

THE PILOT MUST COMPLY WITH ALL PLACARDS AND THE DISCUS CS FLIGHT MANUAL

WEIGHT AND BALANCE REPORT

Schempp-Hirth Discus CS

S/N: 251CS

Registration Number: N511TW

Date of Weighing: August 7, 2025

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 486# and on the tail wheel was 69# for a total of 555 lbs.

Pilot position: -17.72 in. fwd of datum

Empty weight of sailplane from actual weighing: 555 lbs

Empty weight CG of sailplane from actual weighing and calculation: 25.21 in. aft of datum

Max Gross Weight Limits: with NO water ballast – See Aircraft Flight Manual
WITH water ballast **1157 Lbs.** – To carry H2O wing ballast refer to pages 21-26 of the aircraft flight manual. The arm of the water ballast is +7.99”.

Minimum Pilot+Parachute Weight: 157 Lbs. by calculation (with no tail fin ballast)
Nose Ballast is at -67.52” forward of the Datum (page 21 paragraph 2.7) if you want to add nose ballast see the aircraft flight manual. Otherwise, the pilot should add seat ballast if needed.

Maximum Pilot+Parachute Weight: 242 Lbs. by Seat Limit in Aircraft Flight Manual

In-flight CG limits: 10.24 in. to 15.75 in. aft of datum (page 23 paragraph 2.8)

Max weight of all non-lifting parts is 529 Lbs. (page 20 paragraph 2.6)

EQUIPMENT LIST as weighed on August 7, 2025

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
2 Batteries were installed (2.75# each)

Notes added on 12-19-2024 by Ron Ridenour
Weight and balance revised 8-7-2025 after removing tail ballast weight

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For Flight With NO Water Ballast

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

$$\text{Pilot Weight} = \frac{W_{TMT}(CG_{MT} - CG_{LIM})}{(P_{POS} + CG_{LIM})} = \frac{555(25.21 - 10.24)}{(17.72 + 10.24)} = \underline{\underline{297 \text{ lbs}}}$$

NOTE: This calculation shows that the forward CG limit will not be exceeded with a pilot and Parachute of less than 297 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 or less.

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

$$\text{Pilot Weight} = \frac{W_{TMT}(CG_{MT} - CG_{LIM})}{(P_{POS} + CG_{LIM})} = \frac{555(25.21 - 15.75)}{(17.72 + 15.75)} = \underline{\underline{157 \text{ lbs}}}$$

NOTE: Per Flight Manual- Min weight of pilot & parachute - 154.5 lbs.
However, this calculation shows that a minimum pilot and parachute weight of 157 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: _____

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