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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

CHRONOLOGICAL HISTORY

FISCAL YEAR 1966

BUDGET SUBMISSION

Prepared by:
Office of Administration
Budget Operations Division
Code BT-1 EXT. 24146

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Chronological History of the FY 1966 Budget Submission
(In thousands of dollars)

ITEM	AUTHORIZATION							APPROPRIATION				
	NASA Budget Submission	House Comm. Action (HR 7717) (Rep.No.273) (5/3/65)	House and House Comm. Approved Budget (5/6/65)	NASA Reclama Action (5/7/65)	NASA Revised Budget (5/7/65)	Sen. Comm. App'd 5/7/65 (Rep.No.188) Sen.App'd. (6/2/65)	Conf Comm Appd 6/10/65 Auth Per PL 89-53 (6/28/65)	House Comm. Approved (Rep.No.320) (5/6/65)	House Approved (5/11/65)	Senate Comm. Approved (Rep.No.384) (6/30/65)	Senate Approved (7/13/65)	Conf Comm Appd 8/4/65 Auth Per PL 89-128 (8/16/65)
R&D Appropriation:												
OMSF	$3,249,485	-30,000	3,219,485	+30,000	3,249,485	3,225,485	3,219,485					
OSSA	797,515	-32,100	765,415	+32,100	797,515	773,015	773,015					
OART	277,700	+27,200	304,900	-27,200	277,700	283,900	297,400					
OTDA	246,200	-3,879	242,321	+3,879	246,200	246,200	242,321					
TU	5,000	---	5,000	---	5,000	4,750	4,750					
TOTAL R&D	4,575,900	-38,779	4,537,121	+38,779	4,575,900	4,533,350	4,536,971	4,521,000	4,521,000	4,536,971	4,536,971	4,531,000
CofF Appropriation:												
OMSF	25,025	-2,540.7	22,484.3	+2,540.7	25,025	*	*					
OSSA	7,497	---	7,497	---	7,497	*	*					
OART	19,117	-10,000	9,117	+10,000	19,117	19,117	14,117					
OTDA	15,561	-1,200	14,361	+1,200	15,561	14,361	14,361					
Assoc. Administrator	7,500	-284.3	7,215.7	+284.3	7,500	5,000	5,000					
TOTAL CofF	74,700	-14,025	60,675	+14,025	74,700	67,376.35	62,376.35	60,000	60,000	62,376.35	62,376.35	60,000
AO Appropriation:												
OMSF	289,742	-10,000	279,742	+10,000	289,742	*	*					
OSSA	80,195	-4,600	75,595	+4,600	80,195	*	*					
OART	177,023	-8,751.15	168,271.85	+8,751.15	177,023	*	*					
Supporting Operations	62,440	---	62,440	---	62,440	*	*					
TOTAL AO	609,400	-23,351.15	586,048.85	+23,351.15	609,400	596,100	591,048.85	579,000	579,000	590,957.85	590,957.85	584,000
TOTAL NASA	$5,260,000	-76,155.15	5,183,844.85	+76,155.15	5,260,000	5,196,826.35	5,190,396.20	5,160,000	5,160,000	5,190,305.20	5,190,305.20	5,175,000

*Undistributed

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(In thousands of dollars)

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RESEARCH & DEVELOPMENT APPROPRIATION:	4,575,900	-38,779	4,537,121	+38,779	4,575,900	4,533,350	4,536,971	4,521,000	4,521,000	4,536,971	4,536,971	4,531,000	
OFFICE OF MANNED SPACE FLIGHT	3,249,485	-30,000	3,219,485	+30,000	3,249,485	3,225,485	3,219,485						
Gemini Program	(242,100)	(---)	(242,100)	---	(242,100)	(242,100)	(242,100)						
Spacecraft	122,700	---	122,700	---	122,700	122,700	122,700						
Launch vehicles	88,600	---	88,600	---	88,600	88,600	88,600						
Support	30,800	---	30,800	---	30,800	30,800	30,800						
Apollo Program	(2,997,385)	(-30,000)	(2,967,385)	(+30,000)	(2,997,385)	(2,973,385)	(2,967,385)						
Spacecraft	1,118,840	*	*	*	1,118,840	1,118,840	*						
Saturn I	4,400	*	*	*	4,400	4,400	*						
Saturn IB	274,700	*	*	*	274,700	274,700	*						
Saturn V	1,236,500	*	*	*	1,236,500	1,236,500	*						
Engine development	140,700	*	*	*	140,700	140,700	*						
Apollo mission support	222,245	*	*	*	222,245	198,245	*						
Advanced Missions Program	(10,000)	(---)	(10,000)	(---)	(10,000)	(10,000)	(10,000)						
Advanced missions program	10,000	---	10,000	---	10,000	10,000	10,000						
OFFICE OF SPACE SCIENCE AND APPLICATIONS	797,515	-32,100	765,415	+32,100	797,515	773,015	773,015						
Physics and Astronomy Program	(172,100)	(-11,600)	(160,500)	(+11,600)	(172,100)	(165,900)	(165,900)						
SR&T	25,200	---	25,200	---	25,200	25,200	25,200						
Solar observatories	37,000	---	37,000	---	37,000	37,000	37,000						
Astronomical observatories	32,500	-6,200	26,300	+6,200	32,500	26,300	26,300						
Geophysical observatories	31,700	-5,400 1/	26,300	+5,400	31,700	31,700	31,700						
Explorers	25,700	---	25,700	---	25,700	25,700	25,700						
Sounding rockets	17,000	---	17,000	---	17,000	17,000	17,000						
Data analysis	3,000	---	3,000	---	3,000	3,000	3,000						
Lunar and Planetary Exploration Program	(215,615)	(-2,500)	(213,115)	(+2,500)	(215,615)	(213,115)	(213,115)						
SR&T/Advanced studies	36,800	---	36,800	---	36,800	36,800	36,800						
Ranger	1,415	---	1,415	---	1,415	1,415	1,415						
Surveyor	85,600	1,500	84,100	+1,500	85,600	84,100	84,100						
Lunar orbiter	37,000	-1,000	36,000	+1,000	37,000	36,000	36,000						
Mariner	3,800	---	3,800	---	3,800	3,800	3,800						
Voyager	43,000	---	43,000	---	43,000	43,000	43,000						
Pioneer	8,000	---	8,000	---	8,000	8,000	8,000						

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1/Includes procurement for launch vehicles for OGO. See page 112, House Authorization Committee Report No. 273, dated May 3, 1965.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

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(In thousands of dollars)

