



Chronological History Fiscal Year 1977 Budget Submission

Prepared by:
Associate Administrator/
NASA Comptroller
Office of Budget Operations
Code BTF Ext. 58466

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FISCAL YEAR 1977
LEGISLATIVE REFERENCE

Item	Authorization Page Numbers					Appropriation Page Numbers							
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Subfunction Codes and Titles
253 Space Flight; 254 Space Science, Applications, and Technology; 255 Supporting Space Activities; 405 Air Transportation

Note: Legislative documents reproduced herein are not complete in all cases. For complete text, refer to the document itself.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Page 1

Chronological History of the FY 1977 Budget Submission
(In thousands of dollars)

ITEM	AUTHORIZATION					APPROPRIATION				
	NASA Budget Submission	House Comm. H.R. 12453 Rep. 94-897 3/15/76 Appd 3/22/76	Senate Comm. H.R. 12453 Rep. 94-718 3/30/76 Appd 4/1/76	Conf. Comm. Appd 5/17/76 Rep. 94-901 P.L. 94-307 6/4/76	Difference from Budget Submission	House Comm. H.R. 14233 Rep. 94-1220 6/8/76 Appd 6/22/76	Senate Comm. H.R. 14233 Rep. 94-974 6/22/76 Appd 6/26/76	Conf. Comm. Appd 7/22/76 Rep. 94-1362 P.L. 94-378 8/9/76	Difference from Budget Submission	Difference from Authori- zation
TOTAL APPROPRIATIONS:										
Research & Development.	2,758,925	2,863,525 ^{2/}	2,854,125 ^{2/}	2,856,425 ^{2/}	+97,500	2,862,925 ^{2/}	2,856,425 ^{2/}	2,856,425 ^{2/}	+97,500	---
Construction of Facilities.....	124,020	117,090	123,670	120,290	-3,730	118,090	120,290	118,090	-5,930	-2,200
Research and Program Management										
Basic Submission.....	(814,055)	(810,455)	(814,055)	(813,455)	(-600)	(809,000)	(813,455)	(813,000)	(-1,055)	(-455)
Supplemental.....	(31,777)	(31,575)	(31,575)	(31,575)	(-202)	(31,575)	(31,575)	(31,575)	(-202)	(---)
Total, R&PM.....	845,832	842,030	845,630	845,030	-802	840,575	845,030	844,575	-1,257	-455
GRAND TOTAL.....	3,728,777	3,822,645	3,823,425	3,821,745	+92,968	3,821,090	3,821,745	3,819,090	+90,313	-2,655
R&D Appropriation:										
OSF.....	1,644,700	1,732,700	1,739,700	1,737,200	+92,500	*	*	*	*	*
OSS.....	379,025	385,025	379,025	380,525	+1,500	*	*	*	*	*
OA.....	198,200	199,200	198,200	198,200	---	*	*	*	*	*
OAST.....	271,100	284,200	271,100	277,400	+6,300	*	*	*	*	*
OTDA.....	258,000	254,000	258,000	255,000	-3,000	*	*	*	*	*
OTU.....	7,900	8,400	8,100	8,100	+200	*	*	*	*	*
TOTAL, R&D.....	2,758,925	2,863,525	2,854,125	2,856,425	+97,500	2,862,425	2,856,425	2,856,425	+97,500	---
CoF Appropriation:										
OSF.....	43,755	39,625	43,405	40,625	-3,130	30,625	40,625	34,625	-9,130	+6,000
OSS.....	3,570	770	3,570	2,970	-600	770	2,970	770	-2,800	-2,200
OAST.....	30,850	30,850	30,850	30,850	---	40,850	30,850	36,850	+6,000	-6,000
OTDA.....	750	750	750	750	---	750	750	750	---	---
Center Operations.....	9,440	9,440	9,440	9,440	---	9,440	9,440	9,440	---	---
Comptroller.....	35,655	35,655	35,655	35,655	---	35,655	35,655	35,655	---	---
TOTAL, CoF.....	124,020	117,090	123,670	120,290	-3,730	118,090	120,290	118,090	-5,930	-2,200
R&PM Appropriation:										
Subtotal, R&PM.....	814,055	810,455	814,055	813,455	-600	809,000	813,455	813,000	(-1,055)	(-455)
Supplemental Appropriation.....	31,777	31,575	31,575	31,575	-202	31,575	31,575	31,575	(-202)	(---)
TOTAL, R&PM.....	845,832	842,030	845,630	845,030	-802	840,575	845,030	844,575	-1,257	-455
TOTAL, NASA.....	3,728,777	3,822,645	3,823,425	3,821,745	+92,968	3,821,090	3,821,745	3,819,090	+90,313	-2,655

*Undistributed.

^{1/} Appropriated by Public Law 95-26 dated 5/4/77.

^{2/} Includes \$95,000,000 primarily for third orbiter production; appropriated in Economic Stimulus Appropriations Act, 1977, P.L. 95-29 dated 5/13/77. Increased authorization is provided in 1978 Authorization Act P.L. 95-76.

Prepared by:

NASA Comptroller
Office of Budget
Operations

Code BIT Ext. 58466

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Chronological History of the FY 1977 Budget Submission
(In thousands of dollars)

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Subfunction Code	I T E M	A U T H O R I Z A T I O N					A P P R O P R I A T I O N				
		NASA Budget Submission	House Comm. H.R. 12453 Rep. 94-897 3/15/76 Appd 3/22/76	Senate Comm. H.R. 12453 Rep. 94-718 3/30/76 Appd 4/1/76	Conf. Comm. Appd 5/17/76 Rep. 94-901 P.L. 94-307 6/4/76	Difference from Budget Submission	House Comm. H.R. 14233 Rep. 94-1220 6/8/76 Appd 6/22/76	Senate Comm. H.R. 14233 Rep. 94-974 6/22/76 Appd 6/26/76	Conf. Comm. Appd 7/22/76 Rep. 94-1362 P.L. 94-378 8/9/76	Difference from Budget Submission	Difference from Authori- zation
	RESEARCH AND DEVELOPMENT..	2,758,925	2,863,525 ²	2,854,125 ³	2,856,425 ⁵	+97,500	2,862,925 ²	2,856,425 ⁵	2,856,425 ⁵	+97,500	---
253	Space Shuttle.....	1,288,100	1,383,100	1,383,100	1,383,100	+95,000	*	*	*	*	*
253	Space Flight Operations.	205,200	198,200	205,200	202,700	-2,500	*	*	*	*	*
254	Expendable Launch Vehicles.....	151,400	151,400	151,400	151,400	---	*	*	*	*	*
254	Physics and Astronomy...	165,800	169,800	165,800	166,300	+500	*	*	*	*	*
254	Lunar and Planetary.....	191,100	193,100	191,100	192,100	+1,000	*	*	*	*	*
253	Life Sciences.....	22,125	22,125	22,125	22,125	---	*	*	*	*	*
254	Space Applications.....	198,200	185,700	198,200	198,000	-200	*	*	*	*	*
254	Earth Resources Opera- tional Systems.....	---	13,500 ¹	---	200	+200	*	*	*	*	*
405	Aeronautical Research and Technology.....	189,100	192,100	189,100	191,100	+2,000	² /	*	*	*	*
254	Space Research and Technology.....	82,000	92,100	82,000	86,300	+4,300	² /	³ /	*	*	*
255	Tracking and Data Acq...	258,000	254,000	258,000	255,000	-3,000	*	*	*	*	*
755	Technology Utilization..	7,900	8,400	8,100	8,100	+200	*	*	*	*	*
	CONSTRUCTION OF FACILITIES	124,020	117,090	123,670	120,290	-3,730	118,090	120,290	118,090	-5,930	-2,200
	Ames Research Center.....	4,490	4,490	4,490	4,490	---	34,490	4,490	4,490	---	---
	Dryden Flight Res. Center..	750	750	750	750	---	750	750	750	---	---
	Johnson Space Center.....	2,800	---	2,800	2,200	-600	---	2,200	---	-2,800	-2,200
	Kennedy Space Center.....	2,805	2,805	2,805	2,805	---	2,805	2,805	2,805	---	---
	Langley Research Center...	6,185	6,185	6,185	6,185	---	6,185	6,185	6,185	---	---
	Lewis Research Center.....	2,170	2,170	2,170	2,170	---	2,170	2,170	2,170	---	---
	Large Aero. Facility.....	25,000	25,000	25,000	25,000	---	35,000	25,000	31,000	+6,000	+6,000
	Space Shuttle Facilities..	39,825	35,695	39,475	36,695	-3,130	26,695	36,695	30,695	-9,130	-6,000
	Space Shuttle Payload Facilities.....	4,340	4,340	4,340	4,340	---	4,340	4,340	4,340	---	---
	Rehabilitation and Mod....	17,875	17,875	17,875	17,875	---	17,875	17,875	17,875	---	---
	Minor Construction.....	5,125	5,125	5,125	5,125	---	5,125	5,125	5,125	---	---
	Facility Planning and Design.....	12,655	12,655	12,655	12,655	---	12,655	12,655	12,655	---	---
	RESEARCH AND PROGRAM MANAGEMENT.....	845,832	842,030	845,630	845,030	-802	840,575	845,030	844,575	-1,257	-455
	Basic Submission.....	814,055	810,455	814,055	813,455	-600	809,000	813,455	813,000	(-1,055)	(-455)
	Supplemental.....	31,777	31,575	31,575	31,575	-202	31,575	31,575	31,575	(-202)	(---
	TOTAL.....	3,728,777	3,822,645	3,823,425	3,821,745	+92,968	3,821,090	3,821,745	3,819,090	+90,313	-2,655

*Undistributed.

¹ New line item for LANDSAT-C from Space Applications.

² Amounts allocated to these programs within total recommended appropriation are to include: Aero R&T -- \$3,000,000 for accelerated work on variable cycle engine components technology. Space R&T -- \$1,600,000 for advanced propulsion technology. \$3,500,000 for energy technology. \$5,000,000 for SSPS.

³ Amount allocated to this program to include \$3,500,000 for energy technology.

⁴ \$2,500,000 is to be used in a cooperative effort with ERDA for solar satellite power system studies.

⁵ Includes \$95,000,000 primarily for third orbiter production. See note on page 1.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Chronological History of the FY 1977 Budget Submission
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	RESEARCH AND DEVELOPMENT APPROPRIATION:	2,758,915	2,851,525	2,851,125	2,856,125	+97,500					2,862,925	2,856,425	2,456,425	+97,500	---
	OFFICE OF SPACE FLIGHT...	1,644,700	1,732,700	1,739,700	1,737,200	+92,500					*	*	-	*	*
253	Space Shuttle Program....	(1,288,100)	(1,288,100)	(1,288,100)	(1,288,100)	(---					(*)	(*)	(*)	(*)	(*)
	Orbiter.....	842,500	842,500	842,500	842,500	---					(*)	(*)	(*)	(*)	(*)
	Main Engine.....	193,800	193,800	193,800	193,800	---									
	Solid Rocket Booster ...	82,600	82,600	82,600	82,600	---									
	External Tank.....	64,000	64,000	64,000	64,000	---									
	Launch and Landing.....	105,200	105,200	105,200	105,200	---									
	Space Shuttle Increase ^{1/} ...	---	(95,000)	(95,000)	(95,000)	(95,000)					(95,000)	(95,000)	(95,000)	(95,000)	---
253	Space Flight Operations Program.....	(205,200)	(198,200)	(205,200)	(202,700)	(-2,500)					(*)	(*)	(*)	(*)	(*)
	Space Transportation System Operations Capability Development Development, Test and Mission Operations....	17,300	17,300	17,300	*	*									
	Advanced Programs.....	169,900	161,900	169,900	*	*									
	18,000	19,000	18,000	18,500	+500										
254	Expendable Launch Vehicles Program.....	(151,400)	(151,400)	(151,400)	(151,400)	(---					(*)	(*)	(*)	(*)	(*)
	Scout.....	10,700	10,700	10,700	10,700	---									
	Centaur.....	90,700	90,700	90,700	90,700	---									
	Delta.....	43,800	43,800	43,800	43,800	---									
	Atlas-F.....	6,200	6,200	6,200	6,200	---									
	OFFICE OF SPACE SCIENCE...	379,025	385,025	379,025	380,525	+1,500					*	*	*	*	*
254	Physics and Astronomy Program.....	(165,800)	(169,800)	(165,800)	(166,300)	(+500)					(*)	(*)	(*)	(*)	(*)
	Large Observatories....	61,500	61,500	61,500	61,500	---					(*)	(*)	(*)	(*)	(*)
	Spacelab Science Program.....	10,000	10,000	10,000	10,000	---									
	Orbiting Explorers.....	33,000	33,000	33,000	33,000	---									
	Suborbital Programs.....	26,000	26,000	26,000	26,000	---									
	Supporting Activities...	35,300	35,300	35,300	35,800	+500									

*Undistributed.

^{1/} Primarily for third orbiter production. See note on page 1.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Chronological History of the FY 1977 Budget Submission
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Sub-Function Code	I T E M	A U T H O R I Z A T I O N					A P P R O P R I A T I O N				
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254	Lunar and Planetary Exploration Program....	(191,100)	(193,100)	(191,100)	(192,100)	(+1,000)	(*)	(*)	(*)	(*)	(*)
	Viking.....	24,200	24,200	24,200	24,200	---					
	Outer Planets Missions..	50,300	50,300	50,300	50,300	---					
	Pioneer/Helios.....	47,400	47,400	47,400	47,400	---					
	Supporting Research and Technology/Advanced Studies.....	11,600	13,600	11,600	12,600	+1,000					
	Planetary Data Analysis..	2,500	2,500	2,500	2,500	---					
	Planetary Astronomy.....	4,800	4,800	4,800	4,800	---					
	Planetary Flight Support	27,900	27,900	27,900	27,900	---					
	Lunar Research Program..	22,400	22,400	22,400	22,400	---					
253	Life Sciences Program....	(22,125)	(22,125)	(22,125)	(22,125)	(---)	(*)	(*)	(*)	(*)	(*)
	Space Life Sciences.....	17,325	17,325	17,325	17,325	---					
	Planetary Biology.....	3,300	3,300	3,300	3,300	---					
	Planetary Quarantine....	1,500	1,500	1,500	1,500	---					
	OFFICE OF APPLICATIONS...	198,200	199,200	198,200	198,200	---	*	*	*	*	*
254	Space Applications Program.....	(198,200)	(185,700)	(198,200)	(198,000)	(-200)	(*)	(*)	(*)	(*)	(*)
	Earth Resources Detection and Monitoring.....	67,300	53,800	67,300	*	*					
	Earth Dynamics Monitoring and Forecasting.....	4,600	4,600	4,600	*	*					
	Ocean Condition Monitoring and Forecasting.....	30,600	30,600	30,600	*	*					
	Environmental Quality Monitoring.....	26,100	26,100	26,100	*	*					
	Weather and Climate Observation and Forecasting.....	36,300	37,300	36,300	*	*					
	Materials Processing in Space.....	9,200	9,200	9,200	*	*					
	Space Communications...	10,600	10,600	10,600	*	*					
	Information Management..	3,200	3,200	3,200	*	*					
	Applications Explorer Missions.....	10,300	10,300	10,300	*	*					
	Earth Resources Operational Systems Program.....	(---)	(13,500) ^{1/}	(---)	(200)	(+200)	(*)	(*)	(*)	(*)	(*)

*Undistributed.

^{1/} New line item for LANDSAT-C from Space Applications.

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	OFFICE OF AERONAUTICS AND SPACE TECHNOLOGY....	271,100	284,200	271,100	277,400	+6,300	*	*	*	*	*
405	Aeronautical Research and Technology Program.....	(189,100)	(192,100)	(189,100)	(191,100)	(+2,000)	(*)	(*)	(*)	(*)	(*)
	Research and Technology Base.....	89,700	89,700	89,700	*	*					
	Systems Studies.....	3,000	3,000	3,000	•	*					
	Systems Technology Programs.....	60,800	63,800	60,800	*	*					
	Experimental Programs...	35,600	35,600	35,600	*	*					
254	Space Research and Technology Program.....	(82,000)	(92,100)	(82,000)	(86,300)	(+4,300)	(*)	(*)	(*)	(*)	(*)
	Research and Technology Base.....	62,100	63,700	62,100	62,900	+800					
	Systems Studies.....	1,600	1,600	1,600	1,600	---					
	Systems Technology Programs.....	3,100	3,100	3,100	3,100	---					
	Experimental Programs...	6,900	6,900	6,900	6,900	---					
	Low Cost Systems Program.....	8,300	8,300	8,300	8,300	---					
	Energy Technology Identification and Verification.....	---	3,500	---	3,500	+3,500					
	Solar Satellite Power Systems Studies.....	---	5,000	---	---	---					
	OFFICE OF TRACKING AND DATA ACQUISITION.....	258,000	254,000	258,000	255,000	-3,000	*	*	*	*	*
255	Tracking and Data Acquisition Program.....	(258,000)	(254,000)	(258,000)	(255,000)	(-3,000)	(*)	(*)	(*)	(*)	(*)
	Operations.....	206,800	*	206,800	*	*					
	Systems Implementation..	42,500	*	42,500	*	*					
	Advanced Systems.....	8,700	*	8,700	*	*					
	OFFICE OF INDUSTRY AFFAIRS AND TECHNOLOGY UTILIZATION.....	7,900	8,400	8,100	8,100	+200	*	*	*	*	*
255	Technology Utilization Program.....	(7,900)	(8,400)	(8,100)	(8,100)	(+200)	(*)	(*)	(*)	(*)	(*)
	Industrial Applications..	3,245	*	*	*	*					
	Technology Applications..	3,600	*	*	*	*					
	Program Control and Evaluation.....	1,015	1,015	1,015	1,015	---					

*Undistributed.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Chronological History of the FY 1977 Budget Submission
(In thousands of dollars)

Sub-Function Code	I T E M	A U T H O R I Z A T I O N						A P P R O P R I A T I O N				
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	CONSTRUCTION OF FACILITIES APPROPRIATION:	124,020	117,090	123,670	120,290	-3,730		118,090	120,290	118,090	-5,930	-2,200
254	AMES RESEARCH CENTER.....	(4,490)	(4,490)	(4,490)	(4,490)	---		(14,490)	(4,490)	(4,490)	---	---
	R-Modification for High Enthalpy Entry Facility	1,220	1,220	1,220	1,220	---		1,220	1,220	1,220	---	---
405	R-Modification of Flight Simulator for Advanced Aircraft.....	1,730	1,730	1,730	1,730	---		1,730	1,730	1,730	---	---
255	A-Construction of Supply Support Facility	1,540	1,540	1,540	1,540	---		1,540	1,540	1,540	---	---
	<u>DRYDEN FLIGHT RESEARCH CENTER.....</u>	(750)	(750)	(750)	(750)	---		(750)	(750)	(750)	---	---
255	T-Construction of Addition to Flight Control Facility.....	750	750	750	750	---		750	750	750	---	---
	<u>LYNDON B. JOHNSON SPACE CENTER.....</u>	(2,800)	---	(2,800)	(2,200)	(-600)		---	(2,200)	---	(-2,800)	(-2,200)
254	S-Construction of Addition to Lunar Sample Curatorial Facility.....	2,800	---	2,800	2,200	-600		---	2,200	---	-2,800	-2,200
	<u>JOHN F. KENNEDY SPACE CENTER.....</u>	(2,805)	(2,805)	(2,805)	(2,805)	---		(2,805)	(2,805)	(2,805)	---	---
254	M-Construction of Airlock to Spin Test Facility.....	360	360	360	360	---		360	360	360	---	---
255	A-Modifications for Utility Control System.....	2,445	2,445	2,445	2,445	---		2,445	2,445	2,445	---	---
	<u>LANGLEY RESEARCH CENTER ..</u>	(6,185)	(6,185)	(6,185)	(6,185)	---		(6,185)	(6,185)	(6,185)	---	---
405	R-Construction of Addition for Aero- elastic Model Laboratory.....	730	730	730	730	---		730	730	730	---	---
255	A-Construction of Data Reduction Center Annex.....	2,970	2,970	2,970	2,970	---		2,970	2,970	2,970	---	---

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Prepared by:
NASA Comptroller
Office of Budget
Operations
Code BT/ Ext. 58466

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Chronological History of the FY 1977 Budget Submission
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	LANGLEY RESEARCH CENTER (Cont'd.)											
255	A-Construction of Refuse-Fired Steam Generating Facility...	2,485	2,485	2,485	2,485	---	2,485	2,485	2,485	---	---	
	LEWIS RESEARCH CENTER.....	(2,170)	(2,170)	(2,170)	(2,170)	(---)	(2,170)	(2,170)	(2,170)	(---)	(---)	
254	R-Modification of Refrigeration System, Electric Propulsion Laboratory.....	680	680	680	680	---	680	680	680	---	---	
405	R-Rehabilitation of Combustion Air Drying System, Engine Research Building.....	1,490	1,490	1,490	1,490	---	1,490	1,490	1,490	---	---	
	LARGE AERONAUTICAL FACILITY	(25,000)	(25,000)	(25,000)	(25,000)	(---)	(35,000)	(25,000)	(31,000)	(+6,000)	(+6,000)	
405	R-Construction of National Transonic Facility (LaRC).....	25,000	25,000	25,000	25,000	---	25,000	25,000	25,000	---	---	
405	R-Modification of 40-by- 80-Foot Subsonic Wind Tunnel.....	---	---	---	---	---	10,000	---	6,000	+6,000	+6,000	
	SPACE SHUTTLE FACILITIES AT VARIOUS LOCATIONS AS FOLLOWS:	(39,825)	(35,695)	(39,475)	(36,695)	(-3,130)	(26,695)	(36,695)	(30,695)	(-9,130)	(-6,000)	
253	M-Construction of Orbiter Processing Facility (KSC).....	3,750	3,750	3,750	3,750	---	3,750	3,750	3,750	---	---	
253	M-Modifications to Launch Complex 39 (KSC).....	19,855	17,855	19,855	18,855	-1,000	8,855	18,855	12,855	-7,000	-6,000	
253	M-Modifications for Solid Rocket Booster Processing Facilities (KSC).....	9,700	8,700	9,700	8,700	-1,000	8,700	8,700	8,700	-1,000	---	
253	M-Construction of Shuttle/Carrier Aircraft Mating Facilities (KSC).....	2,050	1,700	1,700	1,700	-350	1,700	1,700	1,700	-350	---	
253	M-Modifications for Crew Training Facilities (JSC).....	780	---	780	---	-780	---	---	---	-780	---	

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ITEM	AUTHORIZATION						APPROPRIATION				
	NASA Budget Submission	House Comm. H.R. 12453 Rep. 94-897 3/15/76 Appd 3/22/76	Senate Comm. H.R. 12453 Rep. 94-718 3/30/76 Appd 4/1/76	Conf. Comm. Appd 5/17/76 Rep. 94-901 P.L. 94-307 6/4/76	Difference from Budget Submission		House Comm. H.R. 14233 Rep. 94-1220 6/8/76 Appd 6/22/76	Senate Comm. H.R. 14233 Rep. 94-974 6/22/76 Appd 6/26/76	Conf. Comm. Appd 7/22/76 Rep. 94-1362 P.L. 94-378 8/9/76	Difference from Budget Submission	Difference from Authori- zation
SPACE SHUTTLE FACILITIES AT VARIOUS LOCATIONS AS FOLLOWS: (Cont'd.)											
253	M-Rehabilitation and Modification of Shuttle Facilities, at Various Locations	1,760	1,760	1,760	1,760	---					
253	M-Modification of Manufacturing and Final Assembly Facilities for External Tanks, (MAF) ...	1,930	1,930	1,930	1,930	---					
SPACE SHUTTLE PAYLOAD FACILITIES AT VARIOUS LOCATIONS AS FOLLOWS:											
		(4,340)	(4,340)	(4,340)	(4,340)	(---)					
254	M-Modifications to Operations and Check-out Building for Spacelab (KSC)	3,570	3,570	3,570	3,570	---					
254	S-Modifications and Addition for Shuttle Payload Development (GSFC)	770	770	770	770	---					
255	B-REHABILITATION AND MODIFICATION OF FACILITIES AT VARIOUS LOCATIONS, NOT IN EXCESS OF \$500,000 PER PROJECT.	(17,875)	(17,875)	(17,875)	(17,875)	(---)					
255	B-MINOR CONSTRUCTION OF NEW FACILITIES AND ADDITIONS TO EXISTING FACILITIES AT VARIOUS LOCATIONS, NOT IN EXCESS OF \$250,000 PER PROJECT	(5,125)	(5,125)	(5,125)	(5,125)	(---)					
255	B-FACILITY PLANNING AND DESIGN	(12,655)	(12,655)	(12,655)	(12,655)	(---)					

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RESEARCH AND PROGRAM MANAGEMENT APPROPRIATION	814,055	810,455	814,055	813,455	-600		809,000	813,455	813,000	-1,055	-455
BY INSTALLATION:											
Johnson Space Center....	134,254	*	134,254	*	*		*	*	*	*	*
Kennedy Space Center....	103,624	*	103,624	*	*		*	*	*	*	*
Marshall Space Flight Center.....	133,165	*	133,165	*	*		*	*	*	*	*
National Space Tech- nology Laboratories...	1,833	*	1,833	*	*		*	*	*	*	*
Coddard Space Flight Center.....	109,176	*	109,176	*	*		*	*	*	*	•
Wallops Flight Center...	13,654	*	13,654	*	*		*	*	*	*	*
Ames Research Center...	50,518	*	50,518	*	*		*	*	*	*	*
Dryden Flight Research Center.....	15,832	*	15,832	*	*		*	*	*	*	*
Langley Research Center.	91,691	*	91,691	*	*		*	*	*	*	*
Lewis Research Center...	85,739	*	85,739	*	*		*	*	*	*	*
NASA Headquarters.....	74,569	*	74,569	*	*		*	*	*	*	*
BY FUNCTION:											
Personnel.....	615,630	*	615,630	*	*		*	*	*	*	*
Travel.....	17,143	*	17,143	*	*		*	*	*	*	*
Facilities Services....	98,005	*	98,005	*	*		*	*	*	*	*
Technical Services.....	36,976	*	36,976	*	*		*	*	*	*	*
Administrative Support..	46,301	*	46,301	*	*		*	*	*	*	*
Supplemental.....	31,777	31,575	31,575	31,575	-202		+31,575	+31,575	+35,575	-202	---
	845,832	842,030	845,630	845,030	-802		840,575	845,030	844,575	-1,257	-455

*Undistributed.

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COMMITTEE ACTIONS

RESEARCH AND DEVELOPMENT

SPACE FLIGHT OPERATIONS

NASA requested \$205,200,000 for Space Flight Operations in Fiscal Year 1977. Within this line item your Committee decreased Development, Test and Mission Operations \$8,000,000 and increased Advanced Programs \$1,000,000 resulting in a total recommended authorization of \$198,200,000 for the Space Flight Operations for Fiscal year 1977.

Development, Test and Mission Operations.—The Committee reviewed the fiscal year 1977 request for Development, Test and Mission Operations comparing the funding history of this line item with previous years. It was noted that in addition to the reduction of \$5,000,000 specified by this Committee for fiscal year 1976 that NASA elected to reduce Transition Quarter funding by \$2,100,000 in this account. Therefore, the Committee recommends a total of \$161,900,000 for Development, Test and Mission Operations for Fiscal Year 1977, a reduction of \$8,000,000 from the NASA request.

Advanced Programs.—NASA requested \$18,000,000 for Advanced Programs for fiscal year 1977. The Committee increases this amount \$1,000,000 for a total of \$19,000,000 for Advanced Programs for fiscal year 1977. This increase is based on recommendations derived from oversight hearings of the Subcommittee On Space Science and Applications on future space programs citing the need for improved advanced program structuring and development. The relevant recommendations are quoted below from the Subcommittee report, entitled "Future Space Programs—1975," to provide guidance to the National Aeronautics and Space Administration:

(A) The Subcommittee believes that NASA should demonstrate a sense of urgency in its future program planning and development. The Subcommittee further believes it is absolutely essential to the continued vitality of the space program and consequently to its potential for increased contributions to the welfare of society that the nation and NASA focus on an overarching concept. This concept should represent one or more mind-expanding endeavors which would challenge the imagination and capability of the country. The key element of such a program should be substantial return on past and current investments in space through clear and immediate benefits to the society on earth in the form of greatly expanded services and direct contributions to solution of earth-found problems.

