



“ This could change the game for military operations and humanitarian aid. Until [the Aeroscraft] is as ubiquitous as commercial liners, we’ll continue praying for an aisle seat. ”

- Zac Stone, FASTCO: COEXIST

Aeros’ newest air vehicle, the Aeroscraft, was developed to provide new ways of moving heavy and oversized cargo from point-of-origin to point-of-need, even to areas with damaged infrastructure or those lacking development.

The Aeroscraft offers the most flexible and efficient vertical freight logistics solution for oversized cargos. The Aeroscraft is not a blimp. It is a new type of aircraft built with a suite of new technologies enabling vertical take-off and landing and hover capabilities.

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## **HISTORIC**

Historic development is taking place in aviation. The vertical takeoff and landing (VTOL) capability of helicopters, range and cargo capacity of airplanes and fuel consumption benefits of lighter-than-air (LTA) vehicles are being combined with innovative new technology and textiles to create a new class of aircraft, the Aeroscraft. It will serve military, business, and humanitarian efforts in exciting new ways.

## **GAME-CHANGER**

The Aeroscraft ML866 will be a game changer for global logistical solutions, lifting 66 tons to establish new commercial transportation alternatives for the 21st Century. The Aeroscraft does not require runways, airports and ground support. It expands the potential of commercial cargo transport, has strategic and tactical military-mobility applications, and could be vital in large-scale humanitarian relief efforts around the globe.

## **FOR EVERYBODY**

For the military, the Aeroscraft can provide mobility solutions. For commercial companies, it will revolutionize cargo logistics, especially for over-sized payloads, or where infrastructure challenges and personnel limitations apply. For the rest of us, we may soon be able to cruise the skies in greater comfort and with amazing ground views. For the ultra rich, translation: sky-yachts!

## **WHO DOESN'T**

Who doesn't want to go on a sky cruise, or enable cargo logistic solutions that can better serve disaster victims, better preserve our nation's most pristine environments, and better help the military move mass cargo and personnel to remote areas lacking runways or roads? As you can imagine, the interest has been incredible since the technology demonstration in January 2013, and it's a very exciting time at Aeros!

## **NEED**

The biggest obstacle that conventional LTA vehicles and hybrid airships face is their inability to control buoyancy. The requirements for external ballast exchange, ground infrastructure, and need for runways significantly limited their usefulness for cargo and other applications, prior to the Aeroscraft's introduction. The Aeroscraft advantage will be disruptive, strategic, and welcomed by industry.

## **SELF-BALLASTING**

The Aeroscraft vehicle compresses helium into large storage tanks to become heavier than air. The helium is released back into the vehicles' envelope to become lighter-than-air. No helium is lost during the process and no helium cleaning is required. This innovative control of static heaviness (COSH) system means an Aeroscraft can provide precise cargo deployment from hover, or when landed, free from the need for existing infrastructure or ground personnel.

## **DISRUPTIVE INNOVATION**

The Aeroscraft is the only rigid variable buoyancy air vehicle of its kind designed to control airlift in all stages of air or ground operations, including the ability to offload payload without re-ballasting. Aeros is the only LTA manufacturer with the DoD as a current customer, and the Aeroscraft is the only advanced rigid hybrid airship with COSH-enabled, VTOL capability, offering an escape from infrastructure, ground personnel and other logistical challenges involved in cargo deployment and general aviation.

3,100 nm

RANGE

100-120 knots

CRUISE SPEED



12,000 ft

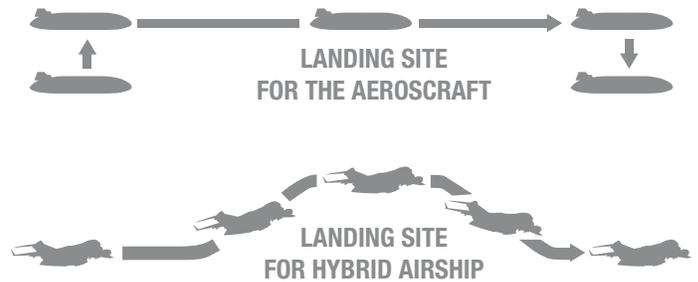
ALTITUDE CEILING

### Off-Loading/ On-Loading Payload from Hover

The Aeroscraft's patent-pending control of static heaviness system and ceiling suspension cargo deployment system automate weight-balance and permit cargo deployment with precision. Manpower for on-loading and off-loading payload from the Aeroscraft will require only the pilot. No ground crew is needed.

