National Aeronautics and Space Administration

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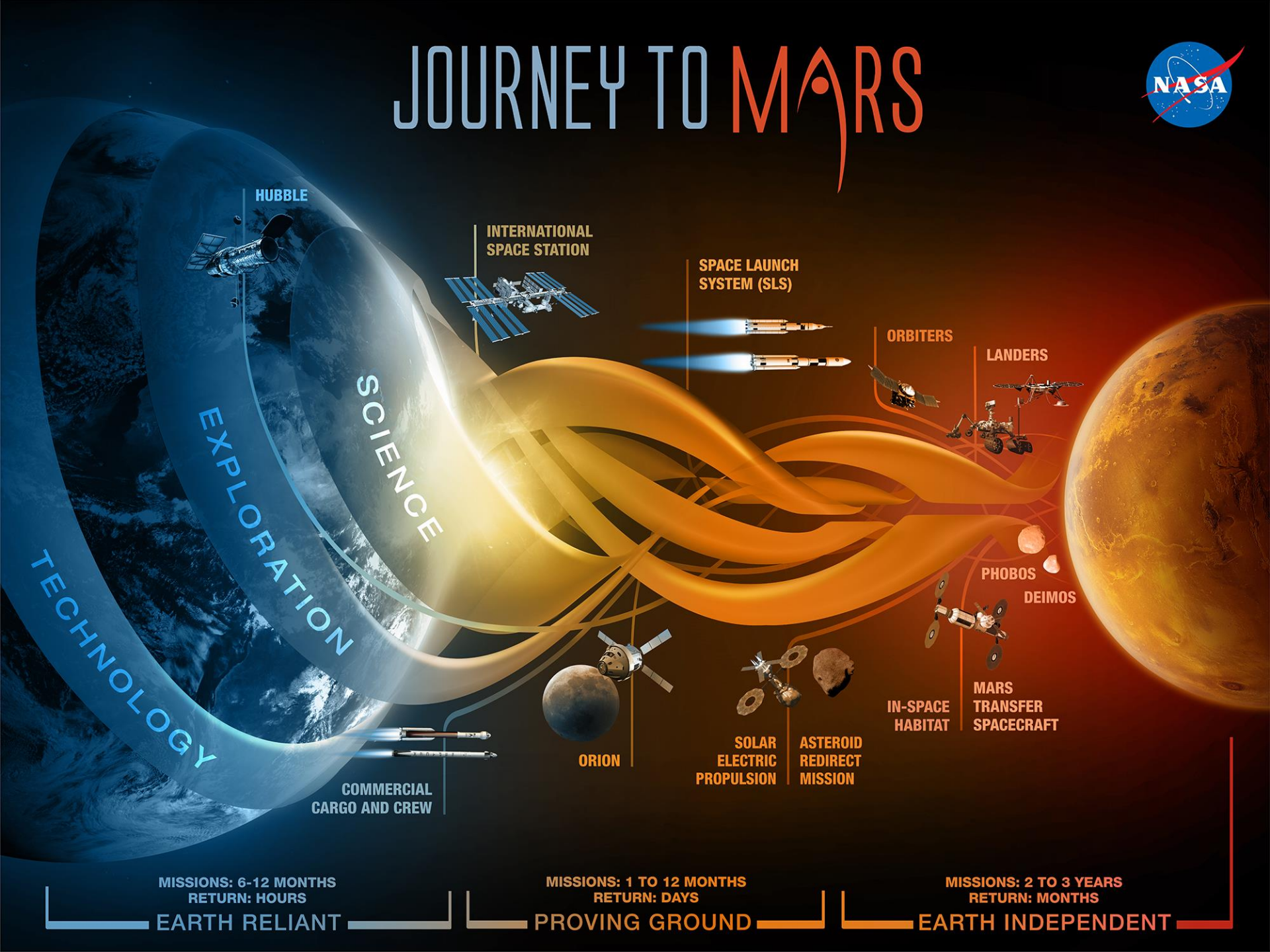
SPACE LAUNCH SYSTEM

