

# SPACE BUSINESS *Daily*

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Tuesday, January 25, 1966

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## \$5 BILLION NASA BUDGET FOR FY '67 SEEN (A Brief Analytical Review)--V.

The President has officially confirmed that he approves the first space recession in order to meet the obligations of the Vietnam War and his "Great Society" (SPACE Daily, Sept. 24 & Jan. 7). NASA expenditures for the new fiscal year are down \$300 million; new authority requested is down \$163 million. While we would hope that the Congress would do its duty and not only hold the line and force a stiff review but perhaps would see that the areas such as the deferred AA program would be positions where the President should be given money he has not asked for but which the NASA knows is urgent, we are not at all optimistic.

The \$5 billion "sanctuary" is not, when it has a padding of only \$12 million, a safe one for even the strongest space minded Congress. We should be prepared for a further drop by Congress of the NASA budget to at least \$4.95 billion. Perhaps the psychological image factor, i.e., the guilty conscience (SPACE Daily, Dec. 13), will come into play as a last ditch effort to prevent the "ball park" appearance of a space recession but we must also remember that a Congress that can approve an Executive budget to within plus or minus \$12 million out of a \$5 billion request is a "rubber stamp" Congress in the full true sense of the word. For once, we, if no champions come forward, will accept such a Congress for it is now officially public that the national space program for FY '67 has been "drawn by a timid hand."

TOTAL SPACE EXPENDITURES SET AT \$7.065 BILLION. Total expenditures requested by President Johnson for space exploration and exploitation for FY 1967 are \$7.065 billion. This is about \$220 million less than was requested for FY 1966. For FY '67, NASA has asked \$5.211 billion; DOD is requesting \$1.65 billion; AEC, \$174 million; Commerce Department (Weather Bureau), \$27 million; and National Science Foundation, \$3 million.

NASA FY '67 BUDGET CUT TO \$5.012 BILLION/AA SACRIFICED. The NASA fiscal 1967 budget has been approved by President Johnson and the Bureau of the Budget at \$5.012 billion (SPACE Daily, Sept. 24), over half a billion dollars less than the \$5.58 billion which NASA urgently requested for its FY '67 program (SPACE Daily, Dec. 13). NASA Deputy Administrator Dr. Robert Seamans said the "extremely stringent budget" was the result of pressing needs of the Vietnam War and the Great Society.

Major loser in the NASA budget reduction is the APOLLO Applications (AA) program, which NASA hoped to give go-ahead to with monies from the FY '67 budget. AA has

*The Leader in Missile/Space Reporting*

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been officially funded at \$42 million in FY '67 but monies from Space Science (\$25 million) and other areas will bring total **AA** budget to about \$100 million. The program was funded at \$48 million last year with additional sources bringing the FY '66 total to the same \$100 million as FY '67, though all of the FY '66 funds were not expended and are being carried over. Seamans further confirmed (SPACE Daily, Dec. 13) that NASA requested \$200 million for the official FY '67 **AA** program.

"The option to go ahead or not (on the **AA** program) will be made in 1968 (budget)," Seamans said. In effect this means that NASA is continuing the definition phase of **AA** for another year. If the decision to go ahead is made next year, there will be "no gap" in the program, Seamans said, but "there are some options for the follow-on that will not be open." Study work will continue on long lead time items for the program, the development and integration of the experiments, and improvement in the basic **APOLLO** spacecraft capabilities. But Seamans has explained that NASA would have "to hold back" on some of the programs because of the funding reduction and the delay in **AA**. One program that is going ahead, however: **ATOM (APOLLO Telescope Orientation Mount)** which will carry **AOSO** experiments on the Manned Solar Observatory Missions of **AA** (SPACE Daily, Jan. 24). Other items of "high priority": Solar and stellar astronomy; medical studies; returns from the Moon.

