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Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Air Force **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY				R-1 ITEM NOMENCLATURE							
3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 3: <i>Advanced Technology Development (ATD)</i>				PE 0603680F: <i>Manufacturing Technologies</i>							
COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
Total Program Element	49.507	39.701	40.103	-	40.103	40.534	41.191	41.826	42.511	Continuing	Continuing
635280: <i>Manufacturing Technologies</i>	45.632	37.701	39.119	-	39.119	40.534	41.191	41.826	42.511	Continuing	Continuing
635281: <i>Manufacturing Readiness</i>	3.875	2.000	0.984	-	0.984	-	-	-	-	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Manufacturing Technology (ManTech) program executes technical programs to maintain and develop an affordable and reliable industrial base and manufacturing capability that will be responsive to warfighter needs. The program develops and improves manufacturing technologies and processes to enable cost reduction, improve component and system quality, and enhance industrial capability. Further, value stream modifications and manufacturing throughput improvements are effected to shorten cycle times of weapon systems during design, development, production and sustainment. ManTech objectives are conducted through industrial partnerships which enable the demonstration of manufacturing technologies for existing weapon system upgrades and/or for new warfighter systems. Efforts in the program have been coordinated through the Reliance 21 process to harmonize efforts and eliminate duplication. Manufacturing Technologies is in Budget Activity 3, Advanced Technology Development, since it develops and demonstrates manufacturing technologies for existing upgrades and/or new system developments that have military utility and address warfighter needs.

B. Program Change Summary (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	50.502	39.701	40.359	-	40.359
Current President's Budget	49.507	39.701	40.103	-	40.103
Total Adjustments	-0.995	-	-0.256	-	-0.256
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-0.001	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.994	-			
• Other Adjustments	-	-	-0.256	-	-0.256

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 635280: *Manufacturing Technologies*

Congressional Add: *Laser Peening for Friction Stir Welded Aerospace Structures*

Congressional Add: *Production of Nanocomposites for Aerospace Applications*

FY 2010	FY 2011
1.593	-
1.593	-

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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 3: <i>Advanced Technology Development (ATD)</i>		R-1 ITEM NOMENCLATURE PE 0603680F: <i>Manufacturing Technologies</i>	
<u>Congressional Add Details (\$ in Millions, and Includes General Reductions)</u>		FY 2010	FY 2011
Congressional Add: <i>Mobil Laser Systems for Aircraft Structures (MLSAS)</i>		0.797	-
Congressional Add: <i>Wire Integrity Technology</i>		1.593	-
Congressional Add: <i>Next Generation Casting Initiative</i>		3.983	-
Congressional Add: <i>Automated Processing of Advanced Low Observables (RAPALO)</i>		1.195	-
Congressional Add Subtotals for Project: 635280		10.754	-
Congressional Add Totals for all Projects		10.754	-

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Air Force									DATE: February 2011		
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 3: Advanced Technology Development (ATD)				R-1 ITEM NOMENCLATURE PE 0603680F: Manufacturing Technologies				PROJECT 635280: Manufacturing Technologies			
COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
635280: Manufacturing Technologies	45.632	37.701	39.119	-	39.119	40.534	41.191	41.826	42.511	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Manufacturing Technology (ManTech) program executes technical programs to maintain and develop an affordable and reliable industrial base and manufacturing capability that will be responsive to warfighter needs. The projects include development and improvement of manufacturing technologies and processes; collaboration with government program offices, industry, and academia; investments in generic technologies that can be applied to different applications, cost-sharing; multiple system/customer applications; potential for significant return on investment; and customer commitment to implement. To this end, ManTech develops and demonstrates advanced manufacturing processes and technologies to reduce costs, improve quality/capability, and shorten cycle times of weapon systems during design, development, production, and sustainment. Where mature processes are not available, laboratory-developed and demonstrated initial process capabilities are made available for transition into weapon system programs. ManTech objectives are conducted through partnerships with all industry levels, from large prime contractors to small material and parts vendors.

