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**AIRCRAFT CORP.**  
ELMIRA, N.Y.



MODELS A thru E  
MANUAL  
FLIGHT - ERECTION - MAINTENANCE  
THE I-26 SAILPLANE



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**(Form F-106)**

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**(Form F-105)**

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SGS 1-26 FLIGHT HANDBOOKThe SGS 1-26

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

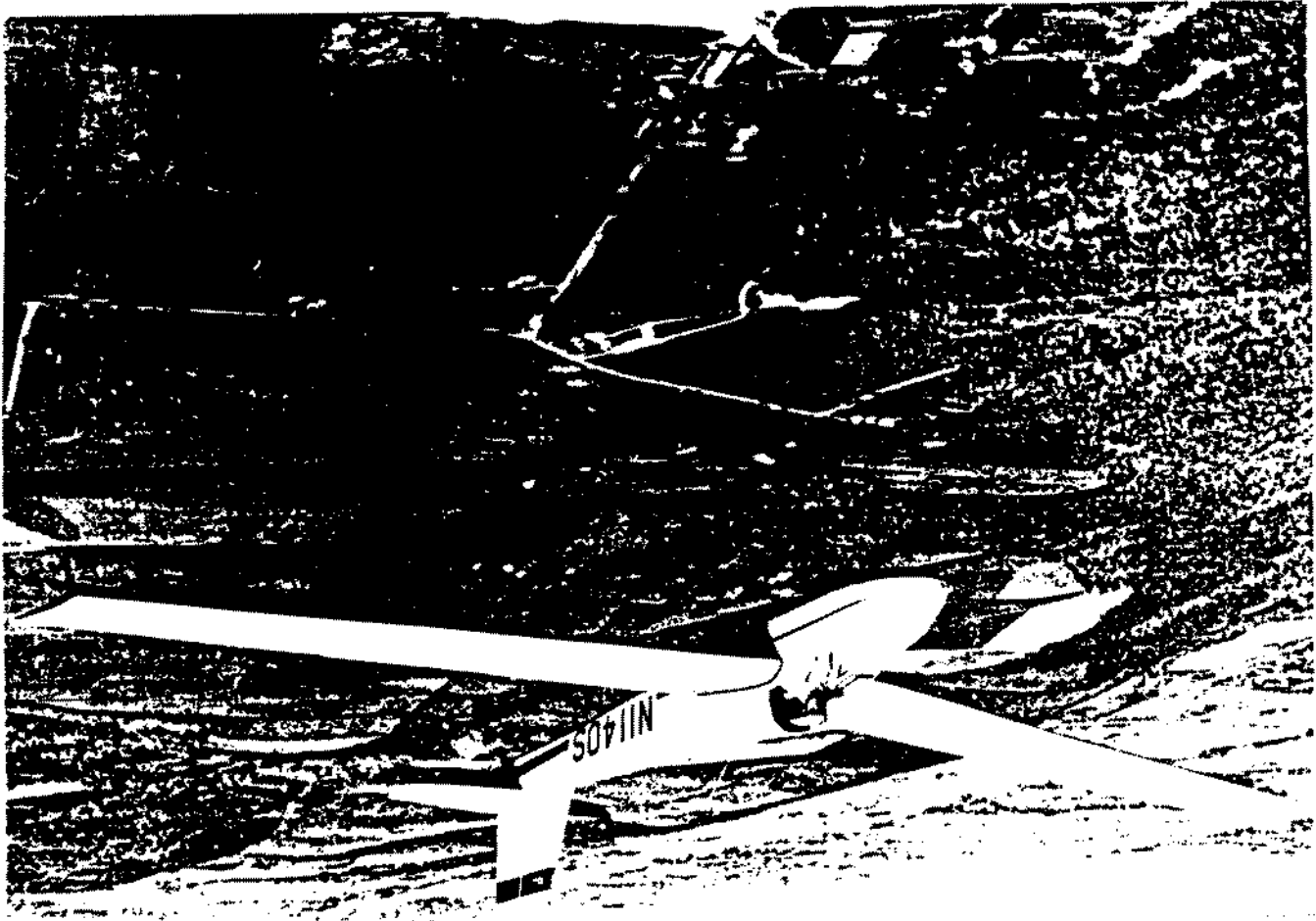
Length - 21'3"  
Span - 40'  
Height - 7' 2 1/2"

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. Dive Brake - wheel brake lever located on left side of cockpit. Unblock and pull aft to actuate.
3. Control stick - a conventional stick mounted on a torque tube for aileron and elevator control.
4. Rudder pedals - are conventional toe type and are adjustable.
5. Trim lever - is a small "T" handle located under the right side of instrument panel. This is a built-up type or spring loaded mechanism, attached to the control system. It is an any position control used to compensate for nose heaviness. Turn left to unlock and right to lock into position.
6. Instruments - ASI is required. Additional instruments are optional, up to full panel, as desired.