**Budget Hampers Lunar Landing Goal.** Seamans said that even though NASA wanted \$5.58 billion to carry out its FY '67 program, the \$5.012 billion would allow the Space Agency to continue a good space program with "most" of its projects intact. (Budgets as low as \$4.8 billion were contemplated by BOB, he disclosed.) However, Seamans said that NASA does "not have funds we would like to see" for **APOLLO**. He said the approved FY '67 **APOLLO** budget of \$2.974 billion (compared to \$2.967 billion in FY '66) would give the United States "a chance of lunar landing in this decade." (See yesterday's SPACE Daily.) He said the budget has no funds "for major difficulties that may occur" in the lunar landing program. "I think we can do it by 1969, but its tight," the NASA Deputy Administrator stated.

**The Losers: VOYAGER, AOSO, M-1. Still in: SNAP 8, The 260.** Out of the FY '67 budget, as reported, are the Fairchild-Republic **AOSO** (Advanced Orbiting Solar Observatory) (SPACE Daily, Dec. 16) and the Aerojet M-1 1.5 million-pound-thrust, liquid-hydrogen engine (SPACE Daily, Nov. 15, 18 & Dec. 7). The reoriented **VOYAGER** program (SPACE Daily, Dec. 23) has a FY '67 budget of \$10 million (compared to \$17 million in FY '66). The option to go-ahead with the program will be made in the FY '68 budget if NASA decides to continue it. Meanwhile reworked **MARINERs** are being substituted. The **MARINER** budget is up from \$18 million to \$26 million.

On the positive side, NASA has won approval for funding of the **SNAP 8** nuclear reactor. Development of **SNAP 8** is budgeted at \$5.5 million, an increase of \$1.5 million over FY '66. Also, some funds will be used for continued effort on the 260-inch, solid-propellant motor program. Funding for the large solid motor project is at \$3.5 million compared to \$4.2 million in FY '66. Seamans said the option to go-ahead with the 260 would be brought up in the FY '68 budget. Both **SNAP 3** and the 260 had been prime choices for the BOB's budget axe (SPACE Daily, Nov. 18).

**The NASA Extinct List.** In addition to those projects already named, the following programs which have been in past NASA budgets are not included in the FY '67 listing: **SATURN I, RANGER, ATLAS, ECHO II, RELAY, SYNCOM**, Early gravity gradient experiment, **PEGASUS, SCOUT** launched meteoroid experiments, **SERT**, and small **MORE**

chemical propulsion flight projects.

The \$5.012 billion NASA request is \$171 million less than the \$5.183 billion budget approved for the Space Agency in FY '66. Total expenditures in the 1966 fiscal year amount to \$5.6 billion, while FY '67 expenditures are expected to total \$5.3 billion.

(Detailed budget tables elsewhere in this issue. See page 144.)

**MOL FUNDING TO CONTINUE AT FY '66 LEVEL.** The Department of Defense's budget request for fiscal 1967 calls for funding of the Manned Orbiting Laboratory (**MOL**) at approximately the FY '66 level--between \$100 million and \$150 million--with the first mission scheduled for 1969 (SPACE Daily, Jan. 19).

The Department plans to procure a total of 52,297 missiles during the fiscal year from a \$1.931 billion new obligational authority request, up \$323 million from 1966's \$1.608 billion and a missile expenditure request of \$1.751 billion, down \$121 million from last year's \$1.872 billion. The comparative expenditure breakdown is: Army, FY '66, \$118 million, FY '67, \$224 million; Navy, FY '66, \$544 million, FY '67, \$472 million; and Air Force, FY '66, \$1.210 billion, FY '67, \$1.055 billion.

**Missile Procurement.** The Army and Navy will continue funding of the **LANCE** missile. Up to 20 squadrons (50 per squadron) of **MINUTEMAN II** missiles and 656 **POLARIS** missiles (enough to stock 41 **POLARIS** subs) will be contracted for during the year.

Procurement of the **MINUTEMAN III**, which will have a more effective re-entry vehicle than the **MINUTEMAN II**s, will be started during the next fiscal year. These advanced **MINUTEMAN** missiles will fit into the **MINUTEMAN I** silos and will be used in the existing inventory, keeping the **MINUTEMAN** figure at approximately this year's level.

