

UNCLASSIFIED

Exhibit P-40, Budget Item Justification Sheet: PB 2014 Army			Date: April 2013
Appropriation / Budget Activity / Budget Sub Activity:		P-1 Line Item Nomenclature:	
2033A: Procurement of W&TCV, Army / BA 02: Weapons and Other Combat Vehicles / BSA 10: Weapons & Other Combat Vehicles		G01700 - Howitzer Lt Wt 155mm (T)	
ID Code (A=Service Ready, B=Not Service Ready) : A	Program Elements for Code B Items:		Other Related Program Elements:

MDAP/MAIS Code(s):

Resource Summary	Prior Years	FY 2012	FY 2013 [#]	FY 2014 Base	FY 2014 OCO ^{##}	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	1,224.395	13.066	13.827	-	-	-	-	-	-	-	Continuing	Continuing
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P1) (\$ in Millions)	1,224.395	13.066	13.827	-	-	-	-	-	-	-	Continuing	Continuing
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	1,224.395	13.066	13.827	-	-	-	-	-	-	-	Continuing	Continuing

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (Units in Thousands)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (Units in Thousands)	-	-	-	-	-	-	-	-	-	-	-	-

[#] FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

^{##} The FY 2014 OCO Request will be submitted at a later date

Description:

The Lightweight 155mm Howitzer (LW155), also known as the M777A2, provides direct, reinforcing, and general support fires to maneuver forces. It replaces all howitzers in all missions in the USMC and replaces the M198 howitzer as the general support artillery for light forces in the Army. The LW155 fires unassisted projectiles to a range of 15 miles and assisted projectiles to 19 miles. The addition of the digital fire control system enables the weapon to program and fire the improved Excalibur precision-guided munition to ranges in excess of 25 miles with better than 10-meter Circular Error Probable (CEP) accuracy. The LW155 is the first ground combat system whose major structures are made of high strength titanium alloy and the system makes extensive use of hydraulics to operate the breach, load tray, recoil and wheel arms. The combination of titanium structures and the use of hydraulic systems resulted in a significant weight savings over the M198 system (>7000 lbs.). Compared to the M198, the LW155 replaces three-times faster and displaces four-times faster. It traverses 32 percent more terrain worldwide and is 70 percent more survivable than the M198. The LW155 is the cannon fire support for the Army's Stryker Brigade Combat Teams (SBCT) and is capable of firing the 155mm Excalibur Precision Munition and the Precision Guidance Kit when available.

Secondary Distribution		FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018
Army	Quantity	-	-	-	-	-	-	-	-	-
	Total Obligation Authority	7.705	8.221	-	-	-	-	-	-	-
ANG	Quantity	-	-	-	-	-	-	-	-	-
	Total Obligation Authority	5.361	5.606	-	-	-	-	-	-	-

UNCLASSIFIED

Exhibit P-40, Budget Item Justification Sheet: PB 2014 Army										Date: April 2013										
Appropriation / Budget Activity / Budget Sub Activity: 2033A: Procurement of W&TCV, Army / BA 02: Weapons and Other Combat Vehicles / BSA 10: Weapons & Other Combat Vehicles										P-1 Line Item Nomenclature: G01700 - Howitzer Lt Wt 155mm (T)										
ID Code (A=Service Ready, B=Not Service Ready) : A					Program Elements for Code B Items:					Other Related Program Elements:										
MDAP/MAIS Code(s):																				
Item Schedule			Prior Years			FY 2012			FY 2013			FY 2014 Base			FY 2014 OCO			FY 2014 Total		
Item Nomenclature*	Exhibits	ID CD	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)
G01700 - Howitzer Lt Wt 155mm (T)	P5, P5A, P21	A	-	-	1,224.395	-	-	13.066	-	-	13.827	-	-	-	-	-	-	-	-	-
Total Gross/Weapon System Cost					1,224.395			13.066			13.827			-			-			-
Item Schedule			FY 2015			FY 2016			FY 2017			FY 2018			To Complete			Total		
Item Nomenclature*	Exhibits	ID CD	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)
G01700 - Howitzer Lt Wt 155mm (T)	P5, P5A, P21	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Gross/Weapon System Cost					-			-			-			-			-			-
*Item Nomenclature represents Item Number, DODIC, and Item Name for the P40A and P5; Name for the P18 and P23; Modification Number and Modification Title for the P3A; Item Number and Item Name for the P10.																				
Note: Totals in this Exhibit P-40 set may not be exact or add due to rounding.																				

Justification:
No FY 2014 funding.