PREFLIGHT

1. Wing:  
Check spoiler hinges and connections  
Check aileron hinge points and pushrods  
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



Fuselage:

3. 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 object
- Check wing and control attachments
4. Check tow rope.

AERO TOWING 1-26

1. The ailerons and elevator controls are quite sensitive a caution is needed to keep from over controlling.  
The control feel on the stick is much lighter than on mo sailplanes, therefore, after once getting used to sensitivity and light touch, you will find that towing is eas than ever.
2. Towing procedure is normal.
3. Recommended towing speed is 50-60 mph.

WINCH OR AUTO TOWS

Precautions:

1. Be sure equipment is suitable for purpose.
2. Person driving car or operating winch should be experien 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 altitud is reached with the cg release. There is no tendency to osc late with either release. Maximum auto or winch towing speed is 60 mph.

Caution:

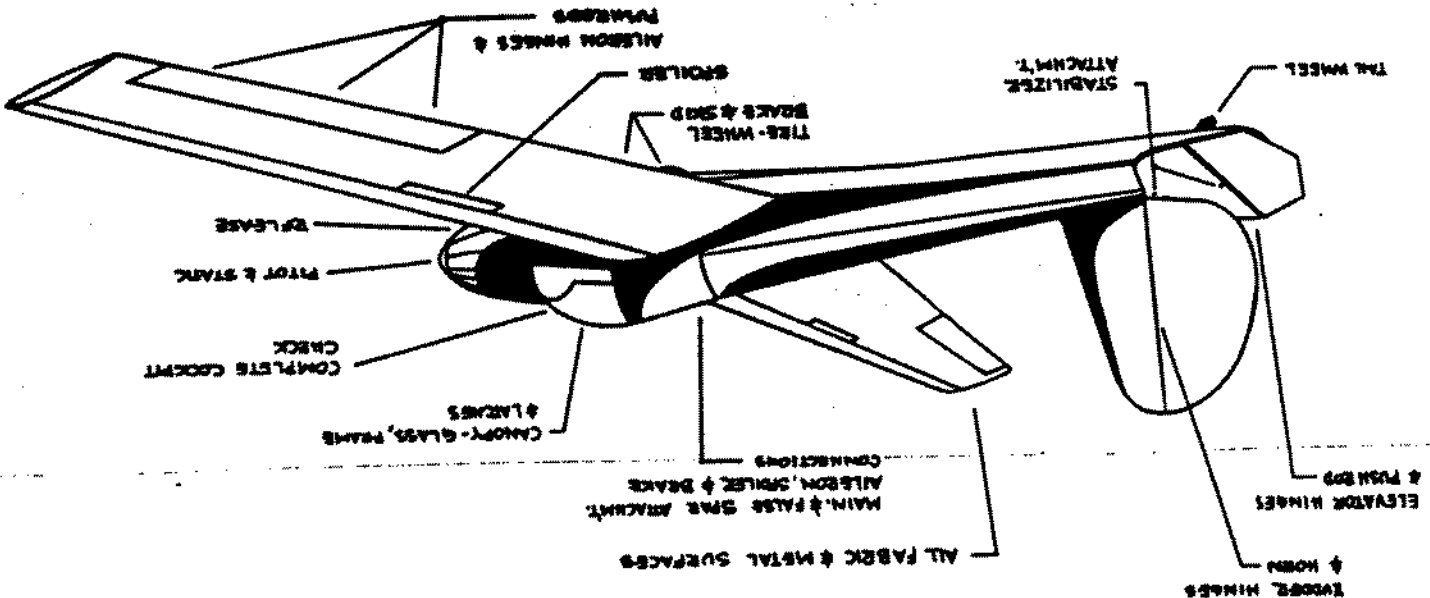
1. Do not climb at full back stick position until a safe altitude for stall recovery is reached.
2. Level out before releasing.
3. Be sure airspeed is indicating less than placard speed f winch or auto tow.

FREE FLIGHT

Flying Speeds

Best gliding speed (L/D) 48 mph 23-1  
Speed at lowest sink 38 mph 2.6 fps

**1-26 PRE-FLIGHT INSPECTION**



**Placard Speeds**

- Dive - 104 mph
- Aero tow - 95 mph
- Spollers Open - 104 mph
- Auto or winch tow - 60 mph

**USEFUL LOADS**

Placard weights on instrument panel should be complied. The following gross weights apply:  
 1-26 and 1-26A - 575 lbs.  
 1-26B and 1-26C - 600 lbs.  
 1-26D and 1-26E - 700 lbs.

NOTE: 26058G ballast should be installed if necessary. See page 23.