The Navy is asking for funds for two guided-missile destroyers, which will deploy the **TARTAR D** missiles.

Research, development, testing and engineering for missiles comes to \$2.334 billion for new obligational authority and \$2.063 billion for expenditures for the coming fiscal year. Included in the budget is the continued development of the **NIKE X** system and research and development of the **SRAM** (Short-Range Attack Missile), which will be used on the FB-111. Funding for the **POSEIDON** will continue at an expanded rate, and funding will be "substantially increased" for the **SAM-D**, which shortly will enter the Contract Definition Phase. Also planned for a continuing high level of effort are the Navy's anti-submarine warfare programs.

(See detailed DOD breakdown elsewhere in this issue. See page 149.)

**SANDIA TO DIRECT AEC SNAP PROGRAM.** The Sandia Laboratory, Albuquerque, N.M., has been assigned as technical director for the Atomic Energy Commission **SNAP** (Systems for Nuclear Auxiliary Power) space isotope power programs.

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Under the agreement, Sandia will have responsibility for technical review of components and system designs; hardware and testing; preparation of specifications; establishment of quality control standards; reliability evaluation; and development program review and planning. The laboratory will also conduct in-house technology development in support of the system development activities, and point the direction for future development work.

"The AEC will continue to look to industry for the development of isotope power systems for space missions, and for the development of the major portion of the advanced technology for these systems," a spokesman said.

**Contract Administration Transferred.** The AEC Albuquerque Operations Office will be responsible for administering the industrial contracts for which Sandia will provide technical direction. Transfer of technical direction and contract management from the AEC New York Operations Office is expected to take "at least six months."

Sandia, a subsidiary of Western Electric, operates the AEC laboratory in Albuquerque and an AEC lab in Livermore, Calif. It has been conducting the AEC aerospace nuclear safety program since 1962.

Programs for which Sandia will have direction include **SNAP 27**, which is being developed for the **ALSEP (APOLLO Lunar Surface Experiments Package)** (SPACE Daily, Nov. 29 and Oct. 15), and **SNAP 19** (SPACE Daily, July 29, '64 & Aug. 20), which will be used for **NIMBUS**.

**SHIPBOARD LANCE TEST GUIDANCE STUDY PLANNED.** Dynamics Research Corporation, currently under contract for an analytical study of the feasibility of converting and adapting the Army **LANCE** tactical missile for shipboard deployment (SPACE Daily, Oct. 11), will be issued an RFQ from the Naval Ordnance Test Station for an additional analytical study to define the internal guidance system necessary for accomplishing the feasibility demonstration of the ship-launched tactical missile. This missile deployment plan, identified as the "austere" missile (SPACE Daily, Oct. 12, '64), would use the **TERRIER** surface-to-air missile launcher and electronics. Ling-Temco-Vought is currently under contract for conversion of the **TERRIER** equipment (SPACE Daily, Nov. 15).

**FIFTY RESPOND ON SPACE-OCEANOGRAPHY PROGRAM.** Fifty companies have submitted notice of interest to the Naval Oceanography Office on the NASA/-NOO Space-Oceanography program. The program is designed to develop the feasibility of using Earth orbiting spacecraft for oceanographic applications (SPACE Daily, Jan. 4). It is part of the overall NASA **AA (APOLLO Applications)** remote sensor program (SPACE Daily, Jan. 7).

The extent of the response was a "surprise," a NOO official said. From the list of interested companies, NOO will pick management documentation contractors for the Space-Oceanography program. Under the cooperative agreement with NASA, NOO is to define a program, i.e. selecting experiments and determining a priority. RFPs for the program are not expected soon.

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### COMSAT AWARDS SECOND SPACECOM STUDY CONTRACT--II

The medium-altitude satellite system the Centre Nationale d'Etudes Telecommunications (CNET) will study for ComSat (SPACE Daily, Jan. 19) would use three orbits, each 12,500 miles out and 120 degrees from the other two, with four satellites per orbit. From the Atlantic and Pacific time zones, at least one satellite would always be visible, two 95 percent of the time and three 55 percent.

