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REPORT TO THE CONGRESS 095849

~~74-0364~~



Status Of Selected  
Major Weapon Systems B-163058

Department of Defense

BY THE COMPTROLLER GENERAL  
OF THE UNITED STATES

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MAY 31, 1974



COMPTROLLER GENERAL OF THE UNITED STATES  
WASHINGTON, D.C. 20548

B-163058

To the Speaker of the House of Representatives  
and the President of the Senate

This is our third semiannual report to the Congress on the status of selected major weapon systems being acquired by the Department of Defense (DOD). All cost and schedule data included in this report was extracted from the selected acquisition report (SAR) released by DOD. We have not audited or verified the data. With few exceptions, when it was necessary to supplement performance data by reviewing other sources, all performance data was also extracted from SAR.

Systems are periodically added to and deleted from SAR on the basis of recommendations from the services or the Office of the Secretary of Defense and/or interest expressed by the Congress or GAO. This report details the net cost changes reported on 55 major weapon systems between June 30 and December 31, 1973. The report also lists systems which have reported schedule slippages of 12 months or more in the planned delivery dates as of December 31, 1973, and those systems which, in our opinion, have experienced significant changes in planned performance. Schedule and performance data had not been included in our first two reports.

We made our review pursuant to the Budget and Accounting Act, 1921 (31 U.S.C. 53), and the Accounting and Auditing Act of 1950 (31 U.S.C. 67).

We are sending copies of this report to the Director, Office of Management and Budget; the Secretary of Defense; and the Secretaries of the Army, Navy, and Air Force.

Acting Comptroller General  
of the United States

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### ABBREVIATIONS

GAO	General Accounting Office
OSD	Office of the Secretary of Defense
RDT&E	research, development, test, and evaluation
SAR	selected acquisition report

## STATUS OF SELECTED MAJOR WEAPON SYSTEMS

In 1969 the Congress asked us to report periodically on the progress and status of various system acquisitions. This review was directed to compiling data on reported changes to the estimated costs of 55 major weapon systems on the selected acquisition report (SAR) during the 6 months ended December 31, 1973. For the 6 months there was a net increase of \$7,016.1 million in estimated costs for these systems.

In addition, we have included schedule data for 24 systems that are 12 months or more behind the planned schedule for delivery of the first increment and performance data on 15 systems in which, in our opinion, significant improvements and/or reductions in planned performance are occurring. We have not audited or verified the cost, schedule, and performance data in SAR.

Appendix I provides details on the cost changes that occurred between June 30 and December 31, 1973. Appendix II shows the cost data appearing on the December 31, 1973, SAR. Appendix III shows changes in program quantities and unit costs between the planning and development estimates and the current estimate at December 31, 1973. Appendix IV lists systems which have reported schedule slippages of 12 months or more in the planned delivery dates and systems in which, in our opinion, significant improvements or reductions in planned performance were occurring as of December 31, 1973.

ANALYSIS OF CHANGE IN CURRENT ESTIMATES  
FROM JUNE 30 TO DECEMBER 31, 1973

An analysis of cost changes on 55 weapon systems on SAR during the 6 months ended December 31, 1973, is shown in the table below. There has been a net increase in total cost of \$7,016.1 million. The Office of the Secretary of Defense (OSD) has established categories of the cause of cost variances for use on SAR, and weapons program managers quantify the impact of the causes on each program. Quantity changes accounted for a net decrease of \$167.2 million, and other changes, such as engineering, schedule, economic, and revisions in estimates in the 55 programs, have amounted to a net increase of about \$7,183.3 million.

<u>Type of change</u>	<u>Army</u>	<u>Navy</u>	<u>Air Force</u>	<u>Change during period</u>
	(millions)			
Total quantity decrease --net	\$ <u>132.9</u>	\$ <u>-529.4</u>	\$ <u>229.3</u>	\$ <u>-167.2</u>
Other changes:				
Engineering	88.5	628.6	1,018.0	1,735.1
Support	38.2	-114.0	63.3	-12.5
Schedule	116.3	38.9	1,270.9	1,426.1
Economic	1,471.3	239.5	792.1	2,502.9
Estimating	-134.5	-273.5	756.0	348.0
Sundry	<u>-.3</u>	<u><sup>a</sup>1,045.8</u>	<u>138.2</u>	<u>1,183.7</u>
Total	<u>1,579.5</u>	<u>1,565.3</u>	<u>4,038.5</u>	<u>7,183.3</u>
Total	<u>\$1,712.4</u>	<u>\$1,035.9</u>	<u>\$4,267.8</u>	<u>\$7,016.1</u>
Number of systems	15	27	13	55

<sup>a</sup>Includes changes in the development estimate baseline of \$243 million for the F-14A and \$538.6 million for the TRIDENT program. These changes were not specifically identified to cost change category in SAR.