(B) New opportunities in national and international space programs should be examined by the Executive and introduced into the budget cycle including comprehensive planning and implementation of a five year program to provide space systems for

AUTHORIZING APPROPRIATIONS TO THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MARCH 15, 1976.—Committed to the Committee of the Whole House on the State of the Union and ordered to be printed

Mr. TEAGUE, from the Committee on Science and Technology, submitted the following

REPORT

[To accompany H.R. 12453]

The Committee on Science and Technology, to whom was referred the bill (H.R. 12454) to authorize appropriations to the National Aeronautics and Space Administration for research and development, construction of facilities, and research and program management, and for other purposes, having considered the same, report favorably thereon without amendment and recommended that the bill do pass.

PURPOSE OF THE BILL

The purpose of the bill is to authorize appropriations to the National Aeronautics and Space Administration for fiscal year 1977 as follows:

Programs	Authorization fiscal year 1977
Research and development.....	\$2, 768, 525, 000
Construction of facilities.....	117, 090, 000
Research and program management..	810, 455, 000
Total.....	3, 696, 070, 000

educational and medical satellite services and earth resource surveys—maritime, agriculture, geological, and demographic.

(C) To aid in assuring a breadth of vision while maintaining a vital shorter term space program, NASA should strengthen its annual future program planning effort and on a periodic basis (every 3-4 years) initiate an ad hoc review of its planning process and future programs, drawing upon both national and international expertise from a broad cross-section of society. This ad hoc examination should review projected space activity 20-30 years in the future to determine to the extent possible:

1. How well does the short range (0-10 year) planning and mid-range (10-20 year) planning coincide with the current assessment of the longer range future?
2. What planning and resources allocation adjustments, in the short and mid-range, should be made to accommodate the latest thinking on long term opportunities?
3. What new research and development initiatives are necessary to support long term opportunities?

(F) Re-evaluation of the organizational and management arrangements, relative emphasis and program content for space processing and manufacturing should be made within the next year with the intent of assuring that options for commercial utilization of space are developed.

(H) In withdrawal from an area of Federal space research and development, a formal procedure similar to that for initiating new programs should be adopted to assure that the effect of such withdrawal of effort will be positive. For example, NASA should assure that the necessary advanced satellite communication technology is being developed to assure continued U.S. leadership before withdrawal from the area.

(I) NASA should develop and implement a comprehensive cost benefit analysis for each major program which will include the relative social and economic benefits as well as the potential for public support and international cooperation.

The Committee requests the National Aeronautics and Space Administration to report to the Committee by January 1977, on progress toward meeting the objective of these recommendations.

PHYSICS AND ASTRONOMY

NASA requested \$165,800,000 for Physics and Astronomy programs in fiscal year 1977. Within this line item the Committee increased Supporting Research and Technology programs by \$1,000,000 and added \$3,000,000 for the Space Telescope resulting in a total recommended authorization of \$169,800,000 for Physics and Astronomy for fiscal year 1977.

Supporting Research and Technology.—The Committee reviewed the fiscal year 1977 request of \$14,700,000 for Supporting Research and Technology and compared the funding history of this line item with previous years. The Supporting Research and Technology budget has been almost constant for a number of years, resulting in a net decrease in the amount of research that can be carried out within it. The

efforts supported by these funds help assure the viability of future research in physics and astronomy. Therefore the Committee recommends a total authorization of \$17,700,000 for Supporting Research and Technology for fiscal year 1977, an increase of \$1,000,000 to the NASA request.

Space Telescope.—The NASA requested funds for the Space Telescope from the Office of Management and Budget. These funds were deleted from the submission to Congress. The Committee carefully reviewed the merits of this program recognizing that this program represents a significant opportunity to study the origin and evolution of the universe, as well as phenomena such as "black holes", and high energy sources including pulsars and quasars. The Space Telescope has consistently received broad support from the scientific community, having received highest priority from the National Academy of Science, Space Science Board.

The Committee recognizes the benefits of preserving the present scientific and industrial study teams and views the Space Telescope as a logical next step in physics and astronomy. Therefore, the Committee recommends an addition of \$3,000,000 in support of the Space Telescope to initiate the development program.

The Committee recommends \$9,000,000 less than the National Aeronautics and Space Administration submitted to Office of Management and Budget based on a program structured to provide for a slow build-up in the early two or three years in order to allow initiation of other Shuttle payload activities while minimizing peak year funding. The Committee further observes that it is in the best interest of the government to complete the design competition currently underway and select the appropriate contractor thus minimizing costs of a prolonged competitions.

LUNAR AND PLANETARY EXPLORATION

NASA requested \$191,100,000 for Lunar and Planetary Exploration in fiscal year 1977. Within this line item the Committee increased Planetary Advanced Programs \$2,000,000 resulting in a total recommended authorization of \$193,100,000 for Lunar and Planetary Exploration in fiscal year 1977.

Planetary Advanced Studies.—NASA requested \$1,200,000 for Planetary Advanced Studies in fiscal year 1977. The Committee examined the future of the lunar and planetary science programs and noted that there has been only one new program in the past five budget years. As a result there will inevitably be a gap in lunar and planetary effort following the Pioneer Venus missions in 1978. Such a gap will likely create an inefficient employment of resources. Therefore, the Committee recommends an increase of \$2,000,000 for a total recommended authorization of \$3,200,000 for Planetary Advanced Studies in fiscal year 1977. This will provide for definition study efforts for a Jupiter Orbiter which represents the next step in the long-range planning for systematic exploration of the solar system.

APPLICATIONS PROGRAM

The Committee approved the full amount of the NASA request for the Space Applications area and added \$1,000,000 to the Weather and

Climate Observation and Forecasting line item. A transfer of \$13,500,000 was made to place the LANDSAT-C program in a new line item entitled **Earth Resources Operational Systems**.

This increase in the Weather and Climate area reflects the Committee's concern that NASA take full advantage of its technical expertise and facilities to continue a high degree of support to severe storm research. Therefore, the Committee recommends \$185,700,000 for the Space Applications line item for Fiscal Year 1977.

EARTH RESOURCES OPERATIONAL SYSTEMS PROGRAM

The Committee included a new Line Item entitled **Earth Resources Operations Systems** in the FY 1977 NASA Authorization request which included funding of \$13,500,000 requested for the Space Applications area under the item currently listed as LANDSAT-C. This new Line Item and accompanying funding is no increase to the NASA Authorization request.

The Committee takes the position that the development of remote sensing technology as evidenced by the outstanding success of LANDSAT 1 & 2 programs justifies moving forward to an operational remote sensing system to assure various users timely and accurate land use data, crop forecasting and better management of our nation's resources.

The insertion of this new line item should not be interpreted as an inhibition to continuing research and development activity for the improvement of this nation's remote sensing technology and capability as embodied in such programs as Thematic Mapper, Heat Capacity Mapping Mission and other application and demonstration activity. Therefore, the Committee recommends \$13,500,000 for Earth Resources Operational Systems for fiscal year 1977.

AERONAUTICAL RESEARCH AND TECHNOLOGY

NASA requested \$189,100,000 for Aeronautical Research and Technology. The Committee approved this amount and recommended an addition of \$3,000,000 for a total of \$192,100,000. The additional amount is to accelerate the Variable Cycle Engine Components Technology program.

Propulsion technology is the major technological barrier to more fuel-efficient, quiet and non-polluting aircraft of the future. In view of the mounting threat from abroad to U.S. leadership in aeronautics, the Committee recommended an acceleration of the work in this extremely promising engine component technology area.

SPACE RESEARCH AND TECHNOLOGY

NASA requested \$82,000,000 for Space Research and Technology programs in Fiscal Year 1977. Within this line item the Committee increased the Research and Technology Base \$1,600,000 for advanced propulsion technology, added \$3,500,000 for Energy Technology Identification and Verification, and added \$5,000,000 for Solar Satellite Power System Studies resulting in a total recommended authorization of \$92,100,000 for Space Research and Technology programs.

Research and Technology Base.—NASA requested \$62,100,000 for Research and Technology Base activities in Fiscal Year 1977. The Committee increased this amount \$1,600,000 for a total of \$63,700,000 for Research and Technology Base programs. This increase is based on a conclusion and recommendation from oversight hearings of the Subcommittee on Space Science and Applications on future space programs citing the need for increased advanced propulsion technology effort. The relevant conclusion and recommendations are quoted below from the Subcommittee report entitled "Future Space Programs—1975."

(O) To realize a number of longer term space program opportunities a major advance in propulsion is necessary to augment chemical propulsion capability.

(G) NASA should embark on an expanded program of fundamental research and exploratory development in new propulsion concepts.

Energy Technology Identification and Verification

The Committee recommends a \$3,500,000 addition for Energy Technology Identification and Verification to relate NASA technology capability to energy R&D needs and to assure that the ability to use space is fully and completely understood in energy related applications. The Committee recognizes that at an appropriate time the development or operational decision should rest with ERDA. However, if NASA is to effectively participate and apply its capabilities to energy needs, they must be permitted some minimum flexibility to structure, define and package the capabilities represented by NASA for eventual consideration by ERDA, the Administration and Congress. These funds provide focus for NASA's energy application efforts.

Energy Applications—Solar Satellite Power Systems Studies

The Committee added \$5,000,000 for Solar Satellite Power Systems Studies to significantly broaden the system definition effort and to initiate a comprehensive environmental impact and benefit analysis. These funds will provide for a ground-based phased array antenna for microwave experiments and will provide for definition of the technology advances required in large structures, attitude control, transportation, and space assembly and maintenance operations.

TRACKING AND DATA ACQUISITION

The Committee decreased the Tracking and Data Acquisition Program budget request of \$258,000,000 for FY 1977 by \$1,000,000 as a result of a thorough review of anticipated workload of both the STDN and DSN systems.

The Committee commends the Office of Tracking and Data Acquisition for their continued excellent performance while recognizing their ability to achieve greater economies in this area. Therefore, the Committee recommends that a total of \$254,000,000 be authorized for the Fiscal Year 1977 for the Tracking and Data Acquisition Program.

TECHNOLOGY UTILIZATION

The Committee approved the NASA FY 1977 Authorization request of \$7,900,000 and added \$500,000 for greater emphasis on Industrial and Technology applications.

The Committee observes that progress had been made in this office in its efforts to provide the public and private sector with a mechanism for transferring NASA-developed technology to commercial applications and encouraging additional participation in using the large base of useful knowledge.

The Committee, therefore, recommends a total of \$8,400,000 for the Technology Utilization area for Fiscal Year 1977.

CONSTRUCTION OF FACILITIES

The total for Construction of Facilities included in the NASA Fiscal Year 1977 NASA Authorization request was \$124,020,000. The program included requests for construction and rehabilitation in support of: Space Flight, \$39,825,000; Space Science, Applications and Technology, \$9,400,000; supporting Space activities, \$45,845,000; Air Transportation, \$28,950,000.

The Committee, after having made several adjustments to the NASA Authorization request, recommends that a total of \$117,090,000 be authorized for Construction of Facilities for Fiscal Year 1977. Committee amendments to the Authorization Bill were as follows:

JOHNSON SPACE CENTER

NASA again proposed an addition to the Lunar Curatorial Facility at the Johnson Space Center in the amount of \$2,800,000. This project was proposed last year and deferred on the basis that further dispersion of lunar samples should be effected and that further consideration should be given to the relocation of these activities to other federally owned facilities less vulnerable to potential natural and man-made hazards. NASA has persisted in the need for this requirement at the Johnson Space Center and has submitted an identical project for consideration in the FY 1977 request. Although some dispersal of lunar samples has been accomplished, the Committee considers that the proposed project is over-designed, too costly, and that adequate consideration has not been given to further dispersal and the use of other Government-owned facilities for these purposes. The Subcommittee recommends that the \$2,800,000 request again be deferred.

SPACE SHUTTLE FACILITIES

a. Modifications to Launch Complex 39.—NASA has requested further modifications to Launch Complex 39 at the Kennedy Space Center in the amount of \$19,000,000. This is the third increment in a program to modify existing launch facilities to meet the needs of the Space Shuttle program. This project proposes the modification to the second mobile launcher, and modifications to one of the mobile service towers to high altitude levels which will be generated by the shuttle's engines. The Committee supports this project; however, it is recommended that the amount requested can actually be obligated during Fiscal Year 1977. Accordingly, a reduction of \$2.0 million is recommended.

b. Modifications for Solid Rocket Booster Processing Facilities.—NASA has requested \$9,700,000 for further modification to existing facilities to meet the solid rocket booster processing requirements at the Kennedy Space Center in support of the Space Shuttle program. This is the second increment for the required modifications, \$5,200,000 having been authorized in the Fiscal Year 1976 Authorization Act. None of the funds authorized to date have been obligated. The Committee considers this project to be a valid requirement and essential to the Space Shuttle launch operations program, however the Committee is not convinced that the funds authorized in Fiscal Year 1976 and those being requested can actually be obligated in Fiscal Year 1977. Accordingly, the Committee recommends a reduction of \$1,000,000.

c. Construction of Shuttle/Carrier Aircraft Mating Facilities.—NASA has proposed the construction of a third mating/demating facility at the Kennedy Space Center estimated at \$2,050,000. This proposal envisions a device for the placement of the shuttle orbiter on top of a B747 for ferrying operations. Two of these facilities were authorized last year; one at Palmdale and one at the Dryden Flight Research Center, California. Construction is underway at the Dryden Flight Research Center, and the steel and hoists for the facility at Palmdale have been procured. The Committee's analysis of this requirement reveals that the facility at Palmdale will not be required due to a change in operational plans, and that the steel and hoists for that facility can be diverted to the Kennedy Space Center. Accordingly, the Committee recommends that the Kennedy Space Center project be reduced by \$350,000.

d. Modifications for Crew Training Facilities.—The FY 1977 NASA request for construction includes a project for a Crew Training Facility at the Johnson Space Center, Texas in the amount of \$130,000. The proposal involves the construction of a water immersion facility for astronaut training in a zero-gravity environment. The Committee does not support the construction of this facility because the operational phase of the shuttle program will have a high priority and several improvements to existing facilities are required. The Committee is not convinced that the amount requested can actually be obligated during Fiscal Year 1977. Accordingly, the Committee recommends that the project be deferred.

e. Construction of Shuttle/Carrier Aircraft Mating Facilities.—NASA has requested \$2,050,000 for the construction of a third mating/demating facility at the Kennedy Space Center. This proposal envisions a device for the placement of the shuttle orbiter on top of a B747 for ferrying operations. Two of these facilities were authorized last year; one at Palmdale and one at the Dryden Flight Research Center, California. Construction is underway at the Dryden Flight Research Center, and the steel and hoists for the facility at Palmdale have been procured. The Committee's analysis of this requirement reveals that the facility at Palmdale will not be required due to a change in operational plans, and that the steel and hoists for that facility can be diverted to the Kennedy Space Center. Accordingly, the Committee recommends that the Kennedy Space Center project be reduced by \$350,000.

LANGUAGE AMENDMENTS

Section 9

In view of the urgent need to maintain the United States' economic and military leadership in aeronautics and the vital contribution of modern test facilities to such maintenance, the Committee added language to stress the critical importance of expediting the completion of two specific national facilities. Modernization of the 40 by 80 foot Subsonic Wind Tunnel at Ames Research Center which was authorized in FY 1976 and construction of the National Transonic Facility which is included in this year's authorization are needed now by both military and civilian aircraft designers. They are needed to confirm and improve current design concepts to insure greater fuel efficiency, economy and safety in future aircraft.

Most of the nation's existing aeronautical test facilities were constructed in the 1930's and 1940's. They were instrumental in placing the U.S. in a position of overwhelming dominance in the field of aeronautics. However they are no longer adequate for modern high performance, fuel-sensitive aircraft. The inability to test modern designs on the ground is especially detrimental to growth in the American helicopter industry. Meanwhile, foreign nations are pressing ahead and rapidly eroding America's position in the world helicopter market.

In just ten years, the U.S. share of that market has been cut in half. Other segments of the U.S. aircraft industry, while secure today, face a mounting challenge from abroad. The need to upgrade the nation's test capability has been recognized for many years and is supported by the DOD, NASA and aircraft manufacturers.

The Committee is especially concerned about the facilities described above and wants to make the strongest possible statement that their construction be initiated as soon as possible.

Section 10

The Committee has adopted, by amendments to the NASA Act, the view that NASA has unique competence in scientific and engineering systems that should be directed toward ground propulsion systems research and development. By doing this the Committee has broadened NASA's charter to include all transportation systems in the air, in space and on the ground. This is consistent with the work that NASA has done to date.

This Committee amendment does not in any way alter the responsibilities of the Department of Transportation, or the Energy Research and Development Administration in this area. It is expected that the DOT and the ERDA will continue to utilize NASA skills and facilities as they have in the past, and that such interagency agreements will be expanded in the future to more fully utilize the unique skills, facilities and competence of NASA.

Section 11

In section 10 the term "ground propulsion systems" is defined to mean the engine, transmission, or drive, and associated controls necessary to power automobiles, trucks, trains, buses, and selected light marine vehicles.

COMMITTEE VIEWS

SPACE PROCESSING

The Committee notes with approval the projected growth of the space processing technology program and NASA's effort in identifying potential applications of this important new technology.

The low cost systems being planned for space processing utilizing sounding rockets offers the potential for impressive technical results with modest expenditures. It further affords the opportunities for commercial users to conduct proprietary experiments at low cost.

The Committee commends the National Aeronautics and Space Administration for recognizing materials processing in space as a forward looking activity which will help bring the benefits of this technology to the entire public.

TRACKING AND DATA RELAY SATELLITE SYSTEM

The Committee wishes to reemphasize the importance it attaches to NASA's lease versus purchase analysis to be presented to the Committee on the proposed Tracking and Data Relay Satellite System prior to contract award. The Committee commends NASA for the initiative in developing such a system capable of handling the very high data rates required when the space transportation system becomes operational. The Committee urges NASA to assure a complete analysis of lease versus purchase issues and to report their findings to the Committee at the earliest possible time.

LIGHTER THAN AIR SYSTEMS

The Committee notes that NASA has been involved with research and development activities related to lighter than air systems, and it wishes to encourage this work. The Committee is especially interested in encouraging joint efforts, such as those which have gone on with the Department of Transportation, the Navy, and the Federal Aviation Administration. We wish to not only encourage such preliminary work, but also ask that the agency:

- a. Assess economic and technical feasibility of the use of airships as feeder vehicles.
- b. Evaluate the economic merits and technical problems associated with the use of hybrid vehicles for short-range, heavy-lift applications.
- c. Assess the need and advisability of instituting a technology development program for future LTA needs.

AERONAUTICAL TEST FACILITIES

Most of the nation's existing aeronautical test facilities were built during the 1930's and 40's. At that time they were the finest available

anywhere in the world, and they were at least partially responsible for securing for this country a position of unchallenged leadership in aeronautics.

Today, however, both military and civilian designers urgently need improved test capabilities to confirm and improve current design concepts to insure greater fuel efficiency, economy and safety in future aircraft.

In view of the urgent need to maintain the United States' economic and military leadership in aeronautics and the vital contribution of modern test facilities to such maintenance, the Committee wishes to stress the need to upgrade the national test capability in certain critical areas.

In particular, it is widely agreed that three new national facilities are needed now: (1) the Aeropropulsion Systems Test Facility (ASTF) which is included in the FY77 Military Construction Authorization Bill; (2) the National Transonic Facility at Langley which is included in this bill; and, (3) modernization of the 40 x 80 Foot Subsonic Tunnel at Ames. This tunnel was authorized in FY76 by this Committee, but was not funded. This year, it did not survive the President's FY77 budget.

Modernization of the 40 x 80 is long overdue.

Rotorcraft and V/STOL aircraft now coming off the drawing boards continue to outstrip the capabilities of our test facilities, increasing the chances for failures.

Meanwhile, other nations are vastly eroding America's share of the world aviation market. Nowhere is this more evident than in helicopter sales, where the U.S. share of the market has been cut in half in just the past ten years.

In view of the constrained condition of federal expenditures, the Committee recognizes that it is not reasonable to expect that specific funds will be made available for both the NTF and the 40 x 80 in FY77. Nevertheless, the Committee wishes to strongly encourage NASA to use any opportunities for reprogramming that may emerge to initiate modernization of the 40 x 80 during FY77. Furthermore the Committee wishes to recommend favorable action on the ASTF in the Fiscal Year 1977 Military Construction Authorization Bill.

TECHNOLOGY UTILIZATION

The Committee wishes to reemphasize that more should be done in fostering the transfer of NASA developed technology into the commercial market-place. The Committee is pleased to see in the FY 1977 NASA Authorization request a modest increase of emphasis both in scope and funds for the technology utilization program. The Committee, therefore, requests NASA to provide a cost benefit follow-up analysis, including the past technology transfer activity, utilizing measurable examples wherever practicable, prior to the end of Fiscal Year 1977.

REHABILITATION AND MODIFICATION OF FACILITIES

The program for rehabilitation and modification of facilities NASA-wide has now been in existence since the first annual increment was approved in the Fiscal Year 1970 Authorization Act. Through

Fiscal Year 1976 and the transition quarter, a total of \$97,300,000 has been authorized for these purposes.

The Committee has enthusiastically endorsed and supported this program basically because it provides a mechanism for reducing the backlog of costly deferred facilities maintenance at the various field centers. Visits to NASA installations have substantiated our belief that this program pays dividends in terms of maintenance economies and aesthetics, as well as more effective and economical space utilization.

However, the Committee is concerned about the increasing numbers of projects included in the annual requests for these purposes, which appear to be incrementally funded or phased over two or more years. At the outset of this program, based upon NASA's revised facilities management procedures, it was the Committee's understanding and intent that major rehabilitation and modification projects costing in excess of \$500,000 would be programed as discrete line items in the annual authorization request. The Committee's intention in this regard remains unchanged and NASA is urged to abide by the original concept in future requests for annual authorization.

UTILITY CONTROL SYSTEMS

The Committee wishes to commend NASA for its initiative in introducing centralized and computerized utility control systems at the various field centers. These programs and projects are in consonance with the intent of the Legislative and Executive Branches in the control, conservation and economy of operations concerning energy consumption.

The Committee notes that modifications to facilities for these purposes at certain field installations have grown to a current level of over \$6,900,000 with future projections for facilities modifications currently estimated in excess of \$3,000,000. The Committee is not convinced that entire utilities systems need to be computerized for control purposes. Other more simplified measures, such as timing devices, may in fact serve the same purpose, and result in the same levels of economy of operations.

Consequently, the Committee requests NASA to review its plans for these types of systems, validate potential reductions in electric power, oil, gas and manpower and submit a report of its findings to the Committee by December 30, 1976.

INSTITUTIONAL BASE

The Committee wishes to reaffirm its long-standing and enthusiastic support for the goals of the national space program. It continues to believe, as expressed in its report on "Future Space Programs 1975", that the use and exploration of space should be greatly expanded for the benefit of all. The Committee wants to insure that NASA's strong technical capability remains dynamic and innovative so that these objectives can be realized. To do this effectively, it is imperative that the institutional structure remain lean but also efficient.

Since FY 1966 NASA funding, in constant FY 1977 dollars, has dropped by approximately two-thirds. Civil service and support service contractor personnel have dropped to almost one-half. During the

SECTIONAL ANALYSIS

[A bill to authorize appropriations to the National Aeronautics and Space Administration for research and development, construction of facilities, and research and program management, and for other purposes]

Section 1

Subsections (a), (b), and (c) would authorize to be appropriated to the National Aeronautics and Space Administration funds, in the total amount of \$3,696,070,000, as follows: (a) for "Research and development," a total of 12 program line items aggregating the sum of \$2,768,525,000; (b) for "Construction of facilities" a total of 18 line items aggregating the sum of \$117,090,000; and (c) for "Research and program management," \$810,455,000. Subsection (c) would also authorize to be appropriated such additional or supplemental amounts as may be necessary for increases in salary pay, retirement, or other employee benefits authorized by law.

Subsection 1(d) would authorize the use of appropriations for "Research and development" without regard to the provisions of subsection 1(g) for: (1) items of a capital nature (other than the acquisition of land) required at locations other than NASA installations for the performance of research and development contracts; and (2) grants to nonprofit institutions of higher education, or to nonprofit organizations whose primary purpose is the conduct of scientific research, for purchase or construction of additional research facilities. Title to such facilities shall be vested in the United States unless the Administrator determines that the national program of aeronautical and space activities will best be served by vesting title in any such grantee institution or organization. Moreover, each such grant shall be made under such conditions as the Administrator shall find necessary to insure that the United States will receive benefit therefrom adequate to justify the making of that grant.

In either case no funds may be used for the construction of a facility in accordance with the subsection the estimated cost of which, including collateral equipment, exceeds \$250,000, unless the Administrator notifies the Speaker of the House, the President of the Senate and the specified committees of the Congress of the nature, location, and estimated cost of such facility.

Subsection 1(e) would provide that, when so specified in an appropriation Act, (1) any amount appropriated for "Research and development" or for "Construction of facilities" may remain available without fiscal year limitation, and (2) contracts for maintenance and operation of facilities and support services may be entered into under the "Research and program management" appropriation for periods not in excess of twelve months beginning at any time during the fiscal year.

Subsection 1(f) would authorize the use of not to exceed \$35,000 of the "Research and program management" appropriation for scientific consultations or extraordinary expenses, including representation and official entertainment expenses, upon the authority of the Administrator, whose determination shall be final and conclusive.

same period the amount required to support the institutional base as a percentage of the NASA budget has grown appreciably. The Committee which has viewed this trend with concern, notes with approval the recent reassessment of field center roles and missions. If performed properly, the clarification of roles and the consolidation of selected functions can yield significant personnel savings and increased management effectiveness.

A further sign that NASA is concerned with the drift toward increased institutional budgets is the cut in overhead positions for FY 1977. Of the total mandated reduction of 500 permanent civil service positions, over 200 were indirect.

Nevertheless certain adverse indicators persist. Among these is the growth of the headquarters staff, relative to the size of the NASA budget. Since 1973 NASA's total purchasing power, as measured in constant FY '77 dollars, has declined by over 24%. Yet, during the same period, headquarters strength has declined only by 10.7%. The Committee urges NASA to find new ways to increase the proportion of its effort that is devoted to production of the space and aeronautics product.

The Committee believes that the "roles and missions" effort can be extended to achieve significant additional consolidation. An example of possible savings that appears to have been under-estimated is expendable launch vehicle acquisition. Currently three centers are engaged in the acquisition of four basic launch vehicles (Scout, Delta, Atlas-Centaur, Titan-Centaur). In addition there is activity at NASA Headquarters and Kennedy Space Center. The process of launch vehicle acquisition has matured substantially in recent years. Yet the number of civil service positions has remained relatively constant. The Committee believes that considerable economies could be realized by consolidating all launch vehicle procurement activity.

The percentage of middle and top management personnel has continued to rise in recent years. The Committee is concerned that this trend may limit NASA's ability to effectively manage in the years ahead. Therefore, the Committee requests that the Administrator of NASA examine this and other issues outlined and report his findings and recommendations to the Committee on Science and Technology not later than October 1976.

EXTERNAL AFFAIRS

The recent establishment of an office of External Affairs is a positive step by NASA in carrying out the mandate of the Space Act of 1958 which states the will of the Congress that NASA disseminate the beneficial results of its technology to the public wherever practicable.

This new office brings together both the Public Affairs and Technology Utilization Activities and should provide the opportunity for achieving maximum benefits to the public of the high technology derived from NASA programs. The Committee is encouraged by this change and urges NASA to continue its initiative in trying to improve the public awareness of the space program contributions.

Subsection 1(g) would provide that of the funds appropriated for "Research and development" and "Research and program management," not in excess of \$25,000 per project (including collateral equipment) may be used for construction of new, or additions to existing, facilities, and not in excess of \$50,000 per project (including collateral equipment) may be used for rehabilitation or modification of existing facilities; however, of the funds appropriated for "Research and development," not in excess of \$250,000 per project (including collateral equipment) may be used for construction of new facilities or additions to, or rehabilitation or modification of, existing facilities required for unforeseen programmatic needs.