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2014 Army					Date: April 2013												
Appropriation / Budget Activity / Budget Sub Activity:					P-1 Line Item Nomenclature:												
2033A: Procurement of W&TCV, Army / BA 02: Weapons and Other Combat Vehicles / BSA 10: Weapons & Other Combat Vehicles					G01700 - Howitzer Lt Wt 155mm (T)												
Resource Summary					Prior Years	FY 2012	FY 2013 [#]	FY 2014 Base	FY 2014 OCO ^{##}	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	To Complete	Total	
Procurement Quantity (Units in Each)					-	-	-	-	-	-	-	-	-	-	-	-	
Gross/Weapon System Cost (\$ in Millions)					1,224.395	13.066	13.827	-	-	-	-	-	-	-	Continuing	Continuing	
Less PY Advance Procurement (\$ in Millions)					-	-	-	-	-	-	-	-	-	-	-	-	
Net Procurement (P1) (\$ in Millions)					1,224.395	13.066	13.827	-	-	-	-	-	-	-	Continuing	Continuing	
Plus CY Advance Procurement (\$ in Millions)					-	-	-	-	-	-	-	-	-	-	-	-	
Total Obligation Authority (\$ in Millions)					1,224.395	13.066	13.827	-	-	-	-	-	-	-	Continuing	Continuing	
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)																	
Initial Spares (\$ in Millions)					-	-	-	-	-	-	-	-	-	-	-	-	
Gross/Weapon System Unit Cost (Units in Thousands)					-	-	-	-	-	-	-	-	-	-	-	-	
# FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012																	
## The FY 2014 OCO Request will be submitted at a later date																	
Cost Elements († indicates the presence of a P-SA)	All Prior Years			FY 2012			FY 2013			FY 2014 Base			FY 2014 OCO			FY 2014 Total	
	ID CD	Unit Cost (\$ K)	Quantity (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Quantity (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Quantity (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Quantity (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Quantity (Each)	Total Cost (\$ M)	
Flyaway Cost																	
Recurring Cost																	
System Engineering / Program Management		-	-	24.453	-	-	3.066	-	-	-	-	-	-	-	-	-	
Interim Contractor Support (ICS)/FSR/NET		-	-	12.000	-	-	10.000	-	-	-	-	-	-	-	-	-	
† BAE Lightweight 155mm Howitzer		1,900.000	531	1,008.937	-	-	-	-	-	-	-	-	-	-	-	-	
Total Recurring Cost				1,045.390			13.066						13.827			-	
Total Flyaway Cost				1,045.390			13.066						13.827			-	
Gross Weapon System Cost				1,224.395			13.066						13.827			-	
Cost Elements († indicates the presence of a P-SA)	FY 2015			FY 2016			FY 2017			FY 2018			To Complete			Total Cost	
	ID CD	Unit Cost (\$ K)	Quantity (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Quantity (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Quantity (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Quantity (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Quantity (Each)	Total Cost (\$ M)	
Flyaway Cost																	
Recurring Cost																	

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2014 Army										Date: April 2013									
Appropriation / Budget Activity / Budget Sub Activity: 2033A: Procurement of W&TCV, Army / BA 02: Weapons and Other Combat Vehicles / BSA 10: Weapons & Other Combat Vehicles					P-1 Line Item Nomenclature: G01700 - Howitzer Lt Wt 155mm (T)					Item Nomenclature (Item Number - Item Name, DODIC): G01700 - Howitzer Lt Wt 155mm (T)									
Cost Elements († indicates the presence of a P-SA)	ID CD	FY 2015			FY 2016			FY 2017			FY 2018			To Complete			Total Cost		
		Unit Cost (\$ K)	Quantity (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Quantity (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Quantity (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Quantity (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Quantity (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Quantity (Each)	Total Cost (\$ M)
System Engineering / Program Management		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Interim Contractor Support (ICS)/FSR/NET		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
† BAE Lightweight 155mm Howitzer		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Recurring Cost				-			-			-			-			-			-
Total Flyaway Cost				-			-			-			-			-			-
Gross Weapon System Cost				-			-			-			-			-			-
																		Continuing	Continuing

P-5 Remarks:

Secondary Distribution		FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018
Army	Quantity	-	-	-	-	-	-	-	-	-
	Total Obligation Authority	7.705	8.221	-	-	-	-	-	-	-
ANG	Quantity	-	-	-	-	-	-	-	-	-
	Total Obligation Authority	5.361	5.606	-	-	-	-	-	-	-

