

---


---

**Annual**

---

**Report To Congress**

---

**The Foreign**

---

**Comparative**

---

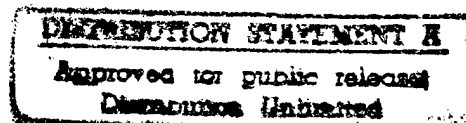
**Testing Program**

---

**Fiscal Year 1995**

---

March 1996



19970423 227

Office of the Under Secretary of Defense  
(Acquisition and Technology)

---

New Text Document.txt

22 April 97

This paper was downloaded from the Internet.

Distribution Statement A: Approved for public release;  
distribution is unlimited.

POC: Office of the Under Secretary of Defense

19970423 227

DTIC QUALITY INSPECTED 1

## **FOREWORD**

The Foreign Comparative Testing (FCT) Program is vital to supporting the U.S. policy of international armaments cooperation. The FCT Program reduces overall Department of Defense (DoD) acquisition costs by facilitating the procurement of non-developmental items (NDI). At the same time, it strengthens U.S. relationships within the international community.

The FCT Program evaluates defense items of allied and other friendly nations to determine whether these items can satisfy DoD requirements or correct mission area shortcomings. Foreign alternatives stimulate competition for more effective U.S. products, and this competition strengthens the U.S. economy and industrial base.

The FCT process is straightforward. Each year the Departments of the Army, Navy, and the Air Force nominate projects to the Office of the Secretary of Defense (OSD) for FCT consideration. The OSD staff screens the proposals to ensure that the Services have (1) advocated NDI that addresses valid requirements, (2) completed thorough market surveys, and (3) developed viable Service acquisition strategies.

The OSD staff evaluates proposals and notifies Congress of the intent to obligate funds for the selected projects. The sponsoring Services then obtain, test, and evaluate items for the selected projects. The OSD staff establishes FCT funding priority based on the demonstrated potential of foreign equipment to satisfy U.S. requirements with little or no modification.

The FCT Program has a solid history of success and holds the promise of even greater success in the future through the reduction of development times and costs for the military, which ultimately benefit the U.S. Taxpayer. For DoD, the FCT Program has consistently reduced acquisition costs. In the private sector, it has served as a catalyst for industry teaming arrangements; this is productive for both the U.S. and foreign industries in this increasingly competitive world market. This report for 1995 provides an overview of the FCT Program and highlights its achievements.

Paul G. Kaminski

## TABLE OF CONTENTS

FOREWORD.....	<i>i</i>
<b>OVERVIEW OF THE FOREIGN COMPARATIVE TESTING PROGRAM.....</b>	<b>1</b>
<b>FCT PROGRAM BENEFITS.....</b>	<b>2</b>
Summary of FCT Achievements.....	2
Improved Combat Capabilities for U.S. Forces Via Procurements.....	3
Estimates of RDT&E Benefits.....	5
Industrial Teaming and U.S. Production Licensing.....	6
<b>HIGHLIGHTS OF THE FY 1995 FCT PROGRAM.....</b>	<b>8</b>
Foreign Participation in FCT.....	9
Service Participation in FCT.....	9
<b>FCT PROJECTS COMPLETED IN FY 1995.....</b>	<b>11</b>
ARMY.....	12
NAVY/MARINE CORPS.....	13
AIR FORCE.....	16
<b>FCT PROJECTS CONTINUING INTO FY 1996*.....</b>	<b>19</b>
ARMY.....	20
NAVY / MARINE CORPS.....	24
AIR FORCE.....	34
U.S. SPECIAL OPERATIONS COMMAND.....	37
<b>FCT PROJECTS SELECTED FOR INITIATION IN FY 1996.....</b>	<b>39</b>
ARMY.....	40
NAVY/MARINE CORPS.....	40
AIR FORCE.....	42
U.S. SPECIAL OPERATIONS COMMAND.....	42
<b>APPENDIX A</b>	
<b>EQUIPMENT SELECTED FOR PROCUREMENT BY THE SERVICES AS A RESULT OF THE FCT PROGRAM 1980 - 1995.....</b>	<b>43</b>
<b>APPENDIX B</b>	
<b>EXAMPLES OF EQUIPMENT SELECTED OR TARGETED FOR USE IN BOSNIA AND/OR DESERT STORM.....</b>	<b>47</b>

## OVERVIEW OF THE FOREIGN COMPARATIVE TESTING PROGRAM

The Foreign Comparative Testing (FCT) Program responds to growing awareness of the potential value of using nondevelopmental items (NDI) to accelerate the acquisition process and to cut rising development costs. The FCT Program was authorized by Congress in 1989. It consolidated two earlier programs: The Foreign Weapons Evaluation (FWE) Program and NATO Comparative Test (NCT) Program (widely known as NATO "side-by-side" testing).

The FCT Program tests and evaluates nondevelopmental defense equipment produced by allies and other friendly countries to determine whether items satisfy the Department of Defense (DoD) requirements or address mission area shortcomings. The objectives are to reduce research, development, test, and evaluation (RDT&E) expenditures by—

- Enhancing standardization and interoperability.
- Improving cooperative support.
- Promoting competition.
- Eliminating unnecessary duplication.

The Services nominate candidate projects each year. The highest priority for funding is given to projects that test and evaluate NDI. The next level of priority is given to projects that include foreign equipment or technologies that can be applied to the production or improvement of an identified U.S. military system. Approved projects are normally funded for one or two years.

The FCT Program has experienced unqualified success. Since its inception, the United States has procured over \$3 billion worth of NDI through the FCT Program—at a relatively low cost. By the end of FY 1995, 341 FCT projects and 77 procurements were completed. In the process, the United States—

- Avoided the costs of new start developmental programs.
- Realized cost savings due to foreign competition.
- Experienced the rapid fielding of equipment.
- Contributed to international defense cooperation.
- Created international industrial teaming opportunities.

These benefits constitute the foundation for a robust cost-saving program that improves the capabilities of the U.S. Warfighter.

The FCT Program is congressionally mandated in Title 10, United States Code, Section 2350a. Further guidance is found in Part 210, DoD FAR Supplement, and sections of DoD Instruction 5000.2, which address the acquisition and distribution of commercial products. FCT projects are nominated in accordance with the FCT Procedures Manual, DoD 5000.3-M-2.

## FCT PROGRAM BENEFITS

### Summary of FCT Achievements

The FCT Program assists our nation's warfighting and peacekeeping capabilities. In Bosnia, like Desert Storm, foreign items tested under the FCT Program play a key role in providing the equipment needed to accomplish the mission. The Army's Combat Support Boats, used in late 1995 to construct the bridge over the swollen Sava River in Bosnia—were obtained from the United Kingdom as a result of FCT testing. The Air Force's mission rehearsal system used by the pilots before they fly missions over Bosnia is FCT tested equipment. These are a few examples to demonstrate how the FCT Program helps our servicemen and servicewomen in the field.

The FCT program reduces overall Department of Defense acquisition costs by promoting the procurement of nondevelopmental items. The FCT Program is cost effective to our taxpayers. Over the 15 year life of the Program, savings in RDT&E costs have exceeded the expense of running the program by over \$500 million dollars. This is a unique case where a program provides a greater than two to one benefit for every FCT dollar spent. The FCT Program also accelerates fielding of military equipment by locating existing products to meet mission requirements. Our soldiers in Desert Storm benefited from the FCT Program through testing of several foreign products under emergency conditions to meet critical operational needs.

Other tangible and intangible benefits are also provided by the FCT Program. FCT is vital to supporting the US policy of international armaments cooperation. It strengthens U.S. relationships within the international community by providing tangible evidence of the U.S.'s commitment to purchase foreign equipment meeting DoD needs. FCT fosters an environment which helps our domestic vendors sell U.S. manufactured defense items overseas. The FCT Program also creates jobs in the U.S. Many foreign items are tested in the U.S. and follow-on procurements are frequently conducted with U.S./foreign contractor teams.

There are other benefits as well, for example, the lessons learned from testing and evaluating foreign systems. In evaluating foreign systems, the Department of Defense gains valuable knowledge of the systems' design, engineering, and operational characteristics. Source Selection Evaluation Boards have the opportunity to choose the very best from the defense marketplace by comparing cost and benefits of existing U.S. and competing foreign systems. Beyond this, the open test and evaluation (T&E) of foreign acquisition alternatives stimulates competition among domestic and foreign vendors. The advantage to DoD (and ultimately the warfighter) is the timely fielding of the best available military equipment at the most affordable cost.

The DoD, working in cooperation with Congress, approved 30 projects to receive FY 1996 funding. Sponsorship by organization follows:

- Army - 6 projects.
- Navy/Marine Corps - 18 projects.
- Air Force - 4 projects.
- U.S. Special Operations Command - 2 projects.

## Improved Combat Capabilities for U.S. Forces Via Procurements

An important goal of the FCT Program is to provide improved combat capabilities to U.S. military forces. Some of the significant programs that have achieved this goal are outlined below:

- **Focal Plane Array (FPA).** Manufactured by SOFRADIR of France, the focal plane array qualified for the Army's second generation forward looking infrared (IR) imaging systems. These imaging systems benefit the warfighter by increasing the range of target detection and image fidelity. SOFRADIR FPAs are being used in programs such as the Air Force Airborne FLIR Program. Previously, SOFRADIR devised a stacked FPA configuration that qualified for use in the Army LOSAT Program.
- **SPOT Satellite Digital Imagery.** Manufactured by SPOT Image Corporation of France, the SPOT satellite system provided digital imagery to assist Air Force mission planning for Desert Storm operations in 1991. Air Force after-action reports cited the FCT SPOT data as the only real-time images available to pilots before air strike missions were launched. In Bosnia, SPOT is providing satellite photography to the Eagle Vision System.
- **TPZ1 Fuchs (FOX) NBC Reconnaissance Vehicle System.** Manufactured by Thyssen Henschel of Germany, which teamed with General Dynamics Land Systems for U.S. upgrades, the FOX System was fielded by the Army and Marine Corps as a critical biological/chemical warfare vehicle in Operation Desert Storm.
- **BOL Chaff System.** Manufactured by Celsius Tech of Sweden, and Chemring of the United Kingdom, this system allows for the installation of additional chaff in the LAU-7 Launching Racks. The BOL Chaff System provides increased protection against hostile missile threats.
- **Ranger Anti-Armor Weapon System (RAAWS).** Manufactured by BOFORS of Sweden, RAAWS is a lightweight weapon system that fires a large suite of ammunition. RAAWS is versatile, portable, and a highly lethal weapon system used by the U.S. Army 75th Ranger Regiment contingency forces and U.S. Navy SEALs.
- **Night Attack Avionics.** The participation of GEC Avionics (UK) in the Navy's Realnight Developmental Program resulted in procurements of forward-looking infrared (FLIR) thermal imaging components and Cats Eyes advanced night-vision goggles. These components enhance U.S. night targeting capabilities for Navy, Marine Corps, and Air Force attack aircraft.
- **HAVE NAP Stand-Off Weapon System (SOW).** Manufactured by Rafael of Israel, the HAVE NAP Weapon is designated by the Air Force as the AGM-142. This precision-guided weapon can be fired from the F-111 and B-52G aircraft. HAVE NAP provides extended-range and improved flight trajectories for air-to-ground warfighting operations.
- **DURANDAL Weapon System.** Manufactured by Matra of France, this system (designated the BLU80/B) provides the Air Force its primary ordnance for cratering enemy airfields. The Air Force used DURANDAL during Operation Desert Storm.

