



Chronological History

Fiscal Year 1980

Budget Submission

Prepared by:
Associate Administrator /
Comptroller
Budget Operations Division
Code BTF-3 Ext. 58466

October 9, 1980

KEY TO PAGE NUMBERS UNDER LEGISLATIVE REFERENCE

<u>Page Nos.</u>	<u>Description</u>
1 - 9	Statistics
10 - 25	House Authorization Committee Report
26 - 39	Senate Authorization Committee Report
40 - 44	Conference Committee Report
45 - 47	Authorization Law
48 - 51	House Appropriation Committee Report
52	House Treasury, Postal Service, and General Government Report
53 - 57	Senate Appropriation Committee Report
58 - 61	Appropriation Conference Committee Reports
62 - 63	Appropriation Law
64 - 65	General Provisions
66 - 69	House Authorization Committee Report on Supplemental
69 - 72	Senate Authorization Committee Report on Supplemental
73 - 74	House Appropriation Committee Report on Supplemental
75 - 76	Senate Appropriation Committee Report on Supplemental
77 - 78	Conference Committee Report on Supplemental
79	Appropriation Law for Supplemental
80 - 82	Chronology of Events

FISCAL YEAR 1980

LEGISLATIVE REFERENCE												
I T E M	Statistics	Authorization Page Numbers					Appropriation Page Numbers					
		House Auth Comm	Senate Auth Comm	Conf Comm (Auth)	P.L. 96-48		House Approp Comm	Senate Approp Comm	Conference Comm (Appr)	P.L. 96-103	P.L. 96-74	P.L. 96-304
<u>Summary by Appropriation</u>	1	10	27	40	---		45	---				
<u>Research and Development</u>	3	10	28	43	45		49	53	60	62		
Space Shuttle.....	3	10	29	43			49	---				
Space Flight Operations.....	3	10	31	43			49	---				
Expendable Launch Vehicles.....	3	---	---	---			---	---				
Physics and Astronomy.....	3	---	31	---			49	---				
Planetary Exploration.....	4	---	31	---			49	---				
Life Sciences.....	4	---	---	---			---	---				
Space Applications.....	4	10	32	43			49	---				
Technology Utilization.....	4	---	---	---			---	---				
Aeronautical Research and Technology.....	5	11	32	44			---	---				
Space Research and Technology.....	5	---	32	44			---	---				
Energy Technology.....	5	---	32	44			---	---				
Tracking and Data Acquisition.....	5	---	---	---			---	---				
<u>Construction of Facilities</u>	6	15	33	43	45		49	55	58	62		
Ames Research Center.....	6	---	---	---			---	---				
Dryden Flight Research Center.....	6	---	---	---			49	---				
Johnson Space Center.....	6	---	---	---			---	---				
Kennedy Space Center.....	6	---	---	---			---	---				
Langley Research Center.....	6	---	---	---			---	---				
Lewis Research Center.....	7	---	---	---			---	---				
Marshall Space Flight Center.....	7	---	---	---			---	---				
Wallops Flight Center.....	7	---	---	---			---	---				
Large Aeronautical Facilities.....	7	---	---	---			---	---				
Space Shuttle Facilities.....	7	---	---	---			49	---				
Space Shuttle Payload Facilities.....	8	---	---	---			---	---				
Repair of Facilities.....	8	---	---	---			---	---				
Rehabilitation and Modification.....	8	---	---	---			---	---				
Minor Construction.....	8	---	---	---			---	---				
Facility Planning and Design.....	8	---	---	---			---	---				
<u>Research and Program Management</u>	9	16	33	43	45		49	55	58	62		
<u>Supplemental</u>	1,2,3,9	66	71	---	---							84
<u>General Provisions</u>												
HUD-Independent Agencies Appropriation Bill.....							49	55	58-61	62		
Tressury, Postal Service, and General Government Appropriation Bill.....							52				64	
<u>Subfunction Codes and Titles</u>												
253 Space Transportation Systems												
254 Space Science, Applications and Technology												
255 Supporting Space Activities												
402 Air Transportation												

GPO 867-133

Note: Legislative documents reproduced herein are excerpts. For complete text, refer to the document itself.

Prepared by:
Associate Administrator/
Comptroller
Budget Operations Division
Code BTF-3 Ext. 58466

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Chronological History of the FY 1980 Budget Submission
(In thousands of dollars)

