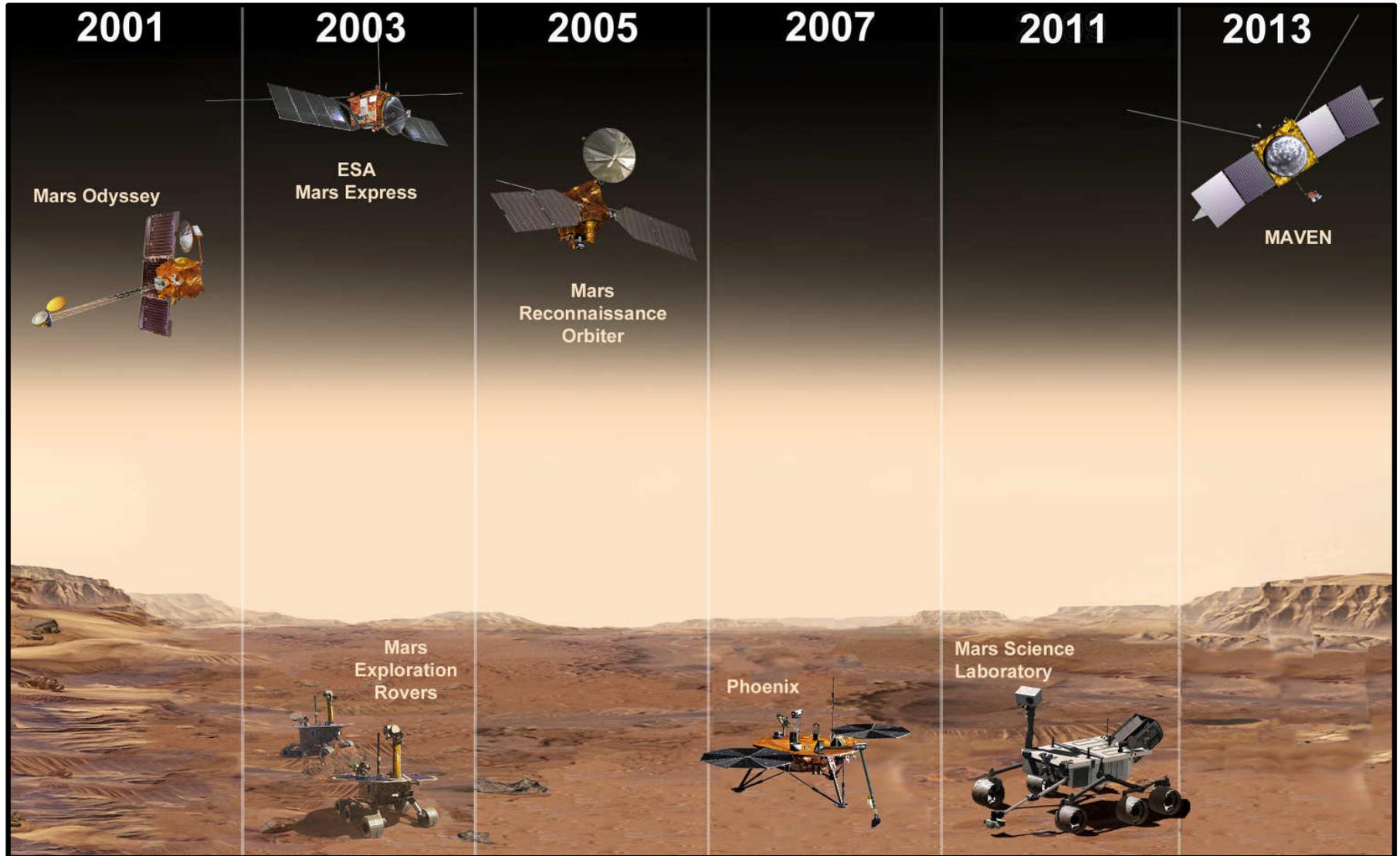


# Mars Exploration Program

F. Li

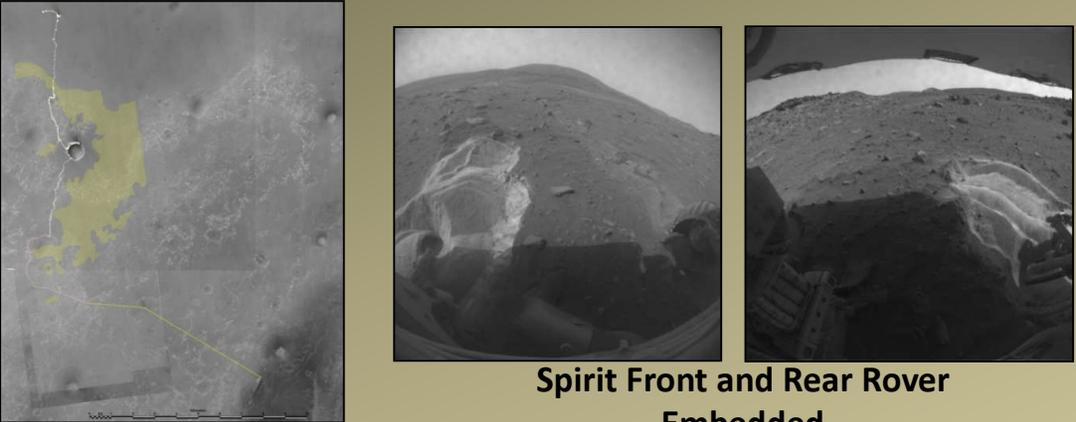
March 17 ,2010

# Mars Exploration Program



# Highlights of Mars Operating Missions

**MER**



**Opportunity to Endeavor**

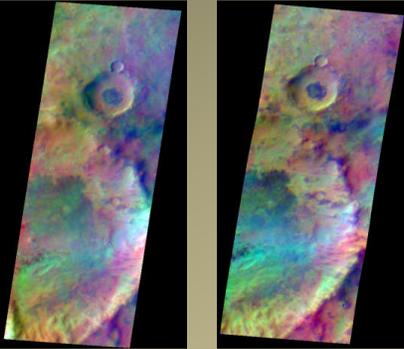
**Spirit Front and Rear Rover Embedded**

**2 MER rovers still operational after 6 years on Mars surface**

- Opportunity matching towards Endeavor crater