## APPENDIX I

ESTIMATED COST DATA COMPARISON FROM  
JUNE 30 TO DECEMBER 31, 1973

Number of systems (note a)	Planning estimate	Development estimate	Cost change (note b)		Current estimate
			Quantity decrease(-)	Other	
(millions)					
Army (13)	\$14,527.3	\$ 15,625.2	\$ -1,445.0	\$ 3,026.4	\$ 17,206.6
Navy (27)	45,702.7	53,719.5	735.9	7,608.3	62,063.7
Air Force (11)	<u>29,028.4</u>	<u>36,687.0</u>	<u>-2,863.4</u>	<u>9,201.0</u>	<u>43,024.6</u>
Total at 6-30-73 (51)	<u>\$89,258.4</u>	<u>\$106,031.7</u>	<u>\$ -3,572.5</u>	<u>\$19,835.7</u>	<u>\$122,294.9</u>
Army (13)	\$14,527.3	\$ 15,625.2	\$ -1,312.1	\$ 4,022.1	\$ 18,335.2
Navy (27)	46,241.3	54,501.1	206.5	8,392.0	63,099.6
Air Force (11)	<u>29,028.4</u>	<u>36,687.0</u>	<u>-2,634.1</u>	<u>13,303.9</u>	<u>47,356.8</u>
Total at 12-31-73 (51)	<u>\$89,797.0</u>	<u>\$106,813.3</u>	<u>\$ -3,739.7</u>	<u>\$25,718.0</u>	<u>\$128,791.6</u>
Difference for 51 systems	<u>\$ 538.6</u>	<u>\$ 781.6</u>	<u>\$ - 167.2</u>	<u>\$ 5,882.3</u>	<u>\$ 6,496.7</u>
Add changes in current estimate for:					
Systems added to SAR(2)			-	583.8	583.8
Systems deleted from SAR (2)				<u>-64.4</u>	<u>-64.4</u>
Changes in current estimate for 55 systems	<u>\$ 538.6</u>	<u>\$ 781.6</u>	<u>\$ - 167.2</u>	<u>\$ 6,401.7</u>	<u>\$ 7,016.1</u>

<sup>a</sup>The total number of systems on SAR from June 30 to December 31, 1973, was 55. There were 51 systems on SAR at both June 30 and December 31. Two Air Force systems--C-5A and MINUTEMAN II--were deleted from SAR as of September 30, 1973. Two Army systems--AAH and the XM1 Tank--were added to SAR for the first time as of September 30, 1973.

<sup>b</sup>These cost changes represent total change for each system from the time a development estimate is established--generally the time a development contract is awarded for a system--through the current estimate, or the date of SAR--in this case December 31, 1973.

Following is a summary by military service of cost changes during the 6 months ended December 31, 1973, for 55 major weapon systems as reported on SAR.

ARMY NET INCREASE OF \$1,712.4 MILLION:

IMPROVED HAWK MISSILE:

Increase of \$56.8 million:

Primarily the result of the procurement of additional improved platoon command posts and missile training aids, revision of the product improvement program and the electronic countermeasures program, the inclusion of the modification-validation flight test program and the 10-missile flight test program, and the impact of applying OSD inflation indexes and a cost increase over target cost on the missile contract, offset by adjustment of prior year programs, correction of error in previous report, and the deletion of modification kit installation costs.

LANCE MISSILE:

Increase of \$3.6 million:

Primarily the result of the application of the new OSD escalation indexes, an adjustment to initial spares costs, and practice missile additions and deletions.

SAFEGUARD BALLISTIC MISSILE DEFENSE SYSTEM:

Decrease of \$65 million:

Primarily the result of revised and refined program estimates.

SAM-D SURFACE TO AIR MISSILE SYSTEM:

Increase of \$417.9 million:

Primarily the result of applying new OSD escalation indexes, offset by a decrease in the research, development, test, and evaluation (RDT&E) program reflecting a more austere program.