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						
	Amended NASA Budget Submission	House Comm. H.R. 1786 Rep. 96-52 3-19-79 Appd.3-28-79	Senate Comm. H.R. 1786Amd Rep. 96-207 6-11-79 Appd.6-14-79	Conf. Comm. Appd.7-20-79 Rep. 96-371 P.L. 96-48 Appd.8-8-79	Difference from Budget Submission			House Comm. H.R. 4394 Rep. 96-249 6-7-79 Appd.6-27-79	Senate Comm. H.R. 4394 Rep. 96-256 7-24-79 Appd.7-27-79	Conf. Comm. Appd.8-2-79 Rep. 96-409 Appd.10-23-79 Rep. 96-542 P.L. 96-103 Appd.11-5-79	Difference from Budget Submission	Difference from Budget Authorization
TOTAL APPROPRIATIONS:												
Research and Development	4,122,500	3,639,500	4,138,500	3,838,500	-284,000		4,099,500	4,106,086	4,091,086	-31,414	252,586	
Basic Submission	3,822,500	3,639,500	3,838,500	3,838,500	+16,000		3,799,500	3,822,500	3,807,500	-15,000	-31,000	
Supplemental ^{2/}	300,000	2/	300,000	---	-300,000		300,000	285,000	285,000	-15,000	285,000	
Rescission ^{3/}	---	---	---	---	---		3/	-1,414	-1,414	-1,414	-1,414	
Construction of Facilities.....	157,600	157,600	157,600	157,600	---		156,100	156,100	156,100	-1,500	-1,500	
Research and Program Management	1,011,186	1,001,186	1,001,186	1,001,186	-10,000		991,186	1,001,186	996,186	-15,000	-5,000	
Basic Submission	964,900	964,900	964,900	964,900	---		954,900	964,900	959,900	-5,000	-5,000	
Supplemental	46,286	36,286	36,286	36,286	-10,000		36,286	36,286	36,286	-10,000	---	
GRAND TOTAL.....	5,291,286	4,798,286	5,297,286	4,997,286	-294,000		5,246,786	5,263,372	5,243,372	-47,914	246,086	
R&D Appropriation:												
OSTS.....	2,124,000	1,927,000	2,124,000	2,120,000	-4,000		*	*	*	*	*	
OSTS Supplemental.....	300,000	2/	300,000	---	-300,000		300,000	285,000	285,000	-15,000	285,000	
OSS.....	601,600	601,600	601,600	601,600	---		*	*	*	*	*	
OSTA.....	344,400	350,400	346,400	350,400	+6,000		*	*	*	*	*	
OAST.....	419,700	427,700	433,700	433,700	+14,000		*	*	*	*	*	
OSTDS.....	332,800	332,800	332,800	332,800	---		*	*	*	*	*	
Rescission.....	---	---	---	---	---		2/	-1,414	-1,414	-1,414	-1,414	
TOTAL, R&D.....	4,122,500	3,639,500	4,138,500	3,838,500	-284,000		4,099,500	4,106,086	4,091,086	-31,414	252,586	
CoF Appropriation:												
OSTS.....	31,450	31,450	31,450	31,450	---		31,450	31,450	31,450	---	---	
OSS.....	4,250	4,250	4,250	4,250	---		4,250	4,250	4,250	---	---	
OAST.....	62,500	62,500	62,500	62,500	---		62,500	62,500	62,500	---	---	
Comptroller.....	59,400	59,400	59,400	59,400	---		57,900	57,900	57,900	-1,500	-1,500	
TOTAL, CoF.....	157,600	157,600	157,600	157,600	---		156,100	156,100	156,100	-1,500	-1,500	
R&PM Appropriation, including Supplemental shown above.....	1,011,186	1,001,186	1,001,186	1,001,186	-10,000		991,186	1,001,186	996,186	-15,000	-5,000	
TOTAL, NASA.....	5,291,286	4,798,286	5,297,286	4,997,286	-294,000		5,246,786	5,263,372	5,243,372	-47,914	246,086	
SUPPLEMENTAL Authorization (R&D) Appropriation (R&D and R&PM)		H.R. 6412 Rpt. 96-898 4-22-80 (No further House action)	S. 2238 Rpt. 96-694 5-12-80 Appd.5-30-80				H.R. 7542 Rpt. 96-1086 6-11-80 Appd.6-19-80	Rpt. 96-829 6-23-80 Appd.6-28-80	Conf. Comm. Rpt. 96-1149 7-2-80 P.L. 96-304 Appd.7-8-80	(House)		
RECISSION: (See Note 3)												

*Undistributed.

1/ Reflects an undistributed reduction of \$3,000,000 to offset the net effect of specific increases and decreases made by the Senate in basic appropriation.

2/ H.R. 6412, increasing authorization in P.L. 96-48 by 300M for Space Shuttle, approved by House Committee on Science and Technology on 4-22-80, Report 96-898. House took no further action. S. 2238, increasing Space Shuttle authorization by 300M, approved by Senate Committee on Commerce, Science and Technology on 5-12-80, Report 96-694; passed by Senate on 5-30-80.

3/ H.R. 7542, approved by House Committee on Appropriations on 6-11-80, Report 96-1082, included rescission of 15M for the International Solar Polar Mission. Rescission deleted by point of order sustained during floor action on the bill. Amendment adopted in House to rescind 100 million Government-wide for purchase of furniture; distribution by agency to be made by OMB. Senate approved 220 million rescission recommended by Senate Appropriations Committee. Conference Committee agreed with Senate; OMB allocated 1,414,000 of rescission to NASA, requesting reapportionment be submitted for account designated by agency.

Prepared by:
Associate Administrator/
Comptroller
Budget Operations Division
Code BTF-3 Ext. 58466

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Chronological History of the FY 1980 Budget Submission (In thousands of dollars)

Subfunction Code

ITEM	AUTHORIZATION					APPROPRIATION				
	Amended NASA Budget Submission	House Comm. H.R. 1786 Rep. 96-52 3-19-79 Appd. 3-28-79	Senate Comm. H.R. 1786 Amd Rep. 96-207 6-11-79 Appd. 6-14-79	Conf. Comm. Appd. 7-20-79 Rep. 96-371 P.L. 96-48 Appd. 8-8-79	Difference from budget Submission	House Comm. H.R. 4394 Rep. 96-249 6-7-79 Appd. 6-27-79	Senate Comm. H.R. 4394 Rep. 96-258 7-24-79 Appd. 7-27-79	Conf. Comm. Appd. 8-2-79 Rep. 96-409 Appd. 10-23-79 Rep. 96-542 P.L. 96-103 Appd. 11-5-79	Difference from Budget Submission	Difference from Budget Authorization
RESEARCH AND DEVELOPMENT..	4,122,500	3,639,500	4,138,500	3,838,500	-284,000	4,099,500 ^{4/}	4,106,086 ^{7/}	4,091,086 ^{8/}	-31,414	252,586
Basic Submission.....	5,822,500	3,639,500	3,838,500	3,838,500	+16,000	3,799,500	3,822,500	3,807,500	-15,000	-31,000
253 Space Shuttle.....	1,586,000 ^{1/}	1,393,000 ^{2/}	1,586,000 ^{1/}	1,586,000	---	*	*	*	*	*
253 Space Flight Operations.	467,300	463,300 ^{2/}	467,300 ^{2/}	463,300	-4,000	*	*	*	*	*
253 Expendable Launch Veh...	70,700	70,700	70,700	70,700	---	*	*	*	*	*
254 Physics and Astronomy...	337,500	337,500	337,500	337,500	---	*	*	*	*	*
254 Planetary Exploration...	220,200	220,200	220,200	220,200	---	*	*	*	*	*
254 Life Sciences.....	43,900	43,900	43,900	43,900	---	*	*	*	*	*
254 Space Applications.....	332,300	338,300 ^{2/}	334,300 ^{2/}	338,300	+6,000	*	*	*	*	*
254 Technology Utilization..	12,100	12,100	12,100	12,100	---	*	*	*	*	*
402 Aeronautical Research and Technology.....	300,300	308,300 ^{2/}	309,300 ^{2/}	309,300	+9,000	*	*	*	*	*
254 Space Research and Technology.....	116,400	116,400	119,400 ^{2/}	119,400	+3,000	*	*	*	*	*
254 Energy Technology.....	3,000	3,000	5,000 ^{2/}	5,000	+2,000	*	*	*	*	*
255 Tracking and Data Acq...	332,800	332,800	332,800	332,800	---	*	*	*	*	*
Supplemental.....	300,000	9/	300,000	---	-300,000	300,000	285,000	285,000	-15,000	285,000
Recession.....	---	---	---	---	---	10/	-1,414	-1,414	-1,414	-1,414
CONSTRUCTION OF FACILITIES	157,600	157,600	157,600	157,600	---	156,100	156,100	156,100	-1,500	-1,500
Ames Research Center...	2,900	2,900	2,900	2,900	---	2,900	2,900	2,900	---	---
Dryden Flight Research Center.....	1,500	1,500	1,500	1,500	---	5/	---	---	-1,500	-1,500
Johnson Space Center...	1,760	1,760	1,760	1,760	---	1,760	1,760	1,760	---	---
Kennedy Space Center...	2,210	2,810 ^{3/}	2,810 ^{3/}	2,810	+600	2,210	2,210	2,210	---	-600
Langley Research Center.	7,980	7,980	7,980	7,980	---	7,980	7,980	7,980	---	---
Lewis Research Center...	5,720	5,720	5,720	5,720	---	5,720	5,720	5,720	---	---
Marshall Space Flight Center.....	3,540	6,640 ^{3/}	6,640 ^{3/}	6,640	+3,100	3,540	3,540	3,540	---	-3,100
Wallops Flight Center...	1,100	1,100	1,100	1,100	---	1,100	1,100	1,100	---	---
Large Aeronautical Facilities.....	45,900	45,900	45,900	45,900	---	45,900	45,900	45,900	---	---
Space Shuttle Facilities	31,450	27,750 ^{3/}	27,750 ^{3/}	27,750	-3,700	31,450	31,450	31,450	---	+3,700
Space Shuttle Payload Facilities.....	4,250	4,250	4,250	4,250	---	4,250	4,250	4,250	---	---
Repair.....	12,000	12,000	12,000	12,000	---	12,000	12,000	12,000	---	---
Rehabilitation and Mod..	19,790	19,790	19,790	19,790	---	19,790	19,790	19,790	---	---
Minor Construction.....	3,500	3,500	3,500	3,500	---	3,500	3,500	3,500	---	---
Facility Planning and Design.....	14,000	14,000	14,000	14,000	---	14,000	14,000	14,000	---	---
RESEARCH AND PROGRAM MANAGEMENT.....	1,011,186	1,001,186	1,001,186	1,001,186	-10,000	991,186	1,001,186	996,186	-15,000	-5,000
Basic Submission.....	964,900	964,900	964,900	964,900	---	954,900 ^{2/}	964,900	959,900	-5,000	-5,000
Supplemental.....	46,286	36,286	36,286	36,286	-10,000	36,286	36,286	36,286	-10,000	---
TOTAL.....	5,291,286	4,798,286	5,297,286	4,997,286	-294,000	5,246,786	5,263,372	5,243,372	-47,914	246,086

