

Environmental Control and Life Support Systems

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B.S. Aerospace Engineering (2019)

NE-XF



ECS Overview

- The Environmental Control System provides a controlled air purge to Orion and SLS.



Figure 1: Pad 39B ECS

- The ECS performs this function by processing 100% ambient air while simultaneously controlling temperature, pressure, humidity, cleanliness and purge distribution.

Input

- Atmospheric air
- Gaseous Nitrogen
- Water Vapor
- Sensible Heat
- Solid Particulate
- Electric Power

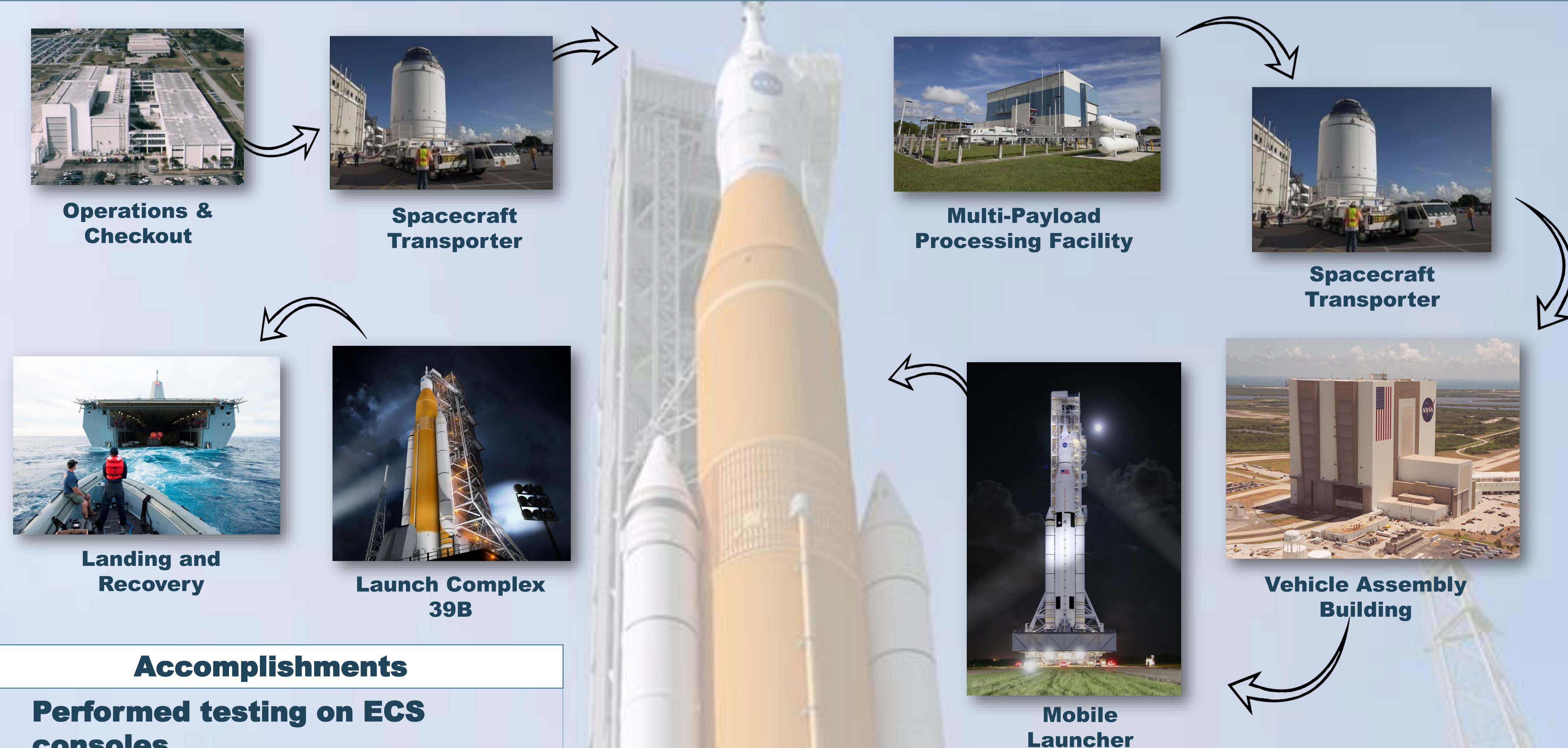
Output

- Processed Air
- Waste Heat
- Liquid water

ECS Units

- MPPU
 - Mini Portable Purge Unit
- PPU
 - Portable Purge Unit
- Pad 39B
 - Stand Alone ECS
- CPU
 - Cabin Purge Unit

ECS Architecture for SLS



Accomplishments

- Performed testing on ECS consoles.
 - MPPU Local
 - MPPU Remote
 - VAB Local
- Created 13 test cases for testing, comprising of 2600 individual test steps.
- 239 hours operating the ECS consoles performing testing.
 - Dry Runs
 - Level 5 V&V
 - Regression Testing
- Reviewed, revised or created 4000 CUI's.
 - Identified or corrected 400 errors.

