ASH 25 suitable for use in performance-orientated clubs.

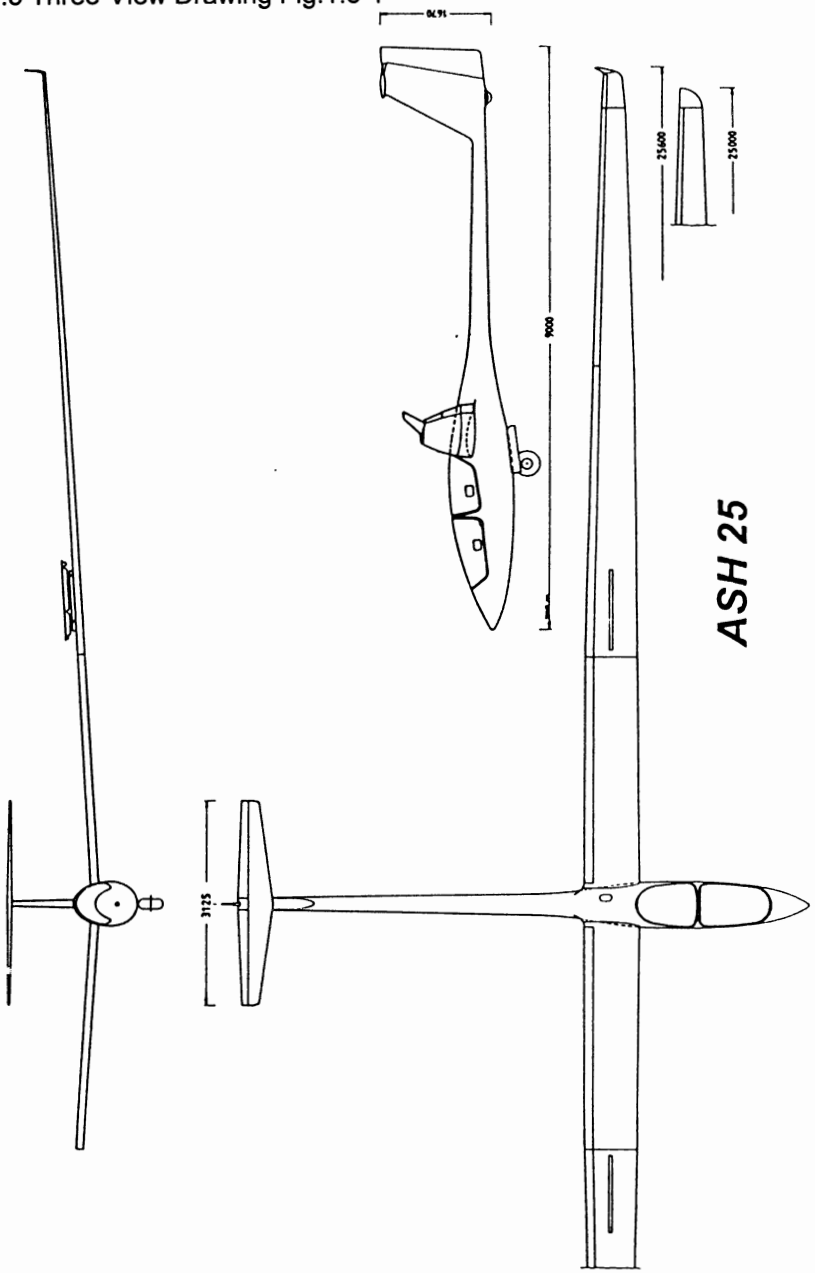
The ASH 25 is a shoulder wing glider with damped T-tail and sprung, retractable landing gear with hydraulic disc brake. The wing is equipped with trailing edge flaps extending over the full span, to allow a choice of optimum wing camber in relation to drag throughout the speed range. With landing flap selected the deflection of these flaps will generate high drag combined with good control which, together with the airbrake paddles on the upper wing side, permits very short landing approaches.

Upon accomplishment of the Technical Note 11 the span is increased by means of attachable wing tip extensions with winglets.

Technical Data:

	25.00 m **(82 ft)**	25.6 m **(84 ft)**
Span		
Fuselage length	9 m	**(29.5 ft)**
Height (Fin and Tail Wheel)	1.7 m	**(5.5 ft)**
Max. take-off mass	750 kg	**(1654 lb)**
Winglet height	0.35 m	**(1.15 ft)**
Wing chord:		
(mean aerodynamic)	0.687 m **(2.25 ft)**	0.671 m **(2.20 ft)**
Wing surface	16.31 m^2 **(175.5 ft^2)**	16.46 m^2 **(177.2 ft^2)**
Wing loading:		
minimum single-seated	33 kg/m^2	**(6.75 lb/ft^2)**
maximum two-seated	46 kg/m^2 **(9.42 lb/ft^2)**	45.6 kg/m^2 **(9.34 lb/ft^2)**

1.5 Three-View Drawing Fig.1.5-1



2.1 Introduction

This Section contains operating limitations, instrument markings and cockpit placards required for the safe operation of the ASH 25, its original equipment, systems and facilities initially fitted.

The operating limitations stated in this Section and in Section 9 are LBA-approved.

2.2 Air Speeds

Air speed limitations and their operational significance are shown below:-

	Speed	IAS kmh and (kts)	Remarks
V_{NE}	Never exceed speed	280 (151)	Do not exceed this speed in any operation and do not use more than 1/3 of control deflection

V_{RA}	Rough air speed	**180 km/h** **(97 kts)**	Do not exceed this speed except in smooth air, and then only with caution. Examples of rough air are lee-wave rotor, thunderclouds etc.
V_A	Maneuvering speed	**180 km/h** **(97 kts)**	Do not make full or abrupt control movement above this speed, because under certain conditions the sailplane may be overstressed by full control movement

V_{FE}	Max. Flap Extended Speed (if applicable give different flap setting)	WK 1 = 280 km/h (= 151 kts) WK 2 = 230 km/h (= 124 kts) WK 3 = 230 km/h (= 124 kts) WK 4 = 160 km/h (= 86 kts) WK 5 = 160 km/h (= 86 kts) WK L = 140 km/h (= 76 kts) **WK = Flap**	Do not exceed these speeds with the given flap settings.
V_W	Max. winch launching speed	**130 km/h (70 kts)**	Do not exceed this speed during winch or autotow launching
V_T	Max. aerotowing speed	**180 km/h (97 kts)**	Do not exceed this speed during aerotow

V_{LO}	Max. landing gear operating speed	**180 km/h (97 kts)**	Do not extend or retract the landing gear above this speed

2.3 ASI Markings

The following table shows the ASI markings and the meaning of the colors:

MARKING	(IAS) Value or Range km/h and (knots)	SIGNIFICANCE
White Arc	85 - 140 (46 - 76)	Positive Flap Operating Range
Green Arc	96 - 180 (52- 97)	Normal Operating Range (neutral flap setting)
Yellow Arc	180 - 280 (97 - 151)	Maneuvers must be conducted with caution and only in smooth air

Red Line	280 (151)	Max. speed for all operations.
Yellow triangle	90 (49)	Approach speed at max. weight without water ballast

2.4 Masses (Weights)

Max. Permissible Take-Off Mass:
- with water ballast 750 kg (1654 lbs)

Max. Permissible Landing Mass: 750 kg (1654 lbs)

Max. mass of all non-lifting parts 390 kg (860 lbs)

Max. mass in the baggage compartment: 15 kg (33 lbs)

2.5 Center of Gravity

The limits of the C.G. range are as follows:

forward limit	0.19 m (0.62 ft) aft of datum (BP)
aft limit	0.39 m (1.28 ft) aft of datum (BP)

"BP" (German: **B**ezugs**p**unkt) stands in this context for "Reference Datum" which is identical with the wing leading edge at the wing root rib. One example of calculating C.G. positions is given in Section 6 of the ASH 25 Maintenance Manual.

2.6 Approved Maneuvers

This sailplane is approved for normal sailplane operation (Airworthiness Category "Utility").

2.7 Maneuvering Load Factors

Maximum maneuvering load factors:

max. positive load factor	+5.3
max. negative load factor	- 2.65
at an air speed of:	180 km/h (97 kts)

At increasing air speeds, these values will be reduced to:

Maximum positive load factor	+ 4
Maximum negative load factor	- 1.5
at an air speed of:	280 kmh (151 kts)

2.8 Flight Crew

For solo flights the pilot must occupy the front seat.

Pilots weighing less than 70 kg = 155,5 lbs (incl. parachute) must use additional trim ballast weights. Please refer to the mass and balance form in Section 6 and the description of trim ballast plates in Section 7.11.

The minimum front cockpit load is also shown in the Operating Limitations Placard in the cockpit.

2.9 Types of Operation

Flights may be carried out in daylight, in accordance with VFR. Cloud flying is permitted if appropriate instrumentation is fitted (see Point 2.10), without water ballast, and if regulations currently in force are complied with.

2.10 Minimum Equipment

Minimum Equipment consists of:

1 ASI indicating up to 300 km/h = 162 kts in the front instrument panel
1 Altimeter in the front instrument panel
2 4-part seat harness (symmetrical)

Additionally required for instruction:

1 ASI indicating up to 300 km/h = 162 kts in the rear instrument panel
1 Altimeter in the rear instrument panel

For cloud flying the following additional equipment must be fitted:

1 Turn & Slip Indicator
1 Magnetic Compass, and
1 Variometer

Approved equipment is listed in the Maintenance Manual in Section 12.1.

2.11 Aerotow and Winch Launch

The maximum launch speeds are:

for Aerotow	180 km/h	(97 kts)
for Winch Launch	130 km/h	(70 kts)

For both launching methods, a weak link of 750 to 900 daN must be used in the launch cable or tow rope.

For both launching methods, a weak link of 750 to 900 daN must be used in the launch cable or tow rope.
For Aerotow, the tow rope must be not less than 40 m (135 feet) in length.

2.12 Operating Limitations Placard

This placard is fixed in the front cockpit and contains the most important Mass (weight) and Speed Limitations.

