03/04/14 Presentation: Merged Energy Solutions – Transforming Alaska – Airships

<TARGET><BILL></BILL><SUBJECT>03-04-14 Presentation Merged Energy Solutions – Transforming Alaska – Airships</SUBJECT><COMM>HEDT28</COMM></TARGET>

Ginger Blaisdell

From: Rep. Peggy Wilson
Sent: Friday, March 07, 2014 2:19 PM
To: Rep. Shelley Hughes; Ginger Blaisdell
Subject: FW: Lockheed Martin Hybrid Airship

Hello Rep. Hughes and Ginger,

Rep Wilson asked that I forward the email below to both of you. She also wanted to know if you got a similar email?

Becky Rooney
Chief of Staff
Representative Peggy Wilson
907-465-4858
907-305-3003 (cell)

From: Johnston, Craig [mailto:craig.johnston@lmco.com]
Sent: Friday, March 07, 2014 7:11 AM
To: Rep. Peggy Wilson
Subject: Lockheed Martin Hybrid Airship

Dear Representative Wilson,

I am pleased that your committee took the time to increase your understanding of the benefits of a Hybrid Aircraft in the state of Alaska earlier this week. However, I would like to clarify Lockheed Martin's position in this market space. Mr. Michael Smith represented to your committee that "Sky Lift Aeronautics is the exclusive marketing, sales and leasing representative for Lockheed Martin's Hybrid Aircraft" and that all interested parties would have to go through Sky Lift Aeronautics for the purchase or operation. These statements are false. While Lockheed Martin has had discussions with Mr. Smith, there is no formal agreement in place or specifically contemplated with Sky Lift Aeronautics. Additionally, Mr. Smith discussed plans for the development, testing, cost, schedule, performance and use of the Lockheed Martin Hybrid aircraft that do not represent the position of Lockheed Martin, and in many cases were not factual.

Lockheed Martin remains enthusiastic about the uses of Hybrid Aircraft in regions like Alaska and we have supported multiple Alaska Airship conferences. Additionally, we have met with your Lt. Governor, numerous State Representatives, AIDEA, several business interests in the oil, gas and mining industry, and the Alaska Railroad Corporation. The next time we are in Alaska, Lockheed Martin would be happy to brief your committee on Lockheed Martin's Hybrid Airship.

Sincerely,

Craig Johnston
Director, Business Strategy & Development
Lockheed Martin Aeronautics Company
Advanced Development Programs (Palmdale)

661.572.5377 (w)

661.965.8986 (bb)

TRANSFORMING ALASKA

THROUGH INOVATIVE TECHNOLOGIES IN: AVIATION, RE ENERGY, SUSTAINABLE FOOD, CLEAN WATER, BIO FUELS AND HARDENED DATA CENTERS

SKY LIFT
AERONAUTICS

MES
MERGED ENERGY SOLUTIONS

BENNEFITS TO ALASKA

* **ECONOMIC GROWTH**
* **LOWER OPERATING COSTS Vs FIXED WING**
* **MORE PRODUCTIVITY**
* **NEW JOBS**
* **SAFER TRANSPORTATION**
* **EXPANDED COMMERCE DOMESTIC & INTERNATIONAL**
* **CLEANER ENVIRONMENT**

SKY LIFT AERONAUTICS

MES
MERGED ENERGY SOLUTIONS

ECONOMICS

* **MINING**
* **ALTERNATIVE SHIPPING**
* **OIL AND GAS**
* **ALTERNATE TRANSPORTATION**
* **SURVEILLANCE AND MAPPING**
* **ON THE SPOT MEDICAL RESPONSE**

SKY LIFT
AERONAUTICS

MES
MERGED ENERGY SOLUTIONS

ECONOMICS

* TOURISM INDUSTRY
* DISASTER RELIEF
* SEARCH AND RESCUE
* FISHING
* FIRE FIGHTING CAPABILITIES
* TIMBER / LOGGING INDUSTRY

SKY LIFT
AERONAUTICS

MES
MERGED ENERGY SOLUTIONS

MINING

Infrastructure Costs

- Roads
- Rails
- Power
- Equipment
- Trucks
- Earth movers

SKY LIFT

MES
MERGED ENERGY SOLUTIONS

SHIPPING - TRANSPORT

SKY LIFT
AERO SERVICE

MES
MERGED ENERGY SOLUTIONS

ICE ROAD TRUCKING

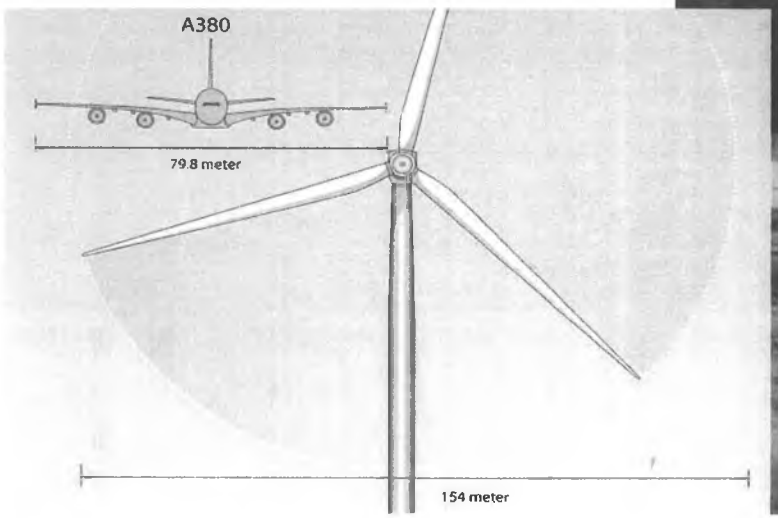
Ice roads are a common feature across Alaska & Canada, and are typically the only way to access the most remote communities via ground transport.

SKY LIFT
AERONAUTICS

MES
MERGED ENERGY SOLUTIONS

SPECIALTY TRANSPORT

B75 Quantum Blades are solid one-piece and 187 ft. long!



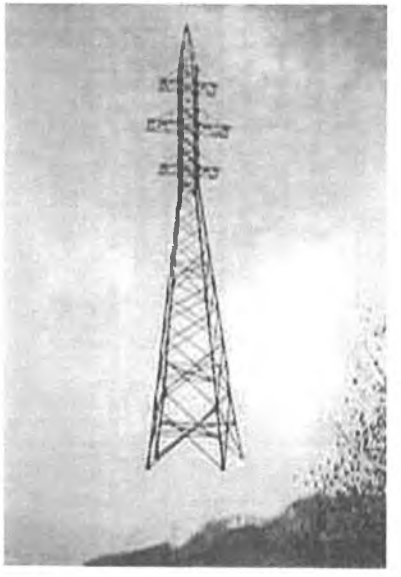
SKY LIFT

MES
MERGED ENERGY SOLUTIONS

IT'S ABOUT THE PAYLOAD, AS WELL AS THE PLATFORM

Transportation

Power Grid/Cell Towers



Oil and Gas E&P (and remote areas)

Mining

SKY LIFT

MES
MERGED ENERGY SOLUTIONS

Alaskan North Slope Oil & Gas Potential Production & Today's Market Value

ALASKA FACTS

- **First Major Oil Discovery:** 1957.
- **Industry Investment:** $50B+ to date.[1]
- **State Production:** 16+ billion barrels of oil (bbo).[1]
- **North Slope Oil Fields:** 4 of 10 largest in US; 12+ currently producing.[1]
- **North Slope Estimates:** ultimate recoverable oil reserves of 22.2 bbo; up to 124 trillion cubic feet (tcf) of natural gas.[1]
- **Prudhoe Bay Field:** 1,000+ wells; largest oil field in North America & largest producing US oil field; site of large natural gas processing plant.[2]
- **Prudhoe Bay Estimate:** 2.5 billion barrels of recoverable oil & 426 million barrels in reserves.[1]
- **Pipeline Infrastructure:** 800-mile Trans-Alaska Pipeline System (TAPS); 1.5+ million barrels per day of spare capacity; supplying American energy to Americans without environmental risks or 'dirty oil' associated with Keystone Pipeline.
- **Ongoing Development:** major operators such as Exxon Mobil (NYSE:XOM | Market Cap: $410.84B), BP (NYSE:BP | $139.96B) and ConocoPhillips (NYSE:COP | $71.86B) investing heavily in oil and gas-related projects.

1. Resource Development Council for Alaska (website), Oct. 18, 2012.
2. ConocoPhillips (website), Oct. 18, 2012.

Today's Estimated North Slope Oil Reserves of up to 22.2 billion barrels of oil are valuated at $2.3 trillion at today's prices

Today's Estimated North Slope Natural Gas Reserves of 123 Trillion Cubic Feet (TCF) are valuated at $459 billion at today's prices

