



WB-57F Program Overview

*Johnson Space Center
Aircraft Operations Division
Ellington Field, Houston, Texas*



*Charlie Mallini, Program Manager
Timothy Propp, Deputy Program Manager*

WB-57 Aircraft

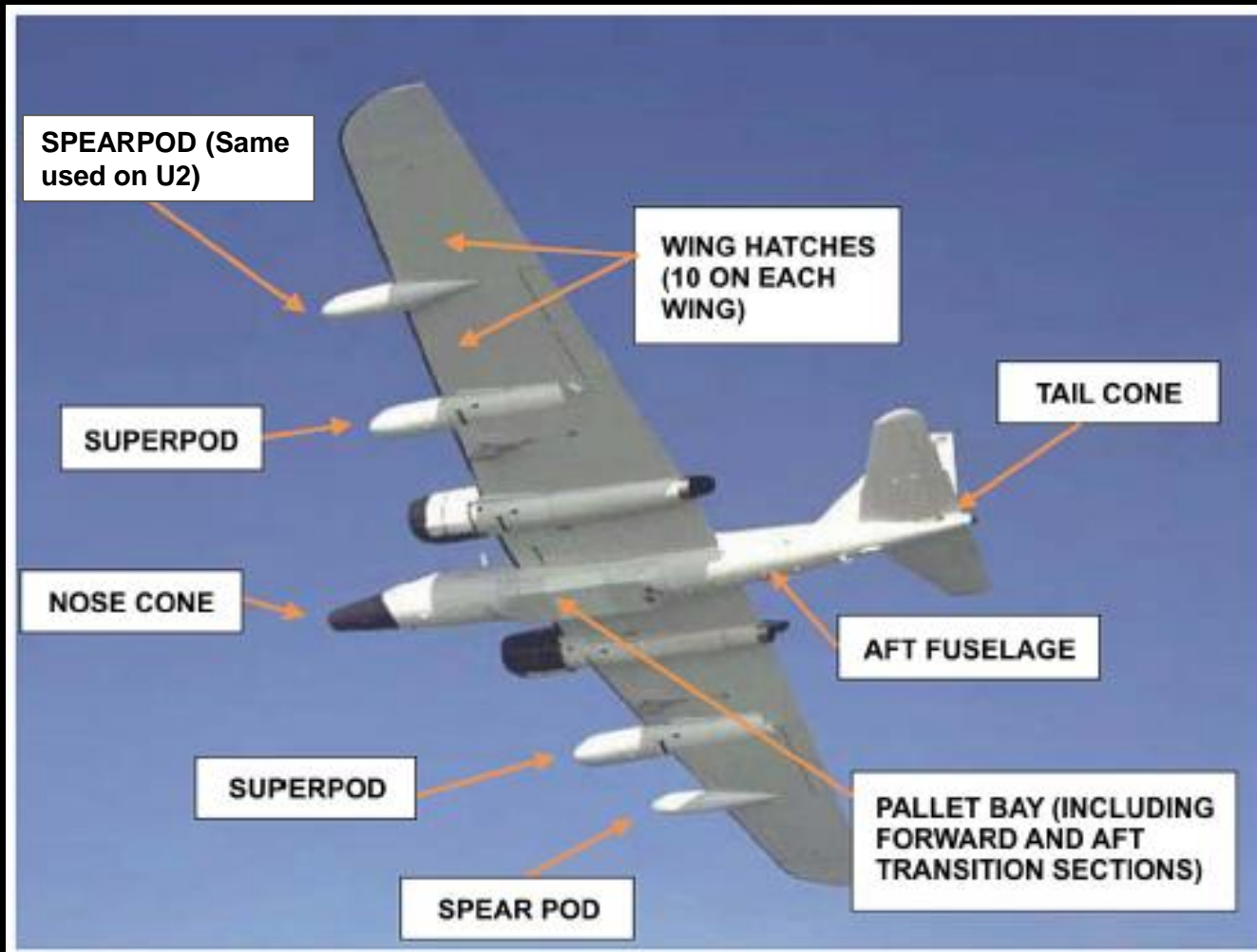
Performance/Capabilities



Aircraft Ceiling	60,000+ feet
Endurance	6.5 hours
Range	2,500 miles
Max Gross Weight	72,000 pounds
Max Payload Weight	8,800 pounds
Engine Thrust	15,500 pounds per each Pratt & Whitney TF-33
Airspeed @ 60,000 ft	410 knots TAS (Max Mach 0.78)
Aircrew	2 (Pilot & Sensor Equipment Operator)
Total Aircraft	3 Based at Ellington Field
Deployment Locations	Worldwide
Mission Rate	97%

Payload Accommodations

Up to 8,800 lbs Distributed Across the Airframe



WB-57 Cockpit

Sensor Equipment Operator (SEO) Cockpit – Dedicated Payload Operator



Garmin

Dual Monitors

Full QWERTY
keyboard (stowed)

UHF radio

Custom Payload
Control Panel

Optical Mouse

Custom Payload
Control (Joystick)

SAT Phone Control

Custom Payload
Control Panel

Keyboard/Mouse
and Video Switches

Native Payload
Control Panel

WB-57 Network

Air Ground Integrated Network (AGIN) Description



Hub/Spoke Network

- Remote Kits
- Ellington Field

Two SATCOM Options

- INMARSAT
- KuSS

Multipoint VPN

- Dynamic Tunnels

AGIN

Native Services

- Chat
- Intranet Website

All Traffic Encrypted (AES-256)

- IPSec Protocol Suite

Full Network Access to Payload

WB-57 Communications

Robust Capabilities



Radio

- HF
- VHF
- UHF
- DAMA/Dedicated SATCOM
- Plain Text

Chat

- Utilizes SATCOM data connection
- Encrypted over tunnel
- Chat rooms available for more participants

SAT Phone

- Initiate and receive phone calls



Customer Provided

