

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1999
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BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305144F Titan Space Launch Vehicles (Space)	PROJECT 4135
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COST (\$ In Thousands)	FY 1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
4135 Titan II/IV	62,401	77,176	45,379	26,062	27,307	0	0	0	0	3,083,511
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. Mission Description

(U) National security requirements dictate a continuing, highly reliable means of placing critical DoD satellites into required orbits. The Titan IV program provides the capability to launch the largest of these satellites into near-earth or geosynchronous orbits from either the east or west coast launch facilities. Titan IV is used to launch Air Force, National Reconnaissance Office, and NASA payloads. This program provides several different configurations of the Titan IV [No Upper Stage (NUS), Inertial Upper Stage (IUS), and Centaur]. In addition, the Titan IV program has developed a new vehicle configuration, the Titan IVB, with solid rocket motor upgrade (SRMU), new avionics and ground support equipment to meet reliability and increased performance requirements. This program provides continuing integration support to the payload community as well as continuing engineering support to maintain system characterization and reliability.

(U) Since FY94, this program element also included funding for sustaining engineering, payload integration, and Government costs for the Titan II space launch vehicle. In FY96, Program Office support was moved to Procurement funding. Major RDT&E activities are static test firing of the requalified SRMU in 1QFY00, and non-recurring integration for Milstar satellites. Remaining activities are maintaining sustaining engineering and anomaly resolution capability through the end of the program.

(U) Beginning in FY00, the Upper Stages Program is combined into the Titan program and provides consolidated acquisition of the IUS to support the launch of Defense Support Program (DSP) satellites. IUS is an upper stage on the Titan IV (can be modified for Shuttle) and delivers the DSP satellite to the required orbit. The RDT&E program, continuously evaluates and improves upper stage reliability, cost effectiveness, and responsiveness and supports redesign of aging equipment and spares which are no longer manufactured or available, investigation of flight anomalies, and small studies to assist in defining future upper stages.

(U) FY 1998 (\$ in Thousands):

- (U) \$30,103 SRMU Requalification
- (U) \$15,130 Continued integration for Milstar
- (U) \$ 6,668 Titan Hardware Redesign and Obsolescence
- (U) \$10,500 Other Research and Development
- (U) \$62,401 Total

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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
7 - Operational System Development	0305144F Titan Space Launch Vehicles (Space)	4135
<p>(U) <u>FY 1999 (\$ in Thousands):</u></p> <ul style="list-style-type: none"> - (U) \$45,815 SRMU Requalification - (U) \$18,953 Continue integration for Milstar - (U) \$ 4,500 Titan Hardware Redesign and Obsolescence - (U) \$ 5,443 Other Research and Development - (U) \$ 2,465 Identified as a source for SBIR - (U) \$77,176 Total <p>(U) <u>FY 2000 (\$ in Thousands):</u></p> <ul style="list-style-type: none"> - (U) \$16,293 SRMU Requalification - (U) \$24,570 Continue integration for Milstar - (U) \$ 2,300 Titan Hardware Redesign and Obsolescence - (U) \$ 2,116 Other Research and Development - (U) \$ 100 Inertial Upper Stage Study and design corrective actions for potential anomalies and obsolete items - (U) \$45,379 Total <p>(U) <u>FY 2001 (\$ in Thousands):</u></p> <ul style="list-style-type: none"> - (U) \$25,999 Continue integration for Milstar - (U) \$ Inertial Upper Stage Study and design corrective actions for potential anomalies and obsolete items 63 - (U) \$26,062 Total <p>(U) <u>B. Budget Activity Justification:</u> This PE is in Budget Activity 7, Operational Systems Development, because Titan II, Titan IV and the Inertial Upper Stage are in production and are operational vehicles. Major Titan IV effort remaining is SRMU recertification.</p>		
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BUDGET ACTIVITY 7 - Operational System Development				PE NUMBER AND TITLE 0305144F Titan Space Launch Vehicles (Space)		PROJECT 4135				
(U) C. <u>Program Change Summary (\$ in Thousands)</u>										
	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>					
(U) Previous President's Budget (FY1999 PB)	70,483	87,443	44,185	40,495	3,320,678					
(U) Appropriated Value	74,884	77,443								
(U) Adjustments to Appropriated Value										
a. Cong Gen Reductions	-2,482	-267								
b. SBIR	-1,930									
c. Omnibus	-480									
d. Other Above Threshold Reprogramming	-10,000									
e. Below Threshold Reprogramming (BTR)	2,409									
(U) Adjustments to Budget Years Since FY1999 PB			1,194	-14,433						
(U) Current Budget Submit/ FY2000 PB	62,401	77,176	45,379	26,062	3,085,511					
 (U) Significant Program Changes:										
Program has been modified to procure 40 core vehicles, and launch 39, with the last launch (DSP-22) delayed from April to July 2002. Launch vehicle hardware has been purchased, and remaining funds will be used for hardware components, which include Solid Rocket Motor Upgrades, Centaur upper stages, payload fairings and various mission-unique equipment. The IUS program is funded in the Titan PE starting in FY00. FY99: \$2,465K identified as a source for SBIR										
 (U) D. <u>Other Program Funding Summary (\$ in Thousands)</u>										
	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>To</u>	<u>Total</u>
(U) Missile Procurement, Budget Activity	418,110	540,543	431,273	479,154	349,133	52,061	28,541	36,427	<u>Compl</u>	<u>Cost</u>
5, P-24, Other Support									0	6,849,893
 <u>Related RDT&E:</u>										
(U) Not Applicable										

