

GENERAL DYNAMICS

Armament and Technical Products

***25mm Gun Systems for the
F-35 Joint Strike Fighter (JSF)***



Presented by:

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Presentation Outline

- Technical Approach
 - Internal Gun System (CTOL)
 - Missionized Gun System (CV & STOVL)
- Achievements since April, 2005
- Preliminary Test Results
- Path Forward



Lockheed Martin F-35 Variants



CTOL



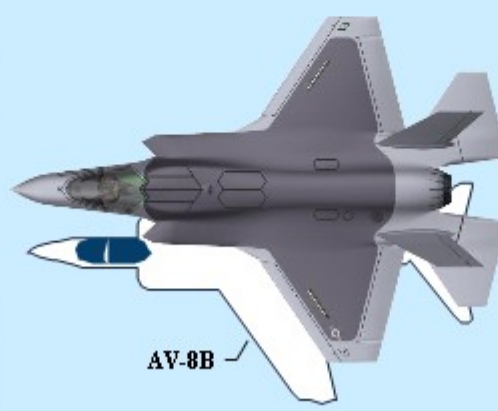
Span (ft)	35
Length (ft)	50.5
Wing Area (ft ²)	460



STOVL



Span (ft)	35
Length (ft)	50.5
Wing Area (ft ²)	460



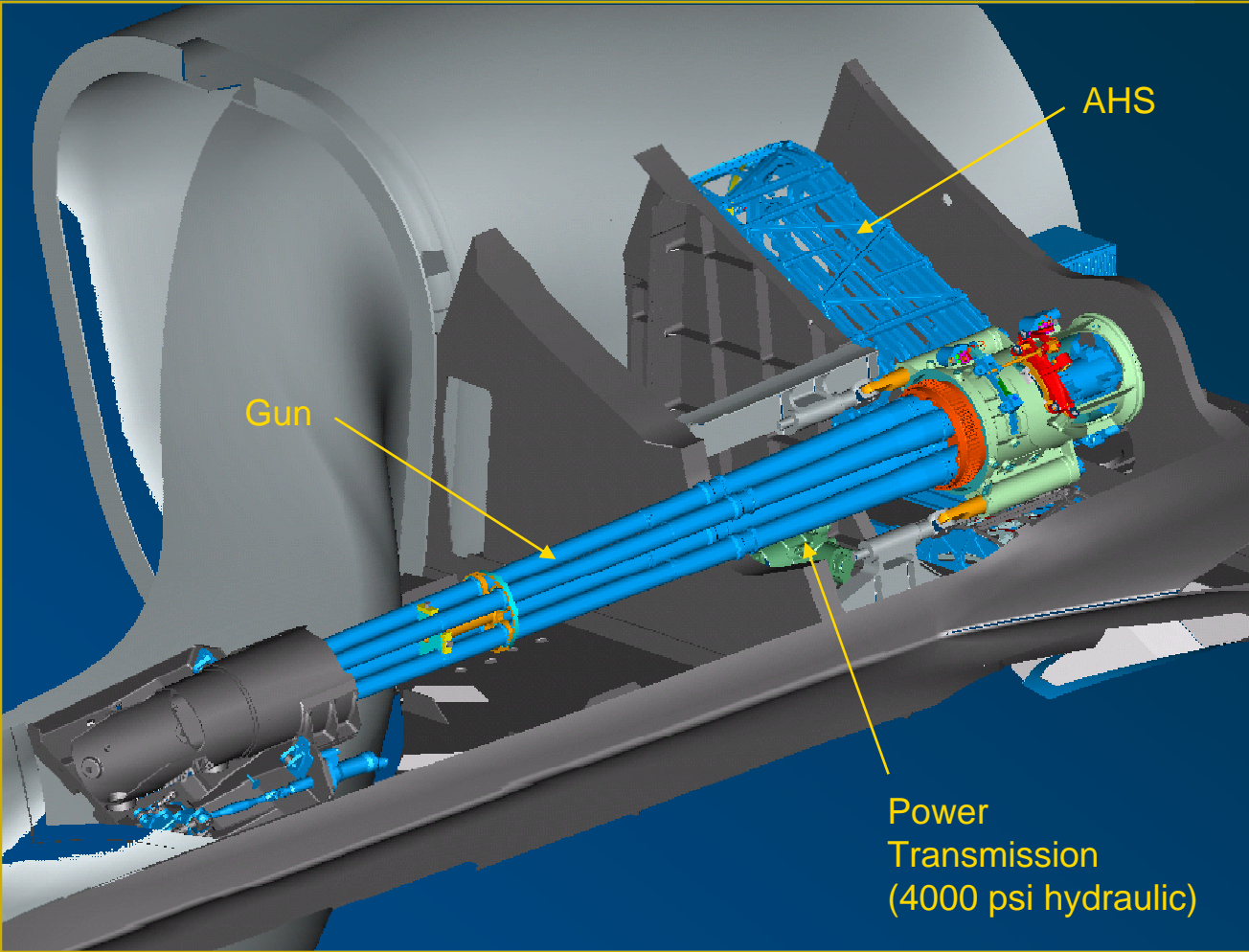
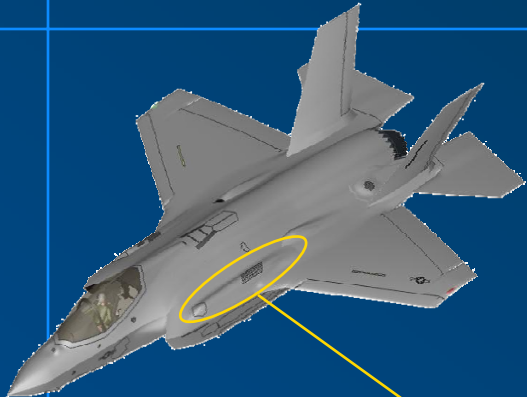
CV



