may be used on pivot points throughout the control systems. However, under dry and dusty conditions, it is desirable to use a dry-type lubrication such as graphite powder, solid-film spray or stick lubricant to prevent retention of grit or dirt around the bearings. Exposed pivot points should be relubricated following cleaning of the sailplane with water and detergents and/or cleaning fluids.

FABRIC COVERING

The rudder and elevator are the only surfaces on the aircraft which are fabric covered. The covering is synthetic fabric, "Ceconite No. 102", manufactured and sold by Ceconite, Inc., 4677 Worth Street, Los Angles, Cal. 90063. A Ceconite Process Procedure Manual No. 101 may be procured from them for guidance in maintenance and repair of this fabric. See front of aircraft log book for finishes applied.

STATIC BALANCE

The static balance of the aileron, rudder and elevator control-surfaces must be checked after recovering and/or repainting of the unit, since such rework may affect the static balance to the point of exceeding acceptable limits. Most static-balance checks can be most easily accomplished by a bench-check, i.e., off the aircraft.

Aileron Unbalance Limits

The unbalance limits for each aileron are 15.75 to 19.75 in.-lbs. tail heavy.

Elevator

The unbalance limits for both elevator halves (joined) is 9.0 - 11.0 in/lbs. tail heavy.

Rudder

The static balance limits for the rudder assembly is 0 to 16.0 in/lbs. tail heavy.

NOTE: FAA Advisory Circular No. AC43.13-1A, Chapter 3, contains guidance information for fabric testing and repairs.

FINISH

1. The production aircraft are finished with Eurethane Enamel. Colors, manufacturer and manufacturer's numbers of the material applied is noted in the aircraft description section in the front of the individual aircraft log book.

2. All exterior surfaces may be cleaned with soap and water or mild detergent solutions. Exposed pivot points should be relubricated following cleaning of the sailplane with water and detergents and/or cleaning fluids.

RIGGING

1. The angle of incidence and dihedral angle are built into the wing and fuselage and are not adjustable in the field.

2. The elevator control cables are rigged to a tension of 15 to 20 lbs. The tension should not be exceeded to prevent friction build-up in the system.

3. Control cables should be rigged with the turnbuckle threads flush with the end of the barrel, although a maximum of three threads showing is permissible. Safety wiring of turnbuckles is done by the double-wrap method show in Capter 4 of FAA Manual AC43.13-1, or in Military Standard No. MS 33591.

4. The wheel-brake linkage should be rigged so that there is no lost motion when the dive brake control handle is moved to the rear limit.

5. The spring attached to the aft end of the tow hook release arm should be tensioned to a point which requires a pull (aft) on the end of the release arm of 6-12 lbs. to actuate the release arm.

WHEEL AND BRAKE

The main wheel is a Cleveland Aircraft Products Co. No. 40-78. The tire is a 5.00 x 5 4-ply, rated and takes a 5.00 x 5 tube. Inflation should be maintained at 31 psi. Do not overtighten axle nuts, since bearing damage could result.

The main wheel brake is a Cleveland Aircraft Products Co. No. 30-7. This is a disc type, hydraulically operated by a Gerdes Part No. A049-3 brake master cylinder mounted on the left hand side of the cockpit.

The brake system is serviced with hydraulic fluid (specification MIL-H-5606, or equivalent) by removing the fillister head screw from the top plane on the mast cylinder and filling through this screw hole.

To bleed the brake system, remove the bleeder-valve cap on the wheel brake assembly opposite the line attach point. Actuate the brake master cylinder and while maintaining pressure crack the bleeder-valve screw at the wheel brake to allow air to escape. Repeat this cycle, adding hydraulic fluid as necessary, until the air is exhausted. Check brakes for normal operation; then tighten the bleeder valve screw and replace the bleeder-valve cap. Also replace the screw in the brake master cylinder filler hole.

When bleeding the brake system, use care not to invert the Sprite fuselage since leakage could result in damaging the sailplane's finish.

CONTROL SURFACE TRAVELS

When control surface rigging has been disturbed, travel of the movable surfaces must be rechecked to assure that surface deflections are within specified tolerances. Approved travels for the various surfaces are shown below. In case protractor type measuring devices are not available for making this check, control surface trailing edge displacement dimensions (min. and max. from neutral) are listed immediately following the callout below in degrees:

Aileron: 30½ to 33½° Up - 4.96" to 5.43" at inboard end 10° to 13° Down - 1.64" to 2.14" at inboard end

Elevator: 21° to 24° Up - 3.58" to 4.07" at intersetion of trailing edge and root rib. Down 3.09" to 3.58" at intersection of trailing edge and root rib.

Cable tension 15 - 25 lbs.

Rudder: 27° (Min.) L & R - 5.17" at top of trailing edge.

ANNUAL OR 100 HOUR INSPECTION

Federal Aviation Regulations require that 100 hour inspection be performed aircraft which are used in commercial service. All aircraft, regardless of usage, are required to undergo an Annual Inspection in order to maintain the validity of the Certificate of Airworthines. The form reproduced on Pg. 5-111 may be used as a guide for performing and recording these inspections. Useful and official information is listed in Glider Data Sheet.

Forward Fuselage

1. Skins, damage, cracks, buckling.
2. Canopy, plexiglass cracks or crazing, frame, hinges, latches.
3. Nose cap, pitot tube, static vents, ventilating-air tube.
4. Seat, back and adjustment.
5. Control stick, torque tube, elevator push rod.
6. Elevator bellcrank, fwd. operation, attach points.
7. Elevator control cable system, tension, turnbuckles.
8. Instrument panel, radios and instruments, pitot/static lines.
9. Cabin ventilator, duct, outlet.