*Undistributed.

1/ Includes President's budget amendment of \$220,000,000 (for Space Shuttle DDT&E) submitted to Congress 5-14-79.

2/ See pages 3 through 5 for description of changes made by House and Senate in authorization bill for R&D programs.

3/ The Committee established separate projects at KSC and MSFC for rehabilitation of roofs originally included under Space Shuttle Facilities.

4/ Reduction of \$23,000,000 in R&D consists of \$15,000,000 for thrust augmentation studies, \$5,000,000 in other Space Flight Operations items, and \$3,000,000 for automated data processing services.

5/ Large Aircraft Maintenance Dock deleted.

6/ Net reduction of \$10,000,000--to be applied on a priority basis to contractual services, travel and public affairs, partially offset through a higher lapse rate than is assumed in the budget.

7/ Senate approved the total amount requested with the following internal adjustments: Thrust Augmentation -\$10,000,000; Space Flight Operations -\$4,000,000; Variable Cycle Engine +\$4,000,000; Multispectral Resources Sampler +\$2,000,000; National Oceanic Satellite System +\$4,000,000; Advanced Rotorcraft +\$5,000,000; Energy Technology +\$2,000,000; general reduction -\$3,000,000.

8/ Conference Committee approved the following: Thrust Augmentation -\$15,000,000; Automated Data Processing -\$3,000,000; Space Flight Operations -\$5,000,000; Rotorcraft +\$5,000,000; Variable Cycle Engine +\$3,000,000.

9/ See Note 2, Page 1.

10/ See Note 3, Page 1.

Prepared by:
Associate Administrator/
Comptroller
Budget Operations Division
Code BTF-3 Ext. 58466

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Chronological History of the FY 1980 Budget Submission
(In thousands of dollars)

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				
	Amended NASA Budget Submission	House Comm. H.R. 1786 Rep. 96-52 3-19-79 Appd. 3 28 79	Senate Comm. H.R. 1786 Rep. 96-207 6-11-79 Appd. 6 14 79	Conf. Comm. Appd. 7-20-79 Rep. 96-371 P.L. 96-48 Appd. 9 8 79	Difference from Budget Submission		House Comm. H.R. 4394 Rep. 96-249 6-7-79 Appd. 6-27-79	Senate Comm. H.R. 4394 Rep. 96-258 7-24-79 Appd. 7-27-79	Conf. Comm. Appd. 10-23-79 Rep. 96-542 P.L. 96-103 Appd. 11-5-79	Difference from Budget Submission	Difference from Budget Authorization
RESEARCH AND DEVELOPMENT APPROPRIATION:	4,122,500	3,939,500	4,138,500	3,838,500	-284,000		4,099,500 ^{4/}	4,108,086 ^{5/}	4,091,086	-31,314	252,586
OFFICE OF SPACE TRANSPORTATION SYSTEMS:	2,424,000	1,927,000	2,424,000	2,120,000	-304,000		*	*	*	*	*
253 Space Shuttle Program.....	(1,886,000)	(1,693,000)	(1,886,000)	(1,586,000)	(---)		(*)	(*)	(*)	(*)	(*)
Design, Development, Test and Evaluation.....	(830,500)	(610,500)	(830,500)	(830,500)	---		*	*	*	*	*
Orbiter.....	420,800	283,400	420,800	420,800	---		*	*	*	*	*
Main Engine.....	140,600	110,600	140,600	140,600	---		*	*	*	*	*
External Tank.....	68,400	59,800	68,400	68,400	---		*	*	*	*	*
Solid Rocket Booster....	57,500	57,500	57,500	57,500	---		*	*	*	*	*
Launch and Landing.....	143,200	99,200	143,200	143,200	---		*	*	*	*	*
Production.....	(755,500)	(782,500)	(755,500)	(755,500)	(---)		(*)	(*)	(*)	(*)	(*)
Orbiter.....	570,600	617,600 ^{1/}	570,600	570,600	---		*	*	*	*	*
Main Engine.....	109,900	80,300	109,900	109,900	---		*	*	*	*	*
Launch and Landing.....	20,000	24,600	20,000	20,000	---		*	*	*	*	*
Spares and Equipment....	55,000	60,000	55,000	55,000	---		*	*	*	*	*
Supplemental Appropriation	(300,000)	7/	(300,000)	---	-300,000		(300,000)	(285,000)	(285,000)	-15,000	285,000
253 Space Flight Operations Program.....	(467,300)	(463,300) ^{2/}	(467,300) ^{3/}	(463,300)	(-4,000)		(*)	(*)	(*)	(-20,000)	(-16,000)
Space Transportation Systems Operations Capability Development, Test and Mission Support.....	128,600	*	*	*	---		*	*	*	*	*
Advanced Programs.....	172,600	*	*	*	---		*	*	*	*	*
Space Transportation System Operations.....	13,000	14,000 ^{2/}	*	*	---		*	*	*	*	*
253 Expendable Launch Vehicles Program.....	153,100	*	*	*	---		*	*	*	*	*
Scout.....	(70,700)	(70,700)	(70,700)	(70,700)	(---)		(*)	(*)	(*)	(*)	(*)
Centaur.....	7,300	7,300	7,300	7,300	---		*	*	*	*	*
Delta.....	18,300	18,300	18,300	18,300	---		*	*	*	*	*
Atlas-F.....	43,100	43,100	43,100	43,100	---		*	*	*	*	*
OFFICE OF SPACE SCIENCE...	2,000	2,000	2,000	2,000	---		*	*	*	*	*
254 Physics and Astronomy Program.....	601,600	601,600	601,600	601,600	---		*	*	*	*	*
High Energy Astronomy Observatories Development.....	(337,500)	(337,500)	(337,500)	(337,500)	(---)		(*)	(*)	(*)	(*)	(*)
	4,800	4,800	4,800	4,800	---		*	*	*	*	*