APPENDIX I

SCOUT VEHICLE:

Increase of \$18 million:

Result of applying new OSD escalation indexes and of civilian pay increases.

UTTAS HELICOPTER:

Increase of \$349.9 million:

Result of the application of new OSD escalation indexes, a change in procurement profile to provide for low rate initial production, additional reliability and maintainability testing funds for fiscal year 1977, and a reduction in forecast of cost growth.

HLH HELICOPTER:

Increase of \$62.1 million:

Result of applying new OSD escalation indexes and providing for a second prototype and endurance tests.

MICV VEHICLE:

Increase of \$29.4 million:

Primarily the result of the application of new OSD escalation indexes, an update of the procurement estimate, and allowance for engineering change orders.

AAH HELICOPTER:

Increase of \$189.7 million:

Result of applying new OSD escalation indexes.

XM-1 TANK:

Increase of \$394.1 million:

Primarily the result of applying new OSD escalation indexes.

DRAGON MISSILE:

Increase of \$81.8 million:

Primarily due to an increase in quantities and the application of economic escalation indexes, offset by a refinement of estimates.

TOW MISSILE:

Increase of \$127.6 million:

Result of the application of revised escalation indexes; quantity increases in missiles, launchers, and night sights; and related support costs.

TACFIRE (TACTICAL FIRE DIRECTION SYSTEM):

Increase of \$7.4 million:

Result of applying revised escalation indexes.

STINGER MISSILE:

Increase of \$39.1 million:

Result of applying revised escalation indexes and changing to the development concept paper procurement plan from the proposed advanced procurement plan.

NAVY NET INCREASE OF \$1,035.9 MILLION:

MARK-48 TORPEDO:

Decrease of \$39 million:

Primarily the result of refining estimates and reprogramming actions.

SSN-688 SUBMARINE:

Decrease of \$1,281.9 million:

Primarily the result of a program quantity reduction of seven submarines, offset by an increase in military construction estimates for dredging and pier utilities at Norfolk.

APPENDIX I

AEGIS ADVANCED SURFACE MISSILE SYSTEM:

Increase of \$65.2 million:

Result of reorienting the AEGIS engineering development effort to conform to the planned shipbuilding program.

DLGN-38 SHIP:

Increase of \$532.4 million:

Result of increasing the ships from three to five and increasing outfit and postdelivery costs.

SPARROW F MISSILE:

Increase of \$243.3 million:

Primarily the result of a quantity increase, revised delivery schedules, design simplification, increased development effort in improved seeker, economic escalation, and increased peculiar support requirement based on increased quantities.

POSEIDON MISSILE:

Decrease of \$1.1 million:

Net result of reducing the quantity of missiles and refining estimates, offset by increases associated with the POSEIDON modification program and the inclusion of fiscal year 1979 support costs in the program.

CONDOR MISSILE:

Decrease of \$127.4 million:

Primarily the result of a quantity reduction and related reductions in tooling and production engineering and economic escalation, offset by an increase in development cost for the active radar seeker.

CVAN-68 CLASS AIRCRAFT CARRIER:

Increase of \$36.1 million:

Primarily the result of revised program estimates; the additional cost growth of the shipbuilding contract; and engineering changes due to changes in requirements, technological advances, and service experience since 1967.

A-7E AIRCRAFT:

Decrease of \$228.8 million:

Primarily the net result of a repricing of procurements from fiscal years 1974-79, an overall realignment and reduction of quantities from the program, and related support cost changes.

PHOENIX MISSILE:

Increase of \$6 million:

Primarily the net result of an increase in quantity and related support costs, offset by a rephasing of the production schedule.

S-3A AIRCRAFT:

Decrease of \$53.7 million:

Primarily the net result of a reduction in quantity, a refinement of estimates, and a spares transfer, offset by provisions for the HARPOON missile, flight simulators, and ADP software.

E-2C AIRCRAFT:

Increase of \$106.4 million:

Result of a quantity increase and related increases in military construction, initial spares, and support costs.

HARRIER AIRCRAFT:

Decrease of \$11.5 million:

Primarily the result of a decrease in aircraft and spares repricing and the deletion of the inertial navigation and attack system.

LHA SHIP:

Increase of \$6.1 million:

Reflects (1) an increase in the estimated costs for developing and conducting the contractor-furnished training course and (2) an adjustment to overall estimates for escalation in accordance with the latest Bureau of Labor Statistics Indices.