10. Rudder pedals, adjusting mechanism, return spring.
11. Rudder control cable system, fairleads, tension, bungee, turnbuckles.
12. Tow release control, cable, pulley, spring tension.
13. Release arm, attachment, condition, spring tension.
14. Release hook, attachment, condition, operation.
15. Safety belt and shoulder harness, condition, attachment.
16. Dive brake mechanism (fuse.), attachment, handle lock.
17. Placards, instrument markings, legibility, currency.
18. Lubrication of controls (See Lubrication Chart).

Aft Fuselage

1. Elevator cable runs, fairleads, guide pulleys.
2. Rudder cable runs, fairleads.
3. Skins, damage, cracks, buckling.
4. Stabilizer, condition, attachment.
5. Elevator, condition, hinge bolts, safety.
6. Elevator bellcrank, wear, security, pushrod and horn attach., safety.
7. Fin, general condition, attachment forward and aft.
8. Rudder, fabric, hinges wear and safety, air seal.
9. Rudder bellcrank, universal attach to rudder, wear, attachment, safety.

Wings

1. Spar butt, main wing pin attach holes (.499 - .501)
2. Main wing pin, wear, damage, handle attach, safety.
3. Main spar, captive pin, attachment, safety.
4. Aft carry-thru, captive pin, attachment, safety.
5. Aileron push rods, condition, attachment.
6. Aileron bellcrank, condition, pivot bolt, safety.
7. Ailerons, condition, hinges, safety.
8. Dive brake torque tube, condition, inboard engagement, outboard attach bolts.
9. Dive brake mechanism, rod end attach, return spring attach.
10. Dive brake doors, condition, rod end attach, hinges, safety.
11. Wing skins, buckling, damage.
12. Wing tip wheel, condition, attachment.
13. Lubrication of dive brake mechanism. (See Lubrication Chart)

Landing Gear

1. Nose skid and shoe, condition, attachment.
2. Wheel, condition, bolts, bearing noise, axle attachment
3. Tire and tube, condition, inflation (31 psi).
4. Brake, operation, cylinder, fluid level, line, grommet, puck and disc, torque arm attachment.
5. Tail wheel, spring and bracket, condition, attachment and safety.

SCHWEIZER AIRCRAFT CORP.
Elmira, NY 14902
Form I-4758, 7-80

INSPECTION RECORD
ANNUAL &/or 100 HOUR INSP.
(circle one)

SGS 1-36 SPRITE

Model: **SGS 1-36** ;Ser. No. Reg. No. Work Order No.

Check the following for proper installation, tension, safety, wear, excessive free play, evidence of corrosion or other damage. Indicate airworthines by checking ( ) block. When unairworthy items are noted, leave appropriate block blank, until corrected. The SGS-1-36 Erection and Maintenance Instructions contain rigging and other detail information. **NOTE: This form may be reproduced** for use in the field.

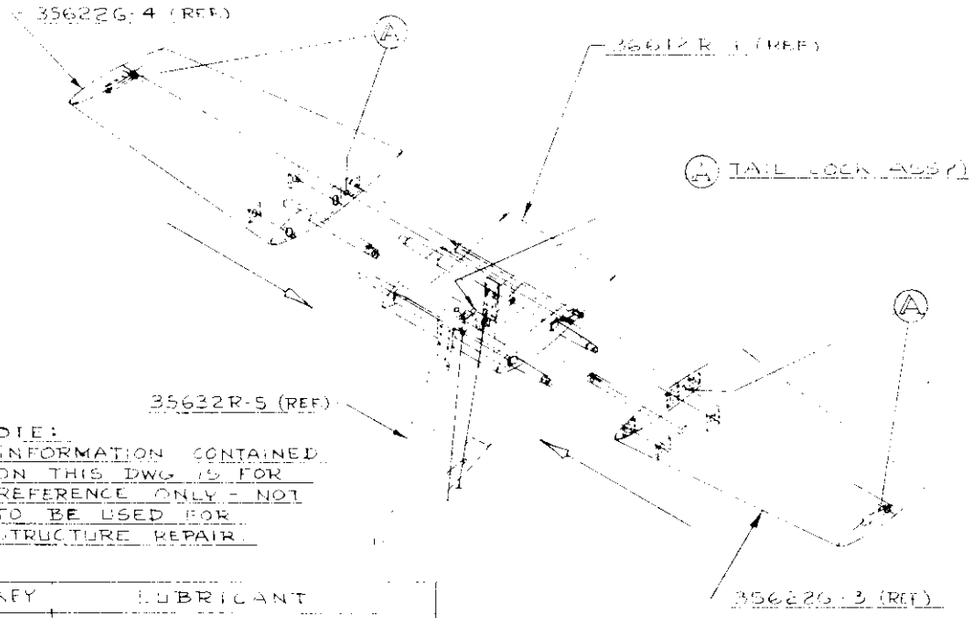
		A/W
FWD. FUSELAGE & COCKPIT		
a.	Control stick & torque tube	
b.	Forward elevator bellcrank	
c.	Elevator cables and guides	
d.	Trim control	
e.	Release control and cable	
f.	Dive brake control	
g.	Rudder pedals and springs	
h.	Rudder cables and guides	
i.	Instrument installations	
j.	Cabin ventilator	
k.	Canopy (glass, hinges & latches)	
l.	Safety belt	
m.	Shoulder Harness	
RIGHT WING		
a.	Main attach pin holes	
b.	Drag fittings & attach holes	
c.	Long ail. push rod and guides	
d.	Dive brake T.T. & bellcrank	
e.	Dive brake hinges	
f.	Aileron idler inst.	
g.	Aileron push rod and horn	
h.	Aileron hinges	
i.	Wing tip	
j.	Exterior surface	
k.	Visible interior surfaces	
l.	Leading edge	
m.	Tip wheel spring & tire	
EMPENNAGE GROUP		
a.	Stabilizer	
b.	Elevator hinges	
c.	Elev. horn att. holes & pins	
d.	Elevator idler horn inst.	
e.	Elev. cables and guides	
f.	Fin & attach points	
g.	Rudder hinges	
h.	Rudder cables and guides	
i.	Tail wheel, brkt. & spring	
j.	Tail fairing	
k.	Rudder covering - fabric	
l.	Elevator covering - fabric	