- Custom audio or text channel



NASA/AOD Engineering

Organic Capability Streamlines Payload Processes



- NASA maintains Airworthiness for the WB aircraft
 - No FAA certification required
- NASA/AOD Engineering is responsible for:
 - Aircraft and Payload Airworthiness
 - Payload integration support
- Ensure readiness for:
 - Delivery of the systems
 - End items
 - Documentation
 - Hazard Analysis
 - Flight Readiness Reviews
 - Test Readiness Reviews



Operational Flexibility

Worldwide Operations



Airborne Science Programs



- High Altitude Research:
 - Atmospheric Chemistry & Dynamics
 - Hurricane Research
 - Micrometeorite / Cosmic Dust Collection
 - Rocket Plume Chemistry
 - Hyperspectral Collections
 - Satellite Calibration/Validation
- Example Missions:
 - Mid-Latitude Airborne Cirrus Properties Experiment (MACPEX)
 - Optical Autocovariance Direct Detection Wind Lidar (OAWL)
 - Airborne Scanning Microwave Limb Sounder (ASMLS)



How To Do Business With Us



- NASA Partnership Agreement Process
 - Formerly Space Act Agreement
-

Summary

WB57: Versatile, Capable, Flexible, Reliable, Effective



- Decades of experience flying numerous and diverse payloads, missions, and customers during worldwide operations
 - Each mission custom-fit to meet customer's objectives and specifications
 - Unique, valuable, and successful high altitude research program positioned for years of continued service
 - Highly experienced Maintenance, Engineering, and Operations team; small footprint of deployed team
 - Mission Capable rates often exceed active duty aircraft rates
 - Robust spares and support infrastructure
-

WB-57 Program Office



Questions?