### ALLIED RESEARCH TO ACQUIRE AERONCA-AEROSPACE

An agreement has been made whereby Allied Research Associates of Concord, Mass., will purchase the assets of Aeronca Manufacturing's Aerospace Division for cash and common stock. Terms of the transaction, which has been agreed to in principle, are subject to completion of a mutually acceptable final agreement.

Lawrence Levy, president of Allied Research, says that with the purchase of this division, Allied Research sales are projected at the rate of \$6.5 million a year. Aeronca's Aerospace Division manufactures mechanical and electronic equipment and assemblies for government and industry including vernier rocket motor cases for the **POLARIS** program.

### MARTIN DEVELOPS PRIME COOLING SYSTEM

Martin, builder of the **SV-5D** space shuttle for the Air Force's **PRIME** (Precision Recovery Including Maneuvering Entry) program (SPACE Daily, July 23, '64), has developed a cooling system for the shuttle's electronic equipment that uses about one pound of water, operates for 30 minutes, and removes 1000 BTU. The basic subsystems are cold plates, squib valves, and exhaust lines.

**PRIME** is Phase II of the AFSC Space Systems Division's **START** (Spacecraft Technology and Advanced Re-entry Tests) program, which began when **PRIME** began (SPACE Daily, Mar. 4) rather than when Phase I, **ASSET** (Aerothermodynamic/elastic Structural Systems Environmental Tests), began. Martin named its subcontractors for **PRIME** last fall (SPACE Daily, Oct. 28 and Nov. 1) and soon thereafter delivered the first boilerplate model (SPACE Daily, Nov. 15). **SV-5D** is the unmanned developmental configuration. **SV-5P** is the manned (Piloted) version and will be used for Phase III of **START: PILOT** (SPACE Daily, Sept. 20).

### TRW TO CONVERT OGO

NASA will negotiate with TRW Systems to convert the prototype **OGO** (Orbiting Geophysical Observatory) into a flight model spacecraft. The \$9 million contract will also include a possible option to fabricate an additional observatory.

The prototype spacecraft, which after modification will be called **OGO-F**, will be the 6th flight model in the program and will allow NASA to save some funding for its 6th spacecraft schedule. The possibility of an additional flight model would increase the number of spacecraft over the approved program. The **OGO** contract prior to the present negotiations totaled \$141,250,000.

**NATIONAL AERONAUTICS AND SPACE ADMINISTRATION  
APPROPRIATION AND BUDGET PLAN SUMMARY**

<u>New Obligational Authority and Expenditures:</u>	(In thousands of dollars)			
		<u>FY 1965</u>	<u>FY 1966</u>	<u>FY 1967</u>
Research and development	NOA	4,360,049	4,503,104	4,246,600
	EXP	3,984,456	4,520,000	4,340,000
Construction of facilities	NOA	266,426	60,000	101,500
	EXP	530,902	495,000	300,000
Administrative operations	NOA	623,253	611,820	663,900
	EXP	577,546	585,000	660,000
<b>TOTALS</b>	NOA	5,249,727 <sup>a/</sup>	5,174,924	5,012,000
	EXP	5,092,904	5,600,000	5,300,000
Budget Plan (Amounts for Actions Programmed):				
Research and development		4,270,695	4,511,644	4,246,600
Construction of facilities		261,107	59,587	101,500
Administrative operations		634,537	611,820	663,900
<b>TOTAL</b>		5,166,339	5,183,051	5,012,000

<sup>a/</sup> Includes amounts applied to prior year budget plan.

