

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>	DATE <b>February 1999</b>
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<b>BUDGET ACTIVITY</b> <b>5 - Engineering and Manufacturing Development</b>	<b>PE NUMBER AND TITLE</b> <b>0604618F Joint Direct Attack Munitions</b>	<b>PROJECT</b> <b>3890</b>
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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
3890 Joint Direct Attack Munitions	21,054	11,954	1,385	1,169	1,578	0	0	0	0	292,541
Quantity of RDT&E Articles	233/\$6459*	38/\$1053*	8/\$222*	0	0	0	0	0	0	517/\$14331

\*Quantity of RDT&E Articles reflect assets by delivery year and can not be reconciled to the dollar amounts (incremental funding) shown in any one year.

**(U) A. Mission Description**

Operation DESERT STORM confirmed the need for a more accurate weapon delivery capability in adverse weather conditions from medium/high altitudes. Failure to satisfy this requirement will allow the enemy to continue to take advantage of the sanctuary of weather and/or prevent US air power from prosecuting a conflict on its terms. The Joint Direct Attack Munition (JDAM) is a joint Air Force and Navy munitions program to correct these shortfalls, with the Air Force as the executive service. JDAM will upgrade the existing inventory of general purpose bombs (Mk-84, BLU-109, and Mk-83/BLU-110) by integrating them with a guidance kit consisting of a Global Positioning System aided Inertial Navigation System (INS/GPS). JDAM will provide an accurate (13 meters) adverse weather capability. JDAM threshold aircraft are B-52H, F-22, A/V-8B and F/A-18C/D, and JDAM objective aircraft are B-2, B-1B, F-16, F-15E, and other aircraft. JDAM development is a two-phased Engineering and Manufacturing Development (EMD) effort. EMD Phase I emphasized competitive design and manufacturing processes. This phase completed 10 Oct 95. EMD Phase II emphasizes full scale hardware build and flight test to verify system performance and will support OT&E. JDAM is an Air Force Acquisition Category (ACAT) ID program. JDAM Low Rate Initial Production (LRIP) began in FY97.

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

- (U) \$10,491 Continued Engineering and Manufacturing Development (EMD) prime contractor activities for F/A-18, B-1, B-52, and B-2 aircraft integration. Continued development and test of the baseline friction brake BLU-109 and MK-83 tailkits. Initiated parallel redesign of MK-84 tail assembly system to eliminate F/A-18C/D low altitude, high speed flight restrictions. Initiated integration of new tail assembly system into BLU-109 and MK-83 variants for commonality. Initiated Mk-83 integration on AV-8B. Began Mk-83 testing on F-16.
- (U) \$2,491 Continued support and management tasks to define and coordinate the program activities of the prime contractor and various government development and test organizations.
- (U) \$8,072 Completed development flight test of baseline friction brake MK-84 and BLU-109 on B-52 and F/A-18C/D. Continued B-2 and B-1 aircraft flight test. Continued F-16 aircraft guided flight tests. Initiated MK-83 ground and flight development testing.
- (U) \$21,054 Total