*Undistributed.

1/ \$27,000,000 added to initial budget estimate to retain option for fifth Shuttle Orbiter.

2/ The Committee made a general reduction of \$5,000,000 to be taken in Space Transportation Systems Operations Capability Development; Development, Test, and Mission Support; and Space Transportation Systems Operations and increased Advanced Programs by \$1,000,000 for definition studies of a large deployable space antenna.

3/ Within the total, \$1,000,000 is to be reallocated for the large deployable space antenna.

4/ Reduction of \$23,000,000 in R&D consists of \$15,000,000 for thrust augmentation studies, \$5,000,000 in other Space Flight Operations items, and \$3,000,000 for automated data processing services.

5/ Senate approved the total amount requested with the following internal adjustments: Thrust Augmentation -\$10,000,000; Space Flight Operations -\$4,000,000; Variable Cycle Engine +\$4,000,000; Multispectral Resources Sampler +\$2,000,000; National Oceanic Satellite System +\$4,000,000; Advanced Rotorcraft +\$5,000,000; Energy Technology +\$2,000,000; general reduction -\$3,000,000.

6/ Conference Committee approved the following: Thrust Augmentation -\$15,000,000; Automated Data Processing -\$3,000,000; Space Flight Operations -\$5,000,000; Rotorcraft +\$5,000,000; and Variable Cycle Engine +\$3,000,000.

7/ See Note 2, Page 1.

Prepared by:
Associate Administrator/
Comptroller
Budget Operations Division
Code BTF-3 Ext. 58466

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Chronological History of the FY 1980 Budget Submission
(In thousands of dollars)

Subfunction Code	ITEM	AUTHORIZATION					APPROPRIATION					
		Amended NASA Budget Submission	House Comm. H.R. 1786 Rep. 96-52 3-19-79 Appd.3-28-79	Senate Comm. H.R. 1786 Amd Rep. 96-207 6-11-79 Appd.6-14-79	Conf. Comm. Appd.7-20-79 Rep. 96-371 P.L. 96-48 Appd.8-8-79	Difference from Budget Submission			House Comm. H.R. 4394 Rep. 96-249 6-7-79 Appd.6-27-79	Senate Comm. H.R. 4394 Rep. 96-258 7-24-79 Appd.7-27-79	Conf. Comm. Appd.10-23-79 Rep. 96-542 P.L. 96-103 Appd.11-5-79	Difference from Budget Submission
	OFFICE OF SPACE SCIENCE (CONT'D.)											
	Solar Maximum Mission Development.....	600	600	600	600	---	*	*	*	*	*	
	Space Telescope Dev....	112,700	112,700	112,700	112,700	---	*	*	*	*	*	
	International Solar Polar Mission Dev....	50,000	50,000	50,000	50,000	---	*	*	*	*	*	
	Shuttle/Spacelab Payload Development..	41,300	41,300	41,300	41,300	---	*	*	*	*	*	
	Explorer Development...	30,400	30,400	30,400	30,400	---	*	*	*	*	*	
	Mission Operations and Data Analysis.....	36,500	36,500	36,500	36,500	---	*	*	*	*	*	
	Research and Analysis..	34,300	34,300	34,300	34,300	---	*	*	*	*	*	
	Suborbital Programs....	26,900	26,900	26,900	26,900	---	*	*	*	*	*	
254	Planetary Exploration Program.....	(220,200)	(220,200)	(220,200)	(220,200)	(---)	(*)	(*)	(*)	(*)	(*)	
	Galileo.....	116,100	116,100	116,100	116,100	---	*	*	*	*	*	
	Mission Operations and Data Analysis.....	59,000	59,000	59,000	59,000	---	*	*	*	*	*	
	Research and Analysis..	45,100	45,100	45,100	45,100	---	*	*	*	*	*	
254	Life Sciences Program....	(43,900)	(43,900)	(43,900)	(43,900)	(---)	(*)	(*)	(*)	(*)	(*)	
	Life Sciences Flight Program.....	12,900	12,900	12,900	12,900	---	*	*	*	*	*	
	Vestibular Function Research.....	3,700	3,700	3,700	3,700	---	*	*	*	*	*	
	Research and Analysis..	27,300	27,300	27,300	27,300	---	*	*	*	*	*	
	OFFICE OF SPACE AND TERRESTRIAL APPLICATIONS	344,400	350,400	346,400	350,400	+6,000	*	*	*	*	*	
254	Space Applications.....	(332,300)	(338,300)	(334,300)	(338,300)	(+6,000)	(*)	(*)	(*)	(*)	(*)	
	Resource Observations..	141,400	143,400 ^{1/}	143,400 ^{1/}	143,400	+2,000	*	* ^{1/}	*	*	*	
	Environmental Observations.....	117,200	121,200 ^{2/}	117,200	121,200	+4,000	*	* ^{2/}	*	*	*	
	Applications Systems...	24,200	24,200	24,200	24,200	---	*	*	*	*	*	
	Technology Transfer....	10,300	10,300	10,300	10,300	---	*	*	*	*	*	
	Materials Processing in Space.....	19,800	19,800	19,800	19,800	---	*	*	*	*	*	
	Space Communications...	19,400	19,400	19,400	19,400	---	*	*	*	*	*	
254	Technology Utilization Program.....	(12,100)	(12,100)	(12,100)	(12,100)	(---)	(*)	(*)	(*)	(*)	(*)	
	Technology Dissemination	3,800	3,800	3,800	3,800	---	*	*	*	*	*	

*Undistributed.