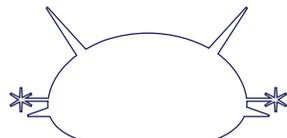
### Vertical Take-off and Landing

While other hybrid airships are runway dependent at higher operating weights, the Aeroscraft does not need a runway, even at full payload, because of its vertical take-off and landing technology.



120 ft

HEIGHT



177 ft

WINGSPAN

### Control of Static Heaviness

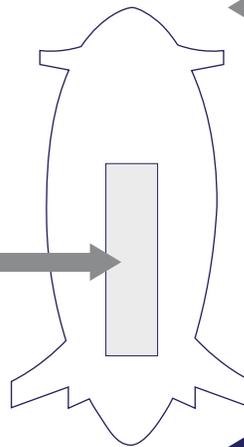
The control of static heaviness is Aeros' solution to a virtually ballast exchange-free flight. Through a pilot's control, the vehicle itself can be configured to provide enough static heaviness to offload personnel and cargo, without the limitation of taking on external ballast to stay grounded.

### Rigid Structure

Generally, modern airships have a non-rigid structure, and these vehicles rely on the gases that fill them to retain their shape. Unlike other airships, the Aeroscraft has a rigid structural design. The Aeroscraft is the only rigid structure variable buoyancy air vehicle of its kind, and its rigid structure is made from ultra-light aluminum and carbon fiber materials.

66 tons

PAYLOAD



555 ft

LENGTH

### Cost Effective

The Aeroscraft utilizes lighter-than-air technologies to provide lift to cargo airship. As a result, only 1/3 of the fuel used in a traditional cargo airplane is needed to fly the Aeroscraft up to 3,100 nautical miles at the same speed as a helicopter. The Aeroscraft will carry similar payloads for only a fraction of the cost.



## ABOUT AEROS

- Worldwide Aeros, Corp. (Aeros) is a privately held international aircraft company headquartered in Los Angeles. Aeros is the world's most innovative, FAA-certified, lighter-than-air (LTA) aircraft manufacturing company.
- The Aeros team does complete in-house research, development, production, flight and operation of Aeros-branded advanced-technology air vehicles, FAA production certification, and flight innovation.
- Aeros products are now used globally for government, commercial and humanitarian applications. They include the non-rigid, Aeros 40D Sky Dragon airship, advanced tethered aerostatic systems, and portable communications and surveillance towers.
- Aeros currently produces the most technologically advanced airship on the market--the Aeros 40D Sky Dragon. The Sky Dragon's digital flight management system and fly-by-wire technology deliver the next step in the evolution of the airship industry. The Aeros 40B and 40D Sky Dragon Airships achieved FAA certification in 2000 and 2007.
- Aeros maintains an 80,000 square-foot engineering and manufacturing facility in Los Angeles, as well as an assembly flight test facility inside a historic 500,000 square-foot hangar in Tustin, Ca.
- The Aeroscraft is the only cargo "hybrid airship" with the vertical takeoff and landing (VTOL) capability offering an escape from infrastructure, ground personnel and other logistical challenges involved in cargo deployment.
- The first version of the Aeroscraft has been designed and built by top aeronautical engineering minds, and has reached completion. This massive, 260-foot long prototype (a roughly 1:2 model of the planned 66 ton Aeroscraft) was built to prove its innovative technology and scalability.
- Aeros is the only LTA company with the Department of Defense as a current customer.



## ABOUT: IGOR PASTERNAK (CEO)

- Igor Pasternak, the company's CEO and chief engineer, founded Aeros over 25 years ago.
- Pasternak was born in Kazakhstan inside the Soviet Union. He formed his first company, Aeros Ltd., in the Ukraine. The Ukraine-based Aeros Ltd. built and delivered advertising blimps and tethered aerostats to customers across Europe.
- He immigrated to the United States in 1994 and founded Worldwide Aeros Corp. (Aeros), one of only two companies in the United States that manufactures FAA-certified airships.
- Pasternak has guided Aeros into becoming a global provider of advanced transportation solutions.
- Pasternak's design, the Aeroscraft, has attracted support and development funding from the National Aeronautics and Space Administration (NASA), the U.S. Air Force, and the prestigious Defense Advanced Research Projects Agency (DARPA).
- He has twice been honored as Small Business Person of the Year, by the U.S. Small Business Administration and the Los Angeles Area Chamber of Commerce.
- Today, Pasternak's disruptive and innovative dream is on the cusp of reality.



