

# AERIAL FIREFIGHTING CONFERENCE EUROPE

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BRADFORD BECK, PRESIDENT AND COO



# WHAT IS THE MODULAR APPROACH TO AERIAL FIREFIGHTING?



Utilizes existing aircraft that are temporarily converted into air tankers.



Does not impact the utility of the aircraft for other missions.



Utilizes systems that are interchangeable between aircraft.





# WHY DO WE NEED THE MODULAR APPROACH?



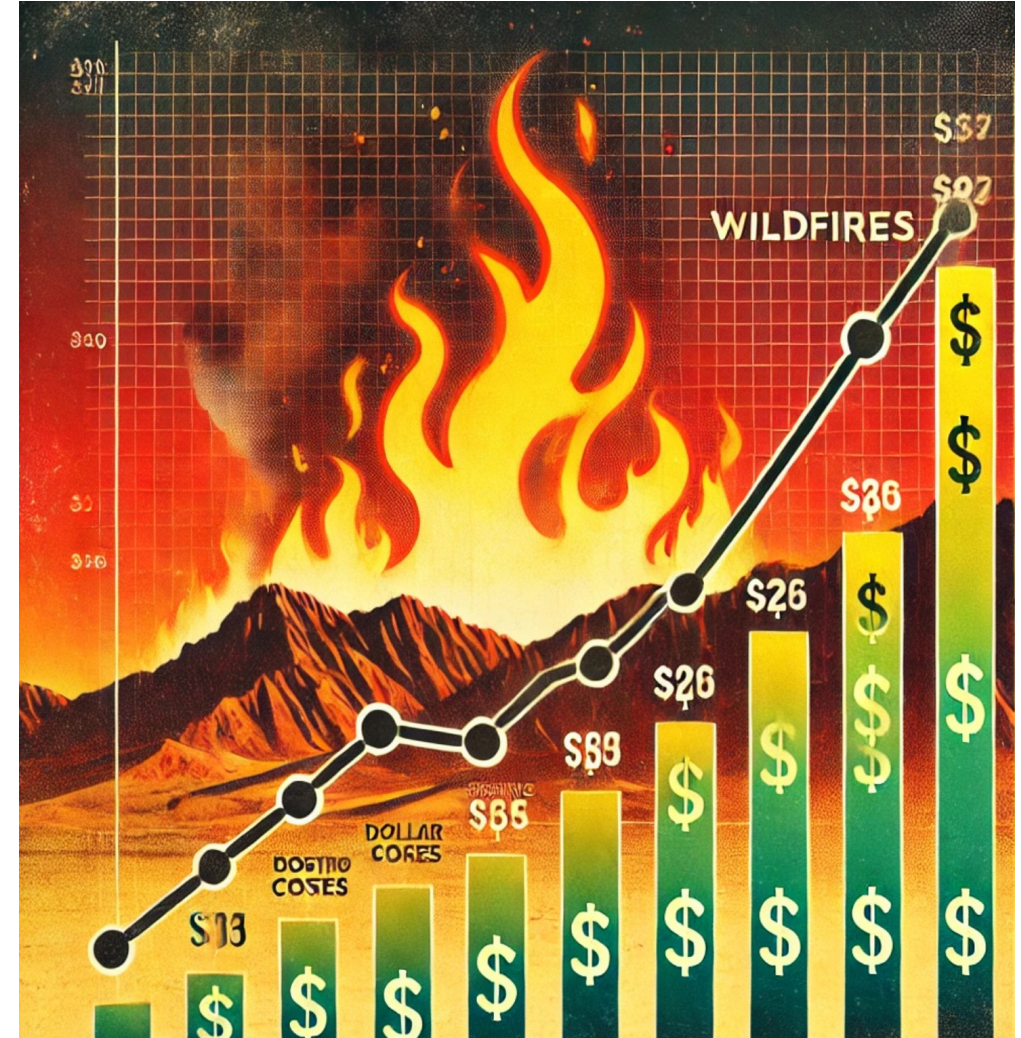
Rapid increase in severity and duration of fire seasons requires a proportional increase in firefighting aircraft



Traditional “dedicated aircraft” approach is inefficient, prohibitively expensive and too slow



Extended fire seasons in both hemispheres makes aircraft sharing model unsustainable





# ADVANTAGES OF THE MODULAR APPROACH

## ULTIMATE FLEXIBILITY

### ONE

MAFFS systems are modular and rolled on/off any aircraft in hours. Operators can respond quickly, but also maintain full aircraft utility for non-fire-related operations

### TWO

Eliminates the need for dedicated firefighting aircraft which are expensive to operate and maintain, and are typically only used seasonally, but incur maintenance costs year-round

### THREE

No structural modifications to the aircraft preserves the integrity of the aircraft for resale or other future dedicated uses

### FOUR

Systems are full interchangeable and can be used across your whole fleet, reducing the risk of an aircraft not being available because of AOG designation, maintenance cycle, etc...





