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**Department of Defense
Fiscal Year (FY) 2017 Request for Additional Appropriations**

March 2017



United States Special Operations Command

Defense-Wide Justification Book Volume 5 of 5

Research, Development, Test & Evaluation, Defense-Wide

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United States Special Operations Command • Request for Additional Appropriations FY 2017 • RDT&E Program

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Department of Defense
 March Budget Amendment to the FY 2017 President's Budget Request for BASE + Overseas Contingency Operations (OCO)
 Exhibit R-1 March Budget Amendment to the FY 2017 President's Budget Request for BASE + Overseas Contingency Operations (OCO)
 Total Obligational Authority
 (Dollars in Thousands)

13 Mar 2017

Appropriation -----	FY 2017 PB Request Base	FY 2017 Mar Amended Request Base	FY 2017 Revised PB Request Base
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Research, Development, Test & Eval, DW	497,174	32,700	529,874
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Advanced Technology Development	61,620		61,620
Operational System Development	397,734	32,700	430,434
Total Research, Development, Test & Evaluation	497,174	32,700	529,874
<u>Summary Recap of FYDP Programs</u>			
Intelligence and Communications	5,415		5,415
Special Operations Forces	491,759	32,700	524,459
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		Applied Research		37,820		37,820	
61	1160402BB	SOF Advanced Technology Development	03	61,620		61,620	U
		Advanced Technology Development		61,620		61,620	
189	0305208BB	Distributed Common Ground/Surface Systems	07	5,415		5,415	U
205	1105219BB	MQ-9 UAV	07	17,804		17,804	U
206	1160403BB	Aviation Systems	07	159,143	4,400	163,543	U
207	1160405BB	Intelligence Systems Development	07	7,958	1,900	9,858	U
208	1160408BB	Operational Enhancements	07	64,895	26,000	90,895	U
209	1160431BB	Warrior Systems	07	44,885	400	45,285	U
210	1160432BB	Special Programs	07	1,949		1,949	U
211	1160434BB	Unmanned ISR	07	22,117		22,117	U
212	1160480BB	SOF Tactical Vehicles	07	3,316		3,316	U
213	1160483BB	Maritime Systems	07	54,577		54,577	U
214	1160489BB	Global Video Surveillance Activities	07	3,841		3,841	U
215	1160490BB	Operational Enhancements Intelligence	07	11,834		11,834	U
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ORGANIZATIONS

1 SOW	1st Special Operations Wing
160th SOAR	160th Special Operations Aviation Regiment
AAC	Air Armament Center
AFRICOM	Africa Command
AFSOC	Air Force Special Operations Command
ARDEC	U.S. Army Armament Research, Development and Engineering Center
ARSOA	Army Special Operations Aviation
ATEC	Army Test and Evaluation Command
CACI	California Analysis Center, Incorporated
CENTCOM	Central Command
DARPA	Defense Advanced Research Projects Agency
DOD	Department of Defense
DTRA	Defense Threat Reduction Agency
EACS	Exploitation Analysis Centers
FDA	Food and Drug Administration
JITC	Joint Interoperability Test Center
JSOTF	Joint Special Operations Task Force
JTF	Joint Task Force
MARSOC	Marine Special Operations Command
NATC	Nevada Automotive Test Center
NAVAIRSYSCOM PMA-275	Naval Air Systems Command V-22 Joint Program Office
NAVSEA	Naval Systems Engineering Command
NGA	National Geospatial--Intelligence Agency
NPS	Naval Postgraduate School
NSA	National Security Agency
NSWC	Naval Special Warfare Command
OUSD(I)	Office of the Secretary of Defense, Intelligence
SOAR(A)	Special Operations Aviation Regiment (Airborne)
SOFSA	Special Operations Forces Support Activity
SPAWAR	Space and Naval Warfare Systems
TAPO	Technology Applications Program Office
TARDEC	Tank Automotive Research, Development and Engineering Center
USMC	United States Marine Corps
USSOCOM	United States Special Operations Command

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ACRONYMS

Acronym	Full Naming Convention
ADS-B	Automatic Dependent Surveillance-Broadcast
AECV	All Environment Capable Variant
AFSOC	Air Force Special Operations Command
ALGL	Advanced Lightweight Grenade Launcher
AM	Amplitude Modulation
AMN	Airborne Mission Network
APAS	Active Parallel Actuator System
ASE	Aircraft Survivability Equipment
ASIF	All Source Information Fusion
ASOM	Aerial Search Optimization Model
ATD	Advanced Technology Demonstration
ATPIALS	Advanced Tactical Precision Illuminator Aiming Laser System
ATW	Advanced Threat Warning
AvFID	Aviation Foreign Internal Defense
AVS	Air Variant System
BFT	Blue Force Tracking
BLOS	Beyond Line of Site
BNVD	Binocular Night Vision Device
BOI	Basis of Issue
C/CPAF	Cost/Cost Plus Award Fee
C/F&DR	Conditional Fielding and Deployment Release
C/FFP	Cost Plus Firm-Fixed Price
C/PIF	Cost Plus Incentive Fee
C2	Command and Control
C3	Command, Control, and Communications
C4	Command, Control, Communications, and Computer
C4I	Command, Control, Communications, Computers, and Intelligence
CA	Civil Affairs
CAAS	Common Avionics Architecture Systems
CAR	Combat Assault Rifle
CAS	Close Air Support

