

A-V

Appendix A-V

N A S A F I N A N C I A L D A T A

During its first decade the National Aeronautics and Space Administration spent (obligated) just over 32 billion dollars. This represented a little over three percent of the money spent by the United States National Government during that period and about one-half of one percent of the nation's gross national product. The intent of this Appendix is to present in tabular form some of the details making up the 32-billion-dollar figure. The information was collected and compiled by Dr. Robert L. Rosholt, of the College of Wooster, Wooster, Ohio, and Miss Jane Van Nimmen, of the Science and Technology Division, Library of Congress, for the NASA Historical Data Book, currently under preparation.

The sources of financial data were numerous. Table A-V-1 lists the 33 principal sources used in the preparation of Tables A-V-2 through A-V-32. Almost all of these sources of data were summary in nature and no attempt was made to look at the detailed documents behind them. The recently computerized SCAG (Status of Contracts and Grants) system will someday prepare information like this by simply writing the proper program for it. At present, however, the press of serving management on a current day-to-day basis does not allow for a great deal of attention to be paid to reconstructing the past.

Only a small fraction of the financial data generated during NASA's first decade can be presented in the following tables. The several sources of data have not necessarily been reconciled with one another in the manner that an accountant might desire. Rather the goal has been to give perspective to the vicissitudes (or absence thereof) of NASA's activities over a ten-year period. To indicate what has been excluded, and to point out some of the difficulties in using and comparing financial data, a brief overview of the entire budgeting and financial management processes might be helpful* The major steps in the process of financing NASA's programs are these:

*For a more detailed discussion of the budgetary process, see Appendix B-II-1.

1. Long Range Financial Planning.*

2. Preparing NASA's Annual Budget. This step includes the preparation of spending proposals by NASA's field installations, the aggregation and winnowing of these proposals by NASA Headquarters, the receiving of Presidential guidelines from the Bureau of the Budget, and the subsequent reconciliation of differences between NASA and the Bureau.**

3. The President's Budget Submitted to Congress. The President's January budget submission to Congress publicly reveals NASA's portion of the overall national budget and constitutes the basis for subsequent Congressional action.*** The President's requests for NASA, hereafter referred to as NASA's budget requests, have been summarized in the tables. The total for the agency is comparable over time but any breakdowns of the total are subject to changing definitions, as indicated in the table footnotes.

4. Congressional Authorization. The President's budget is primarily a request for Congressional appropriations, but for certain Government agencies and programs it is necessary for Congress to enact a separate law authorizing the appropriation. This two-step process applies to NASA.****

*This function appears to have a very spotty history in NASA and no attempt has been made to summarize it. See pages 211-217 of An Administrative History of NASA, 1958-1963, the first item of Table A-V-1, for a brief account of early planning for the manned lunar landing program, as an example.

**There is little data available on what NASA stood ready to spend if resources would have been available. The general assumption is that agencies always want more and ask for more than they eventually get.

***It should be kept in mind that the January submission is six months before the beginning of the fiscal year upon which the budget is based. Thus the FY 1968 budget was submitted to Congress in January, 1967 and was for the period July 1, 1967 through June 30, 1968.

****See page 60 of An Administrative History of NASA, 1958-1963 for the origin of this requirement.

The authorization law is largely the product of the House and Senate Space Committees, although it may be altered on the House and Senate Floors and in the House-Senate Conference Committee. Most of the Authorization legislation is summarized in the tables.*

5. Congressional Appropriation. It is at this point that Congress makes its chief input as to the amount of national resources allocated to NASA. The President's request may be modified at five principal points --- the House Appropriations Subcommittee on Independent Offices, the House Floor, the Senate Appropriations Subcommittee on Independent Offices, the Senate Floor, and the compromising joint conference committees. It is possible that the full appropriation committees may get involved as well. Data on NASA appropriations are presented in considerable detail in the tables.

6. Bureau of the Budget Apportionment. The Bureau of the Budget establishes certain controls on the release of appropriated funds to the various agencies. However, there has been no indication to date that this process has had an adverse affect on NASA.

7. NASA Programming. Once NASA has obtained primary jurisdiction over the funds appropriated to it by Congress a detailed pie-cutting operation takes place. Funds are earmarked for various programs, projects, and places. This sets the stage for the outgoing spending that continually takes place.**

8. Committing, Obligating, Costing, Disbursing. The flow of financial activity really requires a moving picture camera to depict it; only a series of still pictures can be presented in the tables. NASA carries out most of its program by contract and whenever a contract is entered into

*See also Appendix A-VI, Table A-VI-6.

**Constant reprogramming within NASA, as authorized by law, makes it very difficult to summarize this step, and very little is done with it in the tables. It must be recognized, however, that this is a very dynamic element in the agency's ongoing activities.

an appropriate amount of money is obligated (set aside) to eventually fulfill the terms of the contract. At some later point in time the money actually changes hands and thus is disbursed or expended.

9. Auditing. The financial activities described above are eventually reviewed or audited both by NASA and by Congress's General Accounting Office in order to verify the legality of all actions and in some cases to determine the quality of agency procedures and performance.

In summary, only a relatively small amount of financial data can be presented in the following tables. Primary emphasis is on NASA's budget requests, Congressional authorizations, Congressional appropriations, all of which involve the obtaining of resources, and on obligations, which involves the disposition of resources. The tables can be divided into three groups. Tables A-V-2 through A-V-8 are summary in nature. Tables A-V-9 through A-V-18 focus on the obtaining of resources to carry out NASA's programs. Tables A-V-19 through A-V-32 focus on the disposition of those resources. It will readily be noted that money is made available to NASA in rather large chunks, but is disposed of in relatively small pieces. In nine of the ten years covered in the tables NASA appropriation acts were divided into three parts or "Titles," which now are termed Administrative Operations (AO), Research and Development (R & D), and Construction of Facilities (C of F). The last two are "no-year" appropriations and thus have no time limit placed on their use. Nevertheless, they are kept intact as "program year" monies, and thus during any one fiscal year funds may be available from the current program year and several past program years. For the most part, the tables ignore this phenomena except for Table A-V-30 which attempts to articulate programmed funds, obligated funds and disbursed funds.

In depicting the disposition of the agency's resources principal attention has been paid to actual obligations for each fiscal year. This probably gives the best measure of the flow of agency activity inasmuch as disbursements lag after the event (often by several years), programmed amounts antedate the event, and the ideal, accrued costs, were not available for much of the ten-year period covered.

The following is a list of the Tables found in this Appendix:

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Table A-V-23. Research and Development Direct Obligations, by Budget Line Item and Unique Project Number^a
(Millions of Dollars)

Budget Line Item / Unique Project ^b		1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	Total ^c
41	Sustaining University Program				10.1	24.7	35.9	45.7	45.2	31.0	11.5	214.8
121	Training Grants				1.4	13.9	19.8	24.5	25.8	15.2	2.4	103.7
122	Facilities Grants				6.4	6.9	9.1	8.2	7.0	4.9	.6	43.2
123	Research Grants				2.4	3.9	7.6	12.3	12.4	10.9	8.6	67.7
124	Socio-Economic Studies						.2					.2
50	Special Support									3.5	2.3	5.7
320	Special Support (OSS&A)									3.5	2.3	5.7
51	Tracking and Data Acquisition	2.2	13.7	23.7	65.4	108.0	148.8	259.7	264.2	260.6	264.0	1,408.9
150	Tracking and Data Acquisition SRT	.3	3.7	7.0	14.6	12.4	10.6	15.1	13.3	13.0	11.4	106.4
311	Network Operations	2.0	10.0	11.0	44.0	51.4	68.0	96.7	135.3	184.6	203.4	803.3
312	Equipment and Components			5.7	6.9	44.2	70.2	147.9	115.6	62.6	49.2	498.9
531	Advanced Studies									.3		.3
61	Space Applications	3.7	8.0	28.3	75.2	93.2	84.6	69.0	79.2	75.8	90.5	560.3
160	Space Applications SRT	.1	1.9	3.5	4.1	4.3	6.9	6.5	7.6	7.0	17.7	58.5
164	Communications and Navigation SRT		.8	1.3	4.9	7.7	3.5	1.0	1.7	3.9	.6	26.7
165	Future Applications SRT						.2	—*				.6
166	Applications Technology SRT						.5	1.3	2.2	.5		3.5
601	Tiros/TOS Improvements	.6	2.6	3.4	6.3	19.3	7.5	5.6	1.3	3.8	10.0	52.4
602	Tiros Operational System (TOS)										*	.
603	Meteorological Flight Experiments							.6	4.1	5.4	.2	10.4
604	Nimbus A-D		.9	6.9	23.4	30.8	40.8	15.0	24.7	24.4	33.2	190.3
607	Meteorological Soundings				.4	1.0	2.3	2.6	2.6	2.6	3.3	14.0
607	Systems A (Automatic Picture Taking...)						*					.3
610	International Applications Satellite									.1	.1	.2
621	Echo I (Nonrigid) A-11	3.0	1.4	2.1	1.6	—*	.8		—*			1.4
622	Echo A-12 (Includes AVT)			2.0	8.3	2.4	1.6	.3	.1	.2	—*	6.3
624	Rebound			.2	.1							1.1
625	Radiation Measurements		.4	.6	1.2	—*.4	*			—*		1.7
626	Relay			7.0	15.3	13.2	5.9	.7	.1	*	—*	33.7
627	Syncom			1.3	9.6	14.9	3.8	.4	—*.2	—*	—*.2	21.0
630	Applications Technology Satellites (A-E)						10.2	28.6	31.4	24.6	21.5	116.2
632	Early Gravity Gradient Test Satellite							3.1	.5	—*.1		3.5
635	Applications Technology Satellites (F-G)								.4	.3	.4	1.1
682	Advanced Studies-Space Applications											.8
855	Geodetic Satellites						.6	3.4	3.8	3.3	3.1	15.7
65	Technology Utilization					2.0	3.2	4.3	3.5	5.4	2.3	20.0
141	Identification and Dissemination					.9	2.6	2.9	2.7	4.6	1.8	13.5
143	Economic Studies					1.1	.6	1.4	.8	.7	.5	5.1
7A	(20) OART Apollo Applications Experiments									.7	.3	1.0
740	OART Experiment Definition									.7	.3	1.0
70	Mission Analysis Program								1.4	2.6	1.5	5.5
130	Mission Analysis SRT								.4	1.1	1.5	3.0
789	Advanced Studies-Mission Analysis								1.0	1.6	—*	2.6

Table A-V-23. Research and Development Direct Obligations, by Budget Line Item and Unique Project Number^a
(Millions of Dollars)

Budget Line Item / Unique Project ^b		1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	Total ^c
71	Space Power and Electric Propulsion Systems	.4	1.0	4.8	26.6	39.8	42.6	38.5	29.1	49.4	42.7	268.2
120	Space Power and Electric Propulsion...SRT	.1	.4	4.2	15.3	19.4	23.3	25.4	22.8	34.7	33.8	174.0
701	SNAP-8 Development Project	.3	.6	.6	7.9	16.0	15.4	11.1	5.8	11.8	7.5	77.6
704	SERT (Space Electric Rocket Test)			*	3.4	3.2	3.5	2.0	.4	2.9	1.4	14.8
705	Small Nuclear Electric...Flight Projects					1.2	.3	*	-.*	-.*		1.5
780	Advanced Studies-Nuclear Electric Systems						.2		.1	-.*		.3
72	Nuclear Rockets	1.5	3.0	9.1	25.9	67.6	78.7	58.1	57.1	53.5	41.6	326.4
121	Nuclear Rocket Systems SRT	.5	.4	.3		.2	.2	1.0	.6	1.8	1.2	5.1
122	Nuclear Rocket Propulsion SRT			*	.7	12.9	19.3	21.1	18.8	15.2	7.3	76.3
321	Nuclear Rocket Dev. Station Operations						.8	.7	2.0	2.3	4.0	7.8
706	RIFT (Reactor in Flight Test)			.3	1.2	10.4	7.0	.1	-.*	-.*	-.*	15.3
717	KIWI	1.0	2.6	3.4	4.7	4.5	1.8	-1.4	.4		-.*	21.0
718	Nerva				19.3	39.6	49.7	36.6	35.3	34.3	28.6	244.8
73	Chemical and Solar Power		1.1	5.2	4.8	7.8	12.5	15.2	13.2	1.2	*	62.3
123	Chemical and Solar Power SRT		1.1	5.2	4.8	7.8	12.5	15.2	13.2	1.2	*	62.3
74	Space Vehicle Systems		2.4	1.5	12.2	40.8	42.7	46.0	33.3	35.9	33.4	238.4
124	Space Vehicle Systems SRT		2.4	.4	5.3	17.1	23.3	24.5	25.0	27.5	29.3	157.4
709	Small Space Vehicle Flight Projects			1.1	.3	1.5	1.7	1.2	2.0	5.0	1.5	13.1
711	Scout Re-entry Heating Experiment				1.7	1.5	.3	.3	2.7	2.2	1.2	7.7
712	Meteoroid Satellite Project S-55b											.1
713	Meteoroid Satellite Project S-55c, S-55d				1.0	2.9	.3	.3			-.*	4.2
714	FIRE				4.0	13.9	6.1	2.6	.1	.1	-.*	20.3
725	Pegasus					4.0	9.9	13.7	1.5	.1	*	29.1
727	Lifting Body Flight Program						1.2	.8	1.5	1.0	1.1	5.7
784	Advanced Studies-Space Vehicle Systems						.2	2.5	.5	*	-.*	3.2
75	Electronics Systems		2.4	2.9	2.5	15.5	24.7	28.0	32.5	33.7	37.1	181.4
125	Electronics Systems SRT		2.4	2.9	2.5	14.1	22.3	25.6	29.9	32.3	36.6	170.7
715	Small Electronics Systems Flight Projects					1.4	2.4	1.6	1.1	.4	-.*	6.7
730	RAM-C (Radio Attenuation Measurements)							.9	1.3	1.0	.5	3.6
785	Advanced Studies-Electronics								.2			.4
76	Aeronautics	2.0	4.7	1.3	.2	16.7	17.0	36.1	28.5	52.9	65.3	217.9
126	Aeronautics SRT	2.0	4.7	1.3	.1	6.0	7.7	8.2	11.0	10.3	18.8	62.7
719	X-15 Research Aircraft					5.6	.8	1.4	.9	.8	3.5	13.0
720	Supersonic Aircraft Technology				.1	4.3	5.9	21.2	11.8	13.7	12.5	69.6
721	V/STOL Aircraft Technology					.9	2.6	2.2	3.0	5.8	7.0	21.5
729	Hypersonic Ramjet Experiment							2.3	1.1	6.3	7.0	16.7
732	XB-70 Flight Research Program								.2	11.6	10.0	21.9
733	Aircraft Noise Alleviation									4.4	7.1	11.4
786	Advanced Studies-Aeronautical Systems							.7	.4	*		1.1
77	Human Factor Systems			.5	3.3	8.8	11.4	15.6	14.6	16.7	17.8	89.1
127	Human Factor Systems SRT			.5	2.9	8.7	11.5	14.6	12.6	15.1	16.5	82.8
708	Small Biotechnology Flights				.4	.1	*	.9	2.0	1.6	.8	5.8
735	Orbiting Frog Otolith										.5	.5