		A/W
AFT FUSELAGE		
a.	Main wing attach holes	
b.	Forward carry-thru attach	
c.	Aft wing attach holes	
d.	Aft carry-thru attach	
e.	Aileron, transfer inst.	
f.	D.B. inst.	
g.	Brake inst.	
h.	Elevator cables and guides	
i.	Rudder cables and guides	
j.	Inside skins	
k.	Wing fairing, aft of canopy	
LEFT WING		
a.	Main attach pin holes	
b.	Drag fittings & attach holes	
c.	Long ail. push rod and guides	
d.	Dive brake T.T. & bellcrank	
e.	Dive brake hinges	
f.	Aileron idler inst.	
g.	Aileron push rod and horn	
h.	Aileron hinges	
i.	Wing tip	
j.	Exterior surface	
k.	Visible interior surfaces	
l.	Leading edge	
m.	Tip wheel spring & tire	
GENERAL		
a.	Tow hook inst. & oper.	
b.	Tow hook damper	
c.	Nose skid and shoe	
d.	Wheel & hydraulic brake	
e.	Tire and inflation (31 psi)	
f.	Identification markings	
g.	Metal skin condition	
h.	Pitot-static tubes/vents	
i.	Lubricate all noted points per chart	
j.	Wt. and balance	
k.	Placard installations	
l.	Airworthiness papers	

Aircraft Total Time _____ hrs.
Prev. Annual Insp. on _____ date
@ _____ hrs.
Latest AD Note, No. _____ compiled with
on _____

Mechanic's Signature _____ Cert. No. ____ Date _____

Insp. Auth. Signature _____ Cert. No. ____ Date _____

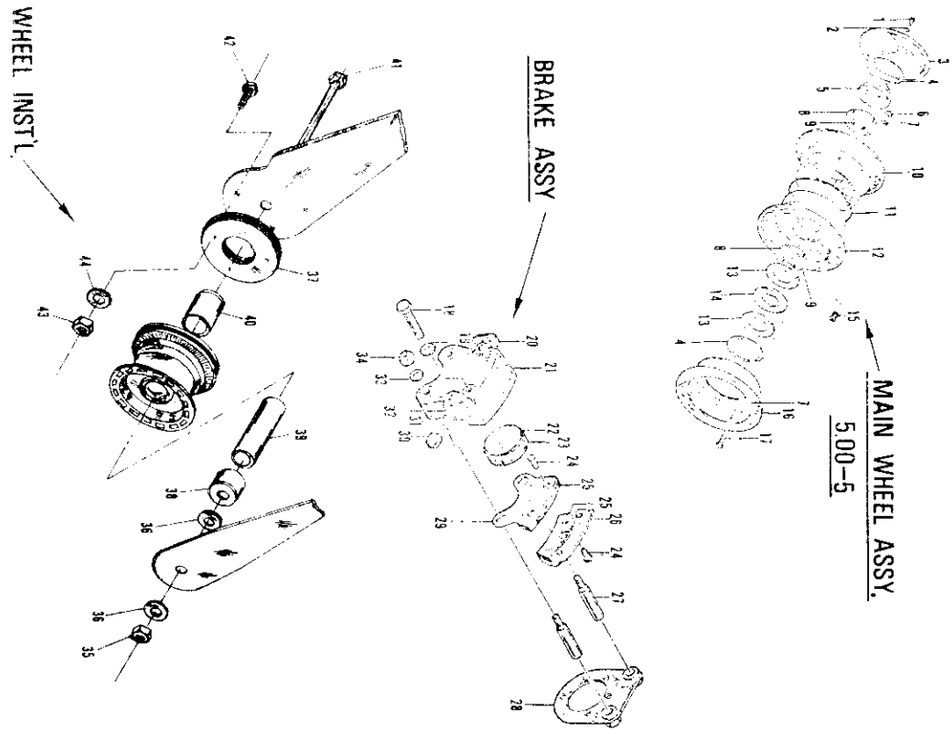


NOTE:
INFORMATION CONTAINED ON THIS DWG IS FOR REFERENCE ONLY - NOT TO BE USED FOR STRUCTURE REPAIR.