ACRONYMS

CASEVAC	Casualty Evacuation
CCFLIR	Combatant Craft Forward Looking Infrared Radar
CCH	Combatant Craft - Heavy
CCM	Combatant Craft - Medium
CCME	Combatant Craft Mission Equipment
CDAS	Cognitive Decision Aiding System
CDD	Capability Development Document
CDU	Control Display Units
CERP	Capital Equipment Replacement Program
CESE	Civil Engineering Support Equipment
CFE	Contractor Furnished Equipment
CI	Civil Information
CIED	Counter-Improvised Explosive Device
CIM	Civil Information Management
CIMDPS	Civil Information Management Data Processing System
CMNS	Combat Mission Needs Statement
CMS	Combat Mission Simulators
CNVD	Clip-On Night Vision Device
COP	Common Operational Picture
COTI	Clip-On Thermal Imagers
COTS	Commercial-Off-The-Shelf
CP	Counter-Proliferation
CPD	Capabilities Production Document
CQC	Close Quarter Combat
CSP	Common Sensor Payload
CT	Counter-Terrorism
DAP	Defensive Armed Penetrator
DCGS-SOF	Data Common Ground/Surface System--Special Operations Forces
DCM	Defensive Countermeasures
DCS	Dry Combat Submersible
DCU	Data Concentrator Unit
DDP	Detachment Deployment Packages

ACRONYMS

DDS	Dry Deck Shelter
DRWG	Data Common Ground/Surface System Working Group
DT&E	Development Test and Evaluation
DVE	Degraded Visual Environment
DVEPS	Degraded Visual Environment Piloted System
EA	Evolutionary Acquisition
ECM	Electronic Countermeasures
ECOS	Enhanced Combat Optical Sights
ECP	Engineering Change Proposal
EDM	Engineering Development Model
EGLM	Enhanced Grenade Launcher Module
EMD	Engineering and Manufacturing Development
EO/IR	Electro-Optical Infrared
ESA	Enhanced Situational Awareness
ETI	Evolutionary Technology Insertion
EW	Electronic Warfare
F&DR	Fielding and Deployment Release
FABS	Fly-Away Broadcast System
FCD	Field Computing Devices
FFT	Friendly Force Trackers
FLIR	Forward Looking Infrared Radar
FM	Frequency Modulation
FMBS	Family of Muzzle Brake Suppressors
FMV	Full Motion Video
FMV VDH-L	Full Motion Video Distribution Hub-Light
FOC	Full Operational Capability
FoS	Family of Systems
FRP	Full Rate Production
FSOV	Family of Special Operations Vehicles
FSWS	Family of Sniper Weapon System
FVL	Future Vertical Lift
FW	Fixed Wing

ACRONYMS

FY	Fiscal Year
GATM	Global Air Traffic Management
GCC	Geographical Combatant Commander
GEOINT	Geological Intelligence
GFE	Government Furnished Equipment
GIG	Global Information Grid
GMV	Ground Mobility Vehicle
GOTS	Government-Off-The-Shelf
GPPU	General Purpose Processing Units
GPS	Global Positioning System
GPU	Graphics Processing Unit
GSK	Ground Signals Intelligence Kit
HF	High Frequency
HFIS	Hostile Fire Indicator System
HFTTL	Hostile Forces Tagging, Tracking, and Locating
HHI	Hand Held Imager
HLM	Handheld Laser Marker
HSAC	High Speed Assault Craft
IC	Intelligence Community
IDIQ	Indefinite Delivery/Indefinite Quantity
IDS	Intrusion Detection System
IED	Improvised Explosive Devices
ILS	Integrated Logistics Support
IM	Insensitive Munitions
INOD	Improved Night/Day Observation/Fire Control Device
IOC	Initial Operational Capability
IR	Infrared
IRCM	Infrared Countermeasures
ISP	Integrated Survey Plan
ISR	Intelligence Surveillance and Reconnaissance
ISR&T	Intelligence, Surveillance, Reconnaissance, and Targeting
IT	Information Technology

ACRONYMS

JBS	Joint Base Station
JCID	Joint Capabilities Integration and Development
JCTD	Joint Concept Technology Demonstration
JOS	Joint Operational Stocks
JTCITS	Joint Tactical C4I Information Transceiver System
JTWS	Joint Threat Warning System
JUON	Joint Urgent Operational Need
LAM	Laser Acquisition Marker
LCM	Low Cost Modification
LCS	Load Carriage System
LFT&E	Live Fire Test and Evaluation
LIDAR	Light Detection and Ranging
LOS	Line of Sight
LPI/LPD	Low Probability of Intercept/Low Probability of Detection
LRBS	Long Range Broadcast System
LRIP	Low Rate Initial Production
LRU	Line Replaceable Unit
LSDB	Laser--Small Diameter Bomb
LTATV	Lightweight Tactical All Terrain Vehicle
MAAWS	Multi-Purpose Anti-Armor/Anti-Personnel Weapons System
MALET	Medium Altitude Long Endurance Tactical
MCE	Military Construction Collateral Equipment
MDAP	Major Defense Acquisition Program
MEDVAC	Medical Evacuation
MELB	Mission Enhancement Little Bird
MFD	Multi-Function Display
MFP-11	Major Force Program-11
MG	Machine Gun
MGS	Modular Glove System
MICH	Modular Integrated Communications Helmet
MIP	Military Intelligence Program
MIPR	Military Interdepartmental Purchase Request