- Spirit embedded in 'Troy'
- Spirit winter survival

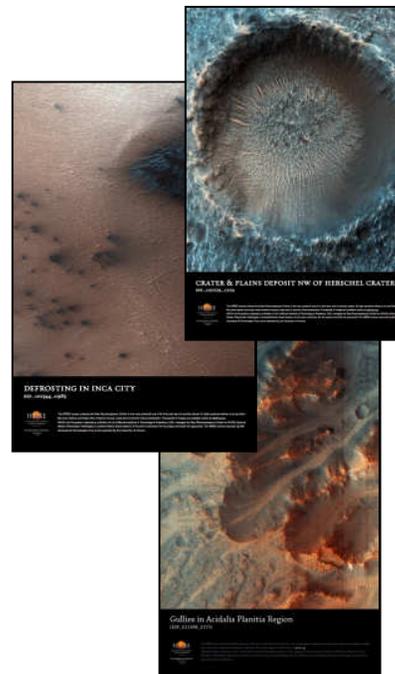
**Odyssey**

Sept. 2003  
Local true solar time = 4:32 p.m.



May 2009  
Local true solar time = 3:21 p.m.

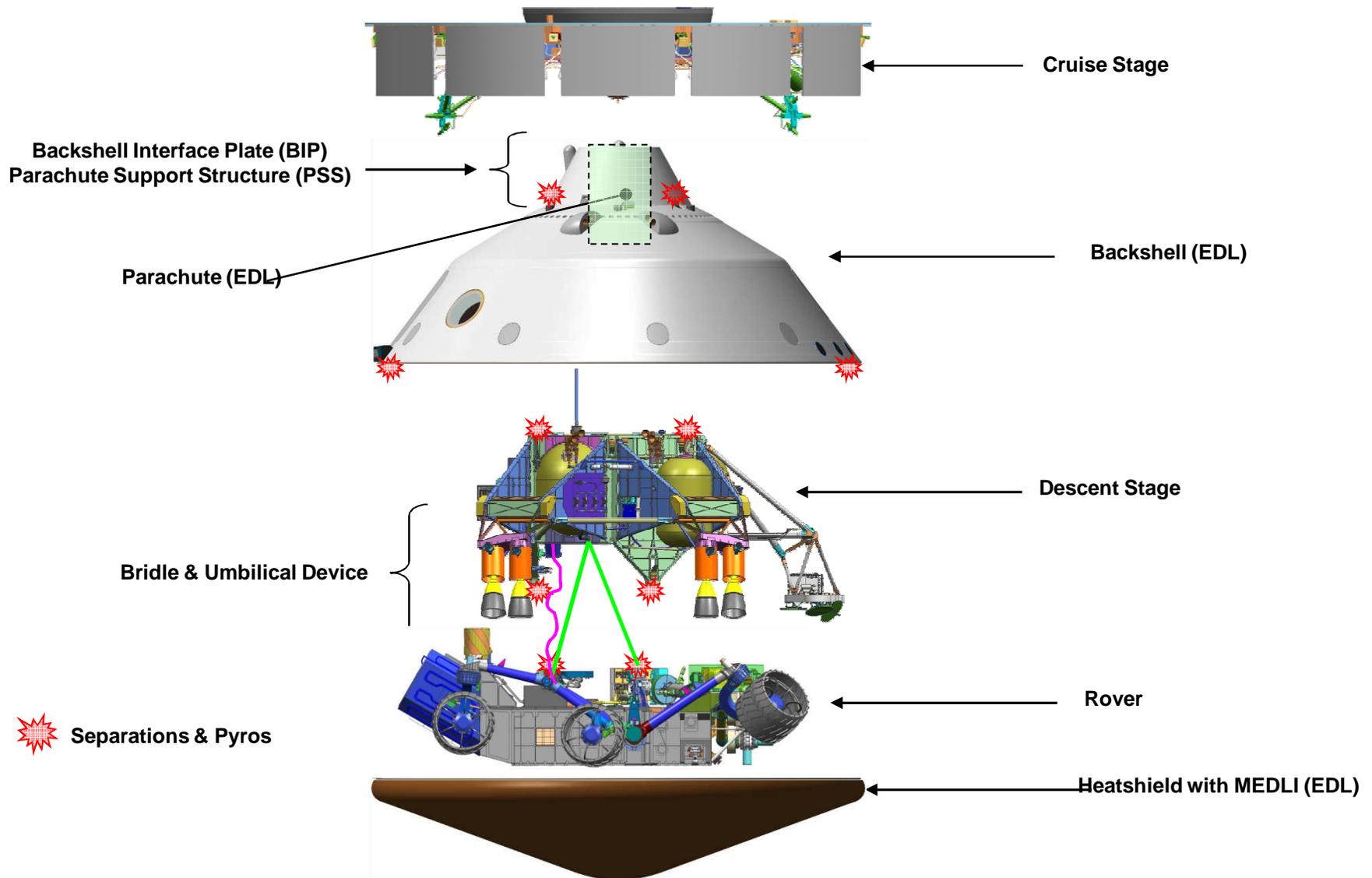
- Completed Orbit change to local solar time of ~3:45 pm: allows significant improvements in the SNR for THEMIS IR mapping