KEY	LUBRICANT
A	S.A.E. #30 OIL (ALT.) LUBRIPLATE

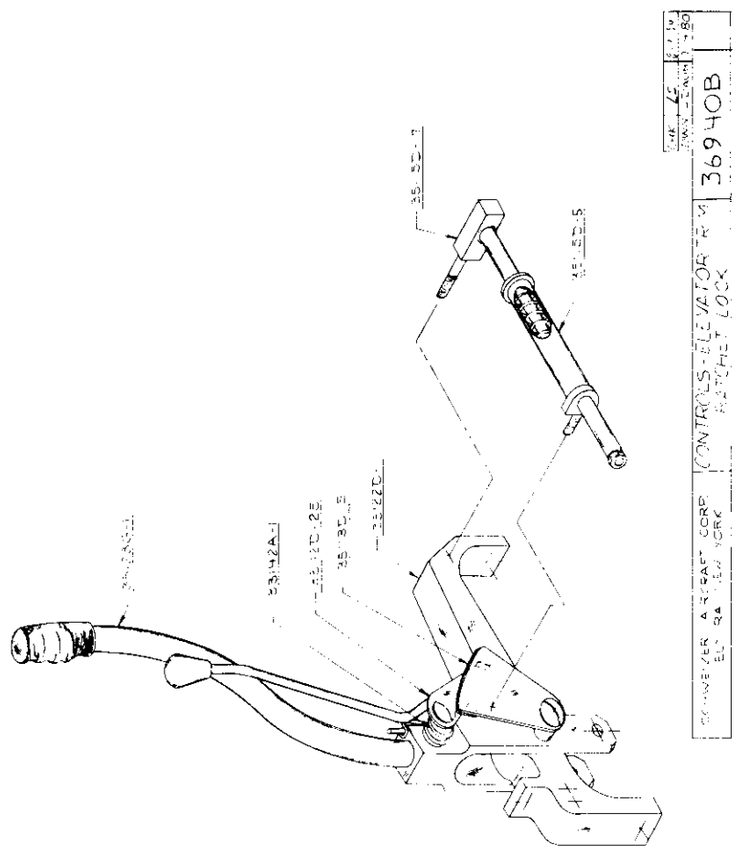
CHK		
DWN	W. HOLLIS	6-16-80

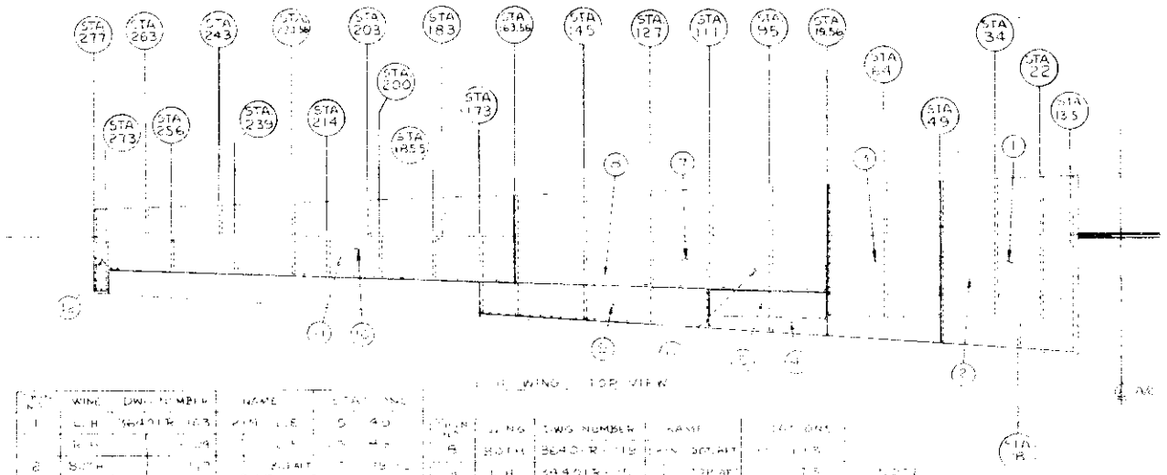
SCHWEIZER AIRCRAFT CORP. ELMIRA, NEW YORK	LUBRICATION: DEMOUNTABLE H. T. S.	36925A	



36939A

Item No.	Part No.	Description	Qty Per Assy 40-78	30-7	Inst'l	
1.	102-25100	Screw	1			
2.	095-15400	Washer-Lock	1			
3.	157-00500	Shield-Dust	1			
4.	155-00200	Ring-Snap	2			
5.	158-00500	Cap-Hub	1			Wheel
6.	094-10300	Nut	3			
7.	095-10400	Washer	3			
8.	214-00300	Cup-Bearing	2			
9.	214-00400	Cone-Bearing	2			
10.	162-02800	Outer Wheel Half Assy	1			
11.	101-07200	O-Ring	1			
12.	161-00500	Inner Wheel Half Assy	1			
13.	153-00800	Ring-Grease Seal	2			
14.	154-00600	Felt-Grease Seal	2			
15.	217-00100	Grommet	1			
16.	164-00400	Brake Disc Assy	1			
17.	103-10500	Bolt	3			
18.	103-20700	Bolt		2		
19.	095-10700	Washer		2		
20.	104-00300	Tube Fitting		1		
21.	061-00200	Cylinder		1		
22.	101-02900	O-Ring		1		
23.	062-00100	Piston		1		
24.	102-00200	Rivet		3		Brake
25.	066-00400	Lining		2		
26.	064-00300	Plate Back		1		
27.	069-00200	Bolt, Anchor		2		
28.	075-00200	Torque Plate Assy		1		
29.	063-00200	Plate-Press		1		
30.	183-00100	Cap		1		
31.	079-00300	Screw-Bleeder		1		
32.	081-00100	Seat-Bleeder		1		
33.	095-10100	Washer		2		
34.	094-10100	Nut-Anchor Bolt		2		
35.	AN365-624	Nut			1	
36.	AN960-616L	Washer			2	
37.	35238D-15	Spacer			1	
38.	36208D-7	Spacer			1	
39.	36208D-3	Tube			1	Wheel
40.	36208D-5	Spacer			1	Installation
41.	26242B-1	Axle Shaft			1	
42.	AN24-35A	Bolt			3	
43.	AN365-428	Nut			3	
44.	AN960-416	Washer			3	





