

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2000	
BUDGET ACTIVITY 06 - Management and Support				PE NUMBER AND TITLE 1001004F International Activities				PROJECT 664645	
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
664645 International Cooperative Research & Development	3,543	3,660	3,773	3,825	3,862	3,939	4,017	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0
<p>(U) <u>A. Mission Description</u> The mission of this program is to gain access to our Allies' best defense technologies, eliminate costly duplication of research and development efforts, accelerate availability of defense systems, and to deploy and sustain common or interoperable USAF and Allied equipment through international cooperative research and development.</p> <p>The USAF is party to multiple international cooperative agreements to solve common US and Allied military scientific and technological problems and to develop materiel solutions to harmonize coalition requirements. This program funds the Department of the Air Force to support, develop, process, negotiate, implement, and manage these international cooperative agreements and projects in compliance with statutory reporting provisions and exacting legal statutes, fiscal constraints, technology transfer controls, intellectual property rights, third party transfer provisions, quid-pro-quo criteria, industrial base factors, and political-military interests. Included in this budget are domestic and international technology assessment teams; specialized working groups; long-term technology project developments; support for cooperative opportunity assessments; developing, processing, and negotiating international agreements; oversight of International Cooperative Research and Development (ICR&D) projects; overseas R&D liaison and coordination offices; bilateral and multilateral staff talks; and the Engineering and Scientist Exchange Program (ESEP). Funds USAF participation in the NATO Air Force Armaments Group (NAFAG) and NATO Research and Technology Organization (RTO).</p>									
<p>(U) <u>FY 1999 (\$ in Thousands)</u></p> <p>(U) \$100 NATO C3 Agency (NC3A) - Funded the US R&D Coordination Office and administrative support for the assigned US Engineering and Technical professionals and cooperative research and development activities assigned to the NC3A.</p> <p>(U) \$243 Engineer and Scientist Exchange Program (ESEP) - Funded the Air Force execution and the management oversight of ESEP. Funded approximately nine field level military and civilian scientists from Air Force Research Laboratory, for two year tours at selected European and Asian Government Research Laboratories or other Technical Institutions. ESEP Memoranda of Understanding are in place with 16 countries.</p> <p>(U) \$1,256 International Cooperative Research and Development (ICR&D) - Funded USAF overseas R&D liaison offices. Funded management support and oversight of USAF Foreign Comparative Test Program and NATO Cooperative R&D Program. Funded USAF participation at the NATO Four-Power Council, NATO Air Force Armaments Group (NAFAG), and its six subgroups to promote NATO harmonization of requirements, standardization, and new cooperative R&D programs. Funded USAF participation at the US-Japan Systems and Technology Forum and its four sub-groups. Funded expanded technology acquisition contracts and follow-on cooperative opportunities with Russia, Ukraine, and Eastern</p>									
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BUDGET ACTIVITY 06 - Management and Support		PROJECT 664645
PE NUMBER AND TITLE 1001004F International Activities		
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 1999 (\$ in Thousands) Continued</u>		
(U) \$269	<p>Europe. Partially funded technical assessments and international agreements negotiation start-up costs associated with promising cooperative R&D programs. Funded preliminary and negotiation costs associated with USAF AWACS NATO cooperative R&D funded programs and support for the NATO AWACS Board of Directors. Funded International Cooperative Opportunities Group (ICOG) efforts to harmonize Four-power requirements and initiate agreements to explore these opportunities.