Span (ft)	43
Length (ft)	50.8
Wing Area (ft ²)	620



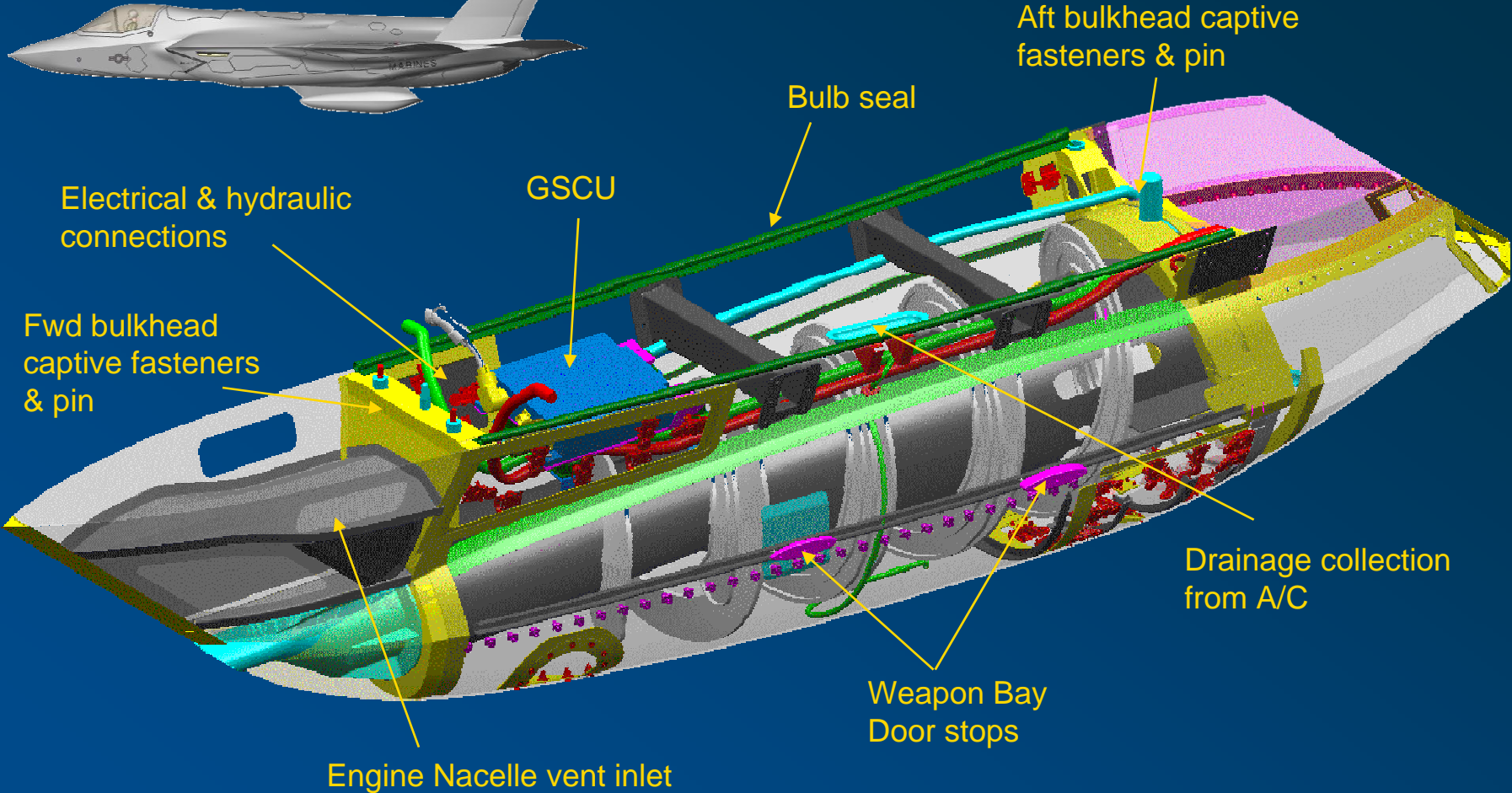
CTOL Gun System



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STOVL/CV Gun System



Achievements since April, 2005



- Completed Missionized Gun System and 4-Barrel Gun CDR July, 2005
- Completed Gun System Control Unit Qualification Testing – December, 2005
- Completed Assembly of the first GAU-22/A – January, 2006
