SCHWEIZER AIRCRAFT CORPORATION
ELMIRA, NEW YORK

ERECTION AND MAINTENANCE INSTRUCTIONS

MODEL SGS 1-23H and H-15

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Schweizer Aircraft Corporation
Elmira, New York

Form No. F-102A
9-2-60

ASSEMBLY PROCEDURE MODEL SGS 1-23H & H-15

Before placing wing on fuselage, check to be sure there is no dirt on the spar butt or between the fuselage carry thru plates. A soft rag can be used to wipe these surfaces clean. The taper pin holes and the rear carry thru fittings should be checked for the same condition.

A step-by-step procedure should be followed each time to prevent trouble. The following procedure is recommended:

1. The fuselage placed in normal position with accessory hatch removed.

2. Wings placed on the ground or in racks on the correct side of fuselage.

3. Line up pins, taper pins, and rear carry thru bolts located so they are readily accessible. The taper pins are to be 23B-449-1"C" pins and are to be used with 23A-914-1 washers and AN365-720 nuts. It is recommended that the taper pins be coated with graphite powder to prevent seizing when pins are installed properly.

4. If the wing has been on the ground, check again to be sure it has picked up no dirt.

5. One person level the fuselage standing on the same side of the fuselage as the first wing to be installed. Two people pick up the wing, one at the tip and one at the root. The leading edge of the wing is handed to the man still supporting the fuselage, and the man carrying the wing root supports the root trailing edge.

   In attaching wings to the fuselage, care must be exercised to guide the slotted fittings for the dive brake torque tube over the drive fitting on either end of the drive tube in the fuselage. The spar butt is placed into the carry thru, and the aileron push rod and dive brake torque tube are started thru the fuselage slot. The rear wing fitting is now in position to be inserted into the rear carry thru. Extreme care should be taken by all people so that the person guiding the rear fitting into the hole does not have his fingers damaged between the sharp wing skin and the fuselage. A friction plate is installed to keep the rear wing fitting straight.

   When the rear fitting has been placed into the carry thru hole, the wing may be rocked to slide it into position so that the tapered holes in the spar line up with those in the carry thru. Check for positive engagement of the cross bolt in the fuselage drive tube with slots in the dive brake torque tube. Two 3/8" holes are provided on each side of the spar and carry thru structure. A 3/8" tapered drift-pin, S.A.C. Part No. 23A-444 or 2372-A should be used in these holes to align taper pin holes. Do NOT use a drift-pin in the taper pin holes. After lining up the tapered holes, the (2) 23B449-1 taper pins are inserted with finger pressure only. The wing should be rocked and the pins seated using a light tap with a soft faced hammer. The AN 5-17 bolt on the rear carry thru is then inserted. It may be necessary to move the wing fore and aft at wing tip to line the hole in rear carry thru. The 23A-914-1 washers and AN 365-720 nuts are placed on the taper pins and the safety pin installed in the rear carry thru bolt. The wing which

was installed first can be placed on the ground and left in this position while the opposite wing is installed. If another person is available, he can hold the first wing in level position while the three people install the opposite wing in the same manner already outlined.

After both wings are in place, check the taper pins to assure that the required washers are installed. The nuts may then be tightened. (Torque nuts only enough to prevent washers from turning.) Excessive torque applied on the taper pins will create a problem upon removal. The two aileron push tubes are attached to the aileron idler horn either by (2) AN 3-6 bolts, AN 960-10 washers, AN 310-3 nuts and AN 380-2-2 cotter pins or by (2) AN 393-11 clevis pins and (1) safety pin. (The one safety pin being used to safety both clevis pins.)

6. Stabilizer and Elevator Installation to Fuselage:

The stabilizer and elevator normally are left attached to the fuselage when trailering, but may be removed at the owner's discretion. Use the following hardware when reinstalling the Stabilizer Elevator Ass'y. The front spar is attached to the fuselage fitting with (2) AN4-33A bolts, (2) AN960-416 washers and (2) AN365-428 nuts. The rear spar is attached to the fuselage fitting with (2) AN3-41A bolts, (2) AN960-516 washers and (2) AN365-524 nuts. The elevator push rod is attached to the elevator horn by one each AN3-7 bolt, AN310-3 nut, AN960-10 washer and AN380-2-2 cotterpin. "Caution": DO NOT USE a safety pin on the push rod to elevator attachment as this may cause jamming of the controls.