UNCLASSIFIED

Exhibit P-5A, Budget Procurement History and Planning: PB 2014 Army										Date: April 2013			
Appropriation / Budget Activity / Budget Sub Activity: 2033A: Procurement of W&TCV, Army / BA 02: Weapons and Other Combat Vehicles / BSA 10: Weapons & Other Combat Vehicles					P-1 Line Item Nomenclature: G01700 - Howitzer Lt Wt 155mm (T)					Item Nomenclature: G01700 - Howitzer Lt Wt 155mm (T)			
Cost Elements <small>(† indicates the presence of a P-21)</small>	O C O	FY	Contractor and Location	Method/Type, or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <small>(Each)</small>	Unit Cost <small>(\$ K)</small>	Specs Avail Now?	Date Revsn Avail	RFP Issue Date	
†BAE Lightweight 155mm Howitzer		2011	BAE SYSTEMS / Barrow-in-Furness	SS / FFP	Picatinny Arsenal, NJ	Dec 2010	Dec 2012	14	2,350,000				

Exhibit P-21, Budget Production Schedule: PB 2014 Army		Date: April 2013
Appropriation / Budget Activity / Budget Sub Activity: 2033A: Procurement of W&TCV, Army / BA 02: Weapons and Other Combat Vehicles / BSA 10: Weapons & Other Combat Vehicles	P-1 Line Item Nomenclature: G01700 - Howitzer Lt Wt 155mm (T)	Item Nomenclature: G01700 - Howitzer Lt Wt 155mm (T)

[illegible]

UNCLASSIFIED

Exhibit P-21, Budget Production Schedule: PB 2014 Army										Date: April 2013																									
Appropriation / Budget Activity / Budget Sub Activity:										P-1 Line Item Nomenclature:																									
2033A: Procurement of W&TCV, Army / BA 02: Weapons and Other Combat Vehicles / BSA 10: Weapons & Other Combat Vehicles										G01700 - Howitzer Lt Wt 155mm (T)																									
G01700 - Howitzer Lt Wt 155mm (T)										G01700 - Howitzer Lt Wt 155mm (T)																									
Cost Elements (Units in Each)										Fiscal Year 2014																									
M O C O #	F Y	S E R V I C E ¹	P R O C Q T Y	A C C E P T O 1 O C T 2 0 1 2	B A L D U E A S O F 1 O C T 1 0 0 1	Calendar Year 2013										Calendar Year 2014																			
						O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P						
BAE Lightweight 155mm Howitzer																																			
1	2011	ARMY	14	-	14	-	-	2	5	5	2	-																							
1	2011	♦ MC	22	-	22	-	-	2	5	5	8	2																							
1	2011	TOTAL	36	-	36	-	-	4	10	10	10	2																							
						O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P						

Exhibit P-21, Budget Production Schedule: PB 2014 Army		Date: April 2013
Appropriation / Budget Activity / Budget Sub Activity: 2033A: Procurement of W&TCV, Army / BA 02: Weapons and Other Combat Vehicles / BSA 10: Weapons & Other Combat Vehicles	P-1 Line Item Nomenclature: G01700 - Howitzer Lt Wt 155mm (T)	Item Nomenclature: G01700 - Howitzer Lt Wt 155mm (T)

		Production Rates (Each / Month)			Procurement Leadtime (Months)							
MFR #	MFR Name - Location	MSR	1-8-5	MAX	Initial			Reorder				
					ALT Prior to Oct 1	ALT After Oct 1	Mfg PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Mfg PLT	Total After Oct 1
1	BAE SYSTEMS - Barrow-in-Furness	8.00	10.00	14.00	-	1	11	12	-	3	24	27

Current Authorized Allowance: effective 31 May 2011 the Army Acquisition Objective was increased to 542.

± Delivery rows marked with the ♦ symbol indicate that they are funded through a separate Line Item. See the respective components' exhibits for details, including the full delivery schedule.

"A" in the Delivery Schedule indicated the Contract Award Date.

Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to 99,999, all quantities are shown as each. If the maximum quantity is between 100,000 and 99,999,499 all quantities are shown in thousands (rounded to the nearest thousand). If the maximum quantity is greater than 99,999,499 all quantities are shown in millions (rounded to the nearest million).

UNCLASSIFIED

Exhibit P-40, Budget Item Justification Sheet: PB 2014 Army		Date: April 2013
Appropriation / Budget Activity / Budget Sub Activity: 2033A: Procurement of W&TCV, Army / BA 02: Weapons and Other Combat Vehicles / BSA 20: Mod Of Weapons And Other Combat Veh		P-1 Line Item Nomenclature: GZ1700 - M777 Mods
ID Code (A=Service Ready, B=Not Service Ready) : A	Program Elements for Code B Items:	
MDAP/MAIS Code(s):		
Other Related Program Elements:		

Resource Summary	Prior Years	FY 2012	FY 2013 [#]	FY 2014 Base	FY 2014 OCO ^{##}	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	-	-	26.843	39.300	-	39.300	8.612	-	-	-	-	74.755
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P1) (\$ in Millions)	-	-	26.843	39.300	-	39.300	8.612	-	-	-	-	74.755
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	-	-	26.843	39.300	-	39.300	8.612	-	-	-	-	74.755