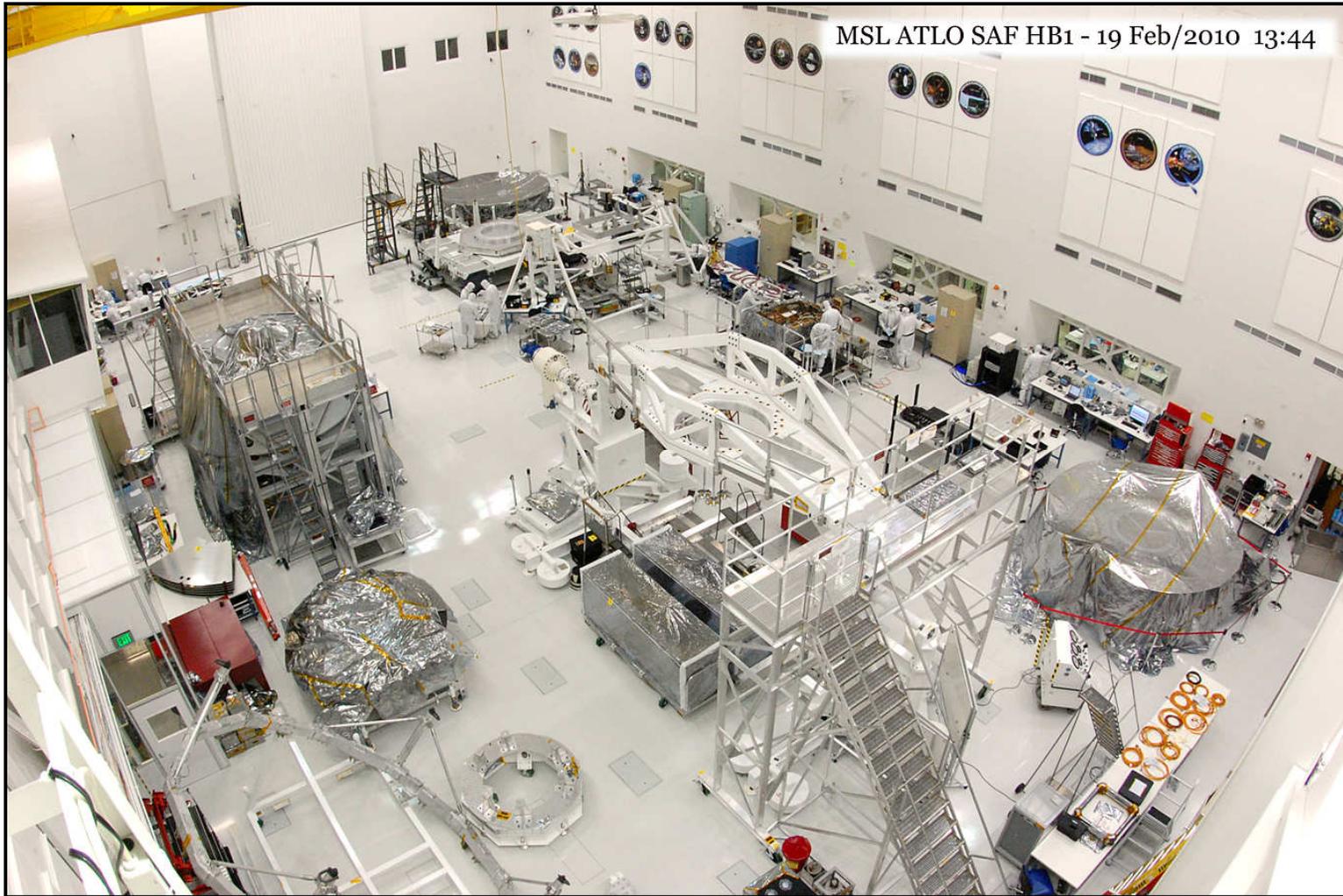
**MRO has completed mission scientific Level I requirements**