- Began Fire Testing – February, 2006

Missionized Gun System and 4- Barrel Gun CDR



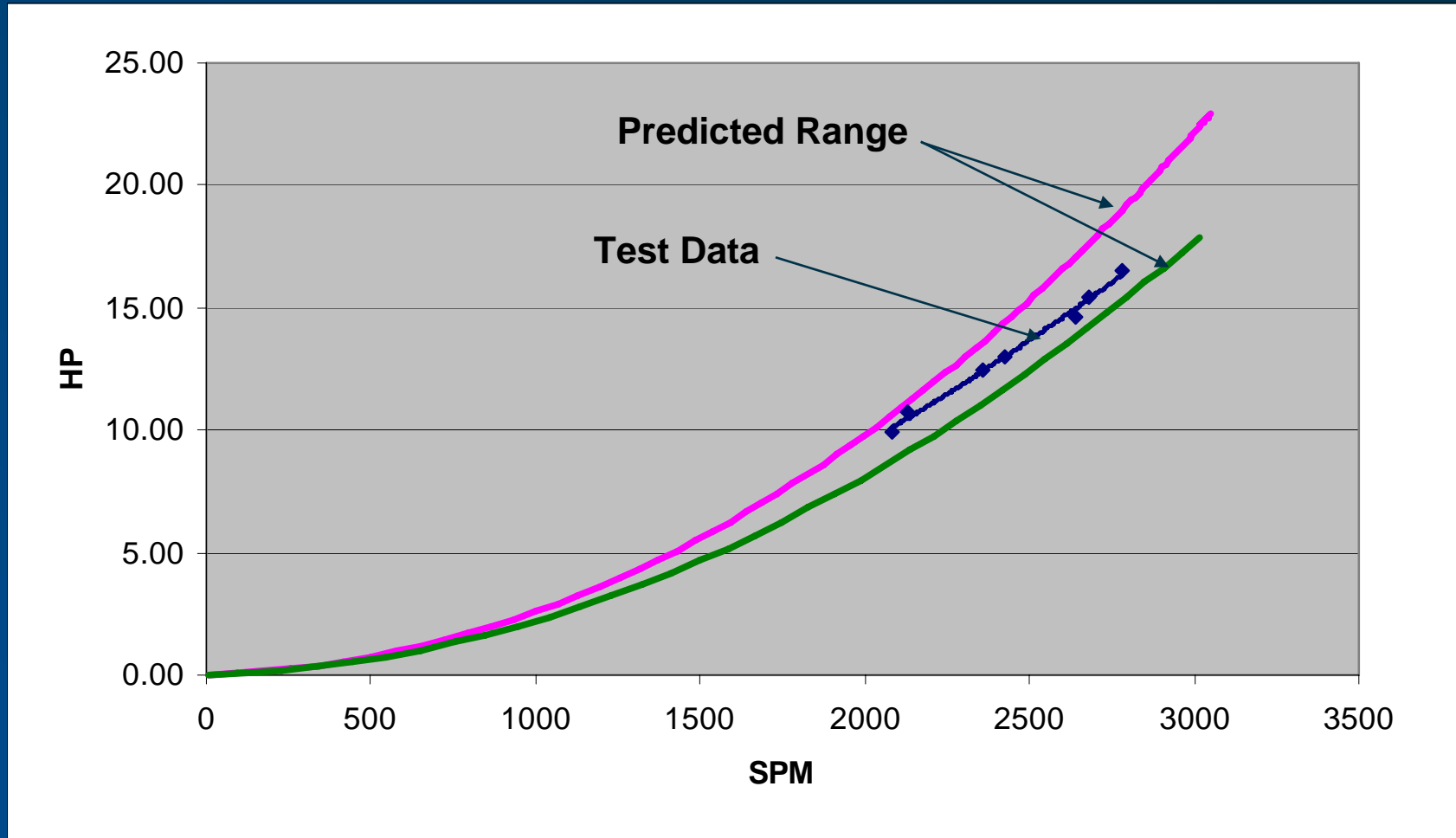
- CDR Conducted July 12-13, 2005
- Predicted system weight below requirements
 - CTOL 406 lb vs 416 lb requirement
 - STOVL/CV 980lb vs 993 lb requirement
- Technical Risks identified
 - Power Consumption
 - Dispersion
 - STOVL/CV Elliptically Geared Transfer Unit
- 24 Action Items assigned
 - All closed by August 29, 2005

