

IAS = Indicated Air-Speed

CAS = Calibrated Air-Speed

5.2.2 Stall Speeds

Stall Speeds in km/h (kts) Indicated Air Speed.

Span	18m / 59ft		
All up weight	345 kg	460 kg	575 kg
	760 lbs	1014 lbs	1267 lbs
Air brake closed	66 km/h	76 km/h	85 km/h
	36 kts	41 kts	46 kts
Air brake open*	69 km/h	80 km/h	89 km/h
	37 kts	43 kts	48 kts

Span	15m / 49ft		
All up weight	330 kg	430 kg	525 kg
	727 lbs	948 lbs	1157 lbs
Air brake closed	65 km/h	75 km/h	83 km/h
	35 kts	40 kts	45 kts
Air brake open*	71 km/h	81 km/h	90 km/h
	38 kts	44 kts	48 kts

* with landing gear extended !

1. The speeds quoted are valid for the aerodynamically clean glider.
2. Stall warning in the form of decreasing aileron effectiveness and of tail unit buffeting or gentle oscillation about the vertical axis will commence at about 6 % above the indicated stall speeds.
3. Extension of air brakes increases the indicated stall speed in straight flight by about 10 %.

2.9 Jacking Points and Ground Transport

Jacking Points

The wings may be supported on trestles positioned in the area of the root ribs, the wing junction and at the outer wings at approx. 2/3rds of the span. The trestles should be padded, or cushioned with foam rubber or similar resilient underlay. When jacking up wings, avoid stress or damage to control surfaces and linkage fairings.

The fuselage may be propped up in the cockpit region by means of suitable supports. If required, the fuselage may also be supported in the area in front of the tail wheel by means of a console.

Jacking points are also illustrated **in section 3**, Fig. 3.0-1.

Before inverting the fuselage, remove the canopy. The instrument pod should be either fixed in place or hinged up to its fullest extent. The elevator actuator must be protected from damage. A wooden block of appropriate height must be laid under the fin-stabilizer attachment area. The vent hole of the brake fluid reservoir cover must be sealed by tape!

WARNING: *After rotating the fuselage back upright, remove the tape! Remove spilled fluid and clean with cleaning spirit. Check brake fluid level!*

Ground Transport

The wings may be supported at the spar stubs, root ribs and wing tips. Remove winglets before!

2.10 Tow Releases

The tow release fitted at the C. G. is model TOST "Europa G 88" (Data Sheet No: 60.230/2).

Models TOST "Europa G 72 or G 73" may be used as a replacement tow release.

The forward tow release fitted at the fuselage nose is model TOST "E 22" (Data Sheet No: 11.402/9 NTS).

When replacing tow release couplings, care should be taken to use again new bolts of strength grade 12.9.

2.11 Other Equipment and Installations

For further equipment as for example ELT, barograph, turn point cameras, GPS flight data recorders and so on, the installation into the sailplane must comply with JAR 22.597.

According to this requirement, such equipment must be fitted in such a way that it may withstand the following accelerations (which must be demonstrated in tests when necessary):

forward	9,0 g
rearward	2,5 g
upward	7,8 g
downwards	11,8 g
sideways	3,0 g

Above accelerations already include a safety factor of $j = 1.5!$ We strongly recommend adapting the strength of fittings of equipment installation to about 25 g to the high cockpit impact strength of the ASW 28-18.

Inspection Program

The appropriate inspection program must be obtained from the manufacturer. The inspections may be carried out only by the manufacturer, or by an appropriately licensed aircraft repairer.

The results of the inspections must be listed in an inspection report in which each item must be annotated with a comprehensive comment, as laid down. If a licensed aircraft repairer carries out the inspection, a copy of the inspection report **must** be forwarded to the manufacturer for the purpose of evaluation.

After receipt and examination of this report, Messrs. SCHLEICHER will issue an acknowledgement of receipt and send it back to the aircraft owner. Only then, the inspector must certify the increase of the service life in the logbook and in the aircraft inspection records.

The need for annual Certificate of Airworthiness inspections and overhauls (for German registered gliders § 27 (1) LuftGerPO applies^{*)}) is not affected by this rule.