Segelflugzeugbau A. Schleicher GmbH & Co. Poppenhausen

Model: ASH 25 Serial-No.:

DATA and LOADING PLACARD

	25 m kg	25 m lbs	25,6 m kg	25,6 m lbs
Empty Mass (Weight):				
Max. Mass (Weight):	750 kg			1654 lbs
Min. Front Seat Load Solo:	kg			lbs
Max. Front Seat Load:	kg			lbs
Max. Rear Seat Load:	kg			lbs
Max. Total Combined Seat Load:	kg			lbs

MAXIMUM PERMISSIBLE SPEEDS:

Winch Launch W/L:	130 km/h	70 kts
Aerotow A/T:	180 km/h	97 kts
Operating Landing Gear:	180 km/h	97 kts
Maneuvering Speed:	180 km/h	97 kts

Weak Link for A/T and W/L: 750 to 900 daN / 1685 to 2023 lbs

Tire Pressure Main Wheel:	3,4 bis 3,6 bar	(48 to 51 psi)
Tail Wheel:	2,4 bis 2,6 bar	(34 to 37 psi)

Reduced minimum cockpit load
without trim ballast in the fin:
see flight manual - Page 6.4

4.1 Introduction

This Section contains Check Lists for the daily inspection and pre-flight checks. It also describes normal operating procedures. Normal operation procedures associated with the sailplane, if equipped with various ancillary systems and equipment not included as standard equipment, are described in Section 9.

4.2 Rigging and Derigging

Rigging
The ASH 25 can be rigged without use of rigging aids by three people, or by two people if a fuselage cradle and wing trestle are used.

NOTE: Wingtip-extension with winglet must be exchanged for the detachable short wingtip only after the wing assembly is done.

1. Clean and lubricate all pins, bushings and control connections.

2. Support fuselage and keep upright. If the wheel is lowered, check that the landing gear is securely locked down.

3. Set flap lever to Flap Position 1 or 2.

4. Insert left inner wing spar fork into fuselage and support its outer end with a trestle, if available.

NOTE: The wing trestle must not obstruct the movement of the flap !

5. Insert right inner wing spar root and line up main rigging pin bushes. Insert and lock main pins. Only at this point - and not before - may the wing weight be relaxed.

If the aircraft is still supported in a fuselage cradle, it is recommended that the landing gear should be extended at this stage, and rigging completed with the aircraft standing on its wheel. Do not connect the control linkages in the fuselage yet, as this makes the rigging of the outer wings more difficult.

6. Screw the T-shaped rigging tool for fitting the outer wing into its seating. Unlock the left outer wing airbrake paddle by means of the tool provided.

7. Insert left outer wing into spar socket of inner wing and push in, leaving a gap of 5 to 10 cm = 2 to 4 in.

8. Connect flap control push rod (nearest the trailing edge) and secure.

9. Now push outer wing home, push main pin in to full extent against flight direction and turn clockwise to secure. Unscrew T-tool. The main pin is correctly fitted, if it is flush with the wing surface. When pushing wings home, ensure that the aileron and airbrake push rods do not foul ribs or fittings.

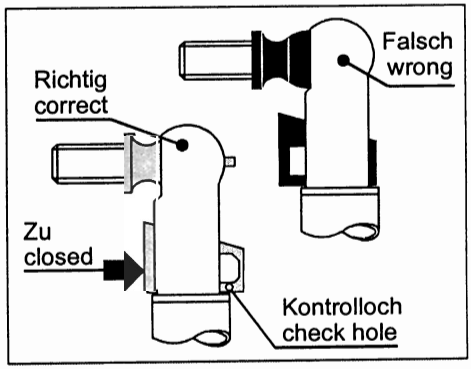
10. At this stage it will be of help to move the trestle outwards somewhat, perhaps near the position of the center flap actuator. This will reduce the loads both on wing and trestle.

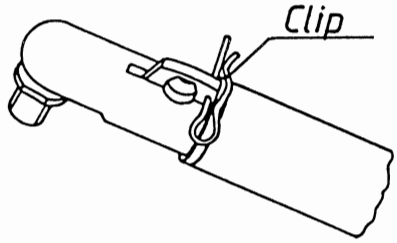
11. The rigging of the right outer wing should also

follow clauses 6. to 9., except that the main pin must now be secured by means of an anti-clockwise turn.

11a) Only at this stage the wingtip-extension with winglet may be exchanged for the detachable short wingtip, if this is intended. Using an Allen wrench, move the safety pin back in order to do the assembly. Watch that the aileron is correctly aligned! After the assembly the safety pin is again pushed forwards to lock.

12. First connect the aileron and airbrake control linkages in the airbrake boxes and secure, only then connect the six control linkages in the fuselage which are accessible when the access hole cover is removed. All quick-release connectors (HOTELLIER type) must be tested by trying to pull the socket ends of the push-rods off the ball heads, applying a force of not less than 5 daN, and it must be ensured that the check holes are visible. Flap control connections can be checked in landing flap setting (Flap L) through the airbrake box. If the aircraft is not going to be de-rigged for some time, the HOTELLIER connectors could usefully be secured by inserting spring clips through the check holes. Clips are available from Messrs. Alexander Schleicher.





13. After cleaning and lightly lubricating the elevator studs and sockets, the tailplane is pushed on to the fin from the front. Each half-elevator must be guided into the elevator connections. The elastic lip seal covering the elevator gap must be placed on top of the elevator control tongue. Now push the tailplane home until the hexagon socket head bolt at the leading edge will engage its thread. The bolt must be fully and firmly tightened; it is secured either by a spring loaded pin which must extend over the bolt head, or by means of a spring ball catch, whose ball must engage in the grooves on the side of the bolt head.
14. A considerable performance improvement can be achieved with little effort by taping all gaps between wing junctions with plastic self-adhesive tape (on the non moving parts only). The lid of the access hole on the fuselage and the fin-tailplane junctions should also be taped up. The canopy rim must not be taped over,

so as not to impair bail-out.
It is recommended that areas to be taped up should be thoroughly waxed beforehand, so that the adhesive tape can afterwards be cleanly removed without lifting the paint finish.

15. Connect both vent tubes from the inboard wing water tanks to the openings at top of the baggage compartment.

16. Now use the Check List (see the following para. 4.4) to carry out a pre-flight check. Under point 3. "(Control surface clearances at trailing edge min. 1,5 mm = 1/16 in!)", check that the wing control surfaces have that minimum clearance from each other and from the inboard and outboard wing cut-out edges.
This clearance is necessary to ensure that these surfaces do not foul each other or the wing cut-out edges when deformed under load in flight.

De-rigging

To de-rig, proceed in the reverse order of rigging. We would add the following suggestions:

1. Drain all water ballast. Ensure that all the water has emptied out by putting down alternative wing tips several times.

2. When disassembling the tailplane, carefully

push back the locking pin with the sleeve tube of the Allen key supplied to avoid damaging it as the bolt is removed.

3. If the tailplane is very firmly located in its rear seating, it will be more easily dismantled by two people alternately pushing it forwards by the tips.

4. Prior to de-rigging the outer wings the wingtip-extension with winglet - if fitted - must be removed and exchanged for the detachable short wingtip. When de-rigging the outer wings, at first pull them out only 5 to 10 cm = 2 to 4 in. from the inner wing, to allow disconnection of the flap linkages.

5. Before de-rigging the inner wings from the fuselage, do not forget to disconnect the fuel lines, to retract the propeller, and to disconnect the battery wires above the spar!

4.3 Daily Inspection

Before commencing flying operations, the aircraft must be thoroughly inspected and its controls checked; this also applies to aircraft kept in the hangar, as experience shows them to be vulnerable to hangar-packing damage and small animal.

a) Open canopies and check canopy jettison.

b) Main pins home and secured?

c) Check control connections of ailerons, elevator and air brakes through the fuselage access hole cover and through the air-brake boxes.

d) Check cockpit and control runs for loose objects or components.

e) Check clearance, and full and stress-free operation of all controls. Hold controls firmly at full deflection while loads are applied to control surfaces.

f) Check inflation and condition of tires:

Main wheel	3.5 bar (50 psi)
Tail wheel	2.5 bar (36 psi)

g) Check condition and operation of tow release couplings! Release control operating freely? Do not forget release checks!

h) Check wheel brake for operation and leaks. With airbrake paddles fully extended the resilient brake pressure from the main brake (master) cylinder should be felt through the brake handle.

i) Check both wing upper and under surfaces for damage.

j) Flaps including ailerons:
check condition and freedom of movement (clearances). Also the linkage fairings on control surfaces and wings must be checked for clearance.

- Wingtip-extension with winglet, or short wingtip respectively, correctly assembled and secured? Winglet undamaged?

k) Airbrake paddles:
check condition and control connections. Do both sides have good over-center lock?

l) Check fuselage, especially underside, for damage.

damage.

m) Check that rudder, tailplane and elevator are correctly fitted, and for damage or excessive play.

n) Check the pressure port in the fin: is the tube (pitot/static or TE) properly seated and tight??

o) Check that static ports in the fuselage tail boom are unobstructed.

4.4 Pre-Flight Checks

The following Check List containing the most important points is affixed within easy view of the front seat pilot:

Pre-Flight Checks:

1. Control connections and rigging pins secured?
2. Controls checked for positive connections and full and free deflections?
3. (Control surface clearances at trailing edge min. 1,5 mm = 1/16 in !)
4. Parachute static line connected?
5. Check ballast / C of G !
6. Comply with Mass and Balance Form !
7. Water tank drain and vent openings unobstructed?

Pre-Take-Off Checks:

1. Parachute clipped on?
2. Seat Harness secure and tight?
3. Wheel locked down?
4. Airbrakes closed and locked?
5. Trim set for Take-Off?
6. Flaps set for Take-Off?
7. Altimeter set?
8. Tail dolly removed?
9. Check wind direction!
10. Close and lock canopies!

istics become very gentle, as the limited elevator deflection will no longer allow maximum angles of attack to be reached.

At this C.G. position, stall warning through buffeting will not be experienced, but large aileron deflections can be applied without dropping a wing.

Even with rearmost C.G. position, about half of maximum aileron deflection can still be applied, with rudder centralized, to maintain the aircraft in straight stalled flight. It would, of course, be more appropriate to control the aircraft by means of rudder alone, and to leave the ailerons centered.

Violent applications of rudder or aileron would result in a spiral dive, spinning or side slipping, depending on C.G. position.

With winglets fitted the minimum speed is slightly reduced, therefore wing dropping with winglets occurs slightly faster.

CAUTION: Height loss due to incipient spin from straight or circling flight depends largely on the all-up flight mass:

Height loss from straight flight after prompt recovery action

$\approx$ 40 m = 132 ft !

Height loss from circling flight:

up to 150 m = 495 ft !