ACRONYMS

MISO	Military Information Support Operations
MISOB	Military Information Support Operations Broadcast
MLE	Military Liaison Element
MOC	Media Operations Center
MPC	Media Production Center
MPK	Mission Planning Kits
MPU	Mission Processor Unit
MRAP	Mine Resistant Ambush Protected
MS	Milestone
MSSEP	Mobile SOF Strategic Entry Points
MTPS	Mission Training and Preparation System
MTS-B	Multi-Spectral Targeting System--B
MTUAS	Medium Tactical Unmanned Aerial System
MWS	Missile Warning System
NDAA	National Defense Authorization Act
NDI	Non-Developmental Item
NGFLIR	Next Generation Forward Looking Infrared Radar
NRE	Non-Recurring Engineering
NSAV	Non-Standard Aviation
NSCV	Non-Standard Commercial Vehicle
NSM	Non-Standard Materiel
NSSS	National Systems Support to SOF
NTM	National Technical Means
NVD	Night Vision Devices
OCO	Overseas Contingency Operations
OEM	Original Equipment Manufacturer
OFP	Operational Flight Program
OT	Operational Test
OT&E	Operational Test and Evaluation
P3I	Pre-Planned Product Improvement
PCU	Protective Combat Uniform
PDS	Product Distribution System

ACRONYMS

PE	Program Element
PED	Processing, Exploitation, and Dissemination
PGL	Precision Geo Location
PGM	Precision Guided Munitions
PME	Primary Mission Equipment
PMP	Prime Mission Product
PMT	Program Management
PN	Partner Nation
PRT	Predator Receiver Terminal
PSP	Precision Strike Package
PSR	Precision Sniper Rifle
QL-CBA	Quick-Look Capabilities-Based Assessment
RAMS	Removeable Airborne Military Information Support Operations System
RAV	Restricted Availability
RC-IED	Radio Counter-Improvised Explosive Device
RDT&E	Research, Development, Test, and Evaluation
RF	Radio Frequency
RFCM	Radio Frequency Countermeasures
RIS	Radio Integration System
RIS	Rail Interface Systems
ROH	Routine Overhaul
ROIC	Read Out Integrated Circuit
ROSES	Reduced Optical Signature Emissions Solution
RPG	Rocket Propelled Grenade
RRT	Rapid Reliable Targeting
RSTA	Reconnaissance, Surveillance, and Targeting Acquisition
RW	Rotary Wing
RWR	Radar Warning Receiver
S&T	Science & Technology
SAAF	Stuggart Army Air Field
SAFC	Special Applications for Contingencies
SAFEAIR	Safe Aircraft Recovery

ACRONYMS

SAM	Surface-to-Air Missiles
SAPNET	Special Access Program Network
SATCOM	Satellite Communications
SBIR	Small Business Innovative Research
SBUD	Simulator Block Updates
SCE	Special Communications Enterprise
SCO	SOF Cryptologic Operator
SDB	Small Diameter Bomb
SDN	SOF Deployable Node
SDN-EP	SOF Deployable Node--Extension Packages
SDV	Sea, Air, Land (SEAL) Delivery Vehicle
SEAL	Sea, Air, Land
SEALION	Sea, Air, Land, Insertion Observation Neutralization
SFA	Security Forces Assistance
SFAC	Security Forces Assistance Craft
SGM	Small Glide Munition
SIE	SOF Information Environment
SIGINT	Signals Intelligence
SIRFC	Suite of Integrated Radar Frequency Countermeasures
SKR	Silent Knight Radar
SO	Special Operations
SOCRATES	Special Operations Command, Research, Analysis and Threat Evaluation System
SOF	Special Operations Forces
SOFPREP	Special Operations Forces Planning, Rehearsal, and Execution Preparation
SOMPE	Special Operations Mission Planning Environment
SOPGM	Standoff Precision Guided Munitions
SoS	System of Systems
SOTVS	Special Operations Tactical Video System
SOW	Special Operations Wing
SPCOM	Special Communications Field Segment - Enterprise
SPEAR	SOF Personal Equipment Advanced Requirements
SR	Special Reconnaissance