**AEROBATICS**

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

**STALLS**

- Straight ahead. The 1-26 generally falls str through without tendency to fall off on a win
- In a turn. The 1-26 always falls in the dire of the turn with no tendency to go over the t
- A pronounced buffeting will occur before the

**STALL RECOVERY** - Increase flying speed by easing stick for until nose falls through horizon and then some desired speed. Directional control maintained with rudder.

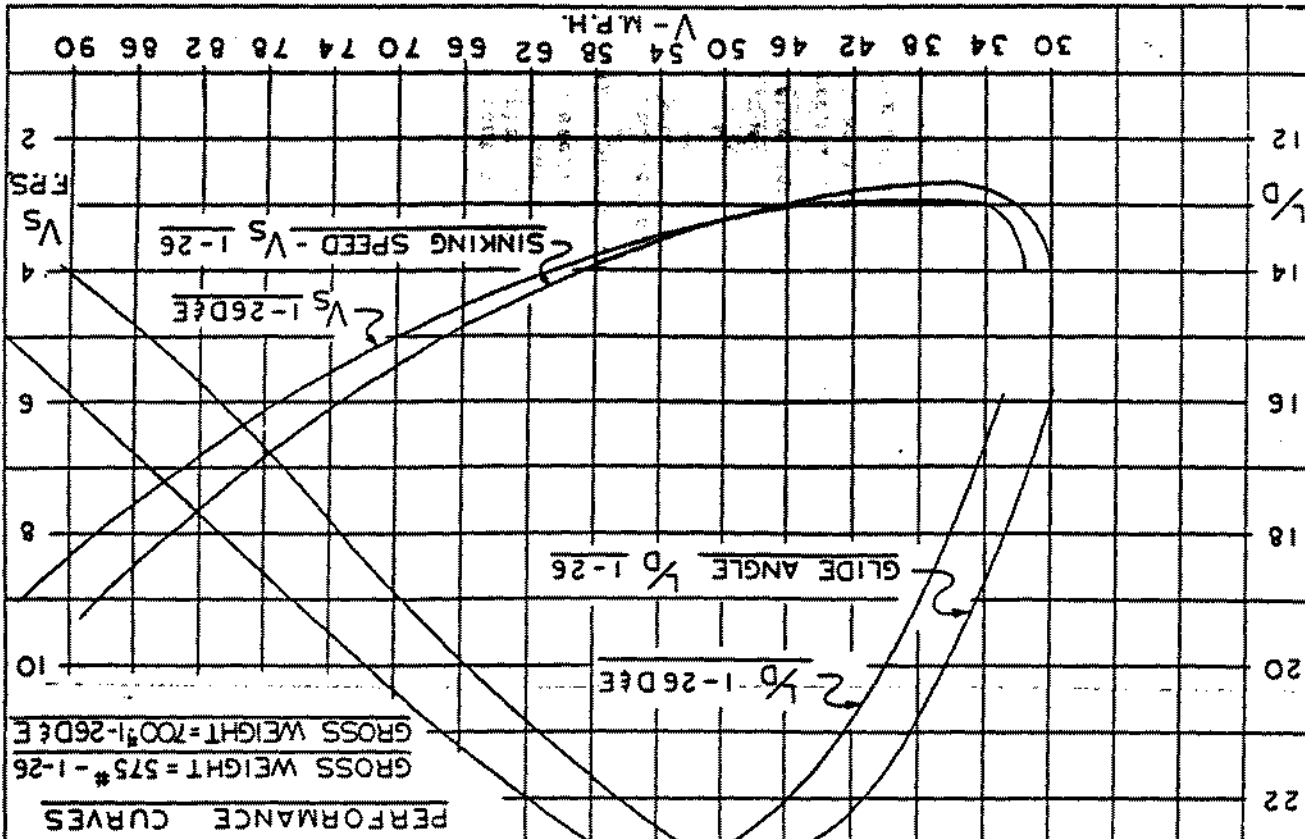
**SPINS** - May be entered by use of full back stick and full der. It is nose down with no danger of flat spin placard weight is complied with. The further from the cg, the more nosedown the spin will be. This result in a higher air speed while spinning and du recovery.

**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 pilot's without basic experience, refrain from any type of inverted flight or difficult maneuvers without adequate 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 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 buff before the stall.



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Flight Limitations for 1-26 through 1-26C

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 1-26 and 1-26A at 575 lbs. gross weight and the 1-26B and 1-26C at 600 lbs. gross wt. For slightly different conditions on the 1-26D and 1-26E, please refer to Page 21.