More specifically, the following would apply:

C.G.position	Flap	Rudder & Aileron Coordinated	Rudder & Aileron Crossed
rearmost	3 - 5	steady spin	steady spin
central	3 - 5	spin, leading to spiral dive	spin, leading to slipping turn
foremost	3 - 5	approx. half turn of spin, leading to spiral dive	slipping turn

Wing drop from circling flight is not noticeably more violent than from straight flight.

The above specifications for spin behavior apply likewise for operation of the sailplane with wingtip extension-with-winglets installed.

4.5.4 Landing Approach

Make the decision to land in good time and, notwithstanding the high performance, select Flap 4 or 5 and lower the wheel at the latest at 100 m = 300 ft agl.

For the remainder of the circuit, maintain about 90 km/h = 49 kts (yellow triangle on ASI scale).

The sailplane should be trimmed to between 90 and 100 km/h = 49 kts and 54 kts. In turbulence, the approach speed should be appropriately increased.

5.2.2 Stall Speeds

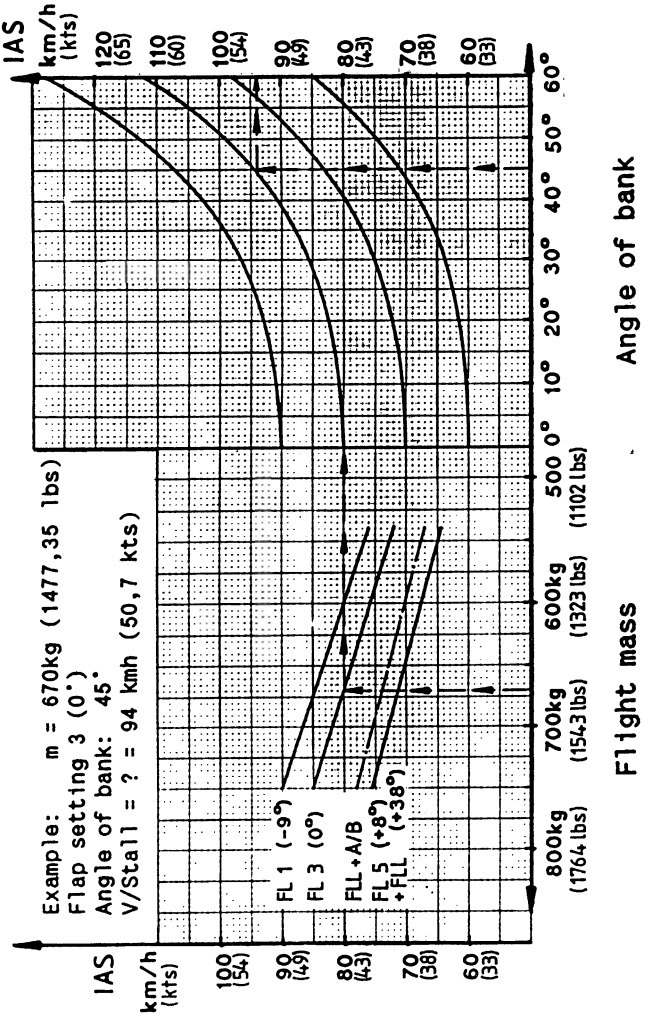
Stall Speeds in km/h (kts) - Indicated Air Speed:-

Flap Setting	All-Up Weight kg (lbs)		
	540 kg (1191 lb)	630 kg (1389 lb)	750 kg (1654 lb)
Flap 1	76 km/h (41 kts)	83 km/h (44.8 kts)	90 km/h (48.6 kts)
Flap 2	75 km/h (40.5 kts)	81 km/h (43.7 kts)	88 km/h (47.5 kts)
Flap 3	72 km/h (38.9 kts)	78 km/h (42.1 kts)	85 km/h (45.9 kts)
Flap 4	66 km/h (35.6 kts)	71 km/h (38.3 kts)	78 km/h (42.1 kts)
Flap 5	65 km/h (35.1 kts)	70 km/h (37.8 kts)	76 km/h (41 kts)
Flap L	64 km/h (34.5 kts)	69 km/h (37.2 kts)	75 km/h (40.5 kts)
Flap L + Airbrake	67 km/h (36.2 kts)	72 km/h (38.9 kts)	78 km/h (42.1 kts)

1. The speeds indicated are valid for the aerodynamically clean aircraft. Wingtip extension with winglets fitted reduce the stall speeds by about 1 km/h (0.54 kts).
2. With C.G. aft, a stall warning in the form of horizontal tail buffeting will commence at about 5 % above stalling speed.
3. Extending the airbrakes increases the stalling speed in level flight by about 5 km/h = 2.7 kts.

4. Lowering the landing gear does not affect the stalling speed.

Stalling Speed Diagrams



When parking, carefully remove any remainders of provisions (chocolate, sweets &c), as experience shows this would attract small animal which could cause damage in and to the aircraft.

When parking for protracted periods - even in the hangar -and when transporting the aircraft the wing tip extensions with the winglets must be removed. Tie-down holes can be fitted only in the short detachable wing tips (must be expressly ordered).

(2) Road Transport

Messrs. Alexander Schleicher GmbH & Co. can supply dimensioned drawings of the ASH 25 which will provide all the measurements needed for building a closed trailer. We can also supply the names and addresses of reputable trailer manufacturers.

Above all, it is important to ensure that the wings are supported in properly shaped and fitted wing cradles, or at the very least, that the spar ends are securely supported as close as possible to the root ribs.

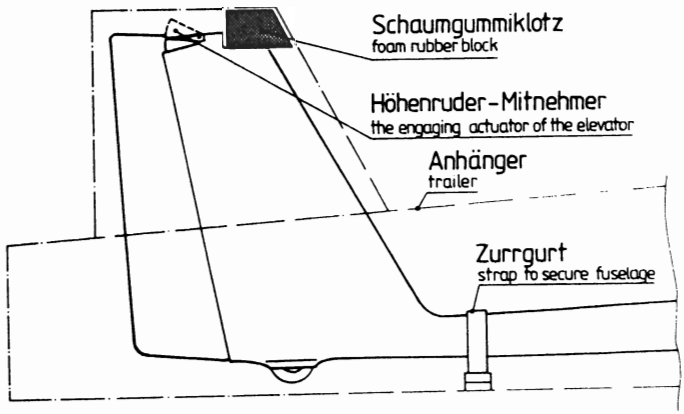
Reinforced points of the fuselage are the main wheel (but watch the suspension springing !) and tail wheel; also possibly the drag spar pins (make up support seatings from plastic material like Nylon!), and under the fuselage the area under the canopy arch.

For an aircraft of this quality and value, an open trailer, even with tarpaulin, cannot be recommended. Only a closed trailer of plastic or metal construction, or with heavy tarpaulin cover, may be considered suitable, which in any case should have light colored surfaces and be well ventilated also while stationary so as to avoid high internal temperatures or humidity.

Road transport with water ballast in the tanks is not permissible!

CAUTION: When transported in a glider trailer, care must be taken that the elevator engaging actuator of the glider (on top of the fin) is not being restricted in its required free movement by any foam blocks inside the trailer.

If for example such a foam rubber block is restricting the free moving of the elevator engaging actuator, with rather long road transports this may lead to a fatigue crack on this part. (See also the Drawing in Section 7 of the Maintenance Manual).
This cause must immediately be removed.
The drawing below shows how to cut and locate a foam rubber block. We think it is also useful to have a strap anchored in the trailer floor in order to secure the tail boom in front of the fuselage- fin-transition. In any case be sure that the elevator engaging actuator is free moving. Even with the stick full back, full upwards deflection of the elevator engaging actuator must be possible.



1.1 Introduction

This Maintenance Manual has been compiled because the safety and airworthiness of an aircraft depends to a large measure also on the careful maintenance of all its components. Its airworthiness can be assured only if the ASH 25 is maintained and operated in the manner laid down in the Manuals.

1.2 Description of the Aircraft

Two-seater mid-wing sailplane with camber-changing flaps, T-tail unit, retractable landing gear and provision for water ballast. The double-paddle dive brakes with spring loaded sealing caps extend on the top surface only.

1.2.1 Wings

4-part wing with CFRP/hard foam sandwich surface. The I-section-spar consists of carbon fiber caps with GRP/hard foam web The wings are assembled in the fuselage by means of a tongue-and-fork joint and two cylindrical main pins. The wing-to-wing connection at 3.8 m span is achieved by inserting the spar stub of the outer wing into the spar socket of the inner wing and securing by means of a cylindrical sliding pin which rotates to lock.
The wingtip extensions with winglets or the short wing tips respectively are secured by means of spring-loaded pins. The aileron connection to the wingtip extension is provided by overlapping at the aileron.

1.2.2 Fuselage

The fuselage shell construction employs hybrid materials technology. The mixture of carbon and aramid fibers provides a light, rigid structure capable of protecting the pilot even in the case of an accident. The additional stiffening in the cockpit area further increases pilot safety.
The fin is made up from GRP/hard foam sandwich, so as not to impede signal transmission from the VHF radio aerial.

1.2.3 Tail Unit, Control Surfaces, and Flaps

The stabilizer of the horizontal T-tail unit is of CFRP/hard foam sandwich construction. Control surfaces and flaps are of SRP/hard foam sandwich construction.

SRP = Synthetic fiber Reinforced Plastics

1.3 Primary and Secondary Structures

Primary structures include:

- wing spars and root ribs
- wing shells
- fuselage tail boom from wing mounting area to fin
- fin and horizontal stabilizer
- all rigging fittings and control linkage parts

Secondary structures are:

- control surfaces and flaps
- fuselage in the cockpit area

1.4 Technical Data

Wings

Span	25.00 m 82 ft	25.60 m 84 ft
Wing area	16.31 m² 175.50 sqft	16.46 m² 177.20 sqft
Aspect Ratio	38.32	39.82

Dihedral (spar top surface)	3.5 °
Sweepback (both inner wing tapers)	0 °
(outboard wing taper)	+0.8 °
(wingtip extension)	+4.45 °
Winglet height	0.35 m (1.15 ft)
Winglet area	0.05 m² (0.54 sqft)
Winglet aspect ratio	2.45
Winglet sweepback (leading edge)	52 °

Flap settings: -9 °, -5 °, 0 °, +6 °, +8 °, +38 °

Airfoil sections: HQ17 (14,38 % thickness) and DU 84-132V3 at wing tip, DU 86-084/18 at winglet.

