FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0708011N
PROGRAM ELEMENT TITLE: Industrial Preparedness

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
R1050 Manufacturing Technology	57,374	68,987	70,605						CONT.	CONT.
R2674 Manufacturing Technology	12,100	0	0	0	0	0			CONT.	CONT.
Total	69,474	68,987	70,605						CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Manufacturing Technology (MANTECH) Program is intended to improve the productivity and responsiveness of the U.S. defense industrial base by funding the development of manufacturing technologies. The MANTECH program, by providing seed funding for the development of moderate to high risk process and equipment technology, permits contractors to upgrade their manufacturing capabilities. Ultimately, the program aims to produce high-quality weapon systems with shorter lead times and reduced acquisition costs. Major areas of endeavor both underway and planned include: advanced manufacturing technology for electronics assembly, laser metalworking, flexible computer manufacturing, composites, metal working and welding technology. The MANTECH program is aimed at achieving affordability in the acquisition of weapons systems by inserting manufacturing process solutions early into the design phase to reduce lifecycle costs, improve schedules and ensure quality.

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PROGRAM ELEMENT: 0708011N
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(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

(U) PROGRAM CHANGE FOR TOTAL PE:

	FY 2000	FY 2001	FY 2002
(U) FY 2001 President's Budget:	71,209	59,626	60,611
(U) Appropriated Value:	71,604	-	-
(U) Adjustments from FY 2001 PRESBUDG:	-	-	-
(U) Execution Adjustment	40	-	-
(U) Inflation Adjustment	-	-	120
(U) Small Business Innovation Research	-1,496	-	-
(U) Congressional Increase		10,000	
(U) Revised Economic Assumption	-279	-639	-
(U) Program Increase	-	-	9,925
(U) NWCF Rate Adjustments	-	-	-51
(U) FY 2002 PRESBUDG Budget Submission:	69,474	68,987	70,605

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0708011N
PROGRAM ELEMENT TITLE: Industrial Preparedness

PROJECT NUMBER & TITLE	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
R1050 Manufacturing Technology	57,374	68,987	70,605						CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Manufacturing Technology (MANTECH) Program is intended to improve the productivity and responsiveness of the U.S. defense industrial base by funding the development of manufacturing technologies. The MANTECH program, by providing seed funding for the development of moderate to high risk process and equipment technology, permits contractors to upgrade their manufacturing capabilities. Ultimately, the program aims to produce high-quality weapon systems with shorter lead times and reduced acquisition costs. Major areas of endeavor both underway and planned include: advanced manufacturing technology for electronics assembly, laser metalworking, flexible computer manufacturing, composites, metal working and welding technology. The MANTECH program is being integrated into the Joint Mission Area/Support Area and Joint Warfare Operational Capability process and will utilize the results of these initiatives as appropriate in the program planning process. The MANTECH program is aimed at achieving affordability in the acquisition of weapons systems by inserting manufacturing process solutions early into the design phase to reduce lifecycle costs, improve schedules and ensure quality.

2. (U) FY 2000 ACCOMPLISHMENTS:

FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0708011N PROJECT NUMBER: R1050
PROGRAM ELEMENT TITLE: Industrial Preparedness PROJECT TITLE: Manufacturing Technology

- (U) The Navy MANTECH program executes a significant amount of its projects through the Centers of Excellence. The technical efforts performed are reflected throughout the following taxonomy:

  -- (U) $12,000 - Composites Processing and Fabrication - Completed work on the Composites Affordability Initiative; continued the Composites Topside Structures; Enhanced Production Techniques for Low Observable Structures and Materials; Teaching Factory; Rapid Response; Z-Direction Reinforcement for Composite Laminates; Ceramic Matrix Composites; and Resin Transfer Molding.

  -- (U) $8,000 – Electronics Processing and Fabrication - Continued AEGIS Electronic Demonstration, Flexible Manufacturing of Microwave Power Module Manufacturing, Learning Center and Demonstration Factory, and the Power Electronic Building Blocks Manufacturing plan. Continued electro-optics efforts in Sapphire Domes, Manufacturing Automation of Monolithic Ring Gyros; and initiate efforts for Fiber Optic Velocity Sensors, Remote Source Lighting Technology and Radio Frequency Photonics for Multi-Function Phased Array Antennas, and Affordable Array Technology Tooling.