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(U) E. Acquisition Strategy:

(U) The program has implemented a revised acquisition strategy for the 39-vehicle program. During FY1996, Titan IV transitioned from the old "85-C-0019" development/production and payload integration contract to new contracts designed to improve cost accountability, correct contract discrepancies, and establish an overall programmatic view for the effort to complete the program. The new contracts combine Titan II and Titan IV production, storage, pad maintenance and deactivation, launch operations, anomaly resolution, development and hardware requalification, payload integration, and program studies to provide the greatest potential for cost savings by maximizing use of resources and eliminating duplicative processes. A modification has just recently been approved, to 39 Titan IV launches (last launch is DSP-22 in April 2002). A previous NRO mission, scheduled for launch in FY04, was remanifested on EELV.

(U) F. Schedule Profile

	<u>FY 1998</u>			<u>FY 1999</u>			<u>FY 2000</u>			<u>FY 2001</u>		
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Draft Single Acquisition Management Plan (SAMP) to OSD staff						X						
(U) 39-Vehicle Production and Launch Operations Contract Definitization				*								
(U) Titan Development (Hardware Requal) Contract Definitization				*								
(U) Last Titan Launch (Apr 02)												
(U) Begin assessment of Titan IVA-20 mishap**				*								

*completed event

X planned event

**Assessing cause of mishap and Return to Flight corrective actions.

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1999	
BUDGET ACTIVITY 7 - Operational System Development					PE NUMBER AND TITLE 0305144F Titan Space Launch Vehicles (Space)					PROJECT 4135	
(U) A. <u>Project Cost Breakdown (\$ in Thousands)</u>											
					<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>			
(U) Titan IV											
	(U) Contract Costs R&D (85-C-0019/96-C-0035)				36,771	50,315	18,593	0			
	(U) Contract Costs Unified Payload Integ (92-C-0028/ 98-C-0005)				15,130	18,953	24,570	25,999			
	(U) Other Research and Development				10,500	5,443	2,116	0			
	(U) Inertial Upper Stage Study and Design changes						100	63			
	(U) Identified as a source for SBIR					2,465					
(U) Total					62,401	77,176	45,379	26,062			
(U) B. <u>Budget Acquisition History and Planning Information (\$ in Thousands)</u>											
Performing Organizations:											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC *	Project Office EAC *	Total Prior to FY 1998	Budget FY 1998	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
Identified as a source for SBIR 2,465							2,465				
<u>Product Development Organizations</u>											
LMC	85-C-0019	SS/FPIF	1QFY85	11,110,900	11,203,100	2,042,016	0	0	0	0	2,042,016
LMC	85-C-0085	SS/FPIF	1QFY85	638,600	638,600	76,607	0	0	0	0	76,607
LMC	92-C-0028	SS/CPAF	3QFY92	594,422	585,149	93,428	0	0	0	0	93,428
LMC	96-C-0035	SS/CPAF	3QFY96	57,840	166,661	148,582	36,771	50,315	18,593	0	254,261
LMC	98-C-0005	SS/CPAF	1QFY98	292,939	292,939	3,913	15,130	18,953	24,570	25,999	27,207
Boeing		SS/SPAF	2QFY97	n/a	n/a	n/a	0	0	100	63	100
Facilities				n/a	n/a	n/a	93,300	0	0	0	93,300
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BUDGET ACTIVITY 7 - Operational System Development					PE NUMBER AND TITLE 0305144F Titan Space Launch Vehicles (Space)					PROJECT 4135	
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC *	Project Office EAC *	Total Prior to FY 1998	Budget FY 1998	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
<u>Support and Management Organizations</u>											
Tecolote, SRS, TRW, Antioch,			N/A	N/A	164,646	0	0	0	0	0	164,646
Other Research & Aerospace	Development		N/A	N/A	5,759	10,500	5,443	2,116	0	0	23,818
			N/A	N/A	77,836	0	0			0	77,836
Other Prgm Supprt			N/A	N/A	139,099	0	0	0	0	0	139,099
<u>Test and Evaluation Organizations</u>											
T&E			N/A	N/A	0	0	0	0	0	0	0
<u>Government Furnished Property</u> : None Identified as a source for SBIR							2,465				
Subtotal Product Development					2,457,846	51,901	69,268	43,263	26,062	27,307	2,675,647
Subtotal Support and Management					387,340	10,500	5,443	2,116	0	0	405,399
Subtotal Test and Evaluation					0	0	0	0	0	0	0
Total Project					2,845,186	62,401	77,176	45,379	26,062	27,307	3,083,511

* NOTE: The Estimates at Complete are at the contract level and therefore include work funded by the National Reconnaissance Office, NASA and other customers. Thus, the EACs include more than just Air Force funding. The "FY" columns contain only Air Force Titan RDT&E funding.