Fuselage

Length	9.00 m (29.5 ft)
Height at T-tail with tail wheel	1.70 m (5.5 ft)
Cockpit width	0.705 m (2.3 ft)
Cockpit height	0.98 m (3.2 ft)

Fin

Height over tail boom top edge	1.38 m (4.5 ft)
Surface area	1.705 m²(18.35 sqft)
Airfoil Section	FX 71-L-150/30 with 12% thickness

Rudder

Chord ratio	31 %
Surface area	0.512 m²(5.51 sqft)

Tailplane

Span	3.125 m	(10.25 ft)
Surface area	1.27 m²	(13.67 ft²)
Aspect ratio	7.69	
Airfoil Section	Wortmann FX 71-L150/30 with 12 % thickness	

Elevator

Chord ratio	30 %	
Surface area	0.381 m²	(4.10 ft²)

Airbrake Paddles (Schempp-Hirth - top sfce.only)

Length	1.20 m	(3.94 ft)
Surface area (both together)	0.336 m²	(3.62 ft²)
Height	0.15 m	(0.49 ft)

Masses (Weights)

Empty mass	approx. 470 kg	(1037 lbs)
Max. cockpit load	195 kg	(430 lbs)
Max. mass of non-lifting parts	390 kg	(860 lbs)
Max. all-up mass	750 kg	(1654 lbs)
Wing loading	33.1 - 46.0 kg/m² (6.75 - 9.42 lbs/ft²)	

Ground Transport

The wings may be supported at the spar stubs, root ribs and wing tips. The wingtip-extension with winglet must be de-rigged previously and the detachable short wingtip must be assembled!

NOTE: Do not carry the wings by the protruding ends of control rods !

2.10 Tow Release Couplings

The tow release coupling fitted at the C.G. is model TOST "Europa G 73" (Data Sheet No: 60.230/2).
Model TOST "Europa G 72" or "Europa G 88" may be used as replacements.

The release coupling fitted for aero-tow use is model TOST "Bugkupplung E 85" (Data Sheet No: 60.230/1).
Tow release couplings of model TOST "Bugkupplung E 75" or "Bugkupplung E 72" may be fitted as replacements.

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

3. Rigging Angles and Deflections of Control Surfaces and Flaps

Wing Incidence	to horizontal tailplane chord	+3.5 °
	to fuselage tail boom axis	+3 °
Horizontal Tail-plane Incidence	to wing chord	-3.5 °
	to fuselage tail boom axis	-0.5 °

MPE = MessPunktEntfernung zur Drehachse = Distance from Measuring Point to Pivot Axis.

	MPE mm (in)	Deflection ± mm (in)	Tolerance mm (in)
Rudder	445 (17.5)	± 215 (8.5) L and R	± 15 (0.6)
Elevator	161 (6.34)	-61 (2.4) up +47 (1.9) down	± 6 (0.24) up ± 6 (0.24) down

To measure the Center Section Flap deflection, stand a wood strip on the floor so as to touch its trailing edge at the inboard end of the flap and clamp it to a trestle to fix it in position. Now center the control column, engage flap setting 3 and mark the neutral position of the flap on the wood strip. This mark shall serve as reference point for measuring the Center Section Flap deflections.

For measuring the control surface deflections at the wing, the wingtip-extension with winglet must first be exchanged for the detachable short wing tip.

Maximum Permissible Control Surface Play

The maximum permissible tolerance of control surface play may be measured from the same measuring points used for measuring control surface deflections. The cockpit controls should be immobilized for this purpose.

	MPE		Max. permissible play	
	mm	(in)	mm	(in)
Rudder	445	(17.5)	5.0	(0.20)
Elevator	161	(6.34)	3.0	(0.12)
Aileron	72	(2.83)	1.5	(0.06)
Center section flap	142	(5.60)	2.5	(0.10)
Flap	151	(5.94)	2.5	(0.10)

The aileron connection to the wingtip extension must be without any play!

5.1 Introduction

If control surfaces or flaps have been repaired or re-finished, it is essential to check whether their mass (weight) and tailheavy moment are still within the permissible limits. If it is found that these limits are exceeded, contact Messrs. Schleicher direct.

Further, the distribution of the mass (weight) balance over the span of control surfaces or flaps must be maintained. If it is found that repairs alter the local tailheavy moment, the original tailheavy moment must be regained by fitting any additional mass (weight) balance weight in the same location where the moment has been altered due to the repair.

5.2 Table of Control Surface Masses (weight) and Tailheavy Moments

The permissible masses (weight) of control surfaces and flaps, and their tailheavy moments are:

	Mass (weight)		Moment	
	kg	(lb)	kgcm	(inlb)
Rudder	7.18-9.23	15.83-20.35	8.48-16.53	7.36-14.35
Elevator & Actuator	2.16-2.76	4.76-6.09	6.86-9.10	5.95-7.90
Aileron	2.11-2.71	4.65-5.98	3.41-4.63	2.96-4.02
Center wing flap	3.88-4.98	8.56-10.98	6.13-8.68	5.32-7.53
Flap	3.61-4.65	7.96-10.25	6.30-8.88	5.47-7.71
Aileron of the wing tip extension	0.14-0.19	0.31-0.42	0.26-0.35	0.23-0.30

The plastic push rod in the fin forms part of the elevator mass balance. It must not weigh less than 0.29 kg (0.64 lb).

When determining tailheavy control surface moments, care must be taken that the pivot points are as free from friction as possible. When dismantled from the aircraft, the longer surfaces like flaps or ailerons can warp forwards or backwards as viewed from the trailing edge, due to temperature changes.

This will of course materially distort the results. The suspension points for these components must be chosen so as to minimise this distortion. If, for example, a control surface is warped forwards, the suspension points should be located far enough outwards from the center so as more or less to compensate the spacing to the mass balance weight in the leading edge of the control surface. See also Figs. 5.2-1 and 5.2-2.

6.1 Introduction

This Section describes the procedures for determining the empty mass (weight) and the empty mass (weight) moment of the sailplane. In addition, procedures for determining the Center of Gravity are provided.

A list of equipment fitted will be included in the most recent and currently valid aircraft inspection report.

As the C.G. position is of vital importance for safe flight, the limits laid down must on no account be exceeded.

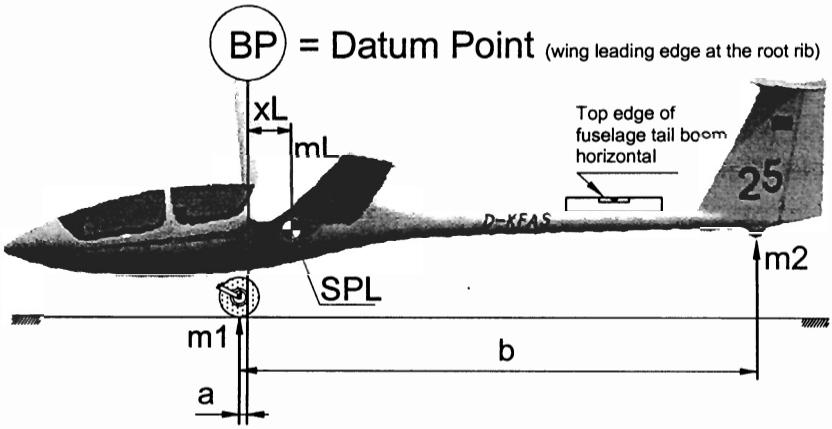
Comparing both span versions of the ASH 25, the 25-metre version is more critical with regard to the in flight C.G. position! The additional weight of the wingtip extension with winglet is right within the permissible in flight C.G. range and, therefore, does not change this beyond the limits.

It is especially important after repairs, refinishing and the fitting of additional equipment to ensure that the empty mass (weight) C.G. remains within permissible limits. If this cannot be proved by calculation, the aircraft must be re-weighed.

6.2 Weighing Procedure

The Datum (Reference) Point (German: **BezugsPunkt** = **BP**) for weighing and calculating the C.G. is the wing leading edge at the root rib.

For weighing the aircraft is supported so that the top edge of the tail boom is horizontal. The weighing is best done on two scales.



Formula:

$$x_L = \frac{m_2 * b}{m_L} - a \qquad \text{aft of datum (BP)}$$

$$m_L = m_1 + m_2$$

The aircraft must be prepared for weighing as follows:

1. Landing gear extended and flaps in flap setting 3
2. Flight instruments fitted and canopies closed
3. Seat cushions or equivalent in place
4. Aircraft log book and Flight Manual in place
5. Without trim ballast (battery) in fin, if supplied
6. Without removable trim weights in cockpit, if supplied
7. Without parachutes
8. Oxygen bottles removed
9. 25m span without the wing tip extensions fitted

15. The water ballast bags and valves must be checked for leaks and proper operation (see Section 2.6).

16. The wing bending frequency should be measured in the 25 m span version and compared with that shown in the currently valid inspection report. For this test the fuselage must be rigidly supported in two supports in order to obtain comparable values. For the positions of these supports, see Fig. 3.0-1 !

17. Compare equipment and instrumentation with that shown in the aircraft's equipment list.

18. After repairs or changes to equipment fitted, the empty mass (weight) and C.G. position should be re-determined by calculation or weighing, and recorded in the Mass and Balance Form.

19. Remove rudder and examine rudder cable pulley.

20. Check all control surface and flap gaps for correct sealing. It is important that the proper sealing of the gap under the elastic fairing strip is ensured by the Teflon tape. This is especially important at the lower wing surface and the top surface of the tailplane. Air flow through the flap or control surface gap can initiate flutter!

21. The elastic fairing strip at the upper and lower wing surface gaps and at the horizontal tailplane top surface must have a good, lightly tensioned seating on the surfaces of controls and flaps. Raised strip edges impair performance. Further details on points 20 and 21 are given in the Appendix of this manual, in Maintenance Instruction A.

7.1. Special Inspection Procedures

After Hard Landings

1. Check landing gear mountings at front main bulkhead !
2. Check landing gear trailing arms, as well as toggle strut, H and Z struts for distortion !
3. Are the rubber buffers in the L/G springing still serviceable ?
4. Examine spar fork and tongue for white areas !
5. Inspect wing mounting drag pins on fuselage !
6. Check drag spar tubes and bulkheads in the fuselage !
7. Re-establish wing bending frequency and compare with the value shown in the last inspection report ! If they differ by more than 5 %, contact Messrs. Schleicher ! For correct fuselage support positions see Fig.3.0-1.

After Groundloops

1. Inspect fuselage-to-fin junction and tailplane mountings !
2. Check wing mounting drag pins on fuselage !
3. Inspect drag spar tubes and bulkheads in fuselage !
4. Examine horizontal partition in fuselage (between front and rear main bulkhead) !