WB-57 Program Manager
Charles Mallini
281.483.3463
charles.j.mallini@nasa.gov

WB-57 Deputy Program Manager
Tim Propp
281.483.0882
timothy.w.propp@nasa.gov



Backup

Payload Accommodations



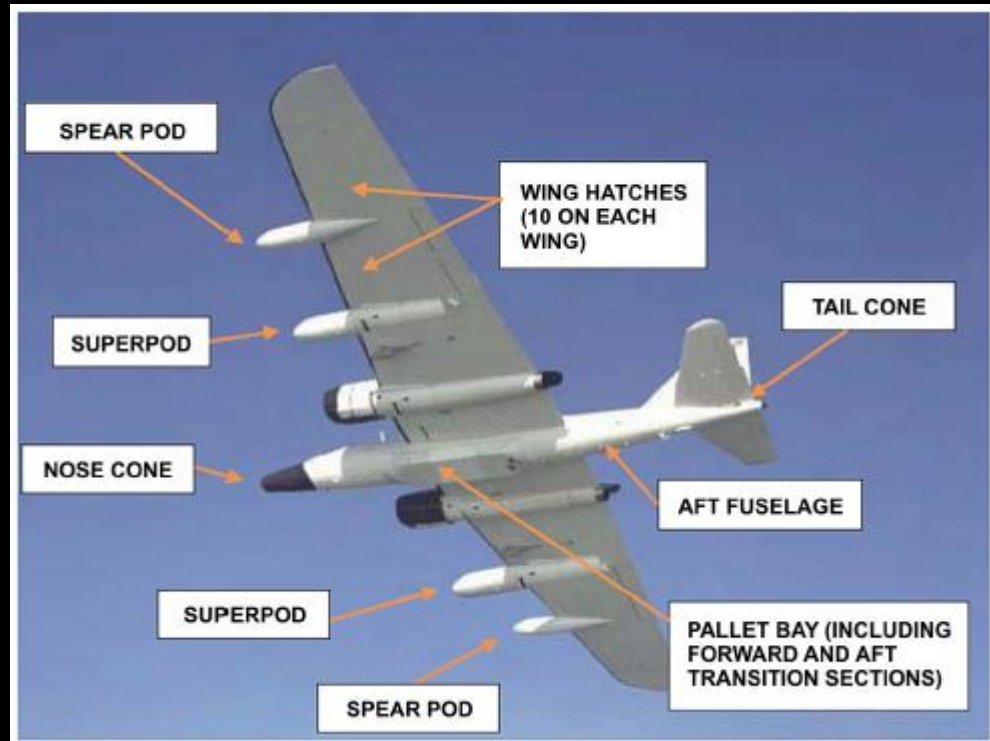
Spear Pod



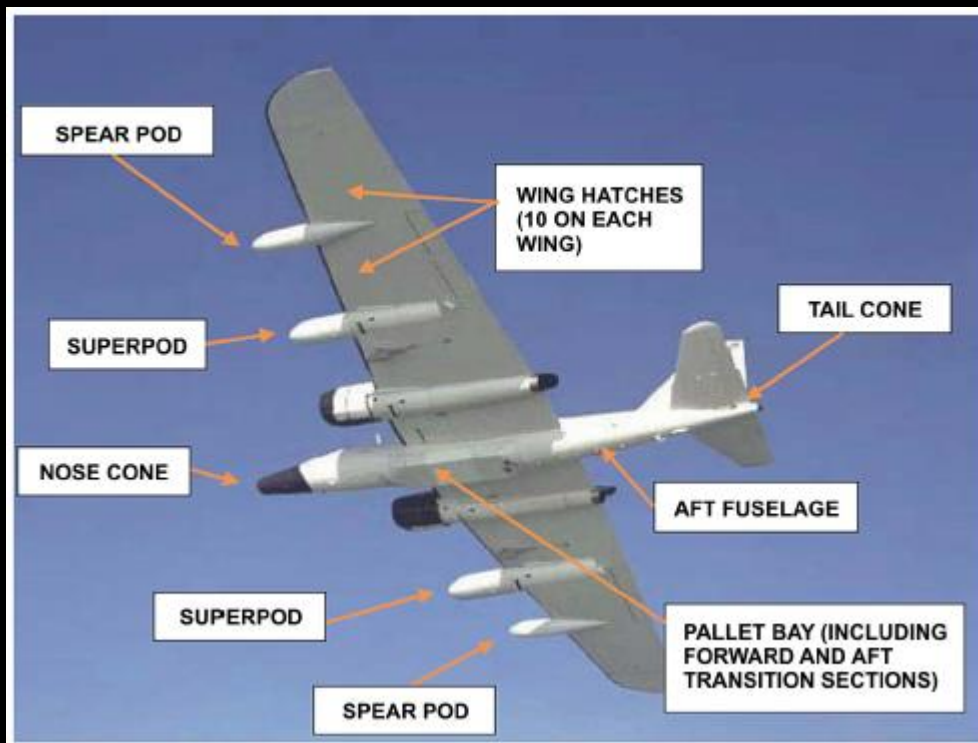
Super Pod



Nose Cone