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (Units in Thousands)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (Units in Thousands)	-	-	-	-	-	-	-	-	-	-	-	-

[#] FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

^{##} The FY 2014 OCO Request will be submitted at a later date

Description:

The LW155 (M777A2 howitzer) provides direct, reinforcing, and general artillery fire support to maneuver forces. The Army has fielded the M777A2 to their Stryker Brigade Combat Teams, Fires Brigades and the National Guard. The Army will begin fielding Infantry Brigade Combat Teams starting in FY14. The Marine Corp has fielded to all active and reserve units. The M777A2 is capable of firing the 155MM Excalibur Precision-Guided munitions now, and will be capable of firing the Precision Guidance Kit when available. It is a joint program between the Marine Corps and Army with additional Foreign Military Sales purchases from Canada and Australia. It is an excellent example of a successful joint service program with the Marine Corps. The M777A2 is seeing significant action in Afghanistan and has received very high marks for its performance. With the conclusion of the M777A2 US production in November 2013, the program will enter into the Sustainment Phase of its life cycle.

Secondary Distribution		FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018
Army	Quantity	-	-	-	-	-	-	-	-	-
	Total Obligation Authority	-	23.610	32.475	-	32.475	6.375	-	-	-
ANG	Quantity	-	-	-	-	-	-	-	-	-
	Total Obligation Authority	-	3.233	6.825	-	6.825	2.237	-	-	-

UNCLASSIFIED

Exhibit P-40, Budget Item Justification Sheet: PB 2014 Army										Date: April 2013										
Appropriation / Budget Activity / Budget Sub Activity: 2033A: Procurement of W&TCV, Army / BA 02: Weapons and Other Combat Vehicles / BSA 20: Mod Of Weapons And Other Combat Veh						P-1 Line Item Nomenclature: GZ1700 - M777 Mods														
ID Code (A=Service Ready, B=Not Service Ready) : A				Program Elements for Code B Items:				Other Related Program Elements:												
MDAP/MAIS Code(s):																				
Item Schedule			Prior Years			FY 2012			FY 2013			FY 2014 Base			FY 2014 OCO			FY 2014 Total		
Item Nomenclature*	Exhibits	ID CD	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)
0000 - Digital Fire Control Obsolescence	P3A		-	-	-	-	-	-	-	-	26.843	-	-	39.300	-	-	-	-	-	39.300
Total Gross/Weapon System Cost					-			-			26.843			39.300			-			39.300
Item Schedule			FY 2015			FY 2016			FY 2017			FY 2018			To Complete			Total		
Item Nomenclature*	Exhibits	ID CD	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)
0000 - Digital Fire Control Obsolescence	P3A		-	-	8.612	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.755
Total Gross/Weapon System Cost					8.612			-			-			-			-			74.755
*Item Nomenclature represents Item Number, DODIC, and Item Name for the P40A and P5; Name for the P18 and P23; Modification Number and Modification Title for the P3A; Item Number and Item Name for the P10.																				
Note: Totals in this Exhibit P-40 set may not be exact or add due to rounding																				

*Item Nomenclature represents Item Number, DODIC, and Item Name for the P40A and P5; Name for the P18 and P23; Modification Number and Modification Title for the P3A; Item Number and Item Name for the P10.

Note: Totals in this Exhibit P-40 set may not be exact or add due to rounding.

Justification:

FY 2014 Base Appropriations in the amount of \$39,300 million supports refresh and modernization activities for the Digital Fire Control System (DFCS). Digital Fire Control provides each M777A2 Howitzer with onboard navigation, pointing, ballistic computations and digital communication with Fire Direction Center. This provides each howitzer equipped with Digital Fire Control greater autonomy and survivability through significantly reduced time for gun emplacement and increased speed and efficiency in mission execution. The Digital Fire Control System is comprised of numerous electronic components and associated hardware which requires periodic hardware and software upgrades to preclude obsolescence issues. The technologies in these components are over twelve years old and contain parts that are no longer supported. Funding will replace hardware components with state-of-the-art replacements providing long-term continued operations for the M777A2 fleet.

Funding will also support field retrofits of previously contracted Engineering Change Proposals for the Improved Power Conditioning Control Module (I-PCCM), Electronic Thermal Warning Device (ETWD), Hydraulic Power Assist Kit (HyPAK), Muzzle Velocity Sensor System (MVSS) and Primer Feed Mechanism (PFM) Components. The PFM and ETWD retrofits are critical to addressing current field restrictions for firing the Modular Artillery Charge System (MACS) at extended ranges. Priority will be to the units deploying then to those first fielded, utilizing reset and overhaul opportunities as appropriate. Funding will also provide approved performance based life cycle sustainment strategy as well as field service representatives for all howitzers.