After Flying with Water Ballast

After de-rigging the aircraft, briefly raise the outboard ends of the wings and check whether water originating from the ballast bags accumulates behind the root ribs.

8. Lubrication Scheme

Ball Bearings

The grooved ball races used are permanently grease packed and sealed; no further lubrication is required.

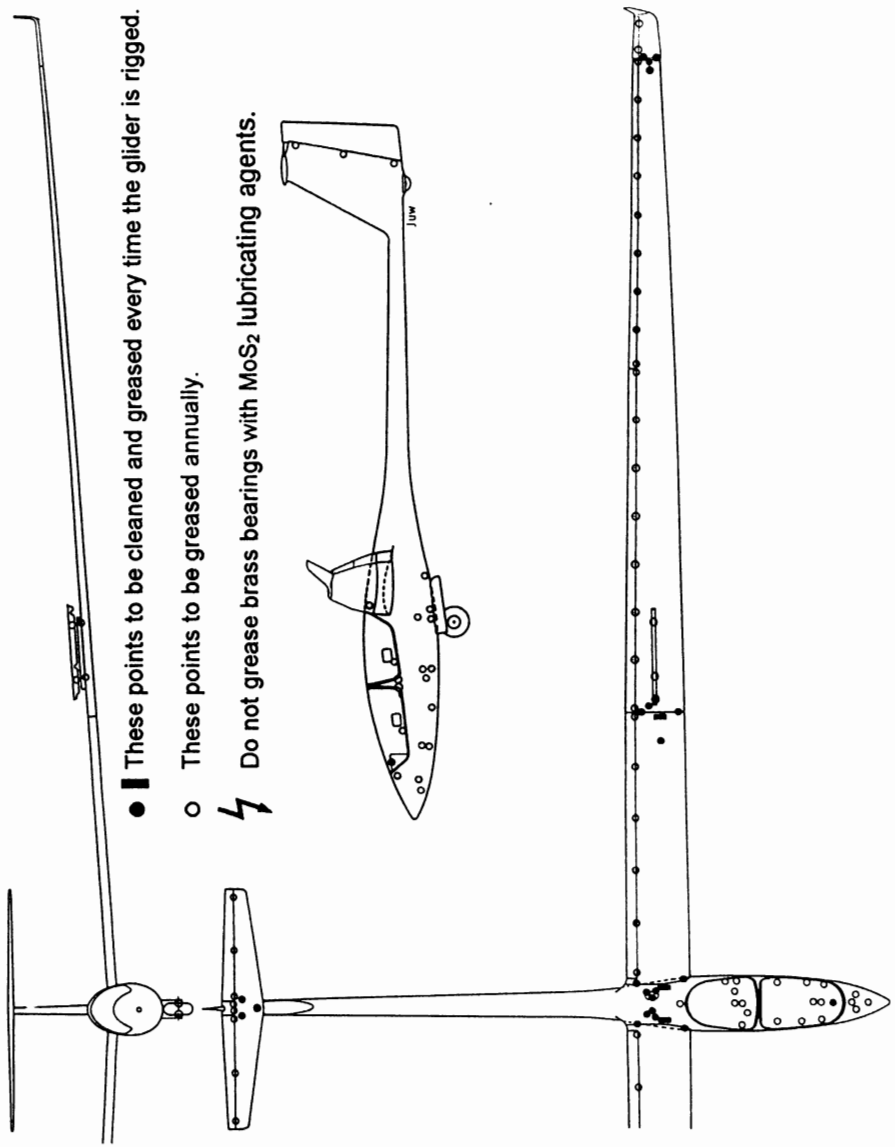
The 14 C 6 swivelling rose bearings in the pushrods and the dural bell cranks are pre-greased and protected by felt seals, and these also are maintenance-free over a long period.
The same applies to the ball bearings of the push rod guides.

The canopy locks, especially the front canopy jettison release, must be kept well greased.

Dirty tow release couplings are best cleaned with compressed air and paintbrush while repeatedly moving their mechanisms; they may then be re-lubricated with aerosol oil or similar.

Greases and oils based on MoS_2 are not suitable for bearings incorporating brass, bronze or copper parts, but are very good for steel/steel bearings and roller bearings.

Fig. 8.0-1 Lubrication Chart



16

Segelflugzeugbau A. Schleicher GmbH & Co. Poppenhausen

Model: ASH 25 Serial-No.:

DATA and LOADING PLACARD

	25 m		25,6 m	
	kg	lbs	kg	lbs
Empty Mass (Weight):				
Max. Mass (Weight):	750 kg	1654 lbs		
Min. Front Seat Load Solo:	kg	lbs		
Max. Front Seat Load:	kg	lbs		
Max. Rear Seat Load:	kg	lbs		
Max. Total Combined Seat Load:	kg	lbs		

MAXIMUM PERMISSIBLE SPEEDS:

Winch Launch W/L:	130 km/h	70 kts
Aerotow A/T:	180 km/h	97 kts
Operating Landing Gear:	180 km/h	97 kts
Maneuvering Speed:	180 km/h	97 kts

Weak Link for A/T and W/L: 750 to 900 daN / 1685 to 2023 lbs

Tire Pressure Main Wheel:	3,4 bis 3,6 bar	(48 to 51 psi)
Tail Wheel:	2,4 bis 2,6 bar	(34 to 37 psi)

17

Baggage compartment load **max. 15 kg** (33 lbs)

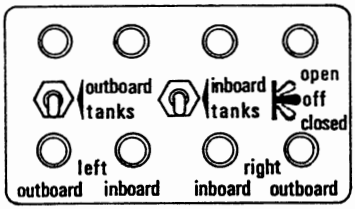
FILL OUTBOARD TANKS FIRST

18

These two placards are located on the inboard wing panels behind the water ballast filler openings

FILL OUTBOARD TANKS FIRST

(19)



(20)

(21)

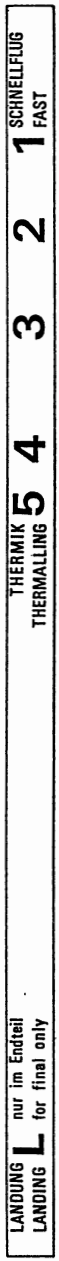
Pre-Flight Checks:

1. Control connections and rigging pins secured?
2. Controls checked for positive connections and full and free deflections?
3. (Control surface clearances at trailing edge min. 1,5 mm = 1/16 in !)
4. Parachute static line connected?
5. Check ballast / C of G !
6. Comply with Mass and Balance Form !
7. Water tank drain and vent openings unobstructed?

Pre-Take-Off Checks:

1. Parachute clipped on?
2. Seat Harness secure and tight?
3. Wheel locked down?
4. Airbrakes closed and locked?
5. Trim set for Take-Off?
6. Flaps set for Take-Off?
7. Altimeter set?
8. Tail dolly removed?
9. Check wind direction!
10. Close and lock canopies!

(22)



Dittel	FSG 60			
	FSG 60 M	10.911/72	-	-
Dittel	FSG 70	10.911/81	-	-
Dittel	FSG 71 M	10.911/81	-	-
Becker	AR 2008/25	10.911/48	-	-
Becker	AR 2009/25	10.911/48	-	-
Becker	AR 3201			
	AR 3201-1			
	AR 3201-3	10.911/76	-	-
	NAV 3301	10.922/78	-	-
Avionic				
Dittel	ATR 720 A			
	ATR 720 B			
	ATR 720 C	10.911/70	-	-

12.4 Special Tools

Supplied with the aircraft are:

a) Special Allen Key for rigging tailplane.
b) Airbrake actuating rod (for locking airbrake paddles during transport).
c) T-handle for operating wing/wing rigging pin.

Special tool not supplied:

d) Caliper Face Spanner - e.g: Gedore No.44/7" (for water ballast valves).

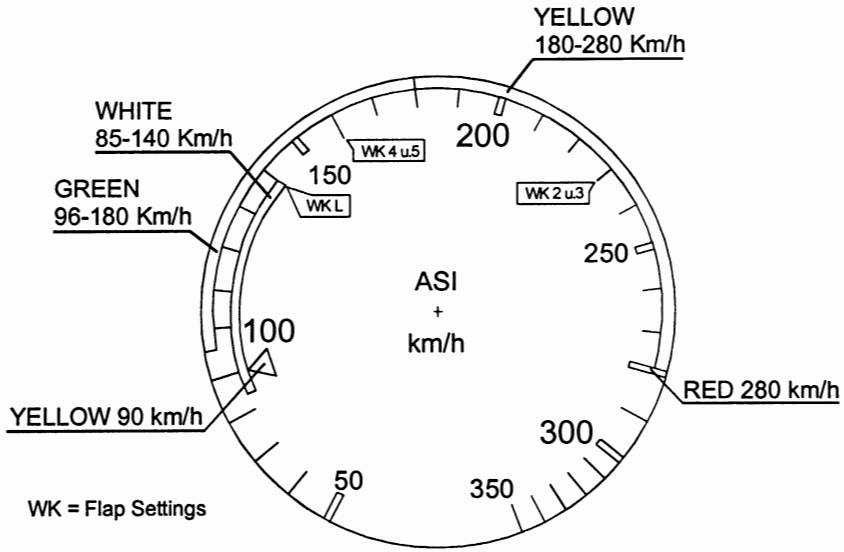
12.3 Supply Sources for Special Tools

Special tools under a) to c) can be obtained from Messrs. Schleicher only.
The caliper face spanner d) is available from all good tool shops, but can also be obtained from Messrs. Schleicher.

12.4 List of Maintenance Documents for Fitted Equipment

a) Operating Manual for the Tow Release Coupling, Series: Safety Tow Release "Europa G 72" and Safety Tow Release "Europa G 73", issue January 1989, LBA approved.
For above tow release couplings: manufacturer TOST Flugzeuggerätebau Munich.