In addition to systems already procured, a number of FCT funded evaluations have resulted in the qualification of foreign items for pending U.S. acquisition contracts.

In some instances, the FCT evaluation had a positive impact on procurement costs, warranties, or contractual guarantees of U.S. items. One such example is the Rolls-Royce/Turbomeca RTM-322 aircraft engine. In 1987, the Navy evaluated the RTM-322 as an alternative to the General Electric (GE) T-700 engine in the SH-60 and UH-60 series helicopters. Manufacturers from the United Kingdom and France teamed with United Technologies for T&E. The Navy selected the GE T-700. Although the RTM-322 did not win the competition, its inclusion in the evaluation significantly reduced U.S. acquisition costs and improved warranty and contractual guarantees.

Since 1980, 158 successful tests have resulted in 77 Service procurements of over \$3 billion of nondevelopmental items. The total FCT investment for this equipment was only \$425 million. Appendix A includes a list of all FCT projects procured by the Services from FY 1980 through FY 1995.

The FCT Program increases the U.S. capability to test, evaluate, and employ a large number of systems on short notice in war, other crises, or operations other than war. The United States realized the need for this capability from its experience in the Gulf War. Appendix B identifies foreign systems currently in use in Bosnia and systems previously used in Desert Storm.

## Estimates of RDT&amp;E Benefits

The FCT Program reduces overall DoD acquisition costs by promoting the procurement of NDI. Figure 1 demonstrates examples of estimated RDT&E cost savings, reduced unit procurement costs, and/or accelerated fielding times achieved through the FCT Program.

FCT Project	Country	FCT Investment	Estimated RDT&E Savings/Benefits	Estimated Development Time Savings
Focal Plane Array	France	\$1.5 million	\$4.3 million (Army)	2 years
Airtronic Light Oil Burner	Sweden/ Luxembourg	\$0.1 million	\$10 million (Marine Corps)	4-8 years
Hawk Loader-Transporter Mod Kit	Germany	\$1.4 million	\$4 million (Army)	4 years
Muzzle Velocity System	Israel	\$1.0 million	\$7.6 million (Army)	4 years
Anti-Magnetic Mine Actuating Device	Israel	\$1.4 million	\$6 million (Marine Corps)	4 years
RTM-322 Engine	UK/France	\$5.0 million	\$47 million (Navy, Army)	Not available
Remote-Control Minesweeper	Sweden	\$1.0 million	\$15 million (Navy)	5-7 years
Infrared Imaging System	Israel	\$0.5 million	\$13.3 million (Navy)	Not available
Hellfire Missile Warhead	Sweden	\$1.5 million	\$10 million (Navy)	4-6 years
EHF Traveling Wave Tube	Germany	\$2.2 million	\$40 million lifecycle costs (Navy)	Not available
SH-2F/G Aircraft Acoustic Processor	Canada	\$0.6 million	\$13.7 million (Navy)	7 years
MCM-1 Tactical Displays	UK	\$2.5 million	\$15 million (Navy)	6 years
HAVE NAP Missile	Israel	\$10.5 million	\$165 million (Air Force)	6 years
HEI Ammunition for AC 130 Gunship	Sweden	\$1.5 million	\$40 million (Air Force)	Not available
Hot Gas Valve Thrust Vector Control	France	\$1.2 million	\$10 million (Air Force)	Not available
Advanced Dielectric Measurement	France	\$1.8 million	\$4.6 million (Air Force)	4 years

Figure 1. Examples of Estimated RDT&E Benefits

## Industrial Teaming and U.S. Production Licensing

FCT projects frequently catalyze industry teaming arrangements. U.S. prime contractors often seek teaming arrangements with foreign defense firms for items having market potential in the United States. These arrangements include work-sharing or perhaps producing a foreign-developed item under license in the United States. Teaming often leads to long-term industrial relationships and assists each party in assuring a presence in the competitive international market.

Outlined below are examples of teaming relationships between U.S. and foreign companies that resulted from FCT tests and evaluations:

**Lightweight Antitank Weapon (LAW) M72A5.** Talley Defense, Mesa, AZ leads the consortium that was awarded a contract in FY 1995 to produce 5,700 M72A5s for the Navy. This is the first significant buy of the LAW since they were produced in the early 1980s under the earlier M72A3 configuration by Raufoss, Norway following a successful FCT. The consortium includes Raufoss as an original equipment manufacturer, along with TRACOR, Austin, TX.

**Swedish Airtronic Light Oil Burner (ALOB).** Babington Engineering Inc. of McLean, VA was awarded in FY 1995 a contract for 28 Tray Ration Heating Systems. The ALOB is the heat source for the Tray Ration Heating Systems. Bentone-Electro Oil, the Swedish company that manufactured the burner tested under FCT, no longer makes the burner. However, Electrolux, a Swedish based firm is licensed to manufacture and assemble the burner and will provide services to Babington either directly, or through its subsidiary, Electrolux of Luxembourg.

**UK Forward Area Degaussing Range (FADR).** As a result of the successful FADR FCT, a \$7.4M contract was awarded in FY 1995 to Alliant, a U.S. company, for the Forward Area Combined Degaussing and Acoustic Range (FACDAR). Alliant will provide the acoustic portion of the FACDAR system.

**Heavy Assault Bridge, Leguan.** In 1994, the Army selected the German MAN GHH bridging system for Engineering and Manufacturing Development. MAN teamed with General Dynamics Land Systems of Warren, MI.

**Swedish Spray Formed Alloy Piping.** In March 1995, as a result of the FCT Program, the Navy signed a \$1.9M contract with Babcock & Wilcox (B&W) to install, commission and operate a 5-ton melt, metal spray forming plant. The plant and its job base will be located in Baberton, Ohio.

**E-2C Multifunction Display Control Unit.** Marconi of Canada teamed with the U.S. E-2 aircraft manufacturer Grumman Corporation of Bethpage, NY, on the CMA 882 Avionics Management System Program.

**EHF Traveling Wave Tubes.** As a result of the successful FCT testing of its product in 1988, Siemens of Germany teamed with the Raytheon Corporation of Lexington, MA, on a Navy EHF submarine communications program.

**HAVE NAP Stand Off Weapon (SOW).** The HAVE NAP FCT stimulated a teaming relationship between the Israeli manufacturer, Rafael, and Martin Marietta of Orlando, FL.

**BOL Chaff Dispenser.** The Swedish and United Kingdom manufacturers of the BOL dispenser and BOL chaff, Celsius Tech and Chemring, respectively, are teamed with TRACOR of Austin, TX.

**Electronic Combat Integrated Pylon System (ECIPS).** Per Udsen, the Danish manufacturer of ECIPS, is now teamed with Northrop Corporation of Rolling Meadows, IL, and Lockheed Corporation of Fort Worth, TX.

The production of foreign-developed items in the United States strengthens the U.S. economy and industrial base, and also creates American jobs. Without DoD purchases of foreign items resulting from the FCT Program, it would be difficult for our domestic industries to sell U.S. defense products overseas. Figure 2 illustrates examples of foreign-developed items successfully tested under the FCT Program that have been subsequently licensed and produced in the United States.

Item	Foreign Mfr./Country	U.S. Production	Location
Spray Formed Alloy Piping	AB Sandvik Steel, Sweden	Babcock & Wilcox	Baberton, OH
120mm Mortar and Ammo	IMI, Israel	Martin Marietta Valentec Radford Army Ammo Plant Brockway Standard Loral Corporation United Ammunition Container ARMTEC	Milan, TN Mt. Arlington, NJ Radford, VA Homerville, GA Scranton, PA Milan, TN Coachilla, CA
60/81mm Mortar Practice Ammo	SOLTAM/SALGAD, Israel	POCAL	Moscow, PA
155mm Howitzer	Royal Ordnance, United Kingdom	Rock Island Arsenal Watervliet Arsenal	Rock Island, IL Watervliet, NY
Chemical Agent Monitor	Graseby, United Kingdom	ETG, Inc.	Towson, MD
Sanator Decontamination System	Karl Hoie, Norway	Engineer Air, Inc. (EAI)	St. Louis, MO
Muzzle Velocity System	Reshef, Israel	Technical System, Inc.	Grand Rapids, MI
Small Unit Support Vehicle	Haagland-Soner, Sweden	United Defense Corporation	San Jose, CA
M72A3 Light Anti-Tank Weapon	Raufoss, Norway	Talley Defense TRACOR	Mesa, AZ San Ramon, CA
Combat Support Boat	Fairey Allday, United Kingdom	Advanced Technology	Charleston, SC
Munitions Ejector Release Units	Alkan, Germany	EDO Corporation	Salt Lake City, UT
Chemical Defense Equipment Air Crew Suits	Blucher, Germany	Hoechst-Celanese Corporation	Charlotte, NC

**Figure 2. Examples of U.S. Production Resulting From FCT Program**

## HIGHLIGHTS OF THE FY 1995 FCT PROGRAM

FY 1995 was a productive year. Thirty-two projects were funded in the FY 1995 FCT Program—19 were new and 13 were ongoing projects approved for continued funding. Several projects successfully completed T&E and were procured. This is a direct result of refocusing the program toward procurement and using a disciplined approach to evaluate and select candidate projects.