</p> <p>Air Force International Program Support Office (AFIPSO) - Funded AFIPSO to process ICR&D Agreements. The following is a partial list of agreements that were either signed or under development in FY99: Argentina: Seismic and Infrasonic Monitoring; Australia: Clutter Mitigation for Over the Horizon Radar, High Altitude Endurance UAV, Virtual Air Commander; Bolivia: Seismic Monitoring; Brazil: Seismic Monitoring, ESEP; Central African Republic: Seismic Monitoring; Chile: Ionospheric Research; Canada: Space Based Surveillance and Space Systems, ground and Space Radiation Effects of Quantum Well Infrared Photometer Sensors, TRDP; Czech Republic: ESEP; Egypt: TRDP, Nuclear Test Seismic Monitoring Array; Ethiopia: Seismic Monitoring; Four-Powers: Distributed Simulation Technologies, Unmanned Air Vehicles for Offensive Missions, Air Refueling Technologies; France: Effects of Ionosphere on Communications and Surveillance; Germany: ESEP, Geoscience Space Mission, Non-Linear Optics; Israel: Nonlinear Frequency Conversion Materials, Thulium Holium Energy Transfer Modeling; Italy: ESEP, Real-Time Information in the Cockpit, TRDP; Japan: ESEP; Korea: Seismic Monitoring, 3D Integrated Circuits, Modeling and Simulation of C3I Systems; LTTP: Coalition Command Control and Communications Demonstration Environment; NATO/Multilateral: C-130 Integrated Data Environment, Joint Airborne Navigation and Attack (JOANNA) II, Laser Radiation and Material Interaction; Netherlands: Vacuum and Solid State Electronics and high Voltage/ Current Power Supply; Norway: ESEP, Toxic Effects of Jet Fuels; Paraguay: Seismic Monitoring; Poland: ESEP; Sweden: ESEP, Command and Control; Turkey: Seismic Monitoring; South Africa: Seismic Monitoring; United Kingdom: Vista Warrior, Nessie Trial/Demonstration, PIOS Phase II/III, Joint Development and Evaluation of Electro-Optic Protection Measures, Space Based Surveillance System Concept Studies, Experiments and Trials.</p>	
(U) \$250	<p>NATO Research and Technology Organization (RTO) - Funded USAF participation in the NATO Research and Technology Board and RTO panel activity. The FY99 program of work consisted of studies, technical exchanges, and reports in the following areas: (1) Computational Unsteady Aerodynamic Codes, (2) Multi-facility Wind Tunnel Testing for CFD Validation, (3) Deterministic Spectral Gust Methods, (4) Screening Protocol for Aeromedical Medications, (5) Human Consequences of Superagility, (6) Aeromedical Lessons from Acceleration and Positive Pressure Breathing Research, (7) Aircraft Weapon Compatibility, (8) Flight Control Law Development, (9) Ice Accretion and Simulation Evaluation test, (10) Nonlinear Stability and Transition of Swept-Wing Boundary Layers, (11) Sensor Data Fusion and Integration of Human Element, (12) Integrated Mission Systems Concepts, (13) Gas Turbine Engine Combustion, Emissions and Alternative Fuels, (14) Aging and Surveillance of Solid Gun Propellants, (15) Frequency Assignment, Sparing and Conservation. Continued Partnership for Peace initiatives through the R&T outreach program with scientists and engineers from the Former Soviet Union and Central Europe.</p>	
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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
06 - Management and Support	1001004F International Activities	664645
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 1999 (\$ in Thousands) Continued</u>		
(U) \$1,425	AFMC - Fully funded Air Force Materiel Command activities to identify, assess, develop and report International Cooperative Agreements as required by statute for new and existing projects. Supported Materiel Command activities for the USAF Foreign Comparative Test, and NATO Cooperative R&D Programs. Funded USAF participation in panel meetings of the Technical Cooperation Program, Air Standardization Coordinating Committee, Standard NATO Agreements Working Groups, and other NATO forums. Funded periodic bilateral meetings to define new areas of possible cooperation, and exploratory visits to France, Germany, Israel, United Kingdom, Canada, and other countries on new technology exchange projects. Funded the project engineers at centers and Air Force Research Laboratory (AFRL) in identifying, creating and staffing new international cooperative agreements. Funded MAJCOM staff to support and promote international research and development cooperation throughout AFMC. Funded support for the Air force Technology Booth at International Forums. Funds small contracts in support of technology initiatives. This program funded the support, management and documentation of these ICR&D efforts.	
(U) \$3,543	Total	
(U) <u>FY 2000 (\$ in Thousands)</u>		
(U) \$100	NC3A - Funds the US R&D Coordination Office and administrative support for the assigned US Engineering and Technical professionals and cooperative Research and Development activities assigned to the NC3A.	
(U) \$243	ESEP - Funds the Air Force execution and the management oversight of ESEP. Funds approximately ten field level military and civilian scientists from Air Force Research Laboratory, Product Centers, Test Centers and Air Logistics Centers in two year tours at selected European and Asian Government Research Laboratories or other Technical Institutions. ESEP Memoranda of Understanding expected to be in place with 18 countries.	