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(Millions of Dollars)

Budget Line Item / Unique Project ^b		1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	Total ^c
78	Chemical Propulsion	6.2	3.5	1.1	22.6	47.8	46.3	60.4	38.6	46.7	30.8	293.3
128	Chemical Propulsion SRT	6.2	3.5	1.1	5.9	12.6	22.1	17.2	13.5	18.6	15.5	105.8
110	Small Chemical Propulsion Flight Projects					.3	*	*		*		.4
126	M-1 Engine Development				16.7	34.9	24.2	20.9	3.5	2.8	-1.2	102.5
128	Large Solid Motor Program (S-10)							15.6	8.7	15.5	1.6	34.5
131	Chemical Rocket Experimental Engineering							6.7	12.9	16.7	13.3	50.2
79	Basic Research Program			2.2	7.4	17.0	21.2	22.5	21.9	21.8	2.1	135.6
129	Research Program SRT			2.2	7.4	17.0	21.2	22.5	21.9	21.8	2.1	135.6
82	Voyager							6.7	16.8	10.0	3.1	36.6
918	Voyager							6.7	16.8	10.0	3.1	36.6
83	Launch Vehicle Development	22.5	50.7	70.2	81.6	98.7	108.5	91.9	51.5	29.8	.1	614.6
830	FLOX (Fluorine-Oxygen) Development						*	3.7	.5	.2		4.5
890	Scout Development	5.5	2.0	7.8	4.4	4.7	-.*	.3	*	-.*	-.*	25.5
891	Centaur Development	4.0	36.5	62.2	71.8	90.3	108.3	87.9	52.0	29.6	.1	543.3
892	Delta Development	13.1	11.3	9.3	5.3	3.7	.2	-.*	-1.0	-.*		41.4
84	Lunar and Planetary Exploration	15.6	23.7	88.5	166.9	223.1	182.7	184.0	201.2	172.9	149.2	1,304.8
185	Lunar and Planetary Exploration SRT-Science		2.6	1.0	12.7	12.4	9.9	12.6	13.6	13.5	10.5	136.8
186	Lunar and Planetary Exploration SRT-ATD	10.2	7.5	10.4	4.2	5.8	3.6	8.8	6.8	7.2	7.2	56.3
187	Lunar and Planetary Exploration SRT-SS					2.9	1.3	-.7		-.*		2.6
194	Planetary Extension Program SRT				.4	1.2	1.5	2.2	1.7	3.0	10.6	10.6
614	Advanced Studies-Lunar and Planetary	3.4	11.7	22.3	62.6	59.1	33.2	12.5	-.5	-.*	-.3	169.0
801	Ranger			4.8	38.1	66.3	70.4	82.7	106.0	80.3	33.0	468.5
803	Surveyor						*	-.1		-.*		1.1
804	Surveyor Orbiter							-.1		-.*		1.1
806	Mariner A			11.0	4.0		2.0	-.4		-.*	-.*	19.9
807	Mariner B				12.4	5.5	1.0	-.6				19.2
808	Mariner-Mars '64					31.8	37.7	16.2	2.3	.3	-.3	83.2
810	Mariner B				39.3	7.7	.1	-.4		-.3		21.6
812	Mariner-Mars '66						7.0	1.6	-.8	-.1		7.7
813	Mariner IV							.3		.6	.6	1.6
814	Lunar Orbiter				1.2	*	20.0	49.5	56.8	27.8	6.9	162.3
816	Mariner-Mars '67								4.1	30.3	72.6	107.0
817	Mariner-Venus '67								10.9	12.1	3.2	26.2
85	Physics and Astronomy	27.6	14.3	44.6	88.2	148.6	146.0	160.1	141.1	121.2	145.2	1,040.7
188	Physics and Astronomy SRT	2.5	3.0	2.0	9.4	11.9	15.0	17.3	18.8	28.5	28.7	150.0
385	Data Analysis (OSS&A)								1.6	1.0	2.5	6.0
685	Advanced Studies-Physics and Astronomy								.4	.7	-.*	1.0
811	Pioneer (IQSY)					*	15.8	15.1	2.2	10.2	5.0	56.3
821	Orbiting Solar Observatories		1.0	4.0	5.8	10.0	12.2	10.7	9.8	10.6	11.6	67.4
822	Advanced Orbiting Solar Observatories				.2	.1	7.2	6.9	10.4	1.0	-.*	23.6
831	Orbiting Astronomical Observatories		.3	11.6	32.9	39.5	35.3	31.8	22.7	28.2	45.0	242.0
841	Orbiting Geophysical Observatories		.3	8.6	18.4	42.2	32.4	40.1	28.6	24.0	22.7	204.3
851	Energetic Particles Explorers		.6	1.2	.9	6.8	.9	.9	.4	.5	-.*	7.3
852	Atmosphere Explorers		.4	1.8	1.9	5.0	.8	1.0	.4	.3	.3	6.5
853	Ionosphere Explorers		.2	.8	.9	.8	1.1	.5	.2	-.*	-.*	2.9
854	Micrometeoroid Satellite S-55, S-55a											.3
857	Small Scientific Satellites									.7	1.4	2.1
859	University Explorers (Rice University)								2.4	.4	.0	3.7

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(Millions of Dollars)

Budget Line Item / Unique Project ^b		1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	Total ^c
85	Physics and Astronomy (cont'd)											
861	Interplanetary Explorers/IMP					8.1	4.1	9.3	7.9	6.5	6.2	38.0
863	Air Density/Injun Explorers					.2	.9	.6	1.3	1.5	1.2	5.6
865	Electron Density Explorers								*	*		.6
866	Manned Satellite Science						.7	3.7	.3	*		4.7
870	United Kingdom Explorers			1.1	1.0	.1	.9	.4	.2	*	*	6.7
871	ESRO I and II			.1	2.5	3.5		*	.1	*	*	.2
872	ISIS (Int'l Sat. for Ionosphere Studies)		1.1	4.0	7.5	3.3	1.7	1.5	2.1	1.3	1.3	20.0
873	Beacon Explorers		1.4	1.1	1.1	1.2	1.5	1.8	.5	.1	*	5.1
874	German Research Satellite									*	.1	.1
876	French Satellite (FR-1)						*	.1	.1	*		.2
877	Radio Astronomy Satellites							.9	4.4	5.2	2.7	13.3
878	Small Astronomy Satellites									.7	2.7	3.4
879	Sounding Rockets	3.1	5.2	7.4	9.0	11.9	15.7	19.0	18.4	21.0	19.7	120.6
884	Joint Italian/United States Project					4.0	.3	.1	.9	*	.6	3.7
895	Juno II Payload						-.1				*	1.0
896	Vanguard III	22.0	.8	.1	-3.3		-.3	-1.7			*	20.9
897	Gamma Ray Astronomy Satellite S-15						-.3		-.2		*	29.8
898	Ionosphere Measurement Satellite S-30						*	*	*		*	.9
899	Ionosphere Beacon Satellite S-45						*				*	.5
86	Manned Space Sciences						1.5	7.8	11.4	19.4	3.6	42.3
169	Earth Resources SRT									4.2	.3	4.5
190	Manned Space Sciences SRT						1.0	3.4	.5	*	-.1	4.7
749	Apollo Applications Experiment Definition								.4	1.1	.5	2.0
848	Returned Lunar Sample Analysis									1.1	1.1	2.2
849	Apollo Applications Experiment Definition								9.2	7.6	1.1	18.6
860	Manned Flight Experiments									.1	.3	.3
867	Manned Lunar Science						.5	4.4	*	*		5.0
949	Apollo Applications Experiment Definition								.7	3.2	.4	4.2
87	Bioscience			3.1	2.2	10.1	21.1	29.7	35.5	41.2	42.0	196.1
189	Bioscience SRT			3.1	1.7	9.2	13.4	12.3	11.8	3.5	12.2	74.2
880	PICS						*	*				.4
881	Infrared Spectroscopy						*	*	.1			.9
882	Pic-Sampling Lunar and Planetary Flights											*
883	Biosatellites				.6	.9	7.8	17.3	23.7	31.4	22.8	110.7
89	OSS&A Vehicle Procurement ^d						127.3	148.9	170.4	140.5	133.7	974.0
180	Launch Vehicle SRT					.9	2.1	3.4	2.0	3.5	5.4	17.6
490	Scout Procurement						9.0	5.6	6.6	6.7	5.2	48.0
491	Centaur Procurement						32.0	40.0	49.4	46.1	54.0	237.8
492	Delta Procurement						22.2	32.6	8.3	19.7	26.9	152.8
493	Agena Procurement (Excluding Gemini)						48.1	46.6	56.6	32.6	10.6	347.3
494	Atlas Procurement (Excluding Mercury)						1.4	1.2	*	*		9.1
495	Thor (Echo) Procurement											3.2
497	Sustaining Engineering and Maintenance					7.7	12.4	19.3	46.6	32.2	31.1	156.2
680	Advanced Studies-Launch Vehicles							.3	.6	.5	.5	2.0
91	Gemini				55.0	287.6	419.2	308.3	163.5	42.0	.7	1,283.2
913	Gemini Spacecraft				30.6	205.1	280.5	165.3	66.6	46.2	3.2	797.1
923	Gemini Support					3.4	16.0	27.7	24.0	4.7	-.9	76.1
929	Gemini Launch Vehicle				24.4	79.1	122.7	115.4	72.9	22.9	-1.6	410.0

Table A-V-22. Research and Development Direct Obligations, by Budget Line Item (Program)
(Millions of Dollars)

Budget Line Item ^b	Number	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	Total ^c
Sustaining University Program	41				10.1	24.7	35.9	45.7	45.2	31.0	11.5	214.8
Special Support	50									3.5	2.3	5.7
Tracking and Data Acquisition	51	2.2	13.7	23.7	65.4	108.0	148.8	259.7	264.2	260.6	264.0	1,408.9
Space Applications	61	3.7	8.0	28.3	75.2	93.2	84.6	69.0	79.2	75.8	90.5	560.3
Technology Utilization	65					2.0	3.2	4.3	3.5	5.4	2.3	20.6
OART Apollo Applications Experiments	7A									.7	.3	1.0
Mission Analysis Program	70								1.4	2.6	1.5	5.5
Space Power and Electric Propulsion Systems	71	.4	1.0	4.8	26.6	39.8	42.6	38.5	29.1	49.4	42.7	268.2
Nuclear Rockets	72	1.5	3.0	9.1	25.9	67.6	78.7	58.1	57.1	53.5	41.6	396.4
Chemical and Solar Power	73		1.1	5.2	4.8	7.8	12.5	15.2	13.2	1.2	*	62.3
Space Vehicle Systems	74		2.4	1.5	12.2	40.8	42.7	46.0	33.3	35.9	33.4	238.4
Electronics System	75		2.4	2.9	2.5	15.5	24.7	28.0	32.5	33.7	37.1	181.4
Aeronautics	76	2.0	4.7	1.3	.2	16.7	17.0	36.1	28.5	52.9	65.9	217.9
Human Factor Systems	77			.5	3.3	8.8	11.4	15.6	14.6	16.7	17.2	89.1
Chemical Propulsion	78	6.2	3.5	1.1	22.6	47.8	46.3	60.4	38.6	46.7	30.8	293.3
Basic Research Program	79			2.2	7.4	17.0	21.2	22.5	21.9	21.8	2.1	135.6
Voyager	82							6.7	16.2	10.0	3.1	36.6
Launch Vehicle Development	83	22.5	50.7	79.2	81.6	98.7	108.5	91.9	51.5	29.8	.1	614.6
Lunar and Planetary Exploration	84	15.6	23.7	88.5	166.9	223.1	182.7	184.0	201.2	172.9	147.2	1,304.8
Physics and Astronomy	85	27.6	14.3	44.6	88.2	142.6	146.0	160.1	141.1	134.3	145.3	1,049.7
Manned Space Sciences	86						1.5	7.8	11.4	13.4	3.6	42.3
Bioscience	87			3.1	2.2	10.1	21.1	29.7	35.5	41.2	42.0	186.1
Other (41, 50, 55)	88					2.6	127.3	148.9	170.4	140.8	133.7	974.0
Gemini	91				55.0	287.6	419.2	308.3	163.5	48.0	.7	1,283.2
Apollo	92	10.1	36.1	190.3	446.5	1,160.6	2,225.0	2,708.9	2,971.3	2,277.9	2,535.2	15,169.3
Advanced Manned Missions	93					10.1	13.9	20.3	13.4	8.4	1.9	67.0
Apollo Application	96								13.8	83.4	122.2	219.3
Completed Missions	99	43.0	91.3	91.6	55.4	12.0	-.1	-6.3	-.1	.1	-.*	295.8
Various Early Projects ^e	NN	39.9	24.2	2.7	7.0	5.2						
Column Totals		174.7	280.1	597.6	1,159.0	2,454.3	3,814.7	4,359.4	4,452.1	4,256.6	3,778.8	25,343.0
Aircraft Research and Technology (76)		1.1	1.7	0.2	*	0.7	0.4	0.8	0.6	1.2	1.7	0.9
Space Research and Technology (7A-75, 77-79)		4.6	4.8	4.7	9.1	10.0	7.4	6.5	5.5	6.2	5.5	6.6
(Office of Advanced Research and Technology)		(5.7)	(6.5)	(4.9)	(9.1)	(10.7)	(7.8)	(7.3)	(6.1)	(7.4)	(7.2)	*(7.5)
Scientific Investigations in Space (82-87)		37.6	31.7	36.7	29.2	19.9	15.4	14.4	14.1	12.9	12.6	16.6
Space Applications (61)		2.1	2.9	4.8	6.5	3.8	2.2	1.6	1.6	1.8	2.4	2.2
(Office of Space Science and Applications)		(39.7)	(34.6)	(41.5)	(35.7)	(23.7)	(17.6)	(16.0)	(15.9)	(14.7)	(15.0)	(18.8)
Manned Space Flight, Office of (91-99)		30.4	45.5	48.0	48.1	59.9	69.7	69.5	71.0	70.9	70.4	67.2
Tracking and Data Acquisition, Office of (51)		1.3	4.9	4.0	5.6	4.4	3.9	6.0	5.9	6.1	7.0	5.6
Other (41, 50, 55)		0.0	0.0	0.0	0.9	1.1	1.0	1.1	1.1	0.9	0.4	1.0
Various Early Projects (NN) ^f		22.8	8.6	1.7	0.6	0.2						
Total		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Notes: ^aFor Tables A-V-22, A-V-23 and A-V-24 a heavy line has been drawn between the 1959-1963 period and the 1964-1968 period to indicate an occasional lack of continuity between the two periods. This lack of continuity has three principal causes. First, the 1959-1963 period included vehicle procurement costs with the space flight project. (See note ^d below.) Second, the coding/accounting structure was in a state of development until about 1963 and it has been difficult to reconstruct the early years. Third, there is a paucity of information from the early years and some of the early projects had to be handled somewhat arbitrarily. The discrepancies between the two periods can be calculated by subtracting years 1964-1968 from the total and comparing it with a total calculated for 1959-1963. An asterisk indicates less than \$50,000.