Section 2

Section 2 would authorize upward variations of the sums authorized for the "Construction of facilities" line items (other than facility planning and design) of 10 per centum in the discretion of the Administrator or his designee, or 25 per centum following a report by the Administrator or his designee to the Committee on Science and Technology of the House of Representatives and the Committee on Aeronautical and Space Sciences of the Senate on the circumstances of such action, for the purpose of meeting unusual cost variations. However, the total cost of all work authorized under these line items may not exceed the total sum authorized for "Construction of facilities" under subsection 1(b), paragraphs (1) through (16).

Section 3

Section 3 would provide that not more than one-half of 1 per centum of the funds appropriated for "Research and development" may be transferred to the "Construction of facilities" appropriation and, when so transferred, together with \$10,000,000 of the funds appropriated for "Construction of facilities," shall be available for the construction of facilities and land acquisition at any location if (1) the Administrator determines that such action is necessary because of changes in the space program or new scientific or engineering developments, and (2) that deferral of such action until the next Authorization Act is enacted would be inconsistent with the interest of the Nation in aeronautical and space activities. However, no such funds may be obligated until 30 days have passed after the Administrator or his designee has transmitted to the Speaker of the House, the President of the Senate and the specified committees of Congress a written report containing a description of the project, its cost, and the reason why such project is necessary in the national interest, or each such committee before the expiration of such 30-day period has notified the Administrator that no objection to the proposed action will be made.

Section 4

Section 4 would provide that, notwithstanding any other provision of this Act—

(1) no amount appropriated pursuant to this Act may be used for any program deleted by the Congress from requests as originally made to either the House Committee on Science and Technology or the Senate Committee on Aeronautical and Space Sciences;

(2) no amount appropriated pursuant to this Act may be used for any program in excess of the amount actually authorized for that particular program by subsections 1(a) and 1(c); and.

(3) no amount appropriated pursuant to this Act may be used for any program which has not been presented to or requested of either such committee.

unless (A) a period of 30 days has passed after the receipt by the Speaker of the House, the President of the Senate and each such committee of notice given by the Administrator or his designee containing a full and complete statement of the action proposed to be taken and the facts and circumstances relied upon in support of such proposed action, or (B) each such committee before the expiration of such period has transmitted to the Administrator written notice to the effect that such committee has no objection to the proposed action.

Section 5

Section 5 would express the sense of the 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 whenever feasible.

Section 6

Section 6 would authorize the National Aeronautics and Space Administration, when so provided in an appropriation Act, to enter into a contract (or contracts) for tracking and data relay satellite services. The Government would incur no costs under such contract prior to the furnishing of such services except that the contract could provide for the payment for contingent liability of the Government which may accrue in the event the Government should decide for its convenience to terminate the contract before the expiration of the contract period. Such tracking and data relay satellite services would be furnished to the Administration in accordance with applicable authorization and appropriation Acts. It is envisaged that facilities may be required to be provided under such a contract in order to provide such services. The bill would authorize the construction of such facilities on Government-owned land if there is included in the contract a provision under which the United States may, in accordance with terms and conditions agreed upon in the contract, acquire title to the facilities upon contract termination. In January of each year the Administrator would be required to report to the Committee on Science and Technology and the Committee on Appropriations of the House of Representatives and the Committee on Aeronautical and Space Sciences and the Committee on Appropriations of the Senate the projected aggregate contingent liability, through the next fiscal year, of the Government under termination provisions of any contract authorized under this section. It is specified that the authority of the National Aeronautics and Space Administration to enter into and maintain the contract (or contracts) authorized in this section shall remain in effect as long as provision therefor is included in acts authorizing appropriations to the National Aeronautics and Space Administration for subsequent fiscal years.

Section 7

Section 7 would amend 5 U.S.C. 5316 by amending paragraph (15) to increase by one (from six to seven) the number of "Associate Administrators, National Aeronautics and Space Administration" which are included in Level V of the Executive Schedule.

Enactment of the bill will enable the Administrator of the National Aeronautics and Space Administration to establish a new position of "Associate Administrator/Comptroller" at Level V of the Executive Schedule, in recognition of the fact that under NASA's present organizational arrangements the roles and responsibilities of the Comptroller are comparable in importance and authority to other NASA positions currently included within Level V of the Executive Schedule.

Section 8

Section 8 would amend section 6 of the National Aeronautics and Space Administration Authorization Act, 1968 (81 Stat. 170), to remove the limit of \$100 per diem payable to members of the Aerospace Safety Advisory Panel, and substitute therefor a provision that such member may be paid at a rate not in excess of the daily rate paid to a GS-18.

Section 9

Section 9 provides that it is the sense of the Congress that the modernization of aeronautical testing facilities is essential for the United States to preserve its role as a world leader in aeronautics.

Most of the nation's existing aeronautical test facilities were constructed pursuant to the Unitary Wind Tunnel Plan act of 1949 (63 Stat. 936) and were instrumental in contributing significantly to past advances and placing the United States in a position of overwhelming dominance in the field of aeronautics. However, they are no longer adequate for modern high performance, fuel-sensitive aircraft and this inability to test modern designs on the ground is especially detrimental to the growth in the American helicopter industry.

Section 10

Section 10 would amend Section 102, subsection (d) of the National Aeronautics and Space Act of 1958 (42 U.S.C. 2451) and further adds a new subsection (e) to provide for the inclusion of ground propulsion systems research and development as part of the basic charter of NASA. NASA possesses the unique competence in scientific and engineering systems capability and should therefore, continue the work not only in space research and development but also in land and air R&D.

Section 11

Section 11 would amend Section 103 of the National Aeronautics and Space Act of 1958 (42 U.S.C. 2452) by adding a new paragraph (3) to define "ground propulsion systems" language as applied in section 10 of this Bill.

The term "ground propulsion systems" means the engine, transmission, or drive, and associated controls, necessary to power automobiles, trucks, trains, buses, and selected light marine vehicles.

Section 12

Section 12 would provide that the Act may be cited as the "National Aeronautics and Space Administration Authorization Act, 1977".

COST AND BUDGET DATA

The bill will authorize appropriations for Fiscal Year 1977 in the amount of \$3,696,070,000. In accordance with the requirements of section 252(b) of the Legislative Reorganization Act of 1970, the Committee's estimate for the next five years of the NASA budget request is as follows:

Fiscal year	
1977	----- \$3,696,070,000
1978	----- 3,610,000,000
1979	----- 3,343,000,000
1980	----- 3,131,000,000
1981	----- 2,824,000,000

These estimates do not include provisions for any new program or program augmentations that may be recommended, nor do they include any provisions for administrative adjustments that may be required.

EFFECT OF LEGISLATION ON INFLATION

In accordance with Rule XI, Clause 2(1)(4) of the Rules of the House of Representatives this legislation is assessed to have no adverse inflationary effect on prices and costs in the operation of the national economy. NASA expenditures are labor intensive with approximately 85 percent of spending directly for jobs and the remainder for materials. There is now underemployment and unused plant capacity in the aerospace industry, therefore, these expenditures will not be inflationary.

The long run economic effect of NASA expenditures is to increase productivity, both through direct application of aeronautical and space technology (as demonstrated by communications satellites, improved aircraft and other innovations) and indirectly through the development and dissemination of advanced technology which is then applied in many other sectors of the economy.

Independent studies by the Midwest Research Institute and by Chase Econometrics, Inc. have shown the average rate of return for NASA high technology expenditures to be in the range of 32 to 36 percent per year or a return of \$7 for every \$1 of NASA expenditure over a period of years.

CHANGES IN EXISTING LAW MADE BY THE BILL, AS REPORTED

In compliance with clause 3 of rule XIII of the Rules of the House of Representatives, changes in existing law made by the bill, as reported, are as follows (existing law proposed to be omitted is enclosed in black brackets new matter is printed in *italics*, existing law in which no change is proposed is shown in roman; and large unchanged blocks of existing law is indicated by * * *):

Paragraph (15) of section 5316, title 5, United States Code, reads as follows:

"(15) Associate Administrators, National Aeronautics and Space Administration [(6)]."
(7)."

The fifth sentence of section 6 of the National Aeronautics and Space Administration Authorization Act, 1968 (81 Stat. 170) reads as follows:

* * * "Members of the panel appointed from outside the Federal Government shall each receive compensation at [the rate of \$100 for each day such member is engaged in the actual performance of duties vested in the panel.]" * * * *a rate not to exceed the per diem rate equivalent to the rate for GS-18 for each day such member is engaged in the actual performance of duties vested in the panel.* * * *

Subsection (d) of Section 102 of the National Aeronautics and Space Act of 1958 (42 U.S.C. 2451) reads as follows:

"(d) It is the purpose of the Act to carry out and effectuate the policies declared in subsection (a), (b), and (c)."

"(d) The Congress declares that the General Welfare of the United States requires that the unique competence in scientific and engineering systems of the National Aeronautics and Space Administration shall also be directed forward ground propulsion systems research and development.

"(e) It is the purpose of this Act to carry out and effectuate the policies declared in subsections (a), (b), (c), and (d)."

Section 103 of the National Aeronautics and Space Act of 1958 (42 U.S.C. 2452) reads as follows:

"As used in this Act—(1) the term 'aeronautical and Space activities' means (A) research into, and the solution of, problems of light within and outside the earth's atmosphere, (B) the development, construction, testing, and operation for research purposes of aeronautical and space vehicles, and (C) such other activities as may be required for the exploration of space; and (2) the term 'aeronautical and space vehicles' means aircraft, missiles, satellites, and other space vehicles, manned and unmanned, together with related equipment, devices, components, and parts [.] and (3) the term 'ground propulsion system' means the engine, transmission, or drive, and associated controls, necessary to power automobiles, trucks, trains, buses, and selected light marine vehicles."

OVERSIGHT FINDINGS AND RECOMMENDATIONS

Pursuant to clause 2(1) (3) (A), rule XI, and under the authority of rule X, clause 2(b) (1) and clause (3) (f), of the Rules of the House of Representatives the following findings and recommendations are under consideration by the Committee on Science and Technology:

[Excerpted from pgs. 63-66 *Future Space Programs—1975 Report of the Subcommittee on Space Science and Applications, Committee on Science and Technology, Serial M, Volume I, September, 1975.*]

CONCLUSIONS

Based upon the information obtained from hearings and contributed papers (see Appendix I and II) and dialogue between Subcommittee Members and witnesses, the following conclusions were reached:

A. A sufficient foundation of scientific knowledge and the technology derived therefrom exists or can be readily developed to undertake a major expansion of the utilization of near space and exploration of deep space.

B. Among the major policy factors which need to be evaluated individually and collectively, on a recurring basis, to provide for an effective space program are:

1. Satisfaction of human need;
2. Economic contribution;
3. Addition to new knowledge;
4. Technology derivation;
5. International participation; and
6. National security implications.

C. Space programs, an important segment of science and technology, must become an integral part of the overall national policy planning for the future needs of our country.

D. Among the spectrum of program opportunities three major areas emerge:

1. Application of space systems to improve the quality of life;
2. Use of space systems to explore the unknown; and
3. Use of space systems to develop habitable areas beyond earth.

E. The first priority for space activity in the near future should be directed toward providing clear and immediate benefits to society.

F. No basis exists to arbitrarily divide space into manned and automated activity, now that manned space flight has been demonstrated; the development of future programs should define man's role with respect to program objectives.

G. Adequate support of space research must be maintained to assure technological growth in the years ahead to meet opportunities in space utilization and exploration.

H. A major portion of the resources devoted to space science research should have high continuity and stability so as to assure that the talented human resources will be available to support future space programs.

I. Several existing and potentially feasible programs requiring substantial resources over long periods of time have been identified including but not limited to the following;

1. Lunar bases;
2. Orbital colonies;
3. Extraterrestrial communications system;
4. Planetary and interstellar exploration;
5. Satellites solar power and
6. Disposal of high risk waste materials.

Close examination of the relative long term priorities and allocation of resources to these potential programs should be undertaken to establish their relationship to other shorter term space activity.

J. New institutional mechanisms need to be developed to provide for the full utilization of space by all sectors of government and industry.

K. Employment of satellites for delivery of domestic educational and medical services has been sufficiently demonstrated to allow their employment in the next several years.

L. More effort and emphasis is necessary to assure that opportunities are identified and that promising experimental demonstrations of space processing and manufacturing are developed where the uniqueness or the value of the product derived indicates a potential contribution to our society.

M. Concepts and methods for the space-based generation of electricity, using energy from the sun should be developed and demonstrated as a significant contribution to solution of the fossil fuel dilemma.

N. An expanded effort in more detailed payload planning and design on the part of NASA and others is essential if the existing potential of space is to be fully realized in the early 1980's.

O. To realize a number of longer term space program opportunities a major advance in propulsion is necessary to augment chemical propulsion capability.

P. A need exists to carefully evaluate the withdrawal of effort on the part of NASA from any area of space research and development to assure that adequate continuing activity in an area is in place to assure the strong technical base necessary to maintain U.S. leadership.

Q. Recent study of the payoff of spending for space related research and development indicates an extremely high return on the investment made. Because of the economic significance of these findings further evaluation and debate on this issue should be encouraged so that the most precise estimate of the benefits from such spending is obtained.

R. In addition to the programs on international space cooperation currently underway, efforts should be made to reinforce United States activity to assure that the space program serves as a tool for and as a positive impetus to:

1. Realizing the equitable and efficient use and conservation of natural resources;

2. Expanding the educational opportunities and medical services for all people;

3. Providing new opportunities for exchange of information and lessening of international tensions; and

4. Providing increased business and social communications between nations.

S. Future space program planning is not the exclusive province of the space oriented community but as a part of the fabric of our complex society requiring the involvement of all sectors to assure effective and acceptable planning.

T. Among the many criteria that should be considered in selecting future space programs are cost-benefit, public acceptance and support, and the potential for contribution to international cooperation."

RECOMMENDATIONS

"Based on the foregoing conclusions, the following recommendations are made:

A. The Subcommittee believes that NASA should demonstrate a sense of urgency in its future program planning and development. The Subcommittee further believes it is absolutely essential to the continued vitality of the space program and consequently to its potential for increased contributions to the welfare of society that the nation and NASA focus on an overarching concept. This concept should represent one or more mind-expanding endeavors which would challenge the imagination and capability of the country. The key element of such a program should be substantial return on past and current investments in space through clear and immediate benefits to the society on earth in the form of greatly expanded services and direct contributions to solution of earth-found problems.

B. New opportunities in national and international space programs should be examined by the Executive and introduced into the budget cycle including comprehensive planning and implementation of a five year program to provide space systems for educational and medical satellite services and earth resource surveys—maritime, agriculture, geological, and demographic.

C. To aid in assuring a breadth of vision while maintaining a vital shorter term space program, NASA should strengthen its annual future program planning effort and on a periodic basis (every 3-4 years) initiate an ad hoc review of its planning process and future programs, drawing upon both national and international expertise from a broad cross-section of society. This ad hoc examination should review projected space activity 20-30 years in the future to determine to the extent possible:

1. How well does the short range (0-10 year) planning and mid-range (10-20 year) planning coincide with the current assessment of the longer range future?

2. What planning and resources allocation adjustments, in the short and mid-range, should be made to accommodate the latest thinking on long term opportunities?

3. What new research and development initiatives are necessary to support long term opportunities?

D. In determination of space program composition over the next decade adequate weight needs to be given to the widest possible range of longer term opportunities to assure that the scientific and technological basis has been developed to support them. These longer term programs include:

1. Lunar scientific and manufacturing bases;
2. Orbital colonies;
3. Extra-terrestrial communication systems;
4. Satellite solar power;
5. Planetary and interstellar exploration; and
3. Disposal of high risk waste materials.

E. Because of the technology available for earth resource (land, sea, air) and other satellite applications and their demonstrated value, increased emphasis must be placed on improving organizational and management arrangements within and external to the Federal Government to assure technology transfer to the private sector and the development of operational systems.

F. Re-evaluation of the organizational and management arrangements, relative emphasis and program content for space processing and manufacturing should be made within the next year with the intent of assuring that options for commercial utilization of space are developed.

G. NASA should embark on an expanded program of fundamental research and exploratory development in new propulsion concepts.

H. In withdrawal from an area of Federal space research and development, a formal procedure similar to that for initiating new programs should be adopted to assure that the effect of such withdrawal of effort will be positive. For example, NASA should assure that the necessary advanced satellite communication technology is being developed to assure continued U.S. leadership before withdrawal from the area.

I. NASA should develop and implement a comprehensive cost benefit analysis for each major program which will include the relative social and economic benefits as well as the potential for public support and international cooperation.

J. Based on the foregoing conclusions and recommendations on space program opportunities, and the high positive economic multiplier associated with space related research and development programs, NASA should assemble and propose to the President, and ultimately to the Congress, an expanded space program in FY 1977-1978 at least 25% greater than current funding to undertake new space initiatives."

CONGRESSIONAL BUDGET ACT INFORMATION

No information pursuant to section 308(a) of the Congressional Budget Act of 1974 has been provided to the committee by the Congressional Budget Office. Under a separate section of this report, a five-year current programs cost estimate is provided in response to the requirement of section 308(a). No funds for State or local financial assistance are included in H.R.

ESTIMATE AND COMPARISON, CONGRESSIONAL BUDGET OFFICE

Pursuant to clause 2(1) (3) (C) of rule XI of the Rules of the House of Representatives the report of the Congressional Budget Office is included.

CONGRESSIONAL BUDGET OFFICE COST ESTIMATE—MARCH 4, 1976

1. Bill Number: H.R. 12453.

2. Bill Title: The National Aeronautics and Space Administration Authorization Bill, Fiscal Year 1977.

3. Purpose of Bill: The bill authorizes appropriations to the National Aeronautics and Space Administration for research and development, construction of facilities, and research and program management, and for other purposes for fiscal year 1977. The bill is for authorization, and therefore, subject to appropriations action.

4. Cost Estimate: The bill has no budget effects for fiscal year 1976 or the transition quarter. Only the authorization included in this bill is considered, and no judgment is made about the authorizations this bill implies for future fiscal periods. The overall budget impact follows:

Authorization levels:	Millions
Fiscal year 1977	\$5,696.1
Fiscal year 1978	
Fiscal year 1979	
Fiscal year 1980	
Fiscal year 1981	
Costs:	
Fiscal year 1977	2,581.2
Fiscal year 1978	917.9
Fiscal year 1979	185.2
Fiscal year 1980	11.7
Fiscal year 1981	

5. Basis for Estimate: All the funding authorized in this bill is assumed to be obligated in fiscal year 1977. Funding is authorized according to the type of activity and the stream of costs associated with an authorization can best be estimated in the same manner.

Research and Development.—Funding through this account supports NASA's exploration and utilization of space, and other space and aeronautics research and development. The assumed spend-out rate for the funds obligated in this account is 65 percent in FY 1977, 30 percent in FY 1978, and 5 percent in FY 1979. This yields the following budget effects.

Authorization levels:	Millions
Fiscal year 1977.....	\$2,768.5
Fiscal year 1978.....	
Fiscal year 1979.....	
Fiscal year 1980.....	
Fiscal year 1981.....	
Costs:	
Fiscal year 1977.....	1,799.5
Fiscal year 1978.....	830.6
Fiscal year 1979.....	138.4
Fiscal year 1980.....	
Fiscal year 1981.....	

Construction of Facilities.—Funding through this account provides for the construction of new facilities, the purchase of land and construction equipment, facility modifications and rehabilitation, and other similar activities. The capital intensive nature of activity in this account means that the actual expenditures for obligations occur over a longer period of time. This spend-out pattern assumed is that 10 percent is spent in FY 1977, 40 percent in FY 1978, 40 percent in FY 1979, and 10 percent in FY 1980. This yields the following estimates.

Authorization levels:	Millions
Fiscal year 1977.....	\$117.1
Fiscal year 1978.....	
Fiscal year 1979.....	
Fiscal year 1980.....	
Fiscal year 1981.....	
Costs:	
Fiscal year 1977.....	11.7
Fiscal year 1978.....	46.8
Fiscal year 1979.....	46.8
Fiscal year 1980.....	11.7
Fiscal year 1981.....	

Research and Program Management.—Funds for this account support the management of NASA programs and other activity such as in-house research efforts. Because personnel compensation and other operating expenses dominate this account, expenditures occur fairly quickly after obligation. The spend-out pattern assumed here is 95 percent in FY 1977 and 5 percent in FY 1978. The resulting budget estimates follow.

Authorization levels:	Millions
Fiscal year 1977.....	\$810.5
Fiscal year 1978.....	
Fiscal year 1979.....	
Fiscal year 1980.....	
Fiscal year 1981.....	
Costs:	
Fiscal year 1977.....	770.5
Fiscal year 1978.....	40.5
Fiscal year 1979.....	
Fiscal year 1980.....	
Fiscal year 1981.....	

6. Estimate Comparison: None.
7. Previous CBO Estimate: None.

OVERSIGHT FINDINGS AND RECOMMENDATIONS. COMMITTEE ON GOVERNMENT OPERATIONS

No findings or recommendations on oversight activity pursuant to clause 2(b) (2), rule X, and clause 2(1) (3) (D), rule XI, of the Rules of the House of Representatives have been submitted by the Committee on Government Operations for inclusion in this report.

COMMITTEE RECOMMENDATION

A quorum being present, the Committee unanimously approved the bill by roll call vote of those present.

NASA RECOMMENDATION

This is a National Aeronautics and Space Administration legislation item approved with the exceptions noted in this report by the Office of Management and Budget, as indicated by the following letter:

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION,
Washington, D.C., January 21, 1976.

HON. CARL ALBERT,
Speaker of the House of Representatives,
Washington, D.C.

DEAR MR. SPEAKER: Submitted herewith is a draft of a bill, "To authorize appropriations to the National Aeronautics and Space Administration for research and development, construction of facilities, and research and program management, and for other purposes," together with the sectional analysis thereof. It is submitted to the Speaker of the House of Representatives pursuant to Rule XL of the House.

Section 4 of the Act of June 15, 1959, 73 Stat. 75 (42 U.S.C. 2460), provides that no appropriation may be made to the National Aeronautics and Space Administration unless previously authorized by legislation. It is a purpose of the enclosed bill to provide such requisite authorization in the amounts and for the purposes recommended by the President in the Budget of the United States Government for fiscal year 1977. For that fiscal year, the bill would authorize appropriations totaling \$3,697,000,000 to be made to the National Aeronautics and Space Administration as follows:

- (1) for "Research and development" amounts totaling \$2,758,925,000;
- (2) for "Construction of facilities" amounts totaling \$124,020,000; and
- (3) for "Research and program management," \$814,055,000.

In addition, the bill would authorize appropriations totaling \$3,700,000,000, to be available October 1, 1977, i.e., in fiscal year 1978.

The enclosed draft bill follows generally the format of the National Aeronautics and Space Administration Authorization Act, 1976 (Public Law 94-39). However, the bill differs in substance from the prior Act in several respects.

First, subsections 1(a), 1(b), and 1(c), which would provide the authorization to appropriate for the three NASA appropriations, differ in the dollar amounts and/or the line items for which authorization to appropriate is requested.

Second, section 7 of Public Law 94-39, which provided authorization for appropriations to be available in the three-month transition period between fiscal years 1976 and 1977, has been deleted.

Third, section 8 of the prior Act, which amended the National Aeronautics and Space Act of 1958 and is, therefore, permanent law, has been omitted.

Fourth, as noted above, in addition to providing authorization of appropriations in the amounts recommended by the President in his Budget for fiscal year 1977, the bill also would provide in section 7 authorization for appropriations to be available in fiscal year 1978. It is specified that all of the limitations and other provisions of the bill applicable to amounts appropriated pursuant to section 1 shall apply in the same manner to amounts appropriated pursuant to section 7.

Fifth, section 8 of the bill would amend 5 U.S.C. 5316 by amending paragraph (15) to increase by one (from six to seven) the number of "Associate Administrators, National Aeronautics and Space Administration" which are included in Level V of the Executive Schedule. Enactment of this section of the bill will enable the Administrator of the National Aeronautics and Space Administration to establish a new position of "Associate Administrator/Comptroller" at Level V of the Executive Schedule, in recognition of the fact that under NASA's present organizational arrangements the role and responsibilities of the Comptroller are comparable in importance and authority to other NASA positions currently included within Level V of the Executive Schedule. Among other things, the NASA Comptroller is responsible for budget preparation, resources control, financial management and overall control of NASA's construction of facilities program.

Sixth, section 9 of the bill would amend the law which established the Aerospace Safety Advisory Panel (Public Law 90-67, August 21, 1967) to permit members of the Panel to be compensated at the same rate NASA is authorized to pay other experts and consultants. Compensation for Panel members is currently limited to \$100 per day, whereas NASA experts and consultants hired pursuant to section 203(c)(9) of the Space Act (42 U.S.C. 2473) may be paid up to the maximum payable to a GS-18 under the General Schedule (approximately \$145). When the \$100 per diem rate for Panel members was originally established, it matched the amount then payable to NASA's experts and consultants. However, the \$100 limit as to experts and consultants was removed from the National Aeronautics and Space Act by section 6 of the NASA FY 1975 Authorization Act (88 Stat. 243). Legislation necessary to effect a similar change in the statute controlling the pay of Aerospace Safety Advisory Panel members was not submitted at that time.

Finally, the last section of the draft bill, section 10, has been changed to provide that the bill, upon enactment, may be cited as the "National Aeronautics and Space Administration Authorization Act, 1977", rather than "1976".

Where required by section 102(2)(C) of the National Environmental Policy Act of 1969 (42 U.S.C. 4332(2)(C)), environmental impact statement covering NASA installations and the programs to be funded pursuant to the bill have been furnished to the Committee on Science and Technology.

The National Aeronautics and Space Administration recommends that the enclosed draft bill be enacted. The Office of Management and Budget has advised that such enactment would be in accord with the program of the President.

Sincerely,

JAMES C. FLETCHER, *Administrator.*

94th Congress }
2d Session }

SENATE

{ REPORT
No. 94-718

NASA AUTHORIZATION FOR
FISCAL YEAR 1977

REPORT

OF THE

COMMITTEE ON
AERONAUTICAL AND SPACE SCIENCES
UNITED STATES SENATE

ON

H.R. 12453

AN ACT TO AUTHORIZE APPROPRIATIONS TO THE NA-
TIONAL AERONAUTICS AND SPACE ADMINISTRATION FOR
RESEARCH AND DEVELOPMENT, CONSTRUCTION OF FA-
CILITIES, AND RESEARCH AND PROGRAM MANAGEMENT,
AND FOR OTHER PURPOSES



MARCH 30, 1976.—Ordered to be printed

U.S. GOVERNMENT PRINTING OFFICE

WASHINGTON : 1976

57-060 O

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(II)

Calendar No. 686

94TH CONGRESS }
2d Session }

SENATE

REPORT
No. 94-718AUTHORIZING APPROPRIATIONS TO THE NATIONAL
AERONAUTICS AND SPACE ADMINISTRATION

MARCH 30, 1976.—Ordered to be printed

Mr. Moss, from the Committee on Aeronautical and Space Sciences,
submitted the following

REPORT

[To accompany H.R. 12453]

The Committee on Aeronautical and Space Sciences, to which was referred the bill (H.R. 12453) to authorize appropriations to the National Aeronautics and Space Administration for research and development, construction of facilities, and research and program management, and for other purposes, having considered the same, reports favorably thereon, with an amendment striking out all after the enacting clause and inserting the committee amendment, and recommends that the bill be passed.

CONGRESSIONAL ADJUSTMENTS TO NASA REQUEST
FOR FISCAL YEAR 1977—SUMMARY

Fiscal year 1977	Budget request	House action	Senate committee action
Research and development:			
Space Shuttle.....	\$1,288,100,000	\$1,288,100,000	\$1,288,100,000
Space flight operations.....	205,200,000	198,200,000	205,200,000
Expendable launch vehicles.....	151,400,000	151,400,000	151,400,000
Physics and astronomy.....	165,800,000	169,800,000	165,800,000
Lunar and planetary exploration.....	191,100,000	193,100,000	191,100,000
Life sciences.....	22,125,000	22,125,000	22,125,000
Space applications.....	198,200,000	185,700,000	198,200,000
Earth resources operational systems.....	0	13,500,000	0
Aeronautical research and technology.....	189,100,000	192,100,000	189,100,000
Space research and technology.....	82,000,000	92,100,000	82,000,000
Tracking and data acquisition.....	258,000,000	254,000,000	258,000,000
Technology utilization.....	7,900,000	8,400,000	8,100,000
Total.....	2,758,925,000	2,768,525,000	2,759,125,000
Construction of facilities.....	124,020,000	117,090,000	123,670,000
Research and program management.....	814,055,000	810,455,000	814,055,000
Grand total.....	3,697,000,000	3,696,070,000	3,696,850,000

PURPOSE OF THE BILL

The purpose of this bill is to authorize appropriations to the National Aeronautics and Space Administration totaling \$3,696,850,000 for fiscal year 1977 as follows:

Fiscal year 1977	Budget request	House action	Senate committee action
Research and development.....	\$2,758,925,000	2,768,525,000	2,759,125,000
Construction of facilities.....	124,020,000	117,090,000	123,670,000
Research and program management.....	814,055,000	810,455,000	814,055,000

LEGISLATIVE HISTORY

The budget request for fiscal year 1977 for the National Aeronautics and Space Administration was introduced in the House under H.R. 11573 and in the Senate as S. 2864. After holding hearings, the House Committee on Science and Technology reported out a clean bill, H.R. 12453, which was passed by the House, without amendment, and subsequently referred to this Committee.