**RESEARCH AND DEVELOPMENT PROGRAMS**

	(In thousands of dollars)		
	<u>FY 1965</u>	<u>FY 1966</u>	<u>FY 1967</u>
<b>MANNED SPACE FLIGHT</b>	<u>2,949,019</u>	<u>3,203,996</u>	<u>3,022,800</u>
<b>GEMINI</b>	308,400	226,611	40,600
<b>APOLLO</b>	2,614,619	2,967,385	2,974,200
Advanced mission studies	26,000	10,000	8,000
<b>SPACE SCIENCE AND APPLICATIONS</b>	<u>732,362</u>	<u>783,237</u>	<u>661,400</u>
Physics and astronomy	139,082	143,500	131,400
Lunar and planetary exploration	206,027	251,337	197,900
Sustaining university program	46,000	46,000	41,000
Launch vehicle development	96,500	55,300	33,700
Launch vehicle procurement	154,487	178,700	152,000
Bioscience	28,501	36,700	35,400
Meteorological satellites	30,991	38,900	43,600
Communication and applications technology satellites	30,774	32,800	26,400
			<b>MORE</b>

## RESEARCH AND DEVELOPMENT PROGRAMS-Contd

<u>ADVANCED RESEARCH AND TECHNOLOGY</u>	<u>331,328</u>	<u>288,596</u>	<u>278,300</u>
Basic research	21,231	22,000	23,000
Space vehicle systems	44,193	35,000	36,000
Electronics systems	25,622	32,300	36,800
Human factor systems	13,320	14,900	17,000
Space power and electric propulsion systems	58,220	45,200	42,500
Nuclear rockets	57,000	58,000	53,000
Chemical propulsion	76,502	39,700	37,000
Aeronautics	35,240	41,496	33,000
<u>TRACKING AND DATA ACQUISITION</u>	<u>253,236</u>	<u>231,065</u>	<u>279,300</u>
<u>TECHNOLOGY UTILIZATION</u>	<u>4,750</u>	<u>4,750</u>	<u>4,800</u>
TOTAL	<u>4,270,695</u>	<u>4,511,644</u>	<u>4,246,600</u>

## MANNED SPACE FLIGHT

<b>GEMINI</b>	<u>308,400</u>	<u>226,611</u>	<u>40,600</u>
Spacecraft	165,300	107,211	19,100
Launch vehicles	115,400	88,600	8,500
Support	27,700	30,800	13,000
<b>APOLLO</b>	<u>2,614,619</u>	<u>2,967,385</u>	<u>2,974,200</u>
Spacecraft	1,009,898	1,170,600	1,200,600
<b>SATURN I</b>	40,265	800	-0-
<b>SATURN IB</b>	262,690	274,185	216,400
<b>SATURN V</b>	964,924	1,177,320	1,191,000
Engine development	166,300	134,095	111,000
Mission support	170,542	210,386	255,200
<b>ADVANCED MISSION STUDIES</b>	<u>26,000</u>	<u>10,000</u>	<u>8,000</u>
Advanced mission studies	26,000	10,000	8,000

MORE

## SPACE SCIENCE AND APPLICATIONS

	(In thousands of dollars)		
	<u>FY 1965</u>	<u>FY 1966</u>	<u>FY 1967</u>
PHYSICS AND ASTRONOMY	<u>139,082</u>	<u>143,500</u>	<u>131,400</u>
Supporting research and technology/ advanced studies	21,057	23,800	22,900
Solar observatories	16,597	24,500	11,900
Astronomical observatories	32,644	24,600	29,200
Geophysical observatories	30,352	28,600	23,400
Explorers	21,565	21,400	23,000
Sounding rockets	16,867	18,500	19,000
Data analysis	-C-	2,100	2,000
LUNAR AND PLANETARY EXPLORATION	<u>206,027</u>	<u>251,337</u>	<u>197,900</u>
Supporting research and technology/ advanced studies	24,140	38,600	40,100
<b>RANGER</b>	11,037	1,000	-0-
<b>SURVEYOR</b>	81,814	111,637	90,400
<b>LUNAR ORBITER</b>	49,500	52,400	24,600
<b>MARINER</b>	17,368	18,000	26,100
<b>VOYAGER</b>	7,168	17,000	10,000
<b>PIONEER</b>	15,000	12,700	6,700
SUSTAINING UNIVERSITY PROGRAM	<u>46,000</u>	<u>46,000</u>	<u>41,000</u>
Training	25,000	25,000	22,000
Research facilities	10,000	8,000	7,000
Research	11,000	13,000	12,000
LAUNCH VEHICLE DEVELOPMENT	96,500	55,300	33,700
Supporting research and technology/ advanced studies	7,100	4,000	4,000
<b>CENTAUR</b> development	89,400	51,300	29,700
LAUNCH VEHICLE PROCUREMENT	<u>154,487</u>	<u>178,700</u>	<u>152,000</u>
<b>SCOUT</b>	13,287	11,700	10,400
<b>DELTA</b>	32,374	27,900	22,900
<b>AGENA</b>	55,040	71,100	54,700
<b>CENTAUR</b>	44,814	64,000	64,000
<b>ATLAS</b>	8,972	4,000	-0-