SKY LIFT

MES
MERGED ENERGY SOLUTIONS

OIL AND GAS - 1

SKY LIFT
AERONAUTICS

MES
MERGED ENERGY SOLUTIONS

OIL AND GAS - 2

MACONDO INCIDENT

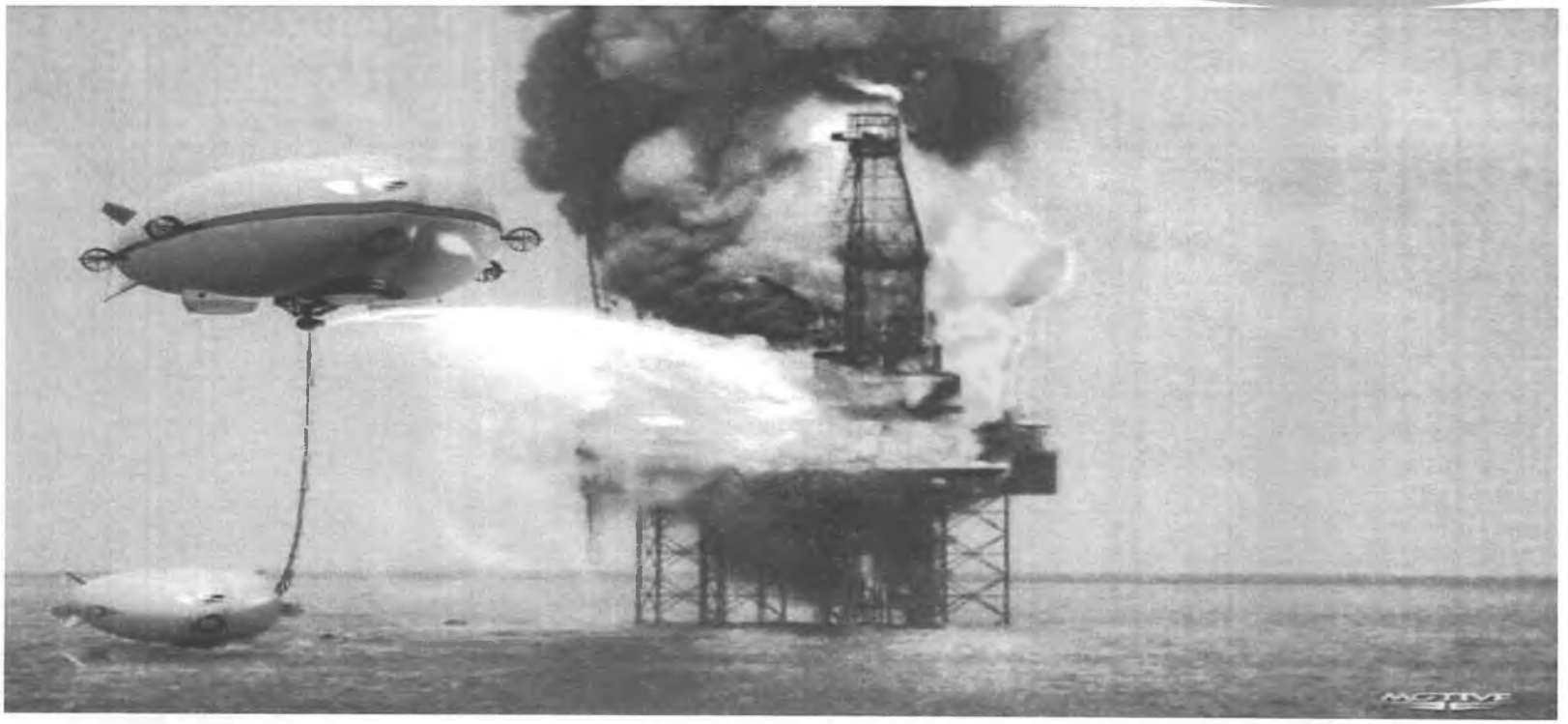
It is critical to get a craft onsite as quickly as possible for command & control, well control, SAR, firefighting/suppression, oil spill containment & collection

SKY LIFT
AERONAUTICS

MES
MERGED ENERGY SOLUTIONS

APPLICATIONS OIL & GAS RAPID EMERGENCY RESPONSE

Emergency Response, Firefighting, Containment, Collection, Search & Rescue (Could have be on scene at Macondo Incident in 1l/2 hours)

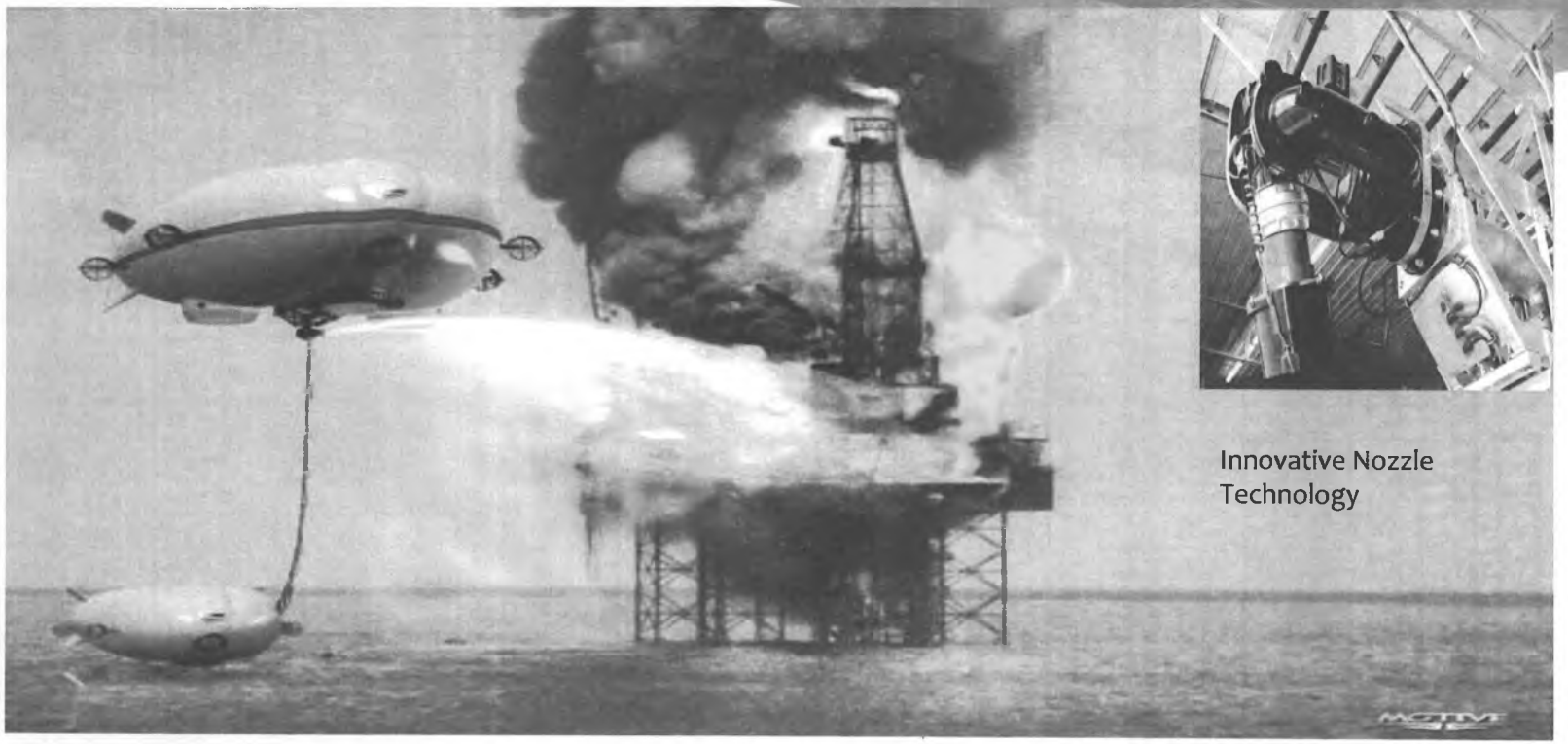


SKY LIFT
AEROSAUTICS

MES
MERGED ENERGY SOLUTIONS

APPLICATIONS OIL & GAS RAPID EMERGENCY RESponse

Emergency Response, Firefighting, Containment,



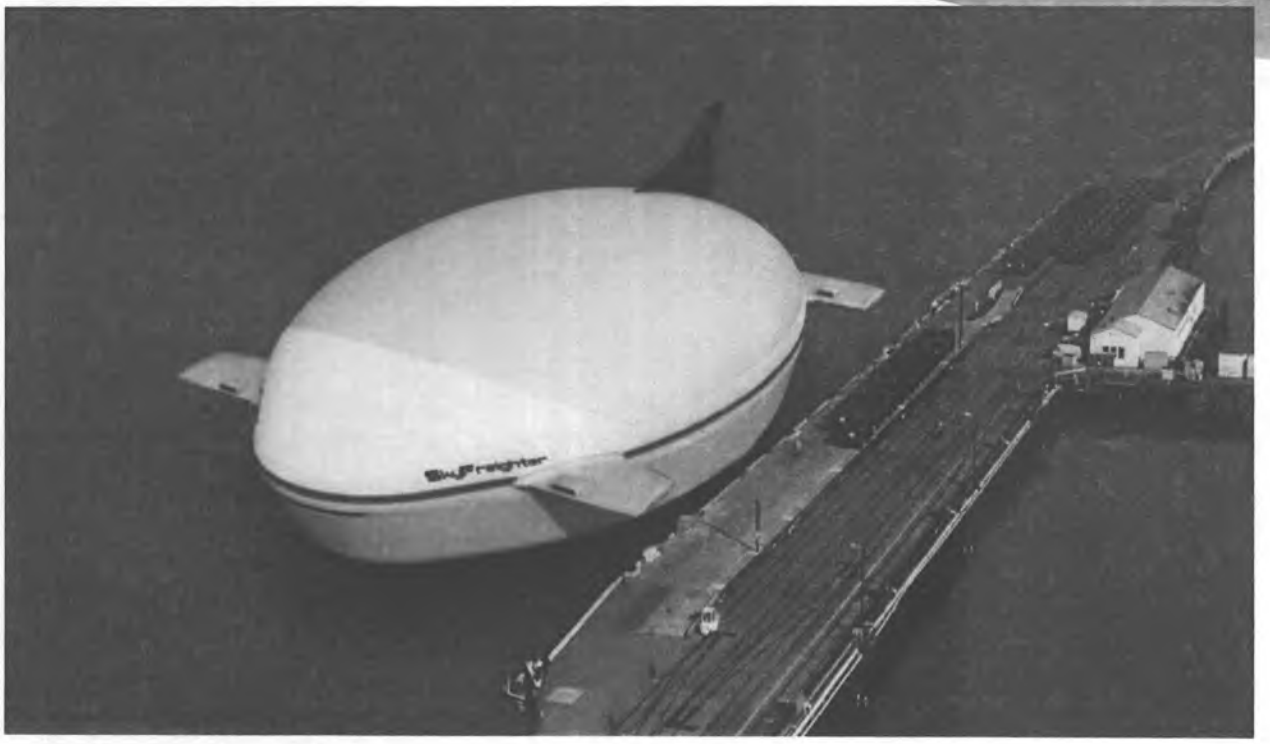
Innovative Nozzle Technology

New technology to lift & apply modified seawater

SKY LIFT AERONAUTICS

MES MERGED ENERGY SOLUTIONS

LNG TRANSPORT



LNG GAS IS QUICKLY BECOMING A HIGHLY NEEDED COMMODITY BUT BEING ABLE TO DELIVER IT QUICKLY AND BE COST EFFECTIVE HAS BEEN AN ISSUE. ITS NOW POSSIBLE WITH THE SKYLIFT TANKER TO LOAD FROM ANY LOCATION AND DELIVER EASILY TO ALMOST ANYWHERE, MAKING THE USE OF LNG MORE PRACTICLE AND ECONOMICAL.