^bNomenclature based on Changes 9 and 10 of FPM 9100, i.e. 1958 nomenclature.

^cTotal is what is shown on the current accounts of the agency. Footnote ^a explains why annual amounts may not add to Total.

^dAs explained in footnote ^a the data for the 1959-1963 period includes vehicle procurement costs in the space flight project amounts.

^eThe amounts on this line are buried somewhere in the totals for other programs.

^fThe amounts upon which these percentages are based are included in the totals for other program areas.

Source: 10, 11, 20, 32 (See Table A-V-1).

Table A-V-23. Research and Development Direct Obligations, by Budget Line Item and Unique Project Number^a
(Millions of Dollars)

Budget Line Item / Unique Project ^b		1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	Total ^c
92	Apollo	10.1	36.1	190.3	446.5	1,160.6	2,225.0	2,708.9	2,971.3	2,877.9	2,535.2	15,169.3
101	Spacecraft Supporting Technology			3.6	6.6	6.6	6.9	*	*	-1.1	*	28.4
103	Launch Vehicle Supporting Technology			5.2	5.3	7.9	13.6	1.2	*	*	*	31.1
104	Propulsion Supporting Technology			1.9	8.0	8.4	8.0	.1	-1.1	-1.2	*	43.5
105	Launch Operations Supporting Technology			.3	1.2	1.8	2.5	.3	*	*	-1.1	6.2
903	Gemini Supporting Development							3.2	-1.1	*	*	3.0
904	Apollo Supporting Development							36.2	20.6	6.4	27.0	20.2
905	Apollo Applications Supporting Development								11.0	20.3	5.9	37.3
90 ^a	Advanced Manned Missions Supporting Dev.							13.7	2.2	.4	*	16.4
914	Apollo Spacecraft				73.4	361.9	881.4	1,017.1	1,264.4	1,258.0	1,097.7	5,277.7
921	Mission Control System					7.8	47.7	37.0	3.2	32.7	52.3	181.0
924	Apollo Space Operations						3.6	29.6	37.9	55.2	50.4	177.3
931	Saturn I Vehicle		9.4	96.9	193.3	255.3	188.1	32.3	-2.7	-1.3	-1.3	76.2
932	Saturn IB Vehicle					16.4	142.1	263.6	279.1	223.5	138.8	1,069.0
933	Saturn V Vehicle					333.9	696.8	1,040.9	1,158.4	1,074.4	1,007.0	5,363.7
940	Engine Development	10.1	26.7	82.4	99.7	136.5	166.0	165.9	133.1	17.7	20.0	557.1
950	Launch Operations Support				2.2	4.9	21.8	35.0	33.4	27.1	21.2	255.7
955	Launch Instrumentation						8.2	6.6	10.1	12.5	18.2	55.6
980	Systems Engineering				2.2	19.0	31.2	19.3	20.0	28.2	27.0	180.2
93	Advanced Manned Missions					10.1	13.2	20.3	13.4	8.4	1.9	67.2
390	Special Support									.5		.5
951	Advanced Studies					10.1	13.2	20.3	13.4	7.2	1.2	67.4
96	Apollo Applications								13.8	63.4	122.2	210.3
942	Apollo Applications Design and Development								13.8	.2	.1	14.0
945	MSF Experiment Definition									1.9	10.2	12.1
948	AAP Experiment Definition									3.6	23.8	27.4
961	AAP Spacecraft Development									22.7	11.1	33.8
964	Orbital Workshop									15.4	20.7	36.1
965	Apollo Telescope Mount									8.3	20.9	29.2
972	AAP Upgraded Saturn I Production									22.9	14.5	37.4
973	AAP-Saturn V Production									1.3	2.3	3.6
991	Payload Integration									4.0	16.3	20.3
995	Mission Operations									3.1	1.1	4.2
996	Program Support										1.3	1.3
99	Completed Missions	43.0	91.3	91.6	55.4	12.0	-1.1	-6.3	-1.1	.1	*	295.8
911	Mercury	28.9	87.7	92.4	31.2	-4.3	-1.2	-1.9	*	.1	*	235.0
912	Manned One-Day Mission				16.5	16.3	.2	-4.4	-1.1	*	*	32.4
916	Prospector									*		.1
923	Vega	14.1	3.6	-1.8	7.7							28.2
MM	Various Early Projects ^e	39.9	24.2	9.7	7.0	5.2						

Notes: ^aFor Tables A-V-22, A-V-23 and A-V-24 a heavy line has been drawn between the 1959-1963 period and the 1964-1968 period to indicate an occasional lack of continuity between the two periods. The lack of continuity has three principal causes. First, the 1959-1963 period included vehicle procurement costs with the space flight project. (See note ^d below.) Second, the coding/accounting structure was in a state of development until about 1963 and it has been difficult to reconstruct the early years. Third, there is a paucity of information from the early years and some of the early projects had to be handled somewhat arbitrarily. The discrepancies between the two periods can be calculated by subtracting years 1964-1968 from the total and comparing it with a total calculated for 1959-1963. An asterisk indicates less than \$50,000.

^bNomenclature based on Changes 9 and 10 of FMM 9100, i.e. 1968 nomenclature.

^cTotal is what is shown on the current accounts of the agency. Footnote ^a explains why annual amounts may not add to Total.

^dFootnote ^a explains how vehicle procurement amounts were handled in the 1959-1963 period. Figures in parentheses are for information only.

^eThe amounts on this line are buried in the totals for other programs and projects.

Table A-V-1. Sources of Financial Data Used in This Chapter

1. Robert L. Rosholt, An Administrative History of NASA, 1958-1963, NASA SP-4101
2. The Budget of the U.S. Government, FY 1962, pp. 175-81
3. The Budget of the U.S. Government, FY 1963, Appendix, pp. 745-51
4. The Budget of the U.S. Government, FY 1964, Appendix, pp. 781-87
5. The Budget of the U.S. Government, FY 1965, Appendix, pp. 765-72
6. The Budget of the U.S. Government, FY 1966, Appendix, pp. 845-51
7. The Budget of the U.S. Government, FY 1967, Appendix, pp. 867-73
8. The Budget of the U.S. Government, FY 1968, Appendix, pp. 873-79
9. The Budget of the U.S. Government, FY 1969, Appendix, pp. 873-79
10. BT, February 1965, History of Budget Plans, Actual Obligations, and Actual Expenditures for Fiscal Years 1959 Through 1963
11. BT, Draft, Untitled (It's a History of Budget Plans, etc., for FY 1964-1966)
12. BT-1, 1/18/68, Budget History, Summary All Appropriations
13. BT-1, 1/18/68, Budget History, Administrative Operations
14. BT-1, 1/18/68, Budget History, Research and Development
15. BT-1, 1/18/68, Budget History, Construction Facilities
16. BT-1, Summary of Financial Data by Appropriation and Fiscal Year
17. BT, Appropriation Requests, Authorizations, and Appropriations, FY 1959 to FY 1969
18. BT-1, Chronological History, Fiscal Year 1959 Budget Submission
19. BT-1, Chronological History, Fiscal Year 1960 Budget Submission
20. BT-1, Chronological History, Fiscal Year 1961 Budget Submission
21. BT-1, Chronological History, Fiscal Year 1962 Budget Submission
22. BT-1, Chronological History, Fiscal Year 1963 Budget Submission
23. BT-1, Chronological History, Fiscal Year 1964 Budget Submission
24. BT-1, Chronological History, Fiscal Year 1965 Budget Submission
25. BT-1, Chronological History, Fiscal Year 1966 Budget Submission
26. BT-1, Chronological History, Fiscal Year 1967 Budget Submission
27. BT-1, Chronological History, Fiscal Year 1968 Budget Submission
28. Information and Data Supplied by the Budget Operations Division of NASA Headquarters
29. BFA, Financial Status of Programs, Administrative Operations
30. BFA, Financial Status of Programs, Research and Development
31. BFA, Financial Status of Programs, Construction of Facilities
32. NASA Financial Management Manual, FMM 2100, Changes 9 and 10
33. Information and Data Supplied by the Financial Management Division of NASA Headquarters

Table A-V-2. NASA Appropriations, by Appropriation Title and Fiscal Year

(In millions of dollars)

Fiscal Year	S&E/AO ^a	R&D ^b	C&E/CoF ^c	Total
1959 ^d	86.3	196.6	48.0	330.9
1960	91.4	347.6	84.6	523.6
1961	170.8	670.4	122.8	964.0
1962	206.8	1,302.5	316.0	1,825.3
1963		2,897.9 ^e	776.2	3,674.1
1964	494.0	3,926.0	680.0	5,100.0
1965	623.5	4,363.6	262.9	5,250.0
1966	584.0	4,531.0	60.0	5,175.0
1967	640.0	4,245.0	83.0	4,968.0
1968	628.0	3,925.0	35.9	4,588.9
Total	3,524.8 ^f	26,405.6 ^g	2,469.4	32,399.8

Notes: ^aSalaries and Expenses 1959-1962, Administrative Operations 1963-1968^bResearch and Development. See Note e below.^cConstruction and Equipment 1959-1961, Construction of Facilities 1962-1968^dSee subsequent tables for FY 1959 funding pattern. Funds were appropriated to NACA, NASA, and transferred from DOD.^eResearch, Development and Operations (RD&O)^fBecause of 1963 arrangement this total is understated by about \$440,000,000.^gBecause of 1963 arrangement this total is overstated by about \$440,000,000.

Source: Tables A-V-9 through A-V-18 of this chapter.

Table A-V-3. Adjusted Appropriations as of June 30, 1968

(In millions of dollars)

Fiscal Year	Total	S&E/AO ^a	Percent of Total	R&D ^a	Percent of Total	C&E/CoF ^a	Percent of Total
1959 ^a	330.9	86.3	26.1	196.6	59.4	48.0	14.5
1960	523.6	90.9	17.4	333.4	63.7	99.4	19.0
1961	964.0	166.8	17.3	671.4	69.6	125.8	13.0
1962	1,824.9	213.8	11.7	1,268.1	69.5	343.0	18.8
1963	3,673.0	440.0 ^b	12.0	2,470.5 ^b	67.3	762.6	20.8
1964	5,099.7	496.1	9.7	3,861.5	75.7	742.1	14.6
1965	5,249.7	623.3	11.9	4,360.1	83.1	266.4	5.1
1966	5,174.9	611.8	11.8	4,502.2	87.0	60.9	1.2
1967	4,967.6	647.5	13.0	4,235.1	85.3	85.0	1.7
1968	4,588.8	640.4	14.0	3,910.6	85.2	37.8	0.8
Total	32,397.1	4,016.9 ^b	12.4	25,809.5 ^b	79.7	2,571.0	7.9

Notes: ^aSee Notes a, b, c, d of previous table.^bAdjusted appropriation for RD&O for FY 1963 as of 6/30/68 stood at \$2,910,491,027. For rough comparability \$440,000,000 was moved into the AO column and thus all indicated figures are estimates.

Source: Tables A-V-9 through A-V-18 of this chapter.

Table A-V-4. Authorizations and Appropriations Compared with Budget Requests

(Dollars are in millions)

Type of Action	Amounts and Percentages Cut (Added) by Congress							
	S&E/AO		R&D		C&E/CoF		Total	
	\$	%	\$	%	\$	%	\$	%
FY 1959								
Auth.	0	0	0	0	(3.7)	(3.8)	(3.7)	(0.9)
Appr.	4.5	5.0	41.0	17.3	50.3	51.2	95.8	22.5
FY 1960								
Auth.	0	0	12.2	3.5	5.8	8.5	18.0	3.5
Appr.	3.0	3.2	(2.3)	(0.7)	(16.0)	(23.3)	(15.3)	(3.0)
FY 1961								
Auth.	0	0	(0.4)	(0.1)	(5.0)	(4.1)	(5.4)	(0.6)
Appr.	0	0	0.6	0.1	0	0	0.6	0.1
FY 1962								
Auth.	0	0	75.0	5.4	10.0	3.0	85.0	4.4
Appr.	19.9	8.8	78.0	5.7	17.1	5.1	115.0	5.9
FY 1963								
Auth.			10.4	0.4	32.8	4.0	43.2	1.1
Appr.			70.4	2.4	42.8	5.2	113.2	3.0
FY 1964								
Auth.	42.1	7.5	232.1	5.3	87.0	10.9	361.2	6.3
Appr.	66.3	11.8	425.7	9.8	120.0	15.0	612.0	10.7
FY 1965								
Auth.	17.5	2.7	181.9	4.0	18.1	6.4	217.5	4.0
Appr.	17.5	2.7	159.4	3.5	18.1	6.4	195.0	3.6
FY 1966								
Auth.	18.4	3.0	38.9	0.9	12.3	16.5	69.6	1.3
Appr.	25.4	4.2	44.9	1.0	14.7	19.7	85.0	1.6
FY 1967								
Auth.	8.0	1.2	(2.0)	(*)	5.6	5.5	11.6	0.2
Appr.	23.9	3.6	1.6	*	18.5	18.2	41.0	0.9
FY 1968								
Auth.	23.1	3.4	204.4	4.7	6.7	8.7	234.2	4.6
Appr.	43.3	6.5	427.0	9.8	40.8	53.2	511.1	10.0
Total								
Auth.	109.1	2.9	752.5	2.7	169.6	6.1	1,031.2	3.0
Appr.	203.8	5.5	1,246.3	4.5	306.3	11.0	1,756.4	5.1

Source: Tables A-V-5 through A-V-8.