SLS at Critical Design Review

Todd May
Space Launch System Program

JOURNEY TO MARS

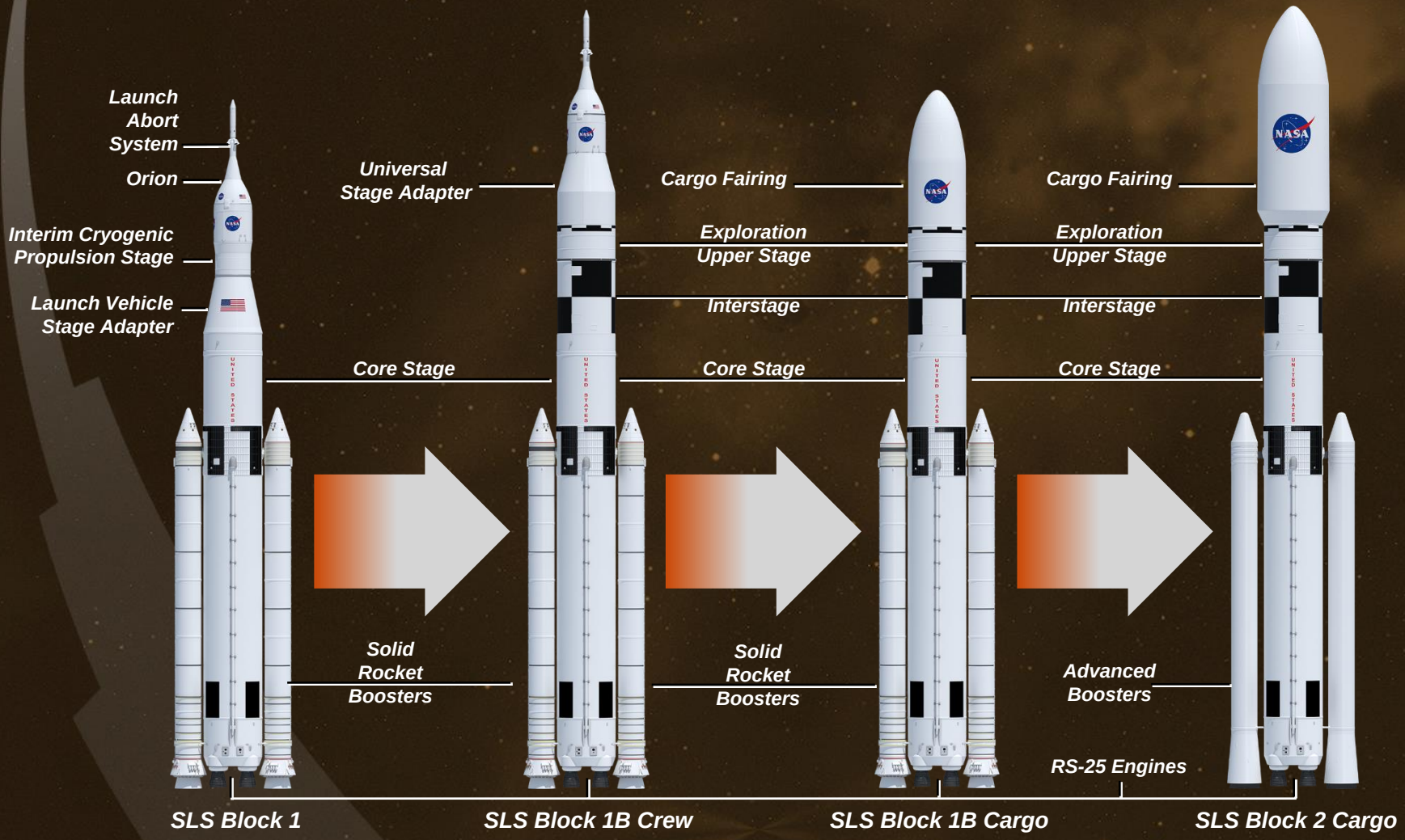


MISSIONS: 6-12 MONTHS
RETURN: HOURS
EARTH RELIANT

MISSIONS: 1 TO 12 MONTHS
RETURN: DAYS
PROVING GROUND

MISSIONS: 2 TO 3 YEARS
RETURN: MONTHS
EARTH INDEPENDENT

SLS Evolution Overview



SLS Block 1B & Mission Element Concepts Under Study

Mission Elements

Exploration Upper Stage

Core Stage / Boosters

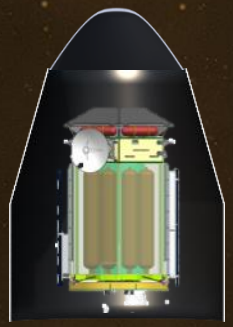
Mission concepts with Universal Stage Adaptor

