

0.1 Record of Amendments

Any revision of the present manual must be recorded in the following table. Exempted are:


- Updated weighing data (page 39),
- Data relating to the installation of alternative equipment (page 1)
- Data relating to the installation of supplemental or additional equipment (page 51)
- Deletion of inapplicable text passages pursuant to the Service Bulletin A31-10-008.

The list of amendments on this page and the list of effective pages on the next page are assigned to the serial number. The revision no. indicated in the headline of these pages **does not change** with the entries in the lists.

Revisions of approved sections must be endorsed by the Luftfahrt-Bundesamt, FRG. Information as to which amendments **must** be included in the present Manual can be seen from the current Record of Airworthiness Directives and Service Bulletins (see Maintenance Manual, Annex B, doc. no. A08-10-000).

The new or amended text will be marked on the revised page by a black vertical line on the right hand margin; and the Amendment Number and the date will be shown on the right hand side in the headline of the page. In text passages concerned by the installation of alternative equipment, the text for both versions is included in []; the text not applicable to the serial number concerned must be crossed out. For further information please refer to Section 9.2.

The inspector certifies by his signature at the same time the correct transfer of the information specific to the serial number (deletion of inapplicable text passages).

Am. No.	Affected Sections	removed Pages	included Pages	Amendment Date	Approval (LBA)	Date of Approval	Date of inclusion	Signature
1	1	2, 6	2, 6	29.01.1991		29.01.1991	29.01.1991	ex works
2	0, 9	1, 2, 3, 49, 50	Title, 1, 2, 3, 49, 50, 51	26.05.1993		04.08.1993	04.08.1993	ex works
3	3.7, 7.7, 9.2	20*, 44, 45*	20* , 44, 45*	26.05.1993		17.06.1993	17.06.1993	ex works
4	not issued							
5	not issued							
6	4.2	22	22	05.12.1994		25.01.95	05.12.1994	ex works
7	0.1, 0.2, 2.11, 2.12, 2.13, 2.14, 3.9, 4.5.2, 7.8	2, 3, 13, 14, 20, 28, 46	2, 3, 13, 14, 20, 28, 46	25.05.2005				
8	0, 4.3, 4.5, 7.2	2, 3, 24, 25, 27, 30, 42	2, 3, 24, 25, 27, 30, 42	10.01.2014		10048848 16 APR 2014		

* These pages may only be incorporated with the quoted amendment number if the alternative equipment item requiring the amendment is installed in the individual aircraft - please check the entries on page 1 for the corresponding SB - mandatory for U.S. import.

0.2 List of Effective Pages

This record is valid only for the Serial No. specified on the title page.

Section	Page	LBA- appr.	Am. No.	Amdmt.- Date
0	Title		2	26.05.93
0	1		2	26.05.93
0	2		8	10.01.2014
0	3		8	10.01.2014
0	4		--	01.10.90
1	5		--	01.10.90
1	6		1	29.01.91
1	7		--	01.10.90
1	8		--	01.10.90
2	9	X	--	01.10.90
2	10	X	--	01.10.90
2	11	X	--	01.10.90
2	12	X	--	01.10.90
2	13	X	7	25.05.2005
2	14	X	7	25.05.2005
2	15	X	--	01.10.90
2	16	X	--	01.10.90
2	17	X	--	01.10.90
3	18	X	--	01.10.90
3	19	X	--	01.10.90
3	20	X	7	25.05.2005
4	21	X	--	01.10.90
4	22	X	06	05.12.94
4	23	X	--	01.10.90
4	24	X	8	10.01.2014
4	25	X	8	10.01.2014

Section	Page	LBA- appr.	Am. No.	Amdmt.- Date
4	26	X	--	01.10.90
4	27	X	8	10.01.2014
4	28	X	7	25.05.2005
4	29	X	--	01.10.90
4	30	X	8	10.01.2014
4	31	X	--	01.10.90
5	32	X	--	01.10.90
5	33	X	--	01.10.90
5	34	X	--	01.10.90
5	35	X	--	01.10.90
5	36		--	01.10.90
5	37		--	01.10.90
6	38		--	01.10.90
6	39		--	01.10.90
blank	40		--	01.10.90
7	41		--	01.10.90
7	42		8	10.01.2014
7	43		--	01.10.90
7	44		3	26.05.93
7	45		3	26.05.93
7	46		7	25.05.2005
8	47		--	01.10.90
8	48		--	01.10.90
9	49		2	26.05.93
9	50		2	26.05.93
9	51		2	26.05.93

4.3 Daily Inspection

Before commencing flight duties the responsible pilot has to carry out a visual inspection of the S10 in the following order:

Firstly switch off ignition and main switch.