# LOWER OVERALL OPERATIONAL COSTS



Cost of system is far lower than the cost to modify and maintain a dedicated aircraft



Does not require implementation of a new maintenance plan for the aircraft





# WAYS TO IMPLEMENT THE MODULAR APPROACH

**PRIMARY RESOURCE**

**SURGE CAPACITY**

**ASSET SHARING**





# MAFFS II: PROVEN TECHNOLOGY SYSTEM OVERVIEW

- Self-Contained Roll On/Roll Off System with minimal permanent modification of the aircraft
- Applicable to C-130, KC390, and C27J Aircraft
- Capacity of up to 3,000 Gallons of Liquid (water, retardant, etc.)
- Meets all Current US Forest Service Standards for setting variable Coverage Levels and Quantities per Discharge

- Controllable Pressurized Discharge allows for painting of fire lines or hotspot treatment
- Onboard air compressors utilizing aircraft power eliminates the need for Ground Air Compressors (C130, C390)
- Includes all GSE required for operations



# EASY TO ROLL/ON – ROLL/OFF

## FORWARD PALLET ASSY

- Electrical Power Equipment
- MAFFS II Control System
- Two Air Compressors (supply High Pressure Air to Reservoirs)

## CENTER PALLETE ASSY

- Stainless Steel Tank, 3,400 Gallon, Capacity (specially Fabricated pressure vessile)
- Pressurized to 90-120 psi, to deliver payload (Retardant, Water, Foam, Corexit, etc)
- Two Specially Designed High Pressure Air Reservoirs (38 cubic feet/1480 psi each)

## CENTER PALLETE ASSY

- Operator's Console (two seats, Primary Control Station)
- Hydraulic System and Components
- S' Duct for Constant Flow Discharge (Nozzle exterior to the aircraft)
- 150 Gallon Stream Injection Tank (Foam, etc.)





# DISTINGUISHED OPERATIONANAL HISTORY



The MAFFS Program and US Military Firefighting mission was born in 1971 by act of Congress and has continued non-stop for more than 50 years



VUS Forest Service owns and supplies eight MAFFS II systems and the Department of Defense provides C-130 aircraft from Air Force Reserve and Air National Guard Units



MAFFS is used to provide "surge capacity" by temporarily converting C-130's into Type 1 Large Airtankers when available civilin resources are exhausted



Current system proven safe and effective with more than +10,000 hours of real-world firefighting service in the past 15 years and zero system related incidents