^{1/} Addition of \$2,000,000 to initiate development of a Multi-Spectral Resources Sampler.

^{2/} Addition of \$4,000,000 to initiate development of a National Oceanic Satellite System.

Prepared by:
Associate Administrator/
Comptroller
Budget Operations Division
Code BTF-3 Ext. 58466

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Chronological History of the FY 1980 Budget Submission
(In thousands of dollars)

Subfunction Code	ITEM	AUTHORIZATION					APPROPRIATION							
		Amended NASA Budget Submission	House Comm. H R 1786 Rep. 96-52 3-19-79 Appd. 3-28-79	Senate Comm. H R 1786 Am. Rep. 96-207 6-11-79 Appd. 6-14-79	Conf. Comm. Appd. 7-20-79 Rep. 96-371 P.L. 96-48 Appd. 8-8-79	Difference from Budget Submission			House Comm. H.R. 4324 Rep. 96-249 6-7-79 Appd. 6-27-79	Senate Comm. H.R. 4394 Rep. 96-258 7-24-79 Appd. 7/27/79	Conf. Comm. Appd. 10-23-79 Rep. 96-542 P.L. 96-103 Appd. 11-5-79	Difference from Budget Submission	Difference from Budget Authorization	
	OFFICE OF SPACE AND TERRESTRIAL APPLICATIONS (CONT'D.)													
	Technology Applications	4,400	4,400	4,400	4,400	---	*	*	*	*	*	*	*	
	Program Evaluation and Support.....	1,500	1,500	1,500	1,500	---	*	*	*	*	*	*	*	
	Civil Systems.....	2,400	2,400	2,400	2,400	---	*	*	*	*	*	*	*	
	OFFICE OF AERONAUTICS AND SPACE TECHNOLOGY.....	419,700	427,700	433,700	433,700	+14,000	*	*	*	*	*	*	*	
402	Aeronautical Research and Technology Program.....	(300,300)	(308,300)	(309,300)	(309,300)	(+9,000)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	
	Research and Technology Base.....	117,500	117,500	117,500	117,500	---	*	*	*	*	*	*	*	
	System Studies.....	3,200	3,200	3,200	3,200	---	*	*	*	*	*	*	*	
	Systems Technology Programs.....	106,100	114,100 ^{1/}	115,100 ^{2/}	115,100	+9,000	*	* ^{2/}	* ^{3/}	*	*	*	*	
	Experimental Programs...	73,500	73,500	73,500	73,500	---	*	*	*	*	*	*	*	
254	Space Research and Technology Program.....	(116,400)	(116,400)	(119,400)	(119,400)	(+3,000)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	
	Research and Technology Base.....	77,100	77,100	77,100	77,100	---	*	*	*	*	*	*	*	
	System Studies.....	2,200	2,200	2,200	2,200	---	*	*	*	*	*	*	*	
	Systems Technology Programs.....	16,000	16,000	19,000 ^{4/}	19,000	+3,000	*	*	*	*	*	*	*	
	Experimental Programs...	18,100	18,100	18,100	18,100	---	*	*	*	*	*	*	*	
	Standards and Practices.	3,000	3,000	3,000	3,000	---	*	*	*	*	*	*	*	
254	Energy Technology.....	(3,000)	(3,000)	(5,000) ^{5/}	(5,000)	(+2,000)	*	(*)	(*)	(*)	(*)	(*)	(*)	
	OFFICE OF SPACE TRACKING AND DATA SYSTEMS.....	332,800	332,800	332,800	332,800	---	*	*	*	*	*	*	*	
	Tracking and Data Acquisition Program.....	(332,800)	(332,800)	(332,800)	(332,800)	(---)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	
	Operations.....	275,800	275,800	275,800	275,800	---	*	*	*	*	*	*	*	
	Systems Implementation..	46,400	46,400	46,400	46,400	---	*	*	*	*	*	*	*	
	Advanced Systems.....	10,600	10,600	10,600	10,600	---	*	*	*	*	*	*	*	
	RECISSION	---	---	---	---	---	6/	-1,414	-1,414	-1,414	-1,414	-1,414	-1,414	

*Undistributed.

^{1/} Increase amount for Variable-Cycle Engine Technology by \$8,000,000.

^{2/} Increase amount for Variable-Cycle Engine Technology by \$4,000,000 and \$5,000,000 added for Advanced Motorcraft Technology.

^{3/} Increase amount for Variable-Cycle Engine Technology by \$3,000,000 and \$5,000,000 for Advanced Rotorcraft Technology.

^{4/} Increase amount for Large Space Structures by \$3,000,000.

^{5/} Increase amount for Energy Technology Verification and Identification by \$2,000,000.

^{6/} See Note 3, Page 1.

