

Date: \_\_\_\_\_

# Weight and Balance

From the desk of \_\_\_\_\_

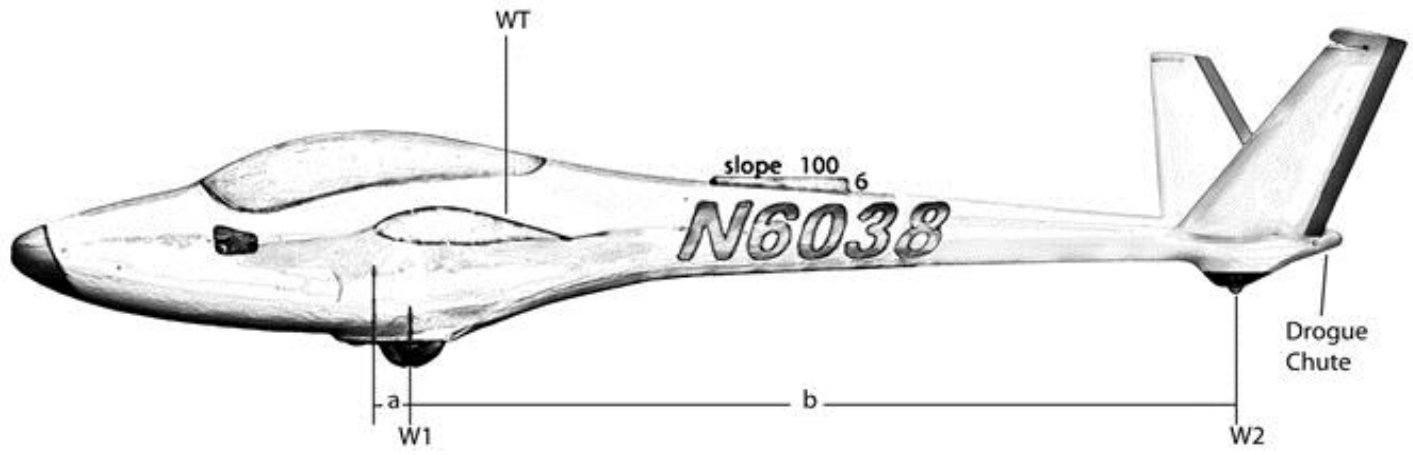
License: \_\_\_\_\_

Registration No. N6038

Serial No. 14

Glider Mfg. Start & Flug

Model: H-101 Salto



Leveling means: Slope of rear top fuselage : 100 to 6

Datum point : Wing leading edge 100mm (4") outwards wing/fuselage gap

Weight on main gear : W1 = \_\_\_\_\_ lbs.  
 Weight on tail wheel : W2 = \_\_\_\_\_ lbs.  
 Total weight : WT = \_\_\_\_\_ lbs. W1 + W2

Distance a : a = 6.41 in.  
 Distance b : b = 145.5 in.  
 Center of gravity (CG empty) : x = \_\_\_\_\_ in.

$$CG = x = \frac{(W2)(b)}{WT} + a$$

$$x = \frac{(\quad)(145.5)}{(\quad)} + 6.41$$

$$x = \underline{\hspace{2cm}}$$

- List of equipment included:
- Airspeed
  - Altimeter
  - G-meter
  - Compass
  - Mechanical vario
  - Clock
  - Attitude gyro (14v)
  - Directional gyro (14v)
  - 2 batteries (14v)
  - 22 ft<sup>3</sup> O<sub>2</sub> bottle and equipment [ station = 21.5 in. wgt = 11.95 lbs ]  
(full vs empty less than 2 lbs)

# Flying weight CG

Empty CG: \_\_\_\_\_ in.

Flying weight CG Limits: 9.25 to 13.18 in.

Max. Gross weight: 683 lbs

Pilot position from datum: -9.55 in. (ie 9.55 inches *in front of* datum)

Formulae allow for negative, so enter pilot arm without sign.

**Max pilot weight with chute:** = PH

$$PH = \text{Max gross weight} - \text{empty weight} \quad \{\text{ie WT}\}$$

$$PH = \underline{683} \text{ lbs} - \underline{\hspace{2cm}} \text{ lbs} = \underline{\hspace{2cm}} \text{ lbs}$$

**Check CG for MAX pilot weight:**  $x = \frac{(WT)(CG \text{ empty}) - (PH)(Pilot \text{ arm})}{\text{Max gross weight}}$

$$x = \frac{(\underline{\hspace{2cm}})(\underline{\hspace{2cm}}) - (\underline{\hspace{2cm}})(9.55)}{683}$$

$$x = \underline{\hspace{2cm}} \text{ in.} \quad \{\text{allowed 9.25 to 13.18 in.}\}$$

Therefore, \_\_\_\_\_ lbs max pilot wgt is OK / not OK.

**MIN. pilot weight with chute PL:**

Develop formula ( x = max rear CG = 13.18):

$$x = \frac{(WT)(CG \text{ empty}) - (PL)(Pilot \text{ arm})}{WT + PL}$$

Solve for PL

$$(PL)(x) + (PL)(Pilot \text{ arm}) = (WT)(CG \text{ empty}) - (WT)(x)$$

$$(PL)(x + Pilot \text{ arm}) = (WT)(CG \text{ empty} - x)$$

thus 
$$PL = \frac{(WT)(CG \text{ empty} - x)}{(x + pilot \text{ arm})}$$

$$PL = \frac{(\underline{\hspace{2cm}})(\underline{\hspace{2cm}} - 13.18)}{(13.18 + 9.55)} \quad \text{..... enter data here}$$

$$PL = \underline{\hspace{2cm}} \text{ lbs}$$

Therefore, \_\_\_\_\_ lbs is min. pilot (plus chute) weight.