For the 1-26 thru 1-26C, the speeds with which you should be familiar are:

Placard Speed (never exceed) with or without spoilers open	104 mp
Placard Speed (never exceed) for aero tow	95 mp
Speed to begin maneuvering with caution	65 mp
Placard Speed (never exceed) for auto or winch tow	60 mp

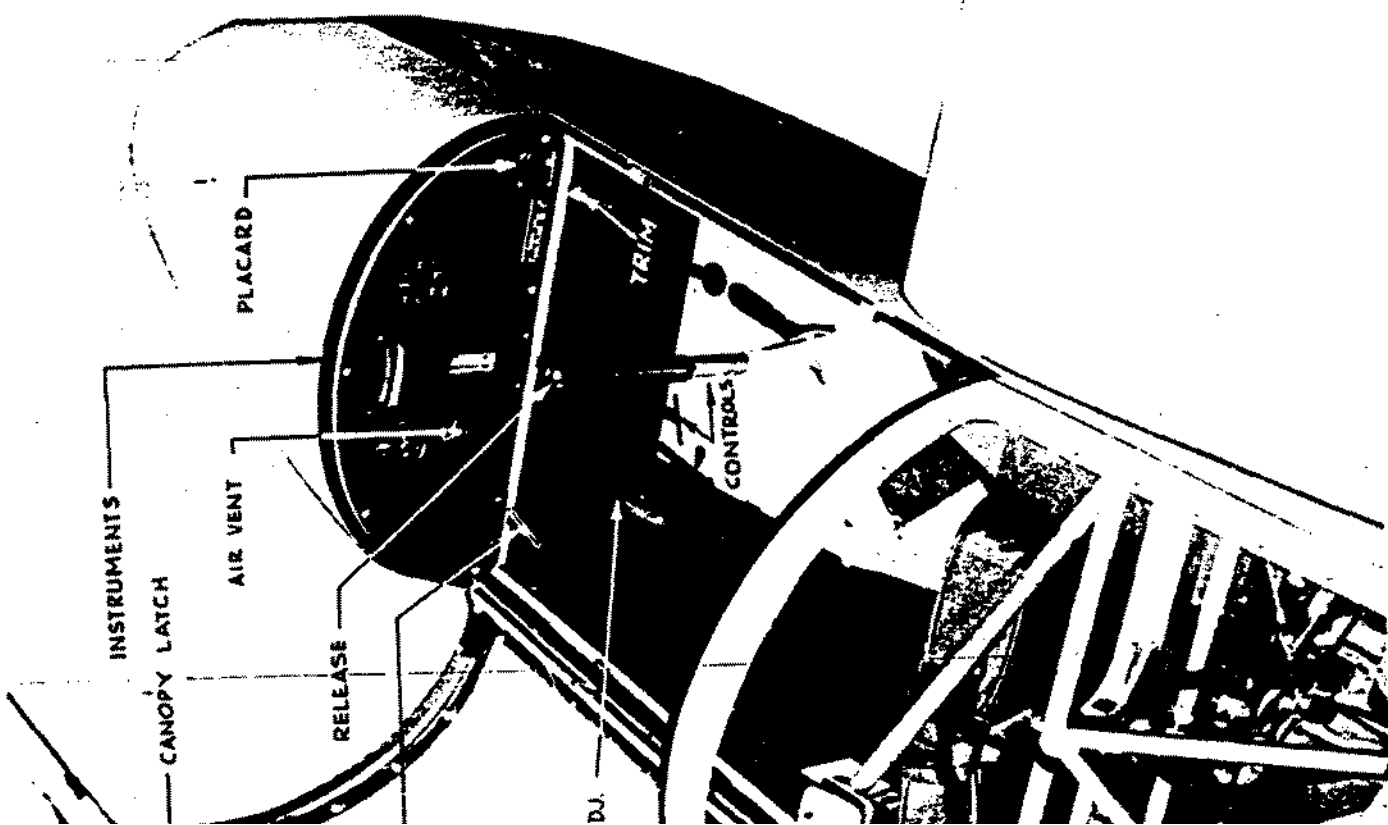
In the 1-26, at speeds over 65 mph, the pilot must maneuver with caution. The maximum load factor which should be attained in flight is 5.54G, and the pilot can easily exceed this in abrupt maneuvers at speeds over 65 mph. The speeds between 65 mph and the 104 mph placard should be treated as a cautionary range and maneuvering within this range should be gradually reduced to a minimum as velocity increases.

The 1-26 limit load factor of 5.54 should not be exceeded in operation. A safety factor of 1.5 is required by the FAA which gives an ultimate load factor of 8.3, 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 the following page. 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. per 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.