Prepared by:
Associate Administrator/
Comptroller
Budget Operations Division
Code BTF-3 Ext. 58466

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Chronological History of the FY 1980 Budget Submission
(In thousands of dollars)

Subfunction Code	ITEM	AUTHORIZATION					APPROPRIATION				
		Amended NASA Budget Submission	House Comm. H.R. 1786 Rep. 96-52 3-19-79 Appd.3-28-79	Senate Comm. H.R. 1786 Amd Rep. 96-207 6-11-79 Appd.6-14-79	Conf. Comm. Appd.7-20-79 Rep. 96-371 P.L. 94-48 Appd.8-8-79	Difference from Budget Submission	House Comm. H.R. 4394 Rep. 96-249 6-7-79 Appd.6-27-79	Senate Comm. H.R. 4394 Rep. 96-258 7-24-79 Appd.7/27-79	Conf. Comm. Appd.8-2-79 Rep. 96-409 P.L. 96-103 Appd.11-5-79	Difference from Budget Submission	Difference from Budget Authorization
	CONSTRUCTION OF FACILITIES APPROPRIATION:	157,600	157,600	157,600	157,600	---	156,100	156,100	156,100	-1,500	-1,500
	AMES RESEARCH CENTER.....	(2,900)	(2,900)	(2,900)	(2,900)	(---)	(2,900)	(2,900)	(2,900)	(---)	(---)
402	R-Modification of Static Test Facility (N-249).	2,900	2,900	2,900	2,900	---	2,900	2,900	2,900	---	---
	DRYDEN FLIGHT RESEARCH CENTER.....	(1,500)	(1,500)	(1,500)	(1,500)	(---)	(---)	(---)	(---)	(-1,500)	(-1,500)
255	B-Construction of Large Aircraft Maintenance Dock.....	1,500	1,500	1,500	1,500	---	---	---	---	-1,500	-1,500
	JOHNSON SPACE CENTER.....	(1,760)	(1,760)	(1,760)	(1,760)	---	(1,760)	(1,760)	(1,760)	(---)	(---)
255	B-Rehabilitation and Modification of Flight Operations Facilities, Ellington AFB.....	1,760	1,760	1,760	1,760	---	1,760	1,760	1,760	---	---
	KENNEDY SPACE CENTER.....	(2,210)	(2,810)	(2,810)	(2,810)	(+600)	(2,210)	(2,210)	(2,210)	(---)	(-600)
255	B-Modifications to the Central Instrumentation Facility.....	1,260	1,260	1,260	1,260	---	1,260	1,260	1,260	---	---
255	B-Modifications to the Operations and Checkout Building.....	950	950	950	950	---	950	950	950	---	---
253	M-Rehabilitation of Roof, Launch Control Complex.....	---	600 ^{1/}	600 ^{1/}	600	+600	---	---	---	---	-600
	LANGLEY RESEARCH CENTER...	(7,980)	(7,980)	(7,980)	(7,980)	(---)	(7,980)	(7,980)	(7,980)	(---)	(---)
402	R-Modifications of Model Support System 8-Foot High Temperature Structures Tunnel (1265).....	1,410	1,410	1,410	1,410	---	1,410	1,410	1,410	---	---
402	R-Modifications to 8-Foot Transonic Pressure Tunnel (640).	2,000	2,000	2,000	2,000	---	2,000	2,000	2,000	---	---
402	R-Modification of Transonic Dynamics Tunnel (648).....	970	970	970	970	---	970	970	970	---	---
402	R-Rehabilitation and Modification of Gas Dynamics Laboratory (1247).....	3,600	3,600	3,600	3,600	---	3,600	3,600	3,600	---	---

1/ The Committee established this as a separate project. It was originally included as part of the "Modifications to Launch Complex 39 (KSC)" project under Space Shuttle Facilities.

2/ Large Aircraft Maintenance Dock deleted.

Prepared by:
Associate Administrator/
Comptroller
Budget Operations Division
Code BTF-3 Ext. 58466

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Chronological History of the FY 1980 Budget Submission
(In thousands of dollars)

Subfunction Code	ITEM	AUTHORIZATION					APPROPRIATION				
		Amended NASA Budget Submission	House Comm. H.R. 1/86 Rep. 96-52 Appd. 3-26-79	Senate Comm. H.R. 1/86 Amd. Rep. 96-207 6-11-79 Appd. 6-14-79	Conf. Comm. Appd. 7-20-79 Rep. 96-371 P.L. 96-48 Appd. 8-8-79	Difference from Budget Submission	House Comm. H.R. 4394 Rep. 96-249 6-7-79 Appd. 6-27-79	Senate Comm. H.R. 4394 Rep. 96-258 7-24-79 Appd. 7-27-79	Conf. Comm. Appd. 8-2-79 Rep. 96-409 P.L. 96-103 Appd. 11-5-79	Difference from Budget Submission	Difference from Budget Authorization
	LEWIS RESEARCH CENTER.....	(5,720)	(5,720)	(5,720)	(5,720)	(---	(5,720)	(5,720)	(5,720)	(---	(---
402	R-Modifications to Central Air Systems, Various Buildings.....	5,720	5,720	5,720	5,720	---	5,720	5,720	5,720	---	---
	MARSHALL SPACE FLIGHT CENTER.....	(3,540)	(6,640)	(6,640)	(6,640)	(+3,100)	(3,540)	(3,540)	(3,540)	(---	(-3,100)
253	B-Modifications to Various Buildings.....	2,640	2,640	2,640	2,640	---	2,640	2,640	2,640	---	---
253	B-Rehabilitation of Roofs, Various Buildings.....	900	900	900	900	---	900	900	900	---	---
253	M-Rehabilitation of Roof, Phase I, Building 103 (MAF).....	---	3,100 ^{1/}	3,100 ^{1/}	3,100	+3,100	---	---	---	---	-3,100
	Wallops Flight Center.....	(1,100)	(1,100)	(1,100)	(1,100)	(---	(1,100)	1,100	(1,100)	(---	(---
253	B-Construction of Facilities Operations Shop Building.....	1,100	1,100	1,100	1,100	---	1,100	1,100	1,100	---	---
	LARGE AERONAUTICAL FACILITIES:	(45,900)	(45,900)	(45,900)	(45,900)	(---	(45,900)	(45,900)	(45,900)	(---	(---
402	R-Construction of National Transonic Facility (LaRC).....	12,000	12,000	12,000	12,000	---	12,000	12,000	12,000	---	---
402	R-Modification of 40-by 80-Foot Subsonic Wind Tunnel (ARC).....	33,900	33,900	33,900	33,900	---	33,900	33,900	33,900	---	---
	SPACE SHUTTLE FACILITIES:	(31,450)	(27,750)	(27,750)	(27,750)	(-3,700)	(31,450)	(31,450)	(31,450)	(---	(+3,700)
253	M-Modifications to Launch Complex 39 (KSC).....	17,700	17,100 ^{2/}	17,100 ^{2/}	17,100	-600	17,700	17,700	17,700	---	+600
253	M-Modifications to Crawler Transporter Maintenance Facility (KSC).....	1,250	1,250	1,250	1,250	---	1,250	1,250	1,250	---	---
253	M-Modification of Manufacturing and Final Assembly Facilities for External Tanks (MAF).....	10,000	6,900 ^{2/}	6,900 ^{2/}	6,900	-3,100	10,000	10,000	10,000	---	+3,100
253	M-Minor Shuttle-Unique Projects (Various Locations).....	2,500	2,500	2,500	2,500	---	2,500	2,500	2,500	---	---

^{1/} The Committee established this as a separate project. It was originally included as part of the "Modification of Manufacturing and Final Assembly Facilities for External Tanks (MAF)" project under Space Shuttle Facilities.