# PROVEN MANUFACTURING CAPABILITIES



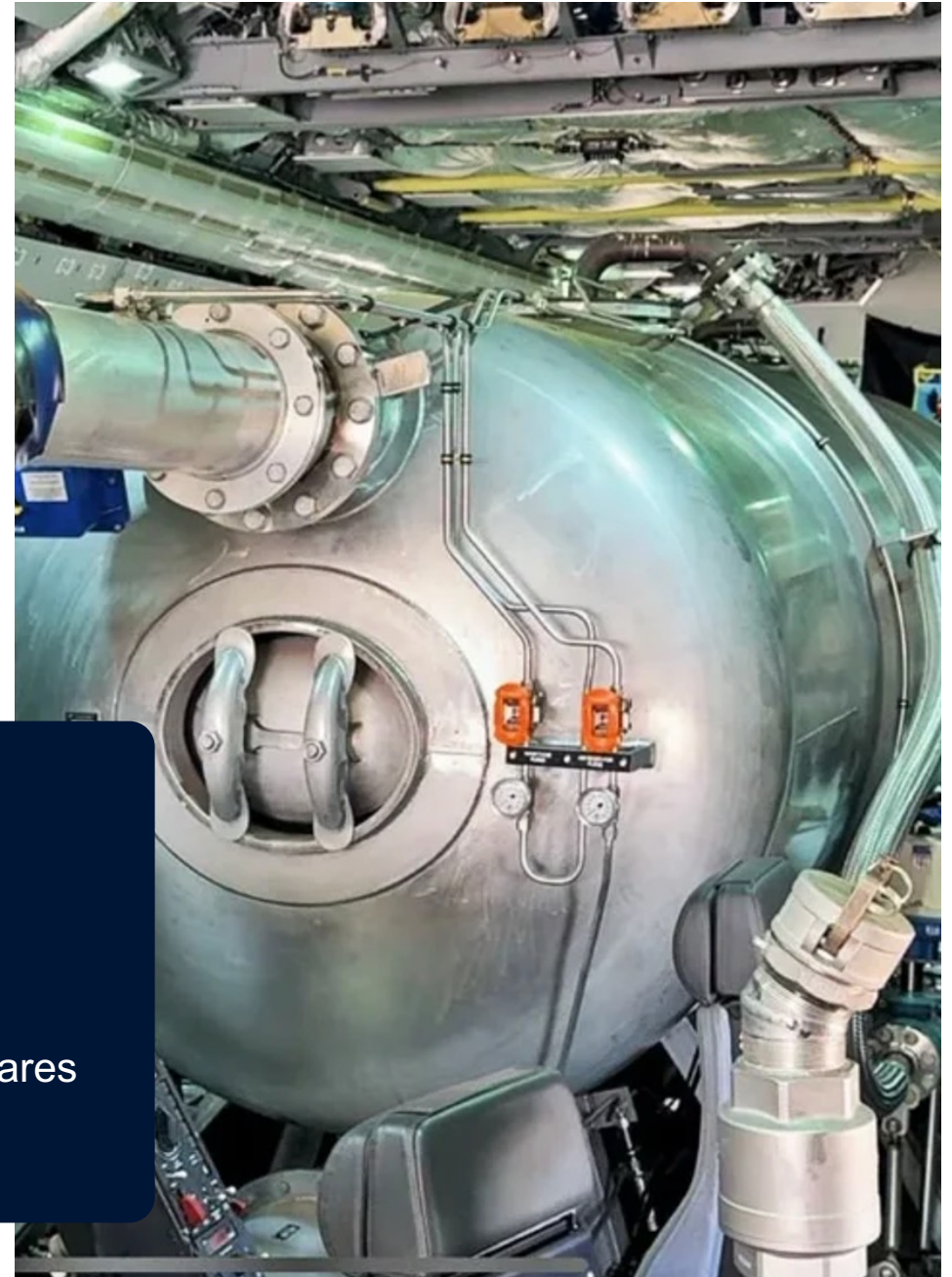
MAFFS II is in active production with new systems available



Improved manufacturing processes and advanced technology based on lessons learned over numerous successful builds

## We have cultivated a robust and diverse supply chain

- Minimizes risk of supplier delays and cost escalations
- Provides dependable and efficient access to spares