SKY LIFT

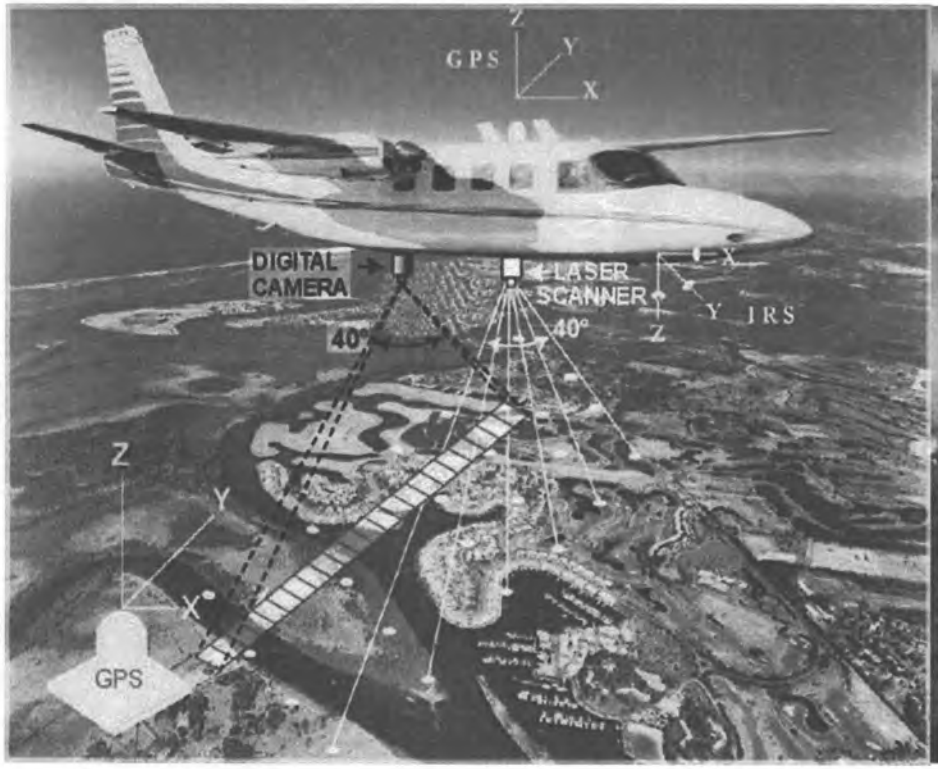
MES
MERGED ENERGY SOLUTIONS

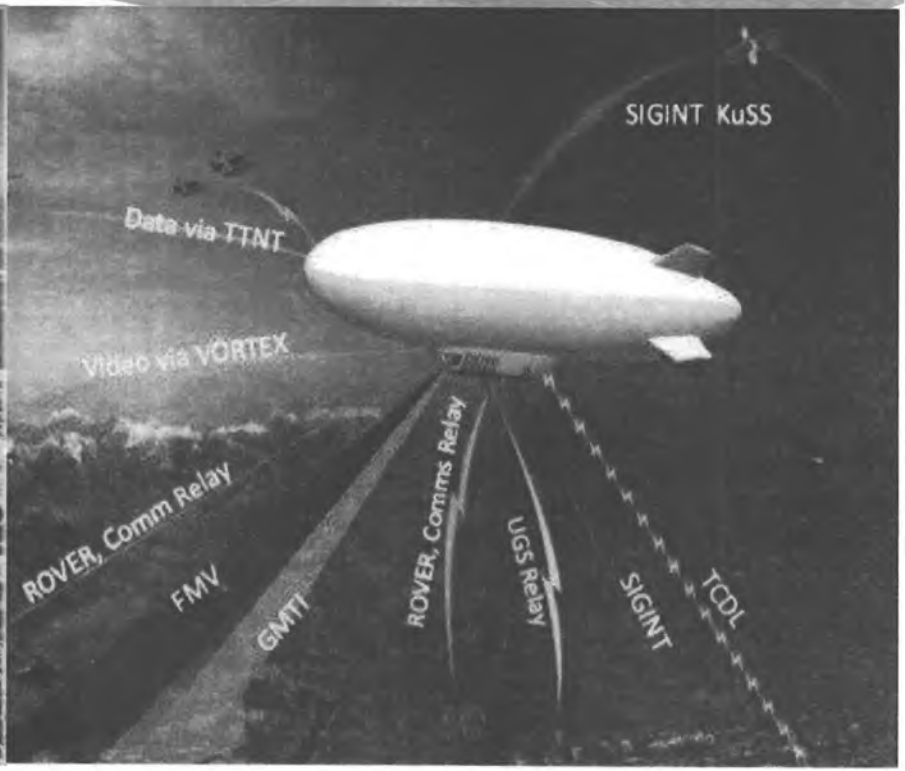
ALTERNATE TRANSPORT

SKY LIFT

MES
MERGED ENERGY SOLUTIONS

SURVEILANCE AND MAPPING





courtesy: U.S. Air Force

SKY LIFT AERONAUTICS

MES
MERGED ENERGY SOLUTIONS

ON THE SPOT MEDICAL RESPONSE

100 TON VARIANT

WHEN TIME IS NOT AN OPTION

SKY LIFT
AERONAUTICS

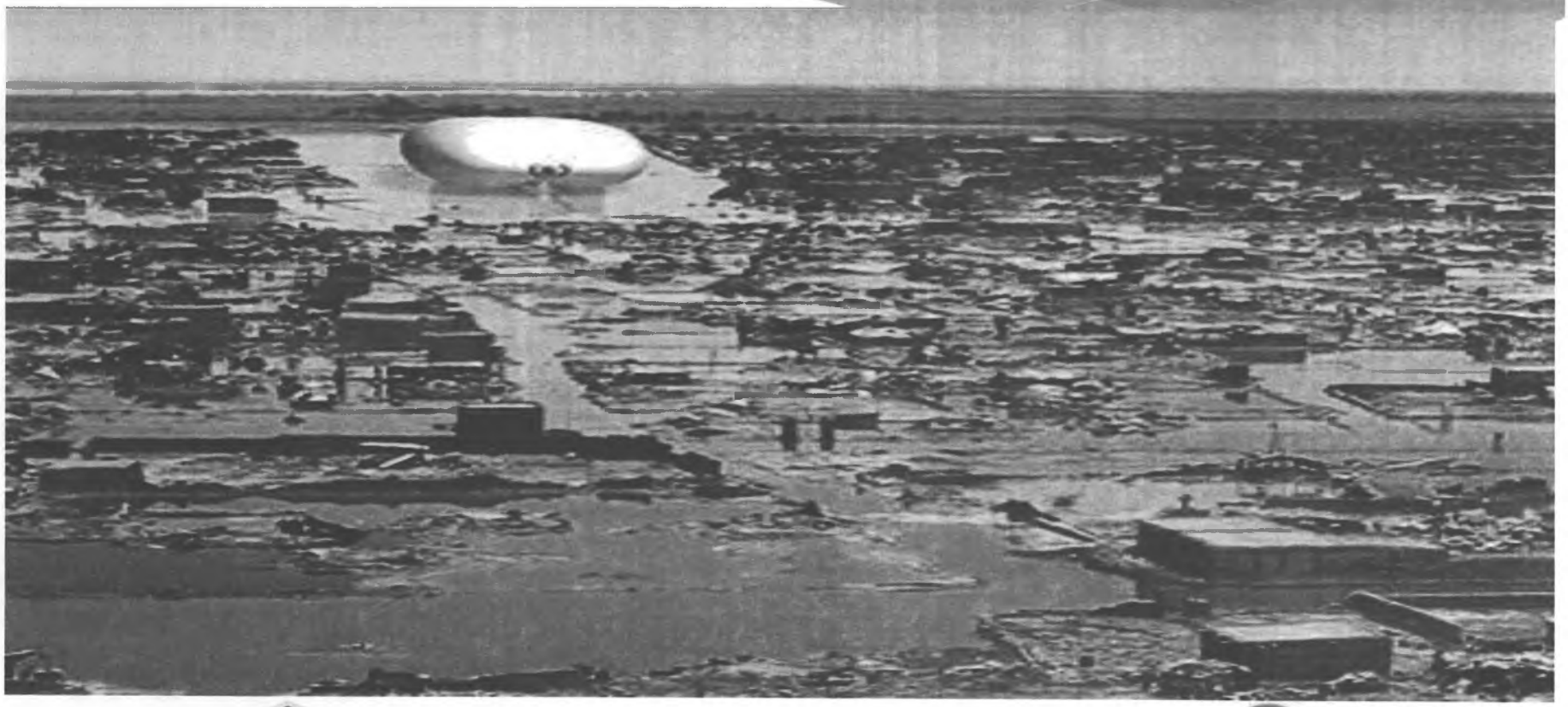
MES
MERGED ENERGY SOLUTIONS

TOURISM

SKY LIFT
AERONAUTICS

MES
MERGED ENERGY SOLUTIONS

DISASTER RELIEF

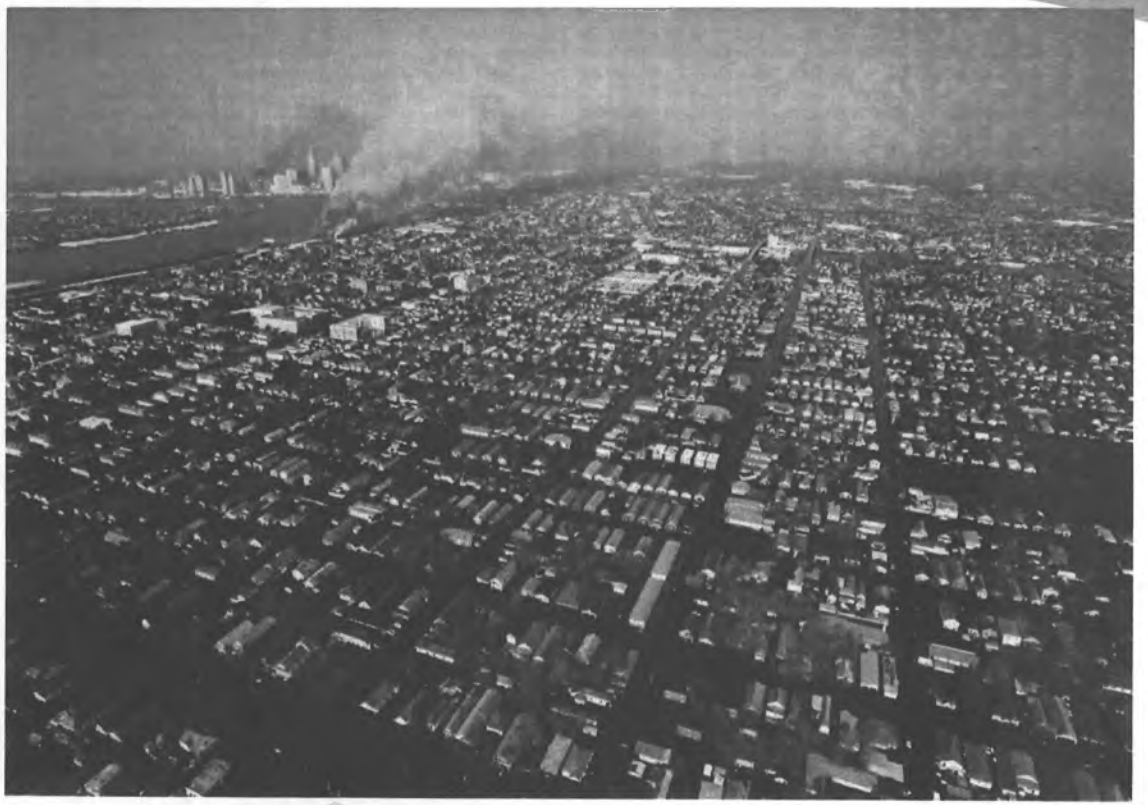


SKY LIFT

MES
MERGED ENERGY SOLUTIONS

DISASTER RELIEF

Hurricane Katrina



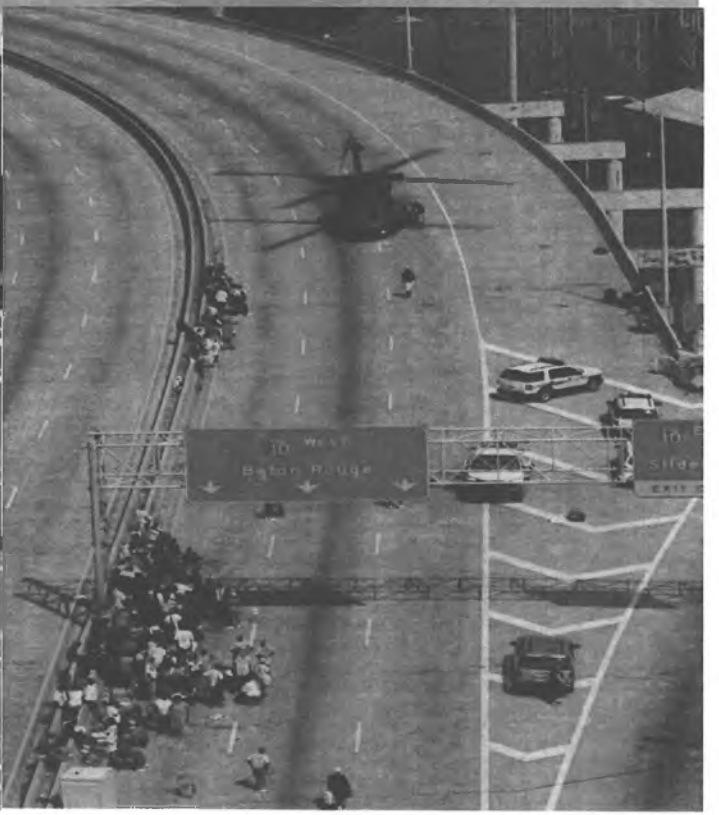
- 1,836 people died in the hurricane and
- An estimated $90 billion worth of damage.