Engine:

- remove cowling
- check oil contents (min: lower mark, max.: upper mark);
on flights in excess of 8 hours: at least middle position.
- visual inspection of the engine; foreign objects in cooling air intakes?
- Inspection of all fuel lines of engine and wing connection area for leakage. The check shall be performed with fuel pressure. For the test switch ON Master switch (with Ignition switch OFF, landing gear DOWN), electrical fuel pump (RH fuel tank) ON, Check with fuel cocks LH and RH tanks OPEN and CLOSED.
- fit cowling
- examine cooling air flap function by operating the propeller dome (forwards and backwards)
- fuel tank vent opening unobstructed (underside of outer wing connection)?
- visual inspection of fuel contents through filler. cap
- drain fuel system by pressing both drainers in the undercarriage well:
 - remove as much fuel as is necessary to make sure that possible
 - dirt and water has been removed. For this both main cocks must
 - be opened.
- drained fuel is to be collected in a vessel and examined for water and dirt.

Caution: For complete drainage of the tanks the aircraft must be kept level for a few hours before and during the drainage.

Check that drainers close properly again and do not leak. If they leak there is a possibility of dirt in the fuel.

Draining of fuel increases the danger of fire. Make sure before engine start up that immediate fire risk does not exist.

Wing connector area:

- Wing pins secured
- controls connected and safetied ailerons, flaps, air brakes
- controls free of obstructions
- fuel lines and electrics connected
- foreign body inspection

Propeller / Propeller Cone:

- visual inspection of central element and prop blades
- prop blades can be moved freely from inner stop to outer stop (beyond normal operating position)
- prop blades free of damage, protecting strip on prop nose in good condition
- extend blades by hand and examine seat of blades.

Undercarriage:

- air pressure (main wheels 45 - 48 p.s.i. / 3.1 - 3.3 bar, tailwheel 38 - 44 p.s.i. / 2.6 - 3.0 bar)
- both undercarriage indicators "GREEN"?
- inspect mounting of spindles on folding struts
- examine elements for emergency undercarriage release
- examine end switches for foreign objects and dirt
- Brake fluid: Check quantity. Brake fluid reservoir is located in the landing-gear bay, cabin rear wall.

Wing:

- condition, unobstructed movement and play of aileron, flaps and air brakes.
- Safetied outer wings (safety bolt must be flush with wing contours).

Elevator and Rudder:

- Examine rudder for unobstructed movement and examine elevator for proper rigging.
- Front arresting bolt (colored red) must be flush with fin leading edge.

Fuselage:

- Examine for damage.
- Examine pressure sender units at the front on propeller dome and statics on rear fuselage.

Cockpit:

- Canopy emergency release locked (arresting bolt in marked position on central canopy mounting?)
- Clean canopy. Examine for foreign objects.

4.4 Preflight Inspection

- Has daily inspection been carried out?
- Examine oil and fuel contents.

Checks before engine start up:

- rudder pedals and seat back adjusted to pilot size.
- If available, are parachutes properly donned. Shoulder and lap belts secured.
- Canopy locked (left, right and top rear).
- Propeller dome pushed forward and locked.
- Fuel cocks: left and right wing tank "OPEN"
- Fuel contents gauges, fuel tank left and fuel tank right: if a fuel gauge is not connected, the indicator will be on the right red marking.
- control check.
- Altimeter adjusted.

Warming up and Power Check

- operate wheel brakes and pull elevator back
- check engine fuel pump: electrical fuel pump (right hand tank) "OFF" and right fuel cock "OFF". After 2-3 minutes there should be no drop in engine rpm.
- warm up engine with 1500 - 2000 rpm
- wait for oil temperature to reach 122 deg. F / 50 deg. C
- check revolutions under full throttle (3250 rpm)
- check cylinder head temperatures (switch over) and oil pressure
- electrical fuel pump "ON" and right fuel cock "ON"

Taxying

- observe taxying area
- seating position as well as wing geometry do not allow the crew to observe the outer wing further than the leading edge sweep-back. This blind spot must be considered absolutely during taxying.
- when taxying slowly operate wheel brakes carefully.
- depending on surface conditions and because of the large moment of inertia the function of the tailwheel steering is delayed.
- to avoid damage of the propeller, taxi on surface with loose stones and gravel with low revolution.