- Continues to acquire science data with all its instruments
- Project acquired over 100 Tbits
  - Has acquired more data than all deep space missions beyond the moon combined
- Continues to map a wide variety of Martian terrain suitable for future landing missions

# MSL Spacecraft Major Elements

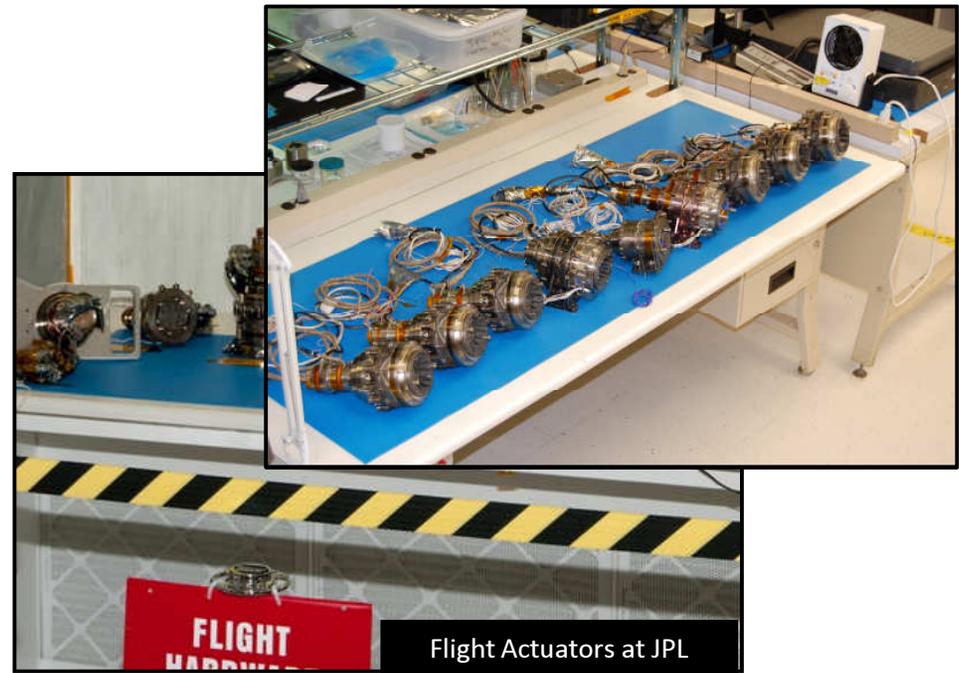
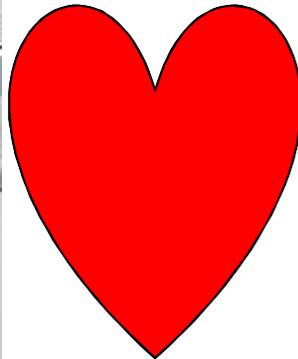


# MSL ATLO Image



## Actuator Status

- ALL flight and flight spare actuators have been delivered to JPL
- WATER (A337) life test is now 100% through the 2x life test
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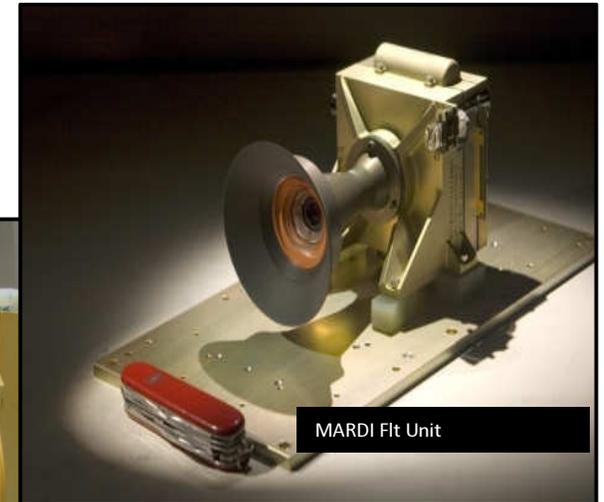