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Sustaining University Program	(46,000)	(---)	(46,000)	(---)	(46,000)	(46,000)	(46,000)						
Training	25,000	---	25,000	---	25,000	25,000	25,000						
Research facilities	8,000	---	8,000	---	8,000	8,000	8,000						
Research	13,000	---	13,000	---	13,000	13,000	13,000						
Launch Vehicle Development Program	(63,600)	(-3,000)	(60,600)	(+3,000)	(63,600)	(63,600)	(63,600)						
SR&T	4,000	-3,000	1,000	+3,000	4,000	4,000	4,000						
Centaur development	59,600	---	59,600	---	59,600	59,600	59,600						
Launch Vehicle Procurement Program	(194,500)	(-15,000)1/	(179,500)	(+15,000)	(194,500)	(178,700)	(178,700)						
Scout	11,700	*	*	*	11,700	*	*						
Delta	30,700	*	*	*	30,700	*	*						
Agena	82,300	*	*	*	82,300	*	*						
Centaur	69,800	*	*	*	69,800	*	*						
Bioscience Program	(31,500)	(---)	(31,500)	(---)	(31,500)	(31,500)	(31,500)						
SR&T	15,500	---	15,500	---	15,500	15,500	15,500						
Biosatellite	16,000	---	16,000	---	16,000	16,000	16,000						
Meteorological Satellites Program	(42,700)	(---)	(42,700)	(---)	(42,700)	(42,700)	(42,700)						
SR&T	8,200	---	8,200	---	8,200	8,200	8,200						
Meteorological flight experiments	4,000	---	4,000	---	4,000	4,000	4,000						
Tiros	4,800	---	4,800	---	4,800	4,800	4,800						
Nimbus	22,700	---	22,700	---	22,700	22,700	22,700						
Meteorological soundings	3,000	---	3,000	---	3,000	3,000	3,000						
Communication Satellites Program	(2,800)	(---)	(2,800)	(---)	(2,800)	(2,800)	(2,800)						
SR&T	2,500	---	2,500	---	2,500	2,500	2,500						
Relay	200	---	200	---	200	200	200						
Syncom	100	---	100	---	100	100	100						
Applications Technology Satellites Program	(28,700)	(---)	(28,700)	(---)	(28,700)	(28,700)	(28,700)						
SR&T	2,000	---	2,000	---	2,000	2,000	2,000						
Applications technology satellites	26,700	---	26,700	---	26,700	26,700	26,700						

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1/$10,000,000 reduction is against Centaur. $5,000,000 is a reduction against the total vehicle procurement program.

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OFFICE OF ADVANCED RESEARCH AND TECHNOLOGY	277,700	+27,200	304,900	-27,200	277,700	283,900	297,400						
Basic Research Program	(22,000)	(---)	(22,000)	(---)	(22,000)	(22,000)	(22,000)						
SR&T	22,000	---	22,000	---	22,000	22,000	22,000						
Space Vehicle Systems Program	(35,000)	(---)	(35,000)	---	(35,000)	(35,000)	(35,000)						
SR&T	24,000	---	24,000	---	24,000	24,000	24,000						
Project FIRE	500	---	500	---	500	500	500						
Scout reentry project	5,000	---	5,000	---	5,000	5,000	5,000						
Lifting body flight and landing tests	1,000	---	1,000	---	1,000	1,000	1,000						
Project Pegasus (Saturn-launched meteoroid exp)	2,500	---	2,500	---	2,500	2,500	2,500						
Small space vehicle flight experiments	2,000	---	2,000	---	2,000	2,000	2,000						
Electronic Systems Program	(34,400)	(---)	(34,400)	(---)	(34,400)	(34,400)	(34,400)						
SR&T	30,000	---	30,000	---	30,000	30,000	30,000						
Small flight projects	4,400	---	4,400	---	4,400	4,400	4,400						
Human Factor Systems Program	(14,900)	(---)	(14,900)	(---)	(14,900)	(14,900)	(14,900)						
SR&T	13,000	---	13,000	---	13,000	13,000	13,000						
Small biotechnology flight projects	1,900	---	1,900	---	1,900	1,900	1,900						
Nuclear-Electric Systems Program	(27,000)	(+6,000)	(33,000)	(-6,000)	(27,000)	(27,000)	(33,000)						
SR&T	24,000	---	24,000	---	24,000	24,000	24,000						
SNAP-8	---1/	+6,000	6,000	-6,000	---	---	6,000						
Space electric rocket test (SERT)	3,000	---	3,000	---	3,000	3,000	3,000						
Nuclear Rockets Program	(58,000)	(---)	(58,000)	---	(58,000)	(58,000)	(58,000)						
SR&T	22,000	---	22,000	---	22,000	22,000	22,000						
NERVA	35,000	---	35,000	---	35,000	35,000	35,000						
Nuclear Rocket Development Station	1,000	---	1,000	---	1,000	1,000	1,000						
Chemical Propulsion Program	(30,000)	(+21,200)	(51,200)	(-21,200)	(30,000)	(36,200)	(43,700)						
SR&T	30,000	---	30,000	---	30,000	30,000	30,000						
M-1 Engine	---	+15,000	15,000	-15,000	---	---	7,500						
260" Solid Motor	---	+6,200	6,200	-6,200	---	6,200	6,200						

1/ The Committee recommended that NASA apply a total of $6 million to SNAP-8, of which $2 million would be derived from other programs.

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Solar and Chemical Power Program	(14,200)	(---)	(14,200)	(---)	(14,200)	(14,200)	(14,200)						
SR&T	14,200	---	14,200	---	14,200	14,200	14,200						
Aeronautics Program	(42,200)	(---)	(42,200)	(---)	(42,200)	(42,200)	(42,200)						
SR&T	8,300	---	8,300	---	8,300	8,300	8,300						
X-15A research aircraft	900	---	900	---	900	900	900						
Supersonic transport	16,000	---	16,000	---	16,000	16,000	16,000						
V/STOL aircraft	2,000	---	2,000	---	2,000	2,000	2,000						
Hypersonic ramjet experiment	5,000	---	5,000	---	5,000	5,000	5,000						
XB-70/SST flight research project	10,000	---	10,000	---	10,000	10,000	10,000						
OFFICE OF TRACKING AND DATA ACQUISITION	246,200	-3,879	242,321	+3,879	246,200	246,200	242,321						
Tracking and Data Acquisition Program	(246,200)	(-3,879)	(242,321)	(+3,879)	(246,200)	(246,200)	(242,321)						
Operations	129,300	-3,879	125,421	+3,879	129,300	129,300	125,421						
Equipment	102,400	---	102,400	---	102,400	102,400	102,400						
SR&T	14,500	---	14,500	---	14,500	14,500	14,500						
OFFICE OF ASSISTANT ADMINISTRATOR FOR TECHNOLOGY UTILIZATION	5,000	---	5,000	---	5,000	4,750	4,750						
Technology Utilization Program	(5,000)	(---)	(5,000)	(---)	(5,000)	(4,750)	(4,750)						
Identification: Technology searches and surveys	1,400	---	1,400	---	1,400	*	*						
Evaluation of innovations	700	---	700	---	700	*	*						
Regional information dissemination projects	1,900	---	1,900	---	1,900	*	*						
Analysis of technology transfers; research and development management; the long range implications of the space program	1,000	---	1,000	---	1,000	*	*						

