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Revision: Baseline, Change 004	Document No: CxP 70173
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Title: Constellation Program Flight Manifest	

TABLE 1A CONSTELLATION PROGRAM FLIGHT MANIFEST - ISS

Mission Designation	Ares I-Y	Orion 1
Launch Date	Mar 2014 <TBR>	Sep 2014
Mission Duration	~ 8 Minutes TBR	14d
ISS Port Loc		
Landing Site (Pri/Sec)	Atlantic Oc.	Pacific Oc.
Ares I Config		
First Stage	FS-1	FS-2
Upper Stage	US-01	US-02
Upper Stage Engine	E10006	E30001
Orion Config		
LAS		LAS-101
Crew Module		CM-101(1)
Service Module		SM-101
Adapter	Mass Sim <TBR>	SA-101
Orbital Parameters	Suborbital	51.6 incl
Crew		
Crew Size		
Crew Rotation		
Flight Crew		
EVA Systems	None	None
Ground Ops		
Pad	LC39B	LC39B
MLP	ML-1	ML-1
Mission Ops	MCC Prime	MCC Prime
Int Flight Software	<TBD-70173-001>	Orion1_IFB1
Primary Objectives	Refer to Ares I-Y Mission Objectives	Refer to Orion 1 Mission Objectives

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Deleted: US-01  
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Deleted: Mass Sim  
Administrator 6/1/09 11:32 AM  
Deleted: E10006  
Administrator 6/1/09 11:32 AM  
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From:

[Mission Objectives](#)  
[Ares I-Y](#)

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- a. [Validate launch abort system performance and dynamic stability for a High Altitude Abort \(HAA\) post First Stage \(FS\)/Upper Stage \(US\) separation.](#)
- b. [Validate FS flight control performance with the US fully loaded with cryogenic propellants.](#)
- c. [Validate five-segment booster performance from ignition through water recovery.](#)
- d. [Validate FS/US in-flight separation performance.](#)
- e. [Demonstrate the US Flight Termination System and safe disposal of the US for an off-nominal abort case.](#)
- f. [Validate launch vehicle induced environments through assembly, transportation, integration, pre-launch, launch, FS ascent, abort, and recovery phases.](#)

- g. [Validate recovery systems and water landing for the Orion Crew Module.](#)
- h. [Demonstrate launch operations and capabilities for pre-launch and launch phases \(limited to spacecraft configuration as flown for Ares I-Y\).](#)
- i. [Demonstrate cryogenic propellant loading and management between the ground and US systems.](#)
- j. [Demonstrate water recovery operations for the Ares I FS and the Orion Crew Module \(CM\).](#)
- k. [Perform interface verification tests to the maximum extent possible.](#)
- l. [Validate the flight-to-flight vehicle test procedures.](#)
- m. [Perform Functional Element Integrated Tests \(Integrated Stack Testing\) within the Vehicle Assembly Building \(VAB\) to the maximum extent possible.](#)
- n. [Validate Mission Operations capabilities from pre-launch mission design activities and liftoff through post-landing crew module safing to the maximum extent possible.](#)
- o. [Exercise the Certification of Flight Readiness \(CoFR\) process.](#)
- p. [Validate vehicle flow management.](#)

**Orion 1**

- a. [First flight of production Upper Stage and J2-X Engine](#)
- b. [First flight of CM and SM](#)
- c. [First flight of Integrated Avionics Systems](#)
- d. [First CEV entry, landing and recovery \(nominal\)](#)
- e. [First use of operational MCC, LCC](#)
- f. [Demonstrate orbital maneuvering/rendezvous with ISS but without docking](#)

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### Mission Objectives

#### Ares I-Y

- a. [Demonstrate launch operations and capabilities for pre-launch and launch phases for the Ares I integrated stack \(limited to the as flown Orion configuration\).](#)
- b. [Demonstrate cryogenic propellant loading and management between the Upper Stage \(US\) and ground systems.](#)
- c. [Validation of First Stage \(FS\) flight control system performance with integrated stack and US propellants.](#)
- d. [Validation of FS systems performance from ignition through recovery.](#)
- e. [Validation of thrust oscillation environment and mitigation systems.](#)
- f. [Validation of FS/US separation.](#)
- g. [Validation of US systems performance during FS and US flight.](#)
- h. [Validation of US Engine \(USE\) performance from ignition through shutdown.](#)
- i. [Validation of FS and US launch and ascent flight environments.](#)
- j. [Validation of FS entry environments.](#)
- k. [Demonstration of operational MCC for ascent flight operations.](#)
- l. [Demonstration of operational LCC for launch operations.](#)
- m. [Orion flight test objectives TBR.](#)

#### Orion 1

- a. [Demonstrate launch operations for Ares I/Orion integrated stack.](#)
- b. [Repeat flight opportunity for the FS, US, and USE elements.](#)
- c. [Repeat flight opportunity to acquire launch and ascent flight environments.](#)
- d. [First demonstration of end-to-end mission operations for MCC.](#)
- e. [Validation of Orion vibro-acoustic environments during FS flight.](#)
- f. [Validation of Orion systems during ascent flight.](#)
- g. [Validation of Orion Service Module \(SM\) panel jettison.](#)
- h. [Validation of Orion LAS nominal jettison.](#)
- i. [Validation of Orion separation from US element prior to SM orbit insertion burn.](#)
- j. [Validation of Orion on-orbit systems performance from orbit insertion through water landing and recovery.](#)
- k. [Validation of Orion nominal entry environments.](#)
- l. [Validation of Orion rendezvous and proximity operations sensor performance near ISS \(no closer than range TBD\).](#)

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