ACRONYMS

SRTV	Secure Real-Time Video
SSE	Sensitive Site Exploitation
SSR	Sniper Support Rifle
STC	SOF Tactical Communications
STLD	Small Target Location Devices
STOL	Short Take-Off and Landing
STTR	Small Business Technology Transfer
STUAS	Small Tactical Unmanned Aerial Systems
SUAS	Small Unmanned Aircraft System
SW	Shortwave
SWCS	Shallow Water Combat Submersible
SWIR	Short Wave Infrared
TACLAN	Tactical Local Area Network
TAS	Threat Awareness System
TCCC	Tactical Combat Casualty Care
TF/TA	Terrain Following/Terrain Avoidance
TMF	Theater Mission Force
TT	Team Transportable
TTL	Tagging, Tracking and Locating
TV	Television
UAS	Unmanned Aerial System
UAV	Unmanned Aerial Vehicle
UBA	Underwater Breathing Apparatus
UHF	Ultra High Frequency
UI	User Interface
VAS-BM	Visual Augmentation-Binocular-Monocular
VASWA	Visual Augmentation System-Weapons Accessories
VBL	Visible Bright Light
VHF	Very High Frequency
VTC	Video Teleconferencing
WPNAC	Weapons Accessories
WST	Weapons System Trainer

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Exhibit R-2, RDT&E Budget Item Justification: Request for Additional Appropriations 2017 United States Special Operations Command	Date: March 2017
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Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 1160403BB / <i>Aviation Systems</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	579.233	149.337	179.134	163.543	-	163.543	155.919	118.929	79.662	99.885	Continuing	Continuing
SF100: <i>Aviation Systems Advanced Development</i>	534.228	61.627	102.030	91.659	-	91.659	97.816	51.486	22.742	23.197	Continuing	Continuing
SF200: <i>CV-22</i>	2.817	0.176	0.000	15.590	-	15.590	14.259	21.635	4.961	0.000	0.000	59.438
S750: <i>Mission Training and Preparation Systems</i>	4.696	8.141	7.052	7.890	-	7.890	8.181	8.252	8.309	9.408	Continuing	Continuing
S875: <i>AC/MC-130J</i>	9.915	17.874	7.398	7.964	-	7.964	8.650	12.605	24.127	53.408	Continuing	Continuing
D615: <i>Rotary Wing Aviation</i>	27.577	61.519	62.654	40.440	-	40.440	27.013	24.951	19.523	13.872	Continuing	Continuing

Program MDAP/MAIS Code:
Project MDAP/MAIS Code(s): 212

A. Mission Description and Budget Item Justification

Aviation Systems Advanced Development:

This project provides for the development, demonstration, and integration of current and maturing technologies for Special Operations Forces (SOF)-unique aviation and training requirements. Timely application of SOF-unique technology is critical and necessary to meet requirements in such areas as: SOF specific avionics; Low Probability of Intercept/Low Probability of Detection (LPI/LPD) terrain following/terrain avoidance radar; Defensive Countermeasures; Electronic Warfare (EW) - Radio Frequency Countermeasures (RFCM); Precision Strike Package (PSP); AC-130H, AC-130W, and AC-130U Recapitalization, and other SOF airborne platforms; digital terrain elevation data and electronic order of battle; digital maps; enhanced situational awareness; near-real-time Intelligence, Surveillance and Reconnaissance (ISR); data fusion; threat detection and avoidance; navigation, target detection, and identification technologies; weapons integration; digital broadcast capabilities; aerial refueling; survivability and ISR payload technological improvements with size, weight, power and integration onto all SOF ISR platforms.

CV-22 Development:

The CV-22 is a SOF variant of the V-22 vertical medium lift, multi-mission aircraft. The CV-22 project provides long range, high speed, infiltration, exfiltration, and resupply to Special Forces teams in hostile, denied, and politically sensitive areas. This is a capability not currently provided by other existing aircraft. The V-22 Joint Program Office is developing improved capabilities in block increments. The funding in this project supports these block increments as well as associated flight test support. The Block 10 increment was completed in FY 2007, and the Block 20 increment started in FY 2008. Block 20: Design, integrate, test, and validate enhancements required to meet SOF-unique mission requirements and correct deficiencies identified in previous testing. This incremental development will provide improved capabilities to include, but not limited to, more robust performance in situational awareness, ISR, weapons, avionics, survivability, maneuverability, mission deployment and improved reliability and maintainability of the CV platform. CV-22 Terrain Following/Terrain Avoidance (TF/TA) Radar (Silent Knight Radar) program

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Exhibit R-2, RDT&E Budget Item Justification: Request for Additional Appropriations 2017 United States Special Operations Command	Date: March 2017
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Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 1160403BB / <i>Aviation Systems</i>
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provides long-range, night/adverse weather, clandestine penetration of medium-to-high threat areas to infill, exfill, and resupply SOF forces. Provides more sustainable/capable replacement to obsolescing and tech limited terrain following/avoidance radar.

Mission Training and Preparation Systems:

The Special Operations Mission Planning and Execution (SOMPE) project funds the definition, design, development, prototyping, integration, and testing of SOMPE systems to support mission planning, rehearsal, and execution requirements to meet SOF-unique mission requirements and correct deficiencies in current mission planning, rehearsal, and execution capabilities. The Mission Training and Preparation Systems (MTPS) project also includes program management, systems engineering, configuration management, architecture development, risk reduction, and trade study initiatives, as well as initiatives to assure interoperability and commonality between diverse mission planning, rehearsal, and execution systems.