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CONSTRUCTION OF FACILITIES APPROPRIATION:	74,700	-14,025	60,675	+14,025	74,700	67,376.35	62,376.35	60,000	60,000	62,376.35	62,376.35	60,000	
AMES RESEARCH CENTER	(2,749)	(---)	(2,749)	(---)	(2,749)	(2,749)	(2,749)						
S-Systems engineering facility	2,749	---	2,749	---	2,749	2,749	2,749						
ELECTRONICS RESEARCH CENTER	(10,000)	(-10,000)	---	(+10,000)	(10,000)	(10,000)	(5,000)						
R-Space guidance lab.	3,900	-3,900	---	+3,900	3,900	3,900	*						
R-Optical communications laboratory	2,100	-2,100	---	+2,100	2,100	2,100	*						
R-Microwave radiation laboratory	3,000	-3,000	---	+3,000	3,000	3,000	*						
R-Center support facilities (2nd phase)	1,000	-1,000	---	+1,000	1,000	1,000	*						
GODDARD SPACE FLIGHT CENTER	(2,400)	(---)	(2,400)	(---)	(2,400)	(2,400)	(2,400)						
S-NASA space science data center	2,000	---	2,000	---	2,000	2,000	2,000						
S-Utility installation	400	---	400	---	400	400	400						
KENNEDY SPACE CENTER	(8,595)	(-740,6)	(7,854.4)	(+740.6	(8,595)	(8,195)	(8,195)						
M-RF systems test facility	1,374	*	*	*	1,374	*	*						
M-Flight crew training building extension	1,425	*	*	*	1,425	*	*						
M-Extension to the medical facility	598	*	*	*	598	*	*						
M-Utility installations (new area)	3,898	*	*	*	3,898	*	*						
S-Modifications to launch complex 17	1,300	---	1,300	---	1,300	1,300	1,300						
LANGLEY RESEARCH CENTER	(8,250)	(---)	(8,250)	(---)	(8,250)	(8,250)	(8,250)						
R-Flight control research facility	3,576	---	3,576	---	3,576	3,576	3,576						
R-Life support technology laboratory	2,492	---	2,492	---	2,492	2,492	2,492						
R-Increased capabilities of 20-inch Mach 6 and Mach 8.5 tunnels	682	---	682	---	682	682	682						
R-Magazine and test area for highly reactive chemical mats.	1,500	---	1,500	---	1,500	1,500	1,500						

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M-Manned Space Flight facility
S-Space Science and Applications facility
R-Advanced Research and Technology facility
T-Tracking and Data Acquisition facility

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LEWIS RESEARCH CENTER	(867)	(---)	(867)	(---)	(867)	(867)	(867)						
R-Building addition to the 10 X 10 foot supersonic wind tunnel for data processing	407	---	407	---	407	407	407						
R-Space power research laboratory	460	---	460	---	460	460	460						
MANNED SPACECRAFT CENTER	(4,400)	(-446.7)	(3,953.3)	(+446.7)	(4,400)	(4,180)	(4,180)						
M-Modifications to the environmental testing laboratory	3,600	*	*	---	3,600	*	*						
M-Center support facilities	800	*	*	---	800	*	*						
MARSHALL SPACE FLIGHT CENTER	(4,776)	(-484.9)	(4,291.1)	(+484.9)	(4,776)	(2,309.45)	(2,309.45)						
M-Non-destructive testing laboratory	708	*	*	*	708	672.6	672.6						
M-Additions to materials lab.	1,107	*	*	*	1,107	1,051.65	1,051.65						
M-Test engineering building extension	616	*	*	*	616	585.2	585.2						
M-Extension to high pressure gas systems	1,415	*	*	*	1,415	---	---						
M-LOX storage facilities for west test area	930	*	*	*	930	---	---						
MICHOUD PLANT	(300)	(-30.5)	(269.5)	(+30.5)	(300)	(284.75)	(284.75)						
M-Improvements to the storm drainage system	300	-30.5	(269.5)	+30.5	300	284.75	284.75						
MISSISSIPPI TEST FACILITY	(2,121)	(-215.4)	(1,905.6)	+215.4	(2,121)	(1,910.45)	(1,910.45)						
M-Addition to S-II stage checkout and storage building	1,177	*	*	*	1,177	1,118.15	1,118.15						
M-General support facilities	944	*	*	*	944	792.3	792.3						
VARIOUS LOCATIONS	(21,694)	(-1,822.6)	(19,871.4)	(+1,822.6)	(21,694)	(20,182.70)	(20,182.70)						
M-Facilities for F-1 engine program	2,007	*	*	*	2,007	*	*						
M-Facilities for J-2 engine program	2,436	*	*	*	2,436	*	*						
M-Facilities for S-II stage program	1,690	*	*	*	1,690	*	*						

M-Manned Space Flight facility
S-Space Science and Applications facility
P-Advanced Research and Technology facility
T-Tracking and Data Acquisition facility

*Undistributed.

(The OMSF C of F and PP&D funds reduced by $2,825,000)

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X24146
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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Chronological History of the FY 1966 Budget Submission
(In thousands of dollars)

ITEM	AUTHORIZATION							APPROPRIATION					
	NASA Budget Submission	House Comm. Action (HR 7717) (Rep.No.273) (5/6/65)	House and House Comm. Approved Budget (5/6/65)	NASA Reclama Action (5/7/65)	NASA Revised Budget (5/7/65)	Sen. Comm. Appd 5/7/65 (Rep. No.188) Sen. App'd. (6/2/65)	Conf Comm Appd 6/10/65 Auth Per PL 89-53 (6/28/65)	House Comm. Approved (Rep.No.320) (5/6/65)	House Approved (5/11/65)	Senate Comm. Approved (Rep.No.384) (6/30/65)	Senate Approved (7/13/65)	Conf Comm Appd 8/4/65 Auth Per PL 89-126 (8/16/65)	
T-Apollo wing, Madrid deep space facility	472	---	472	---	472	472	472						
T-Apollo wing, Canberra deep space facility	510	---	510	---	510	510	510						
T-STADAN facility expansion	1,115	---	1,115	---	1,115	1,115	1,115						
T-Apollo network ground station, Antigua, W.I.	2,700	-200	2,500	+200	2,700	2,500	2,500						
T-Community support facilities	3,090	-1,000	2,090	+1,000	3,090	2,090	2,090						
T-Apollo network ground station, Grand Canary Islands	7,674	---	7,674	---	7,674	7,674	7,674						
WALLOPS STATION	(1,048)	(---)	(1,048)	(---)	(1,048)	(1,048)	(1,048)						
S-Launch control building	605	---	605	---	605	605	605						
S-Assembly shop	443	---	443	---	443	443	443						
FACILITY PLANNING AND DESIGN	(7,500)	(-284.3)	(7,215.7)	(+284.3)	(7,500)	(5,000)	(5,000)						
ADMINISTRATIVE OPERATIONS APPROPRIATION:	609,400	-23,351.15	586,048.85	+23,351.15	609,400	596,100	591,048.85	579,000	579,000	590,957.85	590,957.85	584,000	
BY OBJECT CLASSIFICATION:													
Personnel compensation	345,207	*	*	*	345,207	*	*						
Personnel benefits	24,193	*	*	*	24,193	*	*						
Travel and transportation of persons	21,000	*	*	*	21,000	*	*						
Transportation of things	5,049	*	*	*	5,049	*	*						
Rents, communications, and utilities	49,556	*	*	*	49,556	*	*						
Printing and reproduction	4,869	*	*	*	4,869	*	*						
Other services	96,054	*	*	*	96,054	*	*						
Services of other agencies	11,969	*	*	*	11,969	*	*						
Supplies and materials	23,140	*	*	*	23,140	*	*						
Equipment	23,109	*	*	*	23,109	*	*						
Lands and structures	5,235	*	*	*	5,235	*	*						
Insurance claims and indemnities	19	*	*	*	19	*	*						

M-Manned Space Flight facility
S-Space Science and Applications facility
R-Advanced Research and Technology facility
T-Tracking and Data Acquisition facility
*Undistributed