APPENDIX I

P-3C AIRCRAFT:

Increase of \$198.4 million:

Primarily the result of a quantity increase, the reestimation of program costs, the updating of engineering improvements, increases for support costs, and a decrease for initial spares.

DD-963 SHIP:

Increase of \$272.4 million:

Primarily the result of an OSD-directed increase in the contract estimate for anticipated contract reset cost growth and economic changes.

AN/BQQ-5 SONAR:

Decrease of \$45.5 million:

Primarily the net result of (1) a quantity reduction caused by the deletion of seven SSN-688 submarines and (2) delays in the AN/BQQ-5 inplant test program.

HARPOON MISSILE:

Decrease of \$62.9 million:

Net result of a reduction in quantity and a realignment of initial spares and fleet support costs, offset by an increase in engineering estimates for design phase testing.

SIDEWINDER AIM-9L MISSILE:

Decrease of \$6.1 million:

Result of repricing guidance control sections, reassessing procurement support requirements, and decreasing initial spares.

EA-6B AIRCRAFT:

Increase of \$150.2 million:

Primarily the result of an increase in the quantity of aircraft, engineering modifications for tactical jamming system, and additional support requirements.

VAST(VERSATILE AVIONICS SHOP TEST SYSTEM) :

Increase of \$32.4 million:

Primarily the result of a quantity increase and related engineering, economic, and support costs.

PF SHIP:

Increase of \$238.3 million:

Result of the application of OSD escalation indexes to the program, a refined breakdown of ship displacement and other characteristics changes, adjusted projections of the level of productivity to be expected at follow yards, and a schedule delay in ship deliveries.

PHM SHIP:

Increase of \$29.4 million:

Primarily the result of an increase in (1) ships' displacement as a result of redistribution of weights and (2) the Government-furnished equipment estimate, reflecting a substitution of armament systems on production ships.

CH-53E HELICOPTER:

Decrease of \$16.6 million:

Primarily the result of a spares funding policy change.

PHALANX ANTI-SHIP-MISSILE DEFENSE SYSTEM:

Increase of \$96.7 million:

Result of (1) increases reflecting the expected incorporation of increased capability improvements, (2) inflation due to retaining the program in the research and development phase and (3) the reprogramming of funds, offset by a realignment of cost estimates for procurement support and a refinement of estimates for initial spares.

APPENDIX I

F-14A AIRCRAFT:

Increase of \$358.5 million:

Primarily the result of the reinsertion of the F-14B RDT&E funds on SAR at the request of the Congress and the increase in the quantity of aircraft for fiscal year 1977 and related support costs, offset by a decrease in the F-401 engine development cost, a decrease attributed to migration of costs of certain initial spares to replenishment spares, other reprogramming action, and refinement of estimates.

TRIDENT UNDERSEA STRATEGIC MISSILE SYSTEM:

Increase of \$538.6 million:

Primarily the result of restructuring the shipbuilding rate and adjustment of the estimate to reflect stretchout of program funding, improved definition of missile program, and revision and refinement of estimates.

AIR FORCE NET INCREASE OF \$4,267.8 MILLION:

AWACS (AIRBORNE WARNING AND CONTROL SYSTEM):

Increase of \$91.6 million:

Primarily the result of increases in engineering changes for avionics, schedule extensions, and revised estimates, offset by a reduction in quantity and related support costs.

F-5E AIRCRAFT:

Increase of \$1.2 million:

The net result of the impact of the engine delay, new fatigue test requirements, funding of test centers, transfer of estimated costs of the F-5F limited definition study to the F-5F program, and the reprogramming of initial spares.

MAVERICK MISSILE:

Increase of \$92 million:

Primarily the result of an increase in the quantity of missiles and in related support costs, a revision of escalation estimates, and a decrease in engineering change estimates and initial spares.

F-111 AIRCRAFT:

Increase of \$192.2 million:

Primarily the result of the fiscal year 1974 buy of 12 aircraft and related changes for initial spares.

SRAM MISSILE:

Decrease of \$21.1 million:

Result of fiscal year 1974 contract negotiations, the Government's share of additional fiscal year 1972 contract underruns, and a decrease in initial spares estimates.

F-15 AIRCRAFT:

Increase of \$1,439 million:

Primarily the result of a decreased production rate, the extension of the production schedule, and the use of revised estimating factors.