MORE



## SPACE SCIENCE AND APPLICATIONS-Contd

	<u>FY 1965</u>	<u>FY 1966</u>	<u>FY 1967</u>
BIOSCIENCE	28,501	36,700	35,400
Supporting research and technology	12,501	15,100	14,700
Biosatellites	16,000	21,600	20,700
METEOROLOGICAL SATELLITES	30,991	38,900	43,600
Supporting research and technology/ advanced studies	7,311	8,300	9,100
<b>TIROS/TOS</b> improvements	4,100	3,700	2,600
Meteorological flight experiments	1,200	3,900	5,500
<b>NIMBUS</b>	16,000	20,000	23,400
Meteorological soundings	2,380	3,000	3,000
COMMUNICATION AND APPLICATIONS TECHNOLOGY SATELLITES	30,774	32,800	26,400
Supporting research and technology/ advanced studies	2,124	4,500	4,600
<b>ECHO II</b>	325	-0-	-0-
<b>RELAY</b>	462	200	-0-
<b>SYNCOM</b>	168	100	-0-
Early gravity gradient experiment	5,000	-0-	-0-
Applications technology satellites	22,695	28,000	21,800

## ADVANCED RESEARCH AND TECHNOLOGY

	(In thousands of dollars)		
	<u>FY 1965</u>	<u>FY 1966</u>	<u>FY 1967</u>
BASIC RESEARCH (Supporting research and technology)	21,231	22,000	23,000
SPACE VEHICLE SYSTEMS	44,193	35,000	36,000
Supporting research and technology	25,707	26,000	28,700
<b>FIRE</b>	1,811	500	-0-
Lifting body flight and landing tests	1,400	1,000	1,000
<b>SCOUT</b> re-entry	400	3,000	4,800
Project <b>PEGASUS</b>	13,690	2,500	-0-
Small space vehicle flight experiments	1,010	2,000	1,500
<b>SCOUT</b> launched meteoroid experiments	175	-0-	-0-

MORE

## ADVANCED RESEARCH AND TECHNOLOGY-Contd

ELECTRONICS SYSTEMS	<u>25,622</u>	<u>32,300</u>	<u>36,800</u>
Supporting research and technology	23,222	30,000	34,000
Small flight projects	2,400	2,300	2,800
HUMAN FACTOR SYSTEMS	<u>13,320</u>	<u>14,900</u>	<u>17,000</u>
Supporting research and technology	12,160	13,000	15,500
Small biotechnology flight projects	1,160	1,900	1,500
SPACE POWER AND ELECTRIC PROPULSION SYSTEMS	<u>58,220</u>	<u>45,200</u>	<u>42,500</u>
Supporting research and technology	36,770	38,200	37,000
Space electric rocket test (SERT)	2,300	3,000	-0-
SNAP-8 development	19,150	4,000	5,500
NUCLEAR ROCKETS	<u>57,000</u>	<u>58,000</u>	<u>53,000</u>
Supporting research and technology	20,891	21,000	16,900
Nuclear rocket development station operations	739	1,000	3,000
NERVA	35,370	36,000	33,100
CHEMICAL PROPULSION	<u>76,502</u>	<u>39,700</u>	<u>37,000</u>
Supporting research and technology	24,762	33,500	33,500
M-1 engine project	24,910	2,000	-0-
Large solid motor project	26,800	4,200	3,500
Small chemical propulsion flight projects	30	-0-	-0-
AERONAUTICS	<u>35,240</u>	<u>41,496</u>	<u>33,000</u>
Supporting research and technology	8,163	10,261	9,000
X-15 research aircraft	1,425	883	900
Supersonic transport	19,953	14,056	14,100
V/STOL aircraft	2,987	2,000	5,000
Hypersonic ramjet experiment	2,712	5,000	2,000
XB-70 flight research program	-0-	9,295	2,000