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

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BY INSTALLATION:													
Kennedy Space Center	62,697	-10,000	*	*	62,697	*	*						
Manned Spacecraft Center	89,658		*	*	89,658	*	*						
Marshall Space Flight Center	137,387		*	*	137,387	*	*						
Goddard Space Flight Center	69,591	-4,600	*	*	69,591	*	*						
Pacific Launch Operations Office	804		*	*	804	*	*						
Wallops Station	9,800		*	*	9,800	*	*						
Ames Research Center	32,300	-8,751.15	*	*	32,300	*	*						
Electronics Research Center	7,622 1/		*	*	7,622	*	*						
Flight Research Center	9,600		*	*	9,600	*	*						
Langley Research Center	61,783		*	*	61,783	*	*						
Lewis Research Center	63,880		*	*	63,880	*	*						
Space Nuclear Propulsion Office	1,838		*	*	1,838	*	*						
Western Operations Office	6,337	---	6,337	---	6,337	*	*						
NASA Headquarters	56,103	---	56,103	---	56,103	*	*						
TOTAL APPROPRIATIONS:													
Research and Development	4,575,900	-38,779	4,537,121	+38,779	4,575,900	4,533,350	4,536,971	4,521,000	4,521,000	4,536,971	4,536,971	4,531,000	
Construction of Facilities	74,700	-14,025	60,675	+14,025	74,700	67,376.35	62,376.35	60,000	60,000	62,376.35	62,376.35	60,000	
Administrative Operations	609,400	-23,351.15	586,048.85	+23,351.15	609,400	596,100	591,048.85	579,000	579,000	590,957.85	590,957.85	584,000	
GRAND TOTAL	5,260,000	-76,155.15	5,183,844.85	+76,155.15	5,260,000	5,196,826.35	5,190,396.2	5,160,000	5,160,000	5,190,305.20	5,190,305.20	5,175,000	

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*Undistributed.

1/The House Authorization Committee report stipulated that the amount authorized for Expenditure in all object classes within Administrative Operations for this Center shall not exceed $7,240,890 (See page 15).

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HOUSE AUTHORIZATION COMMITTEE (REPORT NO. 273)

RESEARCH AND DEVELOPMENT

Apollo. The committee reduced this amount by $30 million since it is the view of the committee that program improvements could be made in the areas of Apollo mission support and engine development. However, the reduction was made in the total request rather than specific program areas in order to allow NASA to make program alterations with a broad management latitude of choice without adversely affecting the total program. (Ref. page 111).

Astronomical observatories. The committee desires that NASA defer any action on the fifth OAO. The proposed launch of this spacecraft is far enough into the future that this matter can be reconsidered next year in the light of the results of the first OAO launch. (Ref. page 111).

Geophysical observatories. The committee desires NASA to defer any action on the seventh OGO. The present launch schedule appears to be overly ambitious. Moreover, renewed efforts to improve reliability should result in longer operating lifetime in orbit and correspondingly fewer launches. If additional OGO's are required in the program, further justification can be presented to the committee in future authorization requests. (Ref. page 112).

Surveyor Lander. NASA's plans continue to be indefinite, for it is not yet known how many Surveyor spacecraft will include the roving vehicle experiment; it is being considered for the last four to seven spacecraft, with projected availability in mid-1968. The total cost to develop and procure flight articles of the roving vehicle is currently estimated to be between $30 and $40 million. The committee is not fully convinced of the need for, or feasibility of, such an experiment. (Ref. page 112).

Lunar Orbiter. The committee is not convinced that the Lunar Orbiter project should be extended, and declines the requested authorization for Block II for the following reasons. The last three flights of the Ranger project contributed significantly to our understanding of the characteristics of the lunar surface. In addition, the Surveyor project is a comprehensive undertaking, comprised of 17 spacecraft, which will provide even more data about the surface of the Moon. Moreover, much of the technology developed under the Ranger, and other programs, has been fed into the Lunar Orbiter project so that there should be greater confidence in the success of the originally planned five spacecraft in this project. (Ref. page 112).

Launch vehicle development. NASA requested $4 million for supporting research and technology in the launch vehicle development program. NASA witnesses revealed that $1 million is to be used for research on a proposed "kick stage" for Centaur and Saturn I-B for future high-energy missions. This amount was approved by the committee for that purpose. Testimony indicated, however, that the remainder of these funds were to be used in support of research activities of a general nature which the committee believes should be undertaken by NASA's Office of Advanced Research and Technology, and the remaining $3 million of the request was therefore disapproved. This action by the committee does not leave the Office of Space Science and Applications without adequate funding for research associated with launch vehicles. Improvement of existing launch vehicles is recognized as an important responsibility of OSSA. In this connection, it is noteworthy that substantial amounts of money are requested for "product improvement," elsewhere in the budget. Specifically, under the launch vehicle procurement program, a total of $33.9 million is requested for "sustaining engineering and maintenance" associated with the various launch vehicles. (Ref. page 113).

Launch vehicle procurement. It is the view of the committee that this request may reflect an overly ambitious launch schedule projected several years into the future. Moreover, NASA witnesses testified that, in the past, from 5 to 10 percent of launch vehicle procurement funds have remained unobligated at the end of the fiscal year. To bring about a reduction of such unobligated balances, the committee has provided for the nominal reduction of $5 million; the remainder is considered adequate to provide NASA with a reasonable degree of flexibility to assure an orderly procurement program.

Centaur-Sustaining engineering and maintenance. NASA requested $19.4 million for sustaining engineering and maintenance for the Centaur launch vehicle. SEM funds are used to improve reliability, uprate performance, and for general product improvement. While the committee has no objection to substantial amounts being earmarked for this type of work on developed launch vehicles, the request for such sizable amounts associated with Centaur, a launch vehicle currently under development, was not considered reasonable. (Ref. page 113).

Nuclear-electric systems. The committee concluded, therefore, that the development of this system should be continued and included in this authorization an additional $6 million to be used in continuing the SNAP-8 program. In view of the possible difficulties that could result from the termination actions taken by NASA and the difficulties that have been experienced in this program in the past, the committee requests that NASA submit a report specifying the schedule of major development goals to be met by the contractor. Also, peripheral development items not essential to the success of the

program should be avoided. Further, the committee requests that NASA review their management control methods used in carrying out the SNAP-8 development, report any changes needed to insure that the development schedule is maintained, and report to the committee any factors that may require a major program change or rescheduling. (Ref. page 114).

Nuclear rocket program. The committee requests that a report be submitted outlining the work planned for the next 5 years for PHOEBUS propulsion research. (Ref. page 115).

Chemical propulsion program. The committee increased the authorization in the chemical propulsion program by $21,200,000. Of this amount $15 million is to be used to continue the component development program of the M-1 engine, including the test stands required for the component development. It is also strongly recommended that NASA continue this program to produce an eventual complete system test of the engine. Testimony revealed that there is no other development program underway at this time that can possibly provide an upper state having the same capability as this engine. Although there is no current mission requirement for a stage of this size and thrust, the technology inherent in its design is sufficiently advanced to warrant bringing the development to full ground system test. The continuing program should be on an austere basis, scheduled to obtain maximum economy in the development in consonance with the current rate of progress, rather than to meet a production deadline as was the case in prior years. The 260-inch solid booster development was similarly increased by an amount of $6,200,000. This program was originated as a two-phase program, the first involves the testing by two contractors of two one-half length solid boosters each. The second phase of this program was to have produced a firing of a full-length 6-million pound-thrust solid booster. The omission of this item as a continuing development in fiscal year 1966 resulted in a reprogramming action by NASA to terminate the development in December 1965 with the firing of the one-half length phase one boosters. Testimony presented to the committee revealed that this program could be continued for an additional $6,200,000 in fiscal year 1966. The committee has fostered the development of large solid boosters over the past several years. In view of the present status of this development, the progress that has been made to date, the simplicity and reliability offered by solid propellant booster, the potential cost reduction in first-stage boosters and the relatively modest funds expended to date, the committee deemed it premature to terminate this development. Therefore, the committee stipulates that the additional funds be utilized to continue the 260-inch solid booster program to complete a ground system test. (Ref. page 114).