A-10 AIRCRAFT:

Increase of \$31.2 million:

Net result of the restructuring research and development program to accommodate congressional funding reduction, the cost of slipping the procurement program 4 months because of deletion of fiscal year 1974 long lead funds, congressional-directed flyoff with A-7D, and a congressional-directed increase in RDT&E for engine component improvement program, offset by a revision in cost estimating methodology and recomputation of initial spares and peculiar support equipment.

## APPENDIX I

### MINUTEMAN III MISSILE:

Increase of \$756.4 million:

Primarily the result of a number of engineering changes to the program, a quantity increase, and schedule and support cost changes.

### A-7D AIRCRAFT:

Increase of \$69.1 million:

Result of an increase for quantity and support costs offset by a refinement of program estimates.

### AABNCP (ADVANCED AIRBORNE COMMAND POST):

Increase of \$8.4 million:

Result of modification of aircraft and escalation of construction costs caused by the deletion of funds for fiscal year 1974.

### C-5A AIRCRAFT:

Decrease of \$62.8 million:

Resulted from such events as the follow-on test fatigue article being approved in the modification account, deletion of the associated requirement for funds to test existing fatigue article, and the settlement of claims at lower than expected values. The C-5A was dropped from SAR as of September 30, 1973.

### MINUTEMAN II MISSILE:

Decrease of \$1.6 million:

Net result of adjustments to estimates for air vehicle, data and force modernization, aerospace ground equipment, training equipment, and initial spares. The MINUTEMAN II was dropped from SAR as of September 30, 1973.

B-1 AIRCRAFT:

Increase of \$1,672.2 million:

Primarily the net result of design refinement and incorporation of engineering change orders; impact of fiscal year 1974 funding reduction and unanticipated escalation; schedule changes resulting from program rephasing; revised estimates for program development tasks; defensive integration; and system, engine, and avionics contracts.

## APPENDIX II

## PROGRAM COST DATA APPEARING ON DECEMBER 31, 1973, SAR

System	Planning estimate	Development estimate	Cost change		Current estimate
			Quantity decrease(-) (millions)	Other	
Army (13):					
IMPROVED HAWK	\$ 335.5	\$ 588.2	\$ -105.1	\$ 347.4	\$ 830.5
LANCE	586.7	652.9	131.9	140.2	925.0
TOW	410.4	727.3	-107.5	333.1	952.9
DRAGON	382.2	404.2	4.9	232.8	641.9
SAFEGUARD					
(notes a and b)	4,185.0	4,185.0	-767.0	1,985.0	5,403.0
SAM-D	4,916.8	5,240.5	-433.7	92.9	4,899.7
M60A2	162.1	205.6	- 45.3	246.5	406.8
SCOUT (note b)	244.6	244.6	-	17.7	262.3
TACFIRE	123.6	160.5	31.7	87.8	280.0
UTTAS (note b)	2,307.3	2,307.3	- 22.0	390.3	2,675.6
HLH (note b)	189.9	189.9	-	62.1	252.0
MICV	209.4	245.4	-	36.2	281.6
STINGER (note b)	473.8	473.8	-	50.1	523.9
	14,527.3	15,625.2	-1,312.1	4,022.1	18,335.2
New systems added (2):					
AAH (note b)	1,800.2	1,800.2	-	200.9	2,001.1
XMI TANK (note b)	3,005.4	3,005.4		394.9	3,400.3
Total	<u>\$19,332.9</u>	<u>\$20,430.8</u>	<u>\$-1,312.1</u>	<u>\$4,617.9</u>	<u>\$23,736.6</u>