AC/MC-130J:

The AC/MC-130J project funds core SOF-unique modifications to replace aging/retired AC-130H Spectre, AC-130W Stinger II, AC-130U Spooky, MC-130E Combat Talon I, MC-130P Combat Shadow, MC-130H Combat Talon II aircraft. The 8 AC-130H Spectre, 12 AC-130W Stinger II and 17 AC-130U Spooky airframes will be replaced with MC-130J aircraft modified with the PSP to achieve the AC-130J configuration. The AC-130J aircraft will provide close air support, air interdiction, and armed reconnaissance capability. The MC-130J Commando II aircraft perform clandestine or low visibility, single or multi-ship low-level missions intruding politically-sensitive or hostile territories; provide air refueling for special operations helicopters and CV-22 aircraft; and airdrop of leaflets, small special operations teams, resupply bundles and combat rubber raiding craft. Additional capabilities include low-level navigation and in-flight refueling. The Air Force will procure and field basic aircraft, common support equipment, and trainers for USSOCOM. An incremental upgrade approach will be used to incorporate SOF capabilities onto the aircraft and training systems.

Rotary Wing Aviation:

This project develops SOF-unique modifications and upgrades to SOF rotary wing aircraft that operate in increasingly hostile environments. This project also includes modifications to Aircraft Survivability Equipment (ASE) and weapons systems to counter rapidly emerging threats, improve lethality and enhance aircraft self-protection. Rotary wing aircraft supported by this project include: MH-60M, MH-47G, and A/MH-6M. These aircraft provide aviation support to SOF in worldwide contingency operations and low-intensity conflicts. They must be capable of rapid deployment, undetected penetration of hostile areas, and operating at extended ranges under adverse weather conditions to infiltrate, provide logistics for, reinforce, and extract SOF. The threat is characterized by an extensive and sophisticated ground based air defense system and an upgraded air-to-air capability targeted against helicopters.

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Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 1160403BB / <i>Aviation Systems</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	158.733	173.934	133.619	-	133.619
Current President's Budget	149.337	179.134	163.543	-	163.543
Total Adjustments	-9.396	5.200	29.924	-	29.924
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-10.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	7.700			
• Congressional Directed Transfers	-	7.500			
• Reprogrammings	-4.246	-			
• SBIR/STTR Transfer	-5.150	-			
• Other Adjustments	-	0.000	25.524	-	25.524
• FY 2017 Amended Budget Request	-	-	4.400	-	4.400

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

Project: SF100: *Aviation Systems Advanced Development*

Congressional Add: *C-130 Terrain Following (TF) Radar System*

	FY 2015	FY 2016
	-	7.700
Congressional Add Subtotals for Project: SF100	-	7.700
Congressional Add Totals for all Projects	-	7.700

Change Summary Explanation

Funding:

FY 2015: Decrease of \$9.396 million is due to reprogramming to higher command priorities (-\$4.246 million) and a transfer of funds to Small Business Innovative Research/Small Business Technology Transfer programs (-\$5.150 million).

FY 2016: Net increase of \$5.200 million is due to a \$10.000 million Congressional directed reduction to MH-60M Block Upgrades (-\$0.700 million), Future Vertical Lift (-\$0.500 million), Mission Processor Upgrade (-\$2.800 million) and, Electronic Warfare - Radio Frequency Countermeasures (-\$6.000 million); Congressional directed transfer of \$7.500 million to the C-130 Terrain Following Radar, and congressional add of \$7.700 million to the C-130 Terrain Following Radar.

FY 2017: Net increase of \$25.524 million is to continue integration and test of the SOF Common TF radar and modifications to aircraft controls and displays to automate TF/TA flight for the MC-130J (\$37.039 million); define systems requirements, develop initial capabilities document, and conduct system readiness

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Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 1160403BB / <i>Aviation Systems</i>
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review for the CV-22 TF/TA radar (\$15.590 million); design, develop, and test for A/MH-6M aircraft Block 3.0 upgrade (\$5.991 million); develop and test for software applications on tactical mobile devices (\$0.898 million); complete design, develop, and test for degraded visual environment (\$5.000 million); complete development, integration and test of missile warning and lightweight infrared countermeasures for the A/MH-6 aircraft (\$2.498 million), a realignment to higher command priorities (-\$20.878 million), a reduction by the Department to account for prior year execution balances (-\$19.272 million), and a decrease due to Departmental economic adjustments (-\$1.342 million).

FY 2017 AMENDED BUDGET REQUEST JUSTIFICATION: \$4.400 million is required to address emergency warfighting readiness requirements. Research, Development, Test and Evaluation Project D615, Rotary Wing Aviation funding continues research, development, test, and evaluate of new and modified detection and defeat countermeasure systems to improve aircraft survivability capabilities and address emerging threats to SOF rotary wing aircraft.