SKY LIFT AERONAUTICS

MES
MERGED ENERGY SOLUTIONS

DISASTER RELIEF

Hurricane Katrina – A few people at a time by helicopter



SKY LIFT AERO-MEDICAL

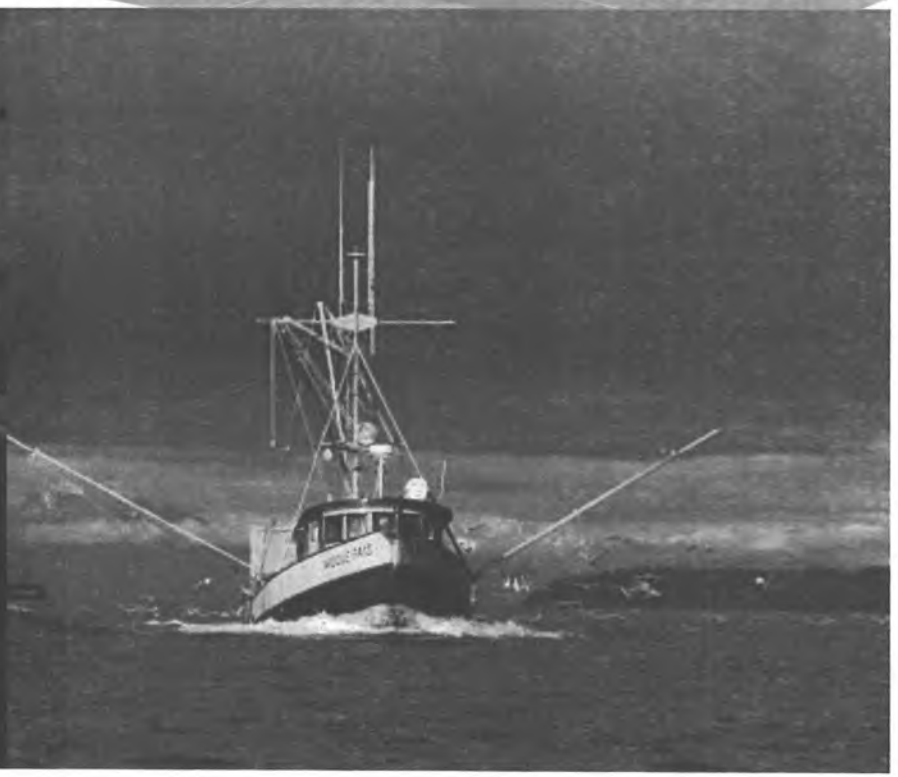
MES
MERGED ENERGY SOLUTIONS

SEARCH AND RESCUE

SKY LIFT
AERONAUTICS

MES
MERGED ENERGY SOLUTIONS

FISHING ENHANCEMENT



SKY LIFT
AERONAUTICS

MES
MERGED ENERGY SOLUTIONS

FIRE FIGHTING

Wildfire Air Tanker Concept

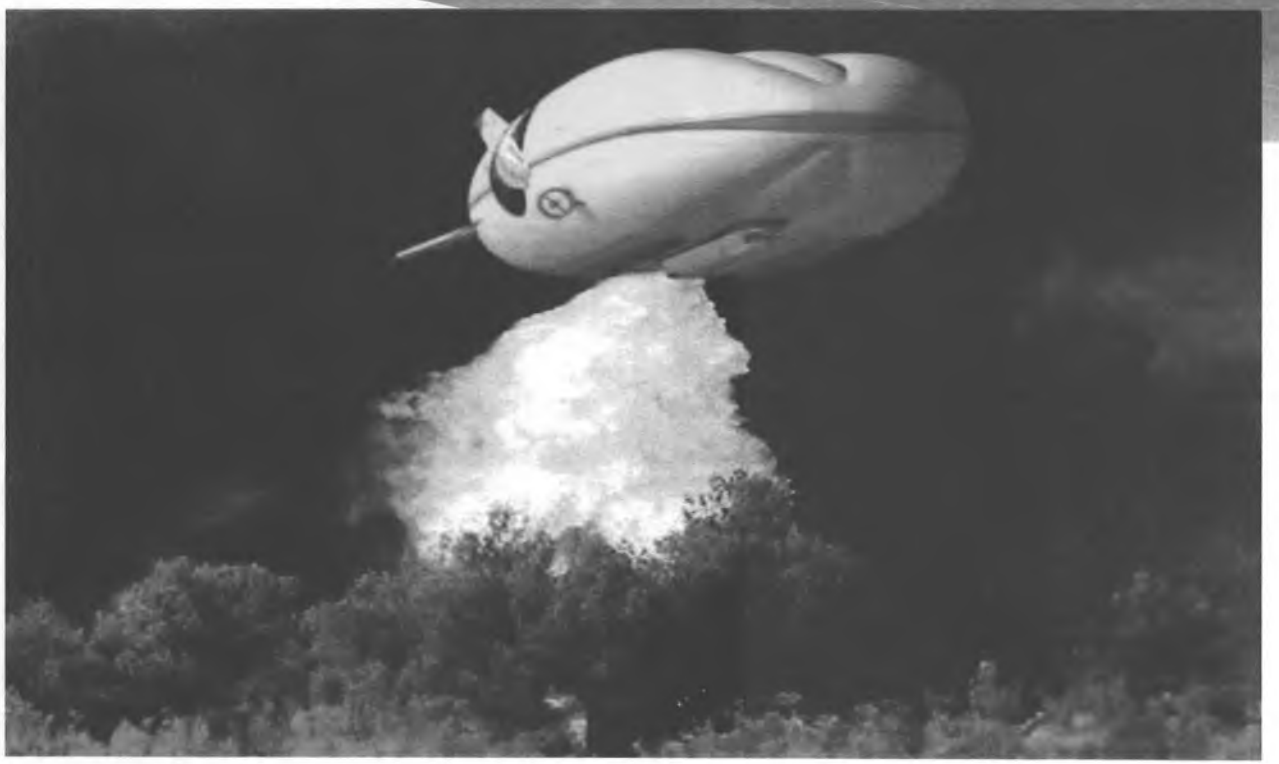
An average of 50 Tankers are needed, but only 7 are operating*
Wildfire fighting experts agree 50 additional planes are needed to complement ground crews overwhelmed by the number and intensity of wildfires during the fire season.
The Cost of putting out wildfires is over $1.65 billion/year.