NO.	WING	DWG. NUMBER	NAME	STATIONS
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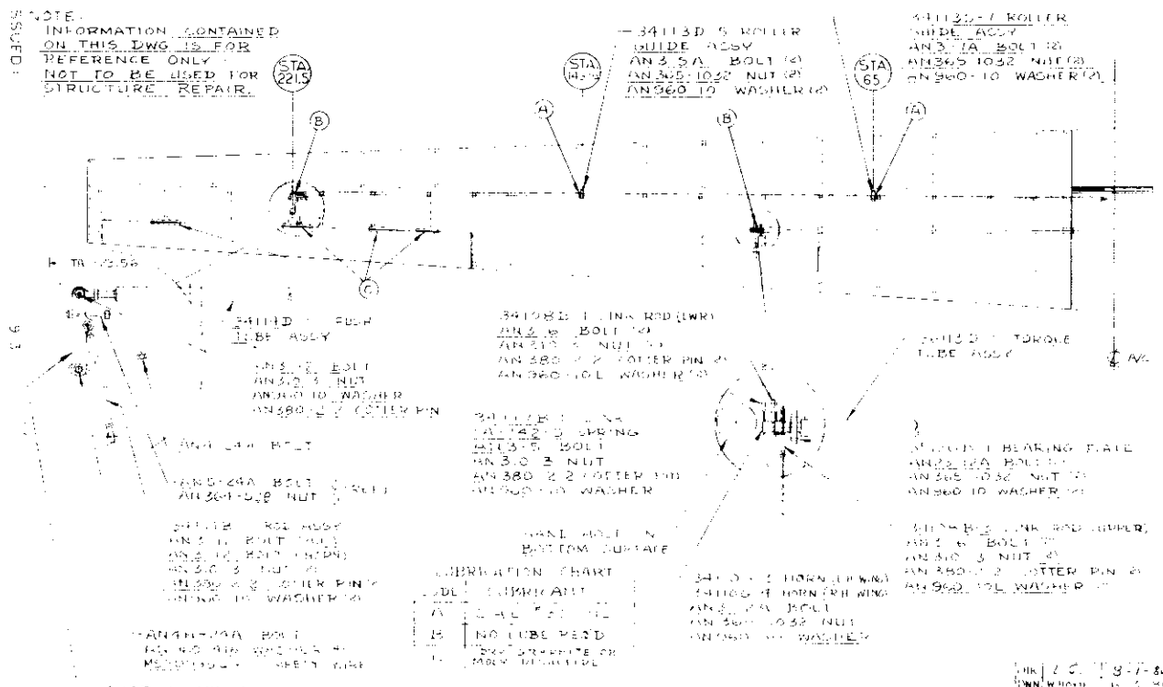
STATION	CHORDWISE LOCATION	DWG. NUMBER
13.5	L.E.	36408B - 5, -6
22		34410G - 3, -4
34		34410G - 5, -6
49		36410G - 1, -2
64		34410G - 9, -10
79.56		36410G - 3, 4
95		34410G - 11, -12
111		-13, -14
127		-15, -16
145		34410G - 17, -18
162.56		36410G - 5, -6
183		34410G - 19, -20
203		34410G - 21, -22
223.56		36410G - 7, -8
243		34410G - 23, 24
263	L.E.	34410G - 25, 26
277	FULL	34412G - 5, -6
13.5	CENTER	36408B - 3, -4
22	CENTER	34417G - 5, -6

