Pratt & Whitney
A United Technologies Company

J-2X Engine

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February 26, 2007

J-2 Engine Lineage

J-2X: Adding a new member to the family

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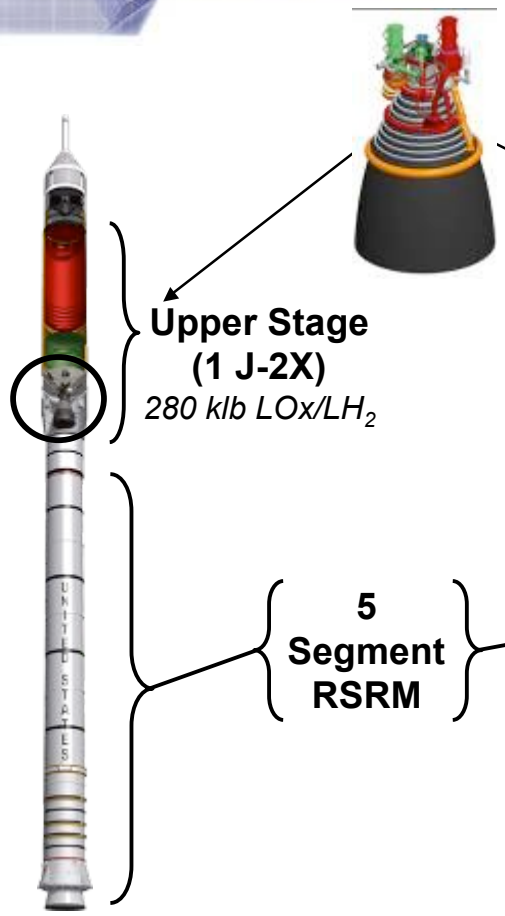
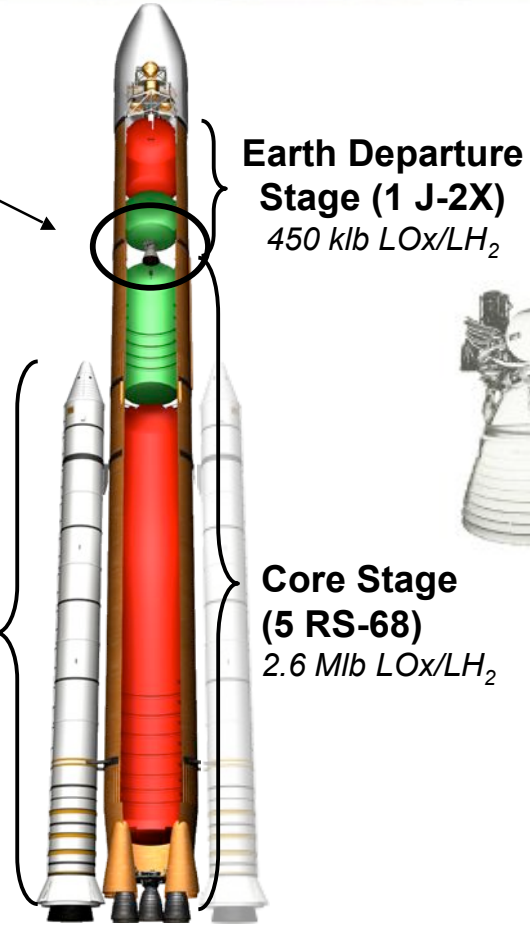
J-2 Engine Hot Fire