*July 3, 2012 Disaster Relief & Reuters, 2012

SKY LIFT
AERONAUTICS

MES
MERGED ENERGY SOLUTIONS

HYBRID AIRCRAFT WILDFIRE AIR TANKER CONCEPT



NOT JUST A TANKER! A New Disruptive Firefighting System

SKY LIFT

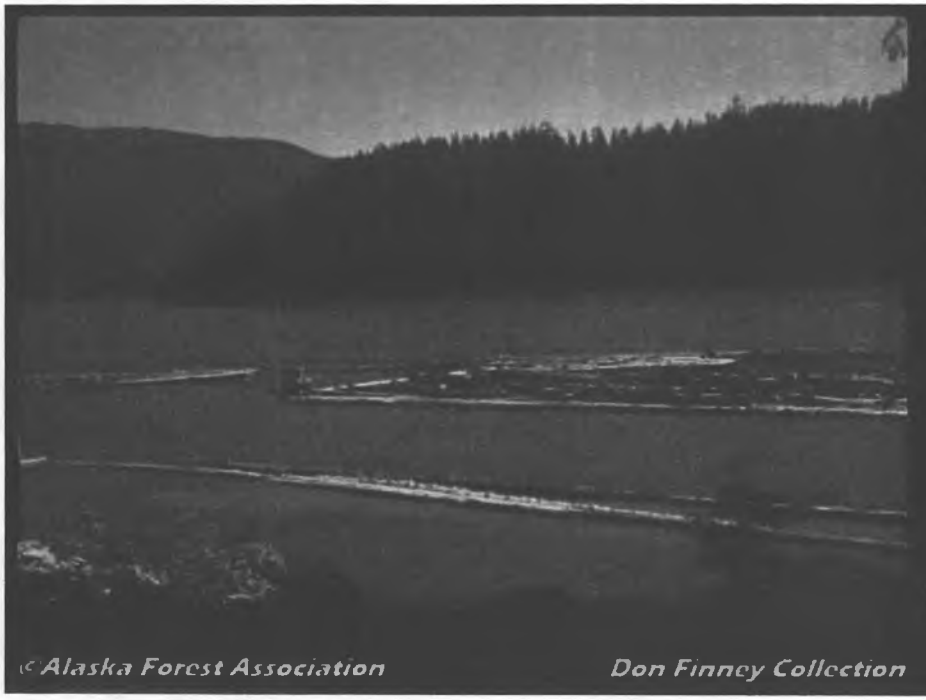
MES
MERGED ENERGY SOLUTIONS

FOREST MANAGEMENT

SKY LIFT
AERONAUTICS

MES
MERGED ENERGY SOLUTIONS

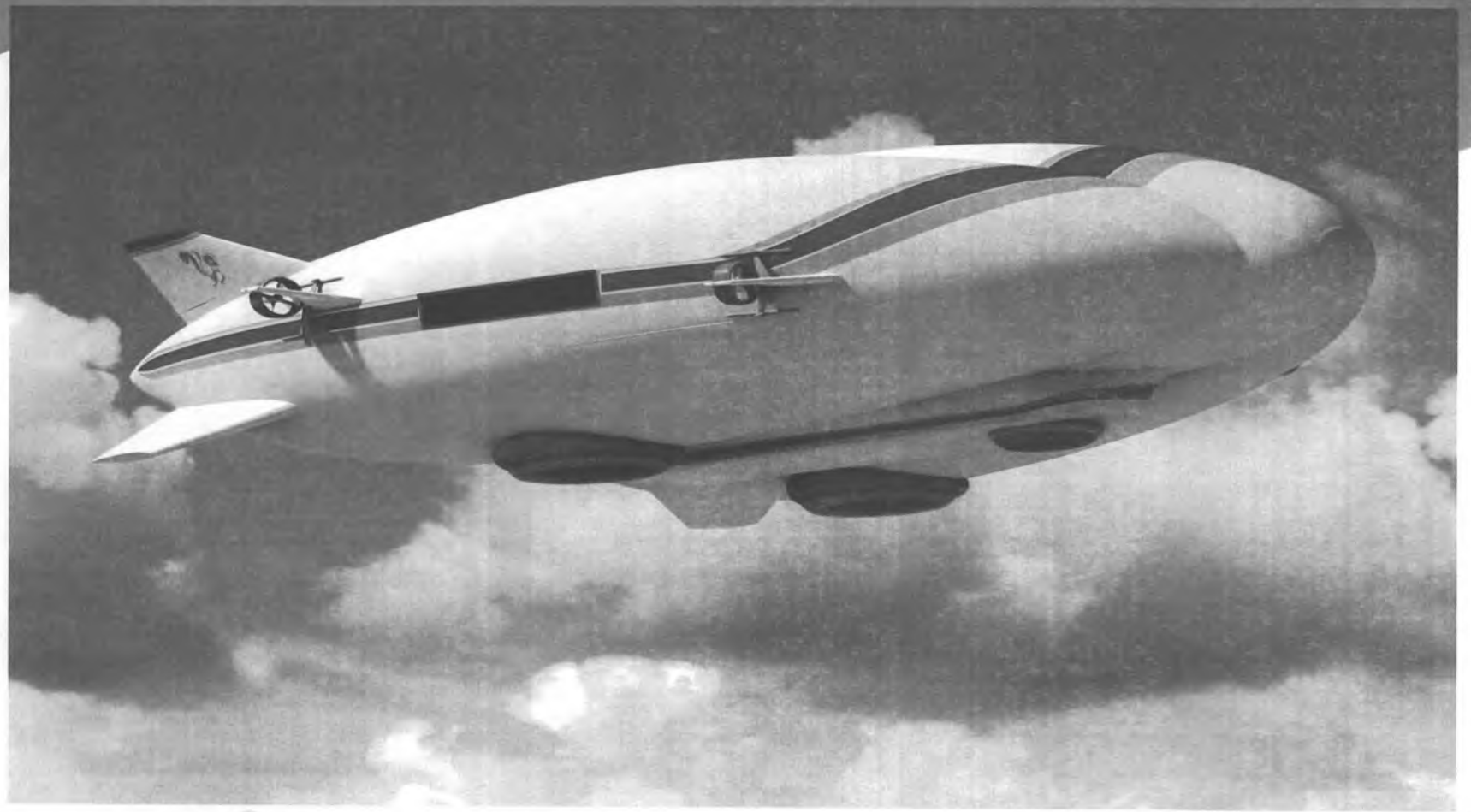
TIMBER AND LOGGING



© Alaska Forest Association Don Finney Collection

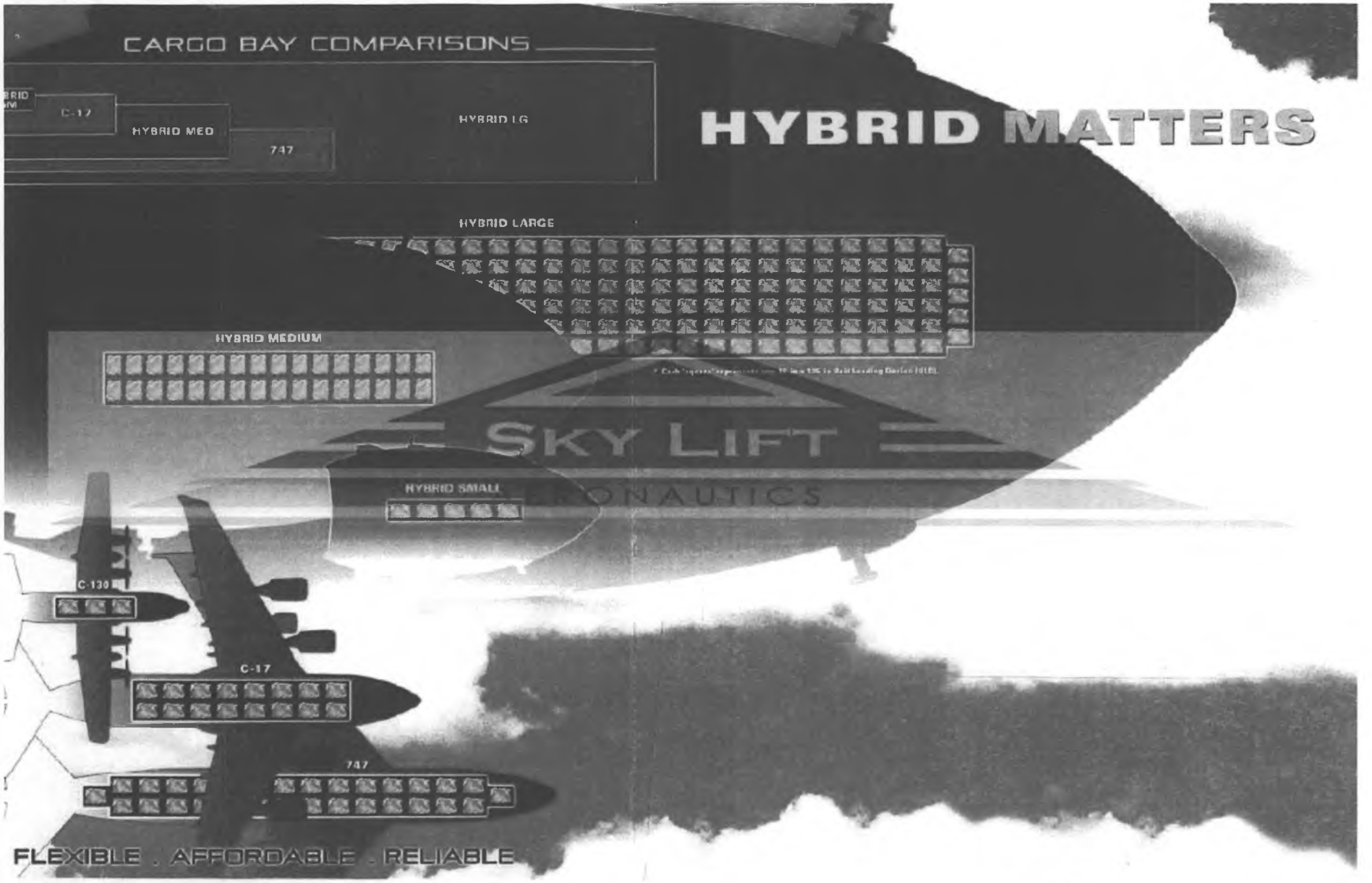
© Alaska Forest Association Don Finney Collection