<u>System</u>	<u>Planning estimate</u>	<u>Development estimate</u>	<u>Cost change</u>		<u>Current estimate</u>
			<u>Quantity decrease(-)</u>	<u>Other</u>	
(millions)					
Navy (27):					
MARK-48	\$ 720.5	\$ 1,753.8	\$ -498.4	\$ 204.9	\$ 1,460.3
F-14A (note c)	6,166.0	6,166.0	-883.9	1,070.8	6,352.9
SSN-688	1,658.0	5,747.5	718.2	556.3	7,022.0
AEGIS	388.0	427.6	-	121.7	549.3
DLGN-38 (note d)	769.2	820.4	515.4	31.0	1,366.8
SPARROW F					
(note e)	151.5	707.7	-130.3	752.6	1,330.0
POSEIDON					
(note b)	4,568.7	4,568.7	-206.1	419.0	4,781.6
CONDOR	356.3	441.0	-216.5	171.5	396.0
EA-6B	689.7	817.7	296.0	537.4	1,651.1
CVAN-68 CLASS	1,919.5	2,036.2	-	309.7	2,345.9
A-7E (note b)	1,465.6	1,465.6	124.1	977.9	2,567.6
PHOENIX	370.8	536.4	29.5	553.2	1,119.1
S-3A	1,763.8	2,891.1	-87.2	436.8	3,240.7
E-2C (note b)	586.2	586.2	96.6	300.3	983.1
HARRIER (note b)	503.6	503.6	2.5	-5.7	500.4
LHA (note b)	1,380.3	1,380.3	-480.6	245.6	1,145.3
VAST	241.1	312.0	-178.8	314.8	448.0
P-3C (note b)	1,294.2	1,294.2	1,153.1	301.5	2,748.8
DD-963	1,784.4	2,581.2	-	496.3	3,077.5
BQQ-5 (note b)	610.4	610.4	69.5	132.1	812.0
HARPOON (note b)	1,071.4	1,071.4	-138.0	98.4	1,031.8
PHM (note b)	726.2	726.2	-	30.3	756.5
TRIDENT					
(notes b and f)	12,431.1	12,431.1	-	-	12,431.1
PF (note b)	3,244.5	3,244.5	-	238.3	3,482.8
SIDEWINDER					
AIM-9L (note b)	233.4	233.4	21.4	50.1	304.9
PHALANX (note b)	568.5	568.5	-	71.7	640.2
CH-53E (note b)	578.4	578.4	-	-24.5	553.9
Total	<u>\$46,241.3</u>	<u>\$54,501.1</u>	<u>\$ 206.5</u>	<u>\$8,392.0</u>	<u>\$63,099.6</u>

APPENDIX II

<u>System</u>	<u>Planning estimate</u>	<u>Development estimate</u>	<u>Cost change</u>		<u>Current estimate</u>
			<u>Quantity decrease(-)</u>	<u>Other</u>	
(millions)					
Air Force (11):					
AWACS	\$ 2,656.7	\$ 2,661.6	\$ -172.3	\$ -12.7	\$ 2,476.6
F-5E	698.6	315.5	94.2	13.0	422.7
MAVERICK	257.9	383.4	57.3	131.9	572.6
F-111	4,686.6	5,505.5	-2,598.0	4,218.4	7,125.9
SRAM	167.1	236.6	96.8	822.4	1,155.8
B-1	8,954.5	11,218.8	- 5.8	3,787.0	15,000.0
F-15	6,039.1	7,355.2	-	1,919.0	9,274.2
A-10 (note g)	1,025.5	2,489.7	-	31.2	2,520.9
MINUTEMAN III	2,695.5	4,673.8	62.4	2,110.1	6,846.3
A-7D (note b)	1,379.1	1,379.1	-168.7	275.2	1,485.6
AABNCP (note b)	467.8	467.8	-	8.4	476.2
<b>Total</b>	<b>\$29,028.4</b>	<b>\$36,687.0</b>	<b>\$-2,634.1</b>	<b>\$13,303.9</b>	<b>\$47,356.8</b>

Systems deleted as of  
September 30, 1973 (2):