  -- (U) $19,600 - Metals Processing and Fabrication - Completed the Centrifugally Cast Titanium/Chromium Bronze Components, Continued the following metalworking projects: Neodymium Ribbon Development, Optimized Atomization of Magnesium Powder, Titanium Alloy Hearth Melting Processing Technology, Optimized High Strength Lightweight Alloy Welding, and Thin Wall Superalloy Structural Castings. Completed Powder Metallurgy and Materials. Continued the following joining projects: Weld Residual Stress and Distortion, Titanium Welding, Adhesive Bonding Integrity, Knowledge Based Ultrasonic Testing of Welds, and continue rapid response actions. Continued the following materials processing initiatives: Laser Processing of Nickel Aluminum Bronze, Non-Contact High Speed Gear Inspection, Repair/Refurbishment of Fatigue/Wear Limited Navy Structures, Advanced Manufacturing Processes for the Advanced Amphibious Assault Vehicle, and

FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0708011N PROJECT NUMBER: R1050
PROGRAM ELEMENT TITLE: Industrial Preparedness PROJECT TITLE: Manufacturing Technology

Manufacturing of High Performance of Transmission Housing. Continued a joint effort with the Air Force in Metals Affordability. Continued work on the Propulsor Affordability Initiative; Advanced Manufacturing processing for Advanced Amphibious Assault Vehicle Tracks (AAAV) and Roadwheels; and the Enhanced Applique Armor Kit Product Improvement.

-- (U) $6,900 - Advanced Manufacturing Enterprise - Continued leveraging the Best Manufacturing Practices and Acquisition Reform Initiatives. Continued documenting environmental manufacturing and business practices. Continued efforts in shipbuilding and simulation based design. Continue efforts in Shipboard Sensors; Effective Aluminum Catamaran Structures; Chromium Primer for Aluminum Substrates; and the Environmental Resource Information Center. Continued ongoing and initiate new research efforts in support of the National Shipbuilding Research Program Advanced Shipbuilding Enterprise. Continued Pathways for Continuous Improvement Program. Continue Supply Chain Integration program in support of shipbuilding commerce. Continued to work with the Navy, commercial and international shipyards on identifying best business practices.

-- (U) $10,874 - Other - Continued projects in the repair technology arena that support the depots and shipyards such as Supercritical CO2 Parts Cleaning, Ball Valve Repair Process Improvement, Shearography System Development, and Reverse and Re-Engineering Technical Data Generation System. Completed the Ammonium Dinitramide and Composite Propellants projects in support of energetic materials. Supported shipbuilding initiatives as they related to manufacturing processes. Continued engineering technical support with the Systems Commands Program Offices and Program Executive Offices to provide Technical Assistants for each project supported by the MANTECH Executive Steering Committee. Initiated manufacturing projects to support a shipbuilding affordability initiative with DD 21 as the first customer. Initiated industrial base and affordability studies to determine manufacturing gaps for future work.

FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0708011N PROJECT NUMBER: R1050
PROGRAM ELEMENT TITLE: Industrial Preparedness PROJECT TITLE: Manufacturing Technology

3. U) FY 2001 PLAN:

- The Navy MANTECH program executes a significant amount of its projects through the Centers of Excellence. The technical efforts performed are reflected throughout the following taxonomy:

  -- (U) $6,750 - Composites Processing and Fabrication – Initiate a rotorcraft composites affordability initiative. Continue work on the Composites Topside Structures; Enhanced Production Techniques for Low Observable Structures and Materials; Teaching Factory; Rapid Response; Z-Direction Reinforcement for Composite Laminates; Ceramic Matrix Composites; and Resin Transfer Molding. Continue Korex Phase III.

  -- (U) $11,200 - Electronics Processing and Fabrication - Continue AEGIS Electronic Demonstration, Flexible Manufacturing of Microwave Power Module Manufacturing, Learning Center and Demonstration Factory, and the Power Electronic Building Blocks Manufacturing plan. Continue electro-optics efforts in Sapphire Domes, Manufacturing Automation of Monolithic Ring Gyros; and initiate efforts for Fiber Optic Velocity Sensors, Remote Source Lighting Technology, Conformal Acoustic Velocity Sensor Accelerometer Manufacturing, Radio Frequency Photonics for Multi-Function Phased Array Antennas, and Affordable Array Technology Tooling.

  -- (U) $25,400 - Metals Processing and Fabrication - Continue the following metalworking projects: Centrifugally Cast Titanium/Chromium Bronze Components, Neodymium Ribbon Development, Optimized Atomization of Magnesium Powder, Titanium Alloy Hearth Melting Processing Technology, Optimized High Strength Lightweight Alloy Welding, and Thin Wall Superalloy Structural Castings. Complete Powder Metallurgy and Materials Initiative. Continue the following joining projects: Weld Residual Stress and Distortion, Titanium Welding, Adhesive Bonding Integrity, Knowledge Based Ultrasonic Testing of Welds, and continue

rapid response actions. Continue the following materials processing initiatives: Laser Processing of Nickel Aluminum Bronze, Non-Contact High Speed Gear Inspection, Repair/Refurbishment of Fatigue/Wear Limited Navy Structures, Advanced Manufacturing Processes for the Advanced Amphibious Assault Vehicle, and Manufacturing of High Performance of Transmission Housing. Continue a joint effort with the Air Force in Metals Affordability. Continue work on the Propulsor Affordability Initiative.