Tracking and data acquisition. The budget request for network operations showed an increase of 25.5 percent over the programmed amount for fiscal year 1965. The subcommittee feels that NASA can affect economies to offset this reduction of $3,879,000 during the fiscal year. (Ref. page 116).

CONSTRUCTION OF FACILITIES

Manned space flight. NASA requested $25,025,000 for construction of facilities and $2,800,000 for facility planning and design to support the programs of the Office of Manned Space Flight. The committee is of the opinion that a number of the requests were not justified on the basis of the information submitted by NASA, and that a reduction of $2,825,000 was appropriate and would not interfere with attainment of NASA's primary objectives. Among the projects not considered justified or of urgent importance were the proposed locomotive repair shop, connecting rail spur and associated utilities to provide minor maintenance for the one locomotive at the Mississippi Test Facility; the proposed nondestructive testing laboratory and additions to the materials laboratory at the Marshall Space Flight Center; the proposed extension to warehousing facilities at the Manned Spacecraft Center; the excessive amounts proposed for various engine development facilities; and the excessive amount ($2,800,000) proposed for facility planning and design in support of a construction program for manned space flight currently amounting to about $25 million annually. In making the reduction, the committee believes that maximum flexibility should be provided NASA. (Ref. page 116).

Electronics Research Center. The committee was not convinced that NASA could utilize these funds in addition to the funds authorized in prior years. Further, there was the question of whether title to the land could be obtained by NASA in time to utilize fiscal year 1966 funds. The denial of these funds in fiscal year 1966 could not delay the construction of the three buildings requested for fiscal year 1966 more than about 3 months if the current schedule for land availability is met. In any event, construction authorized in prior years can proceed without loss of time. (Ref. page 117).

Apollo Network Ground Station, Antigua, West Indies. Testimony revealed that there is a site owned by the British Government that was considered by NASA and may be available without cost to NASA. Since NASA stated this site is acceptable for performing the functions required, the committee reduced the NASA request by $200,000 and stipulates that cost-free land be utilized for this station. Therefore, no funds are authorized for the procurement of land. However, if cost-free land cannot

be obtained, reprogramming action to purchase land is authorized upon submission to and approval by the committee of a full report on the availability of a suitable site for this station. The total amount authorized for this station is therefore $2,500,000. (Ref. page 117).

Community support facilities, Antigua, West Indies. The committee is convinced that economies can be effected in this construction and that more practical yet adequate facilities should be provided. (Ref. page 117).

Facility Planning and Design. During the review of the request for $7,500,000 for Facility Planning and Design, the committee noted that $5,077,000 of the amount authorized and appropriated for this purpose in the fiscal year 1965 program remained unobligated as of March 31, 1965. This amount when added to the fiscal year 1966 request, would provide a total of $12,577,000. An analysis of the intended use of these funds revealed a generally well-planned schedule to meet the needs for preliminary and final design of future projects, conceptual facilities studies, master planning, and continued updating of construction criteria and standards. However, it was noted that $2,050,000 of this amount tentatively have been designated for advance design of facilities in support of future nuclear rocket development programs which are not firm. However, should the need for those funds earmarked for the design of nuclear rocket development facilities, not materialize or change during fiscal year 1966, commensurate reductions should be reflected in the fiscal year 1967 request for Facilities Planning and Design. (Ref. page 117).

REPROGRAMMING

The inherent design and construction leadtime for major facilities is such that authorization and appropriations could be secured either through supplemental or annual legislation to meet emergency needs. Accordingly, the committee has reduced the authority for NASA to transfer funds from the R. & D. appropriation to the C. of F. appropriation from 3 percent to one-half of 1 percent of the total authorized for R. & D., and has reduced the amount that can be transferred within the C. of F. appropriation from $30 million to $10 million. (Ref. page 118).

ADMINISTRATIVE OPERATIONS

For fiscal year 1966, NASA requested $289,742,000 for administrative operations in support of manned space flight at the Kennedy Space Center, the Manned Spacecraft Center, and the Marshall Space Flight Center. The committee believes that more austere management practices will lead to improved efficiency within these centers. Consequently, a reduction of $10 million was made in the total administrative operations budget for manned space flight. Support of space science and applications programs at Goddard, Pacific Launch Operations Office, and Wallops was $80,195,000 as compared to $98,200,000 for fiscal year 1965. The committee reduced the fiscal year 1966 request by $4,600,000 to $75,595,000. Although there appears to be a reduction in the estimated operating expense for fiscal year 1966, the decrease was offset by a heavy purchase of automatic data processing equipment in response to a Government accounting office finding that continued leasing of such equipment in lieu of purchase was uneconomical. It is the view of the committee that despite purchases of $14.7 million of previously leased ADP equipment in place at Goddard, estimated rental costs of such equipment at Goddard continue to be unreasonably high. The committee considers that the increased capability resulting from purchases of ADP equipment can and should result in further reductions in expenditures for rental equipment of approximately $2 million during fiscal year 1966. Certain other elements of the administrative operations authorization request for space science and applications were considered by the committee to be excessive, particularly increased requirements for supplies and materials, and other services, such as janitorial, guard, and housekeeping services and maintenance of facilities. The authorization request for administrative operations to support Advanced Research and Technology programs at Ames Research Center, Electronics Research Center, Flight Research Center, Langley Research Center, Lewis Research Center, and Space Nuclear Propulsion Office totaled $177,023,000. The committee believes that these administrative operations funds should be reduced by $8,751,150. From the testimony presented, this amount can be easily absorbed by these centers. The funds requested for administrative operations at the Electronics Research Center for fiscal year 1966 was $7,662,000. The committee stipulates that the amount authorized for expenditure in all object classes within administrative operations for this Center shall not exceed $7,240,890. This limitation is being placed on expenditures at the Center because plans have not progressed as originally scheduled and the committee was not convinced that the full amount requested could be utilized. (Ref. page 119).

COMMITTEE VIEWS

The committee desires to commend NASA's efforts to encourage participation in the national space program of an increasing number of institutions of higher education in the United States, particularly under

the sustaining university program. Other programs should be undertaken with this goal in mind. It is the view of the committee, for example, that one of the chief objectives of the Explorer-class satellite projects, and other such relatively less complex projects, should be to provide opportunities for participation in the space program to experimenters associated with the smaller colleges and universities around the Nation. NASA is therefore urged to adopt a policy providing for distribution of this type of R. & D. work to a greater number of smaller universities to the extent practicable. (Ref. page 120).

