NOAA Aircraft Acquisition Status Update

Alan Goldstein – Program Manager
alan.s.goldstein@noaa.gov

G550 Program

- Starting in 2018, NOAA received funding to procure a replacement for NOAA's Gulfstream IV-SP (G-IV) aircraft
- Initial Operating Capability is for the Tropical Cyclone Surveillance mission, with Tail Doppler Radar and other sensor enhancements
- As with other NOAA aircraft, additional infrastructure is being included to support a variety of other missions and instruments
- Primary contract awarded to Gulfstream. They will deliver a new G550, modified with provisions for instruments and sensors. Sensors and science systems will be contracted for separately. NOAA's Aircraft Operations Center will be the lead on integration, certification, test and calibration
- Program is managed by the NOAA Office of Marine and Aviation Operations, with significant support from NOAA/AOC, NCAR's Earth Observing Laboratory, and the German Aerospace Center (Deutsches Zentrum für Luft- und Raumfahrt, or DLR)
- Likely schedule is to have aircraft operational in late spring 2025, ready for hurricane season

G550 Aircraft

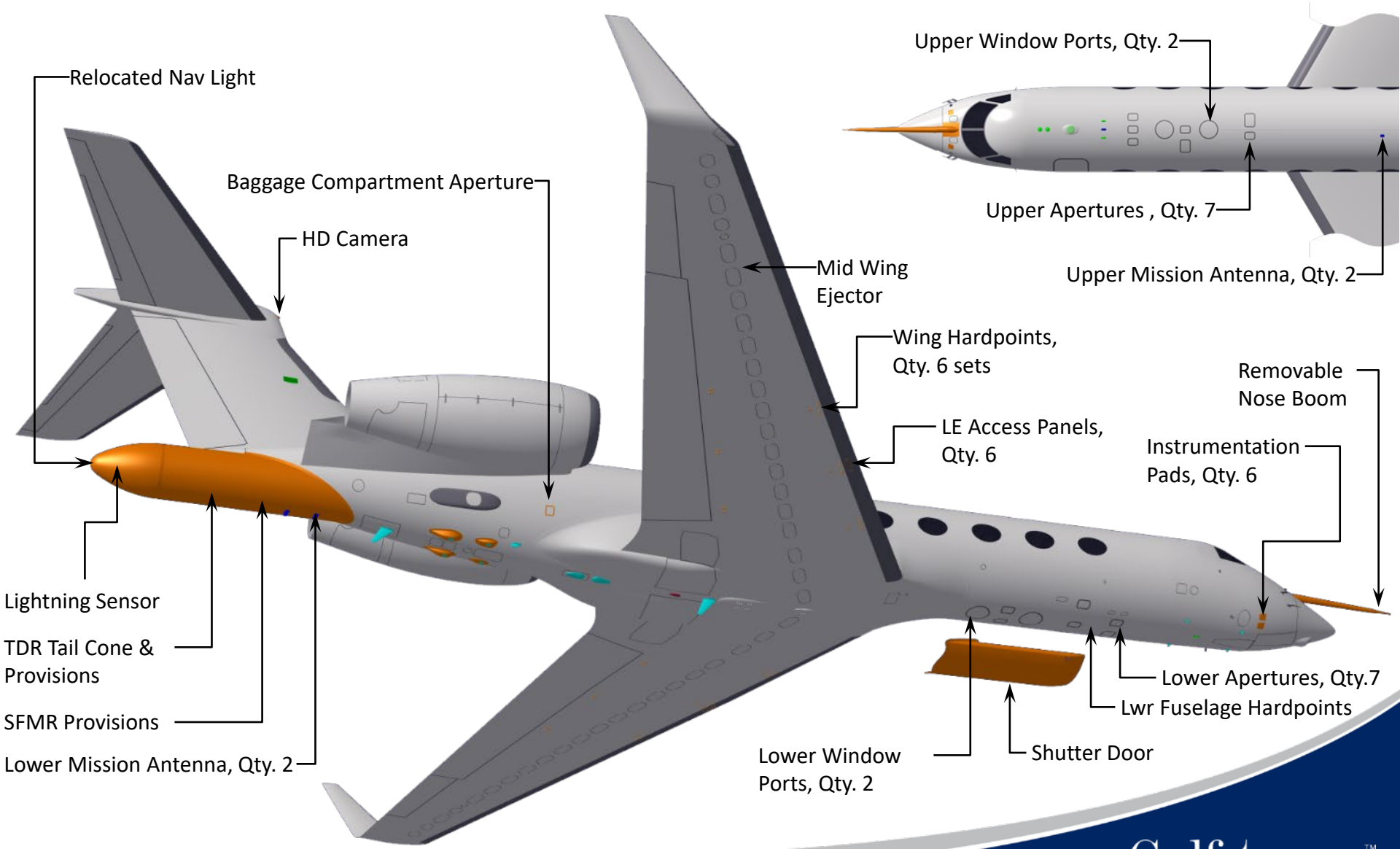
- Length: 96.4 ft (w/o nose boom or tail radome)
- Wingspan: 93.5 ft
- Cabin length: 44 ft (w/o baggage compartment)