Funding will continue to support fielding of Computer Based Training (CBT) and Computer Aided Instruction (CAI) products. System complexity increases significantly during FY 2014 as a result of planned increased software capability. CBT and CAI products will greatly increase proficiency, safety and mission fire accuracy and are supported by Army and USMC.

UNCLASSIFIED

Exhibit P-3A, Individual Modification: PB 2014 Army					Date: April 2013							
Appropriation / Budget Activity / Budget Sub Activity: 2033A: Procurement of W&TCV, Army / BA 02: Weapons and Other Combat Vehicles / BSA 20: Mod Of Weapons And Other Combat Veh			P-1 Line Item Nomenclature: GZ1700 - M777 Mods			Modification Nomenclature (Modification Number - Modification Title): 0000 - Digital Fire Control Obsolescence						
Models of Systems Affected: 0000			Type Modification: 0000			Related RDT&E PEs:						
Resource Summary	Prior Years	FY 2012	FY 2013 [#]	FY 2014 Base	FY 2014 OCO ^{##}	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	-	-	26.843	39.300	-	39.300	8.612	-	-	-	-	74.755
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P1) (\$ in Millions)	-	-	26.843	39.300	-	39.300	8.612	-	-	-	-	74.755
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	-	-	26.843	39.300	-	39.300	8.612	-	-	-	-	74.755
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (Units in Thousands)	-	-	-	-	-	-	-	-	-	-	-	-

[#] FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

^{##} The FY 2014 OCO Request will be submitted at a later date

Description:

Funding supports the refresh of the Digital Fire Control System (DFCS) components for 488 M777A2 Howitzers, to address obsolescence issues. The technology used to develop the Digital Fire Control System is now over 12 years old with numerous electronic components in production since 2002 experiencing sub-component obsolescence events over the past several years. It is critical to identify, qualify and procure various DFCS components prior to the current system becoming unsupportable. Funding will address capability enhancements required by the user community to ensure continued interoperability using a combination of engineering change proposals and the acquisition of hardware.

UNCLASSIFIED

Exhibit P-3A, Individual Modification: PB 2014 Army										Date: April 2013					
Appropriation / Budget Activity / Budget Sub Activity: 2033A: Procurement of W&TCV, Army / BA 02: Weapons and Other Combat Vehicles / BSA 20: Mod Of Weapons And Other Combat Veh				P-1 Line Item Nomenclature: GZ1700 - M777 Mods				Modification Nomenclature (Modification Number - Modification Title): 0000 - Digital Fire Control Obsolescence							
Models of Systems Affected: 0000				Type Modification: 0000		Related RDT&E PEs:									
Financial Plan				Prior Years	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	To Complete	Total
				Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)
Procurement															
Hardware Obsolescence															
A Kits															
Non-Recurring															
DFCS Components				0 / 0.000	- / -	418 / 17.100	70 / 2.863	- / -	70 / 2.863	- / -	- / -	- / -	- / -	- / -	488 / 19.963
Engineering Change Proposal				0 / 0.000	- / -	- / -	- / 0.678	- / -	- / 0.678	- / -	- / -	- / -	- / -	- / -	- / 0.678
Subtotal Non-Recurring				0 / 0.000	- / -	418 / 17.100	70 / 3.541	- / -	70 / 3.541	- / -	- / -	- / -	- / -	- / -	488 / 20.641
Total, Hardware Obsolescence				0 / 0.000	- / -	418 / 17.100	70 / 3.541	- / -	70 / 3.541	- / -	- / -	- / -	- / -	- / -	488 / 20.641
Modernization in Service															
A Kits															
Non-Recurring															
Enhanced Power Pack				0 / 0.000	- / -	418 / 8.400	70 / 1.406	- / -	70 / 1.406	- / -	- / -	- / -	- / -	- / -	488 / 9.806
Engineering Change Proposal				0 / 0.000	- / -	- / -	- / 0.777	- / -	- / 0.777	- / -	- / -	- / -	- / -	- / -	- / 0.777
Subtotal Non-Recurring				0 / 0.000	- / -	418 / 8.400	70 / 2.183	- / -	70 / 2.183	- / -	- / -	- / -	- / -	- / -	488 / 10.563
Total, Modernization in Service				0 / 0.000	- / -	418 / 8.400	70 / 2.183	- / -	70 / 2.183	- / -	- / -	- / -	- / -	- / -	488 / 10.563
Interoperability - Communication															
A Kits															
Non-Recurring															
Engineering Change Proposal				0 / 0.000	- / -	418 / 1.343	70 / 0.225	- / -	70 / 0.225	- / -	- / -	- / -	- / -	- / -	488 / 1.568
Electronic Communication Components				0 / 0.000	- / -	- / -	488 / 11.487	- / -	488 / 11.487	- / -	- / -	- / -	- / -	- / -	488 / 11.487
Subtotal Non-Recurring				0 / 0.000	- / -	418 / 1.343	558 / 11.712	- / -	558 / 11.712	- / -	- / -	- / -	- / -	- / -	976 / 13.055
Total, Interoperability - Communication				0 / 0.000	- / -	418 / 1.343	558 / 11.712	- / -	558 / 11.712	- / -	- / -	- / -	- / -	- / -	976 / 13.055
Performance Based Life Cycle															
A Kits															
Recurring															
Interim Contractor Support				0 / 0.000	- / -	- / -	- / 9.014	- / -	- / 9.014	- / -	- / -	- / -	- / -	- / -	- / 9.014
Systems Engineering				0 / 0.000	- / -	- / -	- / 2.656	- / -	- / 2.656	- / -	- / -	- / -	- / -	- / -	- / 2.656
Subtotal Recurring				0 / 0.000	- / -	- / -	- / 11.670	- / -	- / 11.670	- / -	- / -	- / -	- / -	- / -	- / 11.670
Total, Performance Based Life Cycle				0 / 0.000	- / -	- / -	- / 11.670	- / -	- / 11.670	- / -	- / -	- / -	- / -	- / -	- / 11.670
Field Retrofit Activities															
A Kits															