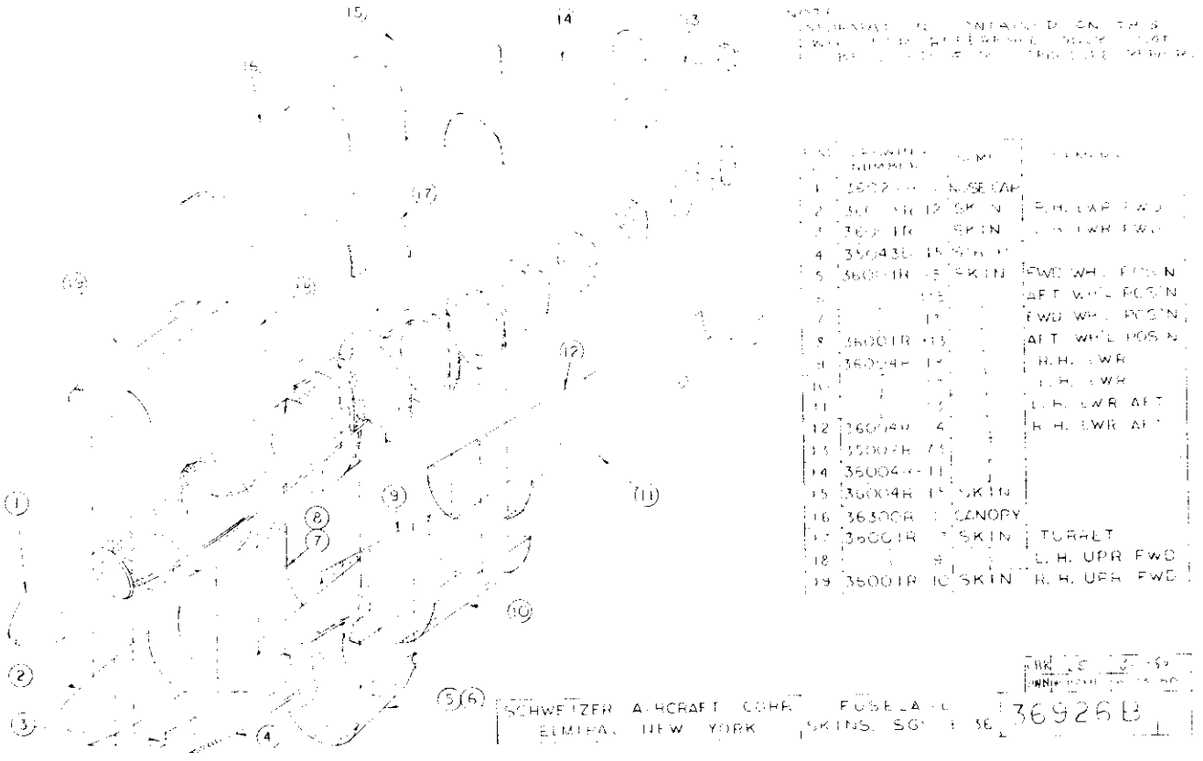
STATION	CHORDWISE LOCATION	DWG. NUMBER
34	CENTER	34417G - 7, -8
49	CENTER	34417G - 11, -12
64	REAR	36407J - 3, -10
79.56		36407J - 3, 4
95		36413H - 1, -2
111		36413H - 3, -4
127		34418G - 3, 4
145		34418G - 5, -6
163.56		36419G - 1, -2
173	REAR	36419G - 7, 8
185.5	CENTER	34420D - 3, -4
200		34420D - 5, -6
214		34420D - 7, 8
223.56	CENTER	36420D - 1, 2

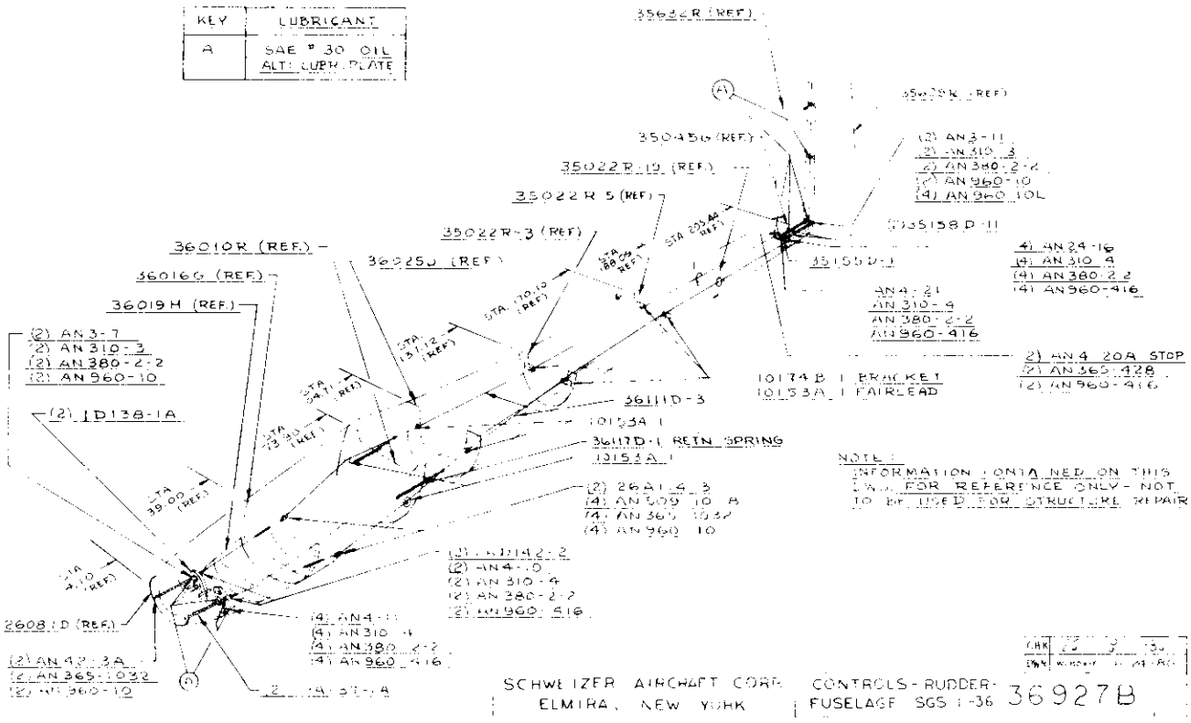
STATION	CHORDWISE LOCATION	DWG. NUMBER
239	CENTER	34420D - 11, -12
256	CENTER	34420D - 13, 14
273	REAR	36420G - 3, 4
13.5	L.E.	36408B - 11, -12
28		34416B - 7, 8
49		36416B - 1, 2
64	L.E.	36407J - 11, 12