- Initial Altitude: 41,000 – 45,000 ft, depending on fuel load and instrument weight
- Max. Altitude: 51,000 ft
- Max. Range (NBAA theoretical, max fuel, ~14.5 hrs): 6,750 Nmi (12,500 Km)
- Likely Mission Range (10 Hrs, w/payload): 4,900 Nmi (9,075 Km)
  - HNL->LAL + 800 Nmi, LAX-HNL R/T + 500 Nmi,
- Long-range Cruise: Mach 0.80
- High-speed Cruise: Mach 0.85

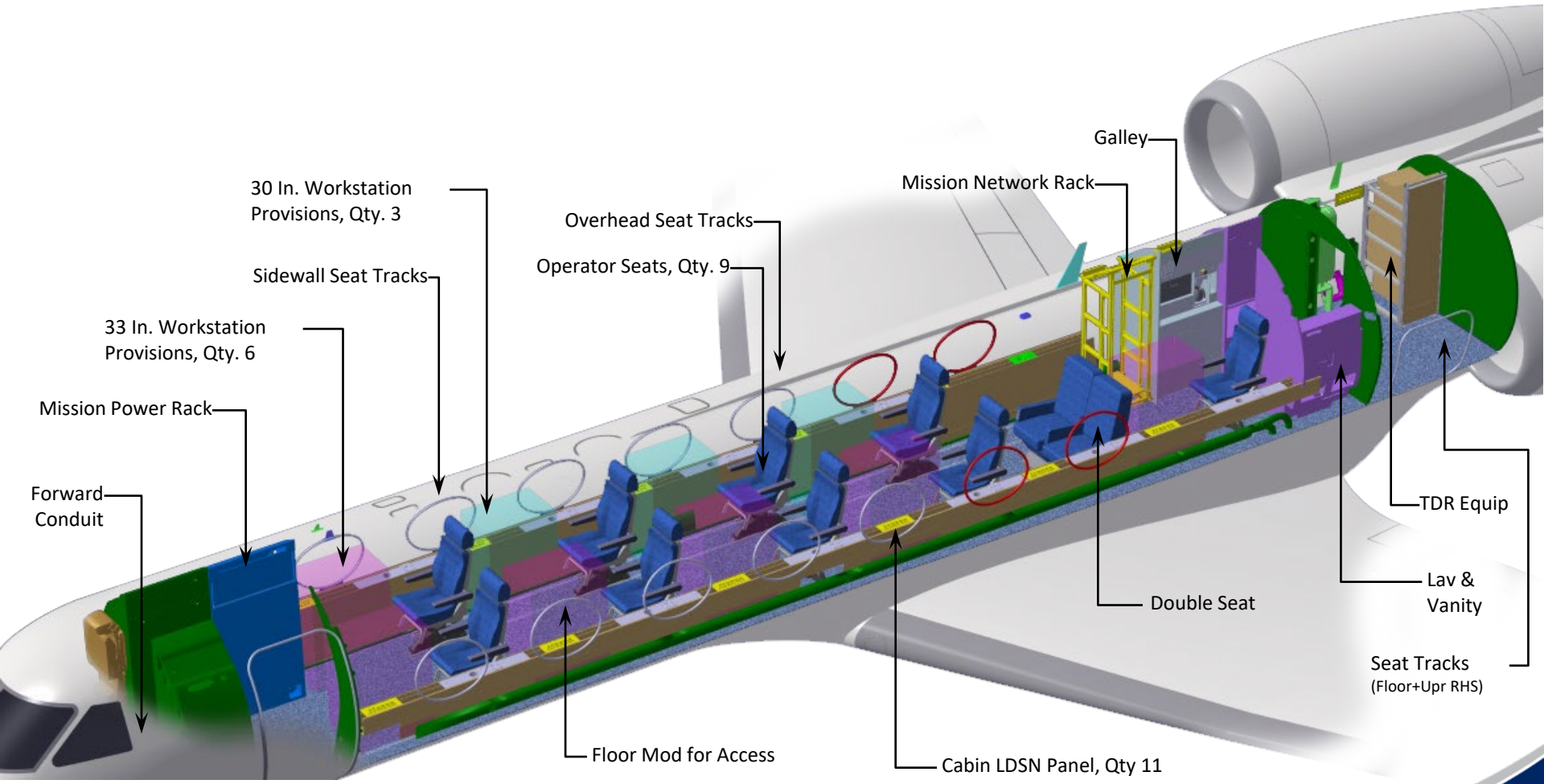
- Flight hours costs expected to be similar to NOAA G-IV