The Committee held hearings on S. 2864 during January, February and March 1976. During its consideration of the bill, the Committee determined amendments were required.

The Committee reported out H.R. 12453 with an amendment striking all after the enacting clause and inserting the Committee amendment.

SUMMARY

The NASA budget request for fiscal year 1977 was for a total of \$3,697,000,000, of which \$2,758,925,000 was for "Research and Development", \$124,020,000 was for "Construction of Facilities", and \$814,055,000 was for "Research and Program Management". The House approved an authorization total of \$3,696,070,000, of which \$2,768,525,000 was for "Research and Development", \$117,090,000 was for "Construction of Facilities", and \$810,455,000 was for "Research and Program Management".

The Committee is recommending an authorization of \$3,696,850,000, an amount \$150,000 below the NASA request and \$780,000 above the amount in the House-approved bill. Of the total amount the Committee recommends \$2,759,125,000 for "Research and Development", which is \$200,000 above the NASA request and \$9,400,000 below the House-approved amount for this appropriations category; recommends \$123,670,000 for the "Construction of Facilities", which is \$350,000 below the NASA request and \$6,580,000 above the House amount; and, recommends \$814,055,000 for "Research and Program Management" which is identical with the amount requested by NASA and \$3,600,000 above the amount approved by the House.

This authorization recommendation, while reflecting a 4 percent increase over that recommended for NASA programs for fiscal year 1976, is, due to inflationary factors, below the fiscal year 1976 amount. It is also below the funding level for this agency which this Committee projected to the Congress in its 5-year estimate in its report on the fiscal year 1976 bill. Just prior to the submission of its fiscal year 1977 budget request NASA completed a comprehensive study of the roles and missions of its several field installations to clarify and redefine functional assignments, with reassignments as necessary, with the objective of increasing organizational efficiency and effectiveness in carrying out the responsibilities of the agency in the approaching Shuttle era. As a result of this study, the agency will reduce its Civil Service complement by 500 with a complementary reduction in base support contractor personnel of 1100. These reductions are factored into the funding recommendations presented in this bill. The Committee views the NASA fiscal year 1977 budget request as fiscally constrained and very carefully structured to maximize the use of available resources and accordingly, Committee adjustments are very minor.

This bill provides funding for continued development of the Space Shuttle, the principal element of a reusable space transportation system designed to significantly reduce the cost of space operations and thereby provide a new capability to explore and to utilize space in support of national needs. While this is the major development activity underway today, this bill supports several new initiatives which are endorsed strongly by the Committee. These encompass a solar maximum mission designed to measure solar activity during the forthcoming peak period of maximum solar activity,

1979-80; the development of the thematic mapper, an instrument with greatly enhanced capability over the present Landsat system to be used for earth resources surveys; a magnetic mapping satellite expected to be useful for the location of mineral resources; and, the start of construction of a new transonic wind tunnel designed to support national aeronautical research and development needs. The latter results from a joint study of such needs by NASA and the Department of Defense and is one of the three large aeronautical facilities recommended. This bill will also support, within the aeronautical research and technology program line item, the initiation of an aircraft energy technology development project designed to provide the technology base for a 50 percent improvement in fuel economy in commercial transports. This activity is designed to assure the continued competitiveness of U.S. built aircraft. In addition to these new initiatives and the Space Shuttle, the funds recommended in this bill will support ongoing space flight projects in space science and applications, the continuation of a series of research tasks in aeronautical and space research designed to provide a base for future undertakings, the construction of and/or modifications and upgrading of facilities to support these research and development programs, and the highly technical staff to conduct research and manage these multidisciplinary activities.

The Committee is recommending adoption of two legislative amendments, one adding an additional NASA position to Level V of the Executive Salary Schedule and one authorizing compensation to consultants serving on the Aerospace Safety Advisory Panel at rates equivalent to those established for other consultants. A third provision in S. 2864 relating to authorizations for FY 1978, and three provisions in the House-passed bill were not agreed to. The rationale underlying Committee action in each instance is included in the section of the report entitled, "Legislative Changes".

The Committee held hearings on this bill on January 26 and 27, February 3, 5, 17, and 24, and on March 3. During the course of the hearings the Committee examined space and aeronautics programs of the various departments and agencies of the government wherein coordination is required with NASA programs. This included receiving testimony from the Departments of Interior, Commerce, Agriculture, and Defense, and the Energy Research and Development Administration.

The Committee met on March 18, 1976, to mark up the bill and prepare its recommendations to the Senate. The bill was ordered unanimously to be reported.

RESEARCH AND DEVELOPMENT

Summary

Fiscal Year 1977	Budget request	House action	Senate committee action
Research and Development:			
Space Shuttle.....	\$1,288,100,000	\$1,288,100,000	\$1,288,100,000
Space flight operations.....	205,200,000	198,200,000	205,200,000
Expendable launch vehicles.....	151,400,000	151,400,000	151,400,000
Physics and astronomy.....	165,800,000	169,800,000	165,800,000
Lunar and planetary exploration.....	191,100,000	193,100,000	191,100,000
Life sciences.....	22,125,000	22,125,000	22,125,000
Space applications.....	198,200,000	185,700,000	198,200,000
Earth resources operational systems.....	0	13,500,000	0
Aeronautical research and technology.....	189,100,000	192,100,000	189,100,000
Space research and technology.....	82,000,000	92,100,000	82,000,000
Tracking and data acquisition.....	258,000,000	254,000,000	258,000,000
Technology utilization.....	7,900,000	8,400,000	8,100,000
Total.....	2,758,925,000	2,768,525,000	2,759,125,000

SPACE FLIGHT OPERATIONS PROGRAM, \$205,200,000

COMMITTEE COMMENT

The Committee recommends adoption of the NASA request for the Space Flight Operations program. The Committee recognizes the importance of the support-type functions included in the subprogram Development, Test and Mission Operations (DTMO) to the successful and economical accomplishment of NASA's present and future programs. The Committee further recognizes that this subprogram is characterized by its high labor content, and the fact that personnel ceilings have been established for each Center forcing reductions already factored into the budget structure for FY-1977. It is clear that any significant reduction in the DTMO funding would, of necessity, impact directly and adversely on the ability to staff essential DTMO functions. Accordingly, the Committee does not concur with the House cut of \$8 million in the DTMO subprogram.

Further, the Committee, consistent with its belief that the proposed FY-1977 NASA budget is not only fiscally constrained but also carefully structured to make maximum use of requested resources, does not concur with the House addition of \$1 million to the Advanced Programs subprogram activity in the Space Flight Operations line item.

PHYSICS AND ASTRONOMY PROGRAM, \$165,800,000

COMMITTEE COMMENT

Space Telescope.—The Committee supports fully the need for the Space Telescope recognizing its significance to on-going research in astronomy. Accordingly, the Committee requests that NASA, in formulating its FY 1978 budget request, make the initiation of the Space Telescope project the item of the highest priority. The Committee further requests that NASA re-analyze its proposed application of FY 1977 resources with the objective of making available the minimum funding necessary to sustain the Space Telescope pre-contract activities to assure an orderly and efficient transition into development. The Committee appreciates the intent of the House in adding \$3 million to the Physics and Astronomy program for the Space Telescope; however, the Committee does not believe it is in a position to make a meaningful determination, based upon testimony presented to it, as to how this project can be most economically and efficiently sustained until the initiation of formal development. Therefore, the Committee has not made any specific funding recommendations on this item.

Supporting Research and Technology.—The Committee, in furtherance of its general view as to the austerity of this overall budget, does not concur in the addition of \$1 million to supporting research and technology activities in the Physics and Astronomy program.

Upper Atmospheric Research.—Last year the Congress, in an amendment to the National Aeronautics and Space Act of 1958, directed NASA to initiate and carry out a comprehensive program of research, technology and monitoring of the upper atmosphere in order to provide an understanding of and to maintain the chemical and physical integrity of the earth's upper atmosphere.

The Committee believes that this task must rank among the highest priority responsibilities of the agency.

For fiscal year 1977, NASA has requested \$11.6 million for Upper Atmospheric Research. NASA witnesses testified that this will provide adequate support for research activities related to chlorofluoromethanes, space shuttle, and aircraft assessments and that sufficient funding is available to begin a firm program of basic science activity. To understand the upper atmosphere will require an interdisciplinary approach; and therefore a number of NASA and non-NASA institutions should be designated as centers for such activity. NASA has designated three NASA centers (Goddard Space Flight Center, Ames Research Center, and Jet Propulsion Laboratory) to be primary centers for atmospheric research but testified that the non-NASA centers will develop less quickly in a period of two or three years. Since the basic research capabilities required for a thorough understanding of the upper atmosphere and its interaction with other earth systems exist principally in a number of universities and because of the urgent

need for a better understanding of the stratosphere and the anthropogenic effects on it, and how these in turn affect the health and welfare of man, waiting two or three years to establish such non-NASA centers is inadvisable. Consequently, the Committee urges NASA to initiate block funding of interdisciplinary groups at a small number of selected universities as soon as possible. Such centers should be structured to bring together the best talent available to study, do the research and make the measurements necessary to develop a fundamental understanding of the upper atmosphere and its relationship with other earth systems. The Committee agrees with NASA that, "Lengths of commitments to these centers should approach five years to insure level funding for center planning purposes". The Committee urges NASA to pursue the establishment of these non-NASA centers vigorously and to consider reprogramming of internal funds for this purpose. The Committee directs NASA to report back to the Committee with such a proposal and recommendations as to implementation before July 1, 1976.

To verify the Rowland and Molina theory and new theories as they develop, it is of the utmost importance to carry out measurements in the stratosphere at all altitudes. Aircraft can be used to make measurements in the lower stratosphere. However, the processes of most interest take place at higher altitudes inaccessible to aircraft. The principal vehicle for making measurements at these higher altitudes is the balloon. NASA requested \$1.5 million for about 30 balloon flights but testified that only 11 of these flights are potentially planned for upper atmospheric research; and, that the Upper Atmospheric Research program provides for only 12 additional balloon flights. This makes a total of at most 23 balloon flights available for measurement purposes in the upper atmosphere during FY 1977. Since balloon flights are so important for the verification of the theory, the Committee urges NASA to expand the balloon measurements program so that a sufficient number of world wide measurements will be obtained to provide for the adequate testing of the theoretical models.

LUNAR AND PLANETARY EXPLORATION PROGRAM, \$191,100,000

COMMITTEE COMMENT

Based upon a review of the data supporting the NASA FY 1977 budget request and testimony of NASA witnesses thereon, the Committee is very concerned about the apparent absence of new initiatives in the Lunar and Planetary program to continue to add to and build on the scientific data base being established by the several successful missions already accomplished under this program. Historically, the program has supported increasingly sophisticated endeavors, i.e., pro-

gressing from planetary fly-bys to orbiters to landers, acquiring increasingly detailed knowledge with the more sophisticated spacecraft employed. This program for a well organized, systematic exploration of the planets appears to be nearing its end. Accordingly the Committee requests that NASA give particular attention in formulating its FY 1978 budget to new initiatives designed to reverse this trend. The Committee believes that adequate funds are available in its authorization recommendations to carry out this request and accordingly, it does not concur with the House addition of \$2 million to this program.

SPACE APPLICATIONS PROGRAM, \$198,200,000

COMMITTEE COMMENT

The Committee notes with satisfaction that this bill contains funds to initiate the development of the thematic mapper, an advanced multispectral scanning instrument designed to provide a significant improvement in data acquisition capability from earth resources spacecraft. While the Committee fully supports this development, it continues to be concerned about the continuity of data from the Landsat series of satellites. This concern mounts as more, and more complex, applications verification experiments are undertaken, more users participate in data utilization and particularly as more foreign countries invest in ground data acquisition and processing facilities assuming that the United States will continue to fly Landsat-type spacecraft. The latter concern becomes most pertinent as NASA prepares to charge foreign nations for such data. Accordingly, the Committee, during its hearings on this authorization bill, requested NASA and other involved agency witnesses to submit suggested approaches to an operational system which addresses the concerns set forth. The Committee will evaluate these responses in the months ahead.

In the meantime, while the Committee is appreciative of the rationale underlying the recommendation of the House, as reflected in its action on the NASA request, to establish the Landsat C spacecraft project, currently in development, as a separate line item in the bill entitled "Earth Resources Operational Systems", the Committee has reservations about separating out this project from the support and technical interchange which it currently enjoys as a part of the overall earth resources activity and the other related activities encompassed in the total Space Applications program. Therefore, in view of the foregoing, the Committee is not recommending a comparable line item in this bill.

The Committee agrees with the House on the importance of severe storm research and believes that all reasonable effort should be applied to this vital area. The Committee's view includes the application of additional resources, as may be necessary, from other elements of the Space Applications program rather than the addition of \$1 million from other programmatic areas as recommended by the House.

AERONAUTICAL RESEARCH AND TECHNOLOGY, \$189,100,000

COMMITTEE COMMENT

NASA, in response to a Committee request early in 1975 to examine possibilities to make aircraft significantly more fuel efficient, appointed a task force which formulated a ten year aircraft energy efficiency technology development program. This technology program, reviewed by the Committee in hearings in the fall of 1975, has been initiated in the NASA FY 1977 budget. This initiative is most timely, and the results of this research should play a major role in assuring that United States aircraft retain their current superiority in the international marketplace—a position supported by the fact that 78% of the commercial transports flying are U.S. built. The importance of aeronautical research is also evidenced by the \$6 billion in civil aircraft and component exports during 1975.

The Committee desires that the aircraft energy efficiency program be pursued aggressively in subsequent years in order to meet the milestones established in the plan. The Committee notes that effort on the advanced prop fan concept was not included in the initial increment due to the unavailability of data essential to the full assessment of the readiness to proceed with focused effort on the concept at this time. The Committee urges that NASA follow this aspect closely and take such action as necessary to assure that all aircraft efficiency potentials are examined fully. The Committee also reiterates its original position that improvements in fuel efficiency should not be gained at the expense of the environment or of aircraft safety.

While stressing the timeliness of the aircraft energy efficiency program, the Committee does not desire in any way to underrate the importance of the other phases of the NASA aeronautical research and technology program. The Committee wishes to emphasize the potential of lighter-than-air (LTA) vehicles for meeting civilian and military needs especially in heavy-lift applications. In order to insure a more complete understanding of the economic and technical feasibility of LTA vehicles, the Committee believes that NASA should commit sufficient resources to enable cooperative programs with the Department of the Navy and other interested Federal agencies. The Committee also urges that appropriate effort be applied to variable cycle engine technology as recommended by the House utilizing available resources as necessary. Noting that the budget reflects a meaningful increase over prior years, the Committee believes that emphasis on the activities addressed herein can be accommodated within the amount requested for the program. Accordingly, it does not concur with the House addition of \$3 million to this program.

SPACE RESEARCH AND TECHNOLOGY PROGRAM, \$82,000,000

COMMITTEE COMMENT

Energy.—The Committee notes with considerable dismay the handling of funding for NASA energy initiatives directed to this vital national need. At the instigation of this Committee, NASA, over the past three years, has developed an aggressive energy initiative identification and verification program that has resulted in a substantial amount of reimbursable work funded by ERDA. ERDA has a legislative mandate as the Government energy R. & D. manager; it also has a directive to use the technical competence and facilities of other agencies in carrying out its total responsibility. To this end NASA's capabilities to contribute to the national energy need have been recognized in an ERDA/NASA agreement signed June 23, 1975.

In spite of this agreement and the several cooperative projects underway, NASA witnesses testified that the Office of Management and Budget deleted \$8.5 million from the FY 1977 NASA request for energy initiatives, which included \$5 million for solar power satellites, directing that all such activities for terrestrial applications should be conducted on a reimbursable basis for ERDA. ERDA, however, apparently due to time constraints in finalizing the budget, did not provide an equivalent amount in its budget. While this omission is unfortunate, the Committee is greatly disturbed by the apparent inability of the Executive Branch to correct the deficiency promptly so as to continue to apply these capabilities to the national energy problem. For instance, the Committee believes that it would be a serious mistake to allow budgeting time constraints to halt research on the solar power satellite concept. The Committee strongly urges ERDA to support this research in its FY 1977 budget.

The Committee is of the view that for the nation to be able to tap the potential contributions of all agencies to the problem of energy self-sufficiency, these agencies, including NASA, should not only be permitted but also encouraged to use nominal amounts of their regular resources to identify, and verify to some extent, possibilities which would be presented to ERDA for evaluation against competing alternatives and for subsequent funding as appropriate. Certainly agencies should account for funds so applied so that such activities are conducted within the framework of sound energy R. & D. management. It would be difficult, on the other hand, for ERDA to attempt to anticipate appropriate funding levels for these very preliminary identification activities because of the difficulty of trying to schedule inventions or determine where they might occur. The risk here is that of not fully utilizing the total resources the nation possesses. Following the identification and verification activity, the assessment of an initiative should be an ERDA responsibility. The point at which an initiative passes from one phase to another undoubtedly is not absolutely definable and probably would vary from case to case.

The Committee is concerned from its review of the NASA FY 1977 budget experience that existing policies will not capitalize on the total capability for new energy initiatives that may exist within the government, that adequate verification will not be accomplished to assess properly the potential of an initiative and perhaps more important, that all possibilities are not being evaluated.

Against this background the Committee, while sensitive to the additions by the House in the energy area, believes there is little point in adding specific amounts for energy activities. Rather, it stresses the need for the Executive Branch to promptly clarify the policies and procedures for carrying out the intent of the Energy Reorganization Act of 1974 and assure that budgeting responsibilities are conducive to an aggressive and effective energy research and development program. The Committee trusts that the planning and budgeting for the FY 1978 program will be conducted on a fully integrated basis. In the meantime the Committee urges NASA to continue its highly productive energy identification and verification program utilizing such resources as can be made available from the total available to the agency.

Research and Technology Base.—With respect to the funding for the activities in the Space Research and Technology program as requested by NASA, the Committee notes that the request contains a \$7 million increase or about 10 percent over FY 1976. Accordingly, the Committee believes that sufficient resources are provided so that additional effort can be applied to advanced propulsion research without adding funds as recommended by the House.

TRACKING AND DATA ACQUISITION PROGRAM, \$258,000,000

COMMITTEE COMMENT

The Committee notes that in order to meet fiscal constraints in prior years NASA has stretched out and/or deferred its equipment augmentation for future missions. The time has come, however, when such acquisition can no longer be deferred if missions such as SEASAT, Nimbus, Mariner Jupiter/Saturn and Pioneer Venus are to be supported. Testimony presented also shows that network operations, with its high labor content, is encountering severe inflationary cost increases. The Committee believes that after making substantial investments in the planning, development, and launch of space missions adequate provision must be made for equipment and operations support to avoid loss of data or, in a worst case situation, risk of loss of spacecraft due to insufficient operational coverage. Accordingly, the Committee recommends adoption of the NASA request for the Tracking and Data Acquisition Program and does not concur with the \$4 million cut assessed by the House.

While the Committee appreciates the need to restrict access to information contained in proposals for the TDRSS until the evaluation process is complete, this restriction does prevent the Committee from accomplishing an in-depth review of the comparative costs of leasing the service versus Government ownership of the system. Therefore, the Committee requests that NASA present detailed data on both approaches for its review prior to the award of any contract for the acquisition of TDRSS services. Further, the Committee requests that NASA cooperate fully with the General Accounting Office during its review of the lease versus purchase plan which it is conducting for the Committee.

TECHNOLOGY UTILIZATION PROGRAM, \$8,100,000

COMMITTEE COMMENT

The Committee's Subcommittee on Aerospace Technology and National Needs, in recent months, held a series of hearings on the effectiveness of this technology transfer activity and made several recommendations since adopted by NASA. The budget reflects that program funding has increased from \$5.5 million in FY 1975 to a proposed \$7.9 million in FY 1977, a worthwhile increase. Nevertheless, the Committee believes some additional field effort is warranted and therefore, it is increasing the program by \$200,000 to initiate one additional regional applications center. The Committee's total program recommendation is \$8.1 million, \$300,000 less than the amount approved by the House.

CONSTRUCTION OF FACILITIES

Summary

Item	FISCAL YEAR 1977	Amount
1. Modification for high enthalpy entry facility, Ames Research Center		\$1,220,000
2. Modification of flight simulator for advanced aircraft, Ames Research Center		1,730,000
3. Construction of supply support facility, Ames Research Center		1,540,000
4. Construction of addition to flight control facility, Hugh L. Dryden Flight Research Center		750,000
5. Construction of addition to lunar sample curatorial facility, Lyndon B. Johnson Space Center		2,800,000
6. Construction of airlock to spin test facility, John F. Kennedy Space Center		360,000
7. Modifications for utility control system, John F. Kennedy Space Center		2,445,000
8. Construction of addition for aeroelastic model laboratory, Langley Research Center		730,000
9. Construction of data reduction center annex, Langley Research Center		2,970,000
10. Construction of refuse-fired steam generating facility, Langley Research Center		2,485,000
11. Modification of refrigeration system, electric propulsion laboratory, Lewis Research Center		680,000
12. Rehabilitation of combustion air drying system, engine research building, Lewis Research Center		1,490,000
13. Large aeronautical facility: construction of national transonic facility, Langley Research Center		25,000,000
14. Space Shuttle facilities at various locations as follows:		
(a) Construction of Orbiter processing facility, John F. Kennedy Space Center		3,750,000
(b) Modifications to launch complex 39, John F. Kennedy Space Center		19,855,000
(c) Modification for solid rocket booster processing facilities, John F. Kennedy Space Center		9,700,000
(d) Construction of Shuttle/Carrier aircraft mating facility, John F. Kennedy Space Center		1,700,000
(e) Modifications for crew training facilities, Lyndon B. Johnson Space Center		780,000
(f) Rehabilitation and modification of Shuttle facilities, at various locations		1,760,000
(g) Modification of manufacturing and final assembly facilities for external tanks, Michoud Assembly Facility		1,930,000
15. Space Shuttle payload facilities at various locations as follows:		
(a) Modifications to operations and checkout building for Spacelab, John F. Kennedy Space Center		3,570,000
(b) Modifications and addition for Shuttle payload development, Goddard Space Flight Center		770,000
16. Rehabilitation and modification of facilities at various locations, not in excess of \$500,000 per project		17,875,000
17. Minor construction of new facilities and additions to existing facilities at various locations, not in excess of \$250,000 per project		5,125,000
18. Facility planning and design not otherwise provided for		12,655,000
Total		123,670,000

CONSTRUCTION OF ADDITION TO LUNAR SAMPLE CURATORIAL FACILITY,
LYNDON B. JOHNSON SPACE CENTER, \$2,800,000

COMMITTEE COMMENT

At this Committee's request after this project was denied by both the House and the Senate authorizing Committees last year, NASA made a further study of alternatives for supporting the storage, processing, and analysis of the lunar samples. The remote storage site and a restatement of need for the original fiscal year 1976 project resulted. The Committee believes that adequate storage facilities and additional space for processing and analysis of these samples, acquired at great expense, are required. This is a long-term, and not a transitory, requirement for which solutions have been examined extensively, and therefore, the Committee is recommending approval of this facility item which was deleted by the House in its action on the fiscal year 1977 NASA authorization request.

SPACE SHUTTLE FACILITIES, \$39,475,000

Modifications to Launch Complex 39, John F. Kennedy Space Center, \$19,855,000.

COMMITTEE COMMENT

The Committee traditionally has observed the policy of full funding of NASA facility projects unless there are logical funding phases for a multi-year project. The Committee understands that NASA proposes to award a single contract for a major element of this project—modifications to a mobile launcher—and therefore it believes the requested funding is necessary in order to proceed with the acquisition process in an orderly manner. Accordingly, the Committee does not concur with the House reduction of \$2 million in this project.

Modification for Solid Rocket Booster Processing Facilities, John F. Kennedy Space Center, \$9,700,000.

COMMITTEE COMMENT

Testimony presented to the Committee reflects a firm requirement on a specific schedule for the work included in this project. The Committee, therefore, does not agree with the House reduction of \$1 million in this project, and recommends \$9.7 million, as requested by NASA, for the second increment of funding for solid rocket booster processing facilities.

Construction of Shuttle Carrier Aircraft Mating Facility, John F. Kennedy Space Center, \$1,700,000.

COMMITTEE COMMENT

In testimony subsequent to the submission of the FY 1977 budget, NASA advised the Committee of the plan to tow, rather than fly, the orbiter from the Palmdale assembly plant to the Dryden Flight Research Center. Therefore, steel and hoists, procured in advance for the Palmdale mating facility which will not now be built, are available for use in constructing the facility at the Kennedy Space Center. Consequently, the Committee made a compensating reduction of \$350,000 in this facility request, an action also taken by the House. The Committee recommends \$1.7 million for this line item.

Modifications for Crew Training Facilities, Lyndon B. Johnson Space Center, \$180,000.

COMMITTEE COMMENT

The Committee examined carefully both the construction and the operating costs of this proposed facility at the Johnson Space Center and the costs of adapting and operating the existing Marshall Space Flight Center neutral buoyancy facility for shuttle crew training. Since operating costs are the significant factor influencing cost comparisons, it appears that the availability of this crew training facility at the Johnson Center on the schedule proposed is the most economical approach to fulfilling this requirement. Consequently, the Committee is recommending approval of this facility item on which the House deferred action this year.

RESEARCH AND PROGRAM MANAGEMENT

Summary

Fiscal year 1977	Budget request	House action	Senate committee action
Personnel compensation.....	\$558,830,000		
Personnel benefits.....	53,040,000		
Benefits for former personnel.....	504,000		
Travel and transportation of persons.....	17,143,000		
Transportation of things.....	2,552,000		
Rent, communications and utilities.....	61,689,000		
Printing and reproduction.....	4,164,000		
Other services.....	99,150,000		
Supplies and materials.....	13,863,000		
Equipment.....	2,498,000		
Leads and structures.....	540,000		
Grants, subsidies and contributions.....	70,000		
Insurance claims and indemnities.....	12,000		
Total.....	814,055,000	810,455,000	814,055,000

COMMITTEE COMMENT

In view of the reduction in personnel structured into this budget request, the agency-wide examination of Center responsibilities to achieve greater efficiency and manpower utilization, and the factors contributing to the increase over the previous fiscal year, the Committee is recommending adoption of the budget request of \$814,055,000 for this appropriations category.

It is the Committee's belief that while the House assessed a \$3,600,000 cut against the functional categories in this appropriation other than NASA personnel, the impact is, in reality, against base support personnel due to the high labor content and to the inflexibility of the other cost elements, particularly utilities services, in these categories. The Committee believes that any further reductions in base support services reduce that support to a level that is inconsistent with the ongoing responsibilities assigned to NASA.

COST AND BUDGET DATA

The NASA request for new budget authority for FY 1977 was \$3,697,000,000. This bill, H.R. 12453, as recommended by the Committee, authorizes appropriations to the National Aeronautics and Space Administration in the amount of \$3,696,850,000 for that fiscal period. This amount is \$150,000 less than the budget request.