7. Disassembly of Wings from Fuselage:

The disassembly procedure is the reverse of that used for the assembly. When removing the wing taper pins, use a taper pin puller, SAC Part No. 23A-426-1. This is accomplished by placing the puller over the head of the taper pin on the forward side of the carry thru, then threading a AN5-6 bolt into the taper pin. The bolt length should be checked to assure that it engages in the taper pin by at least 4 threads before any great amount of torque is applied. Apply pressure to the taper pin by tightening puller bolt, at the same time tap the pin with a plastic hammer while another person rocks the wing. "CAUTION" If the pins are not readily loosened by the above method, do not attempt to loosen them by applying further torque on the puller bolt as this will strip the bolt threads. It is recommended that a nut be placed on the taper pin threads and the pin unseated with the aid of a few hammer blows. When the pin is loosened, the puller should be removed and the taper pin can be completely removed by driving it from the rear with a plastic hammer. The person driving the taper pins should place his hand in front of the pin head to prevent it from striking the instrument panel.

GENERAL MAINTENANCE INSTRUCTIONS SGS 1-23H & H-15

A. General Maintenance:

The Sailplane can be serviced with a minimum of two lubricants; a good grade of lubricating oil and No. 2 cup grease.

1. Lubrication should be accomplished as follows: See Table I.

   a. Lubricating oil should be used on the following parts:

Aileron hinges	Elevator hinges
Aileron Idler Horn Bearing	Torque Tube bearings (Control Stick)
Rudder hinges	Torque Tube bearings (Dive Brake) in fus

   b. Cup grease should be used on the dive brake sliding control in cockpit.

   c. Lubricate at the following intervals:

      (1) Oil hinges every 20 hours flying time or 6 months elapsed time, whichever is sooner.

      (2) Grease dive brake sliding control every 20 hours flying time or 6 months elapsed time, whichever is sooner.

      (3) Oil dive brake torque tube bearing blocks every periodic Inspection, these are located just aft of the fwd. carry-thru structure on left and right side of fuselage.

      (4) Oil aileron idler horn bearing every 20 hours flying or 6 months elapsed time, whichever is sooner.

   d. Rod End Bearings-are the sealed type and require no lubrication under normal conditions.

   e. Control pulleys-are the sealed type and require no lubrication under normal conditions.

2. Leveling:

   a. To level fuselage laterally, prop up the wing tips, insert line-up pins in the forward wing carry thru structure and test for horizontal across the pins.

   b. To level fuselage longitudinally, prop up the tail and test for horizontal on upppr surface of stabilizer between front and rear spars near

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 turnbuckle threads flush with the barrel. Double safety turnbuckles in accordance with CAM 18.

c. 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 tension is not within this tolerance, the spring should be replaced.

B. Inspection (Preflight)

1. Inspect the following for condition, operation, security of attachment.

a. Wing and attachment pins.

b. Ailerons and Gap Tapes.

c. Dive Brakes and Torque Tubes

d. Stabilizer

e. Elevator

f. Fin

g. Rudder

h. Fuselage structure and skins.

i. Control Cables

j. Control and control system pushrods.

k. Main wheel and brake

l. Tire (Maintain tire)

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 ex[illegible]

o. Shoulder harness and safety belts.

p. Instruments for zero reading.

q. Canopy and latch mechanism.

r. Plexiglass for cracks or excessive crazing.

s. Pitot System (after prolonged tie-down or exposure to rainy weather, remove lines from instruments and blow out any water which may have collected.

CAUTION: DO NOT BLOW INTO PITOT TUBE WITH INSTRUMENTS CONNECTED.

C. Inspection (Periodic and/or 100 hr.)

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 tubes for condition, wear especially at fairlead and security of cable attachment.

e. Check fuselage structure and skins for corrosion, loose rivets and other signs of structural failure or damage.

f. Check safety belts, shoulder harness, brackets and bolts.

g. Check cable pulleys for wear and attachment, replace if necessary.

h. Check dive brake controls for condition, attachment and operation. Grease dive brake sliding control.

i. Check springs for corrosion, cracks and wear at ends.

j. Check instruments for attachment, zero reading and condition.
(1) Airspeed markings: Yellow Arc ~~130-140~~ 119 MPH; Red radial at ~~140~~ 87 MPH.

k. Check canopy and latch mechanism for condition, attachment and operation.

l. Check plexiglass for cracks or excessive crazing.

2. Landing Gear Group.

   a. Remove wheel, inspect for cracks.

   b. Inspect wheel bearings for condition, repack.

   c. Inspect tire for wear and cuts.

   d. Inspect brake for wear and operation.

   e. Reassemble and inflate tire to 30-35 lbs. pressure.

   f. Inspect tail wheel and bracket for cracks, loose rivets and wear.

   g. Inspect skid and shoe for cracks, wear and attachment.

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, attachment and operation.

   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, attachment and operation.

   g. Inspect rudder horn for condition and cables for security of attachment.