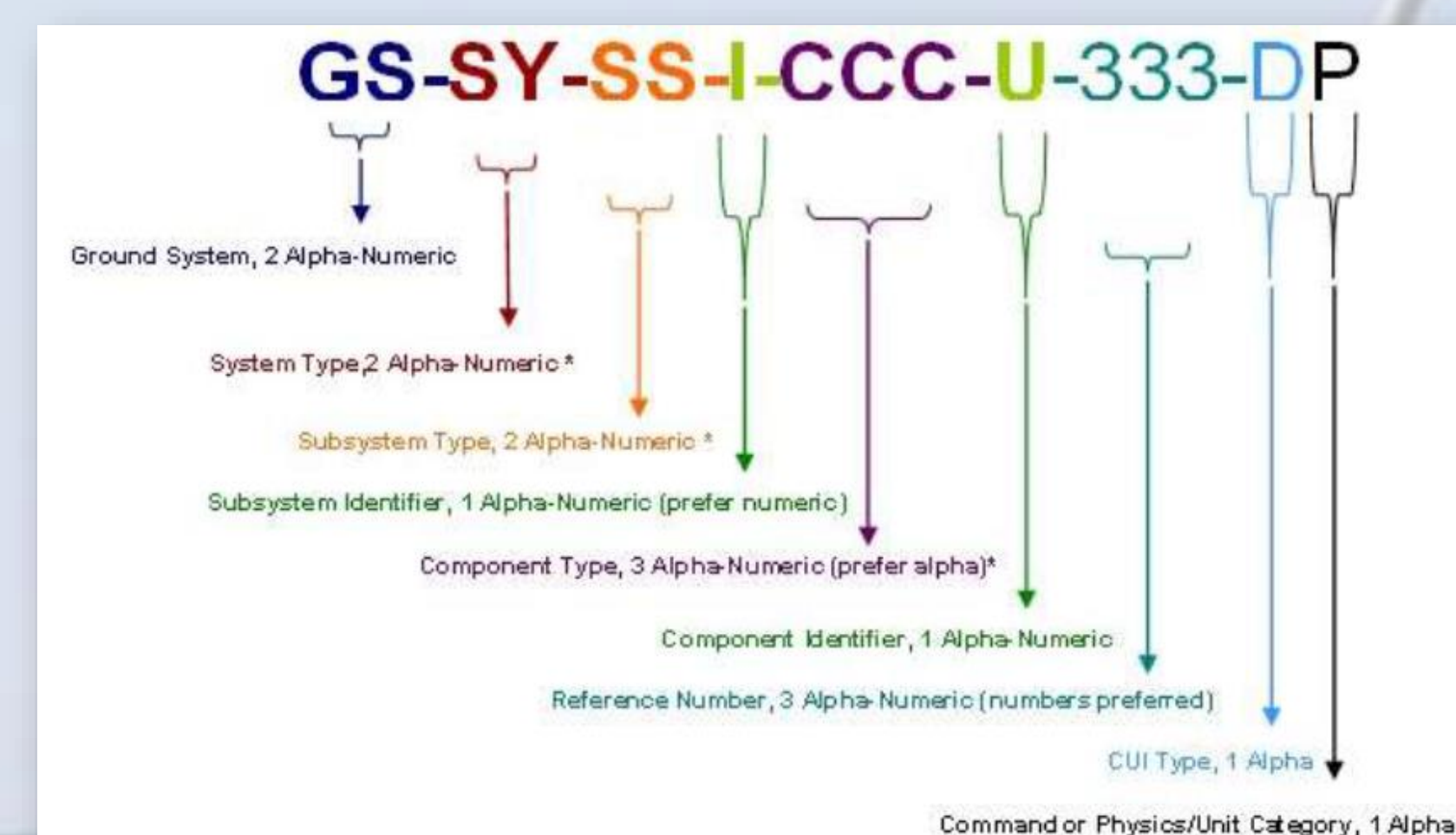


Figure 2: CUI Specification

Accomplishments (cont.)