In accordance with the requirements of Section 252(a) of the Legislative Reorganization Act of 1970, the estimates for the next five years of NASA budget authority are as follows:

(In millions of dollars)

	NASA estimate	Committee estimate
Fiscal year:		
1977.....	3,697	3,697
1978.....	3,610	3,610
1979.....	3,343	3,343
1980.....	3,131	3,131
1981.....	2,824	2,824

The above estimates are future funding requirements for the continuation or completion of the NASA programs (including the development of the Space Shuttle) provided for in this bill. These estimates do not provide for the impact of inflation, do not include a provision for administrative adjustments that may be required, and do not provide for the initiation of any new programs. Further, these estimates are not an estimate of what the NASA budget will be in future years. As existing programs and projects are phased out new programs and projects may be requested. The Congress will have an opportunity to exercise its judgment on these new programs and projects when authority and funds are requested to proceed with them. The Committee

does expect, however, that the budgets for the fiscal years through 1981 will approximate \$3.7 billion, in current years dollars, as new initiatives are proposed from studies currently underway and as developments demonstrate the need for and the worthiness of new starts in space science and applications, building on and capitalizing on the data and experience already acquired.

With respect to Section 308(a) of the Congressional Budget and Impoundment Control Act of 1974, a concurrent resolution pertaining to this authorization for FY 1977 has not been agreed to. However, the amounts recommended in this bill for Functional Code 250—\$3.333 billion, and for Functional Code 400—\$364 million, are in complete agreement with the estimates submitted to the Senate Budget Committee on March 3, 1976.

This bill contains no budget authority to provide financial assistance to State and local governments.

The Congressional Budget Office has submitted to the Committee its estimate on this bill pursuant to Section 403 of the Congressional Budget and Impoundment Control Act of 1974. The CBO submission of March 19, 1976, follows:

MARCH 19, 1976.

CONGRESSIONAL BUDGET OFFICE COST ESTIMATE

1. Bill Number: S. 2864.
2. Bill Title: The National Aeronautics and Space Administration Authorization Bill, Fiscal Year 1977.
3. Purpose of Bill: The bill authorizes appropriations to the National Aeronautics and Space Administration for research and development, construction of facilities, and research and program management, and for other purposes for fiscal year 1977. The bill is for authorization, and therefore, is subject to appropriations action.
4. Cost Estimate: The bill has no budget effects for fiscal year 1976 or the transition quarter. Only the authorization included in this bill is considered, and no judgment is made about the authorizations this bill implies for future fiscal periods. The overall budget impact follows.

BUDGET EFFECTS [In millions of dollars]

	Fiscal year—				
	1977	1978	1979	1980	1981
Authorization level.....	3,667				
Costs.....	2,578	919	188	12	

5. Basis for Estimate: All the funding authorized in this bill is assumed to be obligated in fiscal year 1977. Funding is authorized according to the type of activity, and the stream of costs associated with an authorization can best be estimated in the same manner.

Research and Development.—Funding through this account supports NASA's exploration and utilization of space, and other space and aeronautics research and development. The assumed spend-out rate for the funds obligated in this account is 65 percent in FY 1977, 30 percent in FY 1978, and 5 percent in FY 1979. This yields the following budget effects.

	Fiscal year—				
	1977	1978	1979	1980	1981
Authorization level.....	2,759				
Costs.....	1,793	828	138		

Construction of Facilities.—Funding through this account provides for the construction of new facilities, the purchase of land and construction equipment, facility modifications and rehabilitation, and other similar activities. The capital intensive nature of activity in this account means that the actual expenditures for obligations occur over a longer period of time. This spend-out pattern assumed is that 10 percent is spent in FY 1977, 40 percent in FY 1978, 40 percent in FY 1979, and 10 percent in FY 1980. This yields the following estimates.

	Fiscal year—				
	1977	1978	1979	1980	1981
Authorization level.....	124				
Costs.....	12	50	50	12	

Research and Program Management.—Funds for this account support the management of NASA programs and other activity such as in-house research efforts. Because personnel compensation and other operating expenses dominate this account, expenditures occur fairly quickly after obligation. The spend-out pattern assumed here is 95 percent in fiscal year 1977 and 5 percent in fiscal year 1978. The resulting budget estimates follow.

	Fiscal year—				
	1977	1978	1979	1980	1981
Authorization level.....	814				
Costs.....	773	41			

6. Estimate Comparison: None.

7. Previous CBO Estimate: An estimate has been prepared for H.R. 11573, the House NASA authorization bill (now H.R. 12453). The minor changes from that estimate reflect the different authorization levels contained in this bill.

LEGISLATIVE CHANGES

The Committee considered six legislative amendments in its action on this NASA authorization bill.

The Committee deleted Section 7 of S. 2864 which would have authorized to NASA total amounts for each appropriations category for fiscal year 1978. Since separate legislative action will be undertaken on the fiscal year 1978 authorization request, no action is necessary at this time. There is no provision for fiscal year 1978 authorizations in the House bill.

Section 7 of H.R. 12453 amends paragraph (15) of Section 5316, Title 5, United States Code, to increase from six to seven the number of Associate Administrator positions authorized to the National Aeronautics and Space Administration in Level V of the Executive Salary schedule. The additional position would encompass those functions assigned to the comptroller of the agency, functions which are judged to have responsibilities equivalent to those assigned to the other Associate Administrator positions. This amendment was proposed by NASA in its draft legislation accompanying the FY 1977 authorization request. This Senate Post Office and Civil Service Committee stated it had no objection to this action. This provision is included in the House bill as Section 7 also.

Section 8 of H.R. 12453 amends Section 6 of the National Aeronautics and Space Administration Authorization Act, 1968 (Public Law 90-67), which established the Aerospace Safety Advisory Panel, to permit members of that Panel to be compensated at the same rate NASA is authorized to pay other experts and consultants. The amendment authorizes compensation up to the maximum payable to a GS-18 under the General Schedule whereas Panel members are limited currently to \$100 per day. This change is requested by NASA as a matter of equity to those individuals serving on this advisory group established at the direction of the Congress. The House bill contains an identical provision in Section 8 also.

The House added, as Section 9 of its bill, H.R. 12453, a provision stating that it is the sense of the Congress that NASA, in conjunction with the Department of Defense as appropriate, should take specific actions, including periodic reports thereon, in connection with the acquisition of large aeronautical research facilities to support national initiatives in aeronautical research and development. Testimony before this Committee states that construction of two of the three facilities making up this agreed upon facility plan will be initiated with FY 1977 funds, one funded by NASA and one funded by DOD. Testimony further states that NASA plans to fund the final facility beginning in FY 1978. Consequently, the Committee considered this provision unnecessary and accordingly did not include a comparable section in its action on this legislation.

The House adopted, in Sections 10 and 11 of its bill, H.R. 12453, complementary amendments to Sections 102 and 103 of the National Aeronautics and Space Act of 1958 which would broaden NASA's charter to engage in research on ground transportation propulsion systems. The Committee has held no hearings on or received testimony on this amendment to the basic NASA legislation, and consequently, the Committee is not persuaded that this amendment is necessary or appropriate. NASA, in accordance with the general mandate to widely disseminate information under Section 203 (a) (3) of the Act, and with the full encouragement and support of the Committee, has conducted for many years activities designed to apply the research findings and technology advancements emanating from its basic program to non-aerospace national needs. This effort today represents the application of a unique national competence that has grown significantly and that is now an integral part of NASA's program, both on a reimbursable and non-reimbursable basis. The Committee has not had the opportunity to assess the desirability of the assignment to NASA of a direct charter to engage in ground propulsion research and development as opposed to continuing a successful technology transfer and application role in several areas in support of the agency with principal responsibility. Accordingly, the Committee did not adopt this amendment to the Space Act as presented in the House bill.

CHANGES IN EXISTING LAW

In compliance with subsection 4 of Rule XXIX of the Standing Rules of the Senate changes in existing law made by the bill are shown as follows (existing law proposed to be omitted is enclosed in black brackets, new matter is printed in italic, existing law in which no change is proposed is shown in roman):

SECTION 5316 OF TITLE 5, UNITED STATES CODE

CHAPTER 53—PAY RATES AND SYSTEMS

* * * * *

SUBCHAPTER II—EXECUTIVE SCHEDULE PAY RATES

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§ 5316. Positions at Level V

(1) * * *

* * * * *

[(15) Associate Administrators, National Aeronautics and Space Administration (6)]

(15) Associate Administrators, National Aeronautics and Space Administration (7)

* * * * *

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION AUTHORIZATION ACT, 1968

Public Law 90-67 (81 Stat. 170)

* * * * *

Sec. 6. There is hereby established an Aerospace Safety Advisory Panel consisting of a maximum of nine members who shall be appointed by the Administrator for terms of six years each. The Panel shall review safety studies and operations plans referred to it and shall make reports thereon, shall advise the Administrator with respect to the hazards of proposed or existing facilities and proposed operations and with respect to the adequacy of proposed or existing safety standards and shall perform such other duties as the Administrator may request. One member shall be designated by the Panel as its Chairman. Members of the Panel who are officers or employees of the Federal Government shall receive no compensation for their services as such, but shall be allowed necessary travel expenses (or in the alternative, mileage for use of privately owned vehicles and a per diem in lieu of subsistence not to exceed the rates prescribed in 5 U.S.C. 5702, 5704), and other necessary expenses incurred by them in the performance of duties vested in the Panel, without regard to the provisions of subchapter I, chapter 57 of title 5 of the United States Code, the Standardized Government Travel Regulations, or 5 U.S.C. 5731. Members of the Panel appointed from outside the Federal Government shall each receive compensation at [the rate of \$100] a rate not to exceed the per diem rate equivalent to the rate for GS-18 for each day such member is engaged in the actual performance of duties vested in the Panel in addition to reimbursement for travel, subsistence, and other necessary expenses in accordance with the provisions of the foregoing sentence. Not more than four such members shall be chosen from among the officers and employees of the National Aeronautics and Space Administration.

SPACE BUDGETS OF OTHER AGENCIES

(The following table, the source for which is the Office of Management and Budget, shows new budget authority of all Government agencies:)

SPACE ACTIVITIES OF THE U.S. GOVERNMENT—HISTORICAL SUMMARY AND 1977 BUDGET RECOMMENDATIONS
JANUARY 1976¹

[In millions of dollars (may not add due to rounding)]

	NASA		Department of Defense	ERDA	Com-merce	Interior	Agri-culture	NSF	Total space
	Total	Space ²							
1955.....	56.9	56.9	3.0						59.9
1956.....	72.7	72.7	30.3	7.0				7.3	117.3
1957.....	78.2	78.2	71.0	21.3				8.4	178.5
1958.....	117.3	117.3	205.6	21.3				3.3	347.9
1959.....	305.4	235.4	489.5	34.3					759.2
1960.....	523.6	451.5	550.9	43.3				.1	1,065.8
1961.....	964.0	926.0	813.9	67.7				.6	1,808.2
1962.....	1,824.9	1,796.8	1,298.2	147.8	50.7			1.3	3,294.8
1963.....	3,673.0	3,626.0	1,549.0	213.9	43.2			1.5	5,434.5
1964.....	5,099.7	5,046.3	1,599.3	210.0	2.8			3.0	6,861.4
1965.....	5,249.7	5,167.6	1,573.9	228.6	12.2			3.2	6,985.5
1966.....	5,174.9	5,094.5	1,688.8	186.8	26.5			3.2	6,999.8
1967.....	4,967.6	4,862.2	1,663.6	183.6	29.3			2.8	6,741.5
1968.....	4,588.8	4,452.5	1,921.8	145.1	28.1	0.2	0.5	3.2	6,551.4
1969.....	3,990.9	3,822.0	2,013.0	118.0	20.0	.2	.7	1.9	5,875.8
1970.....	3,745.8	3,547.0	1,678.4	102.8	8.0	1.1	.8	2.4	5,340.5
1971.....	3,311.2	3,101.3	1,512.3	94.8	27.4	1.9	.8	2.4	4,740.9
1972.....	3,306.6	3,071.0	1,407.0	55.2	31.3	5.8	1.6	2.8	4,574.7
1973.....	3,406.2	3,033.2	1,523.0	54.2	39.7	10.3	1.9	2.5	4,824.8
1974.....	* 3,036.9	2,758.5	1,765.0	41.7	60.2	9.0	3.1	1.8	4,640.3
1975.....	* 3,229.1	2,917.3	1,890.7	29.6	64.4	8.3	2.3	2.0	4,914.6
Budget:									
1976 estimate....	* 3,552.8	3,231.8	1,985.9	34.1	70.9	10.4	3.9	2.4	5,339.4
T.Q. ⁴ estimate....	931.7	852.6	499.1	8.4	21.9	2.6	1.0	0.6	1,366.2
1977 estimate....	* 3,695.0	3,332.8	2,329.5	34.2	89.8	8.4	4.7	2.4	5,801.8

¹ Historical amounts are estimates based on best data available.

² Excludes amounts for aircraft technology in 1959 and succeeding years. Amounts for NASA-NACA aircraft and space activities not separately identifiable prior to 1959.

³ Adjusted for net offsetting receipts.

⁴ Transitional quarter.

SECTION-BY-SECTION ANALYSIS

Section 1. Subsections (a), (b), and (c) authorize to be appropriated to the National Aeronautics and Space Administration funds, in the total amount of \$3,696,850,000, as follows: (a) for "Research and development," a total of 11 program line items aggregating the sum of \$2,759,125,000; (b) for "Construction of facilities," a total of 18 line items aggregating the sum of \$123,670,000; and (c) for "Research and program management," \$814,055,000. Subsection (c) would also authorize to be appropriated such additional or supplemental amounts as may be necessary for increases in salary, pay, retirement, or other employee benefits authorized by law.

Subsection 1(d) authorizes the use of appropriations for "Research and development" without regard to the provisions of subsection 1(g) for: (1) items of a capital nature (other than the acquisition of land) required at locations other than NASA installations for the performance of research and development contracts; and (2) grants to non-profit institutions of higher education, or to nonprofit organizations whose primary purpose is the conduct of scientific research, for purchase or construction of additional research facilities. Title to such facilities shall be vested in the United States unless the Administrator determines that the national program of aeronautical and space activities will best be served by vesting title in any such grantee institution or organization. Moreover, each such grant shall be made under such conditions as the Administrator shall find necessary to insure that the United States will receive benefit therefrom adequate to justify the making of that grant.

In either case no funds may be used for the construction of a facility in accordance with the subsection the estimated cost of which, including collateral equipment, exceeds \$250,000, unless the Administrator notifies the Speaker of the House, the President of the Senate and the specified committees of the Congress of the nature, location, and estimated cost of such facility.

Subsection 1(e) provides that, when so specified in an appropriation Act, (1) any amount appropriated for "Research and development" or for "Construction of facilities" may remain available without fiscal year limitation, and (2) contracts for maintenance and operation of facilities and support services may be entered into under the "Research and program management" appropriation for periods not in excess of twelve months beginning at any time during the fiscal year.

Subsection 1(f) authorizes the use of not to exceed \$35,000 of the "Research and program management" appropriation for scientific consultations or extraordinary expenses, including representation and official entertainment expenses, upon the authority of the Administrator, whose determination shall be final and conclusive.

Subsection 1(g) provides that of the funds appropriated for "Research and development" and "Research and program management," not in excess of \$25,000 per project (including collateral equipment) may be used for construction of new, or additions to existing, facilities, and not in excess of \$50,000 per project (including collateral equipment) may be used for rehabilitation or modification of existing facilities; however, of the funds appropriated for "Research and development," not in excess of \$250,000 per project (including collateral equipment) may be used for construction of new facilities or additions to, or rehabilitation or modification of, existing facilities required for unforeseen programmatic needs.

Section 2. Section 2 authorizes upward variations of the sums authorized for the "Construction of facilities" line items (other than facility planning and design) of 10 per centum in the discretion of the Administrator or his designee, or 25 per centum following a report by the Administrator or his designee to the Committee on Science and Technology of the House of Representatives and the Committee on

Aeronautical and Space Sciences of the Senate on the circumstances of such action, for the purpose of meeting unusual cost variations. However, the total cost of all work authorized under these line items may not exceed the total sum authorized for "Construction of facilities" under subsection 1(b), paragraphs (1) through (17).

Section 3. Section 3 provides that not more than one-half of 1 per centum of the funds appropriated for "Research and development" may be transferred to the "Construction of facilities" appropriation and, when so transferred, together with \$10,000,000 of the funds appropriated for "Construction of facilities," shall be available for the construction of facilities and land acquisition at any location if (1) the Administrator determines that such action is necessary because of changes in the space program or new scientific or engineering developments, and (2) that deferral of such action until the next Authorization Act is enacted would be inconsistent with the interest of the Nation in aeronautical and space activities. However, no such funds may be obligated until 30 days have passed after the Administrator or his designee has transmitted to the Speaker of the House, the President of the Senate and the specified committees of Congress a written report containing a description of the project, its cost, and the reason why such project is necessary in the national interest, or each such committee before the expiration of such 30-day period has notified the Administrator that no objection to the proposed action will be made.

Section 4. Section 4 provides that, notwithstanding any other provision of this Act—

(1) no amount appropriated pursuant to this Act may be used for any program deleted by the Congress from requests as originally made to either the House Committee on Science and Technology or the Senate Committee on Aeronautical and Space Sciences;

(2) no amount appropriated pursuant to this Act may be used for any program in excess of the amount actually authorized for that particular program by subsections 1(a) and 1(c); and,

(3) no amount appropriated pursuant to this Act may be used for any program which has not been presented to or requested of either such committee,

unless (A) a period of 30 days has passed after the receipt by the Speaker of the House, the President of the Senate and each such committee of notice given by the Administrator or his designee containing a full and complete statement of the action proposed to be taken and the facts and circumstances relied upon in support of such proposed action, or (B) each such committee before the expiration of such period has transmitted to the Administrator written notice to the effect that such committee has no objection to the proposed action.

Section 5. Section 5 expresses the sense of the 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 whenever feasible.

Section 6. Section 6 authorizes the National Aeronautics and Space Administration, when so provided in an appropriation Act, to enter into a contract (or contracts) for tracking and data relay satellite services. The Government would incur no costs under such contract prior to the furnishing of such services except that the contract could provide for the payment for contingent liability of the Government which may accrue in the event the Government should decide for its convenience to terminate the contract before the expiration of the contract period. Such tracking and data relay satellite services would be furnished to the Administration in accordance with applicable authorization and appropriation Acts. It is envisaged that facilities may be required to be provided under such a contract in order to provide such services. The bill would authorize the construction of such facilities on Government-owned land if there is included in the contract a provision under which the United States may, in accordance with terms and conditions agreed upon in the contract, acquire title to the facilities upon contract termination. In January of each year the Administrator would be required to report to the Committee on Science and Technology and the Committee on Appropriations of the House of Representatives and the Committee on Aeronautical and Space Sciences and the Committee on Appropriations of the Senate the projected aggregate contingent liability, through the next fiscal year, of the Government under termination provisions of any contract authorized under this section. It is specified that the authority of the National Aeronautics and Space Administration to enter into and maintain the contract (or contracts) authorized in this section shall remain in effect as long as provision therefor is included in acts authorizing appropriations to the National Aeronautics and Space Administration for subsequent fiscal years.

Section 7. Section 7 amends 5 U.S.C. 5316 by amending paragraph (15) to increase by one (from six to seven) the number of "Associate Administrators, National Aeronautics and Space Administration" which are included in Level V of the Executive Schedule.

Enactment of the bill will enable the Administrator of the National Aeronautics and Space Administration to establish a new position of "Associate Administrator/Comptroller" at Level V of the Executive Schedule, in recognition of the fact that under NASA's present organizational arrangements the roles and responsibilities of the Comptroller are comparable in importance and authority to other NASA positions currently included within Level V of the Executive Schedule.

Section 8. Section 8 amends section 6 of the National Aeronautics and Space Administration Authorization Act, 1968 (81 Stat. 170), to remove the limit of \$100 per diem payable to members of the Aerospace Safety Advisory Panel, and substitute therefor a provision that such members may be paid at a rate not in excess of the daily rate paid to a GS-18.

Section 9. Section 9 provides that the Act may be cited as the "National Aeronautics and Space Administration Authorization Act, 1977".

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION AUTHORIZATION, FISCAL YEAR 1977

MAY 17, 1976.—Ordered to be printed

Mr. Moss, from the committee of conference,
submitted the following

CONFERENCE REPORT

[To accompany H.R. 12453]

The committee of conference on the disagreeing votes of the two Houses on the amendment of the Senate to the bill (H.R. 12453) to authorize appropriations to the National Aeronautics and Space Administration for research and development, construction of facilities, and research and program management, and for other purposes, having met, after full and free conference, have agreed to recommend and do recommend to their respective Houses as follows:

That the House recede from its disagreement to the amendment of the Senate and agree to the same with an amendment as follows:

In lieu of the matter proposed to be inserted by the Senate amendment insert the following:

That there is hereby authorized to be appropriated to the National Aeronautics and Space Administration:

(a) For "Research and development," for the following programs:

- (1) Space Shuttle, \$1,288,100,000;
- (2) Space flight operations, \$202,700,000;
- (3) Expendable launch vehicles, \$151,400,000;
- (4) Physics and astronomy, \$166,300,000;
- (5) Lunar and planetary exploration, \$192,100,000;
- (6) Life sciences, \$22,125,000;
- (7) Space applications, \$198,000,000;
- (8) Earth resources operational systems, \$200,000;
- (9) Aeronautical research and technology, \$191,100,000;
- (10) Space research and technology, \$86,300,000;
- (11) Tracking and data acquisition, \$255,000,000;
- (12) Technology utilization, \$8,100,000.

(b) For "Construction of facilities," including land acquisition, as follows:

- (1) Modification for high enthalpy entry facility, Ames Research Center, \$1,220,000;

(2) Modification of flight simulator for advanced aircraft, Ames Research Center, \$1,730,000;

(3) Construction of supply support facility, Ames Research Center, \$1,540,000;

(4) Construction of addition to flight control facility, Hugh L. Dryden Flight Research Center, \$750,000;

(5) Construction of addition to lunar sample curatorial facility, Lyndon B. Johnson Space Center, \$2,200,000;

(6) Construction of airlock to spin test facility, John F. Kennedy Space Center, \$360,000;

(7) Modifications for utility control system, John F. Kennedy Space Center, \$2,445,000;

(8) Construction of addition for aeroelastic model laboratory, Langley Research Center, \$730,000;

(9) Construction of data reduction center annex, Langley Research Center, \$2,970,000;

(10) Construction of refuse-fired steam generating facility, Langley Research Center, \$2,485,000;

(11) Modification of refrigeration system, electric propulsion laboratory, Lewis Research Center, \$680,000;

(12) Rehabilitation of combustion air drying system, engine research building, Lewis Research Center, \$1,490,000;

(13) Large aeronautical facility: construction of national transonic facility, Langley Research Center, \$25,000,000;

(14) Space Shuttle facilities at various locations as follows:

(A) Construction of Orbiter processing facility, John F. Kennedy Space Center, \$3,750,000;

(B) Modifications to launch complex 39, John F. Kennedy Space Center, \$18,855,000;

(C) Modification for solid rocket booster processing facilities, John F. Kennedy Space Center, \$8,700,000;

(D) Construction of Shuttle/Carrier aircraft mating facility, John F. Kennedy Space Center, \$1,700,000;

(E) Rehabilitation and modification of Shuttle facilities, at various locations, \$1,760,000;

(F) Modification of manufacturing and final assembly facilities for external tanks, Michoud Assembly Facility, \$1,930,000;

(15) Space Shuttle payload facilities at various locations as follows:

(A) Modifications to operations and checkout building for Spacelab, John F. Kennedy Space Center, \$3,570,000;

(B) Modifications and addition for Shuttle payload development, Goddard Space Flight Center, \$770,000;

(16) Rehabilitation and modification of facilities at various locations, not in excess of \$500,000 per project, \$17,875,000;

(17) Minor construction of new facilities and additions to existing facilities at various locations, not in excess of \$250,000 per project, \$5,125,000;

(18) Facility planning and design not otherwise provided for, \$12,655,000.

(c) For "Research and program management," \$813,455,000, and such additional or supplemental amounts as may be necessary for in-

increases in salary, pay, retirement, or other employee benefits authorized by law.

(d) Notwithstanding the provisions of subsection 1(g), appropriations for "Research and development" may be used (1) for any items of a capital nature (other than acquisition of land) which may be required at locations other than installations of the Administration for the performance of research and development contracts, and (2) for grants to nonprofit institutions of higher education, or to nonprofit organizations whose primary purpose is the conduct of scientific research, for purchase or construction of additional research facilities; and title to such facilities shall be vested in the United States unless the Administrator determines that the national program of aeronautical and space activities will best be served by vesting title in any such grantee institution or organization. Each such grant shall be made under such conditions as the Administrator shall determine to be required to insure that the United States will receive therefrom benefit adequate to justify the making of that grant. None of the funds appropriated for "Research and development" pursuant to this Act may be used in accordance with this subsection for the construction of any major facility, the estimated cost of which, including collateral equipment, exceeds \$250,000, unless the Administrator or his designee has notified the Speaker of the House of Representatives and the President of the Senate and the Committee on Science and Technology of the House of Representatives and the Committee on Aeronautical and Space Sciences of the nature, location, and estimated cost of such facility.

(e) When so specified in an appropriation Act, (1) any amount appropriated for "Research and development" or for "Construction of facilities" may remain available without fiscal year limitation, and (2) maintenance and operation of facilities, and support services contracts may be entered into under the "Research and program management" appropriation for periods not in excess of twelve months beginning at any time during the fiscal year.

(f) Appropriations made pursuant to subsection 1(c) may be used, but not to exceed \$55,000, for scientific consultations or extraordinary expenses upon the approval or authority of the Administrator and his determination shall be final and conclusive upon the accounting officers of the Government.

(g) Of the funds appropriated pursuant to subsections 1(a) and 1(c), not in excess of \$25,000 for each project, including collateral equipment, may be used for construction of new facilities and additions to existing facilities, and not in excess of \$50,000 for each project, including collateral equipment, may be used for rehabilitation or modification of facilities: Provided, That of the funds appropriated pursuant to subsection 1(a), not in excess of \$250,000 for each project, including collateral equipment, may be used for any of the foregoing for unforeseen programmatic needs.

SEC. 2. Authorization is hereby granted whereby any of the amounts prescribed in paragraphs (1) through (17), inclusive, of subsection 1(b)—

(1) in the discretion of the Administrator or his designee, may be varied upward 10 per centum, or

(2) following a report by the Administrator or his designee to the Committee on Science and Technology of the House of Representatives and the Committee on Aeronautical and Space Sciences of the Senate on the circumstances of such action, may be varied upward 25 per centum,

to meet unusual cost variations, but the total cost of all work authorized under such paragraphs shall not exceed the total of the amounts specified in such paragraphs.

SEC. 3. Not to exceed one-half of 1 per centum of the funds appropriated pursuant to subsection 1(a) hereof may be transferred to the "Construction of facilities" appropriation, and, when so transferred, together with \$10,000,000 of the funds appropriated pursuant to subsection 1(b) hereof (other than funds appropriated pursuant to paragraph (18) of such subsection) shall be available for expenditure to construct, expand, or modify laboratories and other installations at any location (including locations specified in subsection 1(b)), if (1) the Administrator determines such action to be necessary because of changes in the national program of aeronautical and space activities or new scientific or engineering developments, and (2) he determines that deferral of such action until the enactment of the next authorization Act would be inconsistent with the interest of the Nation in aeronautical and space activities. The funds so made available may be expended to acquire, construct, convert, rehabilitate, or install permanent or temporary public works, including land acquisition, site preparation, appurtenances, utilities, and equipment. No portion of such sums may be obligated for expenditure or expended to construct, expand, or modify laboratories and other installations unless (A) a period of thirty days has passed after the Administrator or his designee has transmitted to the Speaker of the House of Representatives and to the President of the Senate and to the Committee on Science and Technology of the House of Representatives and to the Committee on Aeronautical and Space Sciences of the Senate a written report containing a full and complete statement concerning (1) the nature of such construction, expansion, or modification, (2) the cost thereof including the cost of any real estate action pertaining thereto, and (3) the reason why such construction, expansion, or modification is necessary in the national interest, or (B) each such committee before the expiration of such period has transmitted to the Administrator written notice to the effect that such committee has no objection to the proposed action.

SEC. 4. Notwithstanding any other provision of this Act—

(1) no amount appropriated pursuant to this Act may be used for any program deleted by the Congress from requests as originally made to either the House Committee on Science and Technology or the Senate Committee on Aeronautical and Space Sciences,

(2) no amounts appropriated pursuant to this Act may be used for any program in excess of the amount actually authorized for that particular program by sections 1(a) and 1(c), and

(3) no amount appropriated pursuant to this Act may be used for any program which has not been presented to or requested of either such committee,

unless (A) a period of thirty days has passed after the receipt by the Speaker of the House of Representatives and the President of the Senate and each such committee of notice given by the Administrator or his designee containing a full and complete statement of the action proposed to be taken and the facts and circumstances relied upon in support of such proposed action, or (B) each such committee before the expiration of such period has transmitted to the Administrator written notice to the effect that such committee has no objection to the proposed action.