^{*)} LuftGerPO = Aeron. Products Examination Order

4.2 Special Servicing Procedures and Equipment Subject to Service Life Limitations

Special Servicing Procedures

At regular intervals of 5 years, the sealing rings and groove sealing rings of the water ballast valves must be checked, and replaced if required (see Fig. 2.4-4).

At regular intervals of 6 years, the brake line hose of the hydraulic wheel brake must be replaced. Should this hose be in good condition, it need not be replaced if its condition is checked at least every 100 flying hours.

Equipment subject to Service Life Limitations

Tow Releases

The tow release **fitted at the C.G.** is the model TOST "Europa G 72" or "G 73" or "G 88" respectively and the optional tow release **fitted at the fuselage nose** is the model TOST "E 22".

For the above TOST tow releases service life limitations are valid, which are documented in their corresponding authorized release certificates. The relevant "Operations and maintenance instructions" issued by the manufacturer TOST must be complied with.

Instruments

The flight monitoring instruments are not normally subject to service life limitations. Generally, the manufacturers instruction must be observed.

Control Surface Hinges:

As series production standard the ASW 28-18 is equipped with elastic fairing strips at the control surface gaps. Under the elastic fairing strip the aileron and the elevator are sealed with teflon tape. Consequently, the control surface hinges are not exposed to substantial soiling.

Without the need of removing the elastic fairing strips, the degree of soiling can be checked at the lower rudder hinge and at the inner elevator hinges (if the horizontal tail is disassembled).

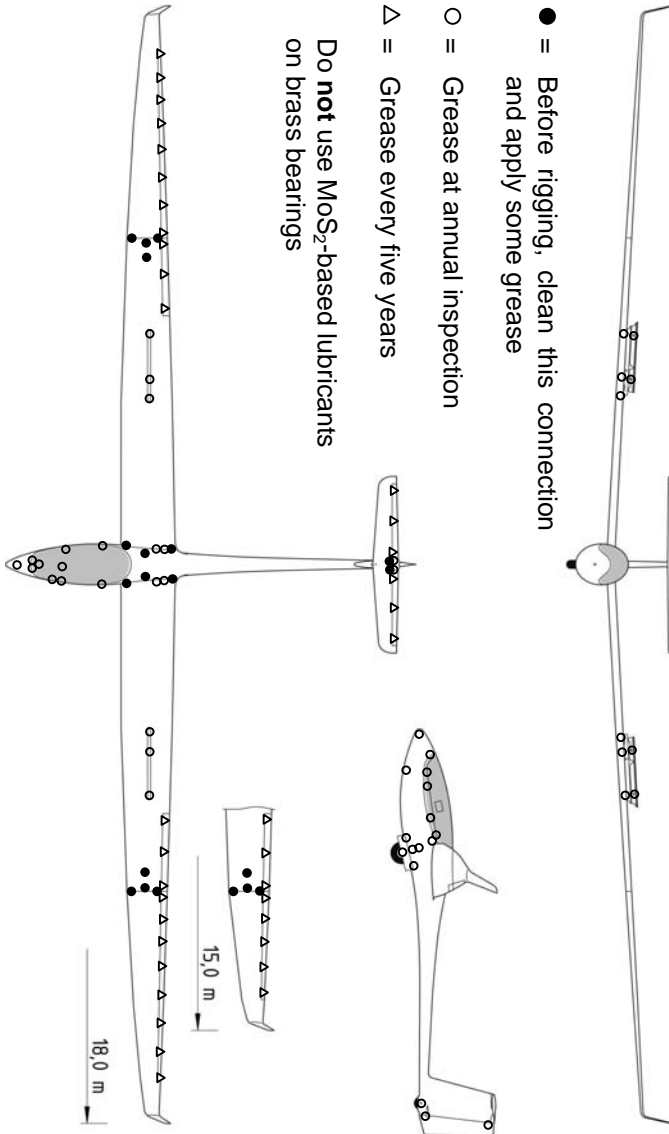
The experience so far shows that re-lubrication in 5 years intervals is sufficient. Nevertheless, whenever elastic fairing strips are replaced, do not forget to grease and oil the otherwise hidden control surface hinges first.