Mission concepts with 8m and 10m fairings

Orion with short-duration hab module

5m fairing w/robotic lunar lander & short-duration hab module

Science Missions



ARM Mission

8m fairing with large aperture telescope

10m fairing w/notional Mars payload

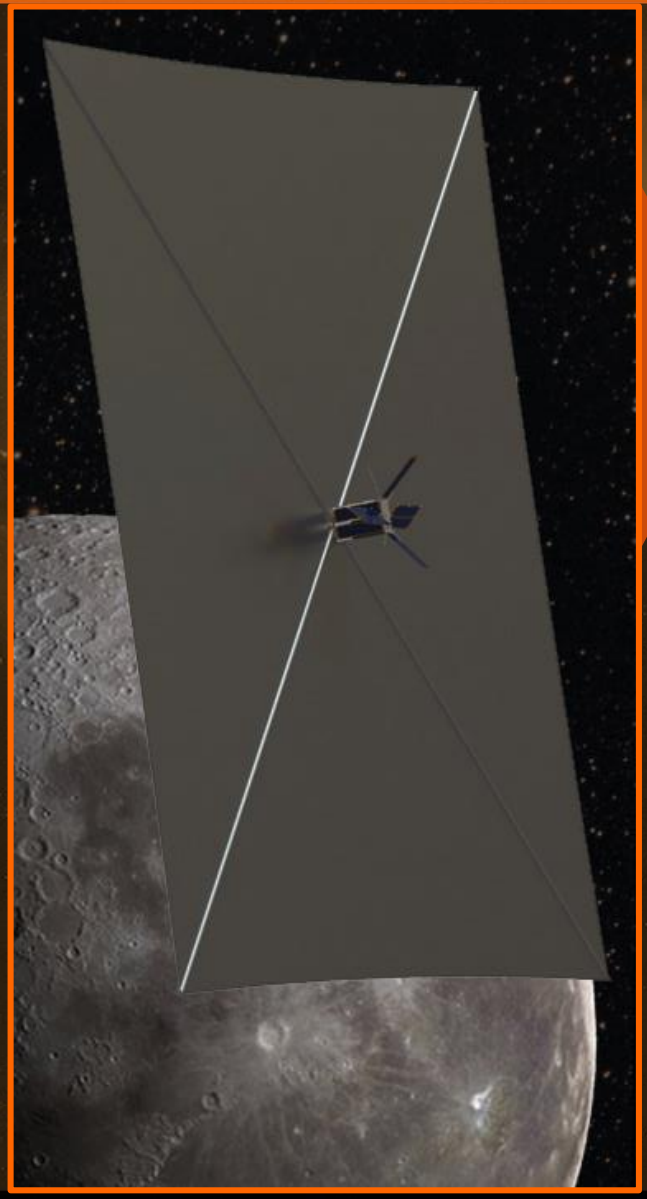
total mission volume = ~	400m3	600m3	400m3	400m3	1200m3	1800m3

Secondary Payload Capability

- **Thirteen small-sat secondary payloads of 6U volume/mass (14 kg payload mass) will fly on the first flight of Space Launch System.**

  Among the potential payloads are these three candidates identified by NASA's Advanced Exploration Systems:

  - BioSentinel: Study radiation-induced DNA damage of live organisms in cislunar space; correlate with measurements on ISS and Earth.
  - Lunar Flashlight: Locate ice deposits in the moon' permanently shadowed craters
  - Near Earth Asteroid (NEA) Scout: Flyby/rendezvous and characterize one NEA that is a candidate for a human mission.