Procurement contracts were awarded in FY 1995 for six items which completed FCT evaluation. These items include—

- ❑ High Pressure Pure Air Generator  
(United Kingdom—Ultra Electronics)—Navy.
- ❑ Interrogate Friend-or-Foe (IFF) Tracker  
(United Kingdom—Cossor Electronics)—Navy.
- ❑ Spray Formed Alloy Piping 625  
(Sweden—AB Sandvik Steel)—Navy.
- ❑ Forward Area Degaussing Range  
(United Kingdom—Ultra Electronics)—Navy.
- ❑ Airtronic Light Oil Burner  
(Luxembourg—Electrolux)—Navy.
- ❑ Infrared Focal Plane Array  
(France—SOFRADIR)—Army.

In addition to the six procurement awards in FY 1995, procurement packages are being developed for award on four items tested in the FCT Program. These are—

- ❑ GIANT  
(Germany—Buck)—Navy.
- ❑ Eagle Vision  
(France—Matra Cap)—Air Force.
- ❑ Electronic Warfare Management System (EWMS)  
(Denmark—Terma)—Air Force.
- ❑ Less than (LT) 3kw Generator Set  
(Canada—Mechron)—Army.

### Foreign Participation in FCT

The FCT Program depends on the acceptance and participation of other countries for success. Figure 3 lists the foreign countries that participated in the FCT Program from FY 1980 through FY 1995. Numerous FCT projects involved equipment from two or more countries.

Country	Number of FCT Items	FCT Funds Spent (\$ million)	Number of FCT Items Resulting in Procurements	Value of Procurements (\$ million)
United Kingdom	122	147.8	26	1,284.2
Germany	63	52.4	16	523.4
France	46	60.5	4	308.3
Israel	43	32.9	8	540.2
Sweden	34	38.6	8	204.5
Canada	28	25.7	3	14.5
Norway	17	12.7	4	472.4
Italy	13	11.9	0	0
Netherlands	12	11.2	0	0
Australia	13	8.5	1	12.0
Denmark	8	5.4	3	16.5
Belgium	8	2.6	1	9.8
Japan	7	1.5	1	0.1
Switzerland	6	1.1	0	0
Austria	5	0.4	0	0
Russia	3	8.5	0	0
Finland	2	2.2	0	0
Ukraine	1	0.6	0	0
South Korea	1	0.3	0	0
South Africa	1	0.2	0	0
<b>Total Value of Procurements</b>				<b>\$ 3,385.9</b>

**Figure 3. Foreign FCT Participation by Country**

Figure 3 includes projects conducted under the FWE and NCT programs.

### Service Participation in FCT

Figure 4 summarizes Service participation in the FCT Program since 1980.\*

Service	Total Projects FY 1980 - 1995	Projects Completed During FY 1995	Projects Continuing Into FY 1996	Total Projects Passing FCT FY 1980 - 1995	Projects Resulting In Procurement
Army	123	3	9	68	32
Navy/Marine Corps	148	6	19	58	30
Air Force	67	6	6	32	12
USSOCOM (FY93-95)	3	0	1	3	3
<b>Total</b>	<b>341</b>	<b>15</b>	<b>35</b>	<b>161</b>	<b>77</b>

**Figure 4. Service Participation in the FCT Program, FY 1980 - 1995**

Figure 4 includes projects conducted under the FWE and NCT programs

## **FCT PROJECTS COMPLETED IN FY 1995**

- Army

- Individual Reserve Parachute
- Small Projected Line Charge (SAPLIC)
- Less Than 3 Kw Generator Set

- Navy/Marine Corps

- Forward Area Degaussing Range
- GIANT Infrared Decoy System
- Spray Formed Alloy 625 Piping Process
- Submerged Towed Acoustic Beacon (STAB) Jammer
- Advanced Fiber Optic Helmet Mounted Display (AFOHMD)
- Lightweight Blasting Machine (LWBM)

- Air Force

- Ion Engine Thruster (UK-10)
- Improved Practice Bombing Release System
- 84mm Carl Gustaf M3 Weapon System for Air Base Defense
- Arc Heater Manifold
- Electronic Warfare Management System (EWMS)
- Pressure Sensitive Paint (PSP)

This section provides a description of FCT projects completed in FY 1995, the final status of each project, and FCT funding provided.

ARMY

**Individual Reserve Parachute—France**

The Aertzura EFA reserve parachute uses a spring-assisted pilot chute assembly to project the parachute into the slip stream to correct a safety deficiency in the Army's current T-10 reserve parachute. Originally the Army planned to conduct a sole-source production award to Aertzura, but an unsolicited proposal from a domestic company was submitted. The Army conducted a competitive solicitation for modifying reserve parachutes and, based on the lowest responsible bid received, the production award went to a domestic company.

FCT FUNDING PROVIDED		
PRIOR YEAR(S)	FY 1995	TOTAL
\$215,0000	\$0	\$215,000

**Small Projected Line Charge (SAPLIC)—Germany, Israel, United Kingdom**

This project to evaluate anti-personnel minefield breaching devices was discontinued due to withdrawal of Army procurement dollars. Contracts for test items were not let, saving considerable termination costs.

FCT FUNDING PROVIDED		
PRIOR YEAR(S)	FY 1995	TOTAL
\$0	\$152,000	\$152,000

**Less Than 3 Kw Generator Set—Canada**

This project is an Army evaluation of a diesel-fueled Mechron Energy, Inc., 2Kw AC/DC generator. Test and evaluation of the Mechron set was completed in FY 1995. Mechron's generator met Army requirements for a Less Than 3Kw Generator Set. The Army plans a sole source procurement of 650 units in FY 1996 to satisfy urgent needs. Army funds have been identified and Limited Production - Urgent Authority provided.

FCT FUNDING PROVIDED		
PRIOR YEAR(S)	FY 1995	TOTAL
\$0	\$535,000	\$535,000

**NAVY/MARINE CORPS**

**Forward Area Degaussing Range—United Kingdom**

Ultra Electronics, formerly Dowty Magnetics, manufactures a transportable degaussing range that uses a small number of magnetometers to model a ship's magnetic signature and other magnetic parameters.

OSD approved this project in August 1992. The degaussing range began T&E in early 1995. Testing took place at the Naval Surface Warfare Center, White Oak, MD, and at the Navy's degaussing range facility in Charleston, SC. As a result of this FCT, a procurement contract was awarded to Ultra and its U.S. partner Alliant Tech Systems.

<b>FCT FUNDING PROVIDED</b>		
<b>PRIOR YEAR(S)</b>	<b>FY 1995</b>	<b>TOTAL</b>
\$1,818,286	\$0	\$1,818,286

**GIANT Infrared Decoy System—Germany**

The Buck Industries GIANT is an anti-ship missile defense infrared decoy designed for use on large ships. GIANT is in full production and currently operational on German and Canadian naval ships. It is compatible with the Navy's MK 36 decoy launcher system and may be an alternative to the MK 186 Mod 2 TORCH system currently being procured by the Navy.

OSD approved the FCT in August 1992. A contract for test articles was awarded in May 1993. The Navy completed technical feasibility, hazard assessment, and environmental preconditioning test in FY 1994. GIANT completed TECHEVAL/OPEVAL in FY 1995. As a result of the FCT, the Navy is evaluating procurement options for GIANT decoys.

<b>FCT FUNDING PROVIDED</b>		
<b>PRIOR YEAR(S)</b>	<b>FY 1995</b>	<b>TOTAL</b>
\$1,492,000	\$0	\$1,492,000

**NAVY/MARINE CORPS**

**Spray Formed Alloy 625 Piping Process—Sweden**

The Swedish company Sandvik developed a single-step process to convert liquid metal into shaped preforms. The preforms are then turned into semi-finished products. The Navy evaluated this process for potential application to the manufacturing of conventional Alloy 625 Piping for submarines.

OSD approved this project in FY 1991, and extended it to allow final certification for submarine construction. The Navy conducted nondestructive tests and microstructure evaluations at the Navy's David Taylor Research Center, Carderock, MD. The certification process began in early FY 1993 with supplemental corrosion fatigue testing being completed in FY 1995. A contract to implement the process in the U.S. was recently awarded to Babcock & Wilcox of Baberton, OH.

FCT FUNDING PROVIDED		
PRIOR YEAR(S)	FY 1995	TOTAL
\$2,319,000	\$0	\$2,319,000

**Submerged Towed Acoustic Beacon (STAB) Jammer—United Kingdom**

The Royal Ordnance naval mine warfare countermeasures system is in operation with the Royal Navy. The purpose of the system is to provide operational flexibility to deployed naval forces.

OSD initiated this project in FY 1993. The Navy conducted initial testing at its Fort Monroe, VA test range. The United Kingdom test item demonstrated the capability to provide significant protection in the test scenario, but not full protection. The system, while demonstrating potential in an expanded test program completed in FY 1995, did not meet the Navy's requirement at high speeds. Acquisition of this item was not recommended.

FCT FUNDING PROVIDED		
PRIOR YEAR(S)	FY 1995	TOTAL
\$350,105	\$0	\$350,105

**NAVY/MARINE CORPS**

**Advanced Fiber Optic Helmet Mounted Display (AFOHMD)—Canada**

The CAE Electronics aviation helmet display creates a flying field-of-view environment for aircraft strike mission training and rehearsal. This system replaces expensive training domes and bulky projection systems. The helmet display is in operation in a German Air Force Tornado Aircraft Simulator Facility.

OSD approved this project in December 1992. Phase I testing was completed in FY 1994. Advanced testing was completed at the Manned Flight Simulator Facility at NAWC, Patuxent River, MD in FY 1995. The helmet was rejected because of excessive weight and restricted pilot movement after prolonged use.

FCT FUNDING PROVIDED		
PRIOR YEAR(S)	FY 1995	TOTAL
\$2,850,197	\$0	\$2,850,197

**Lightweight Blasting Machine (LWBM)—Canada, United Kingdom**

The Marine Corps selected two lightweight blasting machines, formerly known as Mini-Shrike, for evaluation in FY 1995. The LWBMs are portable firing devices manufactured by BDL Systems (United Kingdom) and Proparms (Canada). The project objective was to determine whether these items met a Marine Corps requirement for the blasting machine component of the MK 155 Tractor-Mounted Mine Clearing Line Charge. Both foreign LWBMs provided lower performance at greater cost than U.S. competitors. As a result, a U.S. system was selected as a replacement for the M34 blasting machine.

FCT FUNDING PROVIDED		
PRIOR YEAR(S)	FY 1995	TOTAL
\$0	\$123,000	\$123,000

**AIR FORCE**

**Ion Engine Thruster (UK-10)—United Kingdom**

The Matra-Marconi Space UK-10 is a xenon ion engine thruster propulsion system designed for ten-year satellite station keeping missions. The Air Force evaluated the UK-10 to potentially satisfy satellite station-keeping propulsion requirements. The system was selected as the primary station-keeping thruster on the European Space Agency's ARTEMIS satellite, which is scheduled for operation in 1997.