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<p>(U) <u>FY 1999 (\$ in Thousands):</u></p> <ul style="list-style-type: none"> <li>- (U) \$ 3,973 Complete EMD prime contractor activities for F/A-18, B-1, B-52 aircraft. Complete operational test of baseline friction brake MK-84 and BLU-109. Complete development and operational test of flight restriction-free tail assembly on MK-84 and BLU-109. Continue development flight testing and integration of restriction-free tail assembly on MK-83. Continue Mk-83 AV-8B integration and F-16 testing.</li> <li>- (U) \$ 2,843 Continue support and management tasks to define and coordinate the program activities of the prime contractor and various government development and test organizations.</li> <li>- (U) \$ 4,932 Complete F/A-18C/D, B-52, B-2, and B-1 aircraft flight testing. Complete operational test of baseline MK-84 and BLU-109. Start and complete development and operational test of restriction-free tail assembly for MK-84 and BLU-109. Start development flight test of the MK-83 with restriction-free tail assembly. Continue F-16 aircraft guided flight tests.</li> <li>- (U) \$ 206 Identified as a source for SBIR</li> <li>- (U) \$11,954 Total</li> </ul> <p>(U) <u>FY 2000 (\$ in Thousands):</u></p> <ul style="list-style-type: none"> <li>- (U) \$985 Complete MK-83 development activities. Support AV-8B integration with MK-83. Fabricate hardware for F-22 Integration. Start consolidation of multiple flight software packages as a result of parallel integration on F/A-18 C/D, B-52, B-1, F-16 and B-2.</li> <li>- (U) \$250 Provide test support for completion of operational test activities and flight software consolidation. Support MK-83 Operational Evaluation (OPEVAL) on AV-8B.</li> <li>- (U) \$150 Provide support and management tasks to coordinate the program activities of the prime contractor and various test and aircraft organizations. Note: F-15E and F-22 integration is funded through the aircraft program offices.</li> <li>- (U) \$1,385 Total</li> </ul> <p>(U) <u>FY 2001 (\$ in Thousands):</u></p> <ul style="list-style-type: none"> <li>- (U) \$789 Complete consolidation and test of flight software. Support F-22 integration analysis and testing. Complete Mk-83 OPEVAL on the AV-8B.</li> <li>- (U) \$250 Provide flight test support for flight software consolidation. Support F-22 integration testing.</li> <li>- (U) \$130 Provide support and management tasks to coordinate the program activities of the prime contractor and various test and aircraft organizations. Note: F-15E and F-22 integration for the JDAM prime contractor is funded through the aircraft program offices.</li> <li>- (U) \$1,169 Total</li> </ul>		
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<b>(U) B. Budget Activity Justification:</b> This program is funded in Budget Activity 5, EMD, due to its focus on devising an affordable design and manufacturing process.										
<b>(U) C. Program Change Summary (\$ in Thousands)</b>										
	<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 (FY 1999 PB)	21,896	12,204	1,410	1,191	293,935					
(U) Appropriated Value	24,553	12,204								
(U) Adjustments to Appropriated Value										
a. Congressional/General Reductions	-944	-250								
b. SBIR	-2,035									
c. Omnibus or Other Above Threshold Reprogram	-520									
d. Below Threshold Reprogramming										
(U) Adjustments to Budget Years Since FY 1999 PB			-25	-22						
(U) Current Budget Submit/FY 2000 PB	21,054	11,954	1,385	1,169	292,541					
 (U) Significant Program Changes: FY99: \$206 identified as source for SBIR. Milestone III for the 2000 lb tailkit was moved to 1Q FY2000 due to the delay of Operational Testing start.										
<b>(U) D. Other Program Funding Summary (\$ in Thousands)</b>										
	<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 Compl</u>	<u>Total Cost</u>
(U) Procurement of Ammunition, Air Force, P-1 Line Item JDAM	39,189	45,991	125,605	240,813	211,554	205,476	210,130	166,752	93,549	1,361,820