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION  
TRACKING AND DATA ACQUISITION  
BUDGET PLAN

	(In thousands of dollars)		
	<u>FY 1965</u>	<u>FY 1966</u>	<u>FY 1967</u>
TRACKING AND DATA ACQUISITION	253,236	231,065	279,300
Operations	95,254	129,600	199,000
Equipment	144,482	87,665	66,500
Supporting research and technology	13,500	13,800	13,800

TECHNOLOGY UTILIZATION

TECHNOLOGY UTILIZATION	4,750	4,750	4,800
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(This NASA detailed budget breakdown will be continued tomorrow with Construction of Facilities and Administrative Operations.)

DEFENSE BUDGET FOR FY '67

The Defense Department will ask Congress for \$59,855,000,000 in new obligational authority for fiscal year 1967, of which it intends to spend \$58,300,000,000. The breakdown of those figures by department or agency is:

	<u>NOA</u>	<u>Expenditures</u>
Air Force	\$20,942,000,000	\$19,809,000,000
Army	17,116,000,000	16,518,000,000
Navy	16,952,000,000	17,055,000,000
Agencies/OSD	3,794,000,000	3,668,000,000
Civil Defense	133,000,000	100,000,000
Military Assistance	917,000,000	1,150,000,000
TOTAL	\$59,855,000,000	\$58,300,000,000

The breakdown by function is:

Procurement	\$16,408,000,000	\$15,970,000,000
Research/Development	6,905,000,000	6,400,000,000
Personnel	18,676,000,000	18,150,000,000
Operation/Maintenance	15,700,000,000	14,980,000,000
Construction	593,000,000	1,120,000,000
Housing	522,000,000	545,000,000
Civil Defense	133,000,000	100,000,000
Management	0	-115,000,000
Military Assistance	917,000,000	1,150,000,000
TOTAL	\$59,855,000,000	\$58,300,000,000 MORE

## DEFENSE BUDGET FOR FY '67-Contd

Selected functional items by department or agency:

Procurement

## Missiles

Air Force	\$ 1,190,000,000	\$ 1,055,000,000
Army	356,000,000	224,000,000
Navy	385,000,000	472,000,000
Other	0	0

TOTAL	\$ 1,931,000,000	\$ 1,571,000,000
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Electronics/Communications

Air Force	214,000,000	313,000,000
Army	268,000,000	360,000,000
Navy	369,000,000	353,000,000
Other	28,000,000	21,000,000

TOTAL	\$ 879,000,000	\$ 1,048,000,000
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Research/Development

## Missiles

Air Force	\$ 830,000,000	\$ 788,000,000
Army	719,000,000	674,000,000
Navy	665,000,000	488,000,000
Other	119,000,000	113,000,000

TOTAL	\$ 2,334,000,000	\$ 2,063,000,000
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## Astronautics

Air Force	\$ 814,000,000	\$ 803,000,000
Army	13,000,000	13,000,000
Navy	13,000,000	16,000,000
Other	4,000,000	3,000,000

TOTAL	\$ 843,000,000	\$ 835,000,000
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## Management/Support

Air Force	\$ 278,000,000	\$ 222,000,000
Army	78,000,000	74,000,000
Navy	86,000,000	75,000,000
Other	11,000,000	10,000,000

TOTAL	\$ 453,000,000	\$ 381,000,000
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## Military Sciences

Air Force	\$ 164,000,000	\$ 152,000,000
Army	162,000,000	152,000,000
Navy	192,000,000	185,000,000
Other	107,000,000	104,000,000

TOTAL	\$ 625,000,000	\$ 592,000,000	MORE
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