Table A-V-5. Requests, Authorizations, Appropriations, Obligations and Disbursements, All Appropriations

(In millions of dollars)

Fiscal Year	Budget Request	Authorization	Appropriation	Obligations ^a	Expenditures ^a
1959	426.7 ^b	430.4 ^c	330.9 ^d	298.7	145.5
1960	508.3	490.3	523.6 ^e	487.0	401.0
1961	964.6	970.0	964.0	908.3	744.3
1962	1,940.3	1,855.3 ^f	1,825.3	1,691.6	1,257.0
1963	3,787.3	3,744.1	3,674.1	3,448.4	2,552.4
1964	5,712.0	5,350.8	5,100.0	4,864.8	4,171.0
1965	5,445.0 ^g	5,227.5	5,250.0 ^h	5,500.7	5,092.9
1966	5,260.0	5,190.4	5,175.0	5,350.5	5,232.2
1967	5,012.0	5,000.4	4,968.0	5,011.8	5,425.7
1968	5,100.0	4,865.8	4,588.9	(4,585.1)	(4,722.7)
Total	34,156.2	33,125.0 ⁱ	32,399.8	(32,146.9)	(30,445.4)

- Notes:
- ^aActual Obligations and Disbursements during the fiscal year.
- ^bRequests for NACA/NASA amounted to \$280,054,000. Requests for transfers from DOD resulted in the transfer of \$146,619,532 in obligational authority to NASA.
- ^cSee the next three tables for the derivation of this figure.
- ^dIncludes \$101,100,000 appropriated to NACA, \$83,186,300 to NASA and \$146,619,532 transferred from DOD.
- ^e\$38,500,000 based on FY 1959 authorization P. L. 86-12.
- ^fIncludes \$71,000,000 supplemental for CoF for which existing authorization was available.
- ^gIncludes \$141,000,000 supplemental request for FY 1964 R&D Program.
- ^hIncludes \$72,494,000 R&D supplemental against FY 1964 authorization.
- ⁱSee note C above.

Source: 12; Tables A-V-9 through A-V-15 of this Chapter (See Table A-V-1)

Table A-V-6. Requests, Authorizations, Appropriations, Obligations, and Disbursements, Administrative Operations

(In millions of dollars)

Fiscal Year	Budget Request	Authorization	Appropriation	Obligations ^a	Expenditures ^a
1959	90.8 ^b	90.8 ^c	86.3 ^d	85.0	86.7
1960	94.4	94.4	91.4	89.4	91.0
1961	170.8	170.8	170.8	166.0	159.1
1962	226.7	226.7	206.8	213.2	207.1
1963 ^e					18.7
1964	560.3	518.2	494.0	493.8	415.9
1965	641.0	623.5	623.5	619.9	577.5
1966	609.4	591.0	584.0	611.2	619.4
1967	663.9	655.9	640.0	646.6	649.9
1968	671.3	648.2	628.0	639.2	651.5
Total	3,728.6 ^f	3,619.5 ^f	3,524.8 ^f	3,564.3	3,476.8

Notes: ^aActual Obligations and Disbursements during the fiscal year.

^b\$80,480,000 for NACA, \$10,354,000 for NASA.

^cActual authorization of \$3,354,000. Implied authorization of \$87,480,000.

^d\$78,100,000 to NACA, \$8,186,300 to NASA.

^eSee explanation of FY 1963 problem elsewhere, e.g. Table A-V-13.

^fUnderstated because of 1963 problem.

Source: 13; Tables A-V-9 through A-V-18 of this chapter.

Table A-V-7. Requests, Authorizations, Appropriations, Obligations, and Disbursements, Research and Development
(In millions of dollars)

Fiscal Year	Budget Request	Authorization	Appropriation	Obligations ^a	Expenditures ^a
1959	237.6 ^b	237.6 ^c	196.6 ^d	175.7	34.0
1960	345.3	333.1	347.6 ^e	307.9	255.7
1961	671.0	671.4	670.4	644.1	487.0
1962	1,380.5	1,305.5	1,302.5	1,261.3	935.6
1963	2,968.3 ^f	2,957.9 ^f	2,897.9 ^f	2,878.6	2,308.4
1964	4,351.7	4,119.6	3,926.0	3,824.4	3,317.4
1965	4,523.0 ^g	4,341.1	4,363.6 ^h	4,358.6	3,984.5
1966	4,575.9	4,537.0	4,531.0	4,468.9	4,741.1
1967	4,246.6	4,248.6	4,245.0	4,249.3	4,487.2
1968	4,352.0	4,147.6	3,925.0	3,881.3	3,945.1
Total	27,651.9 ⁱ	26,899.4 ⁱ	26,405.6 ⁱ	26,050.1	24,426.0

Notes: ^aActual Obligations and Disbursements during the fiscal year.

^b\$90,950,000 for NASA, \$146,619,532 for transfer to NASA from DOD.

^cActual authorization of \$20,750,000 for NASA, the rest is implied authorization.

^d\$50,000,000 to NASA, \$146,619,532 transferred from DOD.

^eIncludes \$16,675,000 based on FY 1959 authorization.

^fIncludes AO money and thus over stated.

^gIncludes \$141,000,000 supplemental request for FY 1964 R&D program.

^hIncludes \$72,494,000 supplemental against FY 1964 authorization.

ⁱOverstated as per note f above.

Source: 14; Tables A-V-9 through A-V-18 of this chapter (See Table A-V-1).

Table A-V-8. Requests, Authorizations, Appropriations, Obligations
and Disbursements, Construction of Facilities

(In millions of dollars)

<u>Fiscal Year</u>	<u>Budget Request</u>	<u>Authorization</u>	<u>Appropriation</u>	<u>Obligations^a</u>	<u>Expenditures^a</u>
1959	98.3 ^b	102.0 ^c	48.0 ^d	38.0	24.8
1960	68.6	62.8	84.6 ^e	89.7	54.3
1961	122.8	127.8	122.8	98.2	98.2
1962	333.1	323.1 ^f	316.0	217.1	114.3
1963	819.0	786.2	776.2	569.8	225.3
1964	800.0	713.0	680.0	546.6	437.7
1965	261.0	262.9	262.9	522.2	530.9
1966	74.7	62.4	60.0	270.4	572.4
1967	101.5	95.9	83.0	115.9	288.6
1968	76.7	70.0	35.9	(64.5)	(126.1)
Total	2,775.7	2,606.1	2,469.4	(2,532.4)	(2,472.6)

Notes: ^aActual Obligations and Disbursements during the fiscal year.

^b\$26,220,000 for NACA, \$72,050,000 for NASA.

^c\$29,933,000 for NACA, \$72,050,000 for NASA.

^d\$23,000,000 for NACA, \$25,000,000 for NASA.

^eIncludes \$21,825,000 based on FY 1959 authorization.

^fIncludes \$71,000,000 supplemental for which existing authorization was available.

Source: 15; Table A-V-9 through A-V-18 of this chapter (See Table A-V-1).

Table A-V-9. Funding NASA's Program for FY 1959

Action	S&E ^a	R&D ^a	C&E ^a	Total
Regular Request (NACA) ^b	80,480,000		26,220,000	106,700,000
Authorization ^c	(80,480,000) ^d		29,933,000	(110,413,000)
Appropriation ^e	78,100,000		23,000,000	101,100,000
Supplemental Request (NASA) ^f	7,000,000	70,200,000	47,500,000	125,000,000
Authorization ^g	(7,000,000) ^h	(70,200,000) ^h	47,800,000	(125,000,000)
Appropriation ⁱ	5,000,000	50,000,000	25,000,000	80,000,000
Supplemental Request (NASA) ^j	3,354,000	20,750,000	24,250,000	48,354,000
Authorization ^k	3,354,000	20,750,000	24,250,000	48,354,000
Appropriation ^l	3,186,300	m	m	3,186,300
FY 1959 NOA Transfers				
From ARPA ⁿ		59,200,000		
From Air Force ^o		57,800,000		
From Army ^p		4,078,250		
Subtotal		121,078,250		121,078,250
Total FY 1959 NOA Available	86,286,300	171,078,250	48,000,000	305,364,550
DOD Unobligated Balances ^q		25,541,282		25,541,282
FY 1959 Funding Base	86,286,300	196,619,532 ^r	48,000,000	330,905,832 ^s
Additional Transfers:				
ARPA Working Fund ^t		+8,000,000		
To Prior Years	-1,011,000			

Notes: ^aS&E = Salaries and Expenses; R&D = Research and Development; C&E = Construction and Equipment.

^bSubmitted in January, 1958, before the Space Act was being considered. NASA was established and NACA disestablished at the end of 3 months of FY 1959.

^cP. L. 85-617, August 8, 1958.

^dNo authorizing legislation needed.

^eP. L. 85-844, August 28, 1958.

^fRequested on July 30, 1958, the day after the Space Act was passed.

^gP. L. 85-657, August 14, 1958.

^hNo authorization needed because of blanket authorization in Section 307 of the Space Act, P. L. 85-568.

ⁱP. L. 85-766, August 27, 1958.

^jRequested in January, 1960.

^kP. L. 86-12, April 22, 1959.

^lP. L. 86-30, May 20, 1959, a government-wide pay increase.

^mSee the next table for the disposition of the R&D and C&E requests.

ⁿBased on Executive Order 10783. The \$59,200,000 excludes a \$8,000,000 working fund (see note r below).

^oBased on EO 10783.

^pBased on EO 10793. Consists of NOA associated with the Jet Propulsion Laboratory transferred from the Army to NASA in December, 1958.

^qBased on EO 10783. Consists of prior years unobligated balances associated with the U.S. Scientific Satellite Project (Project Vanguard).

^rConsists of \$50,000,000 in appropriations directly to NASA and \$146,619,532 in appropriations transferred from DOD.

^sConsists of \$101,100,000 appropriated to NACA, \$83,186,300 appropriated to NASA, and \$146,619,532 transferred from DOD.

^tSee note n above.

Table A-V-10. Funding NASA's Program for FY 1960

Action	S&E ^a	R&D ^a	C&E ^a	Total
Regular Request ^b	94,430,000	333,070,000	57,800,000	485,300,000
Authorization ^c	94,430,000	333,070,000	62,800,000 ^d	490,300,000
Appropriation ^e	91,400,000	335,350,000 ^f	73,825,000 ^g	500,575,000 ^h
Supplemental Request ⁱ		12,200,000	10,800,000	23,000,000
Authorization		j	j	j
Appropriation ^k		12,200,000	10,800,000	23,000,000
Later Transfers ^l				
From S&E to R&D	-550,000	+550,000		
From R&D to C&E		-14,730,366	+14,730,366	
Adjusted Appropriations	90,850,000	333,369,634	99,355,366	523,575,000

Notes: ^aS&E = Salaries and Expenses; R&D = Research and Development; C&E = Construction and Equipment.

^bJanuary 19, 1959.

^cP. L. 86-45, June 15, 1959.

^dIncludes an implied authorization of \$5,000,000 for "unforeseen" contingencies.

^eP. L. 86-213, September 1, 1959.

^f\$16,675,000 based on FY 1959 authorizations.

^g\$21,825,000 based on FY 1959 authorizations.

^h\$38,500,000 based on FY 1959 authorizations, P. L. 86-12.

ⁱJanuary, 1960.

^jP. L. 86-213 had provided excess authorizations of \$23,225,000.

^kP. L. 86-425, April 14, 1960.

^lBased upon provisions in NASA's authorization and appropriation acts. Figures as of June 30, 1968.

Additional Comments: P. L. 86-45 (note ^c above) extended the need for annual authorizations indefinitely. This had originally been a one-year rider to the FY 1959 appropriation (P. L. 87-766).

Source: 1 (pp. 85-8), 2, 19, 28. (See Table A-V-1)

Table A-V-11. Funding NASA's Program for FY 1960

Action	S&E ^a	R&D ^a	C&E ^a	Total
Regular Request ^b	167,560,000	545,153,000	89,287,000	802,000,000
Budget Amendment ^c	3,200,000	76,300,000	33,500,000	113,000,000
Total	170,760,000	621,453,000	122,787,000	915,000,000
Authorization ^d	170,760,000	671,453,000	127,787,000	970,000,000
Appropriation ^e	170,760,000	621,453,000	122,787,000	915,000,000
Supplemental Request ^f		49,606,000		49,606,000
Authorization		g		g
Appropriation ^h		49,000,000		49,000,000
Later Transfers ⁱ				
From S&E to R&D	-3,352,000	+3,352,000		
From S&E to C&E	-590,000		+590,000	
From R&D to C&E		-2,442,877	+2,442,877	
Adjusted Appropriations	166,818,000	671,362,123	125,819,877	964,000,000
Transfers from DOD ^j		1,661,488	1,070,005	2,731,493

Notes: ^aS&E = Salaries and Expenses; R&D = Research and Development; C&E = Construction and Equipment.

^bJanuary 18, 1960.

^cFebruary 8, 1960.

^dP. L. 86-481, June 1, 1960 (the increase stemmed from the work of Senate Leader Lyndon Johnson).

^eP. L. 86-626, July 12, 1960.

^fJanuary 18, 1961.

^gP. L. 86-481 provided excess authorizations of \$55,000,000.

^hP. L. 87-14, March 31, 1961.

ⁱBased on provisions of public law. Figures as of June 30, 1968.

^jPrior year unobligated balances transferred from ARPA-DOD (42 U.S.C. 2453).

Additional Comments: The February 1960 Budget Amendment stemmed primarily from the transfer of the Saturn project from the Army to NASA.