3/17/2010

Flight Actuators at JPL

# MSL Payload Progress

All major payload elements delivered, except  
REMS, ChemCAM and SAM





Flight RA Shoulder Assembly



Flight TDS ready for TVAC prior to TRM rework

# MSL ATLO starts



# MSL Progressing to 2011 Launch

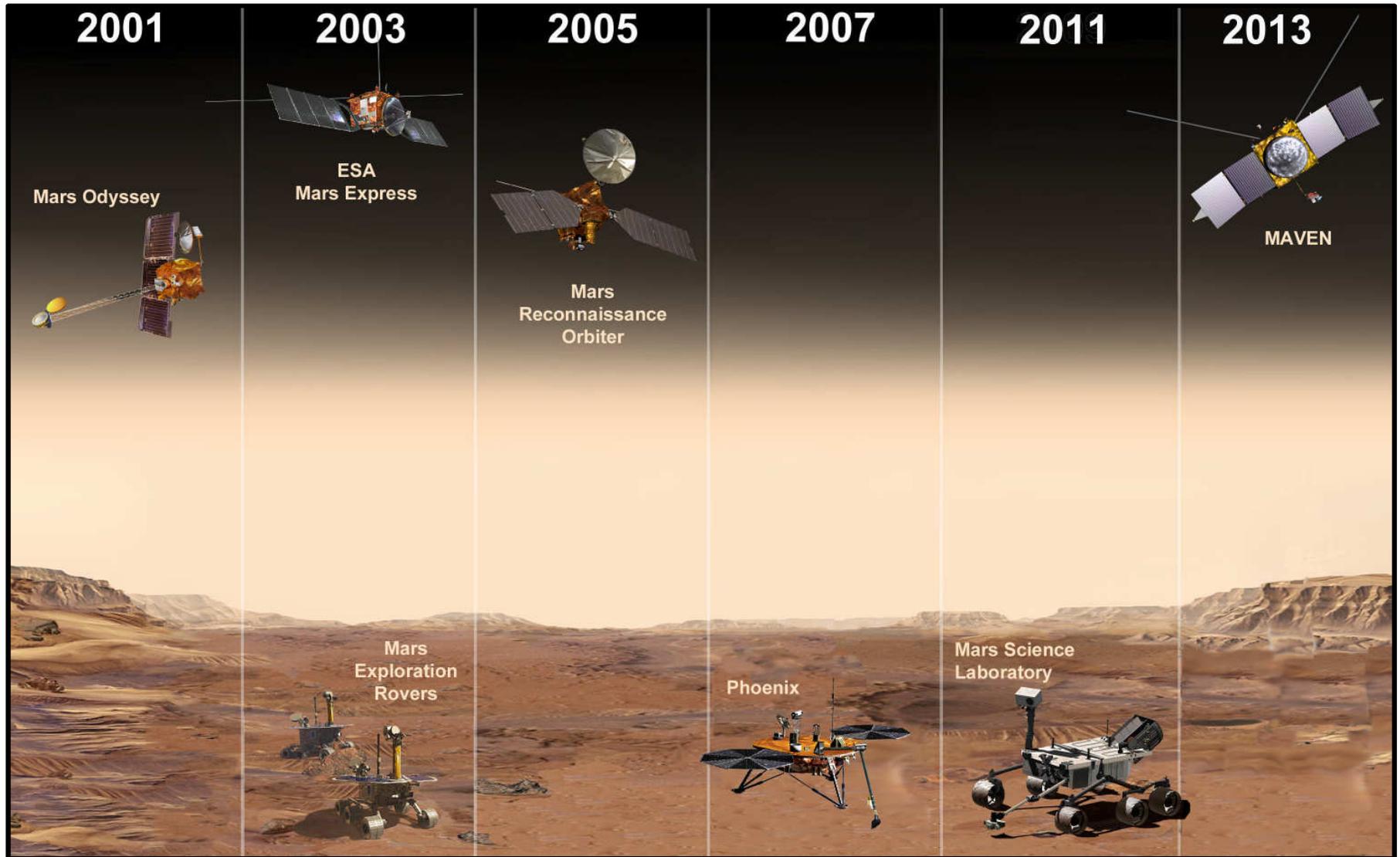
- Landing site workshop in Sept '10 will assess the priority of adding/modifying candidate sites
- Remaining significant *development* issues:
  - SAM Wide Range Pump
  - Radar Transmit Receive Module
  - MMRTG beginning of mission power shortfall
  - Mid-wheel restraint
- Agency PMC January 2010:
  - Approved to proceed, consistent with independent review committee recommendation
  - 2011 LRD achievable, & cost and risk remain well within predictions and external commitment
- ATLO formally started in Feb'10
  - Moving to system level environment tests later 2010/early 2011