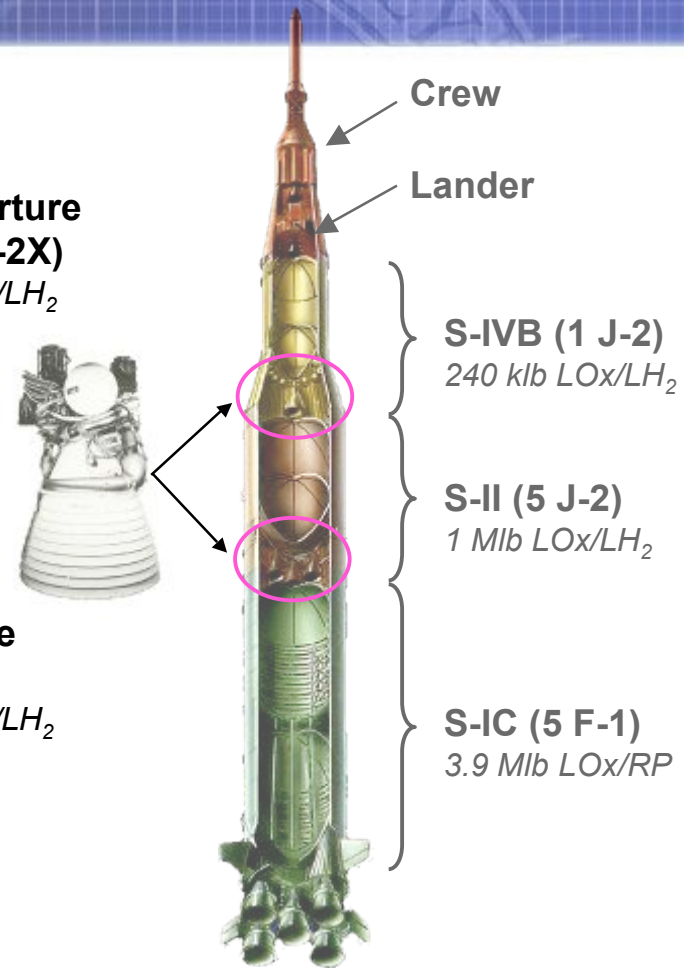
	1960-1970	*1965-1971*	*1996-2001*	*2006-*
Configuration	**J-2**	**J-2S**	**X-33**	**J-2X**
Thrust	**230 klb**	**265 klb**	**261 klb**	**294 klb**
Isp	**425 sec**	**436 sec**	**419 sec**	**448 sec**
Mass	**3,492 lb**	**3,800 lb**	**7,500 lb**	**5,450 lb**
Length	**116 in**	**116 in**	**79 in**	**185 in**