SEC. 5. It is the sense of the 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 whenever feasible.

SEC. 6. The National Aeronautics and Space Administration is authorized, when so provided in an appropriation Act, to enter into a contract for tracking and data relay satellite services. Such services shall be furnished to the National Aeronautics and Space Administration in accordance with applicable authorization and appropriations Acts. The Government shall incur no costs under such contract prior to the furnishing of such services except that the contract may provide for the payment for contingent liability of the Government which may accrue in the event the Government should decide for its convenience to terminate the contract before the end of the period of the contract. Facilities which may be required in the performance of the contract may be constructed on Government-owned lands if there is included in the contract a provision under which the Government may acquire a title to the facilities, under terms and conditions agreed upon in the contract, upon termination of the contract.

The Administrator shall in January of each year report to the Committee on Science and Technology and the Committee on Appropriations of the House of Representatives and the Committee on Aeronautical and Space Sciences and the Committee on Appropriations of the Senate the projected aggregate contingent liability of the Government under termination provisions of any contract authorized in this section through the next fiscal year. The authority of the National Aeronautics and Space Administration to enter into and to maintain the contract authorized hereunder shall remain in effect as long as provision therefor is included in Acts authorizing appropriations to the National Aeronautics and Space Administration for subsequent fiscal years.

SEC. 7. Paragraph (15) of section 5316, title 5, United States Code, is amended by striking out "(6)" and inserting in lieu thereof "(7)".

SEC. 8. Section 6 of the National Aeronautics and Space Administration Authorization Act, 1968 (81 Stat. 170), is amended by striking out the words "the rate of \$100" and inserting in lieu thereof the words "a rate not to exceed the per diem rate equivalent to the rate for GS-18".

SEC. 9. This Act may be cited as the "National Aeronautics and Space Administration Authorization Act, 1977".

And the Senate agree to the same.

FRANK E. MOSS,
JOHN C. STENNIS,
WENDELL H. FORD,
BARRY GOLDWATER,
PETE V. DOMENICI,
Managers on the Part of the Senate.

OLIN E. TEAGUE,
THOMAS N. DOWNING,
DON FUQUA,
JIM SYMINGTON,
ROBERT A. ROE,
DALE MILFORD,
JAMES SCHEUER,
C. A. MOSHER,
LARRY WINN, JR.,
Managers on the Part of the House.

JOINT EXPLANATORY STATEMENT OF THE COMMITTEE OF CONFERENCE

The Managers on the part of the House and the Senate at the conference on the disagreeing votes of the two Houses on the amendment of the Senate to the bill (H.R. 12453) to authorize appropriations to the National Aeronautics and Space Administration for fiscal year 1977 for Research and Development, Construction of Facilities, and Research and Program Management, and for other purposes, submit the following joint statement to the House and the Senate in explanation of the effect of the action agreed upon by the Managers and recommended in the accompanying conference report.

The NASA request for fiscal year 1977 totaled \$3,697,000,000. The House authorized \$3,696,070,000 and the Senate amendment authorized \$3,696,850,000. The committee of conference agrees to a total authorization for fiscal year 1977 of \$3,695,170,000 as follows:

FISCAL YEAR 1977—SUMMARY

	Budget request	House	Senate	Committee of conference
Research and development:				
Space Shuttle.....	\$1,288,100,000	\$1,288,100,000	\$1,288,100,000	\$1,288,100,000
Space flight operations.....	205,200,000	198,200,000	205,200,000	202,700,000
Expendable launch vehicles.....	151,400,000	151,400,000	151,400,000	151,400,000
Physics and astronomy.....	165,800,000	169,800,000	165,800,000	166,300,000
Lunar and planetary exploration.....	191,100,000	193,100,000	191,100,000	192,100,000
Life sciences.....	22,125,000	22,125,000	22,125,000	22,125,000
Space applications.....	198,200,000	185,700,000	198,200,000	198,000,000
Earth resources operational systems.....	0	13,500,000	0	200,000
Aeronautical research and technology.....	189,100,000	192,100,000	189,100,000	191,100,000
Space research and technology.....	82,000,000	92,100,000	82,000,000	86,300,000
Tracking and data acquisition.....	258,000,000	254,000,000	258,000,000	255,000,000
Technology utilization.....	7,900,000	8,400,000	8,100,000	8,100,000
Total.....	2,758,925,000	2,768,925,000	2,759,125,000	2,761,425,000
Construction of facilities.....	124,020,000	117,090,000	123,670,000	120,290,000
Research and program management.....	814,055,000	810,455,000	814,055,000	813,455,000
Grand total.....	3,697,000,000	3,696,070,000	3,696,850,000	3,695,170,000

The points in disagreement and the conference resolution of them are as follows:

1. The House authorized \$198,200,000 for the Space flight operations program, a reduction of \$7,000,000 in the NASA request, the net result of an \$8,000,000 reduction in the Development, Test and Mission Operations subprogram and a \$1,000,000 addition to the Advanced Programs subprogram activity.

The Senate authorized \$205,200,000, identical with the NASA request for this program.

The conference substitute authorizes \$202,700,000 for the Space flight operations program.

The conferees agree that NASA should apply \$500,000 additional to its planned effort for advanced programs to improve the structuring

and development of this activity in support of future space programs thereby increasing the total amount for fiscal year 1977 from \$18,000,000 to \$18,500,000.

2. NASA requested \$165,800,000 for the Physics and astronomy program. The house authorized \$169,800,000 increasing the request by \$3,000,000 to initiate the development program for the Space Telescope by \$1,000,000 for additional supporting research and technology effort.

The Senate authorized the NASA request.

The conference substitute authorizes \$166,300,000.

The committee of conference, recognizing the significance of the Space Telescope to ongoing research in astronomy, agrees that the initiation of this project has the highest priority in the space science program and, therefore, authorizes NASA to complete the competitive detailed design phase and to proceed with development activities, the latter subject to the availability of appropriations. The conferees further agree that an additional \$500,000 is to be applied to supporting research and technology activities to help assure the viability of future research in physics and astronomy.

3. The House authorized \$193,100,000 for the Lunar and planetary program increasing the NASA request for the Planetary Advanced Studies activity by \$2,000,000 to provide for definition studies for a Jupiter-Orbiter mission.

The Senate authorized \$191,100,000, the NASA request.

The conference substitute authorizes \$192,100,000.

The conferees agree that NASA should give particular attention to formulating and presenting new initiatives to reverse the "going out of business" trend apparent in this program and accordingly added \$1,000,000 to be applied to studies for this purpose.

4. NASA requested \$198,200,000 for the Space applications program.

The House authorized \$185,700,000 transferring the Landsat-C spacecraft project and the \$13,500,000 associated therewith to a new program entitled, "Earth Resources Operational Systems". The House also added \$1,000,000 to the severe storm research subprogram activity.

The Senate authorized the NASA request of \$198,200,000.

The conference substitute authorizes \$198,000,000 for the Space applications program.

The conferees agree that the Landsat-C spacecraft development program should be continued in the Space applications program as presented in the NASA budget request.

5. The House established a new program entitled, "Earth Resources Operational Systems" not included in the NASA request, and authorized \$13,500,000 for the program to include those activities associated with the Landsat-C development project.

The Senate did not have a comparable line item program in its amendment to the bill.

The conference substitute establishes a new research and development line item in the bill entitled, "Earth Resources Operational Systems" and authorizes \$200,000 therefor.

The conferees agree that the Landsat earth resources satellite technology project has reached a state of maturity wherein it is necessary to facilitate arrangements for an operational version of the Landsat

system and provide for early activities that would initiate transition to an operational mode. This new program is established for this purpose.

6. NASA requested \$189,100,000 for the Aeronautical research and technology program.

The House authorized \$192,100,000 increasing the request by \$3,000,000 to accelerate the Variable Cycle Engine Components Technology program.

The Senate authorized the NASA request for this program.

The conference substitute authorizes \$191,100,000 for the Aeronautical research and technology program.

7. The House authorized \$92,100,000 for the Space research and technology program, an increase of \$10,100,000 in the NASA request, of which \$1,600,000 was for increased rocket engine propulsion technology effort, \$3,500,000 was for energy technology identification and verification activity and \$5,000,000 was to significantly broaden the system definition effort on solar satellite power systems.

The Senate authorized \$82,000,000, identical with the NASA request.

The conference substitute authorizes \$86,300,000.

The conferees note that NASA has a significant capability which can and should be fully utilized in the Nation's program to achieve energy self-sufficiency. Tapping this capability requires a basic effort to identify and verify those initiatives that may have a potential contribution to this national need. This identification and verification activity, sometimes referred to as "seed money", is considered to be an appropriate and necessary function within NASA and the conferees direct NASA to continue this productive activity that it initiated in prior years. To this end the conferees agree that \$3,500,000 in the Space research and technology program is to be allocated to this activity. Furthermore, the conferees agree that \$800,000 of additional effort should be applied to advanced rocket engine propulsion technology.

8. The House authorized \$254,000,000 for the Tracking and data acquisition program, a reduction of \$4,000,000 in the NASA request.

The Senate authorized the NASA request of \$258,000,000.

The conference substitute authorizes \$255,000,000 for the Tracking and data acquisition program.

9. NASA requested \$7,900,000 for the Technology utilization program. The House added \$500,000 for greater emphasis on industrial and technology applications, authorizing a total of \$8,400,000 for the program.

The Senate authorized \$8,100,000 increasing the NASA request by \$200,000 to initiate one additional regional application center.

The committee of conference adopts the Senate position.

10. NASA requested \$2,800,000 for the construction of an addition to the Lunar Curatorial Facility at the Lyndon B. Johnson Space Center.

The House did not authorize this facility item in its bill.

The Senate authorized the facility at the requested amount of \$2,800,000.

The conference substitute authorizes \$2,200,000 for the construction of an addition to the Lunar Sample Curatorial Facility.

11. The House authorized \$17,855,000 for the third phase of modifications to Launch complex 39, John F. Kennedy Space Center, in support of the Space Shuttle program, a reduction of \$2,000,000 in the NASA request for this facility project.

The Senate authorized the NASA request of \$19,855,000 for Launch complex 39 modifications.

The conference substitute authorizes \$18,855,000.

12. NASA requested \$9,700,000 for the second phase of facilities for processing the solid rocket booster for the Space Shuttle program at the John F. Kennedy Space Center. The House authorized \$8,700,000, a reduction of \$1,000,000 in the NASA request.

The Senate authorized \$9,700,000 as requested by NASA.

The committee of conference adopts the House position authorizing \$8,700,000 for this facility item.

13. NASA requested \$780,000 for crew training facility for the Space Shuttle program at the Lyndon B. Johnson Space Center.

The House did not authorize this facility, believing that existing facilities at the Marshall Space Flight Center could be used during the design, development, test and engineering phase of the Shuttle program, and therefore that this facility item could be deferred.

The Senate authorized the construction of this facility item at the requested amount of \$780,000.

The conference substitute does not provide for the construction of this crew training facility.

The conferees agree that the location of such a crew training facility should be restudied giving greater consideration to locations of primary activities associated with a fully operational Shuttle program as anticipated in the early 1980's and beyond. Until a thorough review of this matter is made the conferees request that all action on the construction of or modifications for any such crew training capability be deferred.

14. NASA requested \$814,055,000 for the Research and Program Management appropriations category. The House authorized \$810,455,000, a reduction of \$3,600,000 in the request.

The Senate authorized \$814,055,000, identical with the NASA request.

The conference substitute authorizes \$813,455,000 for the Research and Program Management activity.

15. The House included, as Section 9 in its bill, a sense of the Congress statement emphasizing its concern for the need to expedite the completion of large aeronautical research facilities noting the importance of these facilities to U.S. dominance in the field of aeronautics.

This provision was not included in the NASA authorization request to the Congress.

The Senate did not include this provision in its amendment to the bill.

The conference substitute does not include this provision.

13. The House adopted a section 10 in its bill amending section 102 of the National Aeronautics and Space Act of 1958 enlarging its policy and purpose by declaring that the general welfare requires that the unique competence in science and engineering systems of NASA also should be directed toward ground propulsion research and development.

There was no comparable provision included in the NASA authorization request for fiscal year 1977.

The Senate did not include this provision in its amendment to the House bill.

The conference substitute adopts the Senate position.

17. The House bill included a section 11, complementary to its amendment to the National Aeronautics and Space Act of 1958 adopted in Section 10 of its bill, which defined the term "ground propulsion system".

The Senate did not include this provision in its amendment to the House bill.

The conference substitute does not have a comparable provision inasmuch as the basic amendment was not adopted and, therefore, this complementary amendment is not necessary.

FRANK E. MOSS,
JOHN C. STENNIS,
WENDELL H. FORD,
BARRY GOLDWATER,
PETE V. DOMENICI,

Managers on the Part of the Senate.

OLIN E. TEAGUE,
THOMAS N. DOWNING,
DON FUQUA,
JIM SYMINGTON,
ROBERT A. ROE,
DALE MILFORD,
JAMES SCHEUER,
C. A. MOSHER,
LARRY WINN, JR.,

Managers on the Part of the House.

○



Public Law 94-307
94th Congress, H. R. 12453
June 4, 1976

An Act

To authorize appropriations to the National Aeronautics and Space Administration for research and development, construction of facilities, and research and program management, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That there is hereby authorized to be appropriated to the National Aeronautics and Space Administration:

(a) For "Research and development," for the following programs:

- (1) Space Shuttle, \$1,288,100,000;
- (2) Space flight operations, \$202,700,000;
- (3) Expendable launch vehicles, \$151,400,000;
- (4) Physics and astronomy, \$166,300,000;
- (5) Lunar and planetary exploration, \$192,100,000;
- (6) Life sciences, \$22,125,000;
- (7) Space applications, \$198,000,000;
- (8) Earth resources operational systems, \$200,000;
- (9) Aeronautical research and technology, \$191,100,000;
- (10) Space research and technology, \$86,300,000;
- (11) Tracking and data acquisition, \$255,000,000;
- (12) Technology utilization, \$8,100,000.

(b) For "Construction of facilities," including land acquisition, as follows:

- (1) Modification for high enthalpy entry facility, Ames Research Center, \$1,220,000;
- (2) Modification of flight simulator for advanced aircraft, Ames Research Center, \$1,730,000;
- (3) Construction of supply support facility, Ames Research Center, \$1,540,000;
- (4) Construction of addition to flight control facility, Hugh L. Dryden Flight Research Center, \$750,000;
- (5) Construction of addition to lunar sample curatorial facility, Lyndon B. Johnson Space Center, \$2,200,000;
- (6) Construction of airlock to spin test facility, John F. Kennedy Space Center, \$360,000;
- (7) Modifications for utility control system, John F. Kennedy Space Center, \$2,445,000;
- (8) Construction of addition for aeroelastic model laboratory, Langley Research Center, \$730,000;
- (9) Construction of data reduction center annex, Langley Research Center, \$2,970,000;
- (10) Construction of refuse-fired steam generating facility, Langley Research Center, \$2,485,000;
- (11) Modification of refrigeration system, electric propulsion laboratory, Lewis Research Center, \$680,000;
- (12) Rehabilitation of combustion air drying system, engine research building, Lewis Research Center, \$1,490,000;
- (13) Large aeronautical facility: construction of national transonic facility, Langley Research Center, \$25,000,000;

National Aeronautics and Space Administration Authorization Act, 1977.
Research and development.

Construction of facilities.

Research and program management.

Program specifications.

Notice to Speaker of the House, President of the Senate and congressional committees.

(14) Space Shuttle facilities at various locations as follows:

- (A) Construction of Orbiter processing facility, John F. Kennedy Space Center, \$3,750,000;
- (B) Modifications to launch complex 39, John F. Kennedy Space Center, \$18,855,000;
- (C) Modification for solid rocket booster processing facilities, John F. Kennedy Space Center, \$8,700,000;
- (D) Construction of Shuttle/Carrier aircraft mating facility, John F. Kennedy Space Center, \$1,700,000;
- (E) Rehabilitation and modification of Shuttle facilities, at various locations, \$1,760,000;
- (F) Modification of manufacturing and final assembly facilities for external tanks, Michoud Assembly Facility, \$1,930,000;

(15) Space Shuttle payload facilities at various locations as follows:

- (A) Modifications to operations and checkout building for Spacelab, John F. Kennedy Space Center, \$3,570,000;
- (B) Modifications and addition for Shuttle payload development, Goddard Space Flight Center, \$770,000;
- (16) Rehabilitation and modification of facilities at various locations, not in excess of \$500,000 per project, \$17,875,000;
- (17) Minor construction of new facilities and additions to existing facilities at various locations, not in excess of \$250,000 per project, \$5,125,000;
- (18) Facility planning and design not otherwise provided for, \$12,655,000.

(c) For "Research and program management," \$813,455,000, and such additional or supplemental amounts as may be necessary for increases in salary, pay, retirement, or other employee benefits authorized by law.

(d) Notwithstanding the provisions of subsection 1(g), appropriations for "Research and development" may be used (1) for any items of a capital nature (other than acquisition of land) which may be required at locations other than installations of the Administration for the performance of research and development contracts, and (2) for grants to nonprofit institutions of higher education, or to nonprofit organizations whose primary purpose is the conduct of scientific research, for purchase or construction of additional research facilities; and title to such facilities shall be vested in the United States unless the Administrator determines that the national program of aeronautical and space activities will best be served by vesting title in any such grantee institution or organization. Each such grant shall be made under such conditions as the Administrator shall determine to be required to insure that the United States will receive therefrom benefit adequate to justify the making of that grant. None of the funds appropriated for "Research and development" pursuant to this Act may be used in accordance with this subsection for the construction of any major facility, the estimated cost of which, including collateral equipment, exceeds \$250,000, unless the Administrator or his designee has notified the Speaker of the House of Representatives and the President of the Senate and the Committee on Science and Technology of the House of Representatives and the Committee on Aeronautical and Space Sciences of the Senate of the nature, location, and estimated cost of such facility.

(e) When so specified in an appropriation Act, (1) any amount appropriated for "Research and development" or for "Construction

of facilities" may remain available without fiscal year limitation, and (2) maintenance and operation of facilities, and support services contracts may be entered into under the "Research and program management" appropriation for periods not in excess of twelve months beginning at any time during the fiscal year.

(f) Appropriations made pursuant to subsection 1(c) may be used, but not to exceed \$35,000, for scientific consultations or extraordinary expenses upon the approval or authority of the Administrator and his determination shall be final and conclusive upon the accounting officers of the Government.

(g) Of the funds appropriated pursuant to subsections 1(a) and 1(c), not in excess of \$25,000 for each project, including collateral equipment, may be used for construction of new facilities and additions to existing facilities, and not in excess of \$50,000 for each project, including collateral equipment, may be used for rehabilitation or modification of facilities: *Provided*, That of the funds appropriated pursuant to subsection 1(a), not in excess of \$250,000 for each project, including collateral equipment, may be used for any of the foregoing for unforeseen programmatic needs.

Sec. 2. Authorization is hereby granted whereby any of the amounts prescribed in paragraphs (1) through (17), inclusive, of subsection 1(b)—

(1) in the discretion of the Administrator or his designee, may be varied upward 10 per centum, or

(2) following a report by the Administrator or his designee to the Committee on Science and Technology of the House of Representatives and the Committee on Aeronautical and Space Sciences of the Senate on the circumstances of such action, may be varied upward 25 per centum,

to meet unusual cost variations, but the total cost of all work authorized under such paragraphs shall not exceed the total of the amounts specified in such paragraphs.

Sec. 3. Not to exceed one-half of 1 per centum of the funds appropriated pursuant to subsection 1(a) hereof may be transferred to the "Construction of facilities" appropriation, and, when so transferred, together with \$10,000,000 of the funds appropriated pursuant to subsection 1(b) hereof (other than funds appropriated pursuant to paragraph (18) of such subsection) shall be available for expenditure to construct, expand, or modify laboratories and other installations at any location (including locations specified in subsection 1(b)), if (1) the Administrator determines such action to be necessary because of changes in the national program of aeronautical and space activities or new scientific or engineering developments, and (2) he determines that deferral of such action until the enactment of the next authorization Act would be inconsistent with the interest of the Nation in aeronautical and space activities. The funds so made available may be expended to acquire, construct, convert, rehabilitate, or install permanent or temporary public works, including land acquisition, site preparation, appurtenances, utilities, and equipment. No portion of such sums may be obligated for expenditure or expended to construct, expand, or modify laboratories and other installations unless (A) a period of thirty days has passed after the Administrator or his designee has transmitted to the Speaker of the House of Representatives and to the President of the Senate and to the Committee on Science and Technology of the House of Representatives and to the Committee on Aeronautical and Space Sciences of the Senate a written report containing a full and complete statement concerning (1) the nature of such construction, expansion, or modification, (2) the cost thereof

Scientific consultations or extraordinary expenses.

Limitations.

Cost variations.

Report to congressional committees.

Unforeseen program changes, transfer of research funds to construction.

Report to Speaker of the House, President of the Senate and congressional committees.

Use of funds, restriction.

Notice to the Speaker of the House, President of the Senate and congressional committees.

Research funds, geographical distribution. 42 USC 2459 note. Satellite services, contract authorization. 42 USC 2463.

Report to congressional committees.

including the cost of any real estate action pertaining thereto, and (3) the reason why such construction, expansion, or modification is necessary in the national interest, or (B) each such committee before the expiration of such period has transmitted to the Administrator written notice to the effect that such committee has no objection to the proposed action.

Sec. 4. Notwithstanding any other provision of this Act—

(1) no amount appropriated pursuant to this Act may be used for any program deleted by the Congress from requests as originally made to either the House Committee on Science and Technology or the Senate Committee on Aeronautical and Space Sciences,

(2) no amounts appropriated pursuant to this Act may be used for any program in excess of the amount actually authorized for that particular program by sections 1(a) and 1(c), and

(3) no amount appropriated pursuant to this Act may be used for any program which has not been presented to or requested of either such committee,

unless (A) a period of thirty days has passed after the receipt by the Speaker of the House of Representatives and the President of the Senate and each such committee of notice given by the Administrator or his designee containing a full and complete statement of the action proposed to be taken and the facts and circumstances relied upon in support of such proposed action, or (B) each such committee before the expiration of such period has transmitted to the Administrator written notice to the effect that such committee has no objection to the proposed action.

Sec. 5. It is the sense of the 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 whenever feasible.

Sec. 6. The National Aeronautics and Space Administration is authorized, when so provided in an appropriation Act, to enter into a contract for tracking and data relay satellite services. Such services shall be furnished to the National Aeronautics and Space Administration in accordance with applicable authorization and appropriations Acts. The Government shall incur no costs under such contract prior to the furnishing of such services except that the contract may provide for the payment for contingent liability of the Government which may accrue in the event the Government should decide for its convenience to terminate the contract before the end of the period of the contract. Facilities which may be required in the performance of the contract may be constructed on Government-owned lands if there is included in the contract a provision under which the Government may acquire a title to the facilities, under terms and conditions agreed upon in the contract, upon termination of the contract.

The Administrator shall in January of each year report to the Committee on Science and Technology and the Committee on Appropriations of the House of Representatives and the Committee on Aeronautical and Space Sciences and the Committee on Appropriations of the Senate the projected aggregate contingent liability of the Government under termination provisions of any contract authorized in this section through the next fiscal year. The authority of the National Aeronautics and Space Administration to enter into and to maintain the contract authorized hereunder shall remain in effect as long as provision therefor is included in Acts authorizing appropriations to the National Aeronautics and Space Administration for subsequent fiscal years.

Sec. 7. Paragraph (15) of section 5316, title 5, United States Code, is amended by striking out "(6)" and inserting in lieu thereof "(7)".

Sec. 8. Section 6 of the National Aeronautics and Space Administration Authorization Act, 1968 (81 Stat. 170), is amended by striking out the words "the rate of \$100" and inserting in lieu thereof the words "a rate not to exceed the per diem rate equivalent to the rate for GS-18".

Sec. 9. This Act may be cited as the "National Aeronautics and Space Administration Authorization Act, 1977".

Approved June 4, 1976.

42 USC 2477.

5 USC 5332
note.
Short title.

LEGISLATIVE HISTORY:

HOUSE REPORTS: No. 94-897 (Comm. on Science and Technology) and No. 94-1176 (Comm. of Conference).

SENATE REPORTS: No. 94-718 (Comm. on Aeronautics and Space Sciences) and No. 94-901 (Comm. of Conference).

CONGRESSIONAL RECORD, Vol. 122 (1976):

Mar. 22, considered and passed House.

Apr. 1, considered and passed Senate, amended.

May 17, Senate agreed to conference report.

May 21, House agreed to conference report.

94TH CONGRESS } HOUSE OF REPRESENTATIVES { REPORT
2d Session } { No. 94-1220

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT—INDEPENDENT AGENCIES APPROPRIATION BILL, 1977

JUNE 8, 1976.—Committed to the Committee of the Whole House on the State of the Union and ordered to be printed

Mr. BOLAND, from the Committee on Appropriations, submitted the following

REPORT

together with

SUPPLEMENTAL, SEPARATE, AND DISSENTING VIEWS

[To accompany H.R. 14233]

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

RESEARCH AND DEVELOPMENT

1976 appropriation.....	\$2,677,380,000
Estimate, 1977.....	2,758,925,000
Recommended in bill.....	2,767,425,000
Increase above estimate.....	+8,500,000

The Committee has consistently supported development of a space shuttle. In past reports, the shuttle has been characterized as opening a new transportation era that will make space flight routine. The shuttle *can* provide this Nation with an economical and efficient space vehicle that will carry a variety of payloads—including commercial, applications, scientific and military—into both low and high earth orbit.

But while the Committee has backed the shuttle concept, it continues to question user charges for commercial customers; the commitment of DOD to the shuttle; and the cost-effectiveness of a shuttle-tug mission. For example, clearly a primary consideration in the evolution of the shuttle program must be the accommodation of projected U.S. and international commercial payloads. The economic, technical and operational significance of commercial applications must not be relegated to a secondary role. Every effort should be made at this time to define and ultimately provide a continuing and economically attractive launch capability—particularly to synchronous orbit. Unless the commercial sector accepts the shuttle as an economically viable alternative to conventional boosters, the space transportation system will not be viewed as a success. Therefore, the Committee urges NASA to provide maximum payload flexibility to all potential shuttle users.

The Committee recommends an appropriation of \$2,767,425,000 for 1977. This is an increase of \$8,500,000 above the budget estimate. Within the total recommended, the following changes are made from the amounts requested in the current budget plan:

- (1) An additional \$3,000,000 has been provided for aeronautics for accelerated work on variable cycle engine components technology.
- (2) The Committee has recommended an additional \$10,100,000 for Space Research and Technology, including \$1,600,000 for advanced propulsion technology, \$3,500,000 for energy technology and \$5,000,000 for a Solar Satellite Power System.

The Committee believes that the development of a solar satellite power generating system could provide substantial amounts of clean, competitive electric power in the next century. While ERDA has the principal responsibility for energy research and development, the Committee is concerned that such a system is not presently assigned within the jurisdiction of either ERDA or NASA. Clearly, NASA has the pre-eminent technological and management capability to launch and maintain this massive structure in space. Therefore, the Committee directs NASA to proceed with design studies leading to a demonstration satellite that could be placed in orbit on the space shuttle.

(3) Within the funds recommended, the Committee directs that an appropriate memorial to the late Dr. Robert H. Goddard be provided, as authorized in Public Law 89-320.

(4) A \$4,600,000 reduction is recommended and should be applied generally at NASA's discretion.

In addition, the Committee addressed the Large Space Telescope issue. The 1976 HUD-Independent Agencies Appropriation Conference Report prohibits NASA from proceeding with any LST work beyond the Phase "B" stage. NASA informally requested clarifying language in the 1977 report which would permit the agency to issue request for proposals, select prime contractors, and sign a contract prior to and contingent upon congressional approval of LST funding in fiscal year 1978.