OSD approved this project in May 1992. The Aerospace Corporation Advanced Propulsion Diagnostic Laboratory in El Segundo, CA, started testing in April 1993. Testing was completed in April 1995 with favorable results. The UK-10 has been qualified for use and may be incorporated in new USAF satellite systems including the Defense Satellite Communications System (DSCS) follow-on program. USAF interest in this FCT has generated domestic competition in ion propulsion systems. Domestic producers increased from zero to three companies. The Air Force did not request funds for FY 1995.

<b>FCT FUNDING PROVIDED</b>		
<b>PRIOR YEAR(S)</b>	<b>FY 1995</b>	<b>TOTAL</b>
\$1,599,000	\$0	\$1,599,000

**Improved Practice Bombing Release System—United Kingdom**

The ML Aviation CBLS-300 is an advanced practice bomb carrier that promises high reliability and significantly reduced maintenance costs over the current SUU-20 practice bomb dispenser used on F-15E, F-16, and F-111 aircraft. The CBLS-300 design incorporates munitions ejector release units operated by a rechargeable cold gas system eliminating the need for explosive pyrotechnic devices used in current practice bomb dispensers.

OSD approved the project in August 1992. Contract negotiations were completed during FY 1993, and test articles were delivered in November 1994. Testing was completed in FY 1995 and met expectations in performance. Due to fiscal constraints, the Air Force elected not to procure the item.

<b>FCT FUNDING PROVIDED</b>		
<b>PRIOR YEAR(S)</b>	<b>FY 1995</b>	<b>TOTAL</b>
\$1,670,000	\$0	\$1,670,000

**AIR FORCE**

**84mm Carl Gustaf M3 Weapon System for Air Base Defense—Sweden**

The Bofors AB Carl Gustaf M3 is a lightweight, reusable, soldier-portable recoilless weapon system. The weapon uses a family of ammunition to defeat armored vehicles, enemy personnel, and fortifications. OSD approved the project in August 1993, and a contract for test articles was awarded in September 1994. Testing was completed in July 1995 and results showed superior range. While future limited procurements for special applications may be possible, the Air Force has decided not to procure at this time.

FCT FUNDING PROVIDED		
PRIOR YEAR(S)	FY 1995	TOTAL
\$600,000	\$700,000	\$1,300,000

**Arc Heater Manifold—France**

The Aerospatiale Arc Heater Manifold combines and redirects high energy output from multiple arc heaters to produce super high temperature and pressure. This environment is required for testing advanced hypersonic propulsion systems, such as supersonic combustion ramjets.

OSD approved the project in August 1992. Arnold Engineering Development Center (AEDC), TN, completed the first series of tests in July 1994. The final series of tests on the Aerospatiale JP200 multi-arc system were completed successfully in France in FY 1995. If a DoD hypersonic wind tunnel is approved for funding, the French arc heater manifold is a strong candidate, and potentially the only contender, as a tunnel heat source. The Air Force did not request FCT funds for FY 1995.

FCT FUNDING PROVIDED		
PRIOR YEAR(S)	FY 1995	TOTAL
\$566,000	\$0	\$566,000

**AIR FORCE**

**Electronic Warfare Management System (EWMS)—Denmark**

The Terma EWMS is a single programmable unit that can replace individual cockpit controls with a centralized control system for the electronic combat (EC) suite in F-16, A/OA-10, and C-130 aircraft. This system includes an up-front presentation of EC status, an in-flight selection of chaff/flare dispenser programs, and a full night vision goggle compatibility. EWMS features semiautomatic and automatic operation of the integrated EC suite. The EWMS system is in service on Royal Danish Air Force F-16 and C-130 aircraft.

OSD approved the project in FY 1994. Test articles were delivered to the Air National Guard/ Air Force Reserve Test Center, Tucson, AZ. Testing on the F-16 and A-10 aircraft was completed and a formal acquisition plan for an initial purchase of over 200 units is being prepared. Total procurement may reach 800 units.

FCT FUNDING PROVIDED		
PRIOR YEAR(S)	FY 1995	TOTAL
\$500,000	\$625,000	\$1,125,000

**Pressure Sensitive Paint (PSP)—Russia**

The Central Aerohydrodynamics Institute (TsAGI) developed a paint with luminosity that varies with pressure. Pressure Sensitive Paint (PSP) reduces the costs of wind tunnel pressure models by more than 80 percent per model by eliminating requirements for complex instrumentation. The project was initiated in February 1994. Testing was completed at the TsAGI facility in November 1994, and further testing was conducted in the spring of 1995 at AEDC. The testing showed the Russian PSP comparable in performance but slightly more expensive than a domestic supply in the subsonic and low supersonic region. The Russian paint was found to be the only paint capable of reliable results in hypersonic test regions. Procurement may occur if hypersonic test projects are undertaken at AEDC. The Air Force did not request FCT funds in FY 1995 for this project.

FCT FUNDING PROVIDED		
PRIOR YEAR(S)	FY 1995	TOTAL
\$275,000	\$0	\$275,000

## FCT PROJECTS CONTINUING INTO FY 1996\*

- **Army**
  - 25mm Break-Up Ammunition
  - Automatic Chemical Agent Detector Alarm (ACADA)
  - Interim Vehicle-Mounted Mine Detector (IVMMD)
  - Joint RAAWS Ammunition Upgrades
  - Powered Multifuel Burner (PMB)
  - Gun Laying and Positioning System (GLPS)
  - FPA Phase IIA - Standard Advanced Dewar Assembly (SADA)
  - FPA Phase IIB - One Watt Linear Drive Cooler (OWLDC)
  - Omega M127 Electronic Time Fuze
  
- **Navy/Marine Corps**
  - Projectile Attack Trials (Explosive Ordnance Disposal)
  - Digital Flight Control System for F-14 Tomcat (DFCS)
  - Atmospheric Diving Suits (NEWTSUIT)
  - "Z" Electro-Optical Payload (ZEOP)
  - Advanced Short Range Air To Air Missile (ASRAAM)
  - 84mm Insensitive Munition High Explosive Anti-Tank (HEAT) Round
  - Acoustic Cladding Underwater Repair System
  - Close Air Support/All-Up Round Unitary Warheads
  - Modular 5"/54 Gun System For DDG-51 Class Ships
  - Minimum Aircraft Operating Strip Landing Kit (MOSKIT)
  - Barracuda Target Boat System
  - DYAD Magnetic Sweep
  - Laser Airborne Depth Sounder System (LADS)
  - PROSCAN/CSCAN Marine Propeller Inspection System
  - AVENGER Land Navigation System
  - M-31 Supersonic Sea Skimming Target (SSST)
  - MSG 90 Military Sniper Rifle
  - Liquid Gas Eutectic Reaction Process for Porous Materials
  - Designated Marksman Rifle (DMR) Optical Sighting System
  
- **Air Force**
  - Light Defender
  - Multi-Scanner For Aging and Surveillance
  - Eagle Vision Deployable Satellite Ground Receiving and Processing Station
  - Electronic Combat Integrated Pylon System (ECIPS)
  - K-36 Ejection Seat
  - Bondline Energy Measurement System
  
- **U.S. Special Operations Command**
  - 40mm L60/L70 Advanced Ammunitions For AC-130 Gunships

\* Not all projects received FY 1996 funding.

**ARMY**

**25mm Break-Up Ammunition—Netherlands**

NWM De Kruithoorn B.V. designed and developed the 25mm Break-up Cartridge. This cartridge is designed so that the plastic projectile ruptures immediately after leaving the weapon muzzle and falls harmlessly to the ground. Technical testing was successfully completed in FY 1995, but the 24th Mechanized Infantry Division at Fort Stewart withdrew their requirement. The Army is continuing to investigate whether other Bradley users have a requirement. No funds were requested for FY 1996.

FCT FUNDING PROVIDED		
PRIOR YEAR(S)	FY 1995	TOTAL
\$296,000	\$0	\$296,000

**Automatic Chemical Agent Detector Alarm (ACADA)—Finland, Germany, United Kingdom**

The Army downselected to two foreign candidates and added one domestic candidate in FY 1995. The project objective is to determine whether these items satisfy a joint Service requirement for the XM22 ACADA. ACADA will provide automatic blister agent and enhanced nerve agent detection capabilities to the users. The ACADA candidates are manufactured by Graseby Ionics (United Kingdom), Environics Oy (Finland) and a domestic candidate. Procurement of the winning candidate is scheduled for FY 1997.

FCT FUNDING PROVIDED		
PRIOR YEAR(S)	FY 1995	TOTAL
\$2,062,000	\$1,586,000	\$3,648,000

**ARMY**

**Interim Vehicle-Mounted Mine Detector (IVMMD)—Austria/United Kingdom,  
Republic of South Africa**

The Army is evaluating two foreign candidates, one made by Dorbyl of the Republic of South Africa (RSA) and the other a joint venture by Scheibel, an Austrian company, and Alvis, a United Kingdom company. The RSA system has been in use by the South African Army for several years and has been sold to various foreign countries, including France. The Scheibel system uses a United Kingdom Alvis vehicle mounted with an Austrian mine detector. The IVMMD must detect and mark the location of low metallic content mines and provide blast protection for the operator. During 1995, the Phase I evaluation indicated that detectors from both contenders can meet the U.S. Army's requirements. In FY 1996, the Phase II full-up systems will be evaluated and a downselection made for a production buy. Although the first production buy is not until FY 1998, the Army is considering an accelerated procurement due to urgent peacekeeping requirements. OSD provided \$1,780,000 in FY 1996 for continuation of this project.

FCT FUNDING PROVIDED		
PRIOR YEAR(S)	FY 1995	TOTAL
\$0	\$207,000	\$207,000

**Joint RAAWS Ammunition Upgrades—Sweden**

The Army continues the evaluation of the Bofors AB High Explosive Anti Tank (HEAT) and the full caliber TPT 141 training round for evaluation in FY 1996 and FY 1997. This joint service evaluation combines the Navy and Army requirements for dual safe fuzes and insensitive munition fills (heat round) necessary for deployments from naval and airborne vessels. This project supports the joint Carl Gustaf acquisition for USSOCOM. OSD provided \$1,886,000 in FY 1996 for continuation of this project.