Payload Accommodations



Wing Hatch

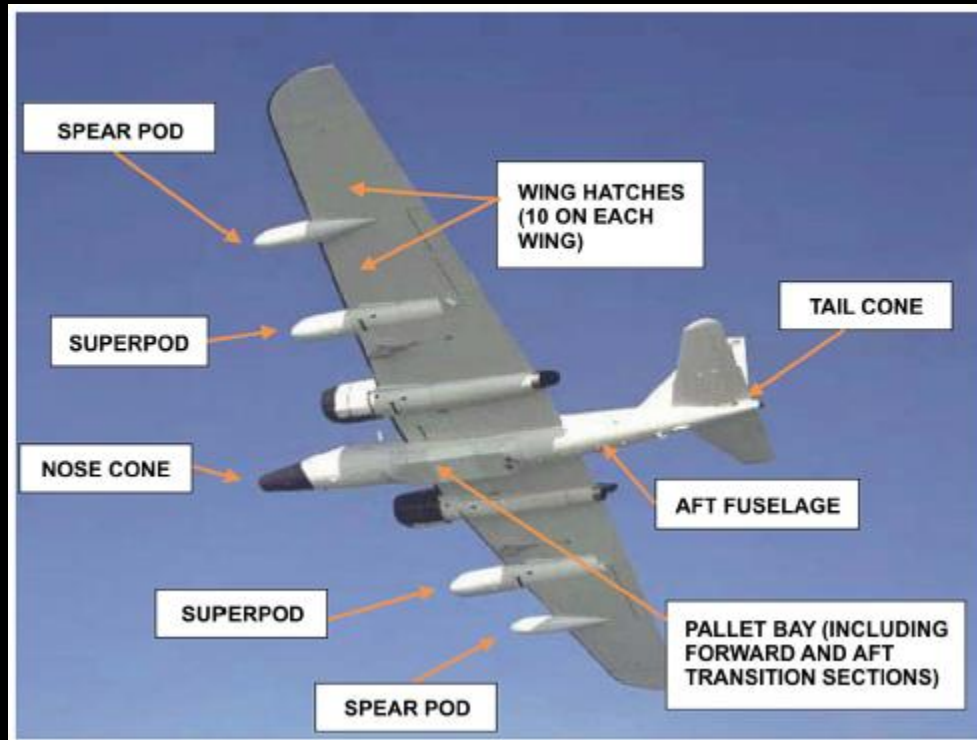


Tail Cone



Aft Fuselage

Payload Accommodations



Fwd Transition



Aft Transition



3-Ft Unpressurized Pallet



6-Ft Unpressurized Pallet



3-Ft Pressurized Pallet



6-Ft Pressurized Pallet



15 psi Pressure Container on 3-Ft Pallet