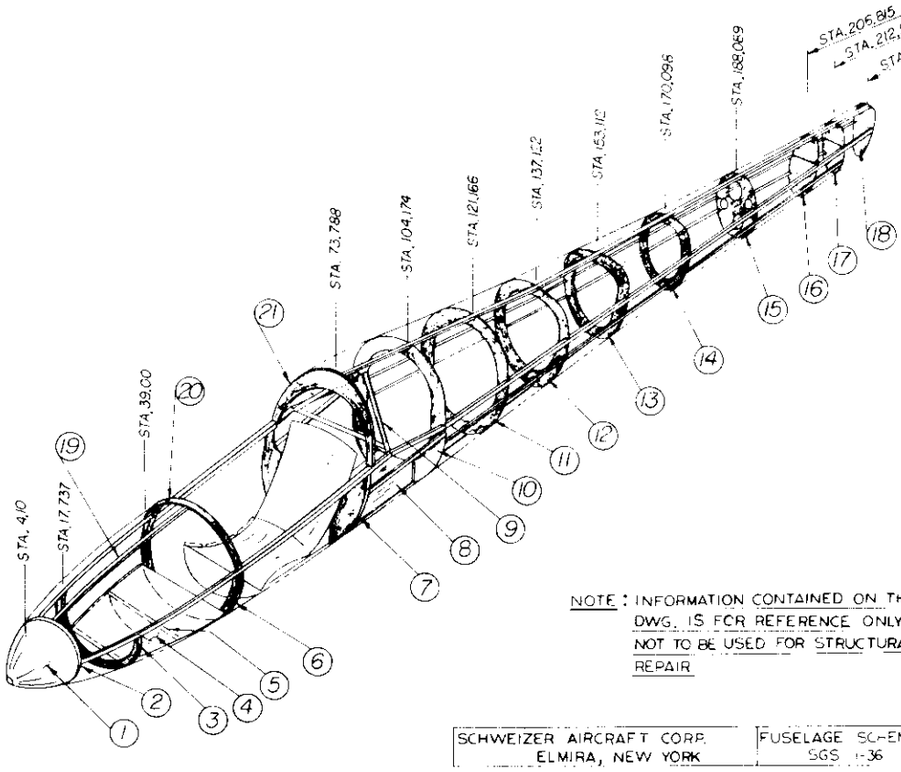
NOTE:
1. ALL ODD DWG NUMBER DASH NUMBERS APPLY TO LEFT HAND WING. ALL EVEN DWG. NUMBER DASH NUMBERS APPLY TO RIGHT HAND WING.
2. INFORMATION CONTAINED ON THIS DWG. IS FOR REFERENCE ONLY - NOT TO BE USED FOR STRUCTURE REPAIR.

SCHWEIZER AIRCRAFT CORP. ELMIRA NEW YORK	WING RIBS SGS 1-36	36922B


NOTE:
INFORMATION CONTAINED ON THIS DWG IS FOR REFERENCE ONLY
NOT TO BE USED FOR STRUCTURE REPAIR.
STA 221.5
STA 145.5
STA 65
SCHWEITZER AIRCRAFT CORP
ELMIRA, NEW YORK
CONTROLS WING D.B.
AILERON SGS 1136
36923 B