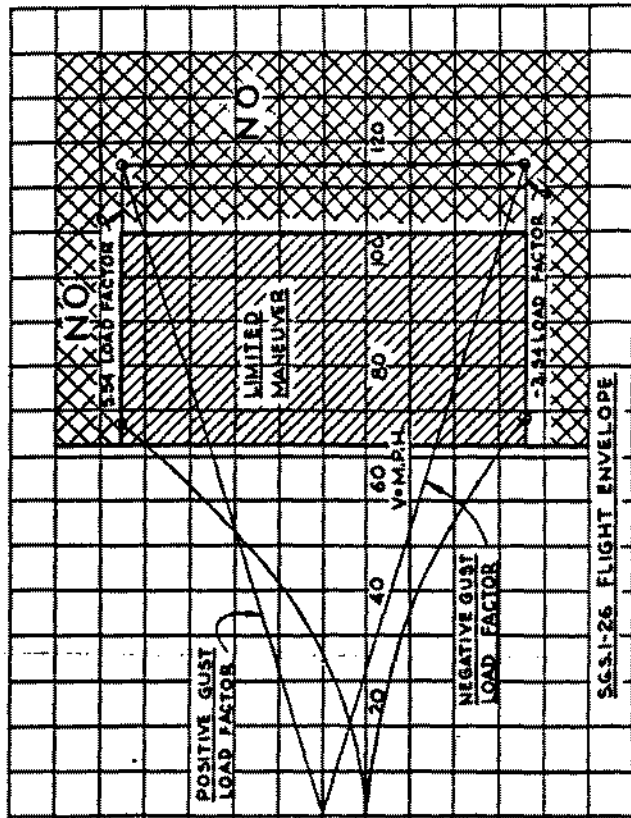
speed for maneuvering with caution occurs where "G" loading abruptly moved control meets the 5.54 limit load factor. During smooth and limited movement of the controls, the placard "ad-line" speed occurs where gusts could meet the 5.54 limit factor without any maneuvering.

Normal placard speeds are reduced 10% from design speeds to provide an extra margin of safety. Thus, on the graph, the diagonal shaded area indicates speeds at which you must use caution in maneuvering. You should neither maneuver nor fly so fast as to expose your aircraft 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 turns in thermals which would not normally exceed 2 or 2.5 G's. A steep climb or auto towing can produce high loads, but if the auto-winch speed is observed, this will be within safe limits. The best launch climb is obtained at speeds well below placard limits.

Extreme aerobatics should be done with extreme caution since it is very easy to exceed the placard or cautionary speeds in improperly executed maneuvers. They should not be done without previous instruction from the instructor.



ERECTION AND MAINTENANCE INSTRUCTIONS

MODEL SGS 1-26

Erection Procedures:

This sailplane is designed to be assembled quickly. No rigging is necessary if normal procedure is followed. This erection procedure shall start with the sailplane on the trailer and continues until the sailplane is ready to fly. The steps for disassembly is the reverse of the erection procedure and therefore, are not listed in detail except where they differ.

(a) Unloading Preparations:

1. Release trailer from towing vehicle.
  2. Block trailer. Place tow-bar end down and block the other end with a saw horse, jack or other means.
- (b) Wing Removal from trailer:
1. Remove ring and cable assembly located at the out-board tie down fitting hole.
  2. Loosen and remove bolt that fastens the spar butt to the trailer.
  3. Place one man at the wing tip, holding the leading and trailing edge.
  4. Place one man at the root, lifting at the leading edge.
  5. Have both men lift straight up simultaneously, high enough to clear the trailer.

NOTE: With the horizontal stabilizer attached to the fuselage (fuselage supported in the tall high position) it is necessary to lift wing up and tilt outward at the same time to clear horizontal stabilizer.

6. When completely clear of the trailer, the wing should be carried to the place of assembly and placed flat on the ground.
7. Remove opposite wing, following same procedure as outlined above.

(c) Horizontal Stabilizer, removal from trailer.

1. Remove wing nuts from frame and pivot straps.
2. Remove stabilizer from trailer and set aside.

(d) Fuselage removal.

1. Remove canopy (front and rear).
2. Remove support from under rear of trailer, tilt trailer so that rear end is on the ground and block front of trailer.