C-5A	\$ 3,423.0	\$ 3,413.2	\$ -710.3	\$ 1,742.3	\$ 4,445.2
MINUTEMAN II	3,014.1	4,254.9	4.0	596.5	4,855.4

- <sup>a</sup>The original planning estimate of \$4,185 million was for two sites. The current estimate of \$5,403 million covers one site in accordance with the Treaty on the Limitation of Anti-Ballistic Missile Systems ratified by the Senate on Oct. 3, 1972.
- <sup>b</sup>For those programs with only a development or a planning estimate available, we have made both estimates the same to prevent distortion between the totals of the column.
- <sup>c</sup>The requirement for the December 31, 1972, and March 31, 1973, SAR was waived pending the restructuring of the program. Beginning June 30, 1973, the F-14 SAR became the F-14A SAR because present Navy plans do not call for procuring the F-14B version of the aircraft. The development estimate on the June 30, 1973, SAR was revised and decreased \$243 million to delete estimated costs related to the F-14B aircraft. On the September 30, 1973, SAR, the \$243 million was reinserted at the request of the Congress.
- <sup>d</sup>Before issuing the present contract, the Navy's long-range program included 23 ships of this class for a planning estimate of \$3,980 million in fiscal year 1970 dollars. The present program is for five ships.
- <sup>e</sup>Estimates include Air Force costs for research, development, and procurement.
- <sup>f</sup>As of December 31, 1973, the planning and development estimates were added to the TRIDENT SAR reflecting program acquisition cost based on a price-out of the program approved by the Secretary of Defense during fiscal year 1975 budget cycle. In past reports, we used the current estimate figure for all TRIDENT estimates to prevent distortion between the totals of the columns. The estimates have increased \$538.6 million since June 30, 1973.
- <sup>g</sup>The A-10 was formerly known as the A-X aircraft. The planning estimate of \$1,025.5 million represents the total program cost estimate as cited in the development concept paper. This planning estimate is stated in constant 1970 dollars, based on a 600-aircraft program, and considers a turboprop configuration.

QUANTITY AND UNIT COST CHANGES

Cost growth in major weapon systems results from such things as unanticipated development difficulties, faulty planning, poor management, bad estimating, or underestimating. However, not all cost growth can reasonably be prevented. For instance, unusual periods of inflation may result in cost growth. Changes in technology may make it possible to incorporate modifications that result in an overall increase in the system's effectiveness. Such cost growth cannot always be anticipated, particularly when a weapon system is in development and production over long periods.

Cost growth has been a significant reason for reducing the number of units of a weapon system to be acquired by the services. Continued cost growth and the need to stay within budgetary limitations will undoubtedly result in significant reductions in the number of units to be acquired for many of the new systems under development. The schedules on the following pages compare quantities and unit costs between planning and development estimates and the current estimate at December 31, 1973.

Comparison of Quantities And Unit Costs--  
 Planning And Development Estimates  
 Versus Current Estimate At December 31, 1973

System	Planning And Development Estimates		Current Estimate December 31, 1973	
	Quantity	Unit Cost	Quantity	Unit Cost
	(\$ in millions)			
<b>Army:</b>				
LANCE	(a)	(a)	(a)	(a)
IMPROVED HAWK	(a)	\$ <sup>b</sup> 5.71	(a)	\$ <sup>b</sup> 9.03
TOW	233,081	.00312	129,455	.007361
DRAGON	247,360	.001634	87,200	.007361
SAFEGUARD	2	<sup>c</sup> 2,092.8	1	<sup>c</sup> 5,403.
SAM-D	(a)	(a)	(a)	(a)
M60A2	603	.341	546	.745
SCOUT	1,155	.212	1,155	.227
TACFIRE	145	<sup>d</sup> 1.11	(a)	(a)
UTIAS	1,123	2.05	1,117	2.40
HLH (PROTOTYPE)	(e)	(e)	(e)	(e)
MICV	1,205	.204	1,205	.234
STINGER	(a)	(a)	(a)	(a)
AAH	481	3.7	481	4.2
XMI TANK	3,323	.904	3,323	1.023
<b>Navy:</b>				
MARK-48	4,194	.418	(a)	(a)
F-14A	469	12.629	334	17.911
SSN-688	32	179.609	36	195.056
AEGIS	(f)	(f)	(f)	(f)
DLGN-38	3	254.9	5	273.4
SPARROW F	10,785	.042	6,804	.120
POSEIDON	31	<sup>g</sup> 147.377	31	<sup>g</sup> 154.245
CONDOR	3,348	.132	538	.736
EA-6B	51	16.0	77	21.4
CVAN CLASS	3	<sup>h</sup> 678.7	3	<sup>h</sup> 781.9
A-7E	595	2.463	646	3.975
PHOENIX	2,384	.225	2,532	.442
S-3A	199	14.5	187	17.3
E-2C	30	19.5	36	27.3
HARRIER	114	4.42	110	4.55
LHA	9	153.336	5	229.060
VAST	207	1.507	89	5.034
P-3C	104	12.444	220	12.494
DD-963	30	86.040	30	102.583
BQQ-5	82	7.4	93	8.7
HARPOON	4,262	.251	2,922	.353
PHM	30	24.2	30	25.2
TRIDENT	10	<sup>i</sup> 1,243.11	10	<sup>i</sup> 1,243.11
PF	50	64.890	50	69.656
SIDEWINDER AIM-9L	3,564	.028	2,810	.038
PHAT ANY	370	1.530	367	1.744
CH-53E	74	7.8	74	7.5
<b>Air Force:</b>				
AWACS	42	63.4	34	72.8
F-5E	87	3.63	154	2.75
MAVERICK	17,205	.022	22,186	.026
F-111	1,388	3.97	478	14.91
SRAM	700	.33 <sup>a</sup>	1,500	.771
B-1	246	45.6	244	61.5
F-15	749	9.820	749	12.382
A-10	743	3.35	743	3.39
MINUTEMAN III	760	6.15	750	9.13
A-7D	517	2.67	435	3.42
AABNCP	7	66.83	7	68.03

