

# Evergreen Supertanker



**PROTECTING VALUABLE RESOURCES  
WITH AN ADVANCED FIREFIGHTING AIRCRAFT**

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# Evergreen Supertanker



TYPE I HELICOPTER				
TYPE II HELICOPTER				
TYPE III HELICOPTER				
TYPE IV HELICOPTER				
FIXED WING				
	HEAVY LIFT	MEDIUM	LIGHT	FIXED WING

## SPECIFICATIONS:

### FLIGHT CREW

3

### MAXIMUM CRUISE SPEED

600 mph

### MAXIMUM PAYLOAD

230,000 lbs

### MAXIMUM RANGE

5,000 miles

### WORLDWIDE LONG RANGE NAV

3 Global positioning systems (GPS)

### COMMERCIAL VOICE COMMUNICATION

Worldwide SATCOM 0

### PERFORMANCE

Multiple drops and coverage levels from 800 ft AGL

Variable pressure delivery system

Full length level 2 drop (24,000 ft)

Loiter time above drop site: 3 hours plus

Can operate out of all military bases and military/civilian joint-use bases (8,000 ft minimum)

### CAPABILITIES

Availability of an airborne command and control post

Worldwide rapid response capabilities

Can carry chemical neutralizers or gel and foaming concentrates

Capable of positioning mobile tanks used to store the 747s drop material

24-hour capability

En route/on-board mixing capability

On-board chemical, foam and gel induction system

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**EVERGREEN SUPERTANKER: ADDRESSING THE FUTURE OF AERIAL APPLICATIONS**

Wildfire management is an increasingly complex and expensive task. In 2002, over 88,000 fires burned nearly 7 million acres. And in 2003, large fires such as the one that burned more than 750,000 acres in Southern California captured the public’s attention and cost millions of dollars to fight.

Historically, just how severe is the wildfire problem? Since 1994, according to the National Interagency Fire Center, 918,719 fires have burned over 44 million acres

in the United States. During this time, over \$6.9 billion was spent to suppress these fires. But the true cost of wildfire is much higher. If you factor in cumulative wildfire costs, which include timber, tourism, and property losses, the cost in 2002 alone reached over \$10 billion.

Evergreen is developing an advanced aerial firefighting and multi-agency platform, using a Boeing 747 aircraft, which will revolutionize the way fires are fought.

This aircraft will not only fight fires, but also fight costs.

This aircraft, the Evergreen Supertanker, will offer dra-

matic technological improvements. This aircraft's drop capabilities, effectiveness, safety standards and operational flexibility will all be revolutionary. Evergreen believes once all these factors are considered, the Supertanker will have the best value of any available aircraft.

The Evergreen Supertanker will be capable of dispersing 24,000 gallons of retardant. It will offer a pressurized system, which allows the aircraft to fly at higher altitudes. This offers both safety and tactical advantages. The aircraft will also have the capability to perform segmented drops. This will allow the flexibility to fight multiple fires on a single mission.

Evergreen is not just developing a new aircraft. Rather, we are creating an entire self-contained operation able to ensure safety and high standards within every aspect of ground handling and flight operations.

In addition, the Evergreen Supertanker is a multi-mission aircraft. Oil spill containment, chemical decontamination, and homeland defense are all applications that could utilize this utilitarian aircraft.

**COMPANY BACKGROUND**



**Evergreen International Aviation, Inc.**

Recognized as one of the most respected aviation service companies in the world, Evergreen International Aviation and its subsidiaries employ over 5000 personnel who have served customers in over 168 countries worldwide.

Evergreen International Aviation's aerial firefighting experience and Boeing 747 airline operations uniquely position the company to forward the Evergreen Supertanker concept. By merging talents from Evergreen's companies, a pool of resources and expertise is available to certify, safely operate and succeed with the Evergreen Supertanker project.



**Evergreen Helicopters, Inc.**

Founded in 1960 by Delford M. Smith, Evergreen Helicopters (EHI), has achieved success as the leading provider of helicopter and aircraft services around the world. It has effectively provided aviation services while matching the machine to the mission, and excels in pioneering unique helicopter and fixed wing aircraft configurations and modifications.

EHI began as a leading supplier of agriculture and forestry aerial support and is committed to protecting resources by serving federal, state and private agencies

in fire fighting, logging, spraying, re-seeding and reforestation.

Today, EHI, still adheres to its “quality without compromise” motto in support of these industry segments. It also participates in construction, disaster relief, drug interdiction, insect control, mail service, maritime pilot transfers, peacekeeping missions, power line construction, patrol and repair, search and rescue and tourism support.

With Evergreen’s purchase of Johnson Flying Service in 1975, its firefighting experience goes back to 1924. It possesses one of the nation’s original operating certificates and, in 1931, was awarded the first United States Forest Service (USFS) Prime Contract for aerial firework. At this time, the first “smoke jumper” aircraft was introduced, the famous Ford Tri-Motor. Evergreen contracted the first airtanker aircraft with the USFS in 1956. Other contracted aircraft included the B-25 TBM, B-26, F7F, and P2V. In 1975, Evergreen added the Boeing B-17 with an enhanced delivery system.