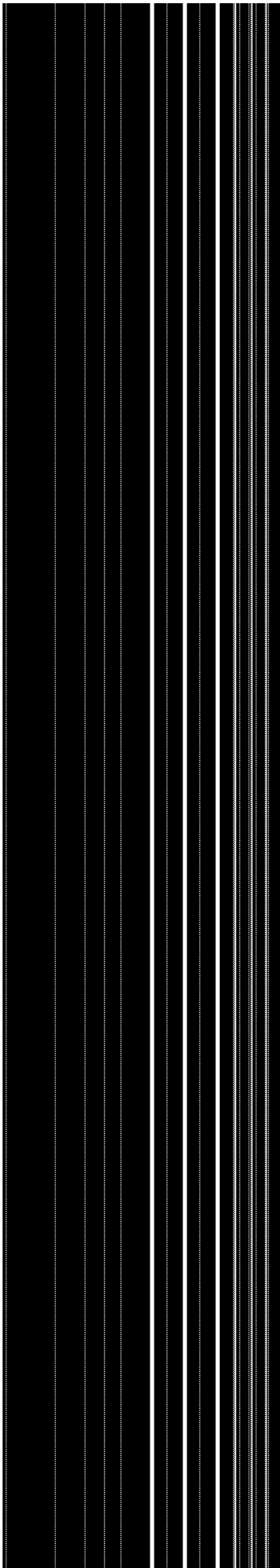
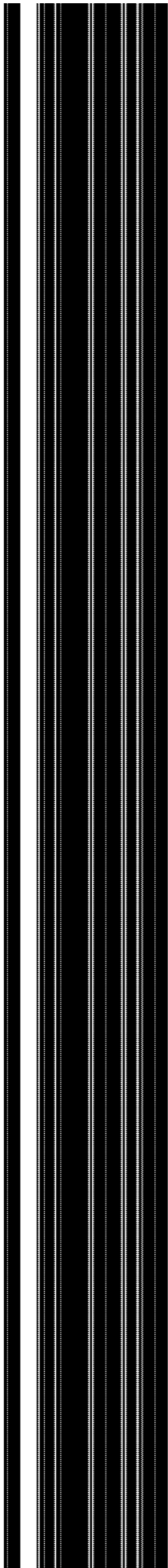
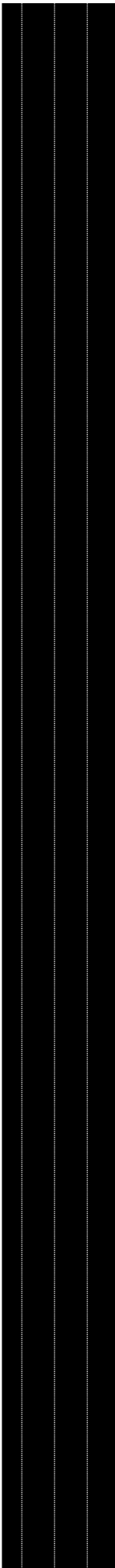
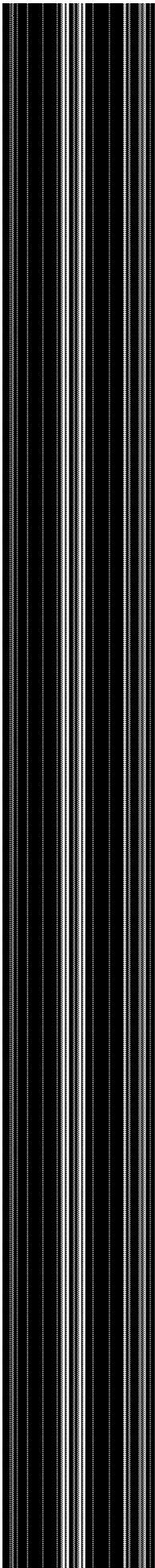
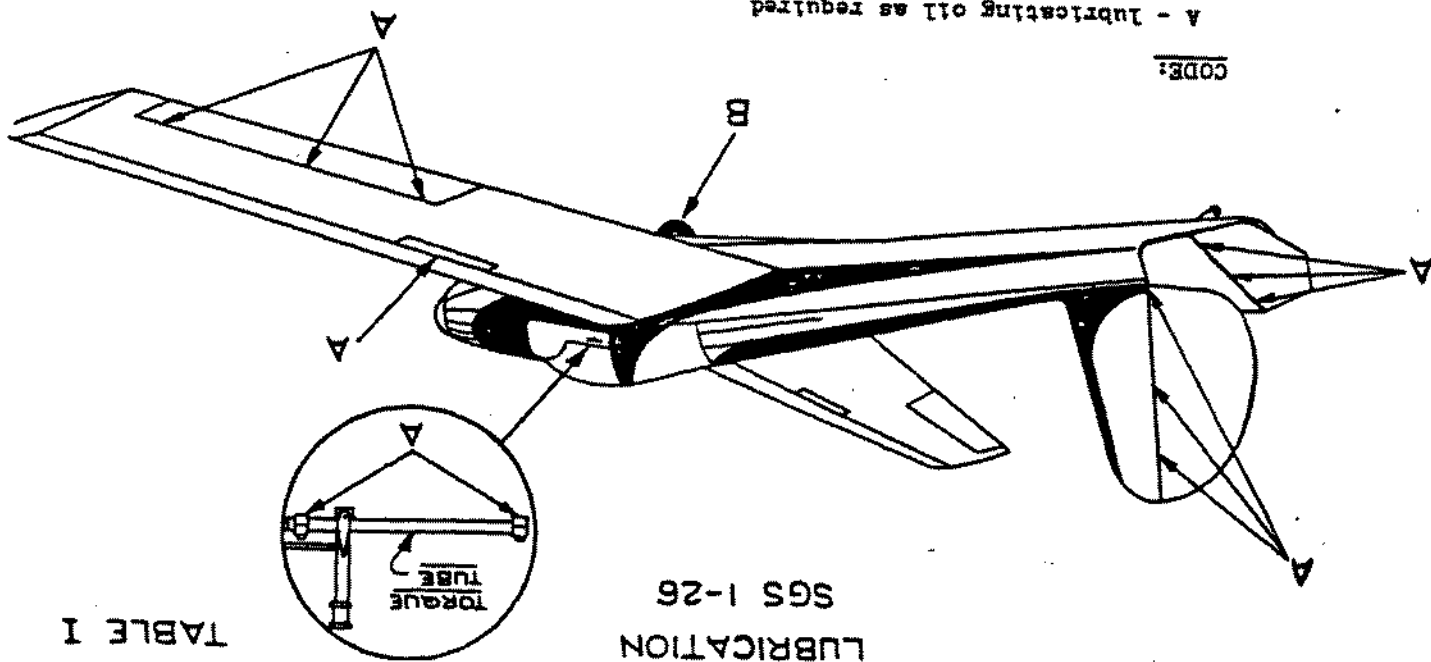