-- (U) $7,000 - Advanced Manufacturing Enterprise - Continue leveraging the Best Manufacturing Practices and Acquisition Reform Initiatives. Continue documenting environmental manufacturing and business practices. Continue efforts in shipbuilding and simulation based design. Continue efforts in Shipboard Sensors; Effective Aluminum Catamaran Structures; Chromium Primer for Aluminum Substrates; and the Environmental Resource Information Center. Continue ongoing and initiate new research efforts in support of the National Shipbuilding Research ProgramAdvanced Shipbuilding Enterprise. Continue work on the Pathways for Continuous Improvement Program, and Supply Chain Integration.

-- (U) $9,793- Other - Continue projects in the repair technology arena that support the depots and shipyards such as Supercritical CO2 Parts Cleaning, Ball Valve Repair Process Improvement, Shearography System Development, and Reverse and Re-Engineering Technical Data Generation System. Continue the Ammonium Dinitramide and Composite Propellants projects in support of energetic materials. Continue Phase III of the F414 Engine Demonstration Device with General Electric. Continue technical assistant work at the Systems Command’s Program Offices and Program Executive Offices. Continued the Shipbuilding Initiative by starting three new projects.

-- (U) $7,400 – Initiated the Surface Strike Affordability Initiative and the Joint Service Microelectrical – mechanical Sensors Affordability initiatives.

-- (U) $1,444 - Portion of extramural program reserved for Small Business Innovation Research Assessments in accordance with 15 U.S.C. 638.

4. U) FY 2002 PLAN:

- The Navy MANTECH program executes a significant amount of its projects through the Centers of Excellence. The technical efforts performed are reflected throughout the following taxonomy:

-- (U) $9,500 - Composites Processing and Fabrication - Continue work on the Rotorcraft Affordability Initiative. Continue work on the Composites Topside Structures; Enhanced Production Techniques for Low Observable Structures and Materials; Teaching Factory; Rapid Response; Z-Direction Reinforcement for Composite Laminates; Ceramic Matrix Composites; and Resin Transfer Molding. Continue Korex Phase III.

-- (U) $8,000 - Electronics Processing and Fabrication - Continue AEGIS Electronic Demonstration, Flexible Manufacturing of Microwave Power Module Manufacturing, Learning Center and Demonstration Factory, and the Power Electronic Building Blocks Manufacturing plan. Continue electro-optics efforts in Sapphire Domes, Manufacturing Automation of Monolithic Ring Gyros; Fiber Optic Velocity Sensors, Remote Source Lighting Technology, Accelerometer Manufacturing, Radio Frequency Photonics for Multi-Function Phased Array Antennas, and Affordable Array Technology Tooling.

-- (U) $19,500 - Metals Processing and Fabrication - Continue the following metalworking projects: Centrifugally Cast Titanium/Chromium Bronze Components, Neodymium Ribbon Development, Optimized Atomization of Magnesium Powder, Titanium Alloy Hearth Melting Processing Technology, Optimized High Strength

Lightweight Alloy Welding, and Thin Wall Superalloy Structural Castings. Complete Powder Metallurgy and Materials Initiative. Continue the following joining projects: Weld Residual Stress and Distortion, Titanium Welding, Adhesive Bonding Integrity, Knowledge Based Ultrasonic Testing of Welds, and continue rapid response actions. Continue the following materials processing initiatives: Laser Processing of Nickel Aluminum Bronze, Non-Contact High Speed Gear Inspection, Repair/Refurbishment of Fatigue/Wear Limited Navy Structures, Advanced Manufacturing Processes for the Advanced Amphibious Assault Vehicle, and Manufacturing of High Performance of Transmission Housing. Continue a joint effort with the Air Force in Metals Affordability. Continue work on the Propulsor Affordability Initiative.

-- (U) $8,000 - Advanced Manufacturing Enterprise - Continue leveraging the Best Manufacturing Practices and Acquisition Reform Initiatives. Continue documenting environmental manufacturing and business practices. Continue efforts in shipbuilding and simulation based design. Continue efforts in Shipboard Sensors; Effective Aluminum Catamaran Structures; Chromium Primer for Aluminum Substrates; and the Environmental Resource Information Center. Continue ongoing and initiate new research efforts in support of the National Shipbuilding Research Program Advanced Shipbuilding Enterprise. Continue work on the Pathways for Continuous Improvement Program, and Supply Chain Integration.