Schedule: None.

Technical: None.

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Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 1160405BB / <i>Intelligence Systems Development</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	554.286	9.490	6.866	9.858	-	9.858	7.952	7.813	7.953	8.099	Continuing	Continuing
S400: <i>SO Intelligence Systems</i>	554.286	9.490	6.866	9.858	-	9.858	7.952	7.813	7.953	8.099	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element is part of the Military Intelligence Program (MIP) that provides for the identification, development, and testing of Special Operations Forces (SOF) intelligence equipment to identify and eliminate deficiencies in providing timely intelligence to deployed forces. Sub-projects address the primary areas of intelligence dissemination, sensor systems, tagging, tracking, and locating devices, integrated threat warning to SOF mission platforms, and tactical exploitation of national system capabilities. USSOCOM has developed an overall strategy to ensure that Command, Control, Communications, Computers, and Intelligence (C4I) systems continue to provide SOF with the required capabilities into the 21st century. USSOCOM's C4I systems comprise an integrated network of systems providing positive command and control and timely exchange of intelligence and threat warning to all organizational echelons. The C4I systems that support this new architecture employ the latest standards and technology by transitioning from separate systems to full integration with the Global Information Grid (GIG). The GIG allows SOF elements to operate with any force combination in multiple environments.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	9.490	6.866	6.969	-	6.969
Current President's Budget	9.490	6.866	9.858	-	9.858
Total Adjustments	0.000	0.000	2.889	-	2.889
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments	-	-	0.989	-	0.989
• FY 2017 Amended Budget Request	-	-	1.900	-	1.900

Change Summary Explanation

Funding:

FY 2015: None.

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Exhibit R-2, RDT&E Budget Item Justification: Request for Additional Appropriations 2017 United States Special Operations Command		Date: March 2017
Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 1160405BB / <i>Intelligence Systems Development</i>	
FY 2016: None.		
FY 2017: Net increase of \$0.989 million funds Joint Threat Warning System's (\$0.889 million) Air, Ground Signal Intelligence Kit, Maritime and Unmanned Air System variants' development to address emerging threats with evolutionary technology insertions and developmental and operational testing. The Special Operations Forces Planning, Rehearsal and Execution Preparation (SOFPREP) program (\$0.160 million) will fund test and evaluation of operational prototype systems to speed production of enhanced Geospatial Intelligence (GEOINT) and high-resolution 3D terrain databases, and a decrease for Departmental economic assumption (-\$0.060 million).		
FY 2017 AMENDED BUDGET REQUEST JUSTIFICATION: \$1.900 million is required to address emergency warfighting readiness requirements.		
- MQ-1C systems have a marginally effective signals Intelligence (SIGINT) capability. This effort will organize and integrate disparate SIGINT payloads and processing systems into a cohesive system and develop the means for the Gray Eagle flight crews to view SIGINT output from their platforms (and other assets) in their collateral Ground Control Stations. Funding will develop and integrate a SIGINT Geolocation National Security Agency network and classified network cross-domain reporting system (\$1.400 million).		
- This effort will develop an infrared (IR), National Geospatial-Intelligence Agency-validated Electronic Optical (EO) capability, that will allow 24/7 day/night Full-Motion Video precision targeting from MQ-1C Gray Eagle, PUMA and other Unmanned Aerial System platforms. Funding will develop, integrate and test an IR precision targeting software variant for EO imagery (\$0.500 million).		
Schedule: None.		
Technical: None.		

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Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 1160408BB / <i>Operational Enhancements</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	1,174.948	78.627	63.008	90.895	-	90.895	69.973	70.457	75.400	79.150	Continuing	Continuing
S500A: <i>Operational Enhancements</i>	1,174.948	78.627	63.008	90.895	-	90.895	69.973	70.457	75.400	79.150	Continuing	Continuing

A. Mission Description and Budget Item Justification

Details are provided under separate cover.

B. Program Change Summary (\$ in Millions)

	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>
Previous President's Budget	81.253	63.008	61.153	-	61.153
Current President's Budget	78.627	63.008	90.895	-	90.895
Total Adjustments	-2.626	0.000	29.742	-	29.742
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-2.626	-			
• Other Adjustments	-	-	3.742	-	3.742
• FY 2017 Amended Budget Request	-	-	26.000	-	26.000

Change Summary Explanation

Funding:

FY2015: Decrease of \$2.626 million is due to a transfer of funds to Small Business Innovative Research/Small Business Technology Transfer program.

FY2016: None.

FY2017: Net Increase of \$3.742 million is due to a Departmental economic assumption decrease (-\$0.488M) and a programmatic increase of \$4.230 million available under separate cover.

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Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 1160408BB / <i>Operational Enhancements</i>
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FY 2017 AMENDED BUDGET REQUEST JUSTIFICATION: \$26.000 million is required to address emergency warfighting readiness requirements. Details available under separate cover.

Schedule: None.

Technical: None.