Requirements

J-2X: Apollo-era Derivative Engine
CEV Upper Stage and CaLV EDS Engine







Height: *309 ft*
Gross Liftoff Mass: *2.0Mlb*

Crew Launch Vehicle

Height: *358 ft*
Gross Liftoff Mass: *6.4Mlb*

Cargo Launch Vehicle

Height: *364 ft*
Gross Liftoff Mass: *6.5Mlb*

Saturn V

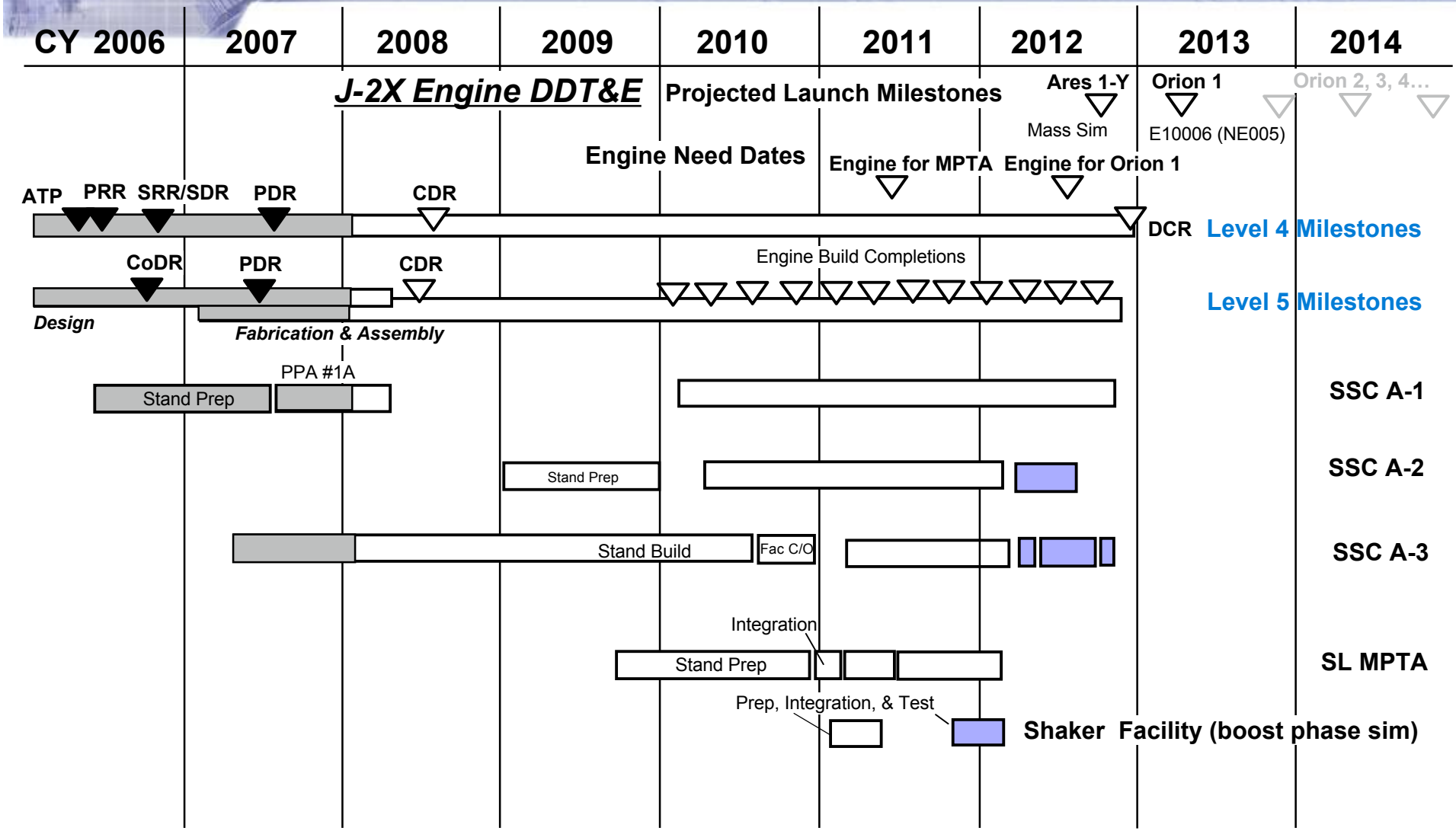
Pratt & Whitney Rocketdyne

J-2X Basic Characteristics

• Cycle	GG
• Thrust, vac (klbs)	294
• Isp, vac (sec)	448
• Pc (psia)	1,337
• MR	5.5
• AR	92
• Weight (lbm), max	5,450
• Secondary Mode MR	4.5
• Secondary Mode PC	82%
• Restart	Yes
• Operational Starts	8
• Operational Seconds	2,600
• Length (in), Max	185
• Exit Dia. (in), Max	120