Source: 1 (pp. 136-8), 3, 20, 28. (See Table A-V-1)

Table A-V-12. Funding NASA's Program for FY 1962

Action	S&E ^a	R&D ^a	CoF ^a	Total
Regular Request ^b	189,986,000	819,819,000	99,825,000	1,109,730,000
Budget Amendment ^c	6,700,000	99,720,000	19,250,000	125,670,000
Budget Amendment ^d	30,000,000	376,000,000	143,000,000	549,000,000
Total	226,686,000	1,295,539,000	262,075,000	1,784,300,000
Authorization ^e	226,686,000	1,305,539,000	252,075,000	1,784,300,000
Appropriation ^f	206,750,000	1,220,000,000	245,000,000	1,671,750,000
Supplemental Appropriation ^g	+10,000,000	-10,000,000		
Supplemental Request ^h		85,000,000	71,000,000	156,000,000
Authorization ⁱ		1	(71,000,000) ^j	(71,000,000) ^j
Appropriation ^j		82,500,000	71,000,000	153,500,000
Later Transfers ^k				
From S&E to R&D	-660,000	+660,000		
From S&E to CoF	-2,000,000		+2,000,000	
From R&D to CoF		-25,040,864	+25,040,864	
From S&E to GSA	-320,000			-320,000
Adjusted Appropriations	213,770,000	1,268,119,136	343,040,864	1,824,930,000

Notes: ^aS&E = Salaries and Expenses; R&D = Research and Development;
CoF = Construction of Facilities.

^bJanuary 1961 Eisenhower Budget.

^cMarch 1961 Amendment.

^dMay 26, 1961 Amendment associated with the accelerated manned lunar landing program.

^eP. L. 87-98, July 21, 1961.

^fP. L. 87-141, August 17, 1961.

^gP. L. 87-332, September 30, 1961.

^hFebruary 7, 1962.

ⁱP. L. 87-98 provided excess authorizations of \$113,550,000. P. L. 87-584, Aug. 14, 1962, amended P. L. 87-98 to explicitly authorize the land acquisitions for which the CoF supplemental was sought.

^jP. L. 87-545, July 25, 1962.

^kBased on provisions of public law. Figures as of June 30, 1968.

Table A-V-13. Funding NASA's Program for FY 1963

Action	R,D&O ^a	CoF ^a	Total
Regular Request	2,968,272,000	818,998,000	3,787,276,000
Authorization ^b	2,957,878,000	786,237,250	3,744,115,250
Appropriation ^c	2,897,878,000	776,237,000	3,674,115,000
Later Transfers ^d			
From CoF to R,D&O	+13,686,750	-13,686,750	
From R,D&O to GSA	-1,073,723		-1,073,723
Adjusted Appropriations	2,910,491,027	762,550,250	3,673,041,277

Notes: ^aR,D&O = Research, Development and Operations;
CoF = Construction of Facilities.

^bP. L. 87-584, Aug. 14, 1962.

^cP. L. 87-741, Oct. 3, 1962.

^dBased on provisions of public law. Figures as of June 30, 1968.

Additional Comments: The amalgamation of R&D and S&E into R,D&O greatly complicates year to year comparisons. In FY 1964 R,D&O is split into R&D and AO. AO becomes roughly comparable to S&E. For FY 1963 AO can be roughly set at about \$440 million.

Table A-V-14. Funding NASA's Program for FY 1964

Action	AO ^a	R&D ^a	CoF ^a	Total
Regular Request ^b	(560,300,000)	(4,351,700,000)	800,000,000	5,712,000,000
Authorization ^c	518,185,000	4,119,575,000	713,060,400	5,350,820,400
Appropriation ^d	474,000,000	3,926,000,000	680,000,000	5,100,000,000
Later Transfers ^e				
From AO to CoF	-13,300,000		+13,300,000	
From R&D to AO	+15,685,000	-15,685,000		
From R&D to CoF		-48,845,300	+48,845,300	
From AO to GSA	-285,956			-285,956
Adjusted Appropriations	496,000,044	3,861,469,700	742,145,300	5,099,714,044

Notes: ^aAO = Administrative Operations; R&D = Research and Development;
CoF = Construction of Facilities.

^bIn the budget request AO and R&D were submitted as one account, R,D&O.

^cP. L. 88-113, Sept. 6, 1963. P. L. 88-215, Dec. 19, 1963.

^dBased on provisions of public law. Figures as of June 30, 1963.

Source: 1 (pp. 285-9), G. O. P. (See Table A-V-1.)

Table A-V-15. Funding NASA's Program for FY 1965

Action	AO	R&D	CoF	Total
Supplemental Request ^a		141,000,000		141,000,000
Regular Request	641,000,000	4,382,000,000	281,000,000	5,304,000,000
Authorization ^b	623,525,500	4,341,000,000	262,880,500	5,227,506,000
Appropriation ^c	623,525,500	4,363,594,000 ^d	262,880,500	5,250,000,000 ^d
Later Transfers ^e				
From R&D to CoF		-3,496,993	+3,496,933	
From AO to GSA	-272,812			-272,812
Adjusted Appropriations	623,252,688	4,360,097,007	266,377,493	5,249,727,188

Notes: ^aFor FY 1964 Program. Note cuts in 1964 request shown in previous table.

^bP. L. 88-360, July 11, 1964.

^cP. L. 88-507, Aug. 30, 1964.

^dOf this appropriation, \$72,494,000 was charged against the FY 1964 authorization. This was Congress' response to the supplemental request mentioned in the first footnote.

^eBased on provisions of public law. Figures as of June 30, 1963.

Source: 7, 24, 28. (See Table A-V-1.)

Table A-V-16. Funding NASA's Program for FY 1966

Action	AO	R&D	CoF	Total
Regular Request	600,400,000	4,575,000,000	74,700,000	5,260,000,000
Authorization ^a	591,048,850	4,536,971,000	62,376,350	5,190,396,200
Appropriation ^b	584,000,000	4,531,000,000	60,000,000	5,175,000,000
Later Transfers ^c				
From R&D to AO	+27,896,000	-27,896,000		
From R&D to CoF		-940,000	+940,000	
From AO to GSA	-76,000			-76,000
Adjusted Appropriations	611,820,000	4,502,164,000	60,940,000	5,174,924,000

Notes: ^aP. L. 89-53, June 28, 1965.^bP. L. 89-128, August 16, 1965.^cBased on provisions of public law. Figures as of June 30, 1968.

Table A-V-17. Funding NASA's Program for FY 1967

Action	AO	R&D	CoF	Total
Regular Budget	663,900,000	4,246,600,000	101,500,000	5,012,000,000
Authorization ^a	655,900,000	4,248,600,000	95,919,000	5,000,419,000
Appropriation ^b	640,000,000	4,245,000,000	83,000,000	4,968,000,000
Later Transfers ^c				
From R&D to AO	+7,900,000	-7,900,000		
From R&D to CoF		-2,000,000	+2,000,000	
From AO to GSA	-417,000			-417,000
Adjusted Appropriations	647,483,000	4,235,100,000	85,000,000	4,967,583,000

Notes: ^aP. L. 89-528, August 5, 1966.^bP. L. 89-555, Sept. 6, 1966.^cBased on provisions of public law. Figures as of June 30, 1968.

Source: 2, 26, 28. (See Table A-V-1.)

Table A-V-18. Funding NASA's Program for FY 1968

<u>Action</u>	<u>AO</u>	<u>R&D</u>	<u>CoF</u>	<u>Total</u>
Budget Request	671,300,000	4,352,000,000	76,700,000	5,100,000,000
Authorization ^a	648,206,000	4,147,565,000	69,980,000	4,865,751,000
Appropriation ^b	628,000,000	3,925,000,000	35,900,000	4,588,900,000
Later Transfers ^c				
From R&D to AO	+12,500,000	-12,500,000		
From R&D to CoF		-1,900,000	+1,900,000	
From AO to GSA	-127,000			-127,000
Adjusted Appropriations	640,373,000	3,910,600,000	37,800,000	4,588,773,000

Notes: ^aP. L. 90-67, Aug. 21, 1967.

^bP. L. 90-131, Nov. 8, 1967.

^cBased on provision of public law. Figures as of June 30, 1968.

Source: 9, 27, 28. (See Table A-V-1.)

Table A-V-19. Direct Obligations, Actual and Comparative, by Appropriation Title

<u>Appropriation Title</u>	<u>1959</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>
Administrative Operations, Comparative (\$Millions) ^a	86.0 ^b	117.3	222.7	315.5	424.4	493.9	620.0	611.2	646.6	639.2
Research and Development, Comparative (\$Millions) ^c	174.7	280.0	587.5	1,159.0	2,454.2	3,824.4	4,358.6	4,468.9	4,249.3	3,881.3
Construction of Facilities, Comparative (\$ Millions)	38.0	89.7	98.2	217.1	569.8	546.6	522.2	270.4	115.9	64.5
Total, All Appropriations (\$ Millions)	298.7	486.9	908.3	1,691.7	3,448.4	4,864.8	5,500.7	5,350.5	5,011.7	4,585.1
Salaries and Expenses, Actual (\$ Millions)	85.0	89.4	166.0	213.2						
Administrative Operations, Actual (\$ Millions)						493.9	620.0	611.2	646.6	639.2
Research and Development, Actual (\$ Millions)	175.7	307.9	644.2	1,261.3		3,824.4	4,358.6	4,468.9	4,249.3	3,881.3
Research, Development and Operations, Actual (\$ Millions)					2,878.6					
Construction and Equipment, Actual (\$ Millions)	38.0	89.7	98.2							
Construction of Facilities, Actual (\$ Millions)				217.1	569.8	546.6	522.2	270.4	115.9	64.5
Total, All Appropriations (\$ Millions)	298.7	486.9	908.3	1,691.7	3,448.4	4,864.8	5,500.7	5,350.5	5,011.7	4,585.1
Percentages of Yearly Total:										
Administrative Operations, Comparative	28.8	24.1	24.5	18.6	12.3	10.2	11.3	11.4	12.9	
Research and Development, Comparative	58.5	57.5	64.7	68.5	71.2	78.6	79.2	83.5	84.8	
Construction of Facilities, Comparative	12.7	18.4	10.8	12.8	16.5	11.2	9.5	5.1	2.3	
Total, All Appropriations (100%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
Percentages of Ten-Year Total:										
Administrative Operations, Comparative										
Research and Development, Comparative										
Construction of Facilities, Comparative										
Total, All Appropriations										

Notes: ^aCalculated by adding "R&D Support of Plant" to "Salaries and Expenses" for 1959-1962. 1963 based on data source #10.

^bExcludes \$1,011,781 made in FY 1958 for FY 1959 program.

^cCalculated by subtracting "R&D Support of Plant" from "Research and Development, Actual." Figures used for "R&D Support of Plant" were: \$1.0 million for 1959, \$27.9 million for 1960, \$56.7 million for 1961, and \$102.3 million for 1962. 1963 based on data source #10.

Sources: 10-15 (See Table A-V-1).

Table A-V-20. Administrative Operations Direct Obligations, by Installation
(Millions of Dollars)

<u>Installation</u>	<u>1959</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>
NASA Headquarters										
WSO, NEO, PLOO, NAPO ^a										
Langley Research Center										
Ames Research Center										
Lewis Research Center										
Flight Research Center										
Electronics Research Center										
Space Nuclear Propulsion Office										
Goddard Space Flight Center										
Wallops Station										
Marshall Space Flight Center										
Manned Spacecraft Center										
John F. Kennedy Space Center, NASA										
Total Administrative Operations	86.0	117.3	222.7	315.5	424.4 ^b	493.9	620.0	611.2	646.6	632.2
1959-1962 Support of Plant	1.0	27.9	56.7	102.3						
1959-1962 Salaries and Expenses	85.0	89.4	166.0	213.2						

Notes: ^aWestern Support Office, North Eastern Office, Pacific Launch Operations Office, NASA Pasadena Office.

Source: 10, 11, 28.

Table A-V-21. Amounts Programmed for Administrative Operations (1968 only), by NASA Installation
(Millions of Dollars)^a

<u>Installation</u>	<u>Personal Services</u>	<u>Travel</u>	<u>Operation of Installation</u>	<u>Total</u> ^b
NASA Headquarters	34.1	2.2	21.8	58.1
Western Support Office ^c	.7	*	.3	1.0
NASA Pasadena Office	1.3	.1	.5	1.9
Langley Research Center	48.5	1.0	12.8	62.3
Ames Research Center	26.7	.7	6.3	33.7
Lewis Research Center	54.7	1.0	10.6	66.3
Flight Research Center	3.8	.2	2.7	6.7
Electronics Research Center	10.0	.3	5.1	15.4
Space Nuclear Propulsion Office - C	1.0	.1	*	1.1
Space Nuclear Propulsion Office - N	.5	*	*	.5
Space Nuclear Propulsion Office - W	.4	.1	0	.5
Goddard Space Flight Center	37.1	2.2	16.6	55.9
Wallops Station	8.5	.1	3.6	12.2
Jet Propulsion Laboratory	0	0	.1	.1
Marshall Space Flight Center	89.7	2.8	33.7	126.2
Manned Spacecraft Center	33.4	4.0	28.6	66.0
John F. Kennedy Space Center, NASA	36.9	.7	55.5	93.1
NASA Total	387.2	15.4	198.1	600.6

Notes: ^aAn asterisk indicates less than \$50,000.

^bSum of the rounded figures in the first three columns except in the case of NASA Total.

^cDiscontinued 3/1/68.