- Pad 39B ECS Remote Screen Development.

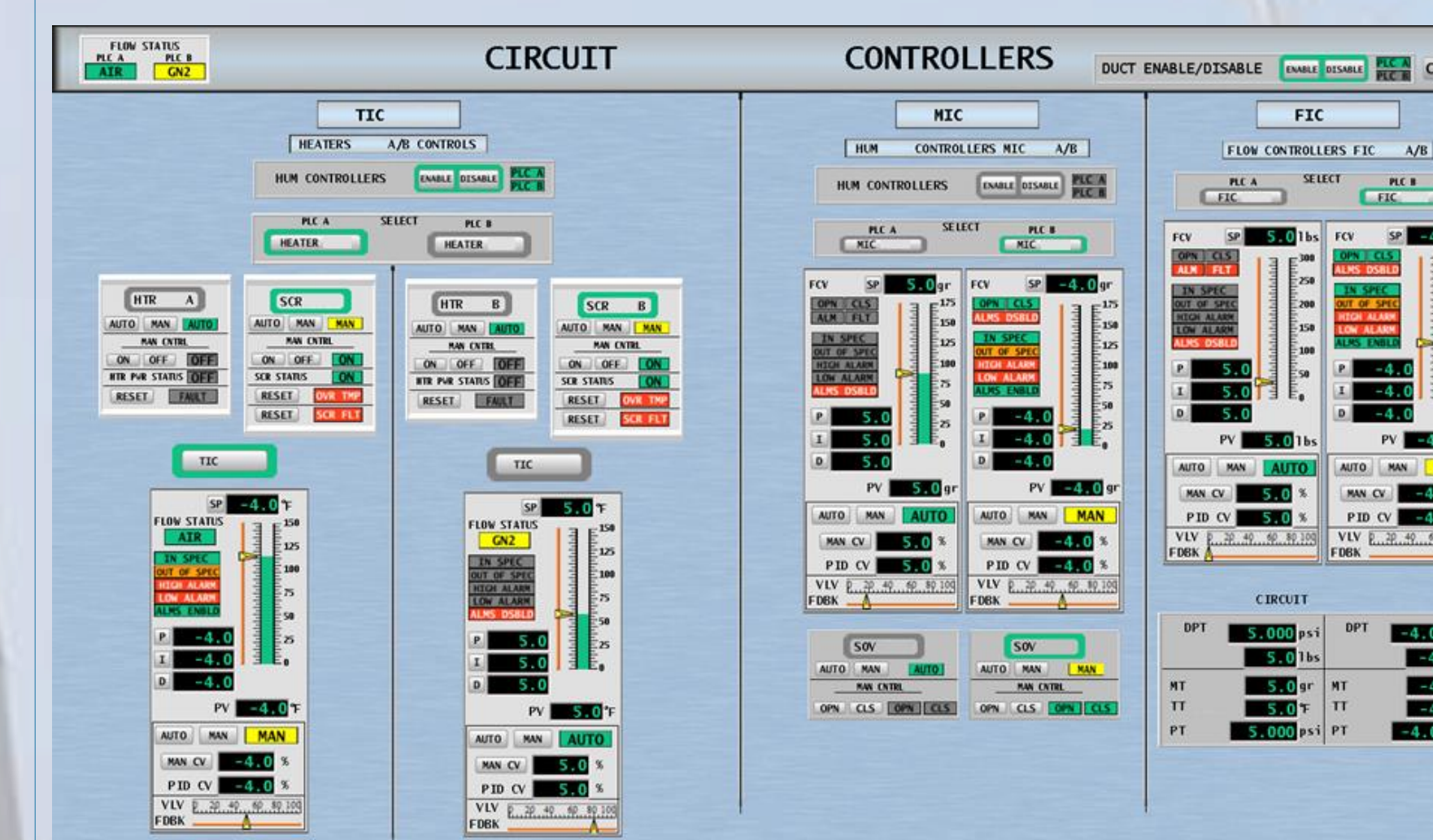


Figure 3: Pad 39B Remote Screen

Thank You

- Main Mentors: Steve Camick, Fernando de la Pascua, Greg Rawl, John Wilkas
- Other Mentors: Zoë Sampson, Armando Maiz, Ted Moore, Darin Varner, Terri White