Four Barrel Gun Test Status



- Over 2000 rounds fired to date
- No major problems encountered
- Power consumption correlated well with predictions
- Gun reaction loads were somewhat lower than predicted
- Dispersion is being evaluated

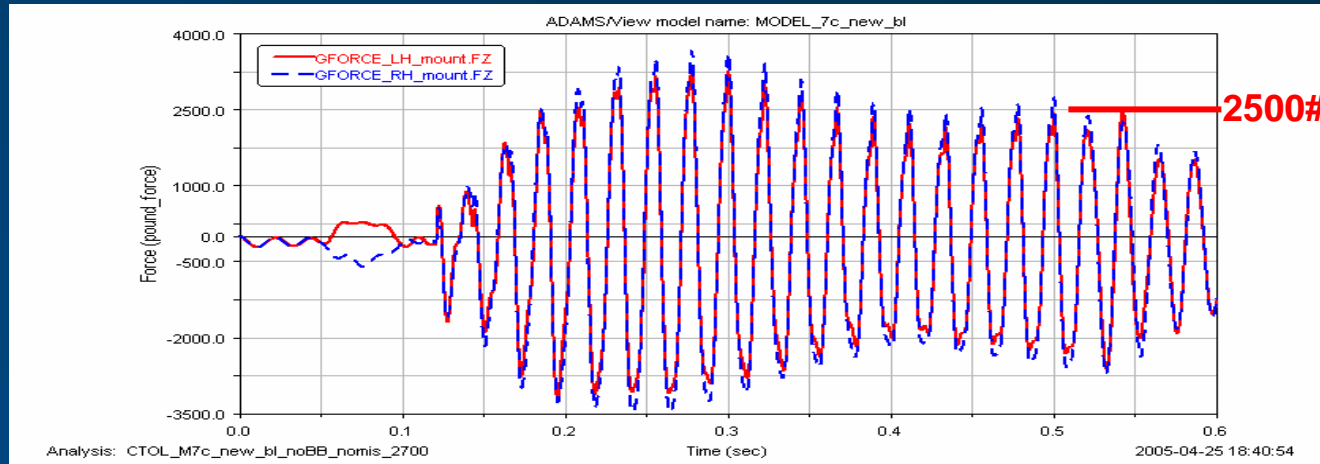
Power Prediction



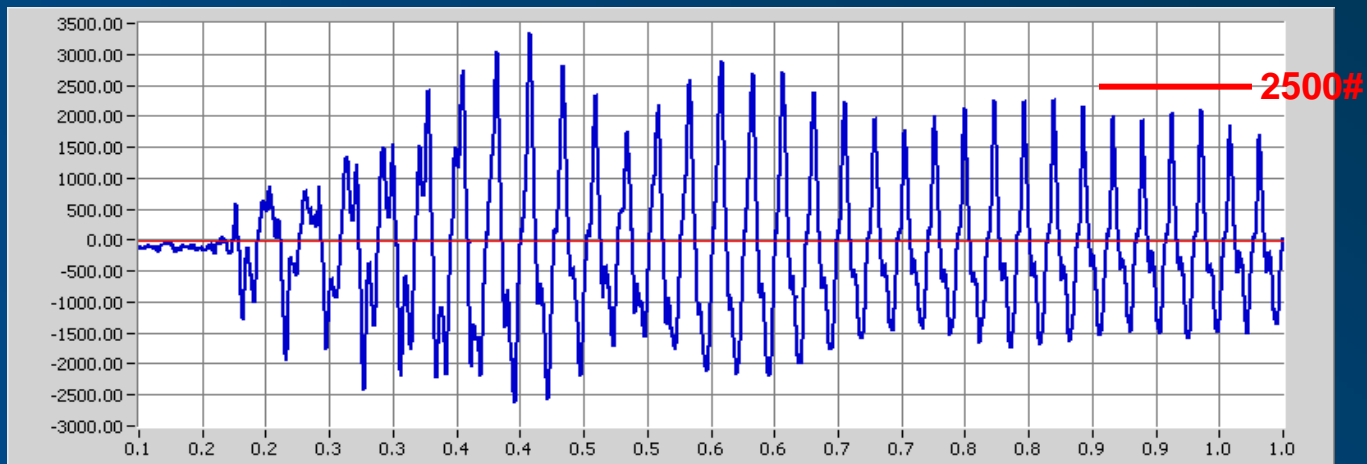
Vertical Recoil Load at 2700 SPM



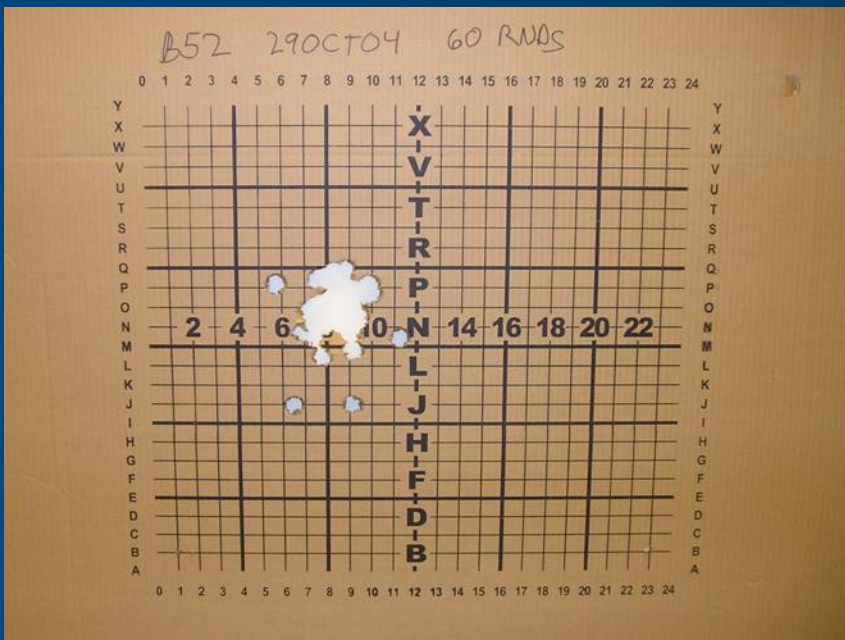
Dynamic Analysis



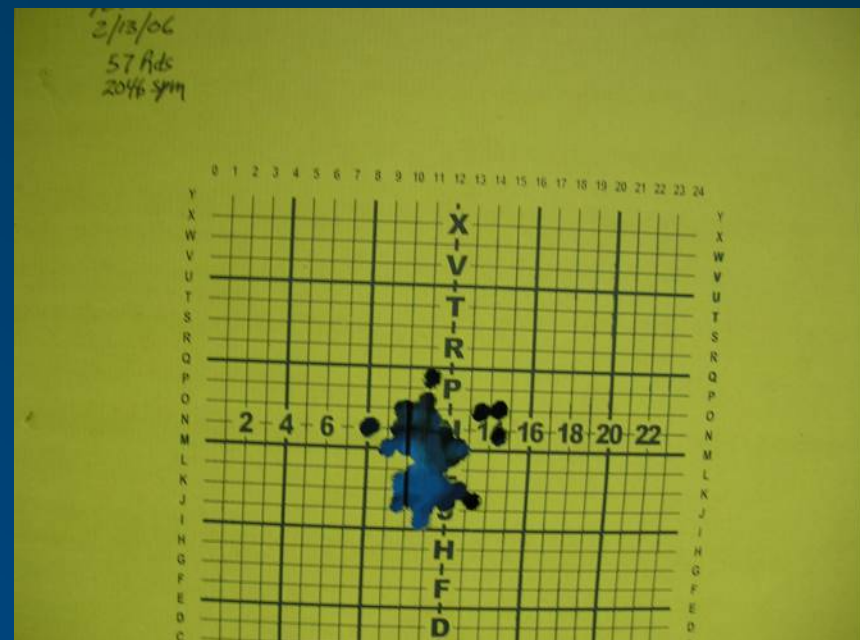
Test Data



Dispersion



5-Barrel Target



4-Barrel Target
at 2040 SPM

JSF Gun System Master Schedule

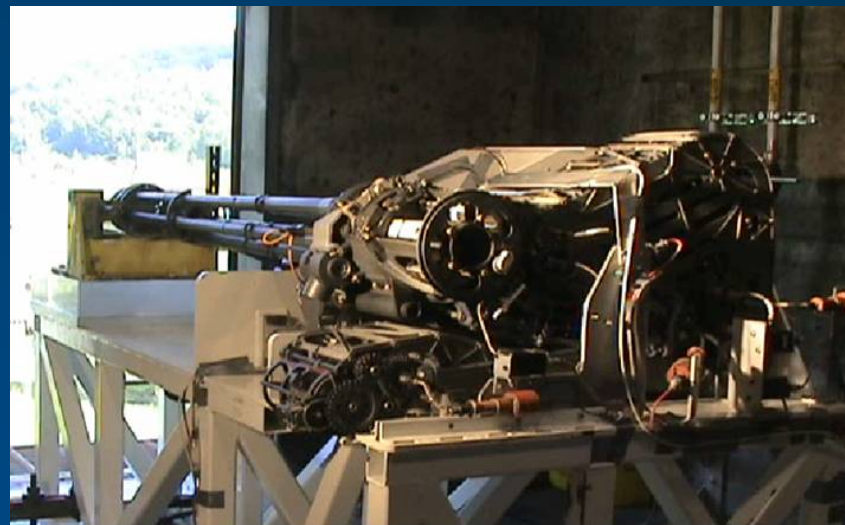