If the control surface hinges are heavily soiled or if the controls are not freely moving, the elastic fairing strips and the teflon tape must be removed at the wing and at the horizontal tail in order to re-lubricate the hinges.

CAUTION: *The flutter calculation regards the elastic force of the plastic fairing strips leading to higher control circuit frequencies. Therefore, without the elastic Mylar fairing strips the ASW 28-18 is not airworthy!*

At the rudder, the upper hinge incorporates a self-lubricating, maintenance-free, plastic low-friction-type bearing bushing.

Fig. 8.0-1 Lubrication Chart



10.4 Removal and Re-assembly of Tow Releases

Tow release fitted at the C.G.

1. Remove the seat back and the seat pan.
2. Undo the safety springs from the L/G doors.
3. Remove the wheel. First, proceed as described in Section 2.3.4 "Exchange of Brake Pads": dismount the wheel brake cylinder. Do **not** disconnect the brake hose! The bolt holding the torque plate of the wheel brake cylinder and the wheel axle must be removed. Now the wheel can be pulled off the wheel fork.
4. Take the two safety springs off the horizontal struts.
5. Remove the shock absorber legs.
6. Unscrew the release cable off the end fitting and turn out the three bolts, which hold the tow release coupling. Pull out the release to the front.

Tow release fitted at the nose

1. Move rudder pedals backwards. It may be handy to tie them down.
2. Remove cover from the bulkhead visible in the fuselage nose.
3. The release is then visible through the first bulkhead. Two brackets hold it attached to the second bulkhead. Remove the four nuts from the brackets.
4. Pull out the release to the rear. It fits easily through the first bulkhead when it is swayed a bit.
5. Pull one of the pins at the release rope fitting and unscrew the brackets

Installing the tow releases is done in the reverse order.

When installing the nose hook, use only new split pins. Take care that none of the pins on the rope attachment hits the housing. Do not forget to screw on the ground line together with the bracket. Attach the bulkhead cover with silicone.

Tow releases are attached with screws of strength grade 10.9 or 12.9 and nuts of the strength grade 6. See also "Operating Manuals for tow releases" from Messrs. Tost.

When the tow releases are exchanged, new bolts and nuts must be used for reinstallation.

10.5 Removing and Re-assembly of Power-plant Components

Refer to Section 2.13.2 and 2.13.4.

12.6 Maintenance Instructions

The following Maintenance Instructions are established from time to time as required, in accordance with experience accumulated in operating the ASW 28-18. The Maintenance Manual is to be supplemented in case of new issues of Maintenance Instructions.

- **“ALL FRP GLIDER MODELS”** dated June 19, 1986, (general Maintenance Instruction) describes the removing of play between the sockets (= bushings) and bolts (= pins) of the wing-to-fuselage connection.
- **"PAINT CRACKS"** dated June 26, 1989, (general Maintenance Instruction) describes how to inspect, preserve, and repair the paint surface.
- **ASW 24 - Maintenance Instruction C** dated April 26, 1990, which is also applicable to the ASW 28-18, describes how to repair the landing gear box.
- **ASW 24 - Maintenance Instruction D** dated Dec. 2, 1992, which is also applicable to the ASW 28-18, describes the assembly of air-brake and aileron bell cranks incl. their FRP basic plate into the wing root rib.
- **"Water Ballast Valves"** dated July 25, 1994, (general Maintenance Instruction) describes maintenance procedures for the valve itself.
- **Maintenance Instruction A** dated May 14, 2004, describes how to apply or replace the elastic plastic sealing strips at the control surface gaps.
- **Maintenance Instruction B** dated May 14, 2004, describes how to apply or replace the turbulators on winglets, horizontal and vertical tail planes.
- **Maintenance Instruction C** dated July 2, 2001, describes how to adjust the water ballast actuation system.
- **Repair Instruction** dated Jan. 12, 2001, is dealing with damages in the cockpit area after belly landing with retracted landing gear.
- **Maintenance Instruction for all Models having integrated water ballast tanks inside the wings** dated May 6th, 2002 describes the complete dumping of the ballast water.
- **Maintenance Instruction Safety of Aileron Hinge Pins** (dated Sept 05, 2001) describes the inspection of the aileron hinge pins.