-- (U) $9,971 - Other – Continue projects in the repair technology arena that support the depots and shipyards such as Supercritical CO2 Parts Cleaning, Ball Valve Repair Process Improvement, Shearography System Development, and Reverse and Re-Engineering Technical Data Generation System. Continue the Ammonium Dinitramide and Composite Propellants projects in support of energetic materials. Continue Phase III of the F414 Engine Demonstration Device with General Electric. Continue technical assistant work at the Systems Command’s Program Offices and Program Executive Offices.

FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0708011N PROJECT NUMBER: R1050
PROGRAM ELEMENT TITLE: Industrial Preparedness PROJECT TITLE: Manufacturing Technology

-- (U) $15,634 – Continue the multi-center of excellence executed Surface Strike Affordability Initiative and the Joint Service Microelectrical–mechanical Sensors (MEMS) Affordability initiatives.

B. (U) PROGRAM CHANGE SUMMARY: See total program change summary for PE

C. (U) OTHER PROGRAM FUNDING SUMMARY: Not applicable.

(U) RELATED RDT&E:
(U) PE 0708011F (Industrial Preparedness)
(U) PE 0708045A (End Item Industrial Preparedness Activities)
(U) PE 0708011S (Industrial Preparedness)

D. (U) SCHEDULE PROFILE: Not applicable.

FY 2002 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0708011N PROJECT NUMBER: R1050
PROGRAM ELEMENT TITLE: Industrial Preparedness PROJECT TITLE: Manufacturing Technology

A. (U) PROJECT COST BREAKDOWN: ($ in thousands)

Project Cost Categories	FY 2000	FY 2001	FY 2002
a. Process Development	65,527	63,761	65,205
b. Program Management Support	3,947	5,226	5,400
Total	69,474*	68,987	70,605

* Includes Congressional Plus Up $12,149 Project R2674 in FY 2000.

FY 2002 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0708011N PROJECT NUMBER: R1050
PROGRAM ELEMENT TITLE: Industrial Preparedness PROJECT TITLE: Manufacturing Technology

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION: ($ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing Activity	Contract Method/ Fund Type Vehicle	Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1999 & Prior	FY 2000 Budget	FY 2001 Budget	FY 2002 Budget	To Complete	Total Program
Product Development										
GLCC	C/BAA	1995	CONT.	CONT.	114,761	13,400	TBD	TBD	CONT.	CONT.
CTC	SS/CPFF	1988	CONT.	CONT.	196,495	13,750	13,200	12,000	CONT.	CONT.
EWI	C/BAA	1996	CONT.	CONT.	14,100	4,250	4,000	3,000	CONT.	CONT.
ACI	C/BAA	1995	CONT.	CONT.	21,500	6,500	6,700	7,500	CONT.	CONT.
UNO	C/BAA	1998	CONT.	CONT.	9,875	4,150	4,500	3,500	CONT.	CONT.
PSU	C/CPFF	1997	CONT.	CONT.	13,850	7,650	6,500	4,300	CONT.	CONT.
PTI	C/CPFF	1997	CONT.	CONT.	14,500	5,100	4,800	4,500	CONT.	CONT.
ARL/PSU	C/CA	1999	17,000	25,000	5,000	5,000	3,500	2,500	CONT.	CONT.
NSWC-CD	WX	1998	UNK	UNK	1,000	1,000	1,200	1,200	CONT.	CONT.
NSWC-IN	WX	1996	UNK	UNK	2,000	2,000	2,000	2,000	CONT.	CONT.
TBD	CA	2000	UNK	UNK	UNK	0	8,000	8,000	CONT.	CONT.
NAVAIR	PD	1996	CONT	CONT.	UNK	1,000	1,000	1,000	CONT.	CONT.
SCRA/ERIM	CA/BAA	TBD	UNK	UNK	0	0	4,000	2,000	CONT.	CONT.
TBD					0	0	5,100	16,007	CONT.	CONT.
Miscellaneous	WX/RC/WR	Various	Various	Various	13,973	5,634	4,639	3,000	CONT.	CONT.

FY 2002 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0708011N PROJECT NUMBER: R1050
PROGRAM ELEMENT TITLE: Industrial Preparedness PROJECT TITLE: Manufacturing Technology

Support and Management: Not applicable.

Test and Evaluation: Not applicable.

GOVERNMENT FURNISHED PROPERTY: Not applicable.

	Total FY 1999 & Prior	FY 2000 Budget	FY 2001 Budget	FY 2002 Budget	To Complete	Total Program
Subtotal Product Development	407,054	69,434	69,139	70,507	CONT.	CONT.
Subtotal Support and Management	0	0	0	0	0	0
Subtotal Test and Evaluation	0	0	0	0	0	0
Total Project	407,054	69,434	69,139	70,507	CONT.	CONT.

* Includes Congressional Plus Up $12,149 Project R2674 in FY 2000.