4.5.2 Take-off and Climb

Checks before take off

- check engine revolution under full throttle (3250 rpm).
- choke "OFF"
- canopy locked
- trim neutral
- fuel cocks both "OPEN"
- electrical fuel pump "ON"
- check engine control instruments
- flaps pos. + 5 (deg.)
- air brakes locked

Caution: Always check open fuel cocks carefully. When fuel cocks are closed, the engine will run on for about 1 - 3 minutes. Closed fuel cocks may lead to a loss of engine power in the take off phase.

Caution: Because of the special fuel system both fuel tanks must contain a fuel quantity sufficient for take off.

Caution: Before taxiing from taxi-hold position to take off position, pay attention that the parking brake is deactivated (lever is in OFF position respectively parking brake unlocked). The parking brake shall not be used on the runway anymore.
To release the parking brake turn rotary handle to OFF position respectively unlock the brake lever, use brake lever simultaneously if required.

4.5.4 Approach

- The landing approach can be carried out in gliding configuration or with engine idling and both tanks switched on.
- The approach must be set up in such a manner that the runway can be reached without engine power.
- Lower the undercarriage on the downwind leg (takes about 30 seconds) and wait for "GREEN" of the check lights. When the airbrakes are deployed, a horn can be heard and all check lights flash red if the undercarriage has not been lowered.
- Flap position "L" (+16 deg.)
- Approach speed 59 kts / 110 km/h.

Warning: Before landing check parking brake lever to be in OFF position respectively brake lever to be unlocked. A landing with parking brake set results in uncontrollable braking and in worst case in a locking of the wheels.

Caution: In turbulent conditions and strong wind approach with flap position +10 deg. or +5 deg. to warrant better effectiveness of the ailerons. Increase approach speed by 10%.

Warning: In rain increase approach speed by 10 % ! (see chapter 4.5.7).

4.5.5 Landing

- Control glide angle by means of the airbrakes.
- Do not round out too low (high undercarriage). Reduce airspeed in horizontal flight to the minimum flying speed, pull the stick and put down with main undercarriage and tail wheel simultaneously.
- Hold stick pulled after ground contact. Leave airbrakes extended. Operate wheel brakes according to situation. Operate rudder with caution.

After reaching the parking position:

- Parking brake SET (turn lever to ON position and operate brake afterwards) respectively LOCK brake lever
- avionics switch OFF"
- engine (for cooling down) idle for app. 1 min.
- ignition "OFF"
- electrical fuel pump "OFF"
- engine master switch "OFF"
- master switch "OFF"
- When parking for longer periods on inclined ground use wheel chocks.

7.1 Introduction

This section provides description and operation advice of the motorglider and its systems and equipment. Refer to section 9, Supplements, for details of optional systems and equipment.

7.2 Cockpit Controls

Each seat has a control stick and rudder pedals, and a brake and flap lever on the left hand side.

Canopy lock: One operating lever on left and one on right side of the canopy frame, as well as one at rear top (whose function is the retention of the canopy for the first phase of the emergency canopy release).

Emergency canopy jettison: in addition to the side locking levers there is a pull lever in the control segment of the instrument panel.

The brake for the main landing gear brake is operated with the hand lever fitted to the LH control stick. Separate lever/rotary handle for parking brake valve on the floor panel console in front of the LH control stick respectively lock LH brake lever with a pin to set parking brake. The same system for the RH stick is available as an option.

The tail wheel is steered by the rudder pedals.

Trim, throttle and mixture lever are placed on a console between the seats.

The fuel cocks are fitted next to each other on a console between the seat backs.

The operating elements for the propeller are combined in the lower middle area of the instrument panel:

- lever to open and close the propeller cone
- lever to brake the propeller after switching off engine
- lever to position the propeller

Ventilation:

- Cabin: ventilation nozzle in the lower middle area (foot) of the instrument panel.
- Canopy: knob in the control segment of the instrument panel.

7.3 Instrumentation

The instrument panel is divided into three faces:

- in the left face the flight control instruments are fitted: ASI with indicating range of minimum 27 kts / 50 km/h up to 162 kts / 300 km/h, altimeter, magnetic compass and optional equipment.
- the center face is used for navigational instrumentation and further optional equipment.