Elementary Readings

Airlifts

https://en.wikipedia.org/wiki/Airlift

An **airlift** is the organized delivery of supplies or personnel primarily via military transport aircraft.

Airlifting consists of two distinct types: strategic and tactical. Typically, strategic airlifting moves material long distances and a tactical airlift focuses on deploying resources and material into a specific location with high precision.

Depending on the situation, airlifted supplies can be delivered by a variety of means. When the destination and surrounding airspace is considered secure, the aircraft will land at an appropriate airport or airbase to have its cargo unloaded on the ground. When landing the craft, or distributing the supplies to a certain area from a landing zone by surface transportation is not an option, the cargo aircraft can drop them in mid-flight using parachutes attached to the supply containers in question.

During disasters and other crises, airlifts are used to support or replace other transport methods to relieve beleaguered civilian populations. Examples include the Berlin Airlift, to supply isolated West Berlin with food and coal, the 1990 Air India airlift to rescue Indian citizens caught up in the Gulf War, and the 1967–70 Biafran airlift during the Nigerian Civil War.

History

The largest airlift was the Berlin airlift, lasting from June 1948 to September 1949, an American, British and French operation intended to thwart the blockading of the city of Berlin by the Soviet Union.

The largest civilian airlift ever, the Biafran airlift, was carried out by Protestant and Catholic churches working together under the banner "Joint Church Aid" (JCA) to carry food to Biafra, during the Biafran secession war from Nigeria between 1967 and 1970.

References and notes

1. Shadows: airlift and airwar in Biafra and Nigeria 1967–1970, by Michael I. Draper (ISBN 1-902109-63-5)

https://en.wikipedia.org/wiki/Airdrop

An **airdrop** is a type of airlift, developed during World War II to resupply otherwise inaccessible troops, who themselves may have been airborne forces. In some cases, it is used to refer to the airborne assault itself. Early airdrops were conducted by dropping or pushing padded bundles from aircraft.[1] Later small crates with parachutes were pushed out of the aircraft's side cargo doors. Later cargo aircraft were designed with rear access ramps, lowerable in flight, that allowed large platforms to be rolled out the back.

In peacekeeping operations or humanitarian aid situations, food and medical supplies are often airdropped from United Nations and other aircraft.

Types

Freedrop packs being dropped out of an RAF C-130 Hercules

The type of airdrop refers to the way that the airdrop load descends to the ground. There are several types of airdrops, and each type may be performed via several methods.[2]

- **Low-Velocity Airdrop** is the delivery of a load involving parachutes that are designed to slow down the load as much as possible to ensure it impacts the ground with minimal force. This type of airdrop is used for delicate equipment and larger items such as vehicles.

- **High-Velocity Airdrop** is the delivery of a load involving a parachute meant to stabilize its fall. The parachute will slow the load to some degree.

What causes air resistance?

Just because the air's invisible, doesn't mean it's not there. Earth's atmosphere is packed full of gas molecules, so if you want to move through air—by walking, in a car, in a plane, or dangling from a parachute—you have to push them out of the way. We only really notice this when we're moving at speed.

Air resistance is a bit like the way water pushes against your body when you're in a swimming pool—except that air is invisible! If you jump off a diving board or do a belly flop, the awkward shape of your body will create a lot of resistance and bring you rapidly to a halt when you crash into the water. But if you make a sharp pointed shape with your arms and dive in gracefully, your body will part the water cleanly, and you'll continue to move quickly as you enter it. When you jump or belly flop, your body slows down quickly because the water can't get out of the way fast enough. When you dive, you part the water smoothly in front of you so your body can glide through it quickly. With parachutes, it's the slowing-down effect that we want.

If you fall from a plane without a parachute, your relatively compact body zooms through the air like a stone; open your parachute and you create more air resistance, drifting to the ground more slowly and safely—much more like a feather. Simply speaking, then, a parachute works by increasing your air resistance as you fall.

Objects with large surface areas fall slower because they encounter more air resistance. Frictional forces such as air resistance or drag cause objects to slow down. Once the parachute is open the air resistance overwhelms the force of gravity.

How does a parachute work in theory?

Throw a ball up in the air and, sooner or later, it always falls back to the ground. That's because Earth pulls everything toward it with a force called gravity. You've probably learned in school that the strength of Earth's gravity is roughly the same all over the world (it does vary a little bit, but not that much) and that if you drop a heavy stone and a light feather from the top of a skyscraper, gravity pulls them toward the ground at exactly the same rate.

If there were no air, the feather and the stone would hit the ground at the same time. In practice, the stone reaches the ground much faster, not because it weighs more but because the feather fans out and catches in the air as it falls. Air resistance (also called drag) slows it down.

Parachute – Wikipedia *https://en.wikipedia.org/wiki/Parachute*

A parachute is a device used to slow the motion of an object through an atmosphere by creating drag. Parachutes are usually made out of light, strong fabric, originally silk, now most commonly nylon. They are typically dome-shaped, but vary, with rectangles, inverted domes, and others found. Wikipedia

What are the parts of a parachute?

- Canopy: Main part of the parachute.
- Skirt: Lower part of the canopy (think of a person's skirt hanging down).
- Suspension lines: Spread the weight of the parachutist evenly across the canopy.
- Links: Connect the suspension lines to the risers.
- Risers: Connect the links to the harness
- Harness and container: The harness is the part you wear (itself made of numerous components); the container looks similar to a rucksack (back pack held in front of you) and holds the packed-up parachute and all its bits and pieces, ready for action!