^{2/} Amounts included in these projects for the rehabilitation of roofs have been established as separate projects by the Committee.

Prepared by:
Associate Administrator/
Comptroller
Budget Operations Division
Code BTF-3 Ext. 58466

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Chronological History of the FY 1980 Budget Submission
(In thousands of dollars)

Subfunction Code	ITEM	AUTHORIZATION					APPROPRIATION				
		Amended NASA Budget Submission	House Comm. H.R. 1786 Rep. 96-52 3-19-79 Appd. 3-28-79	Senate Comm. H.R. 1786 Amd Rep. 96-207 6-11-79 Appd. 6-14-79	Conf. Comm. Appd. 7-20-79 Rep. 96-371 P.L. 96-48 Appd. 8-8-79	Difference from Budget Submission	House Comm. H.R. 4394 Rep. 96-249 6-7-79 Appd. 6-27-79	Senate Comm. H.R. 4394 Rep. 96-258 7-24-79 Appd. 7-27-79	Conf. Comm. Appd. 8-2-79 Rep. 96-409 P.L. 96-103 Appd. 11-5-79	Difference from Budget Submission	Difference from Budget Authorization
	SPACE SHUTTLE PAYLOADS FACILITIES:	(4,250)	(4,250)	(4,250)	(4,250)	(---	(4,250)	(4,250)	(4,250)	(---	(---
254	S-Rehabilitation and Modification for Payload Ground Support Operations (KSC).....	2,610	2,610	2,610	2,610	---	2,610	2,610	2,610	---	---
254	S-Modification of and Addition to Materials Sciences Laboratory (N240) (ARC).....	1,640	1,640	1,640	1,640	---	1,640	1,640	1,640	---	---
255	B-REPAIR OF FACILITIES....	(12,000)	(12,000)	(12,000)	(12,000)	(---	(12,000)	(12,000)	(12,000)	(---	(---
255	B-REHABILITATION AND MODIFICATION OF FACILITIES.....	(19,790)	(19,790)	(19,790)	(19,790)	(---	(19,790)	(19,790)	(19,790)	(---	(---
255	B-MINOR CONSTRUCTION OF NEW FACILITIES AND ADDITIONS TO EXISTING FACILITIES.....	(3,500)	(3,500)	(3,500)	(3,500)	(---	(3,500)	(3,500)	(3,500)	(---	(---
255	B-FACILITY PLANNING AND DESIGN.....	(14,000)	(14,000)	(14,000)	(14,000)	(---	(14,000)	(14,000)	(14,000)	(---	(---

Prepared by:
Associate Administrator/
Comptroller
Budget Operations Division
Code BTF-3 Ext. 58466

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Chronological History of the FY 1980 Budget Submission
(In thousands of dollars)

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				
	Amended NASA Budget Submission	House Comm. H.R. 1786 Rep. 96-52 3-19-79 Appd. 3-28-79	Senate Comm. H.R. 1786 Amd Rep. 96-207 6-11-79 Appd. 6-14-79	Conf. Comm. Appd 7-20-79 Rep. 96,371 P 1. 96-48 Appd. 6-6-79	Difference from Budget Submission	House Comm. H.R. 4394 Rep. 96-249 6-7-79 Appd. 6-27-79	Senate Comm. H.R. 4394 Rep. 96-258 7-24-79 Appd. 7-27-79	Conf. Comm. Appd. 8-2-79 Rep. 96-409 P.L. 96-103 Appd. 11-5-79	Difference from Budget Submission	Difference from Budget Authorization
RESEARCH AND PROGRAM MANAGEMENT APPROPRIATION	954,900	954,900	954,900	954,900	---	954,900 ^{1/}	964,900	959,900 ^{2/}	-5,000	-5,000
BY INSTALLATION:										
Johnson Space Center....	156,466	156,466	156,466	156,466	---	*	156,466	*	---	---
Kennedy Space Center....	128,149	128,149	128,149	128,149	---	*	128,149	*	---	---
Marshall Space Flight Center.....	148,884	148,884	148,884	148,884	---	*	148,884	*	---	---
National Space Tech- nology Laboratories... Goddard Space Flight Center.....	4,689	4,689	4,689	4,689	---	*	4,689	*	---	---
Wallops Flight Center....	131,197	131,197	131,197	131,197	---	*	131,197	*	---	---
Ames Research Center....	16,330	16,330	16,330	16,330	---	*	16,330	*	---	---
Dryden Flight Research Center.....	65,839	65,839	65,839	65,839	---	*	65,839	*	---	---
Langley Research Center..	19,791	19,791	19,791	19,791	---	*	19,791	*	---	---
Lewis Research Center....	110,258	110,258	110,258	110,258	---	*	110,258	*	---	---
NASA Headquarters.....	95,800	95,800	95,800	95,800	---	*	95,800	*	---	---
	87,497	87,497	87,497	87,497	---	*	87,497	*	---	---
BY FUNCTION:										
Personnel.....	727,176	727,176	727,176	727,176	---	*	727,176	*	---	---
Travel.....	19,797	19,797	19,797	19,797	---	*	19,797	*	---	---
Facilities Services.....	113,190	113,190	113,190	113,190	---	*	113,190	*	---	---
Technical Services.....	42,288	42,288	42,288	42,288	---	*	42,288	*	---	---
Management and Operations Support.....	62,449	62,449	62,449	62,449	---	*	62,449	*	---	---
SUPPLEMENTAL APPROPRIATION.....	46,286	36,286	36,286	36,286	-10,000	36,286	36,286	36,286	-10,000	---
	1,011,186	1,001,186	1,001,186	1,001,186	-10,000	991,186	1,001,186	996,186	-15,000	-5,000

GPO 867-133
*Undistributed.

^{1/} Reduction of \$10,000,000 to be applied on a priority basis to contractual services, travel and public affairs, partially offset through a higher lapse rate than is assumed in the budget.

^{2/} Reduction of \$5,000,000 as in above footnote.