Research and Development Direct Obligations, by Unique Project Number^a
(Millions of Dollars)

Unique Project ^b	UPN-PLI	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	Total ^c
Spacecraft Supporting Technology	101-92			3.6	6.6	6.6	6.9	*	.*	-.1	.*	28.4
Launch Vehicle Supporting Technology	103-92			5.2	5.3	7.9	13.6	1.2	*	.*	.*	31.1
Propulsion Supporting Technology	104-92			1.9	8.0	8.4	8.0	.1	-.1	-.2	.*	43.5
Launch Operations Supporting Technology	105-92			.3	1.2	1.8	2.5	.3	*	.*	-.1	6.2
Space Power and Electric Propulsion...SRT	120-71	.1	.4	4.2	15.3	19.4	23.3	25.4	22.8	34.7	33.8	174.0
Nuclear Rocket Systems SRT	121-72	.5	.4	.3		.2	.2	1.0	.6	1.8	1.2	5.1
Nuclear Rocket Propulsion SRT	122-72			*	.7	12.9	19.3	21.1	18.8	15.2	7.9	96.7
Chemical and Solar Power SRT	123-73		1.1	5.2	4.8	7.8	12.5	15.2	13.2	1.2	*	62.3
Space Vehicle Systems SRT	124-74		2.4	.4	5.3	17.1	23.3	24.5	25.0	27.5	28.9	157.4
Electronics Systems SRT	125-75		2.4	2.9	2.5	14.1	22.3	25.6	29.9	32.3	36.6	170.7
Aeronautics SRT	126-76	2.0	4.7	1.3	.1	6.0	7.7	8.2	11.0	10.3	18.8	62.7
Human Factor Systems SRT	127-77			.5	2.9	8.7	11.5	14.6	12.6	15.1	16.5	82.8
Chemical Propulsion SRT	128-78	6.2	3.5	1.1	5.9	12.6	22.1	17.2	13.5	18.6	15.5	105.8
Research Program SRT	129-79			2.2	7.4	17.0	21.2	22.5	21.9	21.8	2.1	135.6
Mission Analysis SRT	130-70								.4	1.1	1.5	3.0
Identification and Dissemination	141-65					.9	2.6	2.9	2.7	4.6	1.8	15.5
Economic Studies	143-65					1.1	.6	1.4	.8	.7	.5	5.1
Tracking and Data Acquisition SRT	150-51	.3	3.7	7.0	14.6	12.4	10.6	15.1	13.3	13.0	11.4	106.4
Space Applications SRT	160-61	.1	1.9	3.5	4.1	4.3	6.9	6.5	7.6	7.0	17.7	53.5
Communications and Navigation SRT	164-61		.8	1.3	4.9	7.7	3.5	1.0	1.7	3.9	.6	26.7
Future Applications SRT	165-61						.2	.*				.2
Applications Technology SRT	166-61						.5	1.2	1.2	.5		3.2
Earth Resources SRT	169-86									4.2	.3	4.5
Launch Vehicle SRT	180-89					.9	2.1	3.4	2.0	3.8	5.4	17.6
Training Grants	181-41				1.4	13.9	19.8	24.5	25.8	15.2	2.4	103.7
Facilities Grants	182-41				6.4	6.9	9.1	8.2	7.0	4.9	.6	43.2
Research Grants	183-41				2.4	3.9	7.6	12.3	12.4	10.9	8.6	60.7
Socio Economic Studies	184-41						.2					.2
Lunar and Planetary Exploration SRT-Science	185-84		2.6	1.0	12.7	12.4	9.9	12.6	13.6	13.5	10.5	136.8
Lunar and Planetary Exploration SRT-ATD	186-84	12.2	9.5	19.4	4.2	5.8	3.6	8.8	6.8	7.2	7.2	56.3
Lunar and Planetary Exploration SRT-SS	187-84					2.9	1.3	-.7		.*		2.6
Physics and Astronomy SRT	188-85	2.5	3.0	2.9	9.4	11.9	15.0	17.3	18.8	20.5	22.7	150.3
Bioscience SRT	189-87			3.1	1.7	9.2	13.4	12.3	11.8	9.8	12.2	74.2
Manned Space Sciences SRT	190-86						1.0	3.4	.5	.5	-.1	4.7
Planetary Extension Program SRT	194-84										10.6	10.6
Network Operations (T&DA)	311-51	2.0	10.0	11.0	44.0	51.4	68.0	66.7	135.3	124.6	203.4	603.3
Equipment and Components (T&DA)	312-51			5.7	6.9	44.2	70.2	147.9	115.6	62.6	40.2	403.3
Nuclear Rocket Dev. Station Operations	321-72						.8	.7	2.0	2.3	4.0	9.8
Special Support (OSS&A)	380-50									3.5	2.3	5.8
Data Analysis (OSS&A)	385-85								1.6	1.9	2.5	6.0
Special Support (OMSF)	390-93									.5		.5

Table A-V-24. Research and Development Direct Obligations, by Unique Project Number^a
(Millions of Dollars)

Unique Project ^b	UPN-BLI	1952	1960	1961	1962	1963	1964	1965	1966	1967	1968	Total ^c
Scout Procurement ^d	490-89	-----	-----	(14.9)	-----	-----	9.0	5.6	6.6	6.7	5.2	48.0
Centaur Procurement ^d	491-89	-----	-----	(16.2)	-----	-----	32.0	40.0	49.4	46.1	54.0	237.8
Delta Procurement ^d	492-89	-----	-----	(43.9)	-----	-----	22.2	32.6	8.3	18.9	26.3	152.8
Agna Procurement (Excluding Gemini) ^d	493-89	-----	-----	(152.8)	-----	-----	48.1	46.6	56.6	32.6	10.6	347.3
Atlas Procurement (Excluding Mercury) ^d	494-89	-----	-----	(6.5)	-----	-----	1.4	1.2	*	---	---	9.1
Thor (Echo) Procurement ^d	495-89	-----	-----	(3.2)	-----	-----	-----	-----	-----	-----	-----	3.2
Sustaining Engineering and Maintenance ^d	497-89	-----	-----	(6.9)	-----	7.7	12.4	19.3	46.6	32.2	31.1	156.2
Advanced Studies (T&DA)	581-51	-----	-----	-----	-----	-----	-----	-----	-----	.3	-----	.3
Tiros/TOS Improvements	601-61	.6	2.6	3.4	6.3	19.3	7.5	5.6	1.3	3.8	10.0	52.4
Tiros Operational System (TOS)	602-61	-----	-----	-----	-----	-----	-----	-----	-----	-----	*	*
Meteorological Flight Experiments	603-61	-----	-----	-----	-----	-----	-----	.6	4.1	5.4	.2	10.4
Nimbus A-D	604-61	-----	.9	6.9	23.4	30.8	40.8	15.0	24.7	24.4	33.2	170.3
Meteorological Soundings	607-61	-----	-----	-----	.4	1.0	2.3	2.6	2.6	2.6	3.3	14.9
Systems A (Automatic Picture Taking...)	609-61	-----	-----	-----	-----	-----	*	-----	-----	-----	-----	.3
International Applications Satellite	610-61	-----	-----	-----	-----	-----	-----	-----	-----	.1	.1	.2
Echo I (Nonrigid) A-11	621-61	3.0	1.4	2.1	1.6	---	.8	-----	---	-----	-----	1.4
Echo A-12 (Includes AVT)	622-61	-----	-----	2.0	8.3	2.4	1.6	.3	.1	.2	---	8.3
Rebound	624-61	-----	-----	.2	.1	-----	-----	-----	-----	-----	-----	1.1
Radiation Measurements	625-61	-----	.4	.6	1.2	-.4	*	-----	-----	---	-----	1.7
Relay	626-61	-----	-----	7.0	15.3	13.2	5.0	.7	.1	*	---	33.7
Systems	627-61	-----	-----	1.3	9.6	14.9	3.8	.4	-.2	---	-.2	21.0
Applications Technology Satellites (A-E)	630-61	-----	-----	-----	-----	-----	10.2	28.6	31.4	24.6	21.5	116.2
Early Gravity Gradient Test Satellite	632-61	-----	-----	-----	-----	-----	-----	3.1	.5	-.1	-----	3.5
Applications Technology Satellites (F-G)	635-61	-----	-----	-----	-----	-----	-----	-----	-----	-----	.5	.9
Advanced Studies - Launch Vehicles	680-89	-----	-----	-----	-----	-----	-----	.3	.6	.5	.5	2.0
Advanced Studies - Space Applications	682-61	-----	-----	-----	-----	-----	-----	-----	.4	.3	.4	1.1
Advanced Studies - Lunar and Planetary	684-84	-----	-----	-----	.4	1.2	1.5	2.2	1.7	2.2	1.2	10.2
Advanced Studies - Physics and Astronomy	685-85	-----	-----	-----	-----	-----	-----	-----	.4	.7	---	1.0
SNAP-8 Development Project	701-71	.3	.6	.6	7.9	16.0	15.4	11.1	5.8	11.5	7.5	77.6
SERT (Space Electric Rocket Test)	704-71	-----	-----	*	3.4	3.2	3.5	2.0	.4	2.9	1.4	14.8
Small Nuclear Electric...Flight Projects	705-71	-----	-----	-----	-----	1.2	.3	*	---	---	---	1.5
RIFT (Reactor in Flight Test)	706-72	-----	-----	.3	1.2	10.4	7.0	.1	---	---	---	18.9
Small Biotechnology Flights	708-77	-----	-----	-----	.4	.1	*	.3	2.0	1.6	.4	5.8
Small Space Vehicle Flight Projects	709-74	-----	-----	1.1	.3	1.5	1.7	1.2	2.0	5.0	1.5	13.1
Small Chemical Propulsion Flight Projects	710-78	-----	-----	-----	-----	.3	*	*	-----	*	-----	.4
Scout Re-entry Heating Experiment	711-74	-----	-----	-----	1.7	1.5	.3	.3	2.7	2.2	1.9	7.7
Meteoroid Satellite Project S-55b	712-74	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	.1
Meteoroid Satellite Project S-55c, S-55d	713-74	-----	-----	-----	1.0	2.9	.3	.3	-----	---	---	1.8
FIRE	714-74	-----	-----	-----	4.0	13.9	6.1	2.6	.1	.1	---	20.3
Small Electronics Systems Flight Projects	715-75	-----	-----	-----	-----	1.4	2.4	1.6	1.1	.4	---	6.7
KIWI	717-72	1.0	2.6	8.4	4.7	4.5	1.8	-1.4	.4	-----	---	21.0
Nerva	718-72	-----	-----	-----	19.3	39.6	49.7	36.6	35.3	24.3	22.6	244.8
X-15 Research Aircraft	719-76	-----	-----	-----	-----	5.6	.8	1.4	.9	.5	3.5	13.0

Table A-V-24. Research and Development Direct Obligations, by Unique Project Number^a
(Millions of Dollars)

Unique Project ^b	UPN-BLI	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	Total ^c
Supersonic Aircraft Technology	720-76				.1	4.3	5.9	21.2	11.8	13.7	12.5	69.6
V/STOL Aircraft Technology	721-76					.3	2.6	2.2	3.0	5.8	7.0	21.5
Pegasus	725-74					1.0	9.9	13.7	1.5	.1	*	29.1
M-1 Engine Development	726-78				16.7	34.3	24.2	20.9	3.5	2.8	-.2	102.5
Lifting Body Flight Program	727-74						1.2	.8	1.5	1.0	1.1	5.7
Large Solid Motor Program (S-10)	728-78							15.6	8.7	8.5	1.6	34.5
Hypersonic Ramjet Experiment	729-76							2.3	1.1	6.3	7.0	16.7
RAM-C (Radio Attenuation Measurements)	730-75							.9	1.3	1.0	.5	3.6
Chemical Rocket Experimental Engineering	731-78							6.7	12.9	16.7	13.8	50.2
XP-70 Flight Research Program	732-76								.2	11.6	10.0	21.9
Aircraft Noise Alleviation	733-76									4.4	7.1	11.4
Orbiting Free Otolith	735-77										.5	.5
OART Experiment Definition	740-7A									.7	.3	1.0
Apollo Applications Experiment Definition	749-86								.4	1.1	.5	2.0
Advanced Studies - Nuclear Electric Systems	780-71						.2		.1	-.*		.3
Advanced Studies - Space Vehicle Systems	784-74						.2	2.5	.5	*	-.*	3.2
Advanced Studies - Electronics	785-75								.2			.4
Advanced Studies - Aeronautical Systems	786-76							.7	.4	*		1.1
Advanced Studies - Mission Analysis	789-70								1.0	1.6	-.*	2.5
Ranger	801-84	3.4	11.7	52.3	62.6	80.4	30.2	12.5	-.5	-.4	-.3	160.8
Surveyor	803-84			4.8	39.1	66.3	70.4	82.7	106.0	80.3	33.0	468.5
Surveyor Orbiter	804-84						*	-.1		-.*		1.1
Mariner A	806-84			11.0	-4.0		2.0	-.4		-.*	-.*	10.9
Mariner B	807-84				12.4	5.5	-1.0	-.6				10.2
Mariner-Mars '64	808-84					31.8	37.7	16.2	2.3	.3	-.3	93.2
Mariner R	810-84				39.3	7.7	.1	-.4		-.2		21.6
Pioneer (195Y)	811-85					*	15.8	15.1	9.2	10.2	5.9	56.3
Mariner-Mars '66	812-84						7.0	1.6	-.8	-.1		7.7
Mariner IV	813-84								.3	.8	.6	1.6
Lunar Orbiter	814-84				1.2	*	20.0	49.5	56.8	27.2	8.9	162.3
Mariner-Mars '69	816-84								4.1	30.3	72.6	107.0
Mariner-Venus '67	817-84								10.9	12.1	3.2	26.2
Voyager	818-82							6.7	16.8	10.0	3.1	36.6
Orbiting Solar Observatories	821-85		1.0	4.0	5.8	10.0	12.2	10.7	9.8	10.6	11.6	67.4
Advanced Orbiting Solar Observatories	822-85				.2	.1	7.2	6.9	10.4	-1.0	-.*	23.6
Orbiting Astronomical Observatories	831-85		.3	11.6	32.9	39.5	35.3	31.8	22.7	28.0	45.8	242.9
FLOX (Fluorine-Oxygen) Development	839-83						*	3.7	.5	.2		4.5
Orbiting Geophysical Observatories	841-85		.3	8.6	18.4	42.2	32.4	40.1	28.6	24.9	20.7	204.8
Returned Lunar Sample Analysis	848-86									1.8	1.2	3.0
Apollo Applications Experiment Definition	849-86								9.9	7.6	1.1	18.6

Table A-V-24. Research and Development Direct Obligations, by Unique Project Number^a
(Millions of Dollars)