Task Name	2005					2006				2007			
	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
CTOL	[Thick black bar spanning from Q4 2005 to Q4 2007]												
Detailed Design	[Blue bar]												
Fabrication and Assembly	[Blue bar]												
5k Round Gun Only Test						[Blue bar]							
10 K Round System Engineering Test							[Blue bar]						
30K Round System Qual. Test								[Blue bar]					
Environmental Test								[Blue bar]					
Delivery									[Blue bar]				
STOVL	[Thick black bar spanning from Q4 2005 to Q4 2007]												
Detailed Design	[Blue bar]												
Fabrication and Assembly	[Blue bar]												
5k Round Gun Only Test							[Blue bar]						
Gun Pod SDD#1 Delivery								[Black bar]					
10 K Round System Engineering Test								[Blue bar]					
30K Round System Qual. Test									[Blue bar]				
Environmental Test										[Blue bar]			
Delivery												[Blue bar]	

Path Forward Prior to the 2007 Guns & Ammo Symposium



- Complete
 - CTOL 10,000 Round Engineering Test
 - CTOL 30,000 Round Qualification Test
 - CTOL Environmental Test
 - STOVL/CV 5,000 Round Gun Test
 - STOVL/CV 10,000 Round Engineering Test
- Begin
 - STOVL/CV 30,000 Round Qualification Test



JSF CTOL Gun System Fire Test



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