SCHWEITZER AIRCRAFT CORP
ELMIRA, NEW YORK
FUSELAGE
SKINS, SGS 1136
36926 B



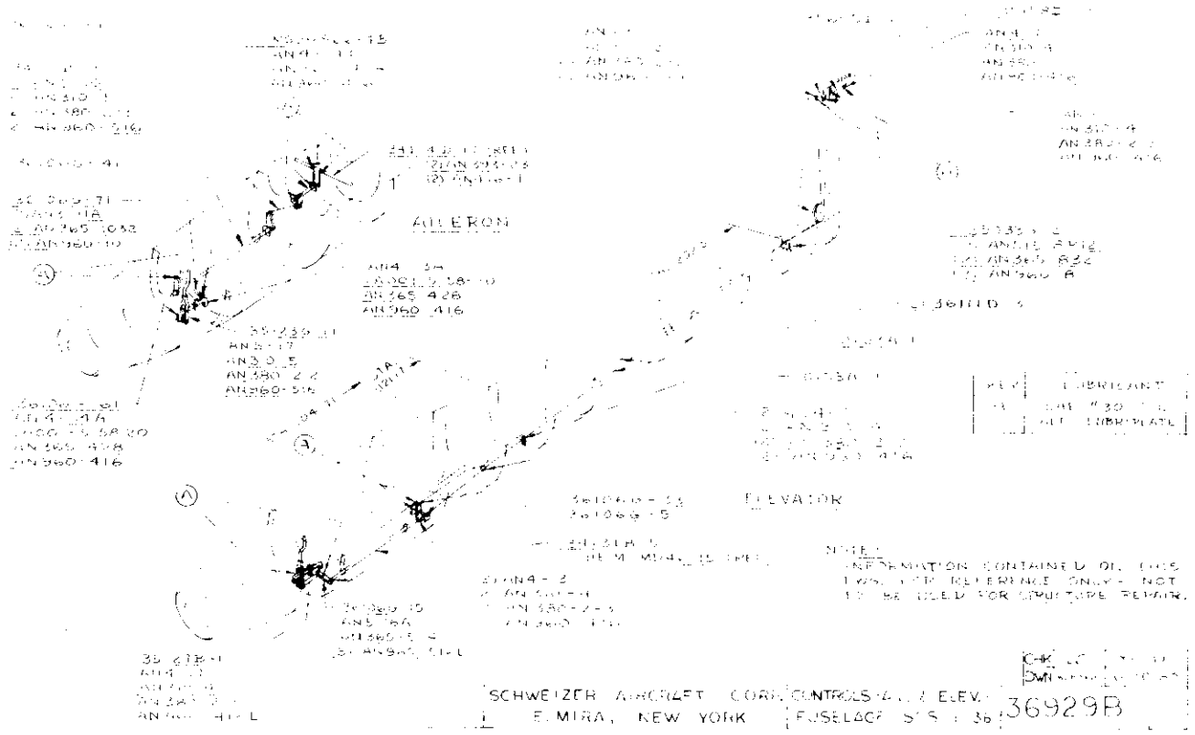


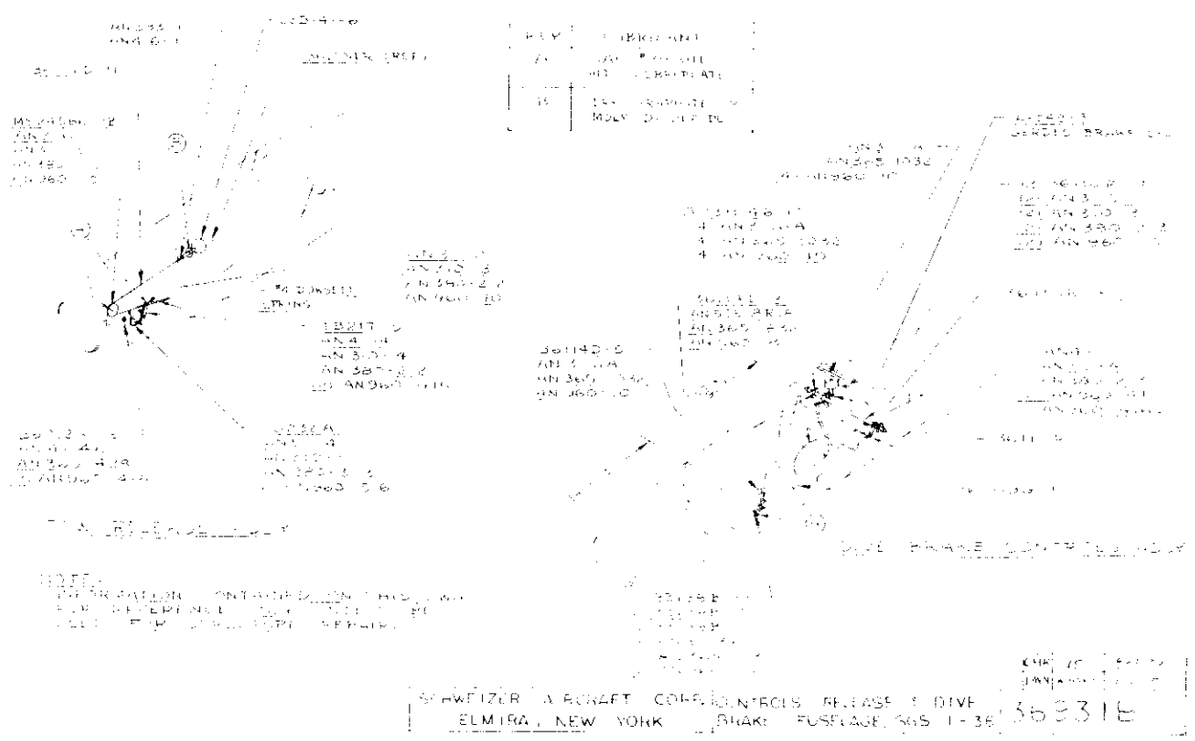
NO.	PART NO.	PART NAME
1	36021H-1	NOSE CAP
2	26087D-3	NOSE BLK-HD
3	36015G-1	BULKHEAD
4	36019H-1	FLOOR ASS'Y.
5	36017D-1	BULKHEAD
6	36016G-1	BULKHEAD
7	36010R-1	CANT BLK-HD
8	36201R-1	WHEEL WELL
9	36013G-1	OVERT'N. STRU.
10	36025J-1	BULKHEAD
11	35022R-9	BULKHEAD
12	35022R-3	BULKHEAD
13	35022R-7	BULKHEAD
14	35022R-5	BULKHEAD
15	35022R-19	BULKHEAD
16	35045G-	BULKHEAD
17	35031D-1	BULKHEAD
18	35032D-1	BULKHEAD
19	36001R-25	CHANNEL
20	36001R-49	BULKHEAD
21	36020H-1	BULKHEAD

NOTE: INFORMATION CONTAINED ON THIS DWG. IS FOR REFERENCE ONLY - NOT TO BE USED FOR STRUCTURAL REPAIR

CHK. E.S. 5-7-80
DWN. J. DAUM 6-30-80

SCHWEIZER AIRCRAFT CORP. ELMIRA, NEW YORK
FUSELAGE SCHEMATIC SGS 1-36
36928 B


AILERON
ELEVATOR
NOTE:
SCHWEIZER AIRCRAFT CORP.
ELMIRA, NEW YORK
36929B


SCHWEIZER AIRCRAFT CORP.
ELMIRA, NEW YORK
36931B