# Mars Exploration Program

F. Li

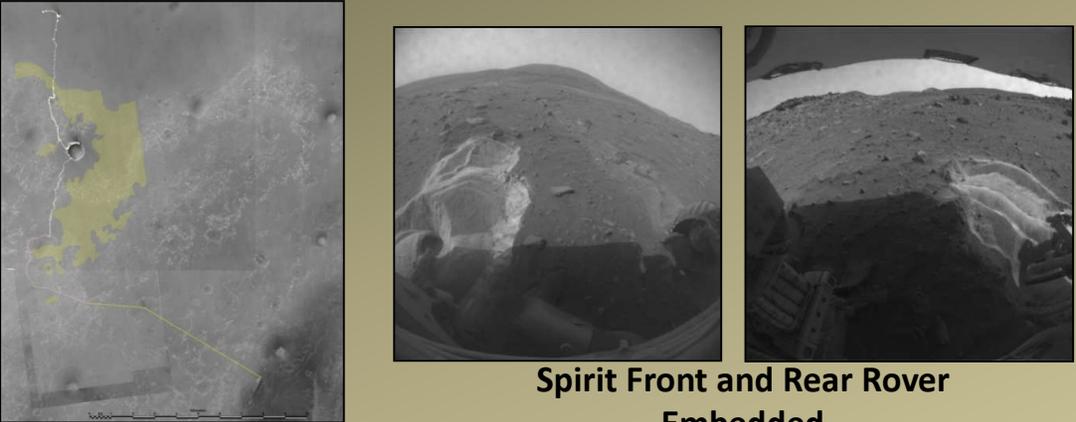
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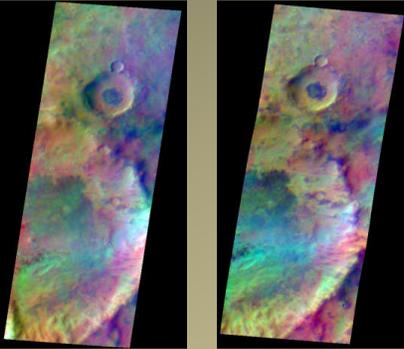
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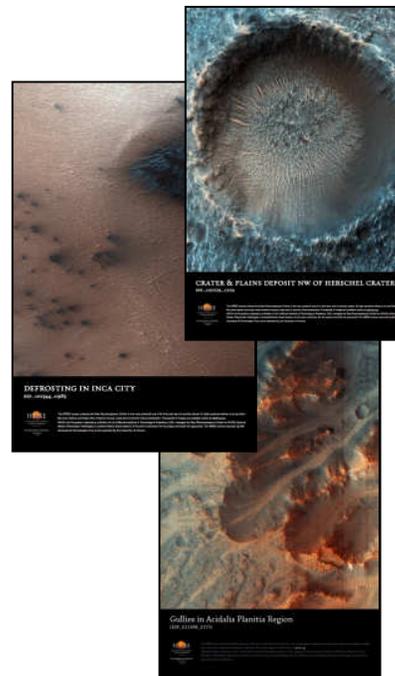