SKYLIFT HYBRID AIRCRAFT



SKY LIFT
AERONAUTICS

MES
MERGED ENERGY SOLUTIONS

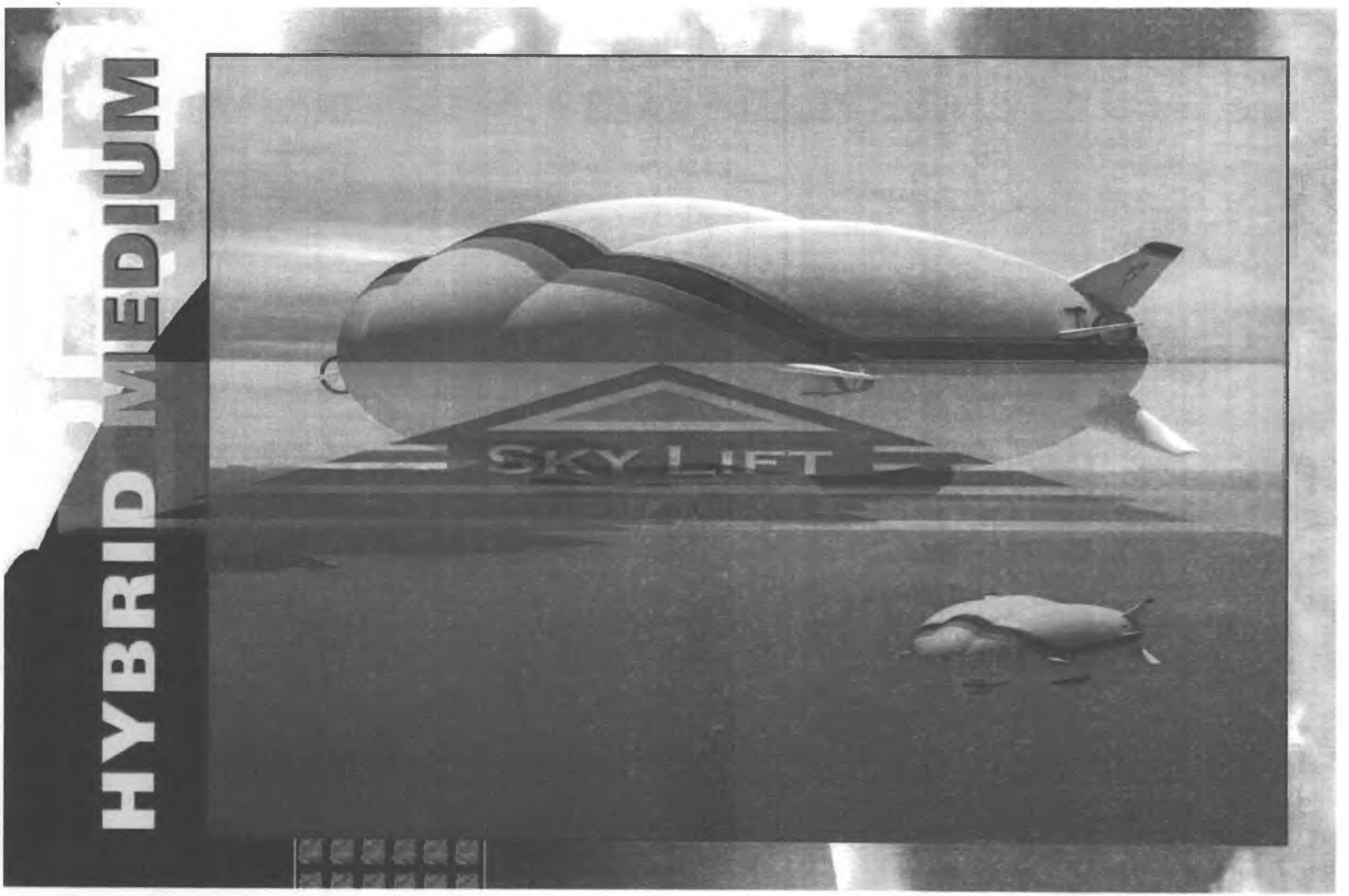


SKY LIFT AERONAUTICS

MES
MERGED ENERGY SOLUTIONS

SKY LIFT
AERONAUTICS

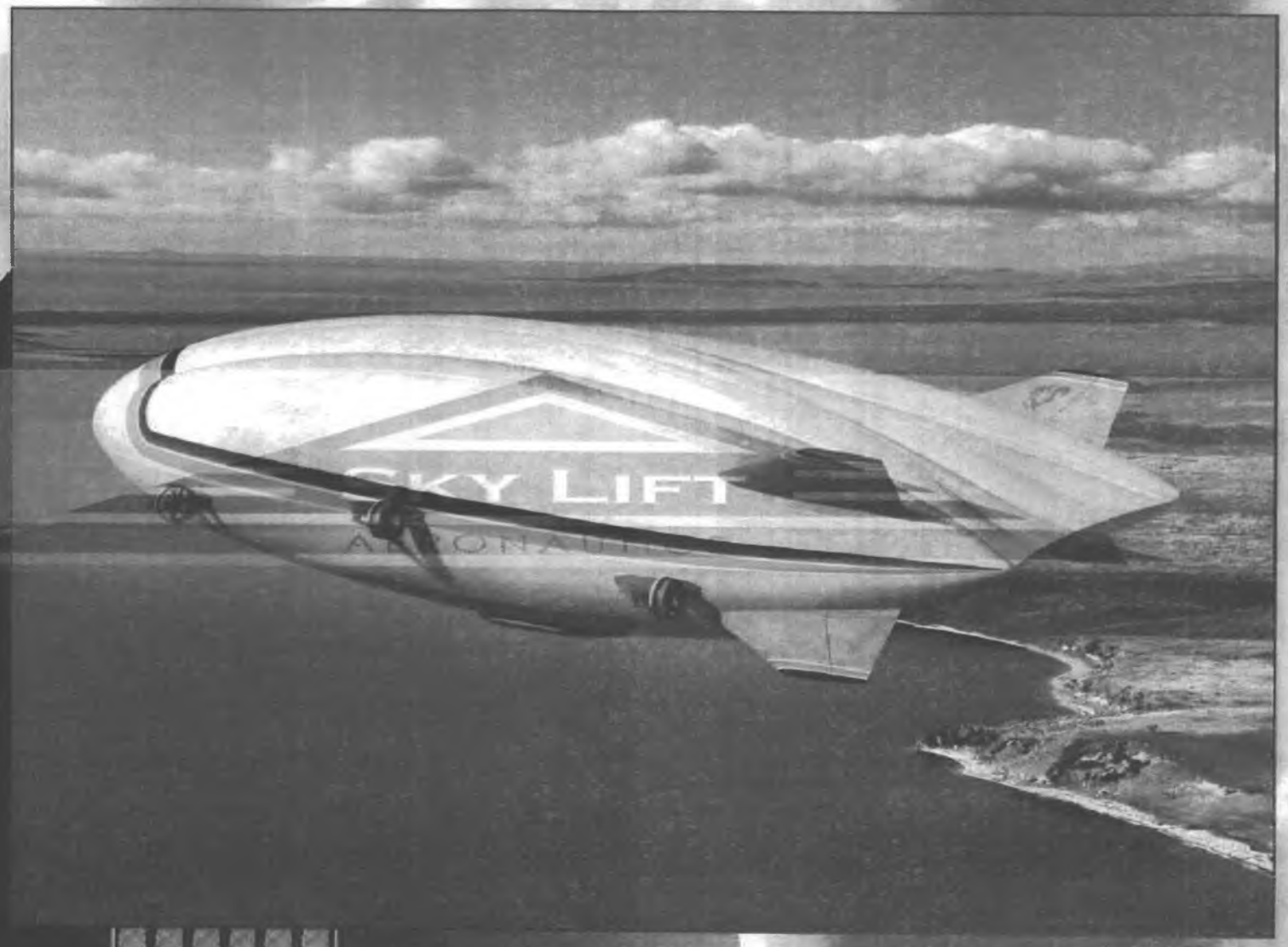
MES
MERGED ENERGY SOLUTIONS



SKY LIFT

MES
MERGED ENERGY SOLUTIONS

HYBRID LARGE



SKY LIFT

MES
MERGED ENERGY SOLUTIONS

4 Proven Technologies Merged Into 1 Transformational Technology

Vertical Airlift

Helicopter

Deltoid Shape Aerodynamic Lift

Cargo Airplane

Hybrid Aircraft

Vectored Thrust

Hover Craft

Air Cushion Landing System (ACLS)

Helium Filled Envelope Up to 80% Vertical lift

Airship (Blimp)

SKY LIFT AERONAUTICS

MES MERGED ENERGY SOLUTIONS

FOR MORE INFORMATION

ON HOW TO ORDER THE AIRCRAFT AND OR SPECIFICATIONS

HYBRID VARIANTS

20 TON CAPACITY
100 TON CAPACITY
500 TON CAPACITY

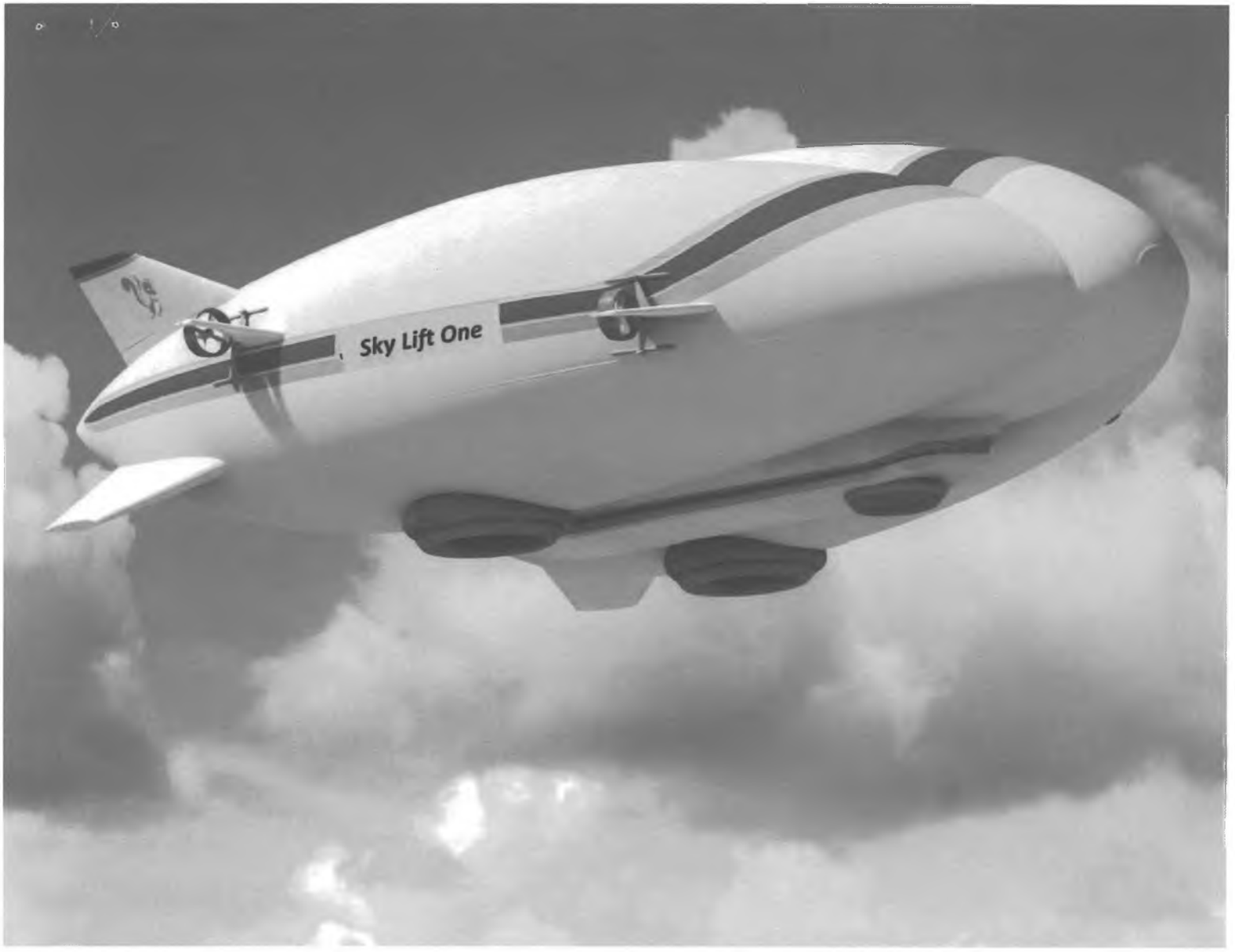
CONTACT:

R. MICHAEL SMITH
Michael.smith@skyliftaero.com
1-714-262-6839

Kurtis Zell
Kurtis.zell@skyliftaero.com
1 702 232 9029

SKY LIFT

MES
MERGED ENERGY SOLUTIONS

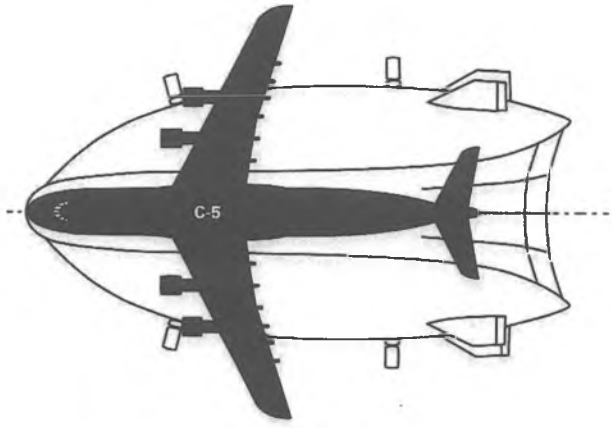


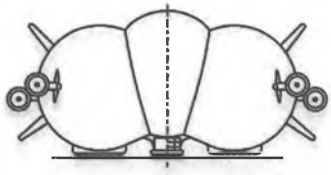
SKY LIFT

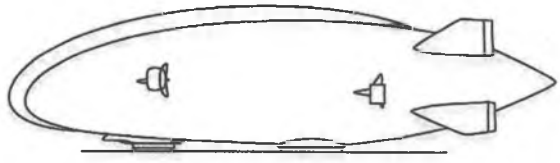
AERONAUTICS

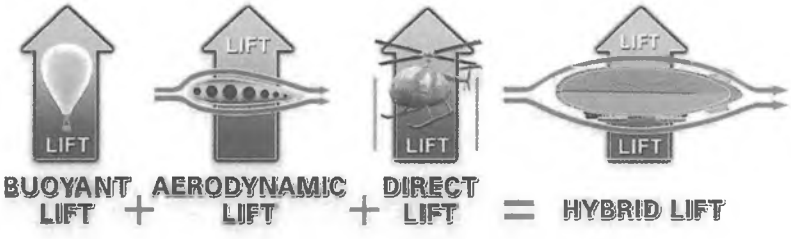
HYBRID SMALL

Dimensions	276' x 157' x 75'
Speed	60 kt
Range	1,400 nm
Payload	15-22 tons @ 5K' msl
Service Ceiling	10,000' msl
Modes	Standard Take-off, VTOL, Sling Load
Surfaces	Austere field, water, snow, sand

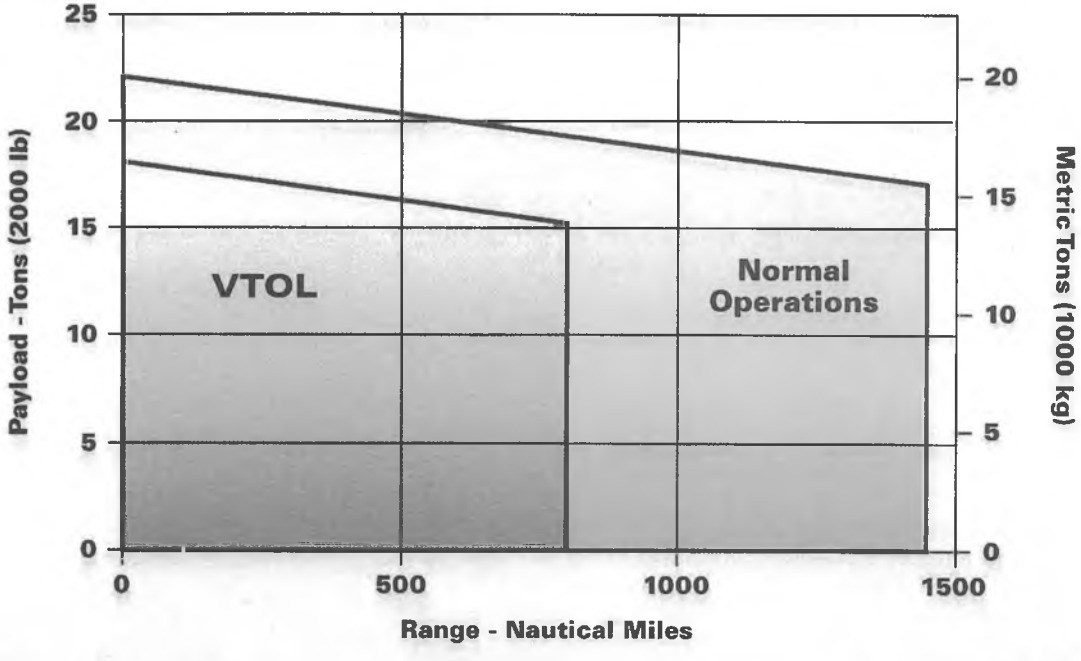








- 80% Lift from Buoyancy
- 20% Lift from Aerodynamics or Direct Lift

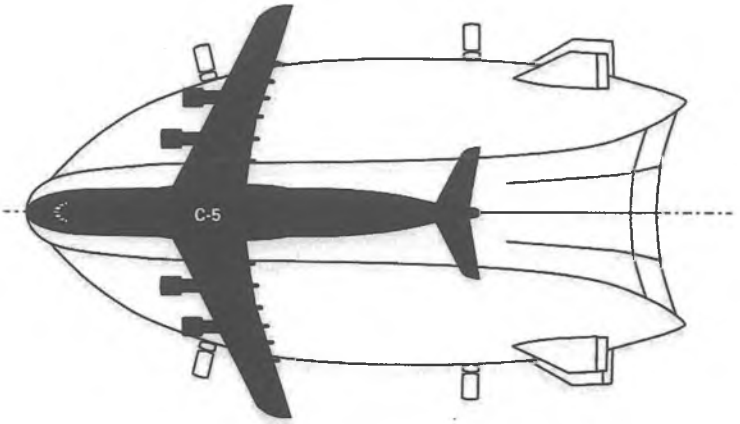


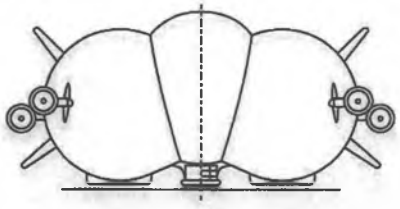
20 Ton Hybrid Specifications

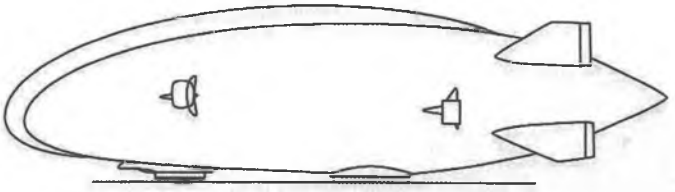
Feature	Specification Values
Cargo Capacity	40,000 lbs
Cargo Bay Length	55 feet
Cargo Bay Height	10 feet
Cargo Bay Width	10 feet
Cargo Bay Volume	5500 ft^3
Dedicated Diesel Fuel Tank Transport Capacity	30,000 lbs (4400 US Gallons)
Crew Member Seating	2
Passenger Seating	8
Engines	4 x 306 HP Diesel
Maximum Aircraft Fuel Capacity	10,000 lbs (1470 US Gallons)
Maximum Range	1,500 nm
Maximum Altitude	10,000 feet density Alt.
Cruise Speed	60 knots
Length	276'-11"
Span	157'-2"
Height	75'-2"
Envelope Volume	1,285,000 ft^3
Max VTOL Capability	30,000 lbs cargo
Sling Load Capability	Yes
Maximum Takeoff Distance	2,500 feet
Minimum Temperature	-40°F
Maximum Temperature	122°F
Landing Surfaces	Pavement, dirt, grass, snow, water, gravel, sand
Operating Conditions	VFR/IFR

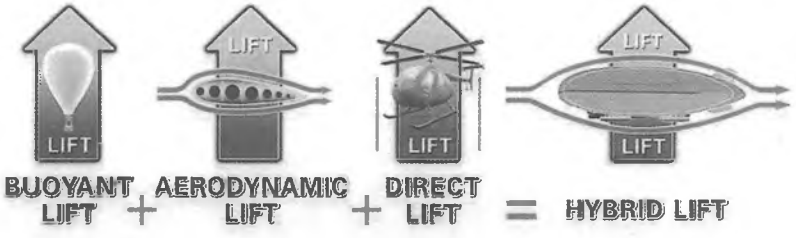
HYBRID MEDIUM

Dimensions	423' x 185' x 117'
Speed	80 kt
Range	3,200 nm
Payload	40-90 tons @ 5K' msl
Service Ceiling	10,000' msl
Modes	Standard Take-off, VTOL, Sling Load
Surfaces	Austere field, water, snow, sand