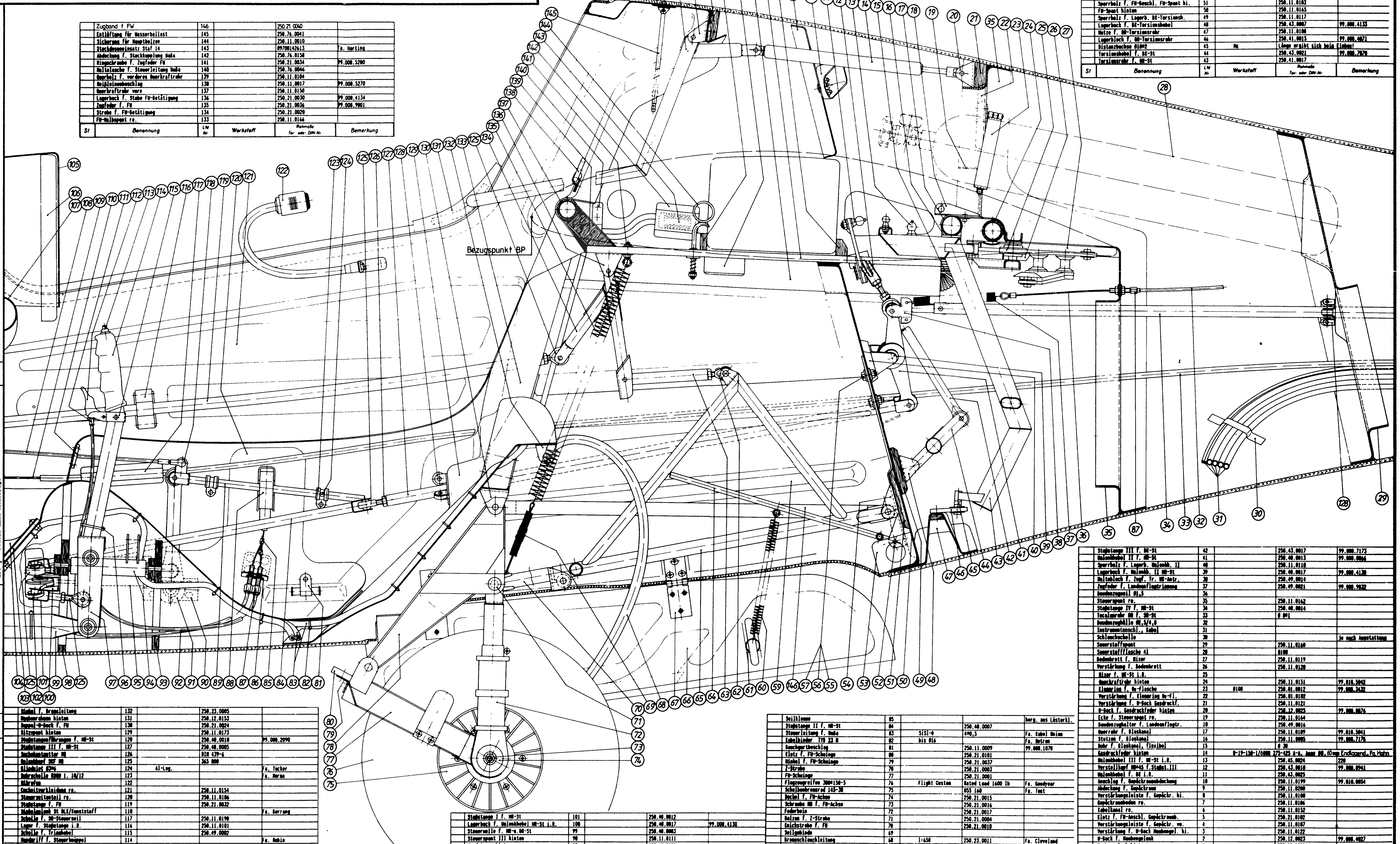
12.5 Air Speed Indicator Markings



ASH 25 Maintenance Manual

St	Benennung	Lfd Nr	Werkstoff	Rohmaße Teil- oder DIN-Nr	Bemerkung
	Zugband f FW	146		250.21.0040	
	Entlüftung für Wasserballast	145		250.76.0041	
	Sicherung für Hauptbolzen	144		250.11.0010	
	Steckdoseneinsatz Staf 14	143		09700142613	Fa. Harting
	Abdeckung f. Steckkupplung Waßa	142		250.76.0158	
	Ringschraube f. Zugfeder FW	141		250.21.0034	99.000.5200
	Haltelasche f. Steuerleitung Waßa	140		250.76.0046	
	Querholz f. vorderes Querkraftrohr	139		250.11.0104	
	Reißleinenbeschlag	138		250.11.0017	99.000.5270
	Querkraftrohr vorn	137		250.11.0150	
	Lagerbock f. Strebe FW-Betätigung	136		250.21.0030	99.000.4134
	Zugfeder f. FW	135		250.21.0036	99.000.9001
	Strebe f. FW-Betätigung	134		250.21.0020	
	FW-Halbspant re.	133		250.11.0166	

St	Benennung	Lfd Nr	Werkstoff	Rohmaße Teil- oder DIN-Nr	Bemerkung
	Sicherungsmutter MM 6	55		DIN 980-6	
	FW-Beschlag hinten	54		250.21.0023	
	Anschlag f. Zuggestänge FW-Kl.	53		250.21.0100	
	U-Bock f. Zuggestänge	52		250.21.0027	99.000.1020
	Sperrholz f. FW-Beschl. FW-Spant hi.	51		250.11.0103	
	FW-Spant hinten	50		250.11.0165	
	Sperrholz f. Lagerb. BK-Torsionsh.	49		250.11.0117	
	Lagerbock f. BK-Torsionshebel	48		250.43.0007	99.000.4133
	Hutze f. QR-Torsionsrohr	47		250.11.0100	
	Lagerblech f. QR-Torsionsrohr	46		250.41.0015	99.000.4071
	Distanzbuchse Ø10*2	45	Ms	Länge ergibt sich beim Einbau!	
	Torsionshebel f. BK-St	44		250.43.0021	99.000.7070
	Torsionsrohr f. QR-St	43		250.41.0017	



St	Benennung	Lfd Nr	Werkstoff	Rohmaße Teil- oder DIN-Nr	Bemerkung
	Winkel f. Bremsleitung	132		250.23.0005	
	Haubenrahmen hinten	131		250.12.0153	
	Doppel-U-Bock f. FW	130		250.21.0024	
	Sitzspant hinten	129		250.11.0173	
	Stoßstangenführungen f. HR-St	128		250.40.0018	99.000.2090
	Stoßstange III f. HR-St	127		250.40.0005	
	Sechskantmutter M8	126		DIN 439-6	
	Gelenkkopf SKF M8	125		365 000	
	Blindniet Ø3*6	124	Al-Leg.		Fa. Tucker
	Rohrschelle RSGU 1. 10/12	123			Fa. Norma
	Mikrofon	122			
	Cockpitverkleidung re.	121		250.11.0154	
	Steuerseitenteil re.	120		250.11.0106	
	Stoßstange f. FW	119		250.21.0032	
	Winkelgelenk St DLE/Kunststoff	118			Fa. Berrang
	Schelle f. SR-Steuerseil	117		250.11.0190	
	Lager f. Stoßstange i.R.	116		250.11.0101	
	Schelle f. Trimmhebel	115		250.49.0002	
	Handgriff f. Steuerknüppel	114			Fa. Robin
	Sendetaste	113			
	Trimmhebel(Druckpressionsh.)	112	P 00 927 150	02 03 000	Fa. Herkules
	Blechhülse f. Bowdenzug	111		Ø5/5,8	
	Führung f. Gestänge Trimmanzeige	110		250.49.0101	
	Flachkopfniet Ø3,2	109		LN 9374	
	Gestänge f. Trimmanzeige	108		250.49.0011	
	Kombiträger Unterteil	107		250.11.0104	
	Instrumentenbrett hinten	106		250.11.0100	
	Kombiträger Oberteil	105		250.11.0103	
	Abdeckung f. HR-Schwinghebel	104		250.11.0193	
	Abdeckung f. Sitzträger	103		250.11.0114	
	Schwinghebel f. HR-St	102		250.40.0006	

St	Benennung	Lfd Nr	Werkstoff	Rohmaße Teil- oder DIN-Nr	Bemerkung
	Stoßstange I f. HR-St	101		250.40.0012	
	Lagerbock f. Umlenkhebel HR-St i.R.	100		250.40.0017	99.000.4130
	Steuerwelle f. HR-u.QR-St	99		250.40.0003	
	Steuerspant III hinten	98		250.11.0111	
	Handsteuer hinten	97		250.40.0000	
	Kabelbinder TYB 24 M	96	bis Ø32		Fa. Retron
	Trimmfeder komplett	95		250.49.1001	
	Kardangelenk hinten	94		250.41.0001	
	Steuerspant IV hinten	93		250.11.0112	
	Bowdenzug f. Trimmung	92		Ø1,5 (Hülle Ø4,0)	
	Umlenkhebel f. Trimmung	91		250.49.0001	
	Lagerbock f. Trimmung	90		250.49.0003	
	Klemmstange f. Trimmung	89		250.49.0004	
	Arretierung f. Trimmung	88		250.49.0006	99.000.0025
	Stellschraube M6*30	87	St		
	Bowdenzuglager f. Trimmung	86		250.49.0005	

St	Benennung	Lfd Nr	Werkstoff	Rohmaße Teil- oder DIN-Nr	Bemerkung
	Seilklemme	85			herg. aus Lüsterkl.
	Stoßstange II f. HR-St	84		250.40.0007	
	Steuerleitung f. Waßa	83	SiSl-0	4Ø0,5	Fa. Kabel Union
	Kabelbinder TYB 23 M	82	bis Ø16		Fa. Retron
	Bauchgurtbeschlag	81		250.11.0009	99.000.1070
	Klotz f. FW-Schwinge	80		250.21.0101	
	Winkel f. FW-Schwinge	79		250.21.0037	
	Z-Strebe	78		250.21.0003	
	FW-Schwinge	77		250.21.0001	
	Flugzeugreifen 300*150-5	76	Flight Custom	Rated Load 1600 lb	Fa. Goodyear
	Scheibenbremsrad 145-30	75		055 160	Fa. Tost
	Deckel f. FW-Achse	74		250.21.0015	
	Schraube M8 f. FW-Achse	73		250.21.0016	
	Federbein	72		250.21.0017	
	Bolzen f. Z-Strebe	71		250.21.0004	
	Knickstrebe f. FW	70		250.21.0010	
	Seilgebinde	69			
	Bremsschlauchleitung	68	1:650	250.23.0011	Fa. Cleveland
	Scharnier f. FW-Klappen	67	Stanley	9533½ 4"	Fa. Barthel
	FW-Klappe re.	66		250.21.0150	
	H-Strebe	65		250.21.0007	
	Zuggestänge f. FW-Klappen	64		250.21.0025	
	Knickstrebe f. FW-Betätigung	63		250.21.0021	
	Gelenkkopf SMXC 8	62			Fa. Hirschmann
	Ring f. Zugfeder FW-Klappe	61			
	Zugfeder f. FW-Klappe	60		250.21.0038	99.000.9831
	Seitenverkleidung FW re.	59		250.11.0174	
		58			
	Sechskantschraube M6 * 20	57		DIN 931 8.8	
	Scheibe Ø6/19-2	56	St		

