Note: If refuelling is done out of a can and it is not sure that there is no dirt nor water residues in the can, the fuel must be filtered by placing a piece of leather into the funnel.

7.9 Electrical System

Refer also to Fig.7.9-1 and 7.9-2 at the end of this Section.

(1) On-board Electric Circuit

The on-board electric circuit is normally also supplied by the engine batteries. As an additional power supply, one or several 12 Volt batteries can be fitted in the wing leading edge area behind the root rib. See also Fig.7.9-1.

Every electric consumer is protected with an own fuse. A fuse is also fitted closely to the batteries, which are mounted in the wing leading edge.

(2) Power-Plant Electric Circuit

An own independent electrical circuit supplies the power-plant. This is fused through the Power-Plant Main Switch. Refer also to Fig. 7.9-2.

The screw jack motor for extending and retracting the propeller is supplied from the engine batteries. These are fitted below the front pilot seat. During powered flight these batteries are charged.

It is depending on the state of charge of these batteries whether the propeller can be extended or retracted.

7.10 Pitot and Static Pressure Systems

Refer also to Fig.7.10-1 at the end of this Section.

The Pitot pressure for the ASI system is obtained from the Pitot tube in the fuselage nose, static pressure from the static ports at either side of the fuselage tail boom.

The aircraft comes as standard with a TE-probe in the fin (and the respective adaptor). During powered flight the pressure signals from this probe are unusable.

Ensure that the fin probe is fully pushed home in its seating. The inner end of the probe should from time to time be lightly lubricated with Vaseline or a similar lubricant, in order to save the O-ring gaskets from wear.

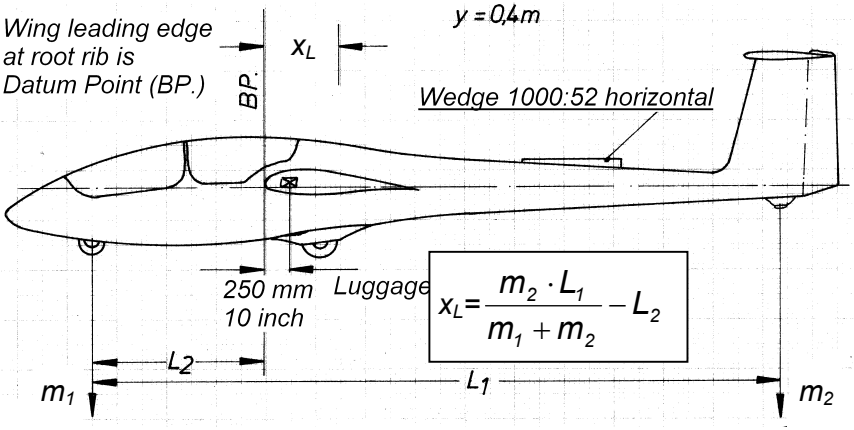
7.11 Miscellaneous Equipment

(1) Removable Trim Ballast as Compensation for Reduced Pilot Weight

As an optional extra the ASK 21 Mi can be equipped with trim ballast whereby the single lead trim plates are fixed about below the knees of the front pilot. In this location, for example a 3 kg (6.6 lb) lead trim plate has the effect of a pilot mass (weight) of 3.75 kg (8.27 lb) in the front seat.

An additional attachment for trim ballast can be installed on the nose bulkhead (**in front of the pedals of the front pilot**). Up to 12 trim plates of 1kg (2.2 lbs) mass can be mounted there. One trim plate of 1kg equals a pilot mass of 1,7kg (3.74lbs) on the front seat.

Fig. 6.2-1 Determining Empty Mass C.G.



Empty mass C.G. x_L:

$$x_L = \frac{m_2 \cdot L_1}{m_1 + m_2} - L_2$$

Empty mass m_L:

$$m_L = m_1 + m_2$$

The aircraft must be prepared for weighing as follows:

1. flight instruments fitted and canopies closed
2. seat backrests, seat cushions or equivalent in place
3. with aircraft log book and Flight Manual in place
4. **without removable trim ballast** in the front cockpit
5. without parachutes
6. without oxygen bottle (if supplied)

If the aircraft is operated with the engine:

7. engine installed and retracted
8. with unusable fuel

6.3 Weighing Report

The weighing results must be stated in a weighing report which includes a list of equipment fitted at the time, and which must be filed in the aircraft service record map.