# MAFFS II MODELS

## LOCKHEED C130

50 years of  
MAFFS, designed  
in cooperation  
with the USAF &  
USFS

## EMBRAER C390

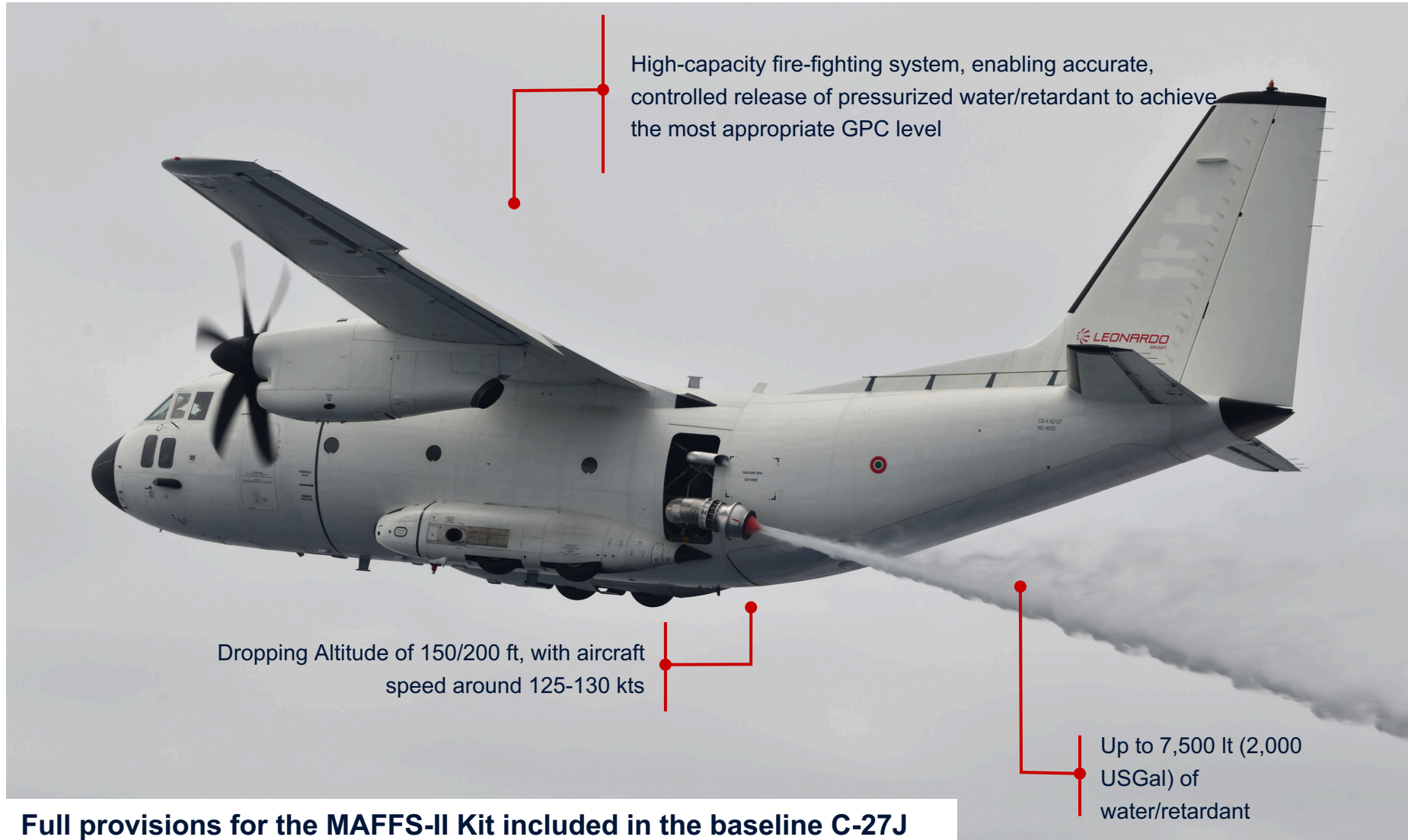
First Jet Plane  
with MAFFS

## LEONARDO C27J

Newest model  
high-capacity  
firefighting system  
with 7,500 liters of  
retardant



# MODEL: LEONARDO C27J



↔	<b>SOLUTION TYPE</b> <b>Palletized Module</b>
⌚	<b>INSTALLATION TIME</b> <b>90 Minutes</b> <b>4 Technicians</b>
🔧	<b>MIAN TANKGROUND FILL TIME</b> <b>8 Min</b>
💧	<b>GROUND PATTERN COVERAGE LEVEL</b> <b>Up to 8 GPC</b>
📏	<b>MAX NUMBER OF VOLUME DROPS</b> <b>2</b>
🚰	<b>EMPTYING IS COMPLETED IN</b> <b>7 SEC</b>



# C27J: MOST CAPABLE AND VERSATILE AIRLIFTER IN ITS CLASS



TAKE OFF GROUND  
RUN AT MTOW  
**580M**



LANDING GROUND  
ROLL AT MLW  
**580m**



OPERATIONS ON  
UNPAVED AIRSTRIPS  
**CBR <3**



CARGO BOX  
DIMENSIONS:  
**2.45m Wide**  
**2.25m High**



VARIABLE CARGO  
FLOOR  
**Height & Pitch**



MAX PAYLOAD  
**11,300 kg**



Wide cargo bay and outstanding floor strength for transport of heavy vehicles and full weight/height 88" x 108" standard pallets.

Quick configuration changes and interoperability with larger airlifters

Designed for easy loading / unloading operations without ground support tools: where no aircraft has gone before

APU for autonomous operation on austere airfields.



TROOP TRANSPORT  
**Up to 60**



PARATROOPERS  
AIRDROP  
**Up to 46**



CARGO AIRDROP  
**Up to 9 Tons by pallet** (qualified for bundles, LAPES combat off load)



MEDEVAC  
**36 stretchers**  
**6 Attendants**



SPECIAL MEDEVAC  
**2 special stretchers** (also niocontainment)  
**6 Attendants**



VIP TRANSPORT  
**6 VIP+**  
**18 Passangers**

# TURNKEY SOLUTIONS TAILORED TO YOUR NEEDS



**Formal training programs**

**Field Service Representatives**

**Storage Trailers**

**Ground Support Equipment**

**Power by the hour – System leading program**

**System available for immediate production**





# PEDIGREE OF CONTINUED INNOVATION

- MAFFS pioneered the modular approach to aerial firefighting
- MAFFS II is now available and has been delivered for multiple platforms with several more in active development and production
- Technology derived from ongoing development may lead to additional system features and improvements.
- Repeated and ongoing testing (DO-160, Computer Simulations, improved robust electrical system integration, etc.)
- 40 years of technical data, reports, testing (NDT and ultimate load)
- Ongoing commitment to:
  - Reduced Weight
  - Shorter Fill Times
  - Cost Reductions



# CONTACT INFORMATION

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