St	Benennung	Lfd Nr	Werkstoff	Rohmaße Teil- oder DIN-Nr	Bemerkung
	Stoßstange III f. BK-St	42		250.43.0017	99.000.7173
	Umlenkhebel II f. HR-St	41		250.40.0013	99.000.0066
	Sperrholz f. Lagerb. Umlenkh. II	40		250.11.0110	
	Lagerbock f. Umlenkh. II HR-St	39		250.40.0017	99.000.4130
	Halteblech f. Zugf. Tr. WK-Antr.	38		250.49.0014	
	Zugfeder f. Landeklappentrimmung	37		250.49.0021	99.000.9032
	Bowdenzugseil Ø1,5	36			
	Steuerspant re.	35		250.11.0162	
	Stoßstange IV f. HR-St	34		250.40.0014	
	Tecalanrohr 80 f. SR-St	33		8 Ø1	
	Bowdenzughülle Ø2,5/4,8	32			
	Instrumentenanschl., Kabel	31			
	Schlauchschelle	30			je nach Ausstattung
	Sauerstoffspant	29		250.11.0160	
	Sauerstoffflasche 4l	28		Ø100	
	Bodenbrett f. Mixer	27		250.11.0119	
	Verstärkung f. Bodenbrett	26		250.11.0120	
	Mixer f. WK-St i.R.	25			
	Querkraftrohr hinten	24		250.11.0151	99.010.5042
	Klemmring f. O2-Flasche	23	Ø100	250.01.0012	99.000.3432
	Verstärkung f. Klemmring O2-Fl.	22		250.01.0102	
	Verstärkung f. U-Bock Gasdruckf.	21		250.11.0121	
	U-Bock f. Gasdruckfeder hinten	20		250.12.0025	99.000.0076
	Ecke f. Steuerspant re.	19		250.11.0164	
	Bowdenzughalter f. Landeklapptr.	18		250.49.0016	
	Querrohr f. Blaskanal	17		250.11.0109	99.010.5041
	Stutzen f. Blaskanal	16		250.11.0005	99.000.7176
	Rohr f. Blaskanal, flexibel	15		Ø 30	
	Gasdruckfeder hinten	14	0-19-150-1/600N 275-425 A-A, Ausw 00,60mm Endlagend. Fa. Hahn		
	Umlenkhebel III f. WK-St i.R.	13		250.45.0024	220
	Verstellkopf M8*45 f. Stoßst. III	12		250.43.0010	99.000.0941
	Umlenkhebel f. BK i.R.	11		250.43.0025	
	Anschlag f. Gepäckraumabdeckung	10		250.11.0199	99.010.0054
	Abdeckung f. Gepäckraum	9		250.11.0200	
	Verstärkungsleiste f. Gepäckr. hi.	8		250.11.0100	
	Gepäckraumboden re.	7		250.11.0106	
	Kabelkanal re.	6		250.11.0152	
	Klotz f. FW-Anschl. Gepäckraumb.	5		250.21.0102	
	Verstärkungsleiste f. Gepäckr. vo.	4		250.11.0107	
	Verstärkung f. U-Bock Haubengel. hi.	3		250.11.0122	
	U-Bock f. Haubengelenk	2		250.12.0023	99.000.4027
	Haubengelenk hinten	1		250.12.0020	

Bearb.	10.04.87	M. Münch	Typ: ASH 25	Benennung: Rumpf - Mittelteil rechts	Maßst. 1:2,5
A. Schleicher GmbH & Co Segelflugzeugbau 6416 Poppenhausen			Zeichnungsnummer: 250.11.S6	L-364	Blatt

No.	Description	No.	Description
1	Rear Canopy Hinge	74	Hub Cap
2	Canopy Hinge U-Bracket	75	Brake Disc 145-30
3	Rear Canopy Hinge Bracket Re-Inforcement	76	Aircraft Tyre 300 x 150-5
4	Front Re-Inforcement Blocking for Baggage Area	77	Trailing Arm
5	Block for Landing Gear Stop - Baggage Floor	78	Z-Strut
6	Cable Duct, right	79	Angle Bracket for Trailing Arm
7	Baggage Area Floor, right	80	Trailing Arm Mounting Block
8	Rear Re-Inforcement Blocking for Baggage Area	81	Lap Strap Anchorage
9	Baggage Area Partition	82	Cable Tie TYB 23 M
10	Support Bkt. for Baggage Area Partition	83	Water Ballast Control Leads
11	Dive Brake Bellcrank in fslg.	84	Elevator Linkage Push Rod II
12	Adjustable Rod End M8 for Brake Push Rod III	85	Cable Ferrule
13	Bellcrank III for Flap Linkage in fslg.	86	Bowden Cable Seating for Trimmer
14	Rear Canopy Gas Strut	87	Adjuster Nut M6 x 30
15	Flexible Hose for Turbulator Air Duct	88	Trimmer Locking Brake
16	Connecting Union for Turbulator Air Duct	89	Trimmer Friction Rod
17	Lateral Tube for Turbulator Air Duct	90	Trimmer Linkage Mounting Block
19	Re-inforcement angle for Control Bulkhead, left	91	Trimmer Linkage Bellcrank
20	Rear Canopy Gas Strut U-Bracket	92	Trimmer Control Bowden Cable
21	Re-Inforcemt. for Gas Strut U-Bracket	93	Rear Control Column Bulkhead IV
22	Re-Inforcemt. for Oxygen Bottle Ring Clamp	94	Rear Universal Joint
23	Oxygen Bottle Ring Clamp	95	Trimmer Spring Assy. complete
24	Rear Drag Spar Tube	96	Cable Tie TYB 24 M
25	Flap Linkage Mixer in fslg.	97	Rear Control Column
26	Re-Inforcemt. for Mixer Mounting Board	98	Rear Control Column Bulkhead III
27	Mixer Mounting Board	99	Elevator & Aileron Control Torsion Tube
28	Oxygen Bottle - 4 l.	100	Mounting Bracket for Elevator Bellcrank in fslg.
29	Oxygen Bottle Bulkhead	101	Elevator Linkage Push Rod I
30	Tube Clip	102	Elevator Bellcrank
31	Instrument tubes, electr.leads	103	Seat Mounting Cover
32	Bowden Cable Sheath 2.5 x 4.8 mm	104	Elevator Bellcrank Cowling
33	Tecalan Tube 80 for Rudder Cable	105	Instrument Panel Cowl - upper part
34	Elevator Linkage Push Rod IV	106	Rear Seat Instrument Panel
35	Controls Bulkhead, right	107	Instrument Panel Cowl - upper part
36	Bowden Cable 1.5 mm	108	Trimmer Indicator Rod Assembly
37	Tension Spring for Landing Flap Trimmer Setting	109	Aircraft Cable 3.2 mm dia.
38	Anchor Plate for Landing Flap Trimmer Drive Spring	110	Guide for Trimmer Indicator Rod Assy.
39	Seating Bracket for Elevator Bellcrank II	111	Bowden Cable Ferrule
40	Ply Block for Bellcrank II Bracket	112	Trimmer Trigger (Spring Release)
41	Elevator Linkage Bellcrank	113	Transmit Button
42	Dive Brake Linkage Push Rod III	114	Control Column Handle
43	Aileron Linkage Torsion Tube	115	Trimmer Trigger Bracket
44	Dive Brake Swivel Lever Assy.	116	Bearing for Push Rod in fslg.
45	Spacer Sleeve 10 x 2 mm dia.	117	Guide Ferrule for Rudder Cable
46	Mounting Plate for Aileron Torsion Tube	118	Plastic Hinge Joint
47	Fairing for Aileron Torsion Tube	119	Landing Gear Linkage Push Rod
48	Seating Bracket for Dive Brake Swivel Lever Assy.	120	Controls Side Cover - right
49	Ply Block for Brake Swivel Lever Assy.Bkt.	121	Cockpit Skin - right
50	Rear Wheelbox Bulkhead	122	Microphone
51	Ply Block for Landing Gear Fitting - Rear L/G Bulkhead	123	Tube Guide Clip
52	U-Bkt. for Retracting Rod Assembly	124	Hollow Rivet 3 x 6 mm
53	L/G Door Retracting Rod Assy. Stop	125	Rod End SKF M8
54	Rear Landing Gear Fitting	126	Hexagon Nut M8
55	Locking Nut MN 6	127	Elevator Linkage Push Rod III
56	Washer 6/19-2 mm	128	Roller Guide for Elevator Linkage Push Rod
57	Hexagon Bolt M6 x 20mm	129	Rear Seat Bulkhead
58	vacant	130	Double U-Bracket for Landing Gear
59	Wheel Box Cowl - right	131	Rear Canopy Frame
60	Landing Gear Door Retracting Spring	132	Angle Bracket - Brake Line Support
61	Landing Gear Door Retracting Spring Anchor Ring	133	Landing Gear Semi-Bulkhead - right
62	Rod End SMXC 8	134	Landing Gear Retracting Strut
63	Pivot Strut for L/G Linkage	135	Landing Gear Retracting Spring
64	Landing Gear Door Retracting Rod Assy.	136	Landing Gear Retracting Strut Bearing Bracket
65	H-Strut	137	Front Drag Spar Tube
66	Landing Gear Door - right	138	Static Line Anchorage
67	Landing Gear Door Hinge	139	Cross Beam for Front Drag Spar Tube
68	Brake Line	140	Support Strap for Water Ballast Control Leads
69	Nylon Cord Coil	141	Eye Bolt for Landing Gear Retracting Spring
70	Landing Gear Pivot Strut	142	Cover for Plug-&-Socket Connector - Water Ballast leads
71	Z Strut Bolt	143	Socket Connector Inset Staf 14
72	Spring Strut	144	Main Rigging Pin Safety Clip
73	Landing Gear Axle Bolt M 8	145	Water Ballast Vent
		146	Landing Gear Retracting Stop