(U) \$1,317	ICR&D - Funds USAF overseas R&D liaison offices. Funds management support and oversight of USAF Foreign Comparative Test Program and NATO Cooperative R&D Program. Funds USAF participation at the NATO Four-Power Council, NAFAG, and its subgroups to promote NATO harmonization of requirements, standardization, and new cooperative R&D programs. Funds USAF participation at the US-Japan Systems and Technology Forum and its four sub-groups. Funds expanded technology acquisition contracts and follow-on cooperative opportunities with Russia, Ukraine, and Eastern Europe. Partially funds technical assessments and international agreements negotiation start-up costs associated with promising cooperative R&D programs. Funds continued development/ upgrades to the DoD International Agreements Management System. Funds preliminary and negotiation costs associated with USAF NATO cooperative R&D funded programs and support for the NATO AWACS Board of Directors. Funds International Cooperative Opportunities Group (ICOG) efforts to harmonize Four-power requirements and initiate agreements to explore these opportunities.	
(U) \$250	AFIPSO - Fully funds AFIPSO to process proposals for ICR&D Agreements. The following is a partial list of agreements that will be either signed or developed in FY00: Australia: APEP, Refractive Turbulence, Precision Location and Identification, Small Smart Bomb, Scintillation	
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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
06 - Management and Support	1001004F International Activities	664645
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2000 (\$ in Thousands) Continued</u>		
	Impacts on Communications and Navigation Systems; Bolivia: Seismic Monitoring; Brazil: Atmospheric, Ionospheric and Magnetospheric, ESEP; Central African Republic: Seismic Monitoring; Chile: Ionospheric Research, Infrasonic Monitoring; Canada: Distributed Mission Training Technologies; Czech Republic: ESEP; Egypt: TRDP, Nuclear Test Seismic Monitoring Array; Ethiopia: Seismic Monitoring; Germany: APEP, Observations and Modeling for Space Weather, Head Mounted Display; Israel: Aircraft and Battle Damage Repair; Italy: ESEP, Real-Time Information in the Cockpit, TRDP; Japan: Fiber-reinforced Ceramic Matrix Composites, ESEP; Korea: ESEP, Seismic Monitoring; Norway: Low Cost Autonomous Attack System Advanced Technology Demonstration, Global Positioning System Handheld Equipment; Paraguay: Seismic Monitoring; Poland: ESEP; Sweden: Human Centered Controls and Displays, ESEP, Command and Control; Turkey: Seismic Monitoring; South Africa: Seismic Monitoring; United Kingdom: International Collaboration on Space Radiation Sensors, Chemical Agent Monitors; Multi-lateral: Refraction and Propagation Modeling, LTTP: Aging Aircraft, Unmanned Air Vehicles for Offensive Missions, Air Refueling Technologies.	
(U) \$225	NATO RTO - Funds USAF participation in the NATO Research and Technology Board and RTO panel activity. The FY00 program of work will consist of studies, technical exchanges, and reports in the following areas: (1) Application of Unmanned Air Vehicles, (2) System Concepts for Targets and Camouflage and Decoys, (3) High Power Microwaves, (4) Electronic Warfare Warning Systems, (5) Flight Test Measurement Techniques, (6) Electromagnetic Compatibility, (7) Hypersonic Propulsion, (8) Wind Tunnel Technology, (9) Screening for Aero Medical Medications, (10) Human Factors in Virtual Reality Applications. Continues Partnership for Peace initiative through the R&T outreach program with scientists and engineers from the former Soviet Union and Central Europe.	
(U) \$1,525	AFMC - Fully funds Air Force Materiel Command activities to identify, assess, develop, and report International Cooperative Agreements as required by statute for new and existing projects. Supports Materiel Command activities for the USAF Foreign Comparative Test, and NATO Cooperative R&D Programs. Funds USAF participation in panel meetings of The Technical Cooperation Program, Air Standardization Coordinating Committee, NATO Working Groups, and other NATO forums. Funds periodic bilateral/multilateral meetings to define new areas of possible cooperation and exploratory visits to France, Germany, Israel, United Kingdom, Canada, and other countries on new technology exchange projects. Funds the project engineers at centers and AFRL in identifying, creating and staffing new international cooperative agreements. Funds MAJCOM staff to support and promote international research and development cooperation throughout AFMC. Funds support for the Air Force Technology Booth at International Forums. Funds small contracts in support of technology initiatives. This program will, in addition, fund the support, management and documentation of these ICR&D efforts.	
