

FOUNDATIONS OF FLIGHT

RAM-AIR PARACHUTE ANATOMY—CELLS

Brought to you by Niklas Daniel and Brianne Thompson of AXIS Flight School at Skydive Arizona in Eloy. Images by Bruce Fournier.

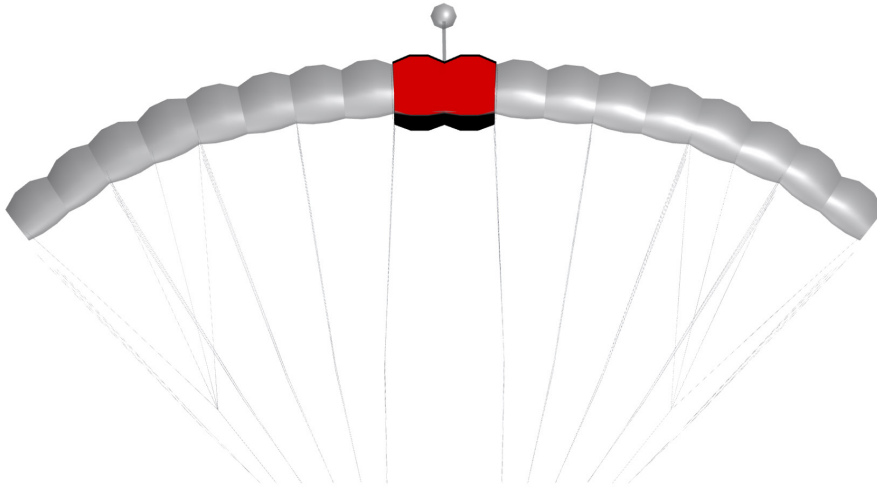
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The area that makes up the canopy's center cell is highlighted in red.

It is important for jumpers to have at least a rough understanding of the different areas and features of their ram-air parachutes. Whether you are trying to describe a specific part that needs maintenance to a rigger or you are discussing your last landing with a canopy coach, a common language and terminology can help avoid confusion. The following provides a look at the internal components of your parachute that are hidden from view.

Concept: Cross-Sectional Area

A cross section provides a two-dimensional view of an object as if it were cut in half, revealing details of its inner workings. This can help shed some light on very specific areas, although they will make up only a small piece of the puzzle. There are generally six vantage points from which to view a cross-sectional area. These are typically at right angles to the three axes:

Equipment: Cells (Longitudinal Axis View)

In the previous article we defined what a ram-air parachute is and how to check if it is working properly. Now we will take a closer look at what the air is being rammed into: the cells.

In simplest terms, a cell is the space that is occupied by air when a parachute is inflated. The word "cell" comes from Latin and means "small room." In the case of a parachute, the ribs make up the walls, the bottom skin is the floor and the top skin is the ceiling. The nose (leading edge) of the parachute has openings that capture the relative wind, pressurizing the internal structure of the wing as the closed trailing edge traps it. We'll cover more details about these features in the next issue.

A parachute can have any number of cells, but most common sport parachute designs have seven or nine. Most sport parachutes utilize a bi-cell design, meaning there are two

rooms per cell. Therefore, each cell has three ribs, two which are called loaded ribs (because they have suspension lines attached to them) and one in the middle of the cell that is not loaded. The purpose of non-loaded ribs is to provide additional connection points between the top and bottom skin. This helps shape the parachute into a more efficient wing.

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Axis	Longitudinal	Lateral	Vertical
Vantage Point	Front or Rear	Left or Right	Above or Below
Area of the Object Viewed	Nose or Tail	Side	Top or Bottom
2-Dimensional Area	Width + Height	Height + Length	Length + Width