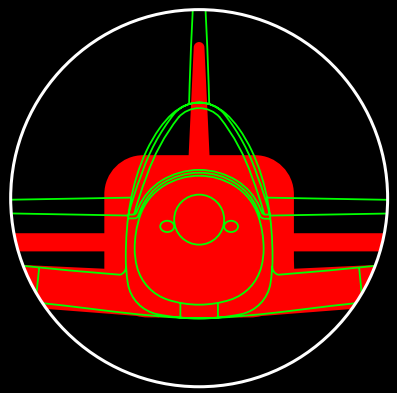
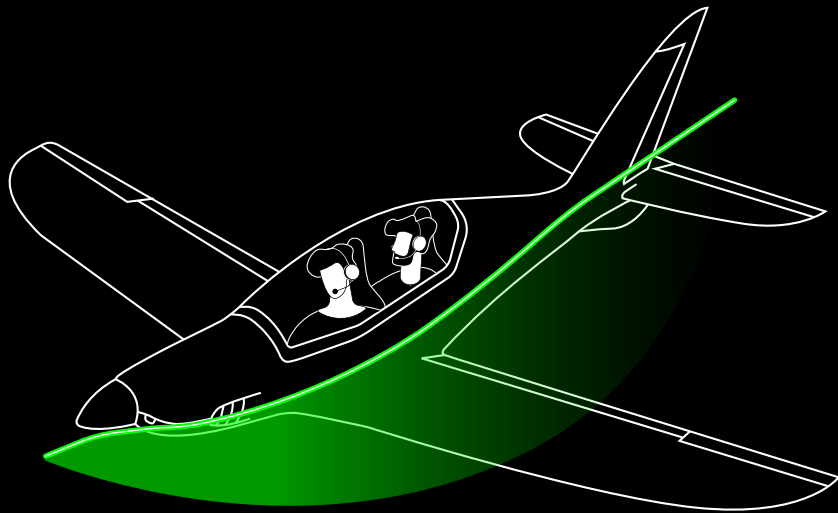

Shark
PILOT'S
LOVE AFFAIR
FLY FURTHER FASTER
WITH A TANDEM CONFIGURATION

A COMPARISON WITH SIDE-BY-SIDE COCKPIT LAYOUT

When you‘re choosing an aircraft, cockpit layout is more than just a comfort preference—it directly impacts how far, how fast, and how efficiently you can fly.

If you‘re looking for longer range, better performance, lower fuel bills, and fewer headaches, a tandem cockpit layout offers real, measurable advantages.