TABLE I

LUBRICATION  
SGS 1-26



A - LUBRICATING OIL AS REQUIRED

B - WHEEL BEARING GREASE AS REQUIRED

CODE:

A - Lubricating oil as required  
B - wheel bearing Grease as required

- (b) Lubricate at the following intervals:
    - (1) Oil hinges and torque tube bearings every 20 hours flying time or 6 months elapsed time, whichever is sooner.
    - (2) Grease wheel bearings as required, or if wheel should become noisy.
  - (c) Rod End Bearings - are the sealed type and require no lubrication under normal conditions.
  - (d) Control Pulleys - are the sealed type and require no lubrication under normal conditions.
2. Leveling:
- (a) To level fuselage laterally, prop up wings and test for horizontal across fuselage longerons just aft of forward wing carry thru structure.
  - (b) To level fuselage longitudinally, prop up tail and test for horizontal on the fuselage longeron between Sta.'s 74 and 90.
3. Rigging:
- (a) The proper dihedral angle and angle of incidence are built into the wing and fuselage at the factory.
  - (b) Elevator and rudder control system rigging is accomplished by turnbuckles on the cables.
    - Elevator cables are rigged to 30-5 pounds tension. Rudder control system tension is maintained by springs on rudder pedals. However, cables should be rigged with the turnbuckle threads flush with the barrel. Double safety turnbuckles in accordance with standard aircraft practices.
    - (c) The spoilers have no initial tension. They should be rigged so that there is no slack or lost motion when control is started. Single safety turnbuckles in accordance with standard aircraft practices.
    - (d) Tow hook release spring tension is checked by applying a force of 6-12 lbs. at the end of the release arm, the hook should then release. If the tension is not within this tolerance, the spring should be replaced.

INSPECTION (PREFLIGHT)

Inspect the following for condition, operation, security of attachment and any signs of wear, damage or failure.

- (a) Wing and attachment
- (b) Stabilizer

- (c) Elevator
- (d) Fin
- (e) Rudder
- (f) Fuselage covering and structural tubing
- (g) Control Cables
- (h) Controls and control system push rods
- (i) Ailerons
- (j) Spoilers and controls
- (k) Main wheel and brake
- (l) Tire (maintain tire pressure at 20 lbs.)
- (m) Tail wheel and bracket
- (n) Skid and skid shoe. (Skid should be replaced if cracks or splits are evident. Shoe need not be replaced except where there is excessive wear.)
- (o) Shoulder harness and safety belts
- (p) Canopy and Canopy release
- (q) Release hook and release system
- (r) Pitot system (after prolonged tie down or exposure to rainy weather, remove lines from instruments and expel any water which may have collected in lines by blowing through them.) CAUTION: DO NOT BLOW INTO PITOT TUBE WITH INSTRUMENTS CONNECTED.

INSPECTION (Annual and/or 100 hrs.)

1. Fuselage Group:
  - (a) Check control stick and torque tube assembly. Oil torque tube support bearings.
    - (1) Inspect internal surface of torque tube for corrosion, clean and apply Paralketone if necessary.
  - (b) Check controls for ease of operation.
  - (c) Check control cables for safety, corrosion wear and security of attachment.
  - (d) Check elevator push tube for condition, wear - especially at fairlead and security of cable attachments.
  - (e) Check fuselage members for cracks, misalignment and any other damage. Weld clusters for rust particularly in "cupped" areas without adequate drainage.
  - (f) Note if the primer has been scraped off any fuselage member leaving exposed metal, sandpaper lightly to remove rust or dirt and touch up with zinc chromate primer, specification MIL-P-8585A.
  - (g) Check cable pulleys for wear and attachment, replace if necessary.
  - (h) Check fairleads for wear and attachment, replace if necessary.