Unique Project ^b	UPN-BLI	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	Total ^c
Energetic Particles Explorers	851-85		.6	1.2	.9	6.8	.9	.9	.4	.5	.*	7.3
Atmosphere Explorers	852-85		.4	1.8	1.9	5.0	.8	1.0	.4	.3	.3	6.5
Ionosphere Explorers	853-85		.2	.8	.9	.8	1.1	.5	.2	.*	.*	2.9
Microsatellite S-55, S-55a	854-85											.3
Geodetic Satellites	855-61						.6	3.4	3.8	3.3	3.1	13.2
Small Scientific Satellites	857-85									.7	1.4	2.1
University Explorers (Rice University)	859-85								2.4	.4	.0	3.1
Manned Flight Experiments	860-86									.1	.3	.3
Interplanetary Explorers/IMP	861-85					8.1	4.1	2.3	7.2	6.5	6.2	38.0
Air Density/Injun Explorers	863-85					.2	.9	.6	1.3	1.5	1.2	5.6
Electron Density Explorers	865-85								.*	.*	.*	.6
Manned Satellite Science	866-85						.7	3.7	.3	.*	.*	4.7
Manned Lunar Science	867-86						.5	4.4	.*	.*	.*	5.0
United Kingdom Explorers	870-85			1.1	1.0	.1	.9	.4	.2	.*	.*	6.7
ESRO I and II	871-85			.1	2.5	3.5		.*	.1	.*	.*	.2
ISIS (Intl. Sat. for Ionosphere Studies)	872-85		1.1	4.0	7.5	3.3	1.7	1.7	2.1	1.3	1.3	20.0
Beacon Explorers	873-85		1.4	1.1	1.1	1.2	1.5	1.5	.5	.4	.*	5.1
German Research Satellite	874-85									.*	.1	.1
French Satellite (FR-1)	875-85						.*	.1	.1	.*	.*	.2
Radio Astronomy Satellites	877-85							.2	4.4	5.2	2.7	13.3
Small Astronomy Satellites	878-85									.7	2.7	3.4
Sounding Rockets	879-85	3.1	5.2	7.4	9.0	11.9	15.7	12.0	18.4	21.0	18.7	129.6
BIOS	880-87							.*				.4
Infrared Spectroscopy	881-87						.*	.*	.1			.9
Bio-Sampling Lunar and Planetary Flights	882-87											.*
Biosatellites	883-87				.6	.0	7.8	17.3	23.7	31.4	29.8	110.7
Scout Development	890-83	5.5	2.9	7.8	4.4	4.7	.*	.3	.*	.*	.*	25.5
Centaur Development	891-83	4.0	36.5	62.2	71.8	90.3	108.3	87.9	52.0	29.6	.1	543.3
Delta Development	892-83	13.1	11.3	9.3	5.3	3.7	.2	.*	-1.0	.*		41.4
Joint Italian/United States Project	894-85					4.0	.3	.1	.9	.*	.6	3.7
Juno II Payload	895-85						-1.1			.*	.*	1.0
Vanguard III	896-85	22.0	.8	.1	-3.3		.*	-1.7		.*	.*	20.9
Gamma Ray Astronomy Satellite S-15	897-85						-1.3		-1.2	.*	.*	2.5
Ionosphere Measurement Satellite S-30	898-85						.*	.*	.*		.*	.0
Ionosphere Beacon Satellite S-45	899-85						.*				.*	.5
Gemini Supporting Development	903-92							3.2	-1.1	.*	.*	3.0
Apollo Supporting Development	904-92							36.2	20.6	6.4	27.0	90.2
Apollo Applications Supporting Development	905-92								11.0	20.3	5.9	37.3
Advanced Manned Missions Supporting Dev.	908-92							13.7	2.2	.4	.*	16.4
Mercury	911-99	28.9	87.7	92.4	31.2	-4.3	-1.2	-1.0	.*	.1	.*	235.0
Manned One-Day Mission	912-99				16.5	16.3	.2	-4.4	-1.1	.*	.*	30.4
Gemini Spacecraft	913-91				30.6	205.1	280.5	165.3	66.6	46.2	3.2	791.1
Apollo Spacecraft	914-92				73.4	361.9	881.4	1,017.1	1,264.4	1,288.0	1,097.7	5,971.7
Prospector	916-99									.*		.1

Table A-V-24. Research and Development Direct Obligations, by Unique Project Number^a
(Millions of Dollars)

Unique Project ^b	UPN-BLI	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	Total ^c
Mission Control System	921-92					7.8	47.7	37.0	3.2	32.7	52.3	181.0
Gemini Support	923-91					3.4	16.0	27.7	24.0	4.7	- .9	76.1
Apollo Space Operations	924-92						3.6	22.6	37.8	55.0	50.4	177.3
Vega	929-79	14.1	3.6	- .2	7.7							28.2
Saturn I Vehicle	931-92		9.4	96.0	193.3	255.3	189.1	32.3	-2.7	- .9	- .3	767.2
Saturn IB Vehicle	932-92					16.4	147.1	263.6	270.1	223.5	138.8	1,068.0
Saturn V Vehicle	933-92				54.5	333.7	606.9	1,040.2	1,158.4	1,074.4	1,007.0	5,363.8
Gemini Launch Vehicle	937-91				24.4	79.1	122.7	115.4	72.9	-2.9	-1.6	410.0
Engine Development	940-92	10.1	26.7	82.4	99.7	136.5	166.0	165.7	133.1	49.6	20.0	886.7
Apollo Applications Design and Development	942-96								13.3	.2	.1	14.0
MSP Experiment Definition	945-96									1.9	10.2	12.1
AAP Experiment Definition	948-96									3.6	23.8	27.4
Apollo Applications Experiment Definition	949-86								.7	3.2	.4	4.2
Launch Operations Support	950-92				2.2	4.9	21.8	35.0	33.4	87.1	91.2	275.7
Launch Instrumentation	955-92						5.2	6.6	10.1	12.5	18.2	55.6
AAP Spacecraft Development	961-96									22.7	11.1	33.8
Orbital Workshop	964-96									15.4	20.7	36.1
Apollo Telescope Mount	965-96									8.3	20.9	29.2
AAP Up-rated Saturn I Production	972-96									22.9	14.5	37.4
AAP Saturn V Production	973-96									1.3	2.3	3.6
Systems Engineering	980-92				2.2	19.0	31.2	19.3	20.9	28.2	27.0	160.2
Advanced Studies	981-93					10.1	13.9	20.3	13.4	7.9	1.0	67.4
Payload Integration	991-96									4.0	16.3	20.3
Mission Operations	995-96									3.1	1.1	4.2
Program Support	996-96										1.3	1.3

Notes: Identical to Table A-V-23.

^a 10, 11, 20, 23 (See Table A-V-1).

Table A-V-25. Research and Development Reimbursable Obligations, by Project

(Millions of Dollars)

<u>Unique Project (over \$1 million)</u>	<u>UPN-BLI</u>	<u>1968</u>	<u>1959-1968</u>	<u>Reimburer</u>
Aeronautics SRT	126-76	2.1	6.1	Primarily Army
Network Operations, T&DA	311-51	.6	2.4	Primarily ESSA and Air Force
Special Support	380-50	1.5	1.5	Primarily Army
Scout Procurement	490-89	1.8	54.5	Primarily Air Force
Delta Procurement	492-89	11.6	69.1	Primarily ESSA and Comsat
Tiros Operational System	602-61	14.2	57.0	ESSA
Nimbus Operational System, O-1, O-2	606-61		10.8	ESSA
Systems A (Automatic Picture Taking...)	609-61		1.6	Primarily Air Force
Nerva	718-72	30.8	244.3	AEC
XB-70 Flight Research Program	732-76	1.3	1.3	Air Force
Sounding Rockets	879-85	.1	1.0	Navy and Air Force
Gemini Spacecraft	913-91	-*	12.4	Air Force
Saturn V Vehicle	933-92	.3	1.5	Primarily Air Force
Subtotal		64.0	463.5	
Other Projects		1.5	6.6	
Total Reimbursables		65.5	470.1	

Source: 30 (See Table A-V-1).

Table A-V-26. Research and Development Obligations (Cumulative), by NASA Installation and Major Project^a
(Millions of Dollars)

Installation / Major Project ^b	Obligations to June 30, 1968		Installation / Major Project ^b	Obligations to June 30, 1968	
	Direct	Reimbursable		Direct	Reimbursable
NASA Headquarters - Total	1,243.9	2.5	Goddard Space Flight Center - Total	2,457.5	109.1
Training Grants (181)	103.7		Network Operations (311)	579.4	
Research Grants (183)	67.5		Equipment and Components (312)	370.2	
Lunar and Planetary SRT-Science (185)	83.1		Delta Procurement (492)	78.1	
Physics and Astronomy SRT (188)	104.9		Tiros TTOS Improvement (601)	52.4	
Bioscience SRT (189)	57.4		Tiros Operational System-TOS (602)		57.0
Network Operations (311)	63.7		Nimbus A-D (604)	190.3	
Systems Engineering	153.7		Applications Technology Satellites A-E (630)	113.8	
Western Support Office - Total	119.6	33.6	Orbiting Solar Observatories (821)	66.0	
Mission Analysis Division	3.4		Orbiting Astronomical Observatories (831)	239.9	
Langley Research Center - Total	561.9	57.1	Orbiting Geophysical Observatories (841)	203.9	
Scout Procurement (490)		54.5	Sounding Rockets (879)	94.9	
Lunar Orbiter (814)	162.2		Wallops Station - Total	32.4	0.1
Ames Research Center	303.6	5.7	Jet Propulsion Laboratory - Total	1,530.4	1.8
Pioneer-10SY (811)	56.1		Tracking and Data Acquisition SRT (150)	52.6	
Biosatellites (883)	110.5		Network Operations (311)	136.5	
Lewis Research Center - Total	1,493.1	0.1	Equipment and Components (312)	99.4	
Space Power and Electric Propulsion...SRT (120)	118.7		Ranger (801)	169.2	
Centaur Procurement (491)	231.3		Surveyor (803)	466.0	
Agna Procurement-Excluding Gemini (493)	258.8		Mariner-Mars '66 (808)	82.4	
Sustaining Engineering and Maintenance (497)	80.4		Mariner-Mars '69 (816)	106.7	
SNAP-8 Development Project (701)	77.5		Marshall Space Flight Center - Total	9,358.5	1.5
M-1 Engine Development (726)	98.7		Agna Procurement-Excluding Gemini	85.2	
Centaur Development (891)	358.4		Centaur Development (891)	141.2	
Flight Research Center - Total	84.4	1.6	Saturn I Vehicle (931)	753.8	
Electronics Research Center - Total	53.9		Saturn IB Vehicle (932)	960.3	
Space Nuclear Propulsion Office-Cleveland - Total	235.5	244.3	Saturn V Vehicle (933)	5,083.3	
Nerva (718)	214.3	244.3	Engine Development	885.7	
Space Nuclear Propulsion Office-Nevada - Total	25.0		Manned Spacecraft Center - Total	7,990.8	12.8
Space Nuclear Propulsion Office-Washington - Total	55.4		Mercury (911)	227.9	
			Gemini Spacecraft (913)	797.1	
			Apollo Spacecraft (914)	5,883.3	
			Mission Control System (921)	181.0	
			Gemini Support (923)	75.3	
			Apollo Space Operations (924)	159.1	
			Gemini Launch Vehicle (939)	410.0	
			John F. Kennedy Space Center NASA - Total	833.6	
			Apollo Spacecraft (914)	61.7	
			Saturn IB Vehicle (932)	107.5	
			Saturn V Vehicle (933)	264.9	
			Launch Operations Support (950)	273.5	
			Launch Instrumentation (955)	55.6	

Notes: ^aProjects for which Installation obligations exceeded \$50 million.

^bNumber in parenthesis is the UPN or Unique Project Number.

Source: 30 (See Table A-V-1)

Table A-V-27. Amounts Programmed for Research and Development, by NASA Installation^a(Millions of Dollars)^b

<u>Installation</u>	<u>1963 and Prior</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>Total^c</u>
NASA Headquarters	421.0	159.7	180.8	181.6	152.3	196.6	1,292.0
Western Support Office ^d	75.6	46.4	14.9	18.2	13.0	1.9	170.0
Langley Research Center	83.7	78.1	106.6	124.7	91.5	80.9	565.5
Ames Research Center	18.4	40.3	54.2	64.2	65.6	65.6	308.3
Lewis Research Center	326.9	299.9	323.1	249.8	161.8	133.5	1,495.0
Flight Research Center	11.5	12.8	9.5	17.7	8.0	23.5	83.0
Electronics Research Center		.2	2.7	8.8	18.6	27.0	57.3
Space Nuclear Propulsion Office - C		47.5	32.1	36.5	30.6	6.2	152.9
Space Nuclear Propulsion Office - N		1.3	2.1	5.1	6.3	5.4	20.2
Space Nuclear Propulsion Office - W	73.8	11.5	11.6	8.6	11.0	30.4	146.9
Goddard Space Flight Center	578.8	370.5	374.6	353.1	387.4	430.6	2,495.0
Wallops Station	3.3	4.3	6.2	7.6	6.5	7.2	35.1
Jet Propulsion Laboratory	450.5	184.1	201.2	225.7	213.6	199.5	1,474.6
Marshall Space Flight Center	1,612.8	1,301.4	1,474.4	1,549.9	1,342.9	1,092.7	8,374.1
Manned Spacecraft Center	1,080.3	1,363.7	1,431.5	1,515.7	1,446.5	1,178.9	8,016.6
John F. Kennedy Space Center, NASA	10.1	57.1	59.4	134.0	217.1	358.5	836.1
Other (NAPO, KSC-WTR, MAD)	.2	-*	1.3	-.1	-*	-9.1	-7.6
NASA Total	4,747.0	3,978.9	4,286.4	4,500.9	4,172.6	3,828.4	25,514.2

Notes: ^aBased on 506 White as of June 30, 1968.^bAsterisk indicates less than \$50,000.^cSum of rounded annual amounts.^dDiscontinued 3/1/68.

Source: 30 (See Table A-V-1).

Table A-V-28. Amounts Programmed for Research and Development, by Program Office Area^a
(Millions of Dollars)

<u>Program Office</u>	<u>1965 and Prior</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>Total</u>
Office of Administration				27.2	27.2
Technology Utilization	10.7	4.8	5.0	4.0	24.4
University Affairs	137.0	46.0	31.0	9.9	224.0
Tracking and Data Acquisition	675.2	231.1	270.3	265.2	1,441.8
Advanced Research and Technology	1,054.0	288.9	269.4	301.7	1,914.1
Space Science and Applications	2,922.8	742.5	584.0	535.9	4,785.2
Manned Space Flight	8,212.5	3,187.7	3,012.8	2,684.3	17,097.3
NASA Total	13,012.2	4,500.9	4,172.6	3,828.4	25,514.0

Notes: ^aBased on 506 White as of June 30, 1968.

Source: 30 (See Table A-V-1).