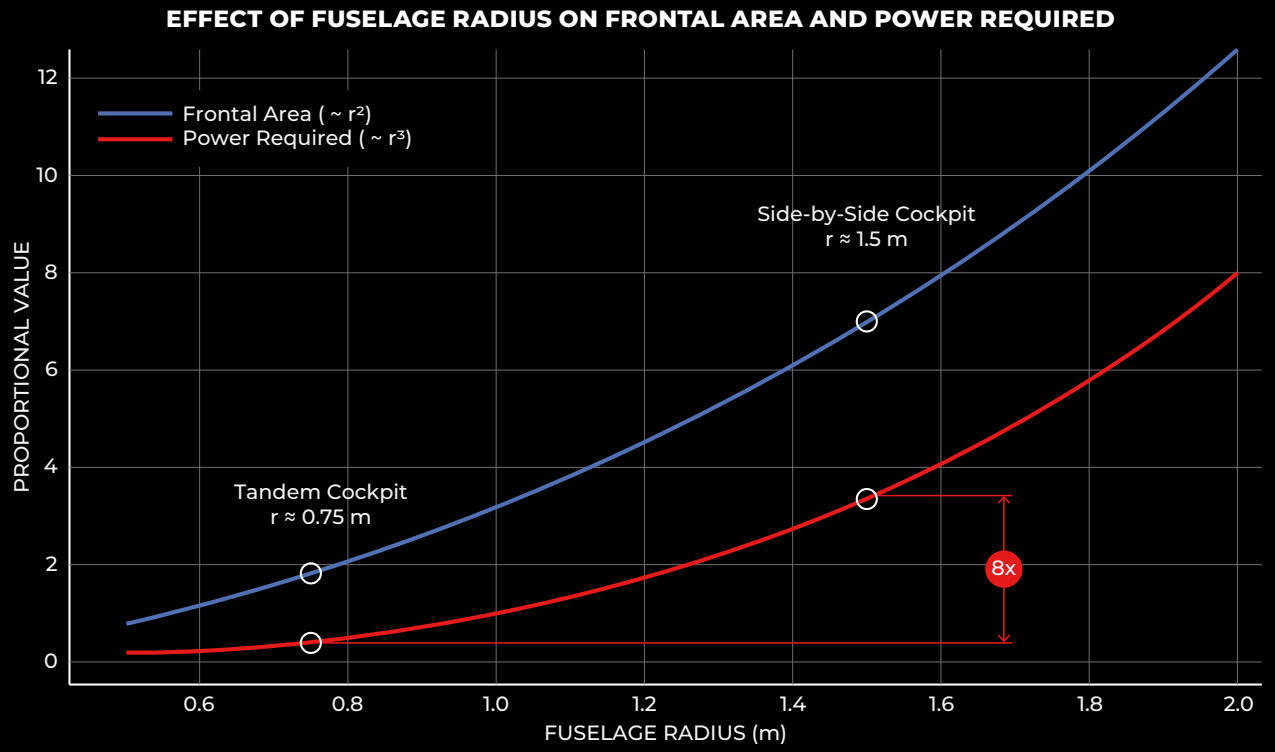


THE TANDEM CONFIGURATION AIRCRAFT PRESENTS A MUCH SMALLER CROSS-SECTION TO THE ONCOMING AIR

A side-by-side cockpit means a wider fuselage—stretching the radius and, with it, the drag. And here's the kicker: drag grows with the square of that radius, so you need a big leap in power just to keep up with a tandem. The manufacturers of side-by-side configuration aircraft are fully aware of this and make their cockpits as narrow as possible, leaving you rubbing shoulders with your passenger or practically lying on your back to reduce the drag created by the wider configuration.

Now, here's where it really matters: the additional power required to gain even a small increase in speed becomes dramatically more costly when drag is high. Power required to overcome drag scales with the cube of airspeed. At the same time, form drag itself is a function of cross-sectional area—which, as we've seen, scales with the square of the radius. So when you combine the two, the power required to gain speed increases at a cubic rate with respect to fuselage radius. That means for wider aircraft, you not only start off with more drag—you pay a much steeper price in fuel and engine output for every extra knot.

Take a moment to look at the graph:



At the 1.5 m radius mark, which is typical for a side-by-side configuration, the power required is more than eight times that of a 0.75 m tandem configuration. That curve climbs steeply, showing just how much harder the engine has to work—not just to fly, but to fly fast.

What does this mean for you as a pilot or operator?

First, to maintain performance, a side-by-side aircraft needs a more powerful engine. That means a higher purchase price, more complex installation, and a heavier airframe. And it's not just about buying the engine—it also means more fuel burn, which reduces your useful load or range, and bumps up your direct operating cost on every flight.

Then there's maintenance. Bigger engines work harder and tend to have shorter overhaul cycles and more frequent inspection needs. Over time, that adds up to more downtime and more expense.

Finally, consider your mission profile. With higher fuel consumption, side-by-side aircraft are more likely to need refuelling at the destination—while a more efficient tandem design might complete the round trip without refuelling at all. That's not just convenient; it's operational peace of mind.

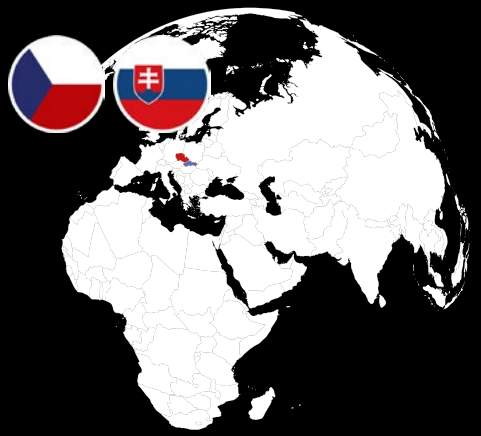
The chart included here shows exactly how rapidly drag and power demands increase with fuselage radius. The contrast between a 0.75 m radius (typical for a tandem design) and 1.5 m (common for side-by-side) illustrates just how much efficiency is lost with a wider cockpit. It's not just a bigger cross-section—it's a dramatically steeper climb in the power and fuel needed to fly.

The mathematics prove the point: If you want longer range, more speed, better performance, more comfort, better economy, and more fun, a tandem cockpit layout offers real, measurable advantages.

Andrew Mills
Wingman Aviation

WE EXIST TO BUILD AIRCRAFT THAT
PILOTS FALL IN LOVE WITH.

PROUDLY FROM CZECHIA&SLOVAKIA
TO 28 COUNTRIES WORLDWIDE



SHARK.AERO

WWW.SHARK.AERO

SHARKAERO

SHARKAEROAIRCRAFT

#FLYTANDEM