(U) \$3,660	Total	
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BUDGET ACTIVITY 06 - Management and Support	PE NUMBER AND TITLE 1001004F International Activities	
		PROJECT 664645
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2001 (\$ in Thousands)</u>		
(U) \$110	NC3A - Funds the US R&D Coordination Office and administrative support for the assigned US Engineering and Technical professionals and cooperative Research and Development activities assigned to the NC3A.	
(U) \$243	ESEP - Funds the Air Force execution and the management oversight of ESEP. Funds approximately eight field level military and civilian scientists from Air Force Research Laboratory, Product Centers, Test Centers and Air Logistics Centers in two year tours at selected European and Asian Government Research Laboratories or other Technical Institutions. ESEP Memoranda of Understanding are expected to be in place with 20 countries.	
(U) \$1,399	ICR&D - Funds USAF overseas R&D liaison offices. Funds management support and oversight of USAF Foreign Comparative Test Program and NATO Cooperative R&D Program. Funds USAF participation at the NATO Four-power Council, NAFAG, and its subgroups to promote NATO harmonization of requirements, standardization, and new cooperative R&D programs. Funds USAF participation at the US-Japan Systems and Technology Forum and its four sub-groups. Funds expanded technology acquisition contracts and follow-on cooperative opportunities with Russia, Ukraine, and Eastern Europe. Partially funds technical assessments and international agreements negotiation start-up costs associated with promising cooperative R&D programs. Funds continued development/ upgrades to the DoD International Agreements Management System. Funds preliminary and negotiation costs associated with USAF NATO cooperative R&D funded programs and support for the NATO AWACS Board of Directors. Funds International Cooperative Opportunities Group (ICOG) efforts to harmonize Four-power requirements and initiate agreements to explore these opportunities.	
(U) \$276	AFIPSO - Fully funds AFIPSO to process the rapidly increasing number of proposals for ICR&D Agreements. Work will continue on agreements developed, but not signed, during FY00 and work will be initiated in the following areas of interest and others resulting from prior year technology assessments: Asia: Unmanned Aerial Vehicles, Early Warning Systems, Theater Missile Defense, Satellites, Command, Control, Communication, Computer, Information and Intelligence, Effects on Global Positioning Systems; Europe: Distributed Simulation Technology, Unmanned Aerial Vehicles, Aging Aircraft, Programmable Integrated Ordinance Suite, Agent Defeat Weapon, Joint Targeting Tool, Satellites, Space, Environmental Issues; Middle East: Intelligence, Sensors, Monitoring of Chemical/Biological Warfare; Central and South America: Monitoring of Chemical/Biological Warfare, Satellites, Space, Environmental Issues.	
(U) \$200	NATO RTO - Funds USAF participation in the NATO Research and Technology Board and RTO panel activity. The FY01 program of work will consist of studies, technical exchanges, and reports in the following areas: (1) Operational and Technical Studies and Analysis, (2) Modeling and Simulation, (3) Advanced System Concepts, Integration and Engineering Techniques Across the Spectrum of Platforms and Operating Environments, (4) Affordable Electronics, (5) Active and Passive Sensors, (6) Information Warfare Systems, (7) Communication and Networks, (8) Improved Performance, Affordability, and Safety of Vehicle, Platform, Propulsion, and Power Systems, (9) Optimize Performance, Health, Well Being and Safety of the Human in Operational Environments with consideration of Affordability. Continues Partnership for Peace	
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06 - Management and Support	1001004F International Activities	664645		
(U) <u>A. Mission Description Continued</u>				
(U) <u>FY 2001 (\$ in Thousands) Continued</u>	initiative through the R&T outreach program with scientists and engineers from the former Soviet Union and Central Europe.			