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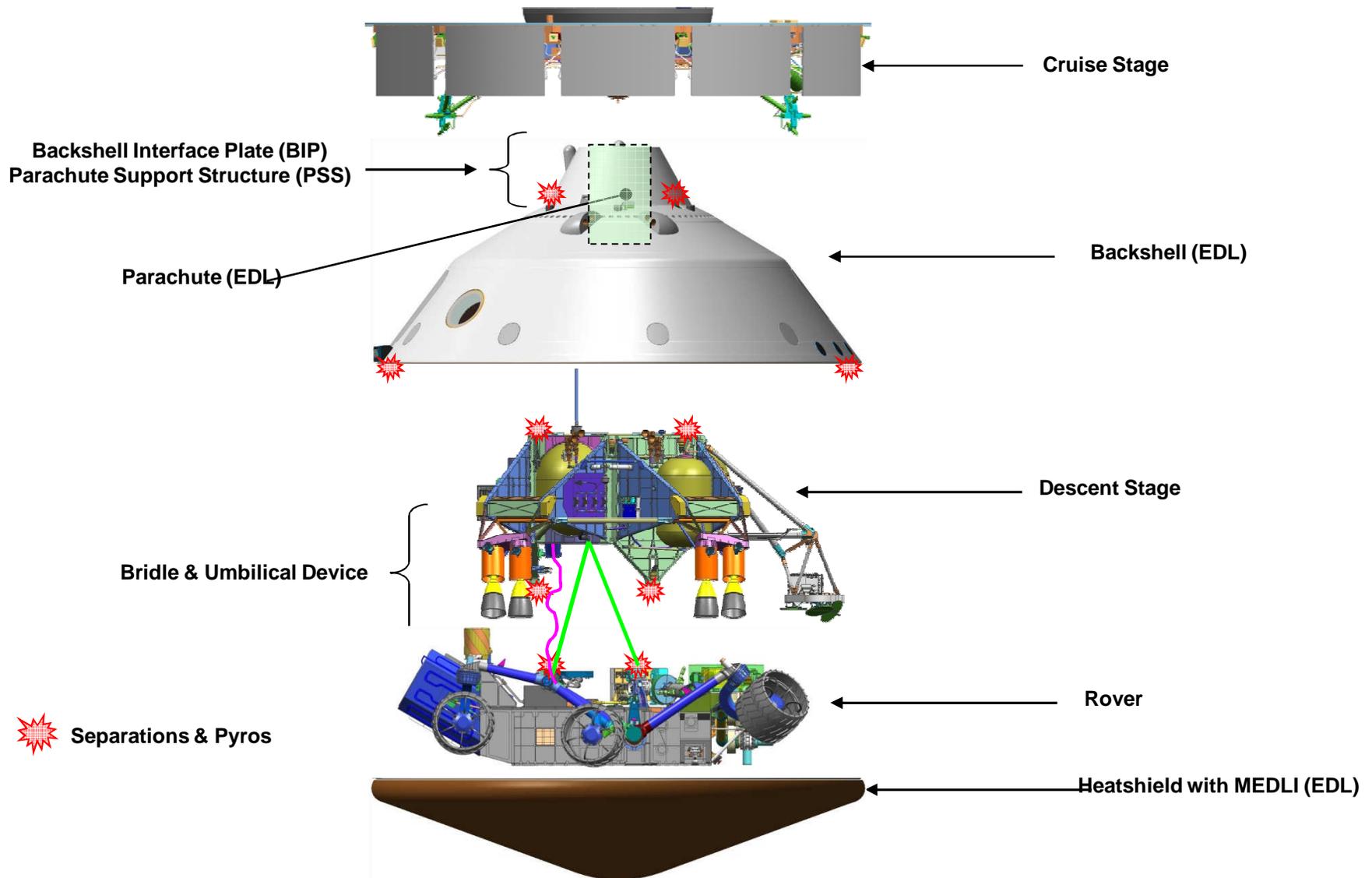
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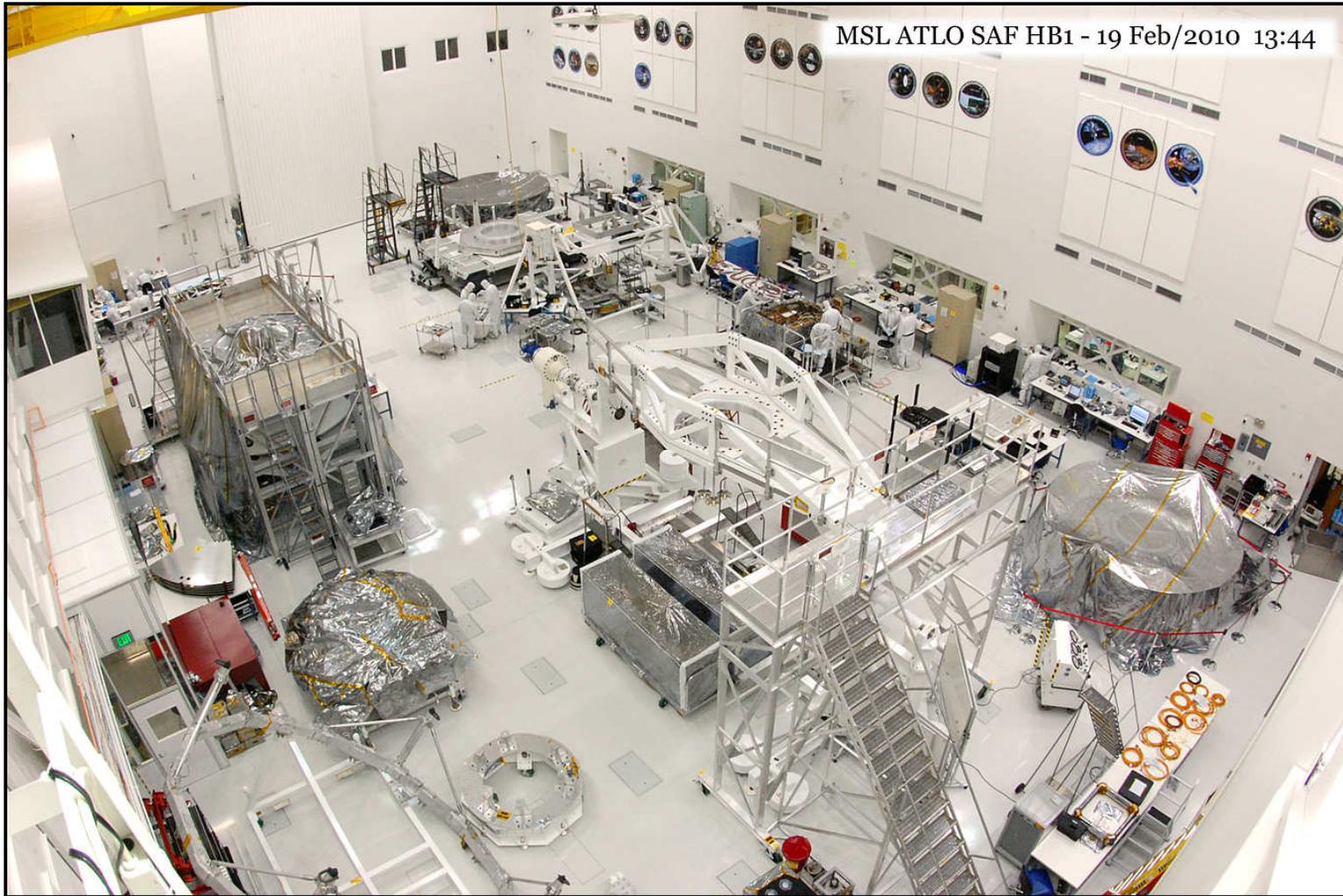