- As with other NOAA aircraft (except the P-3s), the aircraft will maintain FAA airworthiness certification

Exterior Modifications



Interior Arrangement



- Mission Power: 400 Hz (some 3ϕ), 60 Hz, 28 VDC, 28 VDC Weight-Off-Wheels
- Networks: 3ea Cat 6a, NTP, PTP
- Misc: 8 shielded twisted pairs, 2ea 50 ohm coax

Instrumentation

- Standard NOAA/AOC Data System for collection and display
- In-situ Measurements
  - Pressure, flow angle and winds from nose boom probe
  - Temperature from standard Rosemount probes
  - Dual hygrometer systems - Chilled mirror for lower altitude; Closed cell with sampling inlet for high altitude
- Communication and Data Transfer
  - Inmarsat Satcom for data streaming and voice communication (400 kbps)
  - Iridium Voice for high-latitude communication
- Tail Doppler Radar (TDR)
  - Vertically scanning, dual Doppler system for volumetric reflectivity and winds
- Airborne Vertical Atmospheric Profiling System (AVAPS)
  - NRD-41 (mini-sonde) expendables for profiles of pressure, temperature, humidity, and winds; automated launcher with 40+ sonde capacity
- Stepped Frequency Microwave Radiometer (SFMR)
  - Provides surface wind speed measurements directly below aircraft in high wind (>20 kts) oceanic regions
- High Altitude MMIC Scanning Radiometer (HAMSR)
  - Provides swath of temperature and humidity data below the aircraft

C-130 Program

- In 2023, NOAA received funding to start procurement of replacements for NOAA's WP-3D Orion aircraft. Office of Marine and Aviation Operations (OMAO) is setting up Program office.
- Initial Operating Capability is for the Tropical Cyclone Reconnaissance mission, with Tail Doppler Radar equivalent
- The baseline ('green') aircraft will be a Lockheed Martin C-130J. Airframe specifics, modifications for science and systems, prime contractor are all TBD.
- As with G550, sensors and science systems will be contracted for separately. NOAA's Aircraft Operations Center will be the lead on integration, certification, test and calibration
- Target schedule is to have new aircraft operating in 2030, 1-2 years of dual operations with WP-3Ds before they are retired.

C-130 Program

- In 2023, NOAA received funding to start procurement of replacements for NOAA's WP-3D Orion aircraft. Office of Marine and Aviation Operations (OMAO) is setting up Program office.
- Initial Operating Capability is for the Tropical Cyclone Reconnaissance mission, with Tail Doppler Radar equivalent
- The baseline ('green') aircraft will be a Lockheed Martin C-130J. Airframe specifics, modifications for science and systems, prime contractor are all TBD.
- As with G550, sensors and science systems will be contracted for separately. NOAA's Aircraft Operations Center will be the lead on integration, certification, test and calibration
- Target schedule is to have new aircraft operating in 2030, 1-2 years of dual operations with WP-3Ds before they are retired.

King Air Program

- FY22 funding for a 3rd King Air
- Technically a King Air 360, but similar to 2nd King Air (N67RF) – larger lower ports for snow survey or mapping cameras
- New capabilities - Wing hard points and pylons; better terrestrial connectivity
- Expect delivery in July-August 2023; operational in early fall 2023

Questions

Artist Concept, Not Customer Approved