FCT FUNDING PROVIDED		
PRIOR YEAR(S)	FY 1995	TOTAL
\$0	\$1,622,000	\$1,622,00

ARMY

**Powered Multifuel Burner (PMB)—Canada**

The International Thermal Research candidate is a powered-type multifuel burner using fuel atomization to achieve clean combustion. This candidate may offer advantages over the Army's standard gasoline-fired M2/M2A field kitchen burner unit, which achieves fuel vaporization under pressure. The Army is also evaluating a U.S. burner candidate. Testing of the burners is scheduled for completion in FY 1996. A competitive procurement is planned for FY 1997. The Army did not request FY 1996 funds for this project.

FCT FUNDING PROVIDED		
PRIOR YEAR(S)	FY 1995	TOTAL
\$383,000	\$0	\$383,000

**Gun Laying and Positioning System (GLPS)—Israel, Switzerland**

The Army awarded contracts through full and open competition for test items made by Leica Heerbrugg (Switzerland) and Tamam Precision Instruments (Israel). Combined technical and operational tests were conducted in FY 1995. Test results validated Army requirements and demonstrated that NDI systems are capable of meeting those requirements. A performance specification is being prepared to allow procurement through full and open competition. The Army is anticipating procurement if funds can be made available. The Army currently needs at least 621 units and the Marine Corps needs 106 units. The Army did not request FY 1996 funds for this project.

FCT FUNDING PROVIDED		
PRIOR YEAR(S)	FY 1995	TOTAL
\$1,550,000	\$40,000	\$1,590,000

ARMY

**FPA Phase IIA - Standard Advanced Dewar Assembly (SADA)—France**

This project is one of two funded as follow-on efforts to the successful Infrared Focal Plane Array FCT project. Under this project the Army plans to qualify the SOFRADIR SADA II module using a 480x4 FPA in the DoD Horizontal Technology Integration (HTI) Program. The HTI Program has a funded U.S. requirement for 6,250 IR systems. Other projects that use SADA II modules include ITAS, LOSAT, ASTAMIDS, AV-8, Hunter Sensor Suite ATD, and the Target Acquisition ATD. The contract with SOFRADIR for test articles was awarded in August 1995 and delivery is due late FY 1996. The U.S. Army (PM FLIR) is contributing at least \$400K of FY 1996 funds toward T&E costs associated with this project. OSD provided \$130,000 in FY 1996 for continuation of this project.

FCT FUNDING PROVIDED		
PRIOR YEAR(S)	FY 1995	TOTAL
\$0	\$1,694,000	\$1,694,000

**FPA Phase IIB - One Watt Linear Drive Cooler (OWLDC)—Germany, Netherlands**

This project is one of two funded as follow-on efforts to the successful infrared Focal Plane Array (FPA) FCT project. Under this project the Army plans to qualify two foreign coolers for use in Standard Advanced Dewar Assembly II (SADA II) modules used in HTI, ITAS, LOSAT, ASTAMIDS, AV-8, Hunter Sensor Suite ATD, and the Target Acquisition ATD. Contracts with the German and Dutch companies for test articles were awarded in August 1995 and deliveries are due in FY 1996. OSD provided \$101,000 in FY 1996 funds for continuation of this project.

FCT FUNDING PROVIDED		
PRIOR YEAR(S)	FY 1995	TOTAL
\$0	\$306,000	\$306,000

**ARMY**

**Omega M127 Electronic Time Fuze—Israel**

Developed by Reshef Technologies for the Israel Defense Forces for use on their U.S. made M494 Anti-Personnel (APERS) 105mm rounds. The objective of this project is to evaluate this fuze on the 105mm Armored Gun System cannon to determine if it is more reliable than the current U.S. M571 mechanical fuze. Upon successful completion of this program a follow-on evaluation will be necessary to complete the reliability and safety certification for Type Classification Standard. The Army did not request FY 1996 funds for this project.

FCT FUNDING PROVIDED		
PRIOR YEAR(S)	FY 1995	TOTAL
\$0	\$285,000	\$285,000

**NAVY / MARINE CORPS**

**Projectile Attack Trials (Explosive Ordnance Disposal)—Germany**

Manufactured by Junghans Feinwerktechnik, the "Dud Disposer" uses a master fuze clock to allow remote neutralization and detonation of several types and shapes of unexploded ordnance at the same time. The Dud Disposer was selected to continue evaluation in FY 1996 to determine whether the candidate meets Navy Explosive Ordnance Disposal (EOD) requirements for safe, reliable, remote detonation of hazardous unexploded ordnance. OSD provided \$65,000 in FY 1996 for continuation of this project.

FCT FUNDING PROVIDED		
PRIOR YEAR(S)	FY 1995	TOTAL
\$63,000	\$53,000	\$116,000

**NAVY / MARINE CORPS**

**Digital Flight Control System for F-14 Tomcat (DFCS)—United Kingdom**

A flight control system developed by GEC Avionics for the European Fighter 2000 Program was selected for continued FCT evaluation in FY 1996. The British flight control system has the potential to satisfy a Navy safety-of-flight issue regarding F-14 fighter aircraft. The system utilizes advanced digital technology which is expected to prevent recurring aircrew and aircraft losses due to unrecoverable flat spins. First flight tests occurred in late FY 1995. Initial test results were encouraging. The Navy did not request FY 1996 funds for this project.

FCT FUNDING PROVIDED		
PRIOR YEAR(S)	FY 1995	TOTAL
\$19,809,083	\$673,762	\$20,482,845

**Atmospheric Diving Suits (NEWTSUIT)—Canada**

The NEWTSUIT is a lightweight atmospheric diving system which allows divers to work comfortably and safely to water depths of 1,000 feet of sea water (303 meters). The system relies on pressure balanced rotary joints to provide advanced range of motion in the limbs. Developed by International Hard Suit Inc., the FCT test and evaluation will determine whether NEWTSUIT meets a Navy requirement for a Submarine Rescue Diving Recompression System (SRDRS). OSD provided \$810,000 in FY 1996 for continuation of the project.

FCT FUNDING PROVIDED		
PRIOR YEAR(S)	FY 1995	TOTAL
\$0	\$500,000	\$500,000

NAVY / MARINE CORPS

**“Z” Electro-Optical Payload (ZEOP)—Israel**

ZEOP, developed by Rafael, will continue evaluation in FY 1996 to determine whether the payload meets the requirement for an all-weather, day and night Image Intelligence (IMINT) sensor for Unmanned Aerial Vehicles (UAV). The ZEOP uses a modular design incorporating second generation infrared technology. All FY 1995 funding is being held in abeyance until vehicle configuration is determined. No FY 1996 funds were requested by the Navy for this project.

FCT FUNDING PROVIDED		
PRIOR YEAR(S)	FY 1995	TOTAL
\$1,000,000	\$500,000	\$1,500,000

**Advanced Short Range Air To Air Missile (ASRAAM)—United Kingdom**

Developed by British Aerospace Company under United Kingdom Ministry of Defense sponsorship, this FCT determines whether ASRAAM has the potential to satisfy the U.S. short range, air-to-air missile requirement. ASRAAM testing focuses on the ability to counter threats described in the AIM-9X System Threat Assessment Report (STAR). This FCT assists the U.S. Government in becoming a "smart buyer" for the AIM-9X engineering and manufacturing development source selection process. OSD provided \$6,380,000 in FY 1996 for completion of the project.

FCT FUNDING PROVIDED		
PRIOR YEAR(S)	FY 1995	TOTAL
\$0	\$6,333,000	\$6,333,000

**NAVY / MARINE CORPS**

**84mm Insensitive Munition High Explosive Anti-Tank (HEAT) Round—Sweden**

The Bofors AB candidate is an insensitive munitions version of the 84mm FFV 551 HEAT Round used in the Swedish Carl Gustaf M3 recoilless rifle system. The Swedish ammunition has the potential to meet Navy insensitive munitions requirements. If testing of the HEAT Round in the Carl Gustaf M3 is successful, the munition will be certified for use by special warfare units.

OSD initiated this project in FY 1994. The Navy awarded a contract for test articles during the fourth quarter of FY 1994. Testing will commence in early FY 1996. This project supports the USSOCOM joint service Carl Gustaf acquisition. OSD provided an additional \$372,000 to SOCOM in FY 1996 for completion of the project.

FCT FUNDING PROVIDED		
PRIOR YEAR(S)	FY 1995	TOTAL
\$1,231,000	\$1,046,000	\$2,277,000

**Acoustic Cladding Underwater Repair System—United Kingdom**

The Navy selected the UMC International PLC system for evaluation in FY 1995. The candidate allows trained divers to permanently repair/replace submarine hull silencing tiles. The project objective is to determine whether the system meets Navy requirements for submarine hull maintenance. The potential exists for significant savings in submarine dry-docking and acoustic cladding costs. The Navy did not request funds in FY 1996 for this project.

FCT FUNDING PROVIDED		
PRIOR YEAR(S)	FY 1995	TOTAL
\$0	\$440,000	\$440,000

**NAVY / MARINE CORPS**

**Close Air Support/All-Up Round Unitary Warheads—France, Israel**

The Matra Defense (France) and Rafael (Israel) blast-fragmentation penetrating warheads are being evaluated by the Navy to potentially meet the Joint Stand-Off Weapon (JSOW) unitary warhead with an insensitive composite explosive charge. The Rafael candidate is a modified insensitive munition design of a warhead that the Air Force successfully tested under the FCT Program in FY 1992 and later procured.

OSD approved the project in August 1993. Contracts for test articles were awarded to both manufacturers in September 1994. Testing is scheduled for FY 1996 at Eglin Air Force Base, FL. and China Lake, CA. OSD provided \$1,685,000 in FY 1996 for continuation of the project.

FCT FUNDING PROVIDED		
PRIOR YEAR(S)	FY 1995	TOTAL
\$400,000	\$3,105,000	\$3,505,000

**Modular 5"/54 Gun System For DDG-51 Class Ships—Australia, Germany**

The Modular Gun System (MGS) consists of the 5"/54 caliber gun installed in a module developed by Blohm & Voss of Germany and built in Australia by Transfield Shipping under license to Blohm & Voss. The module, which is outfitted with all gun ancillary equipment, provides the gun mount its structural support and contains all gun/ship system interconnections. The modular concept allows significant shipbuilding cost advantages due to reduced outfitting and checkout time, and enhances installation standardization. The MGS evaluation began in FY 1995 to determine whether the system meets Navy operational and ship construction requirements. OSD provided \$543,000 in FY 1996 for continuation of this project.

