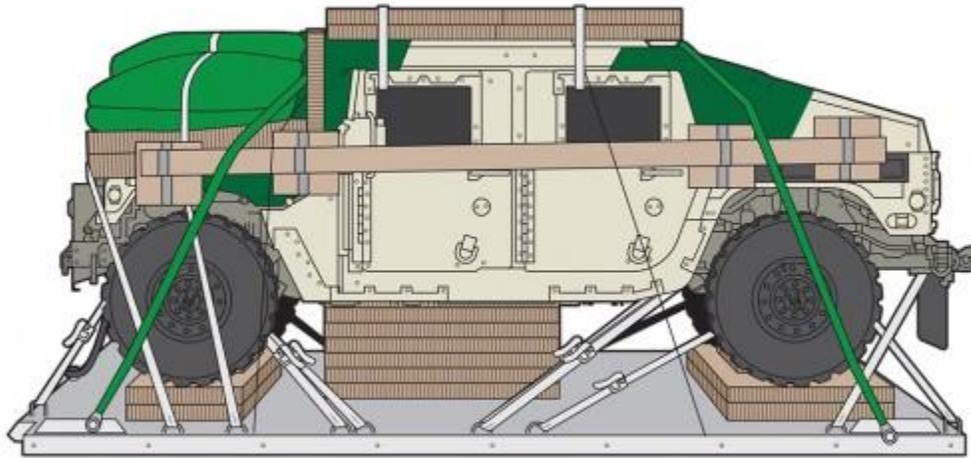


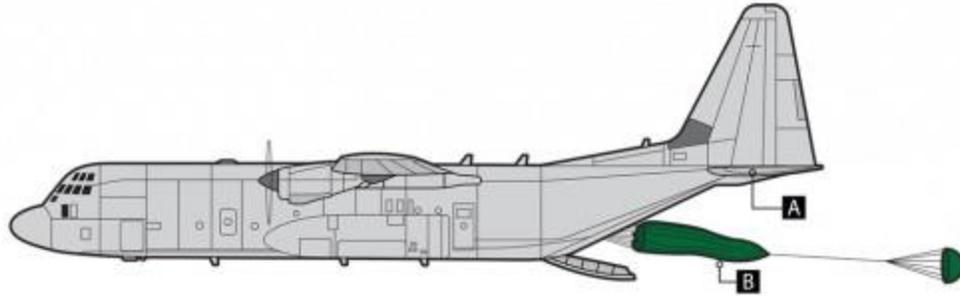
Dropping Democracy: How the Army Yanks a Humvee Out of a Plane and Drives It Away 750 Feet Later



From the September 2015 issue

The car is the ultimate mobility tool—right up until impassable terrain or enemy combatants come between you and your destination. Then you need a vehicle strapped to a parachute and packed into the back of a plane. The United States Army, perhaps the world’s foremost authority on getting wheels on the ground in hard-to-reach places, routinely airdrops vehicles such as forklifts, ATVs, and HMMWVs (High Mobility Multipurpose Wheeled Vehicles, or “Humvees”) to carry out missions around the globe.

The Army hasn’t dropped vehicles in a major combat operation since 2003, as once you occupy the airfields, it’s far easier to just land the planes. Still, airdrops play a key role in sustaining the remotest military bases, and soldiers routinely practice heavy drops back home to maintain proficiency in the science of making 14,000 pounds fall out of the sky and land intact. Here’s how they do it:



(A) Skyfall

The military performs heavy airdrops from both C-17 and C-130 transports. A C-130 drops cargo at an airspeed of 140 knots (161 mph) while flying at least 750 feet above ground level.

(B) Chutes to Thrill

The aircraft tows a small, 15-foot drogue chute for 5 to 10 seconds before the navigator gives the green light to drop the cargo. At that point, the loadmaster releases the drogue, the sole purpose of which is to pull out the larger, 22-foot extraction chute. The drag on the extraction chute unlocks the platform from the aircraft's cargo rails and yanks it out of the C-130 at 0.93 g.



(A) Under the Big Tops

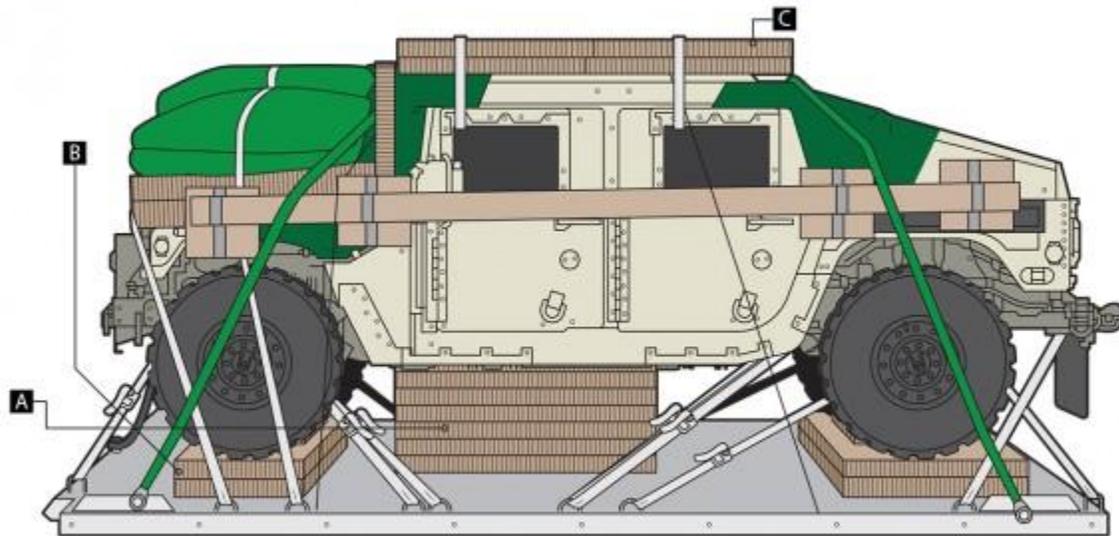
The primary chutes deploy as soon as the HMMWV is clear of the aircraft. Each of the three 100-foot-diameter G-11B parachutes weighs 275 pounds when packed.

(B) Drop Into the Danger Zone

A single HMMWV requires a drop zone measuring 600 yards by 1000 yards. Each additional vehicle requires an additional 400 yards to allow for safe spacing of the trucks' landing sites.

Turtle-Back Touchdown

Landing speed depends on a wide array of factors, ranging from load mass to air density at ground level. With a drop zone at sea level, an M1151A1 UAH, the Army's newest HMMWV, typically lands with a speed of 24 to 25 feet per second.



(A) Honeycomb Crunch

As many as 11 layers of honeycomb are positioned under the vehicle, but this M1151A1 UAH will compress only four layers during a normal landing. A hard impact at 28.5 feet per second (worst-case scenario) should crush five layers while using the entire nine-inch stroke of the HMMWV's suspension to absorb the shock.

(B) Hummdinger

Lumber and sheets of three-inch-thick paper honeycomb, stacked between the axles, the frame, and the airdrop platform, cushion the impact.

(C) Fort Bending

While it looks like ordinary cardboard, the honeycomb is designed to rigorous performance specs, crushing when the load on it reaches 6300 pounds per square foot.