(U) \$1,545	AFMC - Fully funds Air Force Materiel Command activities to identify, assess, develop, and report International Cooperative Agreements as required by statute for new and existing projects. Supports Materiel Command activities for the USAF Foreign Comparative Test, and NATO Cooperative R&D Programs. Funds USAF participation in panel meetings of The Technical Cooperation Program, Air Standardization Coordinating Committee, NATO Working Groups, and other NATO forums. Funds periodic bilateral/multilateral meetings to define new areas of possible cooperation and exploratory visits to France, Germany, Israel, United Kingdom, Canada, and other countries on new technology exchange projects. Funds the project engineers at centers and AFRL in identifying, creating and staffing new international cooperative agreements. Funds MAJCOM staff to support and promote international research and development cooperation throughout AFMC. Funds support for the Air Force Technology Booth at International Forums. Funds small contracts in support of technology initiatives. This program will, in addition, fund the support, management and documentation of these ICR&D efforts.			
(U) \$3,773	Total			
(U) <u>B. Budget Activity Justification</u>	This program is in Budget Activity 6, Management and Support, because it provides for general Research & Development Management support for all aspects of International Research & Development in the USAF.			
(U) <u>C. Program Change Summary (\$ in Thousands)</u>				
		<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
(U) Previous President's Budget (FY 2000 PBR)		3,598	3,750	3,807
(U) Appropriated Value		3,752	3,750	
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions		-154	-10	
b. Small Business Innovative Research		-35		
c. Omnibus or Other Above Threshold Reprogram			-56	
d. Below Threshold Reprogram				
e. Rescissions		-20	-24	
f. Other				
(U) Adjustments to Budget Years Since FY 2000 PBR				-34
(U) Current Budget Submit/FY 2001 PBR		3,543	3,660	3,773
				TBD
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(U) <u>C. Program Change Summary (\$ in Thousands) Continued</u>													
(U) <u>Significant Program Changes:</u> N/A													
(U) <u>D. Other Program Funding Summary (\$ in Thousands)</u>													
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>Cost to</u>	<u>Total Cost</u>				
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>					
(U) N/A													
(U) <u>E. Acquisition Strategy</u>													
This program element is the only source of USAF funds to identify and initiate opportunities for international armaments cooperation to (a) deploy and support common or interoperable equipment with our allies; (b) leverage USAF resources with our allies through cost sharing and economies of scale; and (c) exploit the best US and allied technologies for equipping coalition forces. We obtain these benefits only after international cooperative opportunities are identified, explored, developed, assessed and after the international agreements are negotiated and concluded. This PE provides funds to execute up-front armaments cooperation responsibilities, rationalize cooperative opportunities, assess allied technologies, and generate sound, cost-effective cooperative programs between the USAF and our international partners. Once these initiatives and programs are started as international efforts they are transferred to the appropriate technology or systems program office and are funded in their own program elements.													
(U) <u>F. Schedule Profile</u>													
		<u>FY 1999</u>				<u>FY 2000</u>			<u>FY 2001</u>				
		1	2	3	4	1	2	3	4	1	2	3	4
(U)	-NATO C3 Agency Program Review				*				X				X
(U)	-NATO Research & Technology Board	*		*		X		X		X		X	
(U)	-Bilateral Technology R&D Projects MOUs	*	*	*	*	X	X	X	X	X	X	X	X
(U)	-Cooperative R&D Projects	*	*	*	*	X	X	X	X	X	X	X	X
(U)	-Foreign Comparative Testing Prioritization Board			*			X				X		
(U)	-NATO Cooperative R&D Prioritization Board			*				X				X	
(U)	-R&D Loans of Defense Equipment	*	*	*	*	X	X	X	X	X	X	X	X
(U)	-Systems & Technology Forum (JA)	*		*		X		X		X		X	
(U)	-Other Bilateral forums (CA, BZ, IS, SW, FR)	*	*	*	*	X	X	X	X	X	X	X	X
(U)	-Data/Information Exchange Annexes	*	*	*	*	X	X	X	X	X	X	X	X
(U)	-Engineer and Scientist Exchanges		*		*		X		X		X		X
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(U) **F. Schedule Profile Continued**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) -NATO Air Force Armaments Group	*		*		X		X		X		X	
(U) -Four-Power Air Senior National Representatives	*		*		X		X		X		X	
(U) -Four-Power Long-Term Technology Working Group		*		*		X		X		X		X