FCT FUNDING PROVIDED		
PRIOR YEAR(S)	FY 1995	TOTAL
\$0	\$1,057,000	\$1,057,000

**NAVY / MARINE CORPS**

**Minimum Aircraft Operating Strip Lighting Kit (MOSKIT)—United Kingdom**

MOSKIT is a self-contained, combat proven, mobile lighting and visual landing aids package developed by Metalite Aviation Lighting. MOSKIT began evaluation in FY 1995 to determine whether the foreign kit meets the Marine Corps' requirement for a mobile, lighting system for Naval Expeditionary Airfields (NEAF) that is compatible with night vision devices. MOSKIT is a potential replacement for current NEAF lighting which is not compatible with night vision devices and does not satisfy current operational requirements. OSD provided \$425,000 in FY 1996 for continuation of this project.

FCT FUNDING PROVIDED		
PRIOR YEAR(S)	FY 1995	TOTAL
\$0	\$63,000	\$63,000

**Barracuda Target Boat System—Canada**

Barracuda is a standard recoverable 24-foot inflatable target boat capable of being remotely controlled. The FCT candidate began evaluation in FY 1995 to determine whether the boat meets mission performance standards required by the Navy AEGIS Program for seaborne targets. Developed by Bristol Aerospace, Barracuda will be compared with the current QST-35 Navy surface targets. The Navy did not request funds in FY 1996 for this project.

FCT FUNDING PROVIDED		
PRIOR YEAR(S)	FY 1995	TOTAL
\$0	\$395,000	\$395,000

**NAVY / MARINE CORPS**

**DYAD Magnetic Sweep—Australia**

The Navy selected a naval mine warfare magnetic sweep device developed by Australian Defence Industries LTD. for evaluation in FY 1995. DYAD is used in combination with a water-driven acoustic generator. The project objective is to determine whether DYAD can meet the Navy's requirement for removing "influence mines" in shallow water. OSD provided \$267,000 in FY 1996 for completion of this project.

<b>FCT FUNDING PROVIDED</b>		
<b>PRIOR YEAR(S)</b>	<b>FY 1995</b>	<b>TOTAL</b>
\$0	\$825,000	\$825,000

**Laser Airborne Depth Sounder System (LADS)—Australia**

LADS will continue evaluation in FY 1996 to determine whether the system meets a Navy requirement for rapid collection of bathymetric data in coastal/shallow water areas where ship operations are costly, logistically difficult, or threatened by hostile fire. LADS is a self-contained, hydrographic surveying system, produced by BHP Engineering and Vision Systems for the Royal Australian Navy. When combined with Global Positioning System (GPS) data, LADS produces accurate high density digital depth and positional data for shallow water survey requirements, such as those required for amphibious combat operations. The Navy did not request funds in FY 1996 for this project.

<b>FCT FUNDING PROVIDED</b>		
<b>PRIOR YEAR(S)</b>	<b>FY 1995</b>	<b>TOTAL</b>
\$2,779,000	\$910,000	\$3,689,000

NAVY / MARINE CORPS

**PROPSCAN/CSCAN Marine Propeller Inspection System—Australia**

An Australian system, manufactured by Ryan Marine Products PTY. LTD., is used to collect and analyze geometric data from marine propellers for the purpose of manufacture, inspection and repair. The FCT candidate was selected to continue test and evaluation to determine whether the device meets a Navy requirement for accurate and cost-effective propeller construction and repair. The Australian item consists of a lightweight, transportable, mechanical-electronic measurement component (PROPSCAN) and a personal computer-based reporting system (CSCAN). The Australian equipment permits in-water full propeller measurement data to be collected within hours on ships that currently require days or weeks in dry-dock. OSD provided \$178,000 in FY 1996 for continuation of this project.

FCT FUNDING PROVIDED		
PRIOR YEAR(S)	FY 1995	TOTAL
\$590,000	\$25,000	\$615,000

**AVENGER Land Navigation System—Germany, Israel**

Formerly known as TERNAV for evaluation in FY 1995, the Marine Corps selected two Land Navigation Systems (LNS) for evaluation. One LNS is a hybrid, Inertial Dead Reckoning/GPS land navigation system developed by Taman Precision Instrument/IAI Limited of Israel, and the other is developed by Borsch Teldix of Germany for ground vehicle applications. The project objective is to determine if either system meets the Marine Corps' requirement for the land navigation component of the AVENGER mobile land-air defense system. Testing is scheduled to be completed in FY 1996, and a procurement decision is expected in FY 1997. OSD provided \$511,000 of funding for FY 1996 for completion of the project.

FCT FUNDING PROVIDED		
PRIOR YEAR(S)	FY 1995	TOTAL
\$0	\$497,000	\$497,000

**NAVY / MARINE CORPS**

**M-31 Supersonic Sea Skimming Target (SSST)—Russia**

The M-31 SSST began FCT evaluation in FY 1995 to determine whether the foreign candidate meets a Navy target requirement to simulate low altitude and speed characteristics of current anti-ship missile threats. The missile developed and manufactured by Zvezda Experiment and Design Bureau, has been in operational use with the Russian Air Force since 1988 and is the target variant of a Russian supersonic sea skimming anti-ship weapon. OSD provided \$1,609,000 in FY 1996 for continuation of this project.

FCT FUNDING PROVIDED		
PRIOR YEAR(S)	FY 1995	TOTAL
\$0	\$4,232,000	\$4,232,000

**MSG 90 Military Sniper Rifle—Germany**

The Heckler and Koch MSG 90 is a high-precision, semiautomatic rifle being evaluated for the Marine Corps two man sniper team. The MSG 90 began evaluation in FY 1995 to determine whether the rifle meets the Marine Corps' requirement for a Designated Marksman Rifle (DMR) to enhance maritime special purpose force sniper team lethality and survivability. Operational tests are scheduled to begin in 1997. OSD provided \$25,000 in FY 1996 for continuation of this project.

FCT FUNDING PROVIDED		
PRIOR YEAR(S)	FY 1995	TOTAL
\$0	\$100,000	\$100,000

**NAVY / MARINE CORPS**

**Liquid Gas Eutectic Reaction Process for Porous Materials—Ukraine**

Dnepropetrovst Metallurgical Institute (DMI) developed a revolutionary process for the production of porous materials. This process is used to produce porous metals such as manganese, aluminum, and nickel for applications in self-lubricating bearings, acoustic reflectors, and bulkhead partitions. OSD approved the project in FY 1994. The Naval Research Laboratory, Washington, DC, validated DMI claims through tensile testing of porous copper samples. Low cycle fatigue tests of porous samples were started. Further funding of this technical assessment has been held in abeyance until a requirement that uses this technology is identified.

FCT FUNDING PROVIDED		
PRIOR YEAR(S)	FY 1995	TOTAL
\$615,000	\$510,000	\$1,125,000

**Designated Marksman Rifle (DMR) Optical Sighting System—Austria, Canada, Germany**

The Marine Corps selected four, foreign-developed, optical sighting systems for evaluation in FY 1995. The project objective was to determine whether the candidates meet the Marine Corps' requirement for a (DMR) optical sighting system. The candidates are manufactured by Hensoldt & Sonne (Germany), and Schmidt & Bender (Germany), Hughes Leitz (Canada), and Kholes (Austria).

All FY 1995 funds for this project were diverted to fund the ASRAAM FCT, and the project was delayed until FY 1996 without additional cost. Testing of the optical sighting system is scheduled for mid FY 1996 and operational testing is scheduled concurrently with the Designated Marksman Rifle in early FY 1997. OSD provided \$35,000 in FY 1996 for completion of this project.

FCT FUNDING PROVIDED		
PRIOR YEAR(S)	FY 1995	TOTAL
\$0	\$72,000	\$72,000

**AIR FORCE**

**Light Defender—Israel**

TAAS, Israeli Industries, Ltd. is the prime developer of Light Defender. The project objective is to determine if Light Defender satisfies a mission need statement for the destruction of surface-to-air threats. Light Defender was presented to OSD by the Air Force as an out-of-cycle FCT project and was approved in FY 1995. Test missions are scheduled for midsummer 1996 at Eglin Air Force Base, FL. Light Defender is the Air Force's top FCT priority. OSD approved \$2,700,000 to continue the project into FY 1996.

FCT FUNDING PROVIDED		
PRIOR YEAR(S)	FY 1995	TOTAL
\$0	\$78,000	\$78,000

**Multi-Scanner For Aging and Surveillance—Germany**

Fiedler Optoelektronik Ltd. has developed a scanner capable of providing detailed surface deformation of test articles and deployed hardware. Surface deformation helps to indicated debonding of solid rocket motor propellants, missile heat shields, and other deformations. Sample testing started FY 1995 and is planned for completion in FY 1996. Should testing show sufficient system capabilities, the Air Force will retain the article under test and possibly procure additional units. OSD approved \$140,000 to continue the project into FY 1996.

FCT FUNDING PROVIDED		
PRIOR YEAR(S)	FY 1995	TOTAL
\$0	\$110,000	\$110,000

**AIR FORCE**

**Eagle Vision Deployable Satellite Ground Receiving and Processing Station—France**

The Eagle Vision system, developed by Matra CAP, is a mobile satellite receiving station designed for direct reception and rapid processing of unclassified commercial digital satellite imagery. This system integrates photographic satellite data with elevation data to produce three-dimensional views of flight paths and target areas for mission planning and rehearsal.

OSD approved the project in August 1992. The complete Eagle Vision test bed started field operational testing in FY 1994. OSD approved \$970,000 of FY 1995 funding to complete the project and \$498,000 additional FY 1995 funds to test LANDSAT capability with Eagle Vision for Bosnia operations. FCT testing was completed in late FY 1995. The FCT Eagle Vision System is currently supporting daily operations in Bosnia. The test results were positive and an Air Force procurement decision on several units is pending.

FCT FUNDING PROVIDED		
PRIOR YEAR(S)	FY 1995	TOTAL
\$7,533,000	\$1,468,000	\$9,001,000

**Electronic Combat Integrated Pylon System (ECIPS)—Denmark**

Produced by Per Udsen Company, ECIPS is an aircraft weapons pylon which has been modified to carry electronic countermeasure (ECM) payloads. In service with Royal Danish Air Force F-16 aircraft, ECIPS was selected to continue evaluation in FY 1996 to test and certify a new configuration of the ECIPS pylon with the Joint Army Air Force Common Missile Warning System. The Air Force requested no FY 1996 funds for this project.