Table A-V-29. Construction of Facilities Direct Obligations, by Installation and Fiscal Year
(Millions of Dollars)

	Total Program Plan ^a	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	Total
Ames Research Center	55.2	1.7	2.4	3.6	3.1	7.0	11.9	13.6	5.8	1.6	0.9	51.7
Electronics Research Center	29.9					0	0.1	0.4	4.2	2.4	17.5	24.7
Flight Research Center	6.3	0	1.6	*	0.1	1.7	-0.2	1.5	1.4	.1	*	6.3 ^b
Goddard Space Flight Center	84.8	3.4	5.7	9.5	13.9	13.0	10.6	16.4	6.4	2.7	1.6	83.3 ^b
John F. Kennedy Space Center, NASA	917.9		1.0	11.5	83.0	204.3	197.8	190.9	117.9	62.9	32.7	904.4 ^c
Langley Research Center	74.5	2.4	4.4	7.0	15.4	6.5	9.0	7.2	5.1	9.8	6.0	72.9
Lewis Research Center	113.3	3.1	5.9	10.0	5.1	10.9	26.5	18.6	8.2	7.1	3.7	99.2
Manned Spacecraft Center	171.3 ^d				8.7	42.8	39.8	40.2	19.5	11.2	2.1	164.4 ^d
Marshall Space Flight Center	143.9 ^e			11.7	26.9	46.2	23.8	27.1	5.3	1.4	0.1	142.5 ^e
Michoud Assembly Facility	56.2				5.0	24.7	11.8	10.7	2.1	0.5	0.5	55.3 ^f
Mississippi Test Facility	268.1				5.0	72.0	101.9	67.1	18.9	1.3	0	266.2
Space Nuclear Propulsion Office	28.2				0.7	13.2	8.0	2.5	0.9	2.1	0.6	28.2
Wallops Station	38.1	6.4	5.1	2.6	7.1	5.3	4.2	3.4	0.6	0.9	1.6	37.2 ^g
Pacific Launch Operations Office	2.6		0.8	0.3	0.9	-*	-*	*	0.3	0.8	0.3	3.6
Jet Propulsion Laboratory	43.0		7.4	6.9	5.9	10.3	4.6	3.9	1.2	0.6	1.0	41.9 ^h
Various Locations	536.0 ⁱ	3.1	49.1	31.9	34.9	111.5	96.4	118.8	72.6	10.6	-0.6	533.3 ^j
NASA Total	2,572.3 ^k	20.1	83.5	95.2	215.8	569.3	546.3	522.1	270.4	115.9	(68.0)	
Pre-NASA Projects		17.9	6.2	3.0	1.3	.5	.3	.1				
Total Obligations		38.0	89.7	98.2	217.1	569.8	546.6	522.2	270.4	115.9	(68.0)	(2,510.2)

Notes: ^aAs of June 30, 1968; includes facilities planning and design.

^bIncludes \$3.4 million for tracking and data acquisition projects assigned GSFC facilities project numbers.

^cIncludes \$5.5 million in tracking and data acquisition projects assigned KSC facilities project numbers; does not include \$532,000 programmed (PY 1963) and obligated for modifications to Mercury Control Center which was included with "Various Locations."

^dDoes not include \$21.7 million programmed (PY 1963) and obligated for Mission Control Center; this project was included with "Various Locations."

^eDoes not include \$3.8 million programmed (PY 1963) and obligated for Advanced Saturn Dynamic Test Facility; this project was included with "Various Locations."

^fIncludes \$367,000 programmed (PY 1962) and obligated for modifications to Slidell Computer Operations Office which was reported with "Various Locations."

^gIncludes \$16.1 million in tracking and data acquisition projects assigned WS facilities project numbers.

^hIncludes \$1.2 million in tracking and data acquisition projects assigned JPL facilities project numbers.

ⁱIncludes unallocated amounts.

^jIncludes \$314.1 million for tracking and data acquisition facilities.

^kIncludes \$2.1 million reserve for claims. (\$2,057,625)

(PY 62 16,000
63 46,000
65 750,000
66 1,245,625)

Table A-V-30. Fiscal Year Obligations, Costs and Disbursements as Percentages of Program Year Budget Plan^a

	1959 Pro- gram	1960 Pro- gram	1961 Pro- gram	1962 Pro- gram	1963 Pro- gram	1964 Pro- gram	1965 Pro- gram	1966 Pro- gram		1959 Pro- gram	1960 Pro- gram	1961 Pro- gram	1962 Pro- gram	1963 Pro- gram	1964 Pro- gram	1965 Pro- gram	1966 Pro- gram
All Appropriations:									R&D for Manual Space Flight:								
Obligated, First Year	85	86	87	86	89	86	95	96	Obligated, First Year	78	94	93	98	98	97	99	99
Disbursed, First Year	34	45	49	46	47	49	54	35	Costs, First Year	14	46	47	49	59	59	60	75
									Disbursed, First Year								
Obligated, Second Year	10	10	11	10		11	4		R&D for Space Sciences and Applications ^b :								
Disbursed, Second Year	46	43	39	40		36	35		Obligated, First Year	96	81	91	94	95	92	94	93
									Costs, First Year	18	32	41	49	47	49	46	48
Obligated, Third Year	3	2	-			2			Disbursed, First Year								
Disbursed, Third Year	10	6	8			10			R&D for Advanced Research and Technology:								
									Obligated, First Year	74	69	61	94	96	90	87	82
Obligated, First and Second Years	95	96	98	96		97	99		Costs, First Year	19	41	34	28	35	43	45	39
Disbursed, First and Second Years	50	88	88	86		85	89		Disbursed, First Year						36	33	28
All Appropriations for Manned Space Flight:									R&D, All Others ^c :								
Obligated, First Year	80	95	87	83	89	89	97	99	Obligated, First Year	64	82	73	88	84	69	69	89
Disbursed, First Year	17	46	48	42	49	53	59	77	Costs, First Year						32	26	43
									Disbursed, First Year	22	54	46	60	41	26	22	33
Obligated, Second Year	21	6	13	12		8	2		Construction of Facilities:								
Disbursed, Second Year	70	48	41	42		36	34		Obligated, First Year	42	70	52	45	57	38	58	48
									Costs, First Year						5	12	14
Obligated, Third Year	*	-2	-2			2			Disbursed, First Year	5	17	20	11	7	4	7	9
Disbursed, Third Year	12	*	8			8											
									Obligated, Second Year	30	22	42	39		40	31	
Obligated, First and Second Years	101	101	100	95		97	99		Costs, Second Year	41	55	40	36		35	57	
Disbursed, First and Second Years	37	94	89	84		89	93		Disbursed, Second Year						29	50	
Research and Development:									Obligated, Third Year	17	7	3			16		
Obligated, First Year	80	86	89	95	97	94	96	97	Costs, Third Year						49		
Costs, First Year						64	68	77	Disbursed, Third Year	24	15	29			42		
Disbursed, First Year	17	39	44	47	53	53	53	65									
									Obligated, First and Second Years	72	92	81	84		78	89	
Obligated, Second Year	10	11	10	4		6	3		Costs, First and Second Years						40	69	
Costs, Second Year						32	28		Disbursed, First and Second Years	46	72	60	47		33	57	
Disbursed, Second Year	63	50	46	47		40	37										
									Administrative Operations:								
Obligated, First and Second Years	99	97	99	99		100	100		Obligated, First Year	99	99	100	100	97			
Costs, First and Second Years						96	95		Disbursed, First Year	88	81	82	79	82			
Disbursed, First and Second Years	80	89	90	94		93	90										

Notes: ^aRounded to closest percent. An asterisk indicates less than .5 of one percent.

^bIncludes University Affairs for 1959-63 period.

^cTracking and Data Acquisition only for 1959-63 period.

Source: For 1959-1963, source 10; For 1964-1966, source 11. (See Table A-V-1)

Table A-V-31. NASA Total Procurement Activity by Installation and Fiscal Year
(Money amounts in millions of dollars)

Installation		1960	1961	1962	1963	1964	1965	1966	1967	1968	Total
NASA Headquarters	Net Value of Contract Awards % of NASA Total	\$116.1 (34.0)	\$ 25.3 (3.0)	\$ 67.7 (4.0)	\$155.1 (5.0)	\$ 189.0 (4.0)	\$ 209.0 (4.0)	\$ 187.1 (4.0)	\$ 169.9 (3.6)		(\$1,118.2)
Western Support Office ^a	Net Value of Contract Awards % of NASA Total	\$ -9 ^b	\$130.6 (17.0)	\$266.7 (13.0)	\$412.3 (7.0)	\$ 329.1 (7.0)	\$ 346.5 (7.0)				(\$1,484.3)
NASA Pasadena Office ^a	Net Value of Contract Awards % of NASA Total							\$ 337.2 (7.0)	\$ 327.3 (7.0)		(\$ 664.5)
Manned Spacecraft Center	Net Value of Contract Awards % of NASA Total		\$ 82.1 ^c (11.0)	\$204.8 (13.0)	\$737.2 (23.0)	\$1,436.0 (31.0)	\$1,487.4 (20.0)	\$1,546.7 (31.0)	\$1,487.0 (31.0)		(\$6,281.2)
Marshall Space Flight Center	Net Value of Contract Awards % of NASA Total		\$257.8 (34.0)	\$595.6 (39.0)	\$949.8 (29.0)	\$1,378.1 (30.0)	\$1,680.9 (32.0)	\$1,587.3 (31.0)	\$1,304.9 (29.1)		(\$7,763.4)
Kennedy Space Center	Net Value of Contract Awards % of NASA Total			\$ 36.9 (2.0)	\$232.0 (7.0)	\$ 261.3 (6.0)	\$ 287.2 (5.0)	\$ 292.6 (6.0)	\$ 375.0 (3.1)		(\$1,485.0)
Goddard Space Flight Center	Net Value of Contract Awards % of NASA Total	\$ 76.0 (23.0)	\$155.0 (21.0)	\$209.3 (14.0)	\$303.5 (9.0)	\$ 382.8 (8.0)	\$ 517.7 (10.0)	\$ 473.8 (9.0)	\$ 328.9 (8.6)		(\$2,517.0)
Wallops Station	Net Value of Contract Awards % of NASA Total		\$ 1.5 d	\$ 11.0 (1.0)	\$ 11.9 d	\$ 13.0 d	\$ 15.4 d	\$ 12.1 d	\$ 12.7 (0.3)		(\$ 77.6)
Langley Research Center	Net Value of Contract Awards % of NASA Total	\$118.5 (35.0)	\$ 66.9 (9.0)	\$ 70.8 (5.0)	\$ 83.4 (2.0)	\$ 103.9 (2.0)	\$ 130.8 (3.0)	\$ 130.6 (3.0)	\$ 142.7 (3.1)		(\$ 856.6)
Lewis Research Center	Net Value of Contract Awards % of NASA Total	\$ 17.2 (5.0)	\$ 24.0 (3.0)	\$ 34.7 (2.0)	\$ 417.1 (7.0)	\$ 347.4 (8.0)	\$ 324.2 (6.0)	\$ 262.0 (5.0)	\$ 217.6 (4.6)		(\$1,430.0)
Ames Research Center	Net Value of Contract Awards % of NASA Total	\$ 7.7 (2.0)	\$ 11.0 (2.0)	\$ 14.4 (1.0)	\$ 28.0 (1.0)	\$ 47.9 (1.0)	\$ 80.9 (2.0)	\$ 77.3 (2.0)	\$ 86.3 (1.9)		(\$ 353.5)
Flight Research Center	Net Value of Contract Awards % of NASA Total	\$ 2.0 (1.0)	\$ 1.3 d	\$ 2.5 d	\$ 18.3 (1.0)	\$ 13.7 d	\$ 14.7 d	\$ 15.4 d	\$ 25.5 (0.5)		(\$ 93.4)
Electronics Research Center	Net Value of Contract Awards % of NASA Total						\$ 4.0 d	\$ 14.7 d	\$ 21.7 d		
Space Nuclear Propulsion Office	Net Value of Contract Awards % of NASA Total			\$ 36.4 (2.0)	\$ 84.3 (3.0)	\$ 91.7 (2.0)	\$ 79.7 (2.0)	\$ 85.8 (2.0)	\$ 85.2 (1.8)		(\$ 463.1)

Notes: ^aFigures include contract with Jet Propulsion Laboratory.

^bIncludes 109 debit items totalling \$6.9 million and one credit item (JPL Contract) totalling \$7.8 million.

^cSpace Task Group.

^dNet value of contract awards during those years was less than 0.5% of NASA total. (Percentages are rounded out and may exceed 100%.)

Sources: 1. NASA, Procurement and Supply Division, NASA Procurement: October 1, 1958 to June 30, 1960 (Washington: NASA, September 1960).

2. NASA, Annual Procurement Report, Fiscal Years 1961-1968 (Washington: NASA, 1962-1968).

Table A-V-32. NASA Real Property Value By Installation by Fiscal Year^a
(As of June 30; in thousands of dollars)

	<u>1959</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>
Ames Research Center	80,410	82,678	96,946	107,819	113,534 ^b	123,190 ^b	131,906 ^b	136,654	164,125	166,571
Electronics Research Center							0	739	769	2,780
Flight Research Center	...	...	...	...	5,097	6,842	7,035	8,778	9,312	9,526
Goddard Space Flight Center		...	...	...	13,961	35,350	62,939	91,012	111,234	132,039
John F. Kennedy Space Center, NASA					38,148	106,206	176,793	308,023	531,646	682,378
Langley Research Center	103,738	116,336	139,240	199,148	157,258	172,964	192,950	204,725	235,285	249,588
Lewis Research Center	63,915	101,725	101,338	101,633	121,911	155,422	197,242	197,234	203,878	241,419
Manned Spacecraft Center					831	22,190	60,822	131,940	167,023	216,438
Marshall Space Flight Center (Total)			(36,818)	(40,037)	(104,610)	(129,063)	(210,580)	(286,576)	(409,722)	(538,914)
Marshall Space Flight Center			36,818	40,037	56,246	65,240	134,721	151,658	183,573	209,140
Michoud Assembly Facility				...	40,972	38,956	49,650	79,985	92,608	94,967
Mississippi Test Facility					4,472	21,532	22,602	51,262	126,284	229,515
Computer Operations Office					2,920	3,335	3,607	3,671	5,257	5,222
Space Nuclear Propulsion Office			...	...	...	...	92	16,016	23,111	24,915
Wallops Station	...	...	...	...	31,026	42,978	50,749	55,655	52,129	63,927
Pacific Launch Operations Office					3,005	3,105	3,847			
Western Support Office	...	...	...	...	...	...	36,290	34,391	32,412	
Jet Propulsion Laboratory	<u>10,519</u>	<u>12,081</u>	<u>16,243</u>	<u>21,922</u>	<u>24,813</u>	<u>33,394</u>	<u>41,147</u>	<u>47,175</u>	<u>48,620</u>	<u>78,923</u>
Total	268,210	322,603	407,692	513,606	614,194	830,704	1,172,392	1,518,918	1,996,266	2,407,418

...Data not available

Notes: ^aReal property total = land value + buildings value + other structures and facilities value. Although leasehold improvements are deemed a category of real property in NASA Management Instruction 8800.1A, this variable is not included in the real property totals of this table.

^bAdjusted figure.