This manual is to be kept on board at all times.

Owner: _________________________
Registration no: _________________________
Serial no: _________________________

If departures to SF 25 C — Falke:

max. weight 580 kg / 610 kg / 650 / 690 kg

The empty weight and Centre of Gravity should be determined from the above formula for X

\[ F = W - M \times \frac{X}{F} \]

where \( F \) = Weight of fuel = Fuel contents in litres multiplied by 0.73 kg/Ltr

\( W \) = Weight of empty tank

\( M \) = Moment arm Fuel = 291 cm (with 55 l tank)

\( X \) = Moment arm, Baggage = 245 cm

\( P \) = Moment arm of Pilot = 188 cm

\( L \) = Moment arm, Undercarriage axles = 285 cm

\( X \) = Moment arm, Undercarriage wheels (if fitted)

\( X \) = Distance of the empty weight and Centre of Gravity from the datum plane.

\( W \) = Weight of Fuel = Fuel contents in litres multiplied by 0.73 kg/Ltr

\( X \) = Distance of the empty weight and Centre of Gravity from the datum plane.

The moment arm fuel is measured X" and X". The distance of the wing end, the leading edge of the wing at Rib 0.52 cm above the aileron gap is dropped from the leading edge of the wing at Rib 0.52 cm above the aileron gap to establish a plumb line. This plumb line is then used to measure the distance of the empty weight and Centre of Gravity from the datum plane. The wheels are supported on scales which are used to determine X" and X". The empty weight and Centre of Gravity are determined using the empty weight and Centre of Gravity from the datum plane.

### Table 1

<table>
<thead>
<tr>
<th>Position of CG X</th>
<th>Max AUW:</th>
</tr>
</thead>
<tbody>
<tr>
<td>223.7 cm – 55 l tank</td>
<td>400 kg</td>
</tr>
<tr>
<td>225.3 cm – 55 l tank</td>
<td>430 kg</td>
</tr>
<tr>
<td>225.6 cm – 55 l tank</td>
<td>460 kg</td>
</tr>
<tr>
<td>234.5 cm – 55 l tank</td>
<td>500 kg</td>
</tr>
<tr>
<td>224.4 cm – 610 kg</td>
<td>460 kg</td>
</tr>
<tr>
<td>224.7 cm – 610 kg</td>
<td>490 kg</td>
</tr>
<tr>
<td>224.8 cm – 610 kg</td>
<td>500 kg</td>
</tr>
</tbody>
</table>

### Figure 1

[Diagram of aircraft section for determining CG of rudder and rudder control surfaces]
8. Procedure for determining Centre of Gravity for tricycle undercarriage

To weigh the motor glider to establish the empty weight centre of gravity position, set up the aircraft on the scales such that the underside of the wing at Rib 6 (2.2 metres = 86.5" from the centre line) is horizontal. With the aircraft in this attitude a plumb line is dropped from the leading edge of the wing at Rib 0 (0.52 metres = 20.46 inches from the centre line). Two metres (78.72 inches) in front of this point is the CG datum plane from which are measured X1 and X2, the distance of the undercarriage axles. The wheels are supported on the scales which are used to determine weights W1 and W2. This formula determines the distance of the empty weight CG from the datum plane:

\[ X_L = \frac{W_1 \cdot X_1 + W_2 \cdot X_2 - W_F \cdot X_F}{W_1 + W_2 - W_F} \]

Weights in kg, distances in cm.

\[ X_P = \text{moment arm of Pilot} = 188 \text{ cm} \]

\[ X_F = \text{moment arm Fuel} = 285 \text{ cm} \] (with 55 l tank)

\[ X_F = 291 \text{ cm} \] (with 80 l tank)

\[ W_F = \text{Weight of Fuel} = \text{Fuel contents in litres multiplied by 0.73 kg/litre} \]

\[ X_B = \text{moment arm of Baggage} = 245 \text{ cm} \]

If the tank is empty, then the factors W_F and W_F \cdot X_F are redundant.

Empty weight W_E in kg

Max AUW:

<table>
<thead>
<tr>
<th></th>
<th>445</th>
<th>460</th>
<th>465</th>
<th>470</th>
<th>475</th>
<th>480</th>
<th>500</th>
</tr>
</thead>
<tbody>
<tr>
<td>55 l</td>
<td>321.0</td>
<td>324.0</td>
<td>327.0</td>
<td>330.0</td>
<td>333.0</td>
<td>336.0</td>
<td>340.0</td>
</tr>
<tr>
<td>80 l</td>
<td>324.0</td>
<td>327.0</td>
<td>330.0</td>
<td>333.0</td>
<td>336.0</td>
<td>339.0</td>
<td>343.0</td>
</tr>
</tbody>
</table>

Max AUW: 640 kg

<table>
<thead>
<tr>
<th></th>
<th>440</th>
<th>460</th>
<th>465</th>
<th>470</th>
<th>475</th>
<th>480</th>
<th>500</th>
</tr>
</thead>
<tbody>
<tr>
<td>55 l</td>
<td>321.0</td>
<td>324.0</td>
<td>327.0</td>
<td>330.0</td>
<td>333.0</td>
<td>336.0</td>
<td>340.0</td>
</tr>
<tr>
<td>80 l</td>
<td>324.0</td>
<td>327.0</td>
<td>330.0</td>
<td>333.0</td>
<td>336.0</td>
<td>339.0</td>
<td>343.0</td>
</tr>
</tbody>
</table>

Max AUW: 690 kg

The values given in the table for X_E CG apply to a motorglider with an empty tank (55 l or 80 l tank).
10. Weight and Centre of Gravity Chart

- Weight and Centre of Gravity Chart
- Date Empty weight
- Max. permissible load
- CG

Without aerotow hook arrangement, without ballast in tail
- Date

Instructions for rigging and derigging wings (mainspar)
- When rigging and derigging it is essential to ensure that the spar fittings of the port wing (yoke) are not subjected to vertical distortion. Never drive it in with a hammer. The cylindrical section of the mainpin must at least be flush with the bottom edge or protrude below it.

Edition March 1997

Edition March 1997  Rev. 1, 22.01.1999