Geographic Distribution of NASA Contracts. The geographic distribution of NASA contracts is a matter of continuing concern to members of the committee. For this reason, the committee amended the bill by adding the following new section, which is self-explanatory:

> Sec. 5. It is the sense of Congress that it is in the national interest that consideration be given to geographical distribution of federal research funds whenever feasible and that the National Aeronautics and Space Administration should explore ways and means of distributing its research and development funds on a geographical basis whenever feasible and use such other measurers as may be practicable toward this end.

In this connection, the committee calls attention to its recent report entitled "Government and Science, No. 4--Geographic Distribution of Federal Research and Development Funds," and urges NASA to give full consideration to the findings and recommendations made therein. (Ref. page 120).

Improvement of Spacecraft Operating Lifetime in Orbit. The committee believes that effective quality control is the key to success in all of NASA's flight projects. With specific reference to the physics and astronomy program, with its wide variety of flight projects, the committee urges NASA's Office of Space Science and Applications to make renewed efforts pointing toward increasing spacecraft operating lifetime in orbit. Additional prior research and more comprehensive ground testing undertaken to enhance effective lifetime in orbit should result in correspondingly fewer launches of spacecraft, and, in the long run, greater economy. (Ref. page 120).

Backup Launch Vehicle for the Surveyor Project. The committee is concerned over the fact that no provision has been made for a backup launch vehicle to support the Surveyor project. At present, the Surveyor project is solely dependent upon the availability of the Centaur launch vehicle, which is currently under development. The Centaur development project has experienced numerous serious management and technical difficulties since its inception in 1958. These problems have

resulted in cost overruns amounting to hundreds of millions of dollars, and cumulative delays in its launch schedule of about 3 years. Despite statements by NASA officials expressing their confidence in the successful development of Centaur in time to meet the Surveyor schedule, the committee continues to have reservations regarding the timely availability of this disappointing launch vehicle. Inasmuch as testimony by NASA witnesses has repeatedly pointed to the absolute dependence of the Apollo project upon successful advance landings of Surveyor on the lunar surface, the committee believes that every reasonable measure should be taken to assure the success of the Surveyor flights on schedule. Accordingly, NASA is urged to give the most serious consideration to adapting the Titan III-C booster to the Surveyor project as a backup launch vehicle. (Ref. page 120).

Saturn IB-Centaur Launch Vehicle Study. NASA's proposed new study program for increasing the capability and thus furthering the usefulness of currently available vehicles is commended by the committee. To assure maximum versatility in this new launch vehicle configuration, it is the view of the committee that NASA should consider the various possibilities of thrust augmentation of all vehicle stages to permit maximum latitude in future possible missions. (Ref. page 121).

Master Planning to meet Program Objectives. It was evident from the testimony taken by the ART Subcommittee during its hearing that centralized direction or overall coordination of master planning needs improvement within NASA. In any given year, it is not to be expected that the construction budget will have a direct relationship to the research budget for that year. In the long run, however, there must be consistency between the two programs. This can best be achieved by policy guidance from NASA Headquarters toward the early master planning of center facilities in overall correlation with the assignment of research responsibilities to the various NASA centers. An example is the electronics research program which is spread over nine NASA research centers. In addition, a new flight research simulator is to be constructed at Langley. In the past most flight simulation research has been done at Ames. Granted that these are projects essential to the overall program, neither the budget presenations nor the testimony indicates how or whether the research assignments programmed for these nine centers have been anticipated by the advance planning of facilities for the nine centers-in order to achieve program coordination and avoid duplication of facilities. In fact, in the case of Lewis-for which no master plan exists-there is evidence that further program growth soon may be inhibited by increasing physical limitations complicated by congestion of buildings and personnel. The testimony showed a need for viable, imaginative, long-range master planning of facilities at all NASA installations, in order to obtain maximum utilization of the available land. At several centers, on sites not subject to lateral expansion, one- and two-story laboratories are being built that are not designed nor structurally capable of

vertical expansion. The need in this instance for better facility planning well in advance of structural design and prior to the programming of funds for construction becomes compelling and obvious. The committee believes there is a need for top level coordination within NASA of long-range program planning and the master planning of facilities at NASA installations. Facility development is necessarily limited by current missions; but facility planning need not be. The master planning of center facilities should anticipate future programs, predicated upon NASA's long-range program objectives. This requires centralized guidance and overall coordination from NASA headquarters. The committee, therefore, recommends that available advance planning funds be utilized to carry out such overall planning guidance, including establishment of a system of centralized control in NASA Headquarters and the preparation or up-dating of individual master plans for each NASA installation. (Ref. page 121).

NASA-DOD Cooperation. With regard to the status of cooperation between the Department of Defense and NASA, the committee is not completely satisfied that opportunities to work closely and profitably on all aspects of research and test programs have been exploited. True, many projects of mutual interest have been acted upon reasonably well by the Aeronautics and Astronautics Coordinating Board. However, there are certain areas of improvement that have become apparent to the committee especially with regard to problems associated with management decisions of a routine, day-to-day nature that could eventually have a significant effect on the future efficiency and economy of both the Air Force and NASA manned space flight programs. For instance, in the case of Antigua Island, NASA wishes to install there a new antenna facility for the Apollo operations. NASA has asked the committee to approve authorization for the purchase of ground costing up to $5,000 an acre. It so happens that the Air Force already has a considerably well-developed installation there, with large unoccupied and unused areas. After investigation, it is apparent that such a price is highly unrealistic, that NASA's assessment of costs for land on the island was quite superficial and cursory, and that no real attempt was made by NASA to take advantage of Air Force experience and facilities on the island. It also later developed through committee inquiry, that through agreements with the British Government which date back to 1940, crown land of which there is extensive acreage, is available without cost to the U. S. Government. In any event, this seems to the committee to be an instance where joint DOD-NASA cooperation could achieve practical and profitable results, particularly in view of the fact that an Air Force manned space flight program may follow NASA's in a few years and may require the same type of equipment and installation at Antigua Island. It is therefore the opinion of the committee that, while cooperation between the Department of Defense and the National Aeronautics and Space Administration has been positive and fruitful in the past, nevertheless greater efforts should be made to seek cooperation even in those relatively small areas of program management that in toto have a great importance to the efficiency and the success our national space program must achieve. (Ref. page 122).

Maintenance and Operation of Facilities and Other Services. The committee approved the NASA request for authority to enter into service-type contracts for the maintenance and operation of facilities and other services for periods extending beyond the end of the fiscal year for which funds for administrative operations are authorized. In this regard, the committee recognizes that the 1-year limitation imposed on administrative operations funds creates administrative burdens incident to extensions and renewals for contracts of this type at the close of the fiscal year. However, the committee desires that NASA institute measures to assure that adequate controls are imposed to preclude unwarranted use of this authority. The committee also desires to be kept informed as to the extent to which this authority is used, and accordingly instructs NASA to submit an annual report reflecting this information within three months following the close of the fiscal year. (Ref. page 123).

SENATE AUTHORIZATION COMMITTEE (REPORT NO. 188)

RESEARCH AND DEVELOPMENT

Apollo. Your committee believed that, with respect to this portion of the program, NASA should have adequate funds to fully support the test program and also be equipped to undertake remedial action promptly if such is indicated by test results. For this reason, your committee restored the $30 million across-the-board cut assessed by the House against the program. However, it was noted that a total of $58 million was included in the combined Apollo and advanced missions program requests for studies of future manned missions. In view of the level of planning effort and the substantial funds authorized for such study work in prior years, it appeared that the fiscal year 1966 request was excessive and therefore your committee reduced the funds for Apollo extension systems from $48 to $24 million, a reduction of 50 percent. (Ref. page 19).