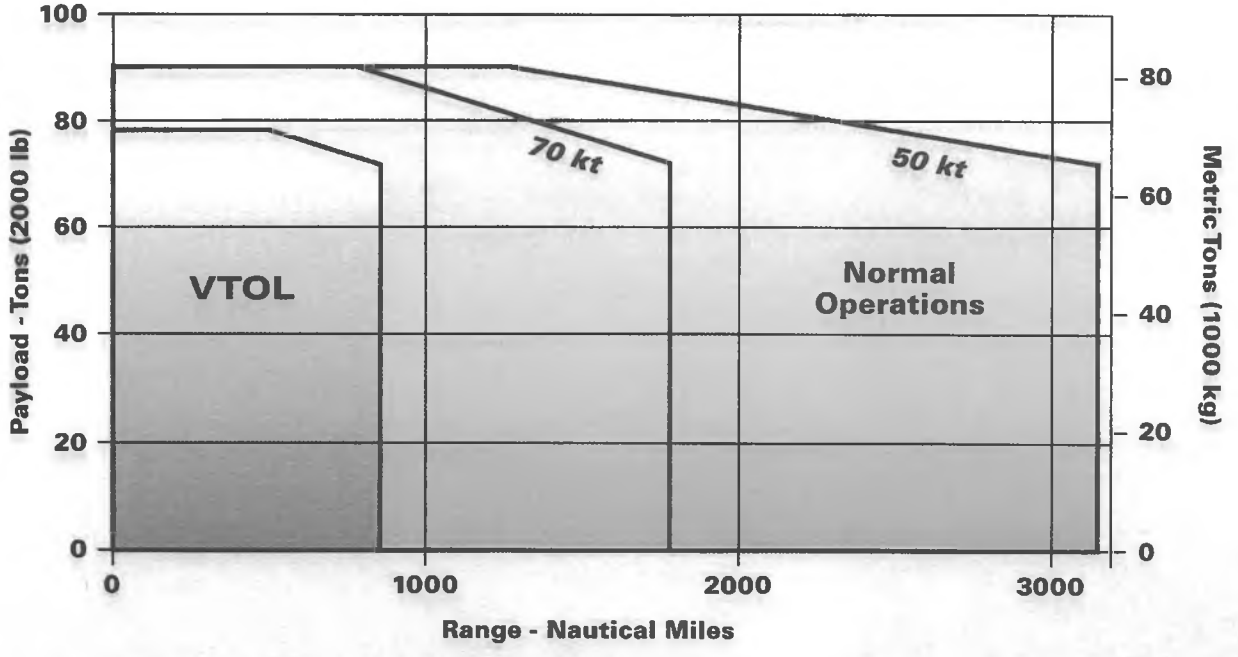








- 80% Lift from Buoyancy
- 20% Lift from Aerodynamics or Direct Lift

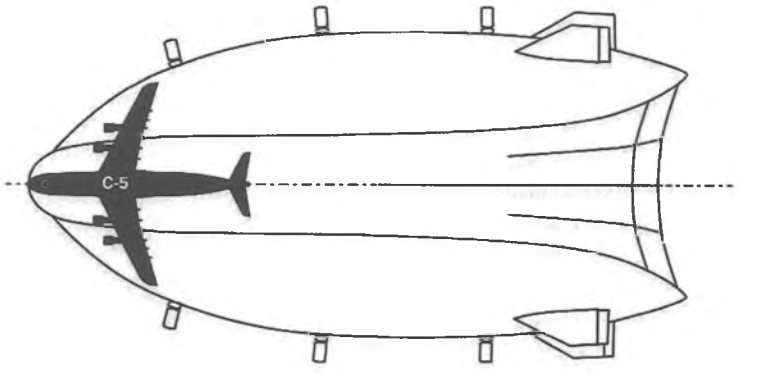


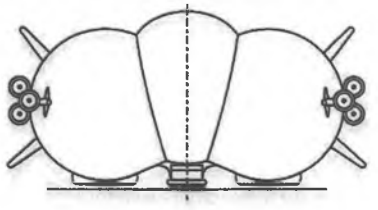
50/70 Ton Hybrid Specifications

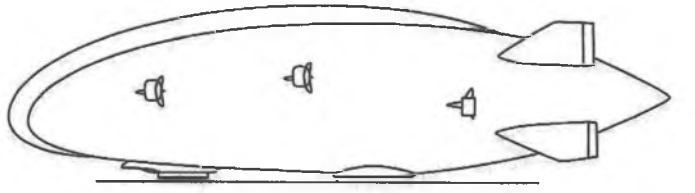
Characteristic	Description50/70T
Payload	50/70 ton
Passenger load	400
Crew size	2
Cargo box size Floor strength	140' x 20'w x 10'h
Range (unrefueled)	2,000/1,300 nm
Range-payload curve	
Range-speed-payload curve	
Combat radius	
Max Speed	70 kt
Cruise Speed	60 kt
Length	400'
Wingspan	160'
Maximum take-off weight	245,000 lb
Minimum take-off runway length	500' VTOL, 1000' CTOL *
Minimum landing runway length	1000' *
Minimum runway width	200' *
CBR	0
Load time	<1 hr
Off-load time	<1 hr
Operating altitude	5000'
Max altitude	10000'
Utilization rate	
Fuel burn rate (lbs/hr)	1400 lb/hr
Air refuelable (yes/no)	No
Fuel type	Jet A
Ballast type	Water
Air/sea interface	
MHE / ground handling	

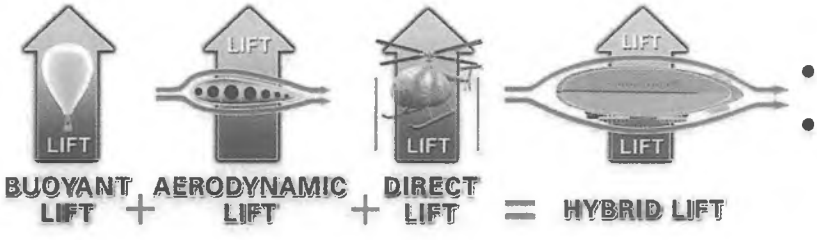
HYBRID LARGE

Dimensions	742' x 394' x 202'
Speed	100 kt
Range	6,800 nm
Payload	400 - 500 tons @ 5K' msl
Service Ceiling	10,000' msl
Modes	Standard Take-off, VTOL
Surfaces	Austere field, water, snow, sand

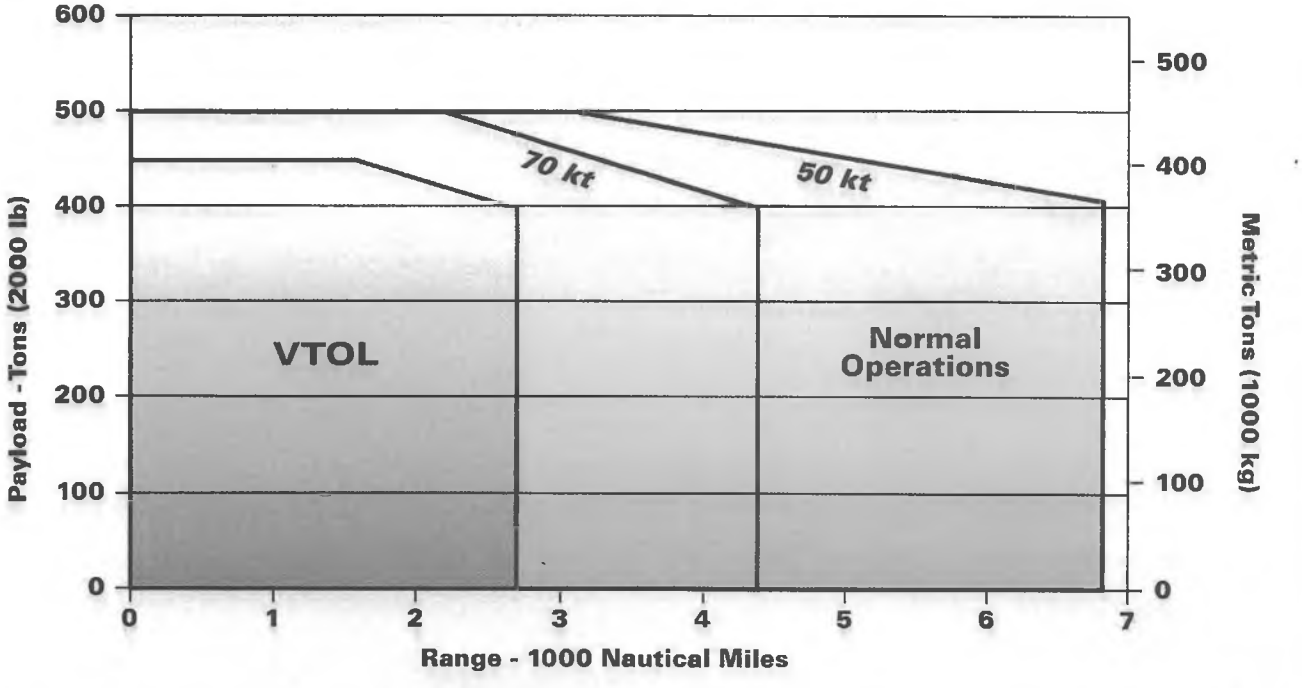








- 80% Lift from Buoyancy
- 20% Lift from Aerodynamics or Direct Lift



500 Ton Hybrid Specifications

Characteristic	Description 500 Ton
Payload	500 ton
Passenger load	2,200
Crew size	2
Cargo box size Floor	290' x 48'w x 20'h
Range (unrefueled)	5,000 nm
Range-payload curve	
Range-speed-payload curve	
Combat radius	
Max Speed	80 kt
Cruise Speed	70 kt
Length	790'
Wingspan	420'
Maximum take-off weight	2,240,000 lb
Minimum take-off runway length	1200' VTOL, 2000' CTOL *
Minimum landing runway length	1500' *
Minimum runway width	500' *
CBR	0
Load time	<1 hr
Off-load time	<1 hr
Operating altitude	5000'
Max altitude	10000'
Utilization rate	
Fuel burn rate (lbs/hr)	4800 lb/hr
Air refuelable (yes/no)	No
Fuel type	Jet A
Ballast type	Water
Air/sea interface	
MHE / ground handling	