Pratt & Whitney Rocketdyne

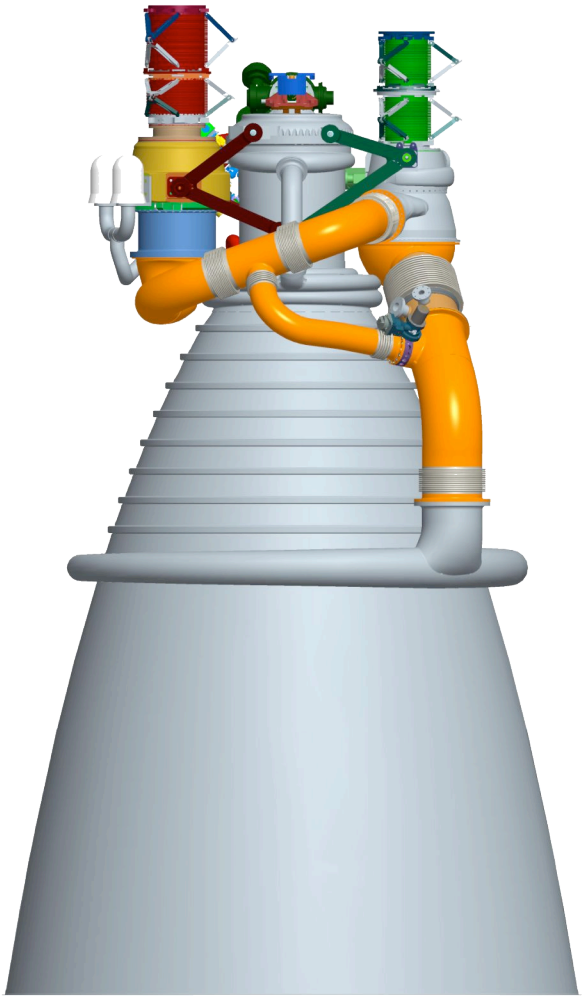
J-2X System Development Plan

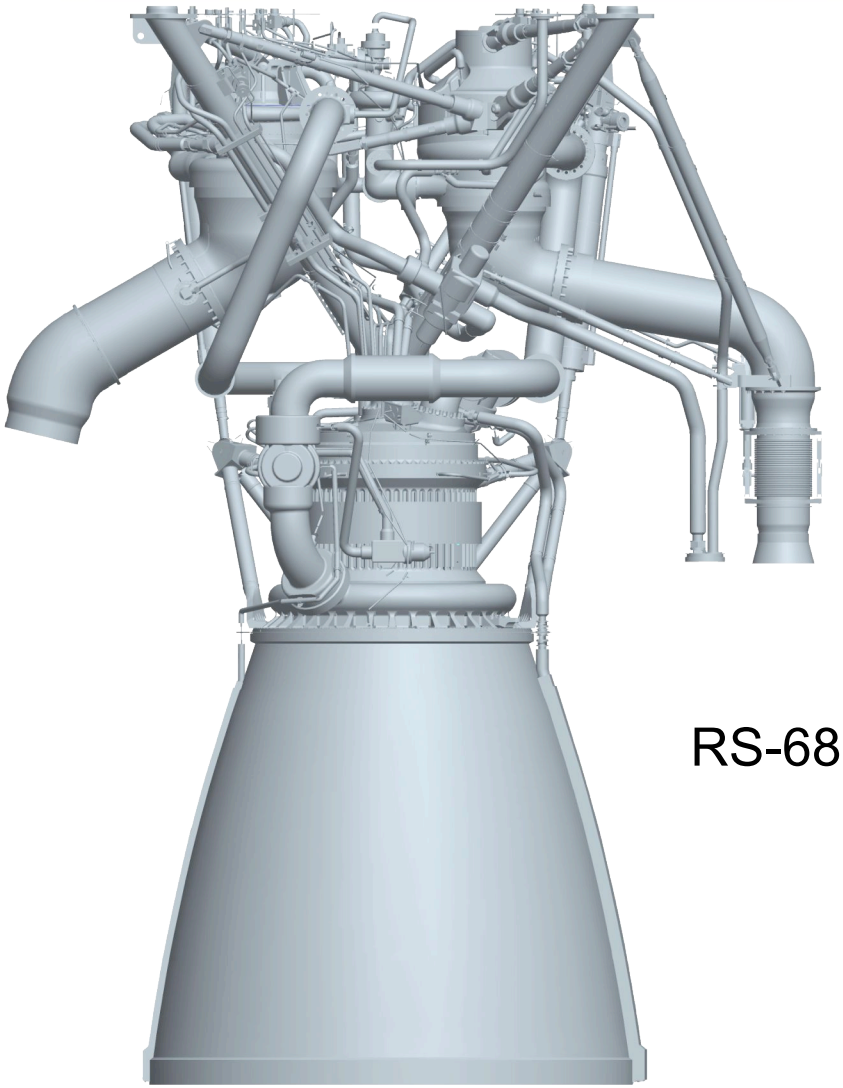


Pratt & Whitney Rocketdyne

J-2X & RS-68 Size Comparison

J-2X





RS-68

J-2X Accomplishments

Powerpack 1A in A-1

51 Element Injector

J-2X Program Summary

Pratt & Whitney
A United Technologies Company

- DDT&E Contract definitized through 2012
- Working proposal for additional tests/hardware
- Increasing staff to CDR next summer
- Long lead hardware orders underway
- Building supplier base for long production run

58 Months until J-2X DCR