<b>(U) E. Acquisition Strategy:</b> The JDAM contract for Engineering and Manufacturing Development (EMD) Phase II is Cost Plus Award Fee. In addition, there are two Firm Fixed Price contract options for Procurement Lots 1 and 2 (LRIP). Procurement Lots 3 (LRIP), 4, and 5 have a Procurement Price Commitment agreement to ensure a low unit cost.										
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BUDGET ACTIVITY <b>5 - Engineering and Manufacturing Development</b>					PE NUMBER AND TITLE <b>0604618F Joint Direct Attack Munitions</b>						PROJECT <b>3890</b>					
<b>(U) F. <u>Schedule Profile</u></b>																
		<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	1	2	3	4
(U) LRIP (Lot 2) Option			*													
(U) LRIP (Lot 3)							X									
(U) Milestone III (2000 lb)									X							
(U) Milestone III (1000 lb)																X
<b>(U) <u>MK-84 Schedule</u></b>																
(U) Development and Operational Test (DT/OT) Start/Finish				*		X										
(U) Initial Operational Test & Eval (IOT&E) Start/Finish					*		X									
<b>(U) <u>BLU-109 Schedule</u></b>																
(U) DT/OT Start/Finish				*		X										
(U) IOT&E Start/Finish					*		X									
<b>(U) <u>MK-83 Schedule</u></b>																
(U) DT Flight Tests Start/Finish		*				X										
(U) DT/OT Start/Finish									X	X						
(U) IOT&E Start/Finish											X	X				
<b>(U) <u>A/C Integration</u></b>																
(U) Threshold Fighter/Bomber																
(U) -- 2000 lb Complete				*												
(U) -- 1000 lb Start		*														
(U) -- 1000 lb Finish - 2 <sup>st</sup> Qtr FY03																
* = Event occurred X = Event planned																
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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1999	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604618F Joint Direct Attack Munitions					PROJECT 3890	
<b>(U) A. <u>Project Cost Breakdown (\$ in Thousands)</u></b>											
					<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>			
(U)	Primary Hardware Development				10,491	3,973	985	789			
(U)	Test & Evaluation				8,072	4,932	250	250			
(U)	Engineering & Prog Mgt Support				2,491	2,843	150	130			
(U)	Identified as a source for SBIR				0	206	0	0			
(U)	Total				21,054	11,954	1,385	1,169			
<b>(U) B. <u>Budget Acquisition History and Planning Information (\$ in Thousands)</u></b>											
<b>Performing Organizations:</b>											
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							206				206
<u>Product Development Organizations</u>											
Prime Contractors Boeing (St Louis, MO) Lockheed Martin FY94/95 Only	C/CPAF	Oct-95	166,971*	166,971*	149,805	10,491	3,973	985	789	928	166,971
Conceptual Studies	Various	Various	N/A	N/A	22,428	0	0	0	0	0	22,428
* Performing Activity EAC and Project Office EAC include increase of contract scope for redesign of MK-84 tail assembly system to eliminate F/A-18C/D low altitude, high speed flight restrictions.											
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BUDGET ACTIVITY <b>5 - Engineering and Manufacturing Development</b>					PE NUMBER AND TITLE <b>0604618F Joint Direct Attack Munitions</b>					PROJECT <b>3890</b>	
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>											
Engineering Spt.	CPAF	Oct 96	12,843	12,843	11,078	900	865	0	0	0	12,843
TAMS	CPAF	Oct 96	4,432	4,432	3,587	659	186	0	0	0	4,432
Contractor Program Office	Various	Various	N/A	N/A	14,775	932	1,792	150	130	400	18,179
<u>Test and Evaluation Organizations</u>											
Aircraft	Various	Various	N/A	N/A	12,631	365	400	250	250	250	14,146
SPO/PMA Supt.											
Flight Testing	Various	Various	N/A	N/A	27,554	7,377	4,507	0	0	0	39,438
Ground Testing	Various	Various	N/A	N/A	9,258	330	25	0	0	0	9,613
GFE	Various	Various	N/A	N/A	4,285	0	0	0	0	0	4,285
<b>(U) B. Budget Acquisition History and Planning Information Continued (\$ in Thousands)</b>											
<b>Government Furnished Equipment:</b>											
Not Applicable											
Identified as a source for SBIR					0	0	206	0	0	0	206
Subtotal Product Development					172,233	10,491	3,973	985	789	928	189,399
Subtotal Support and Management					29,440	2,491	2,843	150	130	400	35,454
Subtotal Test and Evaluation					53,728	8,072	4,932	250	250	250	67,482
Total Project					255,401	21,054	11,954	1,385	1,169	1,578	292,541