Astronomical observatories. The committee concurs in the House reduction in this program of $6,200,000, the amount identified with the fifth observatory, until an evaluation of the first OAO launch in late 1965 or early 1966 can be performed. (Ref. page 24).

Geophysical observatories. In view of the simultaneity requirement associated with this program, your committee restored this amount to permit NASA sufficient flexibility to proceed with the program to assure achieving the scientific objective. (Ref. page 25).

Surveyor. Your committee believes the total number of flights planned should be carefully reexamined as the project moves forward. Since fiscal year 1966 funds essentially represent incremental funding in support of the first 10 missions, the committee recommends $84.1 million for this project. This amount reflects concurrence with a House reduction of $1.5 million from a $4 million NASA request for a lunar roving vehicle experiment being considered for incorporation in Block II Surveyor spacecraft for missions in the latter part of the program. In consonance with the above remarks and because NASA's plans regarding the latter missions and the roving vehicle are indefinite, the committee believes the House offers good and sound counsel in their report when they say, NASA "*** should utilize the remainder of $2.5 million for additional study, (and) a thorough review of the feasibility of this project, together with a reconsideration of the need." (Ref. page 29).

Lunar orbiter. In view of the other lunar programs, the committee is not convinced, at this time, of the need for initiating a Block II series of missions -- that is, beyond the five flights -- and accordingly, concurs in the program reduction made by the House of $1 million, the amount related to initiating Block II study effort. (Ref. page 30).

Voyager. It has been estimated that the Voyager program will cost at least a billion dollars. It is, therefore, your committee's belief that this project should be carried as a line item in the authorization bill. The Congress then will be acutely aware that when authorizing funds for that line item they are, in effect, approving NASA's program to send unmanned spacecraft to the planets -- first to Mars, then Venus, and later to the other planets. To make Voyager a line item in this year's authorization bill would place a substantial additional administrative burden both on NASA and the committee. The committee, therefore, this year did not amend the bill to make Voyager a line item but respectfully requests that NASA next year, if it continues to support the Voyager, present their authorization request to Congress showing Voyager as a line item. If NASA does not honor this request, the committee will consider it entirely within their prerogative to amend the fiscal year 1967 authorization bill to make Voyager a line item. Just as NASA in starting the Voyager project in fiscal year 1965 and approving it for fiscal year 1966 does not commit itself on this project beyond the funding period, so the committee in recommending this request be approved and requesting that Voyager be made a line item in the authorization bill does not give its approval to this project beyond fiscal year 1966. As for all NASA programs and projects, the committee reserves the right to review this project and reconsider its position on an annual basis. (Ref. page 31).

Launch Vehicle Development - SR&T. NASA officials have stated that among existing military and NASA launch vehicles, continuing studies are being undertaken to strengthen and improve the composition and capability of the vehicles. It is not infrequent to find one stage of vehicle NASA developed and the other compatibility stage a development of the military. Studies concerning the compatibility of vehicles and modification requirements are a necessary effort toward the long-term goal of standardizing our launch vehicle family. Your committee therefore restored this reduction. (Ref. page 39).

Launch Vehicle Procurement Program. In its review of this program, your committee noted that $10.8 million was included under Centaur to initiate Atlas vehicle procurement for Surveyor flights beyond No. 10 to effect procurement economies through placement of the largest possible order for Atlas vehicles at one time. While the committee agrees with the principle of reducing costs, it does not believe vehicle procurement should precede that of the spacecraft, now funded, through No. 10 only, particularly since the committee has some reservations about the need for all 17 Surveyor flights. Therefore, your committee recommends a reduction of $10.8 million in the Centaur account. The House made an across-the-board reduction of $5 million in NASA's total request of $194.5 million for "Launch vehicle procurement." This reduction was made because the House believed that the requested amount was based upon overly ambitious launch schedules thereby overstating current funding requirements for launch vehicles, and in addition, noted that unobligated funds remained in this account. Your committee concurs in this $5 million reduction. The House also reduced by $10 million a $19.4 million request for sustaining engineering and maintenance contained in the Centaur procurement request on the basis that NASA, because of a $59.6 million request for Centaur development, still considers this vehicle in development. Your committee concurs that such a large request for sustaining engineering and maintenance is not appropriate until a vehicle is fully operational. However, on May 6, 1965, the Cochairmen of the Aeronautics and Astronautics Coordinating Board -- the Associate Administrator, NASA and the Director of Defense Research and Engineering, DOD -- concurred that modifications to the standard Atlas launch vehicle leading to the SLV-3X configuration are consistent with the proper objectives of the national launch vehicle program. This action, on which NASA and DOD are about to proceed, involves an uprating of the Atlas standard launch vehicle (SLV-3) to provide additional booster capability. Aside from the fact that this added capability will be available for all Atlas launch vehicle combinations, NASA believes this has particular merit in providing a better margin on booster capability for the Surveyor mission. The cost of these modifications is estimated at $15 million, and therefore your committee recommends a restoration of the $10 million House cut to compensate in part for this work. Therefore, a total reduction of $15.8 million is recommended in the launch vehicle procurement program (Ref. page 41).

Communication Satellites Program. There currently exists a Joint Navigation Satellite Committee, chaired by NASA with five other agencies participating: Interior, Treasury, Defense, Commerce, and FAA. It is therefore requested that 30 days after the submission of the Joint Navigation Satellite Committee's report to the agency heads, but not later than January 30, 1966, NASA report to the Congress on whether any steps are being taken to establish a uniform national policy toward a global navigation satellite system. (Ref. page 36.)

SNAP-8 development. Therefore, your committee urges that the administration restudy its decision to terminate this program and not hesitate to reinstate this program at the earliest opportunity if it is found that auxiliary power systems of at least 35 kilowatts will probably be required before 1975. If at any time a decision is made that the SNAP-8 system might be needed to support the Nation's space program to help achieve our objective of becoming preeminent in space, your committee is prepared to consider any request for additional authority for the SNAP-8 project which the President would want to make of the Congress of the United States. (Ref. page 48).

Nuclear rockets. The committee urges NASA, in conjunction with AEC, to take such action as is necessary to assure that this program is adequately supported so that the development effort is completed early enough to make nuclear stages available in the 1975-85 time frame. (Ref. page 52).

M-1 engine. Accordingly, the committee urges the administration to reassess the need for an engine with this capability and if found necessary, particularly in connection with post-Apollo plans, to reinstate this program at the earliest opportunity. This committee is prepared to consider any request for additional authority for the M-1 engine project which the President would want to make of the Congress of the United States. (Ref. page 55).

260-inch large solid motor. Your committee, therefore, decided in the case of the 260-inch solid motor project to recommend approval of the $6.2 million added by the House committee and approved by the House of Representatives. However, your committee in recommending to the Senate that it approve this $6.2 million authorization also recommends against the inclusion of that amount in the fiscal year 1966 NASA appropriation. The committee recommends inclusion of the $6.2 million in the authorization bill simply to have the authorization available for consideration in a supplemental appropriation in the event that the President and NASA shall conclude, after completion of phase I, that they wish to move ahead into phase II with this project. (Ref. page 56).