UNCLASSIFIED

Exhibit P-3A, Individual Modification: PB 2014 Army				Date: April 2013								
Appropriation / Budget Activity / Budget Sub Activity:		P-1 Line Item Nomenclature:				Modification Nomenclature						
2033A: Procurement of W&TCV, Army / BA 02: Weapons and Other Combat Vehicles / BSA 20: Mod Of Weapons And Other Combat Veh		GZ1700 - M777 Mods				(Modification Number - Modification Title): 0000 - Digital Fire Control Obsolescence						
Models of Systems Affected: 0000		Type Modification: 0000				Related RDT&E PEs:						
Financial Plan	Prior Years	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	To Complete	Total
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)
Recurring												
Retrofit Activities	0 / 0.000	- / -	- / -	- / 5.909	- / -	- / 5.909	- / 6.713	- / -	- / -	- / -	- / -	- / 12.622
Engineering Change Orders	0 / 0.000	- / -	- / -	- / 2.443	- / -	- / 2.443	- / -	- / -	- / -	- / -	- / -	- / 2.443
Subtotal Recurring	0 / 0.000	- / -	- / -	- / 8.352	- / -	- / 8.352	- / 6.713	- / -	- / -	- / -	- / -	- / 15.065
Total, Field Retrofit Activities	0 / 0.000	- / -	- / -	- / 8.352	- / -	- / 8.352	- / 6.713	- / -	- / -	- / -	- / -	- / 15.065
Training Aides, Devices, Simulators												
A Kits												
Recurring												
Software Engineering	0 / 0.000	- / -	- / -	- / 1.842	- / -	- / 1.842	- / 1.899	- / -	- / -	- / -	- / -	- / 3.741
Subtotal Recurring	0 / 0.000	- / -	- / -	- / 1.842	- / -	- / 1.842	- / 1.899	- / -	- / -	- / -	- / -	- / 3.741
Total, Training Aides, Devices, Simulators	0 / 0.000	- / -	- / -	- / 1.842	- / -	- / 1.842	- / 1.899	- / -	- / -	- / -	- / -	- / 3.741
Total Procurement, All Modifications	0 / 0.000	- / -	1,254 / 26.843	698 / 39.300	- / -	698 / 39.300	- / 8.612	- / -	- / -	- / -	- / -	1,952 / 74.755
Total Procurement and Support	0.000	-	26.843	39.300	-	39.300	8.612	-	-	-	-	74.755
Hardware Obsolescence Installation Cost	0 / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Modernization in Service Installation Cost	0 / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Interoperability - Communication Installation Cost	0 / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Performance Based Life Cycle Installation Cost	0 / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Field Retrofit Activities Installation Cost	0 / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Training Aides, Devices, Simulators Installation Cost	0 / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total Installation Cost	0 / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total Cost (Procurement + Support + Installation)	0.000	-	26.843	39.300	-	39.300	8.612	-	-	-	-	74.755

UNCLASSIFIED

Exhibit P-3A, Individual Modification: PB 2014 Army			Date: April 2013		
Appropriation / Budget Activity / Budget Sub Activity: 2033A: Procurement of W&TCV, Army / BA 02: Weapons and Other Combat Vehicles / BSA 20: Mod Of Weapons And Other Combat Veh		P-1 Line Item Nomenclature: GZ1700 - M777 Mods		Modification Nomenclature (<i>Modification Number - Modification Title</i>): 0000 - Digital Fire Control Obsolescence	
Models of Systems Affected: 0000			Type Modification: 0000		
Related RDT&E PEs:					
Manufacturer Information: Hardware Obsolescence					
Manufacturer Name: Various		Manufacturer Location: Various			
Administrative Leadtime (<i>in Months</i>):		Production Leadtime (<i>in Months</i>):			
Dates	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
Contract Dates					
Delivery Dates					

