# Weight of Top Body

5/12/2020

- Based on data collected and calculations done by Valeria

Area: $5.69\ yd^2$

Carbon Fiber weight: $.039\ lb/ft^2$

- Resin adds $\frac{.4}{.6}\%$ to weight (due to fiber/resin ratio)

Coremat weight: $0.397\ lb/ft^2$

Coremat contribution: $0.397\frac{lb}{ft^2}\left(9\frac{ft^2}{yd^2}\right)(5.69\ yd^2) = 19.821b$

Fiber contribution: $0.39\frac{lb}{ft^2}(9)(5.69\ yd^2) = 1.997191b$

↳ Fiber + Resin: $1.99719\left(1+\frac{.4}{.6}\right)(3\ plies) = 9.9861b$

Windshield SA: $4.3991\ ft^2$

Plexiglass weight $\approx 0.5\ lb/ft^2$

Windshield contribution: $0.5\frac{lb}{ft^2}(4.3991\ ft^2) = 2.1101b$

Total Top Body Weight: $19.82 + 9.986 + 2.110 \Rightarrow 32.001b$

Thus, assume $\frac{32}{2} = 161b$ is supported by each hinge

$161b \approx 75N$ (rounded up from 71.1N)