JORDANA MISHORY, INSIDE DEFENSE

**'DOD Rigid-Hull Hybrid Air Vehicle Technology Demo Achieved Objectives'** July 3, 2013

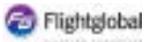
Project Pelican, a non-deployable airship technology demonstrator designed by Aeros, met its demonstration objectives in January within parameters accepted by the Pentagon and NASA. Defense Department spokeswoman Jennifer Elzea said in a July 2 email. Additional subsystem testing is slated to continue throughout the summer, Elzea said.



**BRYONY JONES, CNN**

**'Dawn of the dirigibles: The new age of the airship?'** June 21, 2013

"Now, 90 years after the launch of America's first airship, the USS Shenandoah, dirigibles and aerostats are undergoing something of a renaissance. Among those hoping to lead the charge is California-based Aeros, which is developing what it hopes will be a revolutionary new cargo airship, the Aeroscraft, combining elements of regular 'lighter-than-air' (LTA) craft and traditional fixed-wing planes. In addition, it has a magic ingredient: the vertical take-off and landing capabilities of a helicopter, meaning it has no need for a runway or airfield."



**KRISTIN MAJCHER, FLIGHT GLOBAL**

**'Aeros rises to the occasion with unique airship design,'** June 17, 2013

The ML866 is designed to carry a 66-tonne payload with a cargo compartment measuring 220ft (67m) by 40ft by 30ft. Aeros is planning to manufacture an initial fleet of 24 vehicles in two versions, the 66t ML866 and the larger, 250t ML868. It plans to have the first production prototype aircraft completed by 2015 with a goal of certification by 2016... The manufacturer will not sell direct, instead it will wet-lease the airship to customers around the world, particularly targeting industries with a requirement to transport heavy payloads to remote areas without an airport or other existing infrastructure.



**NICK TABOREK, BLOOMBERG BUSINESSWEEK**

**'Blimps Morph Into Cargo Haulers as Maker Sees Revolution,'** June 13, 2013

This shiny monster, dubbed the Aeroscraft, is Igor Pasternak's shot at proving to the world that helium-filled airships, long ago eclipsed by planes, have a bright future in commercial cargo... Pasternak, the company's chief executive officer, wants to be the first to harness helium for multi-ton deliveries. He envisions thousands of 500-foot-long zeppelins capable of traversing the U.S. at speeds of more than 100 miles per hour, ferrying mining equipment to roadless stretches of Alaska and bringing organic strawberries to gourmet supermarkets in Manhattan, at a quarter the cost of a cargo plane.

**STEVEN BUSHONG, WINDPOWER E&D**

**'Have you heard of the Aeroscraft?,'** June 3, 2013



For 25 years, Aeros has advanced conventional airships. It has now turned the page and started work on an entirely new technology called the Aeroscraft, which can transport large, heavy equipment to almost anywhere. The rigid, variable-buoyancy vehicle has the ability to off-load without re-ballasting. Its vertical takeoff and landing capability will help transport components from manufacturing site directly to point-of-need destinations, including those that are unprepared, hovering above uneven ground.

**CAROL JACKSON, THE STORY**

**'The Flying Submarine'** May 30, 2013



"It's a space-age looking machine that's almost as big as a football field and able to carry 50 tons or more. The pilot, Corky Belanger, says that for a hundred years, engineers couldn't figure out how to make a device like this because of the way a blimp is designed. The blimp must have balance to fly. If it off-loads cargo, an equal amount of weight must be put back on. The answer turned out to be compressed helium.... This new idea has enabled the Aeroscraft to fly freely. It won't require a runway, or ground crew, or anything special to fly into disaster zones to deliver aid or conduct military operations."



**KELSEY D. ATHERTON, POPULAR SCIENCE**

**'The 10 Coolest Machines From Sea-Air-Space Exposition,'** April 9, 2013

"We've seen the Aeros Aeroscraft before, back when it was a dream and a frame. On display today was... a model, but Aeros is testing a scaled-down prototype. Designed as a heavy duty transport with a one-man crew that can land and take off vertically, the Aeroscraft is the last best bet for the airship revival of the aughts to deliver on its promise."



**GENERAL WILLIAM M. FRASER III, U.S.A.F. COMMANDER, U.S. TRANSPORTATION COMMAND**

**'Testimony before Congressional Armed Services Committee,'** March 8, 2013

"Hybrid airships represent a transformational capability, bridging the longstanding gap between high-speed, lower-capacity airlift, and low-speed, higher-capacity sealift. Across the range of military operations, this capability can be leveraged from strategic to tactical distances. From swift crisis action support to enduring logistical sustainment operations, hybrid airship technology has the potential to fulfill "factory to foxhole" cargo delivery. We encourage development of commercial technologies that may lead to enhanced mobility capabilities in the future."