**Evergreen International Airlines, Inc.**

With its worldwide operating authority, for nearly three decades, Evergreen International Airlines, Inc. (EIA) has performed passenger and cargo services across the

globe. Since 1974, with the acquisition of one of the oldest Part 121 operating certificates in the US, EIA has served a variety of markets and customers.

Presently, EIA operates 10 Boeing 747 aircraft, primarily supporting international cargo clients and supplementing military airlift requirements, and 7 DC-9s. EIA maintains locations at 36 US and 12 international cities and has established a reputation as a leading operator of the Boeing 747 aircraft with a performance record second to none. To date, Evergreen has over 416,000 hours of Boeing 747 experience.



**SUPERTANKER FAQs**

**Will the Evergreen Supertanker replace the existing aerial firefighting fleet?**

This aircraft is just another tool in the aerial firefighting toolbox. In no way will it replace helicopters or all the air tankers fighting fires today.

**How much will the Evergreen Supertanker be able to drop?**

The Evergreen Supertanker will have 24,000 gallons of

tank space onboard. This represents more than seven times the drop capability of the largest current aerial firefighting aircraft in use today, the P3. The Supertanker also has the capability of performing segmented drops in quantities greater than or equal to the P3.



**Does the manufacturer of the 747, Boeing, support this program?**

Boeing has worked with Evergreen to support the preliminary engineering studies and the certification of components for the 747 Supertanker program. Based on those preliminary studies, Boeing supports the concept and capability of the 747 to perform aerial applications. Boeing will be involved in the FAA certification process.

**How safe will the Evergreen Supertanker be?**

Evergreen is working with the FAA to assure that the Supertanker will be maintained under the standards of FAR Part 121 (passenger airline standards), bringing the highest standards of safety, maintenance and training to the aerial firefighting industry. Safety and maintenance go hand and hand. To ensure an elevated level of safety,

the Evergreen Supertanker will be outfitted with a flight data recorder able to record unique stresses to the airframe.

**How can a plane the size of a Boeing 747 fly low enough to be an effective firefighting tool?**

Current firefighting aircraft use a gravity drop system. Quite simply, this means they have tanks with doors on them that open and discharge the aircraft's contents. This type of system requires an aircraft to fly very low, around 200 ft. It is very dangerous work; especially since the majority of air tankers used in the United States are vintage World War II era aircraft designed for high altitude bombing missions.



Evergreen's Supertanker will utilize a new type of pressurized system (patent pending), allowing the aircraft to fight fire from a higher altitude. The system was designed to allow the Supertanker to fly at a very safe altitude, around 800 feet, and within its design envelope.



**Won't the Evergreen Supertanker be too large and too heavy of an aircraft to effectively fight fires?**

No. Actually, the tactical profile of the Evergreen Supertanker will help improve the safety record of the aerial firefighting industry. The aircraft offer an enhanced safety margin over current aircraft due to its pressurized system, allowing it to fly higher and still be effective. Also, current airtankers use gravity drop systems. The Evergreen Supertanker's tank system will allow segmented drops. This means that the aircraft can drop its 24,000 gallons at multiple intervals while in flight.

In no way is the Evergreen Supertanker, even with 24,000 gallons of retardant, too heavy to be safe. Actually, when fully loaded the Evergreen Supertanker will still be 200,000 lbs below the Boeing 747's gross takeoff weight. The weight of a fully loaded Supertanker aircraft is still below the maximum landing weight. This means there will never be a mission where pilots will have to dump the entire load, even if the aircraft is full, before landing.

**What is the Evergreen Supertanker's drop speed over the fire?**

At no time in flight will the aircraft operate outside

its normal operating parameters. The drop speed is approximately 140 knots, which provides a 30% cushion over the Boeing 747's stall speed. During a retardant drop, the Evergreen Supertanker is configured as if it was approaching for a landing and is well within all the typical speed parameters that a Boeing 747 would normally be in when approaching an airport for a landing.

**What airports will Evergreen operate the Supertanker out of? Are there any limitations with respect to runway length in operating this aircraft?**

Evergreen will operate the aircraft from any of the above airports with sufficient ramp space to load the aircraft. These include civilian bases, joint use civilian/military bases and certain military bases. Generally, the runway requirements for the Evergreen Supertanker are 8000 feet, of which 80% of U.S. airports meet or exceed this requirement.



**Will the Evergreen Supertanker damage property, timber or terrain during its drop sequence?**

No. Because of the altitude the aircraft will drop from and its capability to regulate the quantity of product with variable pressures and nozzle configurations, the aircraft can easily control the flow of the drop to be equivalent to the speed of falling rain.



**If the entire load of the Evergreen Supertanker is dumped will it overstress the aircraft?**

No. The weight load ratio has been carefully evaluated and the retardant exits the aircraft through a calibrated method that will keep the aircraft well within its defined G-load limitations.

**Are there any other markets for the Evergreen Supertanker? Can it operate globally?**

Evergreen is studying other applications for the Evergreen Supertanker. Oil spill containment, chemical decontamination, homeland security and weather modification are all potential markets for this aircraft. Because the aircraft is pressurized, Evergreen

Supertanker has the capability of any long-range Boeing 747 passenger aircraft. This would allow the aircraft to deploy to any international location.