FCT FUNDING PROVIDED		
PRIOR YEAR(S)	FY 1995	TOTAL
\$1,685,000	\$600,000	\$2,285,000

**AIR FORCE**

**K-36 Ejection Seat—Russia**

The Zvezda Design Bureau K-36 series of ejection seats are standard equipment in Russian high performance fighter aircraft. The K-36D ejection seat is being evaluated in comparison with the performance characteristics of contemporary Air Force and Navy ejection seats to demonstrate fourth generation escape system technologies. Fourth generation escape systems technologies provide safe escape at speeds up to 900 mph and are characterized by a controlled thrust vector for ejection seat stabilization and trajectory control.

OSD approved this project in August 1992. High speed rocket sled tests were conducted at Armstrong Laboratory, Wright Patterson Air Force Base, OH, and at Holloman Air Force Base, NM, in FY 1993. This was followed by the first series of vertical catapult and wind tunnel tests in Russia. Flight testing was conducted using the MIG-25 flying laboratory at the Russian Flight Institute of Aviation Research, with favorable results. Following analysis of test data in FY 1994, the K-36D was determined to be superior to western ejection seats at high speeds and adverse attitudes. OSD provided \$600,000 of funding in FY 1995 for continuation of the project on a modified K-36 seat being considered by the Joint Strike Fighter (JSF) Program (formerly JAST).

FCT FUNDING PROVIDED		
PRIOR YEAR(S)	FY 1995	TOTAL
\$3,770,000	\$600,000	\$4,370,000

**Bondline Energy Measurement System—Germany**

Phillips Laboratory, Kirtland Air Force Base, NM is evaluating the Fraunhofer Institute System to detect bondline defects in rocket motors. Fifty three percent of rocket motor failures are due to bondline failures. Phillips Laboratory prepared two series of inert propellant specimens for testing on the Fraunhofer system in Germany from May 1993 to June 1994. In September 1994, one bondline measurement system was delivered to Phillips Laboratory. Testing will be completed and the test report delivered in FY 1996. No additional FCT funding was requested for FY 1996.

FCT FUNDING PROVIDED		
PRIOR YEAR(S)	FY 1995	TOTAL
\$248,000	\$0	\$248,000

**U.S. SPECIAL OPERATIONS COMMAND**

**40mm L60/L70 Advanced Ammunitions For AC-130 Gunships—Sweden**

The L60/L70 improved ammunition, developed by Bofors, began FCT evaluation in FY 1995 to determine whether the ammunition meets the Air Force Special Operations Command's requirement for enhanced lethality of current AC-130 weapons suites against a broad spectrum of targets. OSD provided \$300,000 in FY 1996 funds for the continuation of a modified test.

<b>FCT FUNDING PROVIDED</b>		
<b>PRIOR YEAR(S)</b>	<b>FY 1995</b>	<b>TOTAL</b>
\$0	\$500,000	\$500,000

**PROJECTS SELECTED FOR  
INITIATION IN FY 1996**

- **Army**

Cordless Communication for Combat Vehicle Crewman  
Universal/Precision Electronic Time Mortar Fuze

- **Navy/Marine Corps**

Aircrew Laser Eye Shield (ALES)  
Communications Faired Mast  
Bearing Ambiguity Resolving Sonar (BARS)  
C303S Mobile Torpedo Countermeasure  
Shipboard Mast Detection System  
Submarine Antenna Outfit AVD

- **Air Force**

Renaissance View Satellite Data  
Milstar Traveling Wave Tube

- **U.S. Special Operations Command**

Chemring Chaff Block

The following FCT projects will begin evaluation in FY 1996.

**ARMY****Cordless Communication for Combat Vehicle Crewman—France**

French manufacturer SILEC has developed a communications headset to be incorporated into the U.S. Army's combat vehicle helmet to satisfy cordless communication requirements. Successful incorporation of the cordless headset into the helmet could allow crew members to communicate untethered on and off board a vehicle up to a distance of 500 meters.

FY 1996 FCT funding to be provided—\$245,000.

**Universal/Precision Electronic Time Mortar Fuze—Finland, Israel, South Korea**

Existing U.S. mortar fuzes are either manually or electronically set for various fire missions, including proximity, delay, and point detonation modes. The Army requires a universal Precision Electronic Time (PET) mortar fuze and intends to standardize the types of non-practice mortar fuzes being fielded. FCT candidates are manufactured in Finland (Noptel Oy), Israel (Reshef Lambda), and South Korea (Hanwha Limited).

FY 1996 FCT funding to be provided—\$725,000.

**NAVY/MARINE CORPS****Aircrew Laser Eye Shield (ALES)—United Kingdom**

The Aircrew Laser Eye Shield (ALES) is a high transmission visor designed for day and night tactical operations. Developed by Pilkington Optronics, the visor provides protection against main battlefield laser threats. Currently the U.S. has no eye protection for night operations against laser weapons and current day visors provide limited protection.

FY 1996 FCT funding to be provided—\$422,000.

**Communications Faired Mast—United Kingdom**

The candidate proposed for evaluation is a composite submarine antenna faired mast developed by Marconi Underwater Systems Limited. The fabrication method produces single piece faired mast that eliminates painting and has potential to reduce fabrication and maintenance costs for the Navy's submarine periscope mounted High Data Rate system.

FY 1996 FCT funding to be provided—\$720,000.

**NAVY/MARINE CORPS****Bearing Ambiguity Resolving Sonar (BARS)—United Kingdom**

Manufactured by British Aerospace (BaeSEMA), BARS provides for robust, instantaneous towed array bearing ambiguity resolution without recourse to either ship's maneuver, or estimation algorithms requiring convergence delay. BARS is optimized for torpedo detection, and will provide for rapid single sensor localization of incoming threats prior to effective countermeasure deployment.

FY 1996 FCT funding to be provided—\$1,150,000.

**C303S Mobile Torpedo Countermeasure—Italy**

The C303S device, produced by Whitehead in Italy, is a self-propelled mobile torpedo countermeasure launchable from submarines. The FCT evaluation will determine if the device satisfies the U.S. Navy Acoustic Device Countermeasure EX-11 Program requirements for submarine-launched mobile countermeasures.

FY 1996 FCT funding to be provided—\$1,214,000.

**Shipboard Mast Detection System—Australia**

The candidate system consists of a retrospective radar tracker and software for specific target detection and operator alert. The CEA Technologies PTY. LTD. product will be evaluated against a CINCPACFLT requirement for an affordable submarine mast detection system for shallow water anti-submarine warfare and littoral warfare.

FY 1996 FCT funding to be provided—\$1,000,000.

**Submarine Antenna Outfit AVD (1)—United Kingdom**

The GEC Marconi system is a broadband HDR communication/navigation mast antenna system. The candidate system is being evaluated as a complement to the current U.S. multi-function mast development program (Navy's Improved AN/BRA-34 Program). Additionally, the system may be a potential backup capability in specific portions of the frequency spectrum used for joint interoperability between the U.S. and the United Kingdom.

FY 1996 FCT funding to be provided—\$374,000.

**AIR FORCE****Renaissance View Satellite Data—Canada, France, Italy**

The USAF will evaluate the operational utility of multiple foreign commercial satellite data derived from the European Satellite, Canadian RADARSAT Satellite, and Indian Satellite. The data will be evaluated to determine if it fills a current need for day, night and all-weather, large area coverage to support battlefield and operations other than war requirements. Renaissance View will complement existing capabilities of SPOT and LANDSAT satellites.

FY 1996 FCT funding to be provided—\$1,150,000.

**Milstar Traveling Wave Tube—France**

The Thomson Tubes Electroniques Traveling Wave Tube (TWT) designed for increased operational life in high power amplifiers will be evaluated for use in ground and airborne terminals for MILSTAR, a joint services survivable satellite communication system. The TWT under evaluation is air cooled, provides more power than present TWT's, and incorporates a less expensive, more reliable, off-the-shelf cathode.

FY 1996 FCT funding to be provided—\$630,000.

**U.S. SPECIAL OPERATIONS COMMAND****Chemring Chaff Block—United Kingdom**

Chaff Block developed by Chemring Ltd. is a disposable chaff countermeasure unit providing a plastic matrix of 60 chaff cells. The Chaff block is attached to a reusable electronics interface plate and will be installed into dispensers for evaluation on Air Force Special Operations Command aircraft. The Chemring Chaff Block is expected to double the number of chaff bursts currently available while reducing munitions loading manpower requirements, reducing item costs, and increasing reliability.

FY 1996 FCT funding to be provided—\$630,000.

**APPENDIX A**  
**EQUIPMENT SELECTED FOR PROCUREMENT**  
**BY THE SERVICES**  
**AS A RESULT OF THE FCT PROGRAM**  
**1980 - 1995**

**EQUIPMENT SELECTED FOR PROCUREMENT  
BY THE ARMY, FY 1980 - FY 1995**

<b>EQUIPMENT</b>	<b>COUNTRY</b>	<b>MANUFACTURER</b>	<b>YEAR</b>
Focal Plane Array	France	SOFRADIR	1995
Muzzle Velocity System	Israel	Reshef	1994
84mm HEDP Round for Carl Gustaf RAAWS	Sweden	Bofors AB	1994
Improved Chemical Agent Monitor	United Kingdom	Graseby Ionics	1993
HAWK Battery Loader-Transporter Modification Kit	Germany	Thyssen Nordseewerke	1993
60mm Mortar Training Cartridges	Israel	Salgad/Pocal	1993
35mm TPGID HEAT Rounds	Germany	Diehl	1991
Carl Gustaf M3 (RAAWS)	Sweden	Bofors AB	1990
NBC Reconnaissance Vehicle (NBCRS)	Germany	Thyssen Henschel	1990
NBCRS Mass Spectrometer	Germany	Bruker Franz/Diehl	1990
Digital Signal Processor	Denmark	Weibel	1990
Anti-Magnetic Mine Actuating Device	Israel	Israeli Aircraft Ind	1990
NBCRS Markers	Germany	Diehl	1990
NBCRS Navigation Instrument	Germany	Teldix	1990
105mm Lightweight Howitzer	United Kingdom	Royal Ordnance	1988
105mm Tank Training Ammunition	Germany	Rheinmetall	1986
Improved 81MM Mortar	United Kingdom	Royal Ordnance	1986
SANATOR Decontamination Unit	Norway	Karl H. Hoie/EASI	1986
81mm Mortar Training Cartridge	Israel	Salgad/Pocal	1985
120mm Mortar (Tampella)	Israel	Soltam	1985
Chemical Agent Monitor	United Kingdom	Graseby Ionics/ETG	1985
Kinetic Energy Recovery Rope (KERR)	United Kingdom	Marlow Ropes, LTD	1985
Potable Water Tank	United Kingdom	Airborne Industries	1984
5.56mm Plastic Training Ammunition	Germany	Dynamit-Nobel	1984
4.2" Mortar Training Devices/Rounds	Germany	Nico Pyrotechnik	1983
.50 Cal. Plastic Training Ammunition	Germany	Dynamit-Nobel	1983
Small Unit Support Vehicle	Sweden	Haaglands & Soner	1983
.22 Cal. Tank Training Ammunition	United Kingdom	EMI Eley	1982
NBC Marking Set	Germany	A. Diedr Dolmeyer	1981
M72A3 LAW Anti-Tank Weapon	Norway	Raufoss	1981
Combat Support Boat	United Kingdom	Fairey Allday Marine	1981
10 Ton Truck Transporter Vehicle	Germany	MAN GHH	1981

