

WEIGHT AND BALANCE REPORT

Schempp-Hirth Discus CS

S/N: 251CS

Registration Number: N511TW

Date of Weighing: July 1, 2020

Datum: Leading edge of wing root rib at fuselage

Distance from Datum to Main Wheel is 5.31 in.

Distance from Main Wheel to Tail Wheel is 160.08 in.

Weight on the main wheel was 478# and on the tail wheel was 74# for a total of 552 lbs.

Pilot position: -17.72 in. fwd of datum

Empty weight of sailplane from actual weighing: 552 lbs

Empty weight CG of sailplane from actual weighing: 26.77 in. aft of datum

Max Gross Weight Limits: _____ Lbs. NO water ballast
1157 Lbs. WITH water ballast

Minimum Pilot Weight: 154.3 Lbs.

Maximum Pilot Weight: 242.5 Lbs.

In-flight CG limits: 10.24 in. to 15.75 in. aft of datum

EQUIPMENT LIST as weighed on July 1, 2020

Winter Airspeed Indicator

United Altimeter

V-7 Variometer

PAI-700 Compass

Becker AR 3201 Radio, Speaker and Boom Mic

Trig TT22 Transponder

Seatbelt

PowerFlarm brick and FlarmView display

No batteries were installed (2.75# each)

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For Flight With NO Water Ballast

Max Pilot Weight (CG on FWD Limit - NO Water Ballast)

$$\text{Pilot Weight} = \frac{W_{T_{MT}}(C_{G_{MT}} - C_{G_{LIM}})}{(P_{POS} + C_{G_{LIM}})} = \frac{552(26.77 - 10.24)}{(17.72 + 10.24)} = \underline{\underline{326 \text{ lbs}}}$$

NOTE: This calculation shows that the forward CG limit will not be exceeded with a pilot of less than 326 lbs. However, the manufacture limits the seat load to a **maximum of 242 lbs (pilot and parachute)**. Max gross weight (without water balast) will not be exceeded with a pilot & parachute weight equal to 242 lbs.

Min Pilot Weight (CG on AFT Limit - NO Water Ballast)

$$\text{Pilot Weight} = \frac{W_{T_{MT}}(C_{G_{MT}} - C_{G_{LIM}})}{(P_{POS} + C_{G_{LIM}})} = \frac{552(26.77 - 15.75)}{(17.72 + 15.75)} = \underline{\underline{182 \text{ lbs}}}$$

NOTE: Per Flight Manual- Min weight of pilot & parachute - 154.5 lbs. However, this calculation shows that a **minimum pilot and parachute weight of 182 lbs** is necessary for aft CG limitations.

For Flight With Water Ballast

Refer to Discus CS Flight Manual sections 2.7 and 2.8 for calculating the weight and balance for adding wing water ballast and tail water ballast.

Calculations by: Ron Ridenour 1985138A&P

Approved by: 

Date: 7-1-2020