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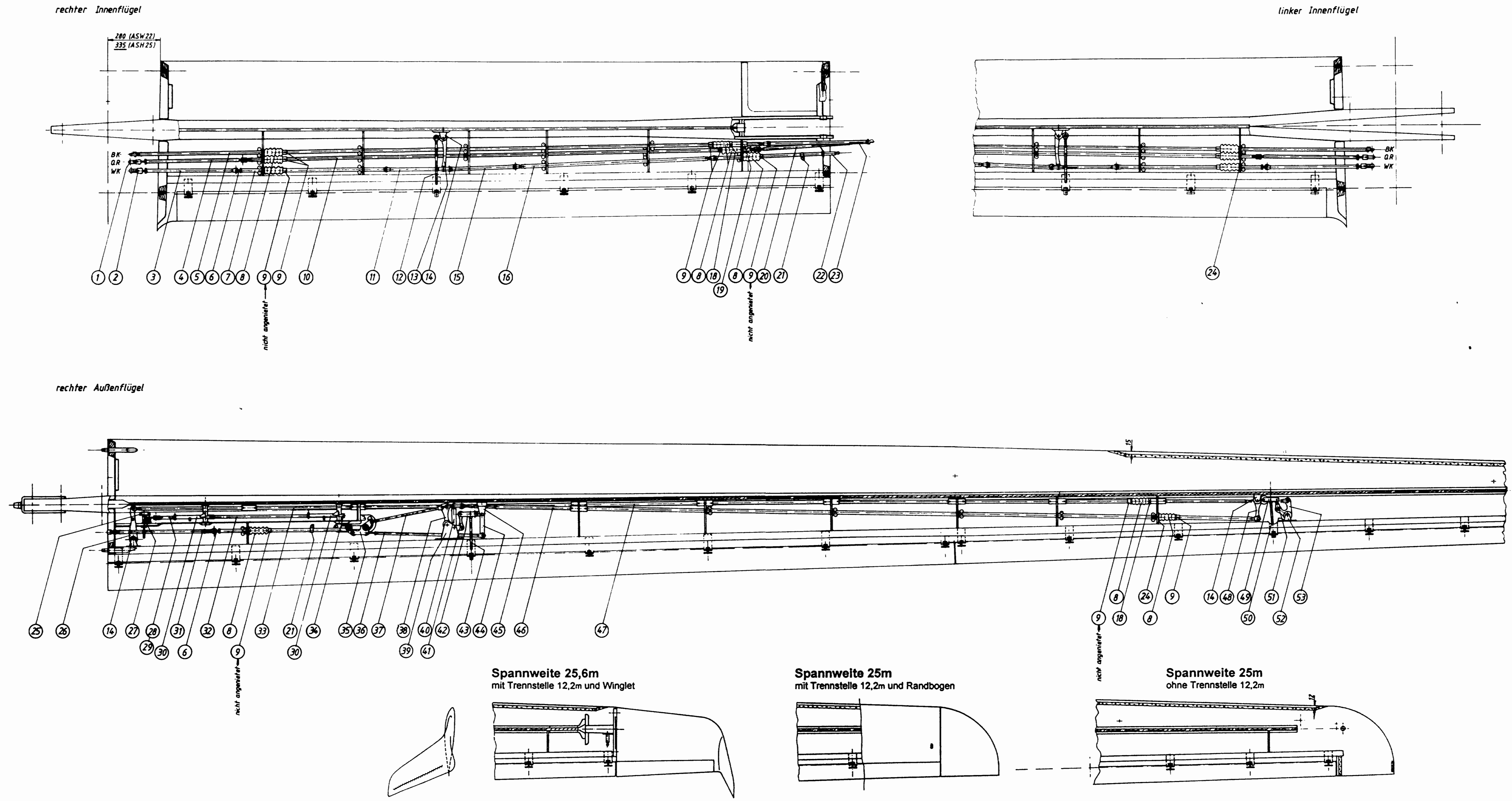

1	Adjustable Rod End for Aileron Linkage	28	Dive Brake Linkage Push Rod VI
2	Adjustable Rod End for Flap Linkage	29	Rod End Bearing Head Hirschmann SMPC6
3	Flap Linkage Push Rod IV	30	Brake Paddle Actuator
4	Aileron Linkage Push Rod IV	31	Flap Linkage Push Rod IX
5	Dive Brake Linkage Push Rod IV	32	Dive Brake Linkage Push Rod VII
6	Rod End SKF 365800	33	Aileron Linkage Push Rod VII
7	Flap Linkage Push Rod V	34	Adjustable Rod End M8
8	Concertina Sealing Bellows V6-13	35	Mixer for Flap and Aileron Linkage
9	Bellows Collar I (NOT rivetted on Flap Push Rod V)	36	Flap Linkage Push Rod XI
10	Aileron Linkage Push Rod V	37	Flap Linkage Push Rod XII
11	Flap Linkage Push Rod Va	38	Flap Linkage Push Rod IV
12	Flap Actuator Linkage Push Rod XIV	39	U-Bracket for Aileron Bell Crank Bearing
13	Flap Actuator Linkage Bell Crank III	40	Aileron Bell Crank II
14	Angled Bearing Bracket	41	Aileron Push Rod IX
15	Flap Linkage Push Rod VI	42	Aileron Link I
16	Flap Linkage Push Rod VII	43	Aileron Push Rod X
17	(Blank)	44	Flap Linkage Bell Crank I
18	Bellows Collar III	45	U-Bracket for Flap Bell Crank
19	Push Rod Guide Bearing	46	Flap Linkage Push Rod XIII
20	Aileron Linkage Push Rod VI	47	Aileron Linkage Push Rod VIII
21	Flap Linkage Stop Clip	48	Flap Linkage Bell Crank II
22	Flap Linkage Push Rod VIII	49	Aileron Link II
23	Dive Brake Linkage Push Rod V	50	Aileron Actuator Push Rod XII
24	Bellows Fixture II	51	Aileron Linkage Push Rod XI
25	Angle Bracket for Dive Brake Bell Crank	52	Bearing Bracket
26	Aileron Linkage Step-Up Crank	53	Aileron Bell Crank III
27	Dive Brake Bell Crank		

St	Benennung	Lfd Nr	Werkstoff	Rohmaße Teil oder DIN-Nr	Bemerkung
2	Umlenkhebel III f. QR	53		250-221. 41/42. 0028	
2	Lagerbock	52		250-221. 51. 0050	99 000 4134
2	Stoßstange XI f QR	51		250-221. 41. 0026	
2	Stoßstange XII f. QR-Antrieb	50		250-221. 41. 0014	
4	Lasche II f QR	49		250-221. 41. 0027	
2	Umlenkhebel II f WK	48		220. 45/46. 0002	
2	Stoßstange VIII f. QR	47		250-221. 41. 0023	
2	Stoßstange XIII f WK	46		250-221. 45. 0050	
2	U-Bock f WK-Umlenkhebel	45		250-221. 51. 0025	
2	Umlenkhebel I f WK	44		250-221. 45/46. 0001	
2	Stoßstange X f QR-Antrieb	43		220. 41 0011	
4	Lasche I f QR-Antrieb	42		220. 41. 0010	
2	Stoßstange IX f QR	41		220. 41. 0009	
2	Umlenkhebel II f QR	40		220. 41/42. 0007	
2	U-Bock f QR-Umlenkhebel	39		220. 51. 0027	
2	Umlenkhebel IV f WK	38		220. 45.0020	
2	Stoßstange XII f. WK	37		220. 45 0049	
2	Stoßstange XI f WK	36		220. 45. 0048	

St	Benennung	Lfd Nr	Werkstoff	Rohmaße Teil oder DIN-Nr	Bemerkung
2	Mixer f. WK-u. QR-St.	35		220. 45. 1001	
2	Verstellkopf M8	34		220 43 0010	99 000 8941
2	Stoßstange VII f. QR	33		220. 41 0022	
2	Stoßstange VII f. BK	32		220. 43. 0009	
2	Stoßstange IX f. WK	31		220. 45. 0047	
4	Hebel f. BK	30		220. 43/44. 0002	
2	Gelenkkopf Hirschmann SMCP6	29		SE0461/Ø6-9 M8×34	verdeckt
2	Stoßstange VI f. BK	28		220. 43. 0008	
2	Kniehebel f BK	27		220 43/44. 0001	
2	Differenzierhebel f QR	26		220 41/42. 0016	
2	Haltewinkel f BK-Kniehebel	25		220 43/44. 00 13	
14	Faltenbalgbeschlag II	24		220. 51 0049	99 304 0007
2	Stoßstange V f BK	23		220. 43 0028	
2	Stoßstange VIII f WK	22		220 45 0045	
4	Anschlagschelle f. WK	21		220. 45. 0052	99 000 0140
2	Stoßstange VI f. QR	20		220. 41 0021	
20	Stoßstangenlager	19		250-221 51 0045	
4	Faltenbalgbeschlag III	18		220 51 0046	
		17			
2	Stoßstange VII f WK	16		220. 45. 0044	
2	Stoßstange VI f WK	15		220 45. 0043	

St	Benennung	Lfd Nr	Werkstoff	Rohmaße DIN-Nr	Bemerkung
	Lagerbock, schräg	14		220. 51. 0048	99 000 4132
2	Umlenkhebel f. WK-Antrieb	13		220. 45/46. 0010	
2	Stoßstange XIV f. WK-Antrieb	12		220. 45. 0019	
2	Stoßstange Va f. WK	11		220. 45. 0051	
2	Stoßstange V f. QR	10		220. 41. 00 20	
18	Faltenbalgbeschlag I	9		220. 51 0055	99 000 2140
18	Faltenbalg V6-13	8	SIMRIT auf Bas. CR		
2	Stoßstange V f. WK	7		220. 45. 0042	
4	Gelenkkopf SKF 365800	6		Ø6-14/M8×40	
2	Stoßstange IV f. BK	5		220 43. 0026	
2	Stoßstange IV f QR	4		220. 41. 0019	
2	Stoßstange IV f. WK	3		220. 45. 0041	
2	Gelenkkopf f WK-St verstellbar	2		220. 45 0046	99 000. 2350
2	Gelenkkopf f. QR-St verstellbar	1		220 41 0024	99 000. 2351

1085	Datum	Name	Typ	Benennung	Maßstab
Bearb	22.01.87	Juw	ASW22B/BE ASH 25	Flügel-Übersicht BK- QR- u. WK-Steuerung	1. 10
Geprü					
Norm					
A Schleicher Segelflugzeugbau 6416 Poppenhausen			Zeichnungsnummer L351/ 364 221-250.51/52. S 3		Blatt
Zust.	Änderung	Datum Na	Urspr	Ers f	Ers d

Rev.no./Date	Sig.	Author	Date
TN 11 March 94	Heide	Heide	Nov. 87

Fig. 2.2-6