**EQUIPMENT SELECTED FOR PROCUREMENT  
BY THE NAVY AND MARINE CORPS, FY 1980 - FY 1995**

<b>EQUIPMENT</b>	<b>COUNTRY</b>	<b>MANUFACTURER</b>	<b>YEAR</b>
Airtronic Light Oil Burner	Sweden/Luxembourg	Electrolux	1995
Forward Area Degaussing Range	United Kingdom	Ultra Electronics	1995
IFF Tracker	United Kingdom	COSSOR	1995
Spray Form Alloy Piping 625	Sweden	AB Sandvik Steel	1995
High Pressure Pure Air Generator	United Kingdom	Ultra Electronics	1995
BOL Chaff System	United Kingdom	Chemring	1994
BOL Chaff Dispenser	Sweden	Nobel Tech	1993
Lightweight CB Protective Garment	United Kingdom	Compton-Webb	1994
Impressed Current Cathodic Protection System	United Kingdom	Widney Aish	1993
Aircraft Cockpit Canopy Covers	United Kingdom	Colebrand	1993
Cowan Transportable Recompression Chamber	Australia	Cowan Manufacturing	1993
Active Shaft Grounding System	Canada	W.R. Davis	1993
EHF Traveling Wave Tubes	Germany	Siemens	1992
Torpedo Guidance, MKI48 HOSEPIPE	United Kingdom	Marconi Underwater	1992
Self-Propelled Acoustic-Magnetic Minesweep	Sweden	Karlskronavarvet	1991
Portable Target Scoring System	United Kingdom	BDL	1991
Penguin Missile & Guidance Unit	Norway	Norsk Teknologi	1991
Infrared Imaging System	Israel	El-Op/Tadiran	1991
Aerial Target Vector Scoring	United Kingdom	Cambridge Consult	1990
Anti-Magnetic Mine Actuating Device	Israel	Israel Aircraft Ind	1990
MCM-1 Tactical Displays (AIOS)	United Kingdom	Plessey Naval System	1990
Lightweight CB Protective Garment	United Kingdom	Compton-Webb	1990
Night Attack Avionics TICM FLIR with Thermal Cueing Unit Night Vision Goggles (Cats Eyes)	United Kingdom	GEC Avionics	1990
A-6 Raster Head-Up Display (HUD)	United Kingdom	GEC Avionics	1988
Maritime Decoy (Rubber Duck)	United Kingdom	Irvin Industries	1988
ASW Acoustic Processor	Canada	Computing Devices	1988
E-2C Multifunction Display Control	Canada	Marconi of Canada	1988
Versatile Exercise Mines (VEMS)	United Kingdom	BAeSEMA	1987
50 Cal. Multipurpose Ammunition	Norway	Raufoss	1981
Integrated Communications System III	United Kingdom	Marconi	1980

**EQUIPMENT SELECTED FOR PROCUREMENT  
BY THE AIR FORCE, FY 1980 - FY 1995**

<b>EQUIPMENT</b>	<b>COUNTRY</b>	<b>MANUFACTURER</b>	<b>YEAR</b>
Enhanced Electronic Warfare Scenario Generator (E-EWSG)	United Kingdom	Data Sciences	1994
Pylon Integrated (Chaff/Flare) Dispenser System (PIDS-3)	Denmark	Per Udsen	1993
I-800 (HAVE NAP) Warhead	Israel	Israel Military Industries	1992
SPOT Satellite Digital Imagery	France	SPOT Image Corporation	1990
ALE-40 Digital Sequencer Switch	Denmark	Terma	1990
Chemical Defense Equipment	Germany	Blucher/Celanese	1990
Millimeter Wave Communications	Japan	Nippon Electric	1989
Dielectric Measurement Equipment	France	Aerospatiale	1989
HAVE NAP Air-to-Surface Weapon	Israel	Rafael	1989
Munitions Ejector Release Unit	Germany	ALKAN/EDO	1986
Rapid Runway Repair Equipment	Germany	Cristiansen Diamond Products	1985
DURANDAL Runway Attack Weapon	France	Matra	1983

**EQUIPMENT SELECTED FOR PROCUREMENT  
BY SOCOM, FY 1993 - FY 1995**

<b>EQUIPMENT</b>	<b>COUNTRY</b>	<b>MANUFACTURER</b>	<b>YEAR</b>
Carl Gustaf 84mm Recoilless Rifle	Sweden	Bofors AB	1994
40mm HEI Cartridge and LI-465 Fuzes for AC-130 Gunship	Sweden	Bofors AB	1993
PGU-37 40mm Round	Sweden	Bofors AB	1993

**APPENDIX B**

**EXAMPLES OF EQUIPMENT SELECTED  
OR TARGETED FOR USE IN  
BOSNIA AND/OR DESERT STORM**

EXAMPLES OF EQUIPMENT SELECTED OR TARGETED  
FOR USE IN BOSNIA & DESERT STORM

**Program:** SPOT Satellite Digital Imagery—Bosnia/Desert Storm

**Country/Mfr:** France/SPOT Image Corporation

**Description:** Currently used in Bosnia, SPOT Satellite Digital Imagery is downlinked directly to U.S. Forces via the Air Force's Eagle Vision portable terminals (another FCT Project). SPOT images provide U.S. Air Force Pilots with simulated 3-D imagery allowing real-time practice "flyovers" of Bosnia, as well as providing ground commanders with valuable C<sup>3</sup>I data.

In Desert Storm, the SPOT satellite was re-oriented to concentrate its mapping capabilities on the Persian Gulf area. The images were processed through the Air Force Mission Support System and distributed to flying squadrons. In some cases, the SPOT photos were the only images allied pilots had prior to launching their attack missions.

**Program:** U.S. Army M93 Fox NBC Reconnaissance Vehicle—Bosnia/Desert Storm

**Country/Mfr:** Germany/Thyssen-Henschel

**Description:** This vehicle for detecting chemical biological agents performed admirably during Desert Storm and will accompany the U.S. Implementing Force (IFOR) into Bosnia. While the threat of a chemical attack is slight, there is concern that U.S. Forces may need the capability to identify areas where leaking munitions may have been emplaced or stored. The Fox also has the capability to safely collect samples for more detailed laboratory analysis.

This vehicle was used in Desert Storm operations for the detection of biological/chemical warfare agents. The U.S. Army purchased 53 systems. Germany contributed 60 additional systems.

**Program:** U.S. Army Improved Chemical Agent Monitor (I-CAM)—Bosnia/Desert Storm

**Country/Mfr:** United Kingdom/Graseby Dynamics

**Description:** This hand held monitor also used during Desert Storm will accompany the U.S. Implementing Force (IFOR) into Bosnia. While the threat of chemical attack is slight, there is concern that U.S. Forces may need the capability to identify areas where leaking munitions may have been stored or transported. The I-CAM is a point detector and can be utilized by personnel inspecting vehicles, buildings and other structures.

**Program:** U.S. Marine Corps Anti-Magnetic Mine Actuation Device (AMMAD)—Bosnia/Desert Storm

**Country/Mfr:** Israel/Israeli Aircraft Industries

**Description:** The AMMAD provided the Army and Marine Corps a new capability for ensuring that land mines were cleared prior to the employment of troops. This

system was used during Desert Storm with both M60 Tanks and M1 Main Battle Tanks.

**Program:** NBC Reconnaissance Equipment—MM1 Mass Spectrometer—Bosnia/Desert Storm

**Country/Mfr:** Germany/Bruker-Franzen GmbH

**Description:** The MMI Mass Spectrometer was the primary detection and analysis equipment in the NBC Reconnaissance Vehicle. During the ground phase of the Gulf War, the spectrometer provided assurance that chemical agents, if employed, would be detected.

**Program:** U.S. Army Interim Vehicle Mounted Mine Detector (IVMMD)—Bosnia

**Country/Mfr:** South Africa/Dorbyl or United Kingdom/Alvis & Austria/Schiebel

**Description:** Although the FCT of the two foreign systems will not be complete until next year, the Army is considering a buy of several IVMMD systems to meet an urgent need in Bosnia.

**Program:** Reverse Osmosis Water Purification System—Desert Storm

**Country/Mfr:** United Kingdom/Stella-Meta Filters & Australia/MEMTEC, Ltd

**Description:** This water purification system was tested in the field by U.S. combatants to assure the quality of potable water.

**Program:** Self-Propelled Acoustic-Magnetic Minesweep (SAM)—Desert Storm

**Country/Mfr:** Sweden/Karlskronavarvet

**Description:** SAM gave U.S. forces the capability to conduct remote minesweeping in shallow water. SAMs were used during and after the Gulf War to clear enemy mines.

**Program:** Chemical Defense Equipment – Aircrew Protective Suits—Desert Storm

**Country/Mfr:** Germany/Blucher GmbH

**Description:** These protective suits for aircrews provided better protection, more comfort, and greater thermal efficiency than previously used suits. Gulf War use resulted in 50 percent reduction in thermal stress to pilots.

**Program:** Portable Target Scoring System—Desert Storm

**Country/Mfr:** United Kingdom/BDL Systems, Ltd.

**Description:** The Portable Target Scoring System was used for marksmanship training for infantry Marines in the field during Desert Storm and proved to be effective in maintaining proficiency.

**Program:** Versatile Exercise Mine System (VEMS)—Desert Storm

**Country/Mfr:** United Kingdom/British Aerospace (SEMA)

**Description:** VEMS is a programmable in-water naval mine simulator that allowed minesweeping training to be conducted with more realism and safety.

**Program:** Lightweight Chemical/Biological Overprotection Garment—Desert Storm

**Country/Mfr:** United Kingdom/J. Compton Sons and Webb, Ltd.

**Description:** The chemical defense suits provided infantry Marines self-protection against potential chemical and/or biological warfare attacks.