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Exhibit R-2, RDT&E Budget Item Justification: Request for Additional Appropriations 2017 United States Special Operations Command	Date: March 2017
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Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	15.391	19.906	33.842	45.285	-	45.285	29.581	24.200	46.735	48.759	Continuing	Continuing
D476: <i>Military Information Support Operations</i>	2.177	3.566	6.430	4.711	-	4.711	3.489	1.087	1.109	1.131	Continuing	Continuing
S375: <i>Weapons Systems</i>	0.565	0.000	1.494	1.481	-	1.481	1.480	1.474	1.475	1.505	Continuing	Continuing
S385: <i>Soldier Protection and Survival Systems</i>	2.195	2.471	2.649	2.977	-	2.977	2.352	2.849	22.668	27.676	Continuing	Continuing
S385A: <i>Body Armor and Associated Equipment</i>	1.750	1.909	1.354	1.339	-	1.339	1.289	1.289	1.636	1.669	Continuing	Continuing
S395: <i>Visual Augmentation, Lasers and Sensor Systems</i>	0.000	1.422	2.189	1.482	-	1.482	1.517	1.546	1.575	1.602	Continuing	Continuing
S700: <i>Communications Equipment and Electronics Systems</i>	3.264	4.098	5.740	9.373	-	9.373	7.864	8.003	9.484	9.664	Continuing	Continuing
S710: <i>Tactical Systems Development</i>	0.243	0.930	0.868	2.640	-	2.640	2.416	2.523	3.031	3.083	Continuing	Continuing
S725: <i>Tactical Radio Systems</i>	1.811	4.777	2.170	3.884	-	3.884	3.683	4.892	5.219	1.880	Continuing	Continuing
S800: <i>Munitions Advanced Development</i>	3.386	0.733	10.948	17.398	-	17.398	5.491	0.537	0.538	0.549	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element provides for development, testing and integration of specialized equipment in the areas of automation, communication, radio, weapon, soldier protection and survival, visual augmentation, lasers and sensors, munition and military information support operations (MISO) systems. Warrior Systems specialized equipment will permit small, highly trained forces to conduct required operations across the entire spectrum of conflict. SOF must infiltrate by land, sea, and air to conduct unconventional warfare, direct action, or deep reconnaissance operations in denied areas against insurgent units, terrorists, or highly sophisticated threat forces. The requirement to operate in denied areas controlled by a sophisticated threat mandates that SOF systems remain technologically superior to threat forces to ensure mission success. The efforts within this PE improve SOF warfighting capabilities by continuing efforts to develop smaller, lighter, more efficient and more robust capabilities. The SOF mission mandates that SOF systems remain technologically superior to any threat to provide a maximum degree of survivability while, generally, being conducted in harsh environments for unspecified periods and in locations requiring small unit autonomy. Communications efforts will maintain a Command, Control, and Communications (C3) link between SOF Commanders and SOF Teams, and provide interoperability with all Services, various agencies of the U.S.

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Exhibit R-2, RDT&E Budget Item Justification: Request for Additional Appropriations 2017 United States Special Operations Command		Date: March 2017
Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	
<p>Government, Air Traffic Control, commercial agencies and allied foreign forces. Efforts relating to soldier protection and survival requirements will improve survivability and mobility of SOF while conducting varied missions. Specialized visual augmentation, lasers and sensors will permit small, highly trained forces to conduct required operations across the entire spectrum of conflict. Munition efforts include advanced engineering operational system development and qualification efforts related to SOF-peculiar munitions and equipment. Additionally, MISO efforts include planned operations to convey selected information and indicators to foreign audiences to influence their emotions, motives, objective reasoning, and ultimately, the behavior of foreign governments, organizations, groups and individuals.</p> <p>MISO: This project provides for the development, test and integration of MISO equipment. MISO are planned operations to convey selected information and indicators to foreign audiences to influence their emotions, motives, objective reasoning, and ultimately, the behavior of foreign governments, organizations, groups, and individuals. This project funds transformational systems and equipment to conduct the seven phase MISO process (planning, targeting audience analysis, series development, product development and design, approval, production/distribution/dissemination, and measures of effectiveness) in support of combatant commanders.</p> <p>Weapons Systems: This project provides for next generation system development and pre-planned product improvements (P3I), testing, and integration of specialized weapon systems and weapon accessories to meet the unique requirements of SOF. Efforts include muzzle brakes and suppressors, and P3I for assault, sniper, and crew served weapons leveraging the latest technological advances to achieve overmatch capability against emerging threats.</p> <p>Soldier Protection and Survival Systems: This project provides for development, testing, and integration of specialized equipment to meet the unique soldier protection and survival requirements of SOF. Specialized equipment will improve survivability and mobility of SOF while conducting varied missions. Current efforts include, but are not limited to counter-improvised explosive device system development and testing to meet continually emerging Counter RC-IED threats.</p> <p>Body Armor and Associated Equipment: This project provides specialized equipment with ballistic protection to meet the unique soldier protection and survival requirements of SOF. Specialized ballistic equipment improves survivability and load bearing equipment impacting the mobility of SOF while conducting varied missions. This project enhances the SOF Personal Equipment Advanced Requirements program by providing for the research, development, and testing of body armor plates, soft armor, helmets, eye protection, and other personal protective equipment to meet current ballistic threats that exist on the battlefield.</p> <p>Visual Augmentation, Lasers and Sensor Systems: This project provides for development, testing, and integration of specialized visual augmentation, laser and sensor systems equipment to meet the unique requirements of SOF. Programs in this area include binocular/monocular devices and visual augmentation to include next generation laser designation and geo-location systems.</p> <p>Communications Equipment and Electronics Systems:</p>		