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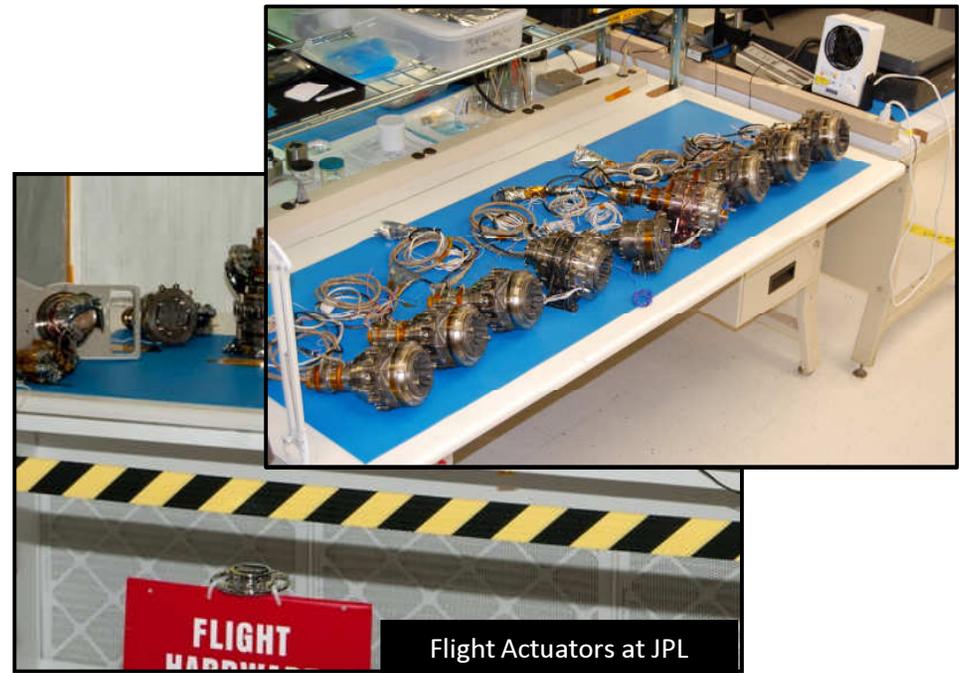
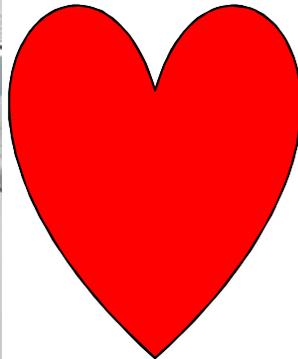


# MSL ATLO Image



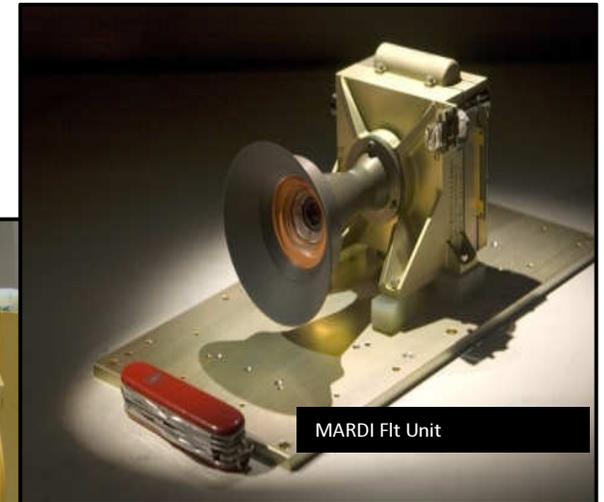
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