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
<div><div>Title: Major Thrust 1</div><div>Description: Develop and implement cost-effective maintenance, repair, and manufacturing technologies for sustainment of Air Force weapon systems.</div><div>FY 2010 Accomplishments: Continued cost-effective repair and manufacturing technologies for affordable sustainment of both aircraft and turbine engine components. Continued assessments and manufacturing technology development to reduce logistic support costs, lead times for high value supply chain commodities, and cycle times for depot repair. Continued rapid response productivity improvement efforts with selected high value programs.</div><div>FY 2011 Plans: Continue efforts for cost-effective repair and manufacturing technologies enabling affordable sustainment of both conventional and low observable aircraft, and turbine engine components. Continue assessments and manufacturing technology development to reduce logistics support costs, lead times for high value supply chain commodities, and cycle times for depot repair. Continue demonstration of productivity improvement efforts with</div></div>	13.632	15.080	16.309	-	16.309

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APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 3: Advanced Technology Development (ATD)		R-1 ITEM NOMENCLATURE PE 0603680F: Manufacturing Technologies		PROJECT 635280: Manufacturing Technologies		
B. Accomplishments/Planned Programs (\$ in Millions)						
		FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
selected high value programs. Conduct efforts supporting High Velocity Maintenance concept at Air Logistics Centers to reduce Programmed Depot Maintenance cycle times and cost. FY 2012 Base Plans: Continue efforts for cost-effective development of conventional and low-observable repair and manufacturing technologies enabling affordable sustainment of aircraft and turbine engine components. Continue assessments and manufacturing technology development to reduce logistics support costs, lead times for high value supply chain commodities, and cycle times for depot repair. Continue efforts supporting High Velocity Maintenance concept at Air Logistics Centers to reduce Program Depot Maintenance cycle times and cost. Pursue improvements in energy consumption required during manufacturing operations to reduce processing costs. Training responsibilities have been transitioned to AFIT and commercial activities can be utilized for Manufacturing Readiness Assessment (MRA) and Manufacturing Readiness Level (MRL) support.						
FY 2012 OCO Plans: Title: Major Thrust 2 Description: Develop and transition pervasive affordability and producibility technologies for weapon systems and processes. FY 2010 Accomplishments: Continued development of rapid response and flexible manufacturing methods, commercial / military integration, quality processing and supply stream improvements. Continued development and demonstration of manufacturing capabilities for more affordable low-observable structures, advanced propulsion technologies, electronics manufacturing technologies for Command, Control, Intelligence, Surveillance, and Reconnaissance (C2ISR), space and advanced radar applications. FY 2011 Plans: Continue development and demonstration of rapid response and flexible manufacturing methods, commercial/ military integration, quality processing and supply stream improvements. Advance development and demonstration of manufacturing capabilities for more affordable low-observable structures, advanced propulsion technologies, electronics manufacturing technologies for C2ISR, space and advanced radar applications. FY 2012 Base Plans: Continue development demonstration of rapid response and flexible manufacturing methods, commercial/military integration, quality processing and supply stream improvements. Continue demonstration of manufacturing		21.246	22.621	22.810	-	22.810

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APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 3: Advanced Technology Development (ATD)		R-1 ITEM NOMENCLATURE PE 0603680F: Manufacturing Technologies		PROJECT 635280: Manufacturing Technologies		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
capabilities for more affordable low-observable structures, advanced propulsion technologies, electronics manufacturing technologies for C2ISR, space and advanced radar applications. FY 2012 OCO Plans:						
Accomplishments/Planned Programs Subtotals		34.878	37.701	39.119	-	39.119
		FY 2010	FY 2011			
Congressional Add: Laser Peening for Friction Stir Welded Aerospace Structures FY 2010 Accomplishments: Conduct Congressionally-directed effort. FY 2011 Plans:		1.593	-			
Congressional Add: Production of Nanocomposites for Aerospace Applications FY 2010 Accomplishments: Conduct Congressionally-directed effort. FY 2011 Plans:		1.593	-			
Congressional Add: Mobil Laser Systems for Aircraft Structures (MLSAS) FY 2010 Accomplishments: Conduct Congressionally-directed effort. FY 2011 Plans:		0.797	-			
Congressional Add: Wire Integrity Technology FY 2010 Accomplishments: Conduct Congressionally-directed effort. FY 2011 Plans:		1.593	-			
Congressional Add: Next Generation Casting Initiative FY 2010 Accomplishments: Conduct Congressionally directed effort. FY 2011 Plans:		3.983	-			
Congressional Add: Automated Processing of Advanced Low Observables (RAPALO)		1.195	-			