Installation: Hardware Obsolescence		Method of Implementation: Digital Fire Control Component Hardware procurement and Engineering Change Proposals										Installation Name:				
Installation Cost	Prior Years	FY 2012	FY 2013	FY 2014	FY 2014	FY 2014	FY 2014	FY 2014	FY 2014	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	To Complete	Total
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Base Qty (Each) / Total Cost (\$ M)	OCO Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)
All Prior Years	0 / 0.000	0 / 0.000	0 / 0.000	0 / 0.000	0 / 0.000	- / -	- / -	- / -	- / -	0 / 0.000	0 / 0.000	0 / 0.000	0 / 0.000	0 / 0.000	0 / 0.000	0 / 0.000
FY 2012	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2013	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2014	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2015	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2016	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2017	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2018	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	0 / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -

Installation Schedule																														
	FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				TC	Tot
	APY	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4					
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

UNCLASSIFIED

[illegible][illegible][illegible]

UNCLASSIFIED

Exhibit P-3A, Individual Modification: PB 2014 Army					Date: April 2013	
Appropriation / Budget Activity / Budget Sub Activity: 2033A: Procurement of W&TCV, Army / BA 02: Weapons and Other Combat Vehicles / BSA 20: Mod Of Weapons And Other Combat Veh		P-1 Line Item Nomenclature: GZ1700 - M777 Mods			Modification Nomenclature (<i>Modification Number - Modification Title</i>): 0000 - Digital Fire Control Obsolescence	
Models of Systems Affected: 0000		Type Modification: 0000			Related RDT&E PEs:	
Manufacturer Information: Interoperability - Communication						
Manufacturer Name: Various		Manufacturer Location: Various				
Administrative Leadtime (<i>in Months</i>):		Production Leadtime (<i>in Months</i>):				
Dates	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Contract Dates						
Delivery Dates						

[illegible][illegible]

UNCLASSIFIED

Exhibit P-3A, Individual Modification: PB 2014 Army							Date: April 2013
Appropriation / Budget Activity / Budget Sub Activity:		P-1 Line Item Nomenclature:			Modification Nomenclature		
2033A: Procurement of W&TCV, Army / BA 02: Weapons and Other Combat Vehicles / BSA 20: Mod Of Weapons And Other Combat Veh		GZ1700 - M777 Mods			(Modification Number - Modification Title): 0000 - Digital Fire Control Obsolescence		
Models of Systems Affected: 0000		Type Modification: 0000		Related RDT&E PEs:			
Manufacturer Information: Performance Based Life Cycle							
Manufacturer Name: N/A						Manufacturer Location: N/A	
Administrative Leadtime (<i>in Months</i>):						Production Leadtime (<i>in Months</i>):	
Dates	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
Contract Dates							
Delivery Dates							

[illegible][illegible]

UNCLASSIFIED

Exhibit P-3A, Individual Modification: PB 2014 Army				Date: April 2013																																							
Appropriation / Budget Activity / Budget Sub Activity: 2033A: Procurement of W&TCV, Army / BA 02: Weapons and Other Combat Vehicles / BSA 20: Mod Of Weapons And Other Combat Veh				P-1 Line Item Nomenclature: GZ1700 - M777 Mods				Modification Nomenclature (<i>Modification Number - Modification Title</i>): 0000 - Digital Fire Control Obsolescence																																			
Models of Systems Affected: 0000				Type Modification: 0000				Related RDT&E PEs:																																			
Manufacturer Information: Field Retrofit Activities																																											
Manufacturer Name: N/A								Manufacturer Location: N/A																																			
Administrative Leadtime (<i>in Months</i>):								Production Leadtime (<i>in Months</i>):																																			
Dates		FY 2012		FY 2013		FY 2014		FY 2015		FY 2016		FY 2017		FY 2018																													
Contract Dates																																											
Delivery Dates																																											
Installation: Field Retrofit Activities				Method of Implementation: MIPR to ARDEC and Contract Options																																							
				Prior Years				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				To Complete							
Installation Cost				Qty (Each) / Total Cost (\$ M)				Qty (Each) / Total Cost (\$ M)				Qty (Each) / Total Cost (\$ M)				Qty (Each) / Total Cost (\$ M)				Qty (Each) / Total Cost (\$ M)				Qty (Each) / Total Cost (\$ M)				Qty (Each) / Total Cost (\$ M)				Qty (Each) / Total Cost (\$ M)				Qty (Each) / Total Cost (\$ M)							
All Prior Years				0 / 0.000				0 / 0.000				0 / 0.000				0 / 0.000				0 / 0.000				0 / 0.000				0 / 0.000				0 / 0.000				0 / 0.000							
FY 2012				- / -				- / -				- / -				- / -				- / -				- / -				- / -				- / -				- / -							
FY 2013				- / -				- / -				- / -				- / -				- / -				- / -				- / -				- / -				- / -							
FY 2014				- / -				- / -				- / -				- / -				- / -				- / -				- / -				- / -				- / -							
FY 2015				- / -				- / -				- / -				- / -				- / -				- / -				- / -				- / -				- / -							
FY 2016				- / -				- / -				- / -				- / -				- / -				- / -				- / -				- / -				- / -							
FY 2017				- / -				- / -				- / -				- / -				- / -				- / -				- / -				- / -				- / -							
FY 2018				- / -				- / -				- / -				- / -				- / -				- / -				- / -				- / -				- / -							
To Complete				- / -				- / -				- / -				- / -				- / -				- / -				- / -				- / -				- / -							
Total				0 / 0.000				- / -				- / -				- / -				- / -				- / -				- / -				- / -				- / -							
Installation Schedule																																											
				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018															
APY				1 2 3 4				1 2 3 4				1 2 3 4				1 2 3 4				1 2 3 4				1 2 3 4				1 2 3 4				1 2 3 4				1 2 3 4							
In				-				-				-				-				-				-				-				-				-				-			
Out				-				-				-				-				-				-				-				-				-				-			