Although the Committee recognizes that this course of action would release losing contractor teams and resources for other projects, it felt that such a procedure established an unacceptable and highly unusual precedent. Therefore, NASA is specifically prohibited from issuing any request for proposal, selecting a prime contractor or signing a contingent contract before a budget estimate for LST development funds is formally approved by the Committee and the Congress. The Agency may, however, within the funds provided, continue Phase B analysis and associated work.

CONSTRUCTION OF FACILITIES

1976 appropriation.....	\$82, 130, 000
Estimate, 1977.....	124, 020, 000
Recommended in bill.....	118, 090, 000
Decrease below estimate.....	-5, 930, 000

The Committee recommends \$118,090,000 for construction of facilities in 1977. This is a decrease of \$5,930,000 below the budget request.

The funds provided are the same as those requested with the following exceptions:

A \$2,800,000 reduction for the Lunar Curatorial Facility at the Johnson Space Center.

A \$1,000,000 reduction from the \$9,700,000 request for the Shuttle Solid Rocket Booster Processing Facility at the Kennedy Space Center.

A \$350,000 reduction from the \$2,050,000 request for Shuttle Carrier Aircraft Mating Facilities.

A \$780,000 reduction for construction of a water immersion facility for shuttle pilot training at the Johnson Spacecraft Center.

The above decreases are all consistent with similar reductions made in the 1977 House authorization bill.

In addition, the Committee has reduced by \$11,000,000 the request of \$14,855,000 for refurbishment of a *second* shuttle mobile launcher. In taking this action, the Committee notes two factors:

(1) NASA's justifications indicated that the second mobile launcher was required by the fall of 1980 when the second orbiter was scheduled for delivery at the Kennedy Space Center. However, NASA admitted that because of budget restrictions, the second orbiter would not reach KSC until the Spring of 1981—*or as much as six months later.*

(2) The anticipated shuttle launch rate in 1980 and 1981 is within the capabilities of a single launcher.

Therefore, total funding of the second mobile launcher can be delayed.

Finally, the Committee has added \$10,000,000 to begin construction modifications on the 40 x 80 subsonic wind tunnel at the Ames Research Center. In the 1976 report, the Committee directed that no funds be used to begin this work until it had had an opportunity to review the necessary funding requirements. Although the Office of Management and Budget denied NASA's request to proceed with this project in the 1977 budget, the Committee heard convincing testimony that the modification of the 40 x 80 wind tunnel is essential in keeping the United States competitive in the world helicopter market. The total cost of the project is currently estimated at approximately \$90,000,000.

RESEARCH AND PROGRAM MANAGEMENT

1976 appropriation.....	\$792, 312, 000
Estimate, 1977.....	814, 055, 000
Recommended in bill.....	809, 000, 000
Decrease below estimate.....	-5, 055, 000

The Committee recommends \$809,000,000 for research and program management in 1977. This is a decrease of \$5,055,000 below the budget estimate.

The House authorization reduced the request by \$3,600,000 for object classes other than personnel and related costs. The Committee is recommending an additional \$1,455,000 reduction. This action is based on the fact that funds requested for annualization of 1975 paycosts appear to be overstated. Also, NASA plans on reducing permanent positions by 500 in 1977. Savings resulting from the associated man-year lapse could be higher than is assumed in the budget request.

GENERAL PROVISIONS

The Committee recommends that the general provisions applicable to the Department and agencies carried in the current year be continued in 1977, except for the general provision relating to payments to the General Services Administration for space and services. This has been deleted as a general provision in another bill addresses this matter on a government-wide basis.

CHANGES IN THE APPLICATION OF EXISTING LAW

The Committee submits the following statements in compliance with Clause 3, Rule XXI of the House of Representatives, describing the effects of provisions proposed in the accompanying bill which may be considered, under certain circumstances, to change the application of existing law, either directly or indirectly:

1. The Committee, in a number of instances, has found it necessary to recommend funding for ongoing activities and programs where authorizations have not been enacted to date. This includes some or all of the programs under the Department of Housing and Urban Development, the Council and Office of Environmental Quality, the Environmental Protection Agency, the National Aeronautics and Space Administration, the National Science Foundation and the Veterans Administration.

2. The bill provides that appropriations shall remain available until expended for a number of programs for which the basic authorizing legislation does not presently authorize such extended availability, and in other instances where funds are authorized to remain available until expended the funds are limited to a shorter period of time.

3. Sections 401 through 408 of Title IV of the bill contain a number of general provisions, all of which are essentially as carried in previous appropriation acts, which place limitations on the use of funds in the bill and which might, under some circumstances, be construed as changing the application of existing law.

**COMPARATIVE STATEMENT OF NEW BUDGET (OBLIGATIONAL) AUTHORITY FOR FISCAL YEAR
1976 AND THE BUDGET ESTIMATES FOR FISCAL YEAR 1977**

[Becomes available automatically under earlier, or "permanent" law without further, or annual, action by the Congress. Thus, these amounts are not included in the accompanying bill.]

Agency and item (1)	New budget (obligational) authority, 1976 (2)	Budget estimates of new (obligational) authority, 1977 (3)	Increase or decrease (4)
PERMANENT NEW BUDGET (OBLIGATIONAL) AUTHORITY TRUST FUNDS			
National Aeronautics and Space Administration: Miscellaneous trust funds (indefinite).....	735,000	100,000	-635,000

**COMPARATIVE STATEMENT OF NEW BUDGET (OBLIGATIONAL) AUTHORITY FOR FISCAL YEAR 1976 AND BUDGET
ESTIMATES AND AMOUNTS RECOMMENDED IN THE BILL FOR FISCAL YEAR 1977**

[Note--All amounts are in the form of "appropriations" unless otherwise indicated.]

Agency and item (1)	New budget (obligational) authority, fiscal year 1976 (2)	Budget estimates of new (obligational) authority, fiscal year 1977 (3)	New budget (obligational) authority recommended in bill (4)	Bill compared with--	
				New budget (obligational) authority, fiscal year 1976 (5)	Budget estimates of new (obliga- tional) authority, fiscal year 1977 (6)
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION					
research and development.....	2,677,380,000	2,758,925,000	2,767,425,000	90,045,000	-8,500,000
Construction of facilities.....	82,130,000	124,020,000	118,090,000	35,960,000	-5,930,000
Research and program management.....	792,312,000	314,055,000	809,000,000	16,688,000	-5,655,000
Total.....	3,551,822,000	3,697,000,000	3,694,515,000	142,693,000	-2,485,000

Calendar No. 921

94TH CONGRESS } SENATE } REPORT
 2d Session } } No. 94-974

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT—INDEPENDENT AGENCIES APPROPRIATION BILL, 1977

JUNE 23, 1976.—Ordered to be printed

Mr. PROXMIRE, from the Committee on Appropriations, submitted the following

REPORT

[To accompany H.R. 14233]

REPROGRAMING AND INITIATION OF NEW PROGRAMS

The Committee has a particular interest in being informed of reprogramings both between accounts and within the confines of a single account which may not change either the total amount available in the account nor any of the purposes for which the appropriation is legally available but which represent a significant departure from budget plans presented to the Committee in the various budget justifications.

Consequently the Committee directs that the Department of Housing and Urban Development and the agencies funded through this bill notify the Chairman of the HUD-Independent Agencies Subcommittee prior to reprograming of funds in excess of \$250,000 or 10 percent, whichever is less, between programs or activities except that the 5 percent rule applicable to staffing under "Salaries and Expenses, Department of Housing and Urban Development" shall continue to apply instead. The Committee recognizes that, in some cases, reprogramings may occur because of the functioning of law or other circumstances beyond the control of the Agency. This rule is not meant to apply in those situations. The Committee desires to be notified of reprograming actions which involve less than the above-mentioned amounts if such actions would have the effect of committing the agency to significant funding requirements in future years. Finally the Committee wishes to be informed regarding substantial reorganization of offices, programs or activities prior to the implementation of such reorganizations.

A FEDERAL RESEARCH AND DEVELOPMENT BUDGET

The General Accounting Office has developed a unified objective oriented classification structure for use in presenting comprehensive data on the entire Federal research and development budget. GAO transmitted the structure to the Office of Management and Budget in September of 1975, requesting that it be used in preparing a supplementary budget presentation to be submitted concurrently with the fiscal 1977 budget.

The Committee is pleased to note that OMB provided a portion of the information desired through the collection and presentation of research and development funding data from fourteen departments and agencies. GAO continues to work with OMB to achieve full implementation of the unified structure.

Through viewing the data provided to date in its relationship to the research and development efforts of the agencies funded in this bill, the Committee believes that this approach to the Federal research and development budget can serve a valuable purpose by providing to the Congress and to the American people a solid indication of the level of effort proposed to be directed on a government wide basis in a given fiscal year to the accomplishment of specified national objectives including the creation of solutions to specific national problems. This in turn will enable the Committee to gauge the needed mix of resources across the entire research and development spectrum rather than on an agency by agency basis.

Accordingly the Committee directs the agencies funded in this bill to work closely with OMB to more fully implement the unified objective oriented classification structure in conjunction with the fiscal 1978 budget submission.

EQUAL EMPLOYMENT OPPORTUNITY

Although there does appear to be a degree of progress among the agencies covered by this appropriation bill, in the hiring, promotion, and advancement of minorities and women, the Committee continues to be concerned that, for the most part, career opportunities for these minority groups are not keeping pace with those of their white, male colleagues.

Most of the agencies funded in this bill seem to have a fairly high number of blacks and women on the agency payrolls. However, when the Committee goes beyond the mere numbers and examines the average grades for minorities and women at most of these agencies and looks at the promotion statistics for these groups the picture is much more discouraging. For example, at one agency the average grade of white males was almost 6 grades higher than that for black males, and even higher when compared to that of females. Black female employees fare even worse, often working at a grade level far below even that of their white, female counterparts.

This chasm of grade discrepancy appears to be, unfortunately, the rule rather than the exception. It should be bridged as quickly as possible. The Committee is fully aware of the alarming lack of minority and women science and engineering graduates emerging from our universities who are qualified to fill career positions at some of the science oriented agencies funded by this bill. However, the Committee recommends that all of the agencies under this appropriation umbrella should establish realistic yet aggressive employment and promotion goals for both minorities and women and expend whatever energy is necessary to reach those goals. The Committee looks for substantial improvement in the Equal Employment Opportunity profiles of all these agencies, but especially in the non-science oriented agencies that do not require highly technical and scientific educational backgrounds as a prerequisite of employment.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

RESEARCH AND DEVELOPMENT

1976 appropriation	\$2,677,380,000
Estimate, 1977	2,758,925,000
House allowance	2,767,425,000
Committee recommendation	2,761,425,000

The Committee recommends an appropriation of \$2,761,425,000 for the Research and Development program of the National Aeronautics and Space Administration. This figure is \$2,500,000 over the budget estimate and \$6,000,000 under the House allowance.

The NASA program for fiscal year 1977 provides for continued progress toward the era of wide-spread participation in the exploration and use of space and of more efficient flight in the atmosphere. The budget provides for continued development of the Space Shuttle on a schedule consistent with an initial orbital flight in 1979, leading to an economical, versatile operational capability providing a wide variety of users with round-trip access to space in the 1980's. At the same time, the budget provides for continuing ongoing research and development and technology as well as initiating some significant new projects. Major ongoing projects which will continue in development in fiscal year 1977 include the High Energy Astronomy Observatories, the Pioneer Venus missions, the Mariner missions to Jupiter and Saturn, LANDSAT-C, SEASAT, and TIROS-N, as well as science and applications explorers. In addition, work will be in progress on flight experiments which will take advantage of the unique capabilities of the Shuttle and Spacelab. The fiscal year 1977 budget also provides \$21,300,000 for initiation of the Solar Maximum Mission to study the Sun during its next period of peak activity; \$2,000,000 for a magnetic field satellite (applications explorer) to provide data useful for location of mineral resources; and \$4,000,000 for a thematic mapper instrument to increase our future capability for detection and monitoring of earth resources.

In aeronautics, the budget provides for continuation of ongoing research activity and demonstration projects, and for a focusing of effort on developing the technology to permit the United States to produce in the 1980's aircraft capable of approximately twice the efficiency of current aircraft.

The objectives of the National Aeronautics and Space Administration program of research and development are to advance our knowledge of Earth, its space environment, and the universe, and to develop and utilize aeronautics and space technology to accomplish national goals. These objectives are achieved through the following programs:

Space flight.—Provides the transportation and related support and capabilities required to conduct all space operations. The major development objective is the reusable Space Shuttle, the key element of an economical, versatile transportation system to provide a wide variety of users with round trip access to space during the 1980's and beyond.

Space science.—Utilizes space systems, supported by extensive ground-based and airborne observations, to conduct a broad spectrum of scientific investigations. The objective is to advance our knowledge of the Earth and its atmosphere, the Moon, the Sun, the inner and outer planets, interplanetary and interstellar space, and the other stars of our galaxy and the universe.

Applications.—Uses space, aircraft, and ground-based systems to identify and demonstrate the useful application of space techniques in the areas of resources detection and monitoring, earth dynamics monitoring and forecasting, ocean condition monitoring and forecasting, environmental quality monitoring, weather and climate observation and forecasting, materials processing in space, space communications and information management.

Aeronautics and space technology.—To acquire the fundamental knowledge and to develop the technology needed to maintain U.S. leadership in aeronautics and space.

Tracking and data acquisition.—A worldwide communications and data acquisition system to support deep space, Earth orbital, sub-orbital, and aeronautical programs.

Energy technology applications.—Assures that national energy technology programs receive the maximum benefit from NASA-developed aeronautics and space technology. Emphasis is now placed on providing reimbursable support to other Federal agencies and State and local governments engaged in research and development programs that are aimed at meeting national energy needs.

Technology utilization.—Accelerates the dissemination to both the public and the private sectors of advances achieved in NASA's research, technology and development programs.

The Committee has disallowed the \$5,000,000 provided by the House for a Solar Satellite Power System as it has not been authorized. The Committee has also disallowed the \$1,600,000 for advanced propulsion technology and the \$3,000,000 for work on variable cycle engine components technology provided by the House.

The Committee agrees with the House in providing \$3,500,000 for Energy Technology Applications.

The technology developed in the Space and Aeronautics programs conducted by NASA holds potential for significant contributions to the solution of energy problems on Earth. In 1974, NASA organized the Office of Energy Programs to focus efforts directed toward the identification and experimental development of the technologies holding greatest promise in the energy area.

During fiscal year 1975, fiscal year 1976, and the transition quarter, NASA had direct R. & D. funding to carry out initial technology identification and refinement activities. Technology identification activities have included work relating to advanced ground propulsion, reduction of the drag in large road vehicles, multipurpose gas turbines, hydrogen energy systems, fuel cells for down-to-earth applications, energy storage systems, energy resources identification, and integrated utility systems.

The identification and verification of energy initiatives is an effective method of tapping the technology and other capabilities of NASA as it carries out its "main line" responsibilities. The \$3.5 million is the "seed money" for this effort. This action is not meant to compromise the recognized ERDA responsibility for management of the national energy R. & D. effort. It is not realistic to expect ERDA to be able to totally predetermine which agency and what resources might be needed by the Government to maximize the identification and verification of potential energy initiatives; that is, you cannot schedule inventions. It seems much more efficient and productive to allow certain agencies small amounts of "seed money," with full accountability for such money, to conduct identification and verification activities for subsequent ERDA assessment and further funding as appropriate. The funds provided will allow NASA the minimum flexibility necessary to structure, define and package their capabilities in the varied areas of energy for eventual consideration by ERDA, the administration, and the Congress as to applicable development.

Currently, reimbursable agreements have been negotiated with ERDA for NASA support of Residential and Commercial Solar Heating and Cooling, Wind Energy, Solar Photovoltaics (solar cells), and Geothermal Energy programs. These plans are already being implemented.

The Committee notes that \$5 million for solar satellite power system studies for terrestrial applications has been included in the ERDA authorization bill as reported to the Senate.

The Committee has also restored \$3,600,000 of the \$4,600,000 cut by the House to be applied at NASA's discretion. This should provide adequate flexibility to NASA for additional funding of Space Flight Operations, Development, Test, and Mission Operations and other high priority areas.

The Senate Appropriations Committee believes the circumstances surrounding the Space Telescope program are unique. The program has highest priority endorsement by the Space Science Board of the National Academy of Sciences. The development program has not yet been submitted to the Congress for approval although NASA has conducted extensive in-house and contractor preliminary design studies as authorized by the Congress.

To enable the Congress, under these circumstances, to properly evaluate the appropriateness of the Space Telescope as a new start for fiscal year 1978, NASA is encouraged within present availability of appropriations to continue program planning, technology risk reduction, and program costing activities that will assure the capability to expeditiously initiate development in fiscal year 1978 should the Congress approve Space Telescope as a new program start. To this end, NASA is encouraged to proceed with the issuance of Requests for Proposals and the proposal evaluation process, anticipating completion of this effort by the spring of 1977.

At that time, contingent upon further review by this Committee, selection of contractors and contract negotiations could proceed. Signing of any contract for the actual building of Space Telescope is, however, prohibited prior to approval of funding by Congress for Space Telescope as a new start.

In its action concerning the fiscal year 1977 budget for NASA, the Committee considered the implementation of a two year obligational authority limitation on NASA research and development funds. However, the Committee realizes that during the fiscal year 1977 budget hearings no opportunity existed to obtain testimony from NASA regarding the potential impact of such a limitation on the conduct of NASA programs and institutional costs. The Committee, therefore, directs that NASA submit by October 1, 1976, a report delineating the effects on the implementation of NASA programs of a 2 year obligational limitation on research and development funds. The Committee intends to address this issue once more during the fiscal year 1978 budget hearings.

The Committee is aware of the major deficiencies in the NASA Property Accounting system identified by the General Accounting Office in its January, 1976 report. The Committee specifically notes GAO conclusion that \$144 million in equipment went unrecorded for up to 10 years; that \$35 million of such equipment was recorded only after brought to the attention of the Agency; that the present system showed millions of dollars of equipment in use when it was not; and that three NASA centers and two contractors lost over 4,500 items valued at \$3.3 million without determining the cause and thus reducing the possibility of further loss. The Committee notes with interest the response of NASA to these management needs and recognizes that the Agency has taken positive steps to correct some of the problems identified by GAO. It is the Committee's intention to ensure that full implementation of new measures occurs so that similar property management problems will not arise in the future. The Committee directs the Administrator to report on the status of property management and accounting in the Agency through the end of the 1976 fiscal year and on all measures taken in specific response to GAO recommendations.

The Committee is pleased that NASA has initiated a recurring process of submitting program status reports (PSRs). These reports are designed to provide timely information as to the schedule, cost, and performance of NASA's major projects. The Committee urges NASA to conform these reports with the recommendations of the Committee and the General Accounting Office and to establish precise dates for the transmittal of these reports to Congress. These reports should include

initial program cost estimates at the time of presentation to Congress, development estimates, and current status cost estimates. Care should be taken to avoid changing baseline estimates. Variation from the baseline can be properly accounted for in the PSR without changing the baseline.

The Committee notes that a GAO report on cost escalation in major unmanned satellite projects dated July 25, 1975 stated that the total development estimate for projects in development and postdevelopment was 66 percent higher than the planning estimate. This indicates that should the Committee approve a new start based on a planning estimate, the cost to the Federal government may well be substantially higher than initially stated. Consequently the Committee directs **NASA to indicate prominently in its budget justification material** whether the projected cost of a proposed new start is based on a planning estimate or a development estimate.

CONSTRUCTION OF FACILITIES

1976 appropriation-----	\$82,130,000
Estimate, 1977-----	124,020,000
House allowance-----	118,090,000
Committee recommendation-----	120,290,000

The Committee recommends an appropriation of \$120,290,000 for NASA's Construction of Facilities program. This total is \$3,730,000 under the budget estimate and \$2,200,000 over the amount contained in the House bill.

This appropriation provides for contractual services for the design, major rehabilitation, and modification of facilities; the construction of new facilities; minor construction; and the purchase of related equipment and advance design related to facilities planned for future authorization.

The funds requested for 1977 provide for the continuation of prior years' endeavors in meeting the facilities requirements for the Space Shuttle program; rehabilitation, modification and minor construction of facilities to maintain, upgrade and improve the usefulness of the NASA physical plant; and facility planning and design activities.

Space Shuttle facility requirements in fiscal year 1977 are less than amounts requested and approved in the last few years. The projects and amounts reflected in the budget estimate are time sensitive in order to meet the specific milestones established for the first horizontal and manned orbital flights. In addition to Space Shuttle facilities projects, the estimates include funds for facility modifications to provide for processing Space Shuttle and Spacelab payloads.

Other projects included in the fiscal year 1977 program are in support of scientific investigations in space, space research and technology, and supporting activities.

The Committee has provided, as has the House, the \$25,000,000 funding requested for construction of a National Transonic Facility. The Committee also agrees with the House in reducing funding for the following projects as follows: \$1,000,000 for the Shuttle solid rocket booster processing facility; \$350,000 for the Shuttle mating facility; and \$780,000 for construction of a water immersion facility for Shuttle pilot training.

The Committee reluctantly concluded that funding to begin construction modifications on the 40 x 80 subsonic wind tunnel at the Ames Research Center, for which \$10,000,000 was provided in the House bill, should not be included in this year's appropriation. There is no doubt of the importance of modifying this facility to accommodate the testing of now-emerging and new generations of aircraft and helicopters. However, while this project was provided for in the fiscal 1976 authorization bill, it did not receive OMB approval for inclusion in NASA's 1977 budget estimates.

The House reduced the requested \$14,855,000 funding for modification of a second Shuttle mobile launcher by \$11,000,000, on the basis that total funding can be delayed. The Committee recommends restoring \$10,000,000 of this House cut for the following reasons:

The House reduction would essentially defer the second mobile launcher from the fiscal year 1977 program. The second mobile launcher is required to support delivery of the second Orbiter at KSC, currently scheduled for March 1981, and to support the gradual build-up for the higher Shuttle launch rate expected in that time frame. To support this program milestone, the second mobile launcher must be modified and activated by November of 1980. The intervening period between November 1980 and March 1981 is required for operational readiness reviews, tests and integration. Based on current experience in modifying Mobile Launch Platform No. 1, it is estimated that it will require a minimum of 30 months to accomplish the modifications for Mobile Launch Platform No. 2 and approximately 10 months to activate and install additional equipment such as the Shuttle's solid rocket booster holddown arms. This indicates that the latest start for the modification effort would have to be July 1977, which requires fiscal year 1977 funding.

Based on past experience, the most effective way of implementing the modifications to Mobile Launcher No. 2 would be by one construction contract in lieu of three, as is currently the case for the first mobile launcher. Thus, the funds programmed for this item are required to efficiently implement this construction. An \$11 million deferral would impose a significant risk of a delay of from 4 to 6 months in providing the facility in time to support Shuttle program requirements.

Finally, the Committee recommends funding of \$2,200,000, the authorized amount, for construction of a Lunar Sample Curatorial Facility. Funding for this facility was not included in the House bill.

This construction project will satisfy the unique criteria necessary to assure safe, secure storage and processing of lunar samples over an extended period of time and to improve the handling and investigation of these invaluable samples.

The Apollo lunar flights returned 843 pounds of lunar rock and soil. The value of these samples is estimated at between \$1 million and \$30 million per pound, based on the costs which would be required to replace them. These figures do not include the incalculable value of this collection as a scientific resource for the further study of the Moon and solar system.

The Committee believes that this facility will provide long-term (50 year-design) security and improved sample handling for the collection at a reasonable cost compared with the worth of the collection and the scope of the national commitment involved in obtaining them.

The present Lunar Curatorial Facility was established in 1971 as a renovation of part of an office building which also housed the Earth and Space Science activities at the Johnson Space Center. The total cost of this renovation was \$376,000. This facility is clearly inadequate for long-term storage and curation of lunar samples.

The proposed addition is supported by a large group of lunar and planetary scientists, many of whom have been intimately involved in the design of the addition in order to insure that the required protection is provided at the lowest possible cost.

RESEARCH AND PROGRAM MANAGEMENT

1976 Appropriation.....	\$792,312,000
Estimate, 1977.....	814,055,000
House allowance.....	800,000,000
Committee recommendation.....	813,455,000

The Committee recommends an appropriation of \$813,455,000 for Research and Program Management. This is \$600,000 under the budget estimate, \$4,455,000 over the House allowance, and is the authorized amount.

The Research and Program Management appropriation provides for (1) the civil service staff needed to perform in-house research, technology, and test activities; and to plan, manage, and support the Research and Development programs; and (2) the other elements of operational capability of the laboratories and facilities such as utilities; logistics support including travel and transportation, maintenance, and operation of facilities; and technical and administrative support. Over three-fourths of this appropriation is required to cover salaries and related costs of civil service employees. The balance, which will fund travel, facilities services, technical services, and administrative support of all NASA installations, provides the support and related goods and services for NASA's approved missions.

During the past year, NASA conducted an institutional assessment consisting of an analysis of the distribution of program responsibility and manpower within the NASA centers and the Jet Propulsion Laboratory. Although program reviews and their institutional impact are a regular function of the budget process, the institutional assessment conducted this year was focused on the transition of institutional activity into the Shuttle era.

The principal thrust of the study was to clarify the roles and missions of the NASA centers and JPL. This resulted in some program consolidations and realignments. The implementation of these actions will begin in fiscal 1977 and continue through fiscal 1979 and consist of the following:

Consolidate the number of centers involved in free flyer development management with the major role focused at the Goddard Space Flight Center.

Consolidate most future planetary work involving spacecraft development management and flight control at the Jet Propulsion Laboratory.

Streamline Shuttle operations, with all flight operations (except free flyers) focused at the Johnson Space Center and all ground operations (including experiment and cargo integration) for the Shuttle accomplished at the Kennedy Space Center.

Consolidate supporting research and technology work consistent with principal roles of the centers and the competence of the people.

Clarify and consolidate the aeronautical roles of the Ames Research Center and the Langley Research Center.

These decisions on program modifications and the resulting impact on manpower are reflected in the NASA fiscal 1977 budget estimate.

In approving the authorized amount, the Committee took note of the fact that this budget estimate represents a reduction of 1,600 NASA personnel: 500 civil service employees and 1,100 NASA in-house support service employees. The Committee believes that any further decreases in the coming year could be disruptive to programs and undermine the institutional management activities that NASA now has in progress. Even with reduced personnel, NASA's total personnel costs will increase due to the full year effect of the pay raise granted by the Congress in October 1975. Also, while NASA is reducing the number of its in-house support contractors, the cost of this manpower will increase in fiscal 1977 by more than 7 percent due to unavoidable wage escalation.

Finally, NASA's utility rates are expected to exceed fiscal 1976 costs by approximately 15 percent, despite efforts to conserve energy.

TITLE IV—GENERAL PROVISIONS

The Committee agrees with the House that General Provisions applicable to the Department and agencies in fiscal 1976 and substantially reiterated in title IV should be controlling once again this year with the following exceptions:

(3) The Committee has recommended the inclusion of language prohibiting the use of funds provided in this act by any agency or department to transport any officer or employee between his residence and his place of employment, with the exception of the Secretary of the Department of Housing and Urban Development.

The Committee continues to be disturbed over the continued abuse of Government regulations, prohibiting the use of Government vehicles to drive agency employees to and from their homes by Government officials. At the outset it should be mentioned that the number of agency chiefs covered by the provisions of this bill who continue to violate at least the spirit of title 31 U.S.C. 638(a) has dropped to three, with several of the other agency heads turning to carpools, public transportation, or walking as their principal means of getting to and from their offices every day.

The Committee remains undeterred by the many legalistic interpretations by agency counsels and administrators of the provision of a law which states in unmistakable language that the use of Government vehicles for other than official purposes is prohibited and goes on to say that the phrase 'official purposes' is not to include the transportation of Government officers and employees between their domiciles and their places of employment with certain exceptions. These exceptions apply to only one administrator under the jurisdiction of the HUD-Independent Agencies Subcommittee—the Secretary of Housing and Urban Development.

Nevertheless, the Administrator of the Veterans Administration, the Administrator of the National Aeronautics and Space Administration as well as his deputy, and the head of the Environmental Protection Agency continue to offer assorted reasons for the use of a Government car and driver to transport them to and from their offices every working day. The Committee is particularly alarmed at the EPA Administrator's refusal to relinquish his vehicle and driver in view of his recent public suggestions that Government workers should join carpools, take public transportation or walk to work during the congested Bicentennial season. The Committee on the other hand, notes with pleasure the decision of the head of the Council on Environmental Quality to give up his Government vehicle and driver and join a carpool in order "to set an example" as a top Government environmental policy officer. The acting Chairman of the Federal Home Loan Bank Board walks to work every day from his home on Capitol Hill. The proposed languages should bring the remaining agency officials into compliance with the existing law.