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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 3: <i>Advanced Technology Development (ATD)</i>	R-1 ITEM NOMENCLATURE PE 0603680F: <i>Manufacturing Technologies</i>	PROJECT 635280: <i>Manufacturing Technologies</i>	

	FY 2010	FY 2011
FY 2010 Accomplishments: Conduct Congressionally directed effort.		
FY 2011 Plans:		
Congressional Adds Subtotals	10.754	-

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u> <u>Base</u>	<u>FY 2012</u> <u>OCO</u>	<u>FY 2012</u> <u>Total</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• Activity Not Provided: <i>Title Not Provided</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

D. Acquisition Strategy

N/A

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 3: Advanced Technology Development (ATD)				R-1 ITEM NOMENCLATURE PE 0603680F: Manufacturing Technologies				PROJECT 635281: Manufacturing Readiness			
COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
635281: Manufacturing Readiness	3.875	2.000	0.984	-	0.984	-	-	-	-	Continuing	Continuing

A. Mission Description and Budget Item Justification

Manufacturing readiness of technologies is a key concern when identifying and mitigating risk to successfully transition these technologies and systems into production. Within each product sector (aeronautical, space, munitions/directed energy, and C2ISR), manufacturing readiness assessments (MRAs) will be applied and manufacturing readiness levels (MRLs) utilized to gauge and manage manufacturing related issues. Advanced Technology Demonstrations (ATDs) will be used when appropriate to aid in efficient transition. Selected acquisition programs will also be assessed to determine readiness for milestone decisions and/or to reduce manufacturing risk. Pervasive, generic and system-specific manufacturing maturation plans will be developed and implemented based on the assessments to reduce overall program risk and to provide an increased awareness of manufacturing issues throughout major weapon system life cycles. Generic and pervasive manufacturing issues will be identified and considered as potential ManTech programs to transition advanced manufacturing technologies into multiple sectors.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Title: Major Thrust 1	3.875	2.000	0.984	-	0.984
Description: Through application of Manufacturing Readiness Assessments (MRAs), develop and implement manufacturing maturation plans to improve affordability and producibility and mitigate transition risk from development to production.					
FY 2010 Accomplishments: Continued development of Manufacturing Maturation Plans (MMPs) for Category I ATDs and selected high-visibility programs based on MRA. Executed selected MMPs to increase the MRL and improve technology transition to production. Conducted MRAs on selected Air Force acquisition programs to aid in Milestone Decision Reviews and/or to mitigate cost, schedule, or rate issues. Documented manufacturing risk based on the assessments and deliver to the appropriate program offices. Vetted pervasive manufacturing issues discovered during the assessments through the ManTech requirements process.					
FY 2011 Plans: Continue development of Manufacturing Maturation Plans (MMPs) for Category I ATDs and selected high-visibility programs based on MRAs. Execute selected MMPs to increase the MRL and improve technology transition to production. Conduct MRAs on selected Air Force acquisition programs to aid in Milestone Decision Reviews and/or to mitigate cost, schedule, or rate issues. Document manufacturing risk based on					

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
<p>the assessments and deliver results to the appropriate program offices. Vet pervasive manufacturing issues discovered during the assessments through the ManTech requirements process.</p> <p><i>FY 2012 Base Plans:</i> Continue development of Manufacturing Maturation Plans (MMPs) for Category I Advanced Technology Demonstrations (ATDs) and selected high-visibility programs based on MRAs. Conduct MRAs on selected Air Force acquisition programs to aid in Milestone Decision Reviews and/or to mitigate cost, schedule, or rate issues.</p> <p><i>FY 2012 OCO Plans:</i></p>					
Accomplishments/Planned Programs Subtotals	3.875	2.000	0.984	-	0.984

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012 Base</u>	<u>FY 2012 OCO</u>	<u>FY 2012 Total</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• Activity Not Provided: <i>Title Not Provided</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

D. Acquisition Strategy N/A

E. Performance Metrics Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.