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<p>This project provides for communication systems to meet emergent requirements to support SOF. SOF units require communications equipment that improves their warfighting capability without degrading their mobility. Therefore, SOF Communications Equipment and Electronics is a continuing effort to develop smaller, lighter, more efficient and more robust SOF Command, Control, Communications, and Computer (C4) capabilities.</p> <p>Tactical Systems Development: This project provides for development, testing, and integration of specialized automation equipment to meet the unique requirements of SOF. Tactical systems provide forward deployed forces with advanced networking, automated data processing, storage, and display capabilities to support situational awareness, mission planning and execution, and command and control (C2) of forces.</p> <p>Tactical Radio Systems: This project is for development of all SOF tactical radio programs. SOF units require radio communication equipment that improves their warfighting capability without degrading their mobility. United States Special Operations Command (USSOCOM) has developed an overall strategy to ensure that Tactical Radio Systems continue to provide SOF with the required capabilities throughout the 21st century. SOF Tactical Radios provide the critical C3 link between SOF Commanders and SOF Teams involved in operational missions and training exercises. They also provide interoperability with all Services, various agencies of the U.S. Government, Air Traffic Control, commercial agencies, and allied/coalition forces. Tactical Radios rapidly and seamlessly establish and maintain mobile and fixed (C2) communications between infiltrated/operational elements and higher echelon headquarters, allowing SOF to operate with any force combination in multiple environments.</p> <p>Munitions Development: This project provides for the advanced engineering, operational system development, and qualification efforts related to SOF-peculiar and Foreign/Non-standard munitions and equipment. Funding supports development of Insensitive Munitions (IM) technology and evaluation, in accordance with statutory requirement set forth in U.S. Code, Title 10, Chapter 141, Section 2389 (December 2001). Testing is in accordance with the USSOCOM IM Strategic Plan. Funding also supports efforts to develop and improve Stand-Off Precision Guided Munitions (SOPGM), including the development and integration of improved warheads, seeker, guidance navigation and control systems, operational flight software and missile delivery to meet SOF requirements.</p>		

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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	20.573	25.342	20.243	-	20.243
Current President's Budget	19.906	33.842	45.285	-	45.285
Total Adjustments	-0.667	8.500	25.042	-	25.042
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-2.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	10.500			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.667	-			
• Other Adjustments	0.000	0.000	24.642	-	24.642
• FY 2017 Amended Budget Request	-	-	0.400	-	0.400

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

Project: S800: *Munitions Advanced Development*

Congressional Add: *Stand-Off Precision Guided Munitions (SOPGM)*

	FY 2015	FY 2016
	-	10.500
Congressional Add Subtotals for Project: S800	-	10.500
Congressional Add Totals for all Projects	-	10.500

Change Summary Explanation

Funding:

FY 2015: Decrease of \$0.667 million is due to a transfer of funds to Small Business Innovative Research/Small Business Technology Transfer programs.

FY 2016: Net Increase of \$8.500 million is due to a congressional add that supports the integration and testing of service-common munitions on SOF-unique platforms within the Stand-Off Guided Munitions (SOPGM) program (\$10.500 million) and Congressional Directed Reductions in Military Information Support Operations (-\$0.180 million), Soldier Protection and Survival Systems (-\$0.249 million), Body Armor and Associated Equipment (-\$0.193 million), Visual Augmentation, Lasers and Sensor Systems (-\$0.144 million), Communications Equipment and Electronics (-\$0.612 million), Tactical Systems Development (-\$0.100 million), Tactical Radio Systems (-\$0.448 million), and Advanced Munitions Development (-\$0.074 million).

FY 2017: Net Increase of \$24.642 million supports SDBII Missile integration into the SOPGM program (\$17.000 million), STC evolutionary technology insertions for radio equipment (\$2.148 million), new civil affairs technologies in the CIM program (\$1.847 million), advanced SDN encoding methods (\$1.330 million),

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systems integration efforts in the TACLN program (\$1.330 million), a realignment of \$0.750 million to support testing of the VAS program, \$0.500 million to support development of electronic warfare/electronic countermeasures for systems in the RC-CIED program, \$0.073 million that continues development and testing of new capability in BFT equipment, and a program decrease for economic assumptions (-0.336 million).

FY 2017 AMENDED BUDGET REQUEST JUSTIFICATION: \$0.400 million is required to address emergency warfighting readiness requirements. This effort continues to ensure the ability to defeat current and emerging threat systems. Project S385 Soldier Protection and Survival Systems funding provides for development and test of various defeat solutions.

Schedule: None.

Technical: None.

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