4. Wing Group

   a. Inspect wing attachment fittings and pins for condition and security of attachment.

   b. Inspect fixed surfaces for corrosion, loose rivets and other signs of structural failure or damage.

   c. Inspect aileron pushrods for wear especially at fairleads, misalignment and security of attachment.

   d. Inspect dive brake torque tube for condition and security of attachment.

   e. Inspect ailerons and hinges for condition, operation and attachment.

   f. Inspect dive brakes for condition, operation and attachment.

   g. Inspect aileron bellcranks for condition, evidence of damage and attachment.

   h. Inspect Aileron gap tapes for attachment and absence of binding.

5. Tow Hook

   a. Inspect hook for wear, cracks, roughness and attachment

   b. Check mechanism for freedom of operation.

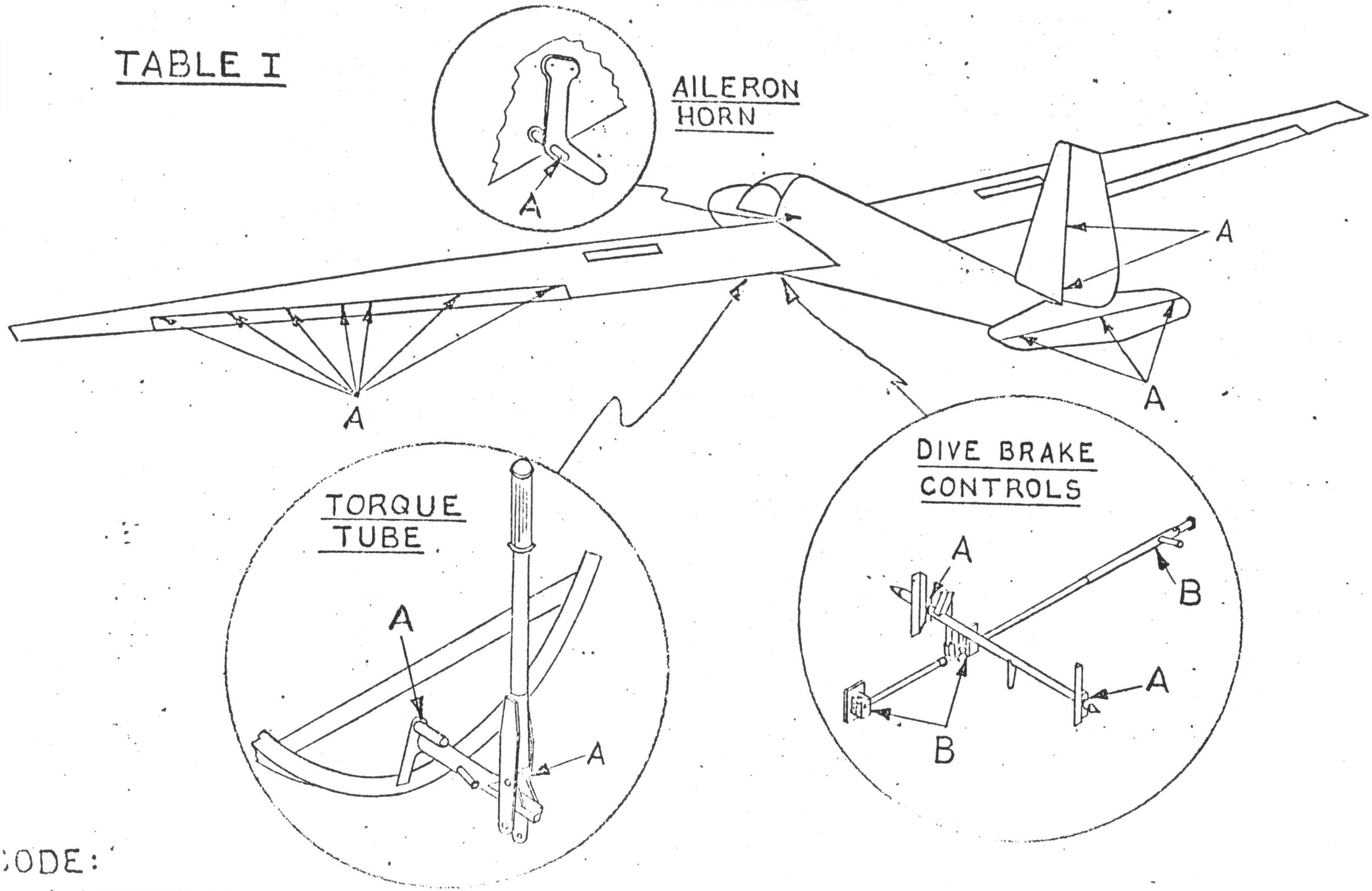
   c. Check release mechanism by applying a force of 6-12 lbs. as outlined in paragraph A3(d).

   d. Check ring clearance between hook and fuselage when hook is closed, with a ring made from 5/16" dia. stock.

FORM F-104
10-21-60

LUBRICATION
SGS 1-23H & 1-23H-15

TABLE I



CODE:

A-LUBRICATING OIL PER MAINTENANCE INSTRUCTIONS