## BRANDON RUSSELL, TECHNOBUFFALO

**'Out of the Ashes: The Rebirth of the Airship,'** March 1, 2013

"The foundation was set many years ago, and Aeros seems to have perfected the model through years of tireless research and the desire to create a better airship. The prototype still has to undergo field-testing, but once that's done, the bigger 66 ton model can enter the picture, and that's really when things will get exciting. If all goes according to plan, government, commercial and humanitarian efforts could improve dramatically, ushering in an entirely new era of transportation. If Herbert Morrison were around to witness the Aeroscraft today, he wouldn't cry out "Oh, the humanity" in horror, but in delight – a new, bright age of airships is upon us. That utopian fascination that was nearly consumed in the Hindenburg might actually one day come true."



## BRADLEY HASEMEYER, TRANSLOGIC

**'Aeroscraft Rigid Variable Buoyancy Air Vehicle,'** February 18, 2013

"Don't call it a blimp. The Aeroscraft is a Rigid Variable Buoyancy Air Vehicle. This advanced airship's internal ballast system allows it to hover, ascend and descend without a runway takeoff, and offload cargo without re-ballasting. Possible applications range from entertainment travel to military missions... Today we're in Tustin, CA in front of this impressive hanger, but what's even more impressive is what's inside -- a vehicle that could take humanitarian air, military missions and shipping logistics to new heights, literally."



## ZAC STONE, FASTCO:COEXIST

**'This Giant, Floating Airship from NASA and the Military Gets Closer to Flight,'** January 30, 2013

"What's so significant about the aircraft? First, it doesn't need a runway to land, which means it could deliver the 66 tons of cargo it's expected to carry anywhere in the world. This could change the game for military operations (hence the investors) but also for humanitarian aid, by getting supplies to hard to reach places after a disaster or to islands lacking in infrastructure. The Aeros team imagines using it to transport massive wind turbines some day, allowing for gains in an industry that's long been hindered by transportation difficulties. Another vision for the airship is as the Titanic of the air: a luxury cruise through the skies, letting passengers slowly absorb the sites below, while dining in style high above... This month, the Pelican reached several important milestones in its development. In early January, its cockpit controls were used to move along the ground, without the assistance of personnel on the ground. The following week, the vehicle completed its "first float," hovering above the ground at its engineering hangar in Tustin, California. While the Pelican is just a prototype, the real thing will be nearly twice as long when it's ready for flight, sometime in the next few years. Until these are as ubiquitous as commercial liners, we'll just continue praying for an aisle seat."



## RAQUEL MARIA DILLION, ASSOCIATED PRESS

**'High-Tech Cargo Airship Being Built in California,'** January 30, 2013

"The massive blimp-like aircraft flies, but just barely, hovering only a dozen feet off a military hangar floor during flight testing south of Los Angeles... The Department of Defense and NASA have invested \$35 million in the prototype because of its potential to one day carry more cargo than any other aircraft to disaster zones and forward military bases... The lighter-than-air vehicle is not a blimp because it has a rigid structure made out of ultra-light carbon fiber and aluminum underneath its high-tech Mylar skin. Inside, balloons hold the helium that gives the vehicle lift. Unlike hydrogen, the gas used in the Hindenburg airship that crashed in 1937, helium is not flammable."



## BLOOMBERG TELEVISION

**'Giant Floating Airships could be the Future of Flight,'** January 22, 2013

"The crash of the Hindenburg in 1937 marked the end of the era for Zeppelins, those rigid, blimp-like airships, until now. This is the Aeroscraft, a 230-foot long airship that looks more like a UFO than the Hindenburg. It's being built in southern California by Worldwide Aeros, which received a \$35 million contract from the Pentagon and NASA... Eventually Worldwide Aeros wants to carry up to 66 tons of cargo. Conventional cargo planes like the C-17 can handle 75 tons. The Russian AN-225 can haul 275 tons; Aeros already has plans for an airship that can carry almost twice that much. The difference between an airship and an airplane? The airship needs only about a third as much fuel as conventional aircraft, and forget about runways, which the Lockheed and Northrop airships would need."



## MADHUMITA VENKATARAMANAN, WIRED MAGAZINE

**'The Aeroscraft Airship Could Change the Very Concept of Flying,'** January 11, 2013

"The Aeroscraft ML 86[6] is designed to carry 66 tonnes, fly at 220kph and land without using runways or external ballasting systems... The distinctive engineering feature of the Aeroscraft is its helium-ballasting management system... It can land and take off vertically from any surface, including water and snow."