Tracking and Data Acquisition - Operations. The committee believes NASA should have adequate funding for network operations in the coming year and, therefore, recommends full restoration of the House reduction of $3,879,000. (Ref. page 62).

Technology Utilization. The committee recommends that this program be continued at the $4,750,000 level consistent with the previous fiscal year since this is a highly experimental program and therefore must be carefully evaluated as it progresses. (Ref. page 64).

CONSTRUCTION OF FACILITIES

Electronics Research Center. Therefore, the site could be available in mid-fiscal year 1966, and utilizing advance facility design funds as intended, it would be possible to advertise for construction of the facilities in the fiscal year 1966 request in the latter part of the fiscal year. Conversely, if these funds were not authorized this year, these facilities would have to await fiscal year 1967 authorization action thereby restricting the NASA freedom to program the construction of this Center in an orderly manner. (Ref. page 66).

Kennedy Space Center. The committee believes the House reduction of $740,600 was somewhat severe and yet considers that some reduction is in order to insure the utmost economy in the provision of new facilities. Accordingly, an overall reduction of $400,000 was made without specific allocation of the reduction to NASA estimates for individual items. This will provide NASA with some flexibility in the construction program at this Center. (Ref. page 69).

Manned Spacecraft Center. This was an across-the-board reduction with no specific reduction in any specific construction item. A pro rata share of that cut for the Manned Spacecraft Center would be $446,700. Your committee found the need for the facilities request at this Center to be reasonable. However, your committee recommends a nominal reduction of $220,000 against the facilities proposed by NASA for this Center to assure economy in the construction program. No specific reduction of the original NASA estimate for either facility is made to provide funding flexibility in the construction program. (Ref. page 71).

Marshall Space Flight Center. Your committee believes, on the basis of the facts presented, there is insufficient justification for the $1,415,000 requested for extensions to high-pressure air and helium gas systems and for the $930,000 requested for LOX storage facilities. Further, the committee was not convinced of the basic need. Therefore, these two requests are denied. Your committee believes the three remaining facilities requested enhance the basic capability of this Center and, therefore, are recommended. The House, in its review, assessed a reduction against all manned space flight construction but not on specific projects. At Marshall Space Flight Center the pro rata reduction totals $484,900 on a request of $4,776,000. In recommending the three facilities, the committee believes it should also restore a part of the House reduction and a net reduction of $121,550 out of the $2,431,000 NASA requested for these three facilities. Therefore, the total reduction recommended to the NASA request for "Construction of Facilities" for the Marshall Space Flight Center is $2,466,550. (Ref. page 73).

Michoud Plant. The storm drainage system improvement is considered essential to assure the continuity of Michoud operations and, therefore, your committee recommends this project subject to a nominal reduction of $15,250 which includes a 50-percent restoration of the House reduction. (Ref. page 73).

Mississippi Test Facility. The committee recommends the deletion of a proposed locomotive shop and associated facilities and equipment at the Mississippi Test Facility because it believes that the establishment of a maintenance and repair capability by NASA for one locomotive is not warranted. As a secondary consideration, the committee was not persuaded as to the need for shelter for this equipment. A reduction of $110,000 is therefore recommended. The remaining facilities requested for this installation are considered to be necessary additions and, therefore, are recommended subject to a nominal reduction of $100,550 which includes approximately a 50-percent restoration of the House reduction. (Ref. page 73).

Various Locations. The House cut $622,600 from the NASA request for additional facilities for the F-1 and J-2 engines and the S-II stage as part of a general reduction of approximately 10 percent assessed against all manned space flight facilities. Your committee believes that the facilities for both the F-1 and J-2 engine programs have merit to support engine improvement developments and changed requirements which may emanate from the extensive engine test program now being undertaken by NASA. The committee also believes the fabrication and test program for the S-II stage warrants support of the NASA request for additional facilities. Therefore, these three items are recommended with a $311,300 reduction, or a 50-percent restoration of the House reduction. The resulting reduction is not applied to any of the NASA project estimates to permit flexibility in construction operations. The House, in its action, also reduced the NASA request for an Apollo network ground station at Antigua, West Indies, by $200,000, the amount allocated to purchase of land, after it developed there was a reasonable possibility of obtaining a cost-free site. If this did not materialize, the House stated it would be amenable to a reprograming request to support a purchase action. Your committee ascertained that there were two possibilities for cost-free land -- the British Government and the U. S. Air Force -- and believes that these should be exhausted before undertaking purchase action. Therefore, your committee recommends that the House reduction be sustained. In support of the Antigua Apollo network ground station, NASA proposed $3,090,000 to augment U. S. Air Force base facilities to house permanent and temporary duty station operating personnel. The House cut this request by $1 million on the basis that more practical facilities should be provided and that economies could be effected. Your committee appreciates the need for facilities, however, it concurs fully with the House that more economical and appropriate facilities can be arranged; therefore, a total of $2,090,000 is recommended for this item. (Ref. page 76).

Facility Planning and Design. Your committee recommends $5 million for facility planning and design for fiscal year 1966, a reduction of $2,500,000 from the NASA request. (Ref. page 77).

CONFERENCE AUTHORIZATION COMMITTEE (HOUSE REPORT NO. 514)

RESEARCH AND DEVELOPMENT

SNAP-8. The conferees stipulated (1) that the SNAP-8 project shall be continued and (2) that the funds authorized for SNAP-8 shall be utilized for no other purpose. (Ref. page 4)

M-1 Engine. The managers on the part of the House and Senate stipulated that this amount ($7,500,000) shall be utilized only for the continued development of the M-1 engine. (Ref. page 5)

SENATE APPROPRIATION COMMITTEE (REPORT NO. 384)

RESEARCH AND DEVELOPMENT

The committee is concerned over the fact that no provision has been made for a back-up launch vehicle to support the Surveyor project. At present that project is solely dependent on the Centaur, which is under development. In view of the dependence of the Apollo project on successful advance soft landings of Surveyor on the lunar surface and the numerous difficulties encountered in the development of Centaur in time to meet the Surveyor schedule, the committee, in making its recommendations, has considered and included $10 million for adapting the Titan III-C booster to the Surveyor project as a backup launch vehicle. (Ref. page 17)

ADMINISTRATIVE OPERATIONS

The committee recommends restoration of $12,048,850, less $91,000 denied by the committee as a proposed contribution to the President's Committee on Equal Employment Opportunity. (Ref. page 18)

GENERAL PROVISIONS

The committee recommends inserting a general provision, to implement the permissive language in the authorization, which would permit common use materials, supplies, and services to be initially financed from one appropriation and later to be charged to the benefiting appropriation on the basis of actual usage. (Ref. page 18)

CONFERENCE APPROPRIATION COMMITTEE (HOUSE REPORT NO. 727)

GENERAL PROVISIONS

Any appropriation in this Act to the National Aeronautics and Space Administration may initially be used during the fiscal year 1966 to finance procurement for which funds have been provided in any other appropriation available to the Administration and appropriate adjustments between such appropriations shall subsequently be made in accordance with generally accepted accounting principles. (Ref page 6.)

The Conferees are agreed that a report shall be made quarterly to the Space and Appropriation Committees of the Congress of action taken on any transfers in excess of $25,000. (Ref. page 14.)

Restores language proposed by the House providing that no funds in the bill shall be used to pay a recipient of a research grant an amount equal to as much as the entire cost of such project. (Ref. page 16.)