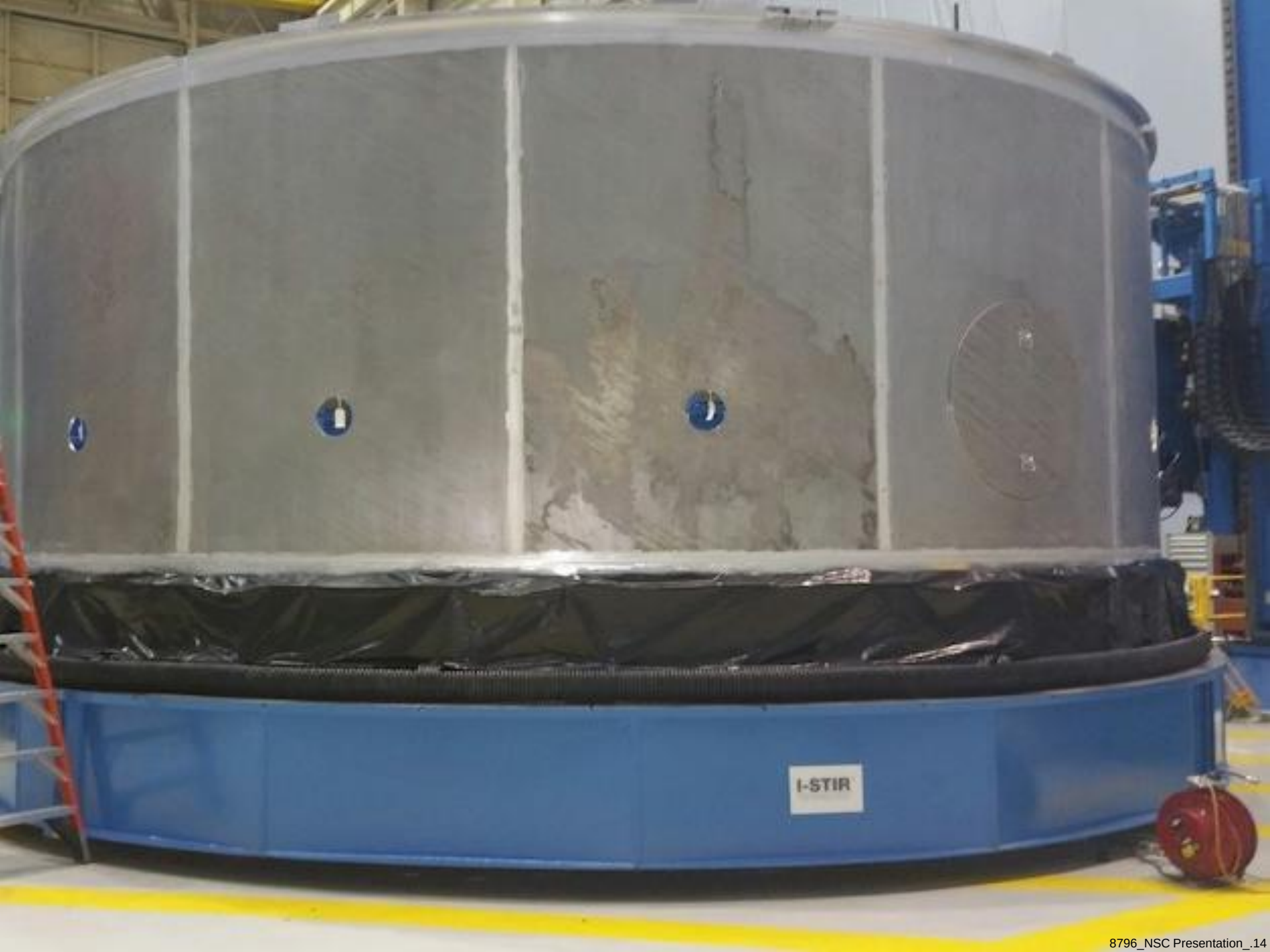
STATE OF THE ROCKET

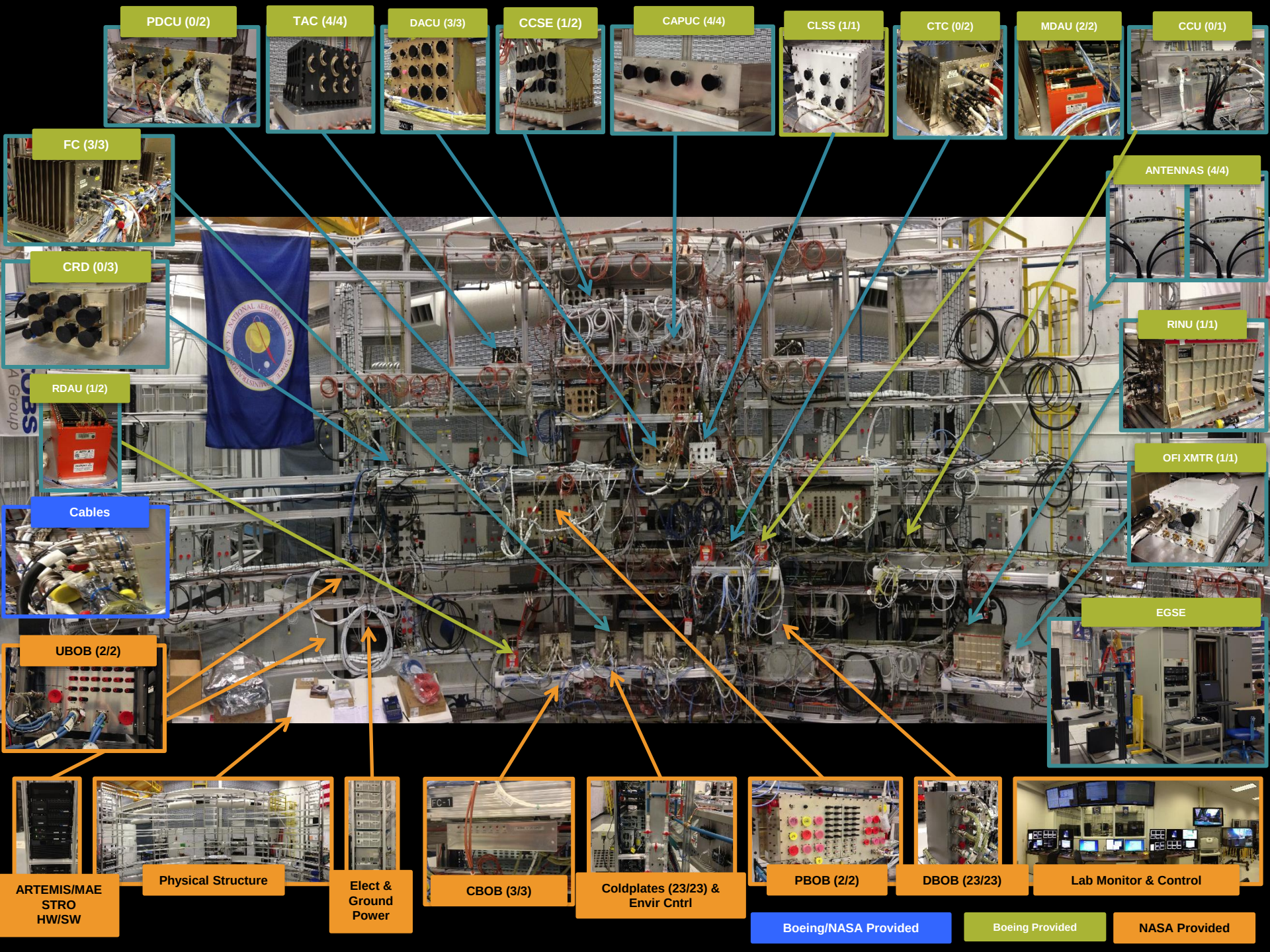
8796_NSC Presentation_.9

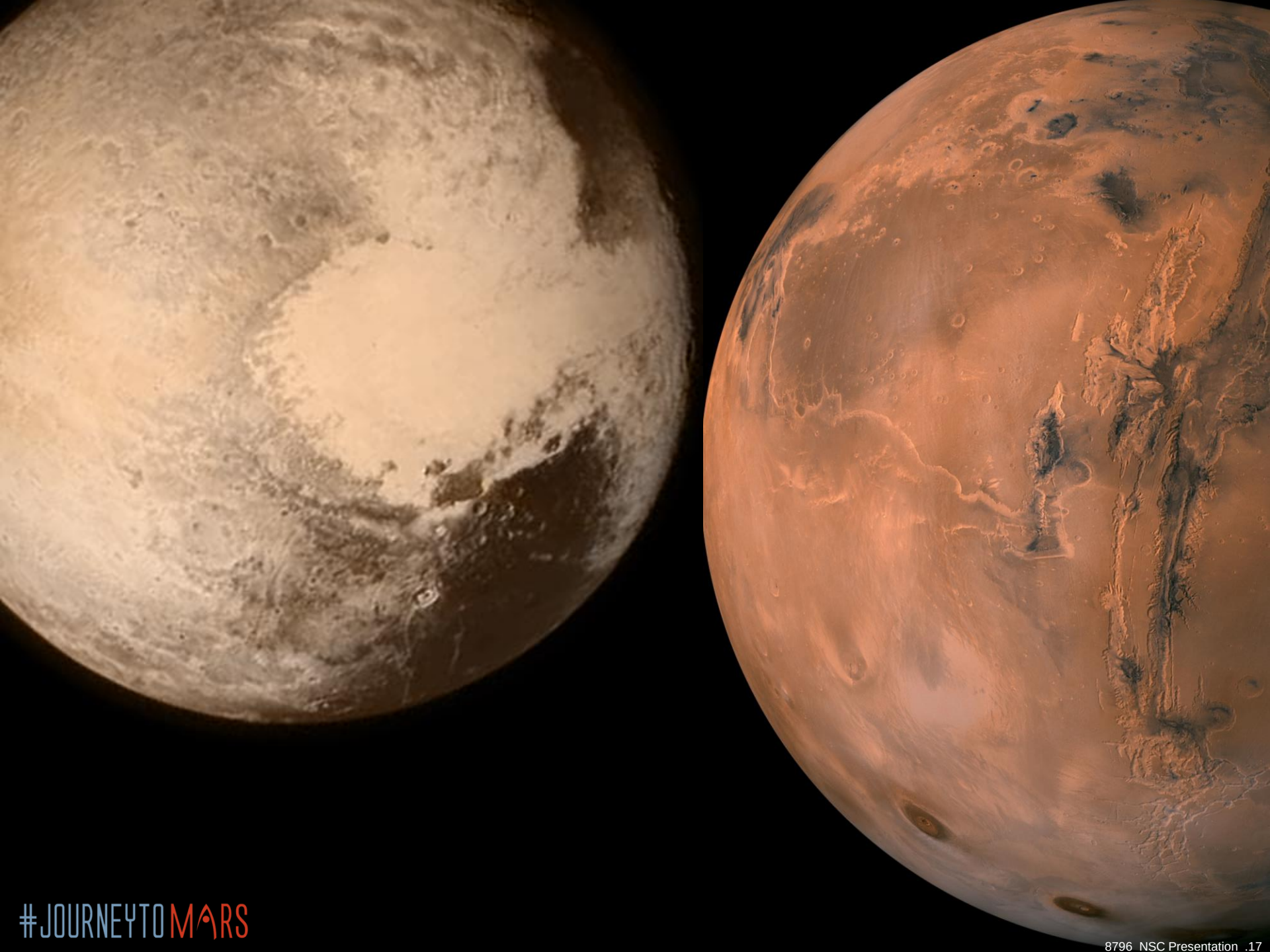

HANSON
HEIDELBERGCEMENT GROUP
13-320
96-S-770
A-13


STIR
FUTURAM C


EXIT


I-STIR


PDCU (0/2)
TAC (4/4)
DACU (3/3)
CCSE (1/2)
CAPUC (4/4)
CLSS (1/1)
CTC (0/2)
MDAU (2/2)
CCU (0/1)
FC (3/3)
ANTENNAS (4/4)
CRD (0/3)
RINU (1/1)
RDAU (1/2)
OFI XMTR (1/1)
Cables
EGSE
UBOB (2/2)
ARTEMIS/MAE STRO HW/SW
Physical Structure
Elect & Ground Power
CBOB (3/3)
Coldplates (23/23) & Envir Cntrl
PBOB (2/2)
DBOB (23/23)
Lab Monitor & Control
Boeing/NASA Provided
Boeing Provided
NASA Provided



#JOURNEYTOMARS

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Join Us on The Journey!

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