HOUSING AND URBAN DEVELOPMENT AND INDEPENDENT AGENCIES APPROPRIATION BILL, FISCAL YEAR 1977

JULY 22, 1976.—Ordered to be printed

Mr. BOLAND, from the committee of conference, submitted the following

CONFERENCE REPORT

[To accompany H.R. 14233]

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Amendment No. 24: Appropriates \$2,761,425,000 for research and development as proposed by the Senate, instead of \$2,767,425,000 as proposed by the House.

The committee of conference accepts the concept that terrestrial energy development should be the responsibility of the Energy Research and Development Administration. However, it also believes that work on the solar satellite segment of a solar satellite power generation system should be pursued by the National Aeronautics and Space Administration. Therefore, the committee of conference directs that within the total provided in this Act, \$2,500,000 should be augmented with \$2,500,000 appropriated to ERDA and used in a cooperative effort to continue studies leading to the potential development of a solar satellite power system.

The committee of conference also agrees that NASA may issue Request for Proposals covering the Large Space Telescope only after a fiscal year 1978 budget has been submitted to the Congress containing an estimate for funding of development of the LST. This is not to be construed as an endorsement of development funding for the project.

Amendment No. 25: Appropriates \$118,000,000 for construction of facilities as proposed by the House, instead of \$120,290,000 as proposed by the Senate.

Within the amount provided, the conferees agree that a total of \$7,855,000 is provided for modifications of a second shuttle mobile launcher at the Kennedy Space Center and that \$6,000,000 is provided for initial modification of the 40×80 foot wind tunnel at the Ames Research Center.

The committee of conference also agrees that NASA may proceed with the Lunar Sample Curatorial Facility from within available funds or by reprogramming the necessary amount from lower priority items in the 1977 or prior year construction of facilities appropriation account.

Amendment No. 26: Appropriates \$813,000,000 for research program management, instead of \$809,000,000 as proposed by the House and \$813,455,000 as proposed by the Senate.

TITLE IV—GENERAL PROVISIONS

Amendment No. 39: Corrects spelling of a word as proposed by the Senate.

Amendment No. 40: Restores language proposed by the House and stricken by the Senate to prohibit the use of funds in this Act by the Environmental Protection Agency to administer or promulgate any program to tax, limit or otherwise regulate parking that is not specifically required pursuant to subsequent legislation.

Amendment No. 41: Restores language proposed by the House and stricken by the Senate relating to Federal Housing Administration mortgage insurance in Merced County, California.

Amendment No. 42: Deletes language proposed by the Senate relating to any illegal usage of passenger motor vehicles. The committee of conference is deeply concerned over the continuing use of government vehicles and drivers to transport agency heads and others to and from work that may be in violation of the letter as well as the spirit of the law. In deleting the language of the Senate, the committee of conference does not in any way condone or accept any illegal use of government vehicles.

Amendment No. 43: Deletes section number change as proposed by the Senate.

CONFERENCE TOTAL—WITH COMPARISONS

The total new budget (obligational) authority for the fiscal year 1977 recommended by the committee of conference, with comparisons to the fiscal year 1976 amount, the 1977 budget estimates, and the House and Senate bills for 1977 follows:

New budget (obligational) authority, fiscal year 1976	\$53,205,140,000
Budget estimates of new (obligational) authority, fiscal year 1977	45,306,198,000
House bill, fiscal year 1977	42,982,730,000
Senate bill, fiscal year 1977	43,336,200,000
Conference agreement	43,284,615,000
Conference agreement compared with—	
New budget (obligational) authority, fiscal year 1976	—9,920,525,000
Budget estimates of new (obligational) authority, fiscal year 1977	—2,021,583,000
House bill, fiscal year 1977	+301,885,000
Senate bill, fiscal year 1977	—51,585,000

¹ Includes \$14,600,000 of budget estimates not considered by the House, contained in Sen. Doc. 94-197 and Sen. Doc. 94-216.



Public Law 94-378
94th Congress, H. R. 14233
August 9, 1976

An Act

Making appropriations for the Department of Housing and Urban Development, and for sundry independent executive agencies, boards, bureaus, commissions, corporations, and offices for the fiscal year ending September 30, 1977, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the following sums are appropriated, out of any money in the Treasury not otherwise appropriated, for the Department of Housing and Urban Development, and for sundry independent executive agencies, boards, bureaus, commissions, corporations, and offices for the fiscal year ending September 30, 1977, and for other purposes, namely:

Department of
Housing and
Urban Develop-
ment—Independ-
ent Agencies
Appropriation
Act, 1977.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

RESEARCH AND DEVELOPMENT

For necessary expenses, not otherwise provided for, including research, development, operations, services, minor construction, maintenance, repair, rehabilitation and modification of real and personal property; tracking and data relay satellite services as authorized by law; and purchase, hire, maintenance, and operation of other than administrative aircraft, necessary for the conduct and support of aeronautical and space research and development activities of the National Aeronautics and Space Administration, \$2,761,425,000, to remain available until expended.

CONSTRUCTION OF FACILITIES

For construction, rehabilitation and modification of facilities, minor construction of new facilities and additions to existing facilities, and for facility planning and design not otherwise provided, for the National Aeronautics and Space Administration, and for the acquisition or condemnation of real property, as authorized by law, \$118,090,000, to remain available for obligation until September 30, 1979: *Provided*, That, notwithstanding the limitation on the availability of funds appropriated under this head by this appropriation Act, when any activity has been initiated by the incurrence of obligations therefor, the amount available for such activity shall remain available until expended, except that this provision shall not apply to the amounts appropriated pursuant to the authorization for rehabilitation and modification of facilities, minor construction of new facilities and additions to existing facilities, and facility planning and design.

RESEARCH AND PROGRAM MANAGEMENT

For necessary expenses of research in Government laboratories, management of programs and other activities of the National Aeronautics and Space Administration, not otherwise provided for, including uniforms or allowances therefor, as authorized by law (5 U.S.C. 5901-5902); awards; hire, maintenance and operation of administrative aircraft; purchase (not to exceed nineteen for replacement only) and hire of passenger motor vehicles; and maintenance and repair of real and personal property, and not in excess of \$25,000 per project for construction of new facilities and additions to existing facilities, and not in excess of \$50,000 per project for rehabilitation and modification of facilities: \$813,000,000: *Provided*, That contracts may be entered into under this appropriation for maintenance and operation of facilities, and for other services, to be provided during the next fiscal year: *Provided further*, That not to exceed \$35,000 of the foregoing amount shall be available for scientific consultations or extraordinary expense, to be expended upon the approval or authority of the Administrator and his determination shall be final and conclusive.

TITLE IV

GENERAL PROVISIONS

Travel expenses.

SEC. 401. Where appropriations in titles I and II of this Act are expendable for travel expenses of employees and no specific limitation has been placed thereon, the expenditures for such travel expenses may not exceed ten per centum above the amounts set forth therefor in the budget estimates submitted for the appropriations: *Provided*, That this section shall not apply to travel performed by uncompensated officials of local boards and appeal boards of the Selective Service System; to travel performed directly in connection with care and treatment of medical beneficiaries of the Veterans Administration; or to payments to interagency motor pools where separately set forth in the budget schedules: *Provided further*, That the limitations may be increased by the Secretary when necessary to allow for travel performed by employees of the Department of Housing and Urban Development as a result of increased Federal Housing Administration inspection and appraisal workload.

Uniforms.

SEC. 402. Appropriations and funds available for the administrative expenses of the Department of Housing and Urban Development and the Selective Service System shall be available in the current fiscal year for purchase of uniforms, or allowances therefor, as authorized by law (5 U.S.C. 5901-5902); hire of passenger motor vehicles; and services as authorized by 5 U.S.C. 3109.

Legal and banking services.
31 USC 841 note.
12 USC 1749

SEC. 403. Funds of the Department of Housing and Urban Development subject to the Government Corporation Control Act or section 402 of the Housing Act of 1950 shall be available, without regard to the limitations on administrative expenses, for legal services on a contract or fee basis, and for utilizing and making payment for services and facilities of Federal National Mortgage Association, Government National Mortgage Association, Federal Home Loan Mortgage Corporation, Federal Financing Bank, Federal Reserve banks or any member thereof, Federal home loan banks, and any insured bank within the meaning of the Federal Deposit Insurance Corporation Act, as amended (12 U.S.C. 1811-1831).

SEC. 404. None of the funds provided in this Act may be used for payment, through grants or contracts, to recipients that do not share in the cost of conducting research resulting from proposals for projects not specifically solicited by the Government: *Provided*, That the extent of cost sharing by the recipient shall reflect the mutuality of interest of the grantee or contractor and the Government in the research.

Research projects.

SEC. 405. No part of any appropriation contained in this Act shall remain available for obligation beyond the current fiscal year unless expressly so provided herein.

Fiscal year limitation.

SEC. 406. No part of the funds appropriated under this Act may be used by the Environmental Protection Agency to administer or promulgate, directly or indirectly, any program to tax, limit or otherwise regulate parking that is not specifically required pursuant to subsequent legislation.

SEC. 407. None of the funds provided by this Act shall be used to deny or fail to act upon, on the basis of noise contours set forth in an Air Installation Compatible Use Zone Map, an otherwise acceptable application for Federal Housing Administration mortgage insurance in connection with construction in an area zoned for residential use in Merced County, California.

SEC. 408. No funds appropriated by this Act may be expended—
(1) pursuant to a certification of an officer or employee of the United States unless—

(A) such certification is accompanied by, or is part of, a voucher or abstract which describes the payee or payees and the items or services for which such expenditure is being made, or

(B) the expenditure of funds pursuant to such certification, and without such a voucher or abstract, is specifically authorized by law; and

(2) unless such expenditure is subject to audit by the General Accounting Office or is specifically exempt by law from such an audit.

Audit.

This Act may be cited as the "Department of Housing and Urban Development—Independent Agencies Appropriation Act, 1977".

Short title.

Approved August 9, 1976.

LEGISLATIVE HISTORY:

HOUSE REPORTS: No. 94-1220 (Comm. on Appropriations) and No. 94-1362 (Comm. of Conference).

SENATE REPORT No. 94-974 (Comm. on Appropriations).

CONGRESSIONAL RECORD, Vol. 122 (1976):

June 22, considered and passed House.

June 26, considered and passed Senate, amended.

July 27, House and Senate agreed to conference report; resolved amendments in disagreement.



Public Law 94-363
94th Congress, H. R. 14261
July 14, 1976

An Act

Making appropriations for the Treasury Department, the United States Postal Service, the Executive Office of the President, and certain Independent Agencies, for the fiscal year ending September 30, 1977, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the following sums are appropriated, out of any money in the Treasury not otherwise appropriated, for the Treasury Department, the United States Postal Service, the Executive Office of the President, and certain Independent Agencies, for the fiscal year ending September 30, 1977, and for other purposes, namely:

TITLE VI—GENERAL PROVISIONS

DEPARTMENTS, AGENCIES, AND CORPORATIONS

Sec. 601. Unless otherwise specifically provided the maximum amount allowable during the current fiscal year in accordance with section 16 of the Act of August 2, 1946 (60 Stat. 810), for the purchase of any passenger motor vehicle (exclusive of buses and ambulances), is hereby fixed at \$2,700 except station wagons for which the maximum shall be \$3,100: *Provided*, That these limits may be exceeded by not to exceed \$1,700 for police-type vehicles.

Sec. 602. Unless otherwise specified and during the current fiscal year no part of any appropriation contained in this or any other Act shall be used to pay the compensation of any officer or employee of the Government of the United States (including any agency the majority of the stock of which is owned by the Government of the United States) whose post of duty is in continental United States unless such person (1) is a citizen of the United States, (2) is a person in the service of the United States on the date of enactment of this Act, who, being eligible for citizenship, has filed a declaration of intention to become a citizen of the United States prior to such date and is actually residing in the United States, (3) is a person who owes allegiance to the United States, or (4) is an alien from Cuba, Poland, South Viet Nam, or the Baltic countries lawfully admitted to the United States for permanent residence: *Provided*, That, for the purpose of this section, an affidavit signed by any such person shall be considered prima facie evidence that the requirements of this section with respect to his status have been complied with: *Provided further*, That any person making a false affidavit shall be guilty of a felony, and, upon conviction, shall be fined not more than \$4,000 or imprisoned for not more than one year, or both: *Provided further*, That the above penal-clause shall be in addition to, and not in substitution for any other provisions of existing

Treasury, Postal Service, and General Government Appropriation Act, 1977.

Motor vehicle purchase.
31 USC 638c.
31 USC 638a.

Police-type vehicles.
Citizenship requirement for employees.
31 USC 699b.

Quarters allowances.

Foreign credits.

Publicity or propaganda.

Interdepartmental groups, expenses.

Space and service charges and building improvements.

40 USC 601 note.

Short title.

law: *Provided further*, That any payment made to any officer or employee contrary to the provisions of this section shall be recoverable in action by the Federal Government. This section shall not apply to citizens of the Republic of the Philippines or to nationals of those countries allied with the United States in the current defense effort, or to temporary employment of translators, or to temporary employment in the field service (not to exceed sixty days) as a result of emergencies.

Sec. 603. Appropriations of the executive departments and independent establishments for the current fiscal year available for expenses of travel or for the expenses of the activity concerned, are hereby made available for quarters allowances and cost-of-living allowances, in accordance with 5 U.S.C. 5922-5924.

Sec. 606. Pursuant to section 1415 of the Act of July 15, 1952 (66 Stat. 662), foreign credits (including currencies) owed to or owned by the United States may be used by Federal agencies for any purpose for which appropriations are made for the current fiscal year (including the carrying out of Acts requiring or authorizing the use of such credits), only when reimbursement therefor is made to the Treasury from applicable appropriations of the agency concerned: *Provided*, That such credits received as exchange allowances or proceeds of sales of personal property may be used in whole or part payment for acquisition of similar items, to the extent and in the manner authorized by law, without reimbursement to the Treasury.

Sec. 607. (a) No part of any appropriation contained in this or any other Act, or of the funds available for expenditure by any corporation or agency, shall be used for publicity or propaganda purposes designed to support or defeat legislation pending before Congress.

Sec. 608. No part of any appropriation contained in this or any other Act, shall be available to finance interdepartmental boards, commissions, councils, committees, or similar groups under section 214 of the Independent Offices Appropriations Act, 1946 (31 U.S.C. 691) which do not have prior and specific congressional approval of such method of financial support.

Sec. 609. Appropriations available to any department or agency during the current fiscal year for necessary expenses, including maintenance or operating expenses, shall also be available for payment to the General Services Administration for charges for space and services and those expenses of renovation and alteration of buildings and facilities which constitute public improvements, performed in accordance with the Public Buildings Act of 1959 (73 Stat. 749), the Public Buildings Amendments of 1972 (86 Stat. 216), or other applicable law.

Sec. 613. No part of any appropriation contained in, or funds made available by, this or any other Act shall be available for any agency to pay to the Administrator of the General Services Administration a higher rate per square foot for rental of space and services (established pursuant to section 210(j) of the Federal Property and Administrative Services Act of 1949, as amended) than such agency included in its budget for the current fiscal year and for which appropriations were granted.

This Act may be cited as the "Treasury, Postal Service, and General Government Appropriation Act, 1977".

Approved July 14, 1976.

PUBLIC LAW 95-26—MAY 4, 1977

91 STAT. 61

91 STAT. 114

PUBLIC LAW 95-26—MAY 4, 1977

Public Law 95-26
95th Congress

An Act

Making supplemental appropriations for the fiscal year ending September 30, 1977, and for other purposes.

May 4, 1977
[H.R. 4877]

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the following sums are appropriated out of any money in the Treasury not otherwise appropriated to supply supplemental appropriations (this Act may be cited as the "Supplemental Appropriations Act, 1977") for the fiscal year ending September 30, 1977, and for other purposes, namely:

Supplemental
Appropriations
Act, 1977.

50 USC app. 451.

TITLE II—INCREASED PAY COSTS FOR THE FISCAL
YEAR 1977

For additional amounts for appropriation for the fiscal year 1977, for increased pay costs authorized by or pursuant to law, as follows:

NATIONAL AERONAUTICS AND SPACE
ADMINISTRATION

"Research and program management", \$31,575,000;

TITLE III

GENERAL PROVISIONS

SEC. 301. No part of any appropriation contained in this Act shall remain available for obligation beyond the current fiscal year unless expressly so provided herein.

SEC. 302. Except where specifically increased or decreased elsewhere in this Act, the restrictions contained within appropriations, or provisions affecting appropriations or other funds, available during the fiscal year 1977, limiting the amounts which may be expended for personal services, or for purposes involving personal services, or amounts which may be transferred between appropriations or authorizations available for or involving such services, are hereby increased to the extent necessary to meet increased pay costs authorized by or pursuant to law.

SEC. 303. None of the funds made available under Title II of this Act shall be available for any purpose other than increased pay costs authorized by or pursuant to law.

SEC. 304. None of the funds appropriated or otherwise made available in this Act shall be obligated or expended for the termination or deferral of any project, activity, or weapons system approved by Congress, except specific projects, activities, or weapons systems for which, and to the extent, budget authority has been rescinded or deferred as provided by law.

Fiscal year
limitation.

Antic. p. 97.

90 Stat. 2948. SEC. 305. Section 204 of the Water Resources Development Act of 1976 is hereby amended to read as follows:

"SEC. 204. Appropriations for any project which is authorized for initial construction by this Act are authorized for those fiscal years which begin on or after October 1, 1977."

50 USC app. 451. SEC. 306. None of the funds appropriated or otherwise made available in this Act shall be obligated or expended for salaries or expenses in connection with the dismissal of any pending indictments for violations of the Military Selective Service Act alleged to have occurred between August 4, 1964 and March 28, 1973, or the termination of any investigation now pending alleging violations of the Military Selective Service Act between August 4, 1964 and March 28, 1973, or permitting any person to enter the United States who is or may be precluded from entering the United States under 8 U.S.C. 1182(a) (22) or under any other law, by reason of having committed or apparently committed any violation of the Military Selective Service Act.

2 USC 356.

2 USC 351 et seq.

SEC. 307. None of the funds contained in this Act shall be used for any adjustments or increases in the rates of pay for legislative offices and positions within the purview of subparagraphs (A) and (B) of subsection (f) of section 225 of Public Law 90-206 made effective pursuant to section 225 of the Postal Revenue and Federal Salary Act of 1967 (Public Law 90-206).

Approved May 4, 1977.

LEGISLATIVE HISTORY:

HOUSE REPORTS: No. 95-68 (Comm. on Appropriations) and No. 95-166 (Comm. on Conference).

SENATE REPORT No. 95-64 (Comm. on Appropriations).

CONGRESSIONAL RECORD, Vol. 123 (1977):

Mar. 16, considered and passed House.

Apr. 1, considered and passed Senate, amended.

Apr. 21, House agreed to conference report; receded and concurred in certain Senate amendments; amended certain Senate amendments and insisted on its disagreement to Senate amendment No. 35.

Apr. 22, Senate agreed to conference report; receded and concurred in House amendments to Senate amendments and receded from amendment No. 35.

Calendar No. 49

95TH CONGRESS }
1st Session }

SENATE

REPORT
No. 95-5895TH CONGRESS }
1st Session }

HOUSE OF REPRESENTATIVES

REPORT
No. 95-66

ECONOMIC STIMULUS APPROPRIATIONS ACT, 1977

MARCH 17 (legislative day, FEBRUARY 21), 1977.—Ordered to be printed

Mr. McCLELLAN, from the Committee on Appropriations,
submitted the following

REPORT

together with

ADDITIONAL VIEWS

[To accompany H.R. 4876]

NATIONAL AERONAUTICS AND SPACE
ADMINISTRATION

RESEARCH AND DEVELOPMENT

1977 appropriations to date.....	\$2,761,425,000
1977 supplemental estimate.....	
House allowance.....	95,000,000
Committee recommendation.....	95,000,000

The Committee recommends an appropriation of \$95,000,000, primarily for production of the National Aeronautics and Space Administration's third Shuttle orbiter, which originally was to be funded in fiscal year 1978. Although there was no budget request for this purpose in fiscal year 1977 the Committee approved figure is the same as the amount proposed by the House.

The Committee agrees with the House that the additional funds provided should not be used for production of the fourth and fifth Orbiters; decisions on funds for those Orbiters will be made in connection with the Committee's consideration of fiscal year 1978 appropriations.

The \$95,000,000 recommended by the Committee is intended to prevent a costly employment gap in Shuttle work now underway and will save 3,000 jobs that otherwise would be lost to the economy. The funds utilized for Orbiter production should be applied to the production of the first, second, and third Orbiters and associated equipment in such a way as to achieve that goal with an effective utilization of manpower.

ECONOMIC STIMULUS APPROPRIATIONS ACT, 1977

MARCH 10, 1977.—Committed to the Committee of the Whole House on the State of the Union and ordered to be printed

Mr. MAHON, from the Committee on Appropriations,
submitted the following

REPORT

together with

ADDITIONAL, SUPPLEMENTAL, AND
DISSENTING VIEWS

[To accompany H.R. 4876]

NATIONAL AERONAUTICS AND SPACE
ADMINISTRATION

RESEARCH AND DEVELOPMENT

The Committee recommends an appropriation of \$95,000,000 to advance the production of the third space shuttle orbiter from fiscal year 1978 to fiscal year 1977.

The third shuttle orbiter was originally scheduled for initial funding in 1977. A one year delay was proposed in the budget submitted for 1977. The 1978 request includes funding for the third, fourth, and fifth shuttle orbiters. The Committee is recommending advancing \$95,000,000 for third orbiter production to prevent a funding gap and save more than 14,000 jobs. Of the amount provided, \$70,000,000 is targeted for work on the third orbiter and \$25,000,000 is intended for associated development testing and engineering requirements. Including both prime and various subcontractors, it is expected that these funds will prevent a costly employment gap in shuttle work now underway in approximately 35 States.

While this recommendation is being made in an effort to preserve highly technical jobs that would be lost to the economy, the Committee notes that a recent investigative report covering the shuttle's development status suggests that critical structural, vibration and propulsion test goals are undemonstrated. Although funding is provided in this bill to advance production of the third shuttle orbiter and save important technical jobs, additional funds for production of the fourth and fifth orbiters will only be recommended when the Committee is assured that the issues raised in the report are satisfactorily resolved.

91 STAT. 122

PUBLIC LAW 95-29—MAY 13, 1977

Public Law 95-29
95th Congress

An Act

May 13, 1977
[H.R. 4876]

Making economic stimulus appropriations for the fiscal year ending September 30, 1977, and for other purposes.

Economic
stimulus
appropriations,
1977.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the following sums are appropriated, out of any money in the Treasury not otherwise appropriated, for economic stimulus appropriations for the fiscal year ending September 30, 1977, and for other purposes, namely:

TITLE I

CHAPTER I

NATIONAL AERONAUTICS AND SPACE
ADMINISTRATION

RESEARCH AND DEVELOPMENT

For an additional amount for "Research and development", \$95,000,000, to remain available until expended.

TITLE II

GENERAL PROVISIONS

Sec. 201. No part of any appropriation contained in this Act shall remain available for obligation beyond the current fiscal year unless expressly so provided herein.

Approved May 13, 1977.

LEGISLATIVE HISTORY:

HOUSE REPORTS: No. 95-66, No. 95-66, pt. II (Comm. on Appropriations) and No. 95-238 (Comm. of Conference).

SENATE REPORT No. 95-58 (Comm. on Appropriations).
CONGRESSIONAL RECORD, Vol. 123 (1977):

Mar. 15, considered and passed House.

May 2, considered and passed Senate, amended.

May 4, House agreed to conference; receded and concurred in certain Senate amendments with amendments.

May 5, Senate agreed to conference report; concurred in House amendments to Senate amendments.

WEEKLY COMPILATION OF PRESIDENTIAL DOCUMENTS, Vol. 13, No. 20:

May 13, Presidential statement.

95TH CONGRESS } HOUSE OF REPRESENTATIVES { REPORT
1st Session } No. 95-67

AUTHORIZING APPROPRIATIONS TO THE NATIONAL
AERONAUTICS AND SPACE ADMINISTRATION

MARCH 10, 1977.—Committed to the Committee of the Whole House on the
State of the Union and ordered to be printed

Mr. TEAGUE, from the Committee on Science and Technology,
submitted the following

REPORT

[Including cost estimate and comparison of the Congressional Budget Office]

[To accompany H.R. 4088]

The Committee on Science and Technology, to whom was referred the bill (H.R. 4088) to authorize appropriations to the National Aeronautics and Space Administration for research and development, construction of facilities, and research and program management, and for other purposes, having considered the same, report favorably thereon with an amendment and recommend that the bill do pass.

Subsection 1(i) would rescind \$6,000,000 which represents that part of the authorization included in Section 1(b)(14)(B) of the National Aeronautics and Space Administration Authorization Act, 1977, for which appropriations have not been made.

Section 7

Section 7 would authorize to be appropriated to the National Aeronautics and Space Administration for fiscal year 1977 \$95,000,000 for the Space Shuttle. The funds thus authorized would increase the Space Shuttle line item for fiscal year 1977 (Public Law 94-307) from \$1,288,100,000 to \$1,383,100,000.

95TH CONGRESS
1st Session

SENATE

{ REPORT
No. 95-120

NASA AUTHORIZATION FOR
FISCAL YEAR 1978

REPORT

OF THE

COMMITTEE ON COMMERCE, SCIENCE,
AND TRANSPORTATION

ON

H.R. 4088

AN ACT TO AUTHORIZE APPROPRIATIONS TO THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION FOR RESEARCH AND DEVELOPMENT, CONSTRUCTION OF FACILITIES, AND RESEARCH AND PROGRAM MANAGEMENT, AND FOR OTHER PURPOSES

Subsection 1(i) rescinds \$6,000,000 which represents that part of the authorization included in Section 1(b)(14)(B) of the National Aeronautics and Space Administration Authorization Act, 1977, for which appropriations have not been made.

Section 7. Section 7 authorizes to be appropriated to the National Aeronautics and Space Administration for fiscal year 1977 additional funds in the amount of \$95 million for the Space Shuttle program increasing the amount authorized from \$1,288,100,000 to \$1,383,100,000. This section amends paragraph (1) of subsection 1(a) of the National Aeronautics and Space Administration Authorization Act, 1977 (Public Law 94-307).

91 STAT. 312

PUBLIC LAW 95-76—JULY 30, 1977

Public Law 95-76
95th Congress

An Act

- July 30, 1977
[H.R. 4088]
- To authorize appropriations to the National Aeronautics and Space Administration for research and development, construction of facilities, and research and program management, and for other purposes.
- Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That there is hereby authorized to be appropriated to the National Aeronautics and Space Administration to become available October 1, 1977:*
- National Aeronautics and Space Administration Authorization Act, 1978.**
- John F. Kennedy Space Center.
- (i) The authorization for appropriation to the National Aeronautics and Space Administration of \$6,000,000, which amount represents that part of the authorization provided for in section 1(b)(14)(B) of the National Aeronautics and Space Administration Authorization Act, 1977, for which appropriations have not been made, shall expire on the date of the enactment of this Act.
- 90 Stat. 677.
- Space shuttle.
- SEC. 7. Paragraph (1) of subsection 1(a) of the National Aeronautics and Space Administration Authorization Act, 1977 (Public Law 94-307), is amended by striking out "\$1,288,100,000" and inserting in lieu thereof "\$1,383,100,000".
- 90 Stat. 677.
- Short title.
- SEC. 8. This Act may be cited as the "National Aeronautics and Space Administration Authorization Act, 1978".

Approved July 30, 1977.

LEGISLATIVE HISTORY:

HOUSE REPORTS: No. 95-67 (Comm. on Science and Technology) and No. 95-448 (Comm. of Conference).

SENATE REPORTS: No. 95-120 (Comm. on Commerce, Science, and Transportation) and No. 95-281 (Comm. of Conference).

CONGRESSIONAL RECORD, Vol. 123 (1977):

Mar. 17, considered and passed House.

May 13, considered and passed Senate, amended.

June 21, Senate agreed to conference report.

July 19, House agreed to conference report.

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