APPENDIX III

Quantity Change Decrease (-)	Unit Cost Change Decrease (-)
(\$ in millions)	

(a)	(a)
- 103,626	\$ 3.32
- 160,160	.00421
- 1	.005727
(a)	3,310.2
- 57	(a)
-	.404
(a)	.015
- 6	(a)
(e)	.35
-	(e)
(a)	.03
-	(a)
-	.5
-	.119
(a)	(a)
- 135	5.282
4	15.447
(f)	(f)
2	18.5
- 3,981	.078
-	6.868
- 2,810	.604
26	5.4
-	103.2
51	1.512
148	.217
- 12	2.8
6	7.8
- 4	.13
- 4	75.724
- 118	3.527
116	.050
-	16.543
11	1.3
- 1,340	.102
-	1.0
-	-
-	4.766
- 754	.01
- 3	.208
-	-.3
-	9.4
8	-.88
67	.004
4,981	10.94
- 910	.433
800	15.9
- 2	2.562
-	.04
-	2.98
- 10	.75
- 82	1.20
-	

<sup>a</sup>Classified.  
<sup>b</sup>Per battery.  
<sup>c</sup>Per site.  
<sup>d</sup>Per set.  
<sup>e</sup>None Listed.  
<sup>f</sup>No procurement costs or quantities provided  
<sup>g</sup>Per system (missile unit cost and quantities are classified).  
<sup>h</sup>Estimated program cost divided by three ships.  
<sup>i</sup>Estimated program cost divided by 10 hulls.

PERFORMANCE AND SCHEDULE CHANGES

The justification for selecting a particular major weapon system to fulfill a need includes analyzing many existing and alternative capabilities and establishing a priority of need. It is important that clear performance goals for a system be defined early in the development process.

Overly ambitious performance requirements, combined with low initial cost predictions and optimistic risk estimates, lead almost inevitably to schedule slippages, performance degradations, and cost increases. Attempts to keep total program costs from rising lead to reductions in planned quantities which, in turn, increase unit cost. The following page lists weapon systems which have reported schedule slippages of 12 months or more in the planned delivery dates and systems in which, in our opinion, significant improvements and/or reductions in planned performance were anticipated as of December 31, 1973.

Because specific data on the performance of a weapon system and its date for delivery or initial operational capability are generally classified, this unclassified report does not provide that detail. In individual weapon system staff studies issued to the Congress early each calendar year, we have reported details of performance and schedule changes. Also, the Department of Defense tracks performance and schedule changes and reports them quarterly on SAR.

Major Weapon Systems With Schedule Slippages  
of 12 Months or More and Performance Changes  
As of December 31, 1973

<u>System</u>	<u>Schedule Slippage</u>	<u>Performance Changes</u>	
		<u>Improvement</u>	<u>Reduction</u>
<u>Army:</u>			
IMPROVED HAWK	X		X
LANCE (note a)	X	X	X
TOW	X		
DRAGON (note a)	X	X	X
SAM-D	X		X
M60A2	X		X
TACFIRE	X		
SCOUT			X
<u>Navy:</u>			
SSN-688	X		
AEGIS	X		
DLGN-38	X		
SPARROW F	X		
CONDOR	X		
EA6B	X		
CVAN Class	X		
HARRIER	X		
LHA	X		
VAST	X		
SIDEWINDER AIM-9L	X		X
DD-963			X
PF			X
BQQ-5		X	
P-3C			X
PHALANX			X
<u>Air Force:</u>			
AWACS	X		
MAVERICK	X		
F-111D	X		X
SRAM	X	X	
B-1	X		X
A-7D	X		

<sup>a</sup>On these systems some aspects of performance have improved and some have been reduced. We did not attempt to assess the overall effect on performance capability.

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