UNCLASSIFIED

Exhibit P-3A, Individual Modification: PB 2014 Army				Date: April 2013																																							
Appropriation / Budget Activity / Budget Sub Activity: 2033A: Procurement of W&TCV, Army / BA 02: Weapons and Other Combat Vehicles / BSA 20: Mod Of Weapons And Other Combat Veh				P-1 Line Item Nomenclature: GZ1700 - M777 Mods				Modification Nomenclature (<i>Modification Number - Modification Title</i>): 0000 - Digital Fire Control Obsolescence																																			
Models of Systems Affected: 0000				Type Modification: 0000				Related RDT&E PEs:																																			
Manufacturer Information: Training Aides, Devices, Simulators																																											
Manufacturer Name: N/A								Manufacturer Location: N/A																																			
Administrative Leadtime (<i>in Months</i>):								Production Leadtime (<i>in Months</i>):																																			
Dates		FY 2012		FY 2013		FY 2014		FY 2015		FY 2016		FY 2017		FY 2018																													
Contract Dates																																											
Delivery Dates																																											
Installation: Training Aides, Devices, Simulators				Method of Implementation: MIPR to ARDEC, Software Engineering																																							
				Prior Years				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				To Complete							
Installation Cost				Qty (Each) / Total Cost (\$ M)				Qty (Each) / Total Cost (\$ M)				Qty (Each) / Total Cost (\$ M)				Qty (Each) / Total Cost (\$ M)				Qty (Each) / Total Cost (\$ M)				Qty (Each) / Total Cost (\$ M)				Qty (Each) / Total Cost (\$ M)				Qty (Each) / Total Cost (\$ M)				Qty (Each) / Total Cost (\$ M)							
All Prior Years				0 / 0.000				0 / 0.000				0 / 0.000				0 / 0.000				0 / 0.000				0 / 0.000				0 / 0.000				0 / 0.000				0 / 0.000							
FY 2012				- / -				- / -				- / -				- / -				- / -				- / -				- / -				- / -				- / -							
FY 2013				- / -				- / -				- / -				- / -				- / -				- / -				- / -				- / -				- / -							
FY 2014				- / -				- / -				- / -				- / -				- / -				- / -				- / -				- / -				- / -							
FY 2015				- / -				- / -				- / -				- / -				- / -				- / -				- / -				- / -				- / -							
FY 2016				- / -				- / -				- / -				- / -				- / -				- / -				- / -				- / -				- / -							
FY 2017				- / -				- / -				- / -				- / -				- / -				- / -				- / -				- / -				- / -							
FY 2018				- / -				- / -				- / -				- / -				- / -				- / -				- / -				- / -				- / -							
To Complete				- / -				- / -				- / -				- / -				- / -				- / -				- / -				- / -				- / -							
Total				0 / 0.000				- / -				- / -				- / -				- / -				- / -				- / -				- / -				- / -							
Installation Schedule																																											
				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018															
APY				1 2 3 4				1 2 3 4				1 2 3 4				1 2 3 4				1 2 3 4				1 2 3 4				1 2 3 4				1 2 3 4				1 2 3 4							
In				-				-				-				-				-				-				-				-				-				-			
Out				-				-				-				-				-				-				-				-				-				-			