If the aircraft is equipped with the optional spin ballast mount:

With every new weighing of the aircraft, an updated spin ballast-table must be requested from the manufacturer. For this purpose a copy of the updated weighing report with a list of the equipment fitted must be sent to the manufacturer. The report must be signed and stamped by a licensed inspector. The new spin ballast-table must be inserted into the Flight Manual as page 9.A.4.

Note: *For operation with removed engine a separate spin ballast table is required and must be requested from the manufacturer, see Flight Manual Section 9.B*

6.4 Empty Mass and Empty Mass Moment

The empty mass and the empty mass moment must be established by weighing as described under 6.2, or may be taken from the currently valid inspection report.

By means of the following diagram Fig. 6.4-1 it can be determined which maximum or minimum cockpit loads are possible.

The minimum load is valid for the pilot in the front seat.

The maximum cockpit load may be lower than the one stated in the diagram, because the weight of the non-lifting parts must not exceed 510 kg (1124 lb) – this limit has not been taken into account in the diagram.

The diagram applies to the configuration in which the aircraft was weighed, i.e. only with the non-usable fuel amount.

Where necessary the aircraft can be trimmed by making a change to the permanently fixed ballast in the fuselage nose.

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Pre Flight Check

1. Main pins secured ?
2. Check control connection !
   Quick-release connectors secured ?
3. Check cockpit for foreign objects !
4. Check tow release hooks ! Releasa test !
5. Check controls for positive connections,
   free movement and permissible play !
6. Check pitot tube in the nose !
7. Tire pressure checked ?
8. Any visual damage to fuselage, wing and tail ?
9. Rear wing attachment pins secured ?
10. Static pressure ports dry and unobstructed ?
11. Check TE probe, firmly seated ?
12. Check elevator and rudder !
13. Observe mass and balance data, CG position !
14. Check fuel contents ?
15. Engine checked as per the manual ?

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Pre Take-off Check:

1. Tail dolly removed ?
2. Parachute fastened correctly ?
3. Automatic parachute rip-chord connected?
4. Safety harness tight (particularly lap belt) ?
5. Controls easy to operate ?
6. Airbrakes retracted and locked ?
7. Trim set in take-off position ?
8. Altimeter adjusted ?
9. Radio operational and transmission tested ?
10. Check wind direction !
11. Both canopies closed and locked ?
12. Action for aborted take-off in mind ?

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Prior to take-off, check weight of the trim plates and their secure fixing

1 Plate (3kg; 6,6lbs) **beside the nose tow release** equals a front pilot mass of 3,75 kg (8,26lbs)

1 Plate (1kg; 2,2lbs) **in front of the pedals** equals a front pilot mass of 1,7 kg (3,74 lbs)

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Approved Aerobatic Manoeuvres

Aerobatics are only approved with retracted engine

only without spin ballast:

Looping (positive)
Lazy Eight
Steep Turn

with or without spin ballast:

Trudeln

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V_{NE} Speed Limit for high Altitude	
Altitude msl [m]	V_{max} IAS [km/h]
0 - 2000	280
< 3000	267
< 4000	255
< 5000	239
< 6000	226

ASK 21 Mi

V_{NE} Speed Limit for high Altitude	
Altitude msl [ft]	V_{max} IAS [kts]
0 - 6500	151
< 8000	147
< 12000	139
< 16000	130
< 20000	121

ASK 21 Mi

V_{NE} Speed Limit for high Altitude	
Altitude msl [ft]	V_{max} IAS [mph]
0 - 6500	174
< 8000	170
< 12000	160
< 16000	150
< 20000	140

ASK 21 Mi

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Baggage compartment **max. 10 kg 22 lbs**

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Deviation-Table			
for	steer	for	steer
0		180	
30		210	
60		240	
90		270	
120		300	
150		330	
Date:			