- (i) Check fuselage fabric and finish for cracks and deterioration (check tensile strength, if below 35 lbs. fabric must be replaced.
  - (j) Check canopy for condition and attachments.
  - (k) Check plexiglas for cracks or excessive crazing.
  - (l) Check safety belts, shoulder harness, brackets & bolts.
  - (m) Check springs for corrosion, cracks and wear at ends.
  - (n) Check bungee control for operation and security of attachment.
2. Landing Gear Group:
    - (a) Remove wheel, inspect for cracks.
    - (b) Inspect wheel bearings for condition, repack.
    - (c) Check tire pressure (20 lbs.).
    - (d) Inspect tire for wear and cuts.
    - (e) Inspect tail wheel and bracket for cracks and wear.
    - (f) Inspect skid and shoe for cracks, wear and attachment.
    - (g) Inspect brake for wear and operation.

3. Empennage Group:

- (a) Inspect stabilizer for condition and attachment.
- (b) Inspect stabilizer fittings and bolts for wear and signs of failure.
- (c) Inspect elevator and hinges for condition and security of attachment.
- (d) Inspect elevator horn for condition and pushrod for security of attachment.
- (e) Inspect fin for condition and attachment.
- (f) Inspect rudder and hinges for condition and security of attachment.
- (g) Check fabric and finish for cracks and deterioration. (Check tensile strength, if below 35 lbs., fabric must be replaced.)

4. Wing Group:

- (a) Remove turtledeck and inspect wing attachment fittings and bolts for condition and security of attachment.
- (b) Inspect aileron push rods for condition and security of attachment.

FLIGHT HANDBOOK AND MAINTENANCE INSTRUCTIONS

The SGS 1-26D differs from the previous models in that it has a modified nose with mono-coque construction forward of the main spar carry-through. There are changes in the wing structure, including Dive Brakes in lieu of spoilers. The aileron structure has been revised. With the above changes the maximum gross weight has been increased to 700 lbs.

The SGS 1-26E differs from the 1-26D in that the mono-coque construction has replaced the welded steel tube structure aft of the main spar carry-through, making the fuselage entirely mono-coque. The vertical fin has been revised to accommodate the contour and fin-attach points, which differ slightly with the new construction. The rudder and horizontal tail surfaces are the same as for the 1-26D.

The dive-brake/wheel-brake control handle on the left hand side of the cockpit, has been changed to a conveniently longer length and the main wheel brake shoe is changed. The elevator cables on the 1-26E have the turnbuckles located at the aft end of the cables

Flight speeds, CG limits, maximum weight and overall dimensions remain the same as for the 1-26D.

Overall Dimensions

Overall Dimensions	Picard Speeds (maximums)
Length 21' 6 1/2"	Glide or Dive 114 mph
Span 40' 0"	Airplane Tow 114 mph
Height 7' 2 1/2"	Dive Brakes Open 114 mph
	Auto or Winch Tow 63 mph

FLIGHT CONTROLS:

Dive Brakes - As stated above, the SGS 1-26D and E incorporate dive brakes in the wings rather than the spoilers used in previous models. Throughout the Flight Handbook, the term dive brake can be assumed wherever the word spoiler appears. The dive brakes are operated by a lever-type control on the left side of the cockpit. D Model: Depress the thumb-button on the top of the lever to unlatch the control. E Model: Move handle to right to disengage from detent. The lever is then moved aft for the desired amount of dive brake effect. Full rearward movement actuates the wheel brake. To close dive brakes, move the lever to the full forward position where it will automatically latch in place.

- (c) Inspect spoiler cables for corrosion, wear and security of attachment.
  - (d) Inspect fixed surfaces for corrosion, loose rivets and other signs of structural failure of damage.
  - (e) Inspect ailerons and hinges for condition, operation and attachment.
  - (f) Inspect spoiler and hinges for condition, operation & attachment.
  - (g) Inspect bellcranks for condition, evidence of damage and attachment.
  - (h) Inspect pushrod and cable fairleads for wear or breakage and attachment.
  - (i) Check fabric and finish for cracks and deterioration. (Check tensile strength, if below 35 lbs., fabric must be replaced.)
5. Tow Hook:
- (a) Inspect hook for wear, cracks, roughness and attachment.
  - (b) Check mechanism for freedom of operation.
  - (c) Check release mechanism by applying a force of 6-12 lbs. as outlined in Paragraph B3(d).
  - (d) Check ring clearance between hook and fuselage when hook is closed, with a ring made from 5/16" dia. stock.
6. Cabin Group:
- (a) Inspect instruments for range markings, zero reading and security of attachment.
  - (b) Inspect instrument panel for security of attachment.
  - (c) Inspect placards, nameplates, decals for legibility and security of attachment.
  - (d) Inspect air vent for operation and security of attachment.
  - (e) Inspect seats for damage and security of attachment.