ECS Interfaces to SLS

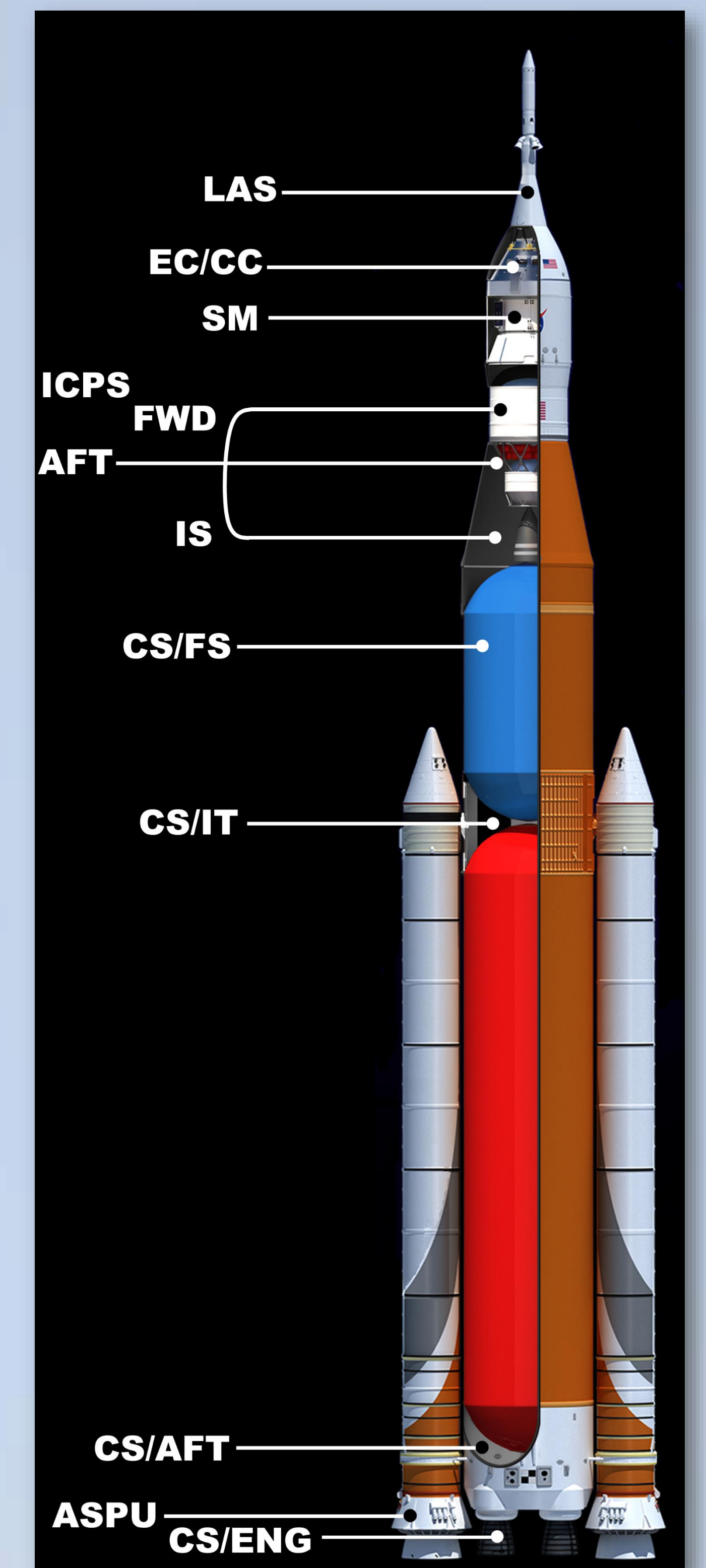


Figure 4: SLS ECS Interface

Acronym	Description
LAS	Launch Abort System
EC/CC	Environmental Chamber/Crew Capsule
SM	Service Module
ICPS (FWD/AFT/IS)	Interim Cryogenic Propulsive Stage (FWD/AFT/Inter Stage)
CS/FS	Core Stage/Forward Skirt
CS/IT	Core Stage/Inter-tank
CS/AFT	Core Stage/Aft
ASPU	Aft Skirt Purge
CS/ENG	Core Stage/Engine

Figure 5: SLS ECS Interface Acronyms