Prepared by:
Associate Administrator/
Comptroller
Budget Operations Division
Code BIF-3 Ext. 58465

**AUTHORIZING APPROPRIATIONS TO THE NATIONAL
 AERONAUTICS AND SPACE ADMINISTRATION**

MARCH 19, 1979.—Committed to the Committee on the Whole House on the
 State of the Union and ordered to be printed

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

REPORT

together with

ADDITIONAL VIEW

[To accompany H.R. 1786]

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

The Committee on Science and Technology, to whom was referred the bill (H.R. 1786) 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 (shown in italics in the bill accompanied by this report) and recommend 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 1980 as follows:

Programs	Authorization fiscal year 1980	Page No.
Research and development.....	\$3, 639, 500, 000	17
Construction of facilities.....	157, 600, 000	165
Research and program management....	964, 900, 000	214
Total.....	4, 762, 000, 000	

COMMITTEE ACTIONS

RESEARCH AND DEVELOPMENT

FIFTH SPACE SHUTTLE ORBITER

NASA requested \$1,366,000,000* for the Space Shuttle program in fiscal year 1980. Within this line item NASA requested \$755,500,000 to support production of a four orbiter fleet. The Committee has continued to monitor very closely the development of the Space Transportation System mission model. We are encouraged with the apparent success with which the traffic model is being filled and have serious doubts that a total of four orbiters will be adequate. Theoretically, four would be adequate, however, it would not allow for sufficient schedule flexibility in the event of requirements for orbiter modifications or repairs. Therefore, to retain the option for the fifth Space Shuttle Orbiter, the Committee increases the Space Shuttle line item by \$27,000,000 for a total of \$1,393,000,000 in fiscal year 1980.

SPACE FLIGHT OPERATIONS

NASA requested \$467,300,000 for Space Flight Operations programs in fiscal year 1980. Within this line item the Committee made a reduction of \$5,000,000 to be taken in space transportation systems operations capability development; development, test, and mission support; and space transportation system operations. The Committee increased Advanced Programs by \$1,000,000 resulting in a total recommended authorization of \$463,300,000 for Space Flight Operations programs in fiscal year 1980. The Committee directs NASA to use the increased Advanced Programs funds for definition studies of a large deployable space antenna. Because of the diversity of potential uses for such a large antenna, the study should include necessary planning to assure multi-agency participation. The Committee further urges that NASA seek additional funding support from other agencies which can benefit most from the demonstration of a large antenna.

SPACE APPLICATIONS

NASA requested \$332,300,000 for Space Applications programs in fiscal year 1980. Within this line item, the Committee increased Resource Observation programs by \$2,000,000 and Environmental Observation programs by \$4,000,000 resulting in a total recommended authorization of \$338,300,000 for Space Applications programs in fiscal year 1980.

*The amount in the original bill \$1,366,000,000 is incorrect due to a typographical error during printing.

Resource observations.—NASA requested \$141,400,000 for Resource Observation programs in fiscal year 1980. Within this subline item, the Office of Management and Budget reduced NASA's request for a Multi-Spectral Resources Sampler by \$2,200,000. The Committee believes there is a need for the development of an advanced remote sensor instrument using multilinear array technology which would have improved resolution and higher reliability. Therefore, the Committee recommends an addition of \$2,000,000 to initiate development of a Multi-Spectral Resources Sampler resulting in a total recommended authorization of \$143,400,000 for Resource Observation programs in fiscal year 1980.

Environmental observations.—NASA requested \$117,200,000 for Environmental Observations programs in fiscal year 1980. Within this subline item, the Office of Management and Budget reduced NASA's request for a National Oceanic Satellite System by \$15,000,000 which is a follow-on to the SEASAT program. In an October 1977 report, the Subcommittee on Space Science and Applications recommended a follow-on Seasat in fiscal year 1979. In the fiscal year 1979 authorization report, the Committee recommended a follow-on SEASAT program in fiscal year 1980. With the recent failure of SEASAT it is ever more important to initiate a follow-on SEASAT program. Therefore, the Committee recommends an addition of \$4,000,000 to initiate development of a National Oceanic Satellite System resulting in a total recommended authorization of \$121,200,000 for Environmental Observations in fiscal year 1980. Additionally, the Committee recommends that the instrument package for the National Oceanic Satellite System be reviewed to assess the requirements for a synthetic aperture radar and the benefits that would result from the inclusion of the synthetic aperture radar.

AERONAUTICAL RESEARCH AND TECHNOLOGY

NASA requested \$300,300,000 for Aeronautical Research and Technology. Although this amount represents a 13.7 percent increase over the current plan for fiscal year 1979, the Committee is disturbed to note that this increase represents nothing more than run-out of current programs with a modest allowance for inflation.

Furthermore, the Committee remains concerned about the meager resources devoted to projects with long-term applicability. A clear case in point is the current Variable Cycle Engines Components Program. The variable cycle engine concept, is widely considered to hold great promise for future low-noise and high-performance jet engines for both civil and military applications. Unfortunately, funding limitations have precluded sufficient component development and testing to fully verify the feasibility.

Therefore, the Committee increases the requested amount for Variable-Cycle Engine Technology by \$8,000,000 to provide for additional experimentation that is not included in the current program for a total authorization of \$308,300,000.

LANGUAGE AMENDMENT

Section 1(b)

Two new subsections 1(b)(6) and 1(b)(14), were added to identify projects necessary for the proper maintenance of facilities at the Kennedy Space Center and Michoud Assembly Facility, respectively. These projects were removed from subsections 1(b)(16) (A) and (C) in the original bill which do not pertain to maintenance of facilities. Subsections of section 1(b) were redesignated accordingly.

COMMITTEE VIEWS

SPACE POLICY

The Committee notes that the Administration in the past year has enunciated a space policy and commends that action. To the extent that such a policy clarifies roles and encourages broad participation in space activities such policy statements can facilitate a full utilization of the space potential. However, the Committee wishes to express concern that aspects of the stated policy may be interpreted as limiting or even preventing an orderly evolution of space program technology goals and objectives. Recognizing the significant contribution of our space program to our quality of life and economic well-being, the Committee urges the Administrator of NASA to consult with the Office of Science and Technology Policy to further clarify and assure that the National Space Policy as it is defined today does not lead to a further stagnation and decline in our civilian space program. Further, the Committee urges that priority be given to assuring that meritorious new programs which have been totally eliminated from the fiscal year 1980 budget be included in fiscal year 1981.

SPACE SHUTTLE DEVELOPMENT

The Space Shuttle is reaching the final stage of development prior to a first orbital flight of the vehicle. The Committee notes that complex programs such as the Space Shuttle cannot proceed without some degree of risk. The rigorous assessment of such risk cannot be totally defined. Knowing the subjective nature of such risk, NASA in Space Shuttle and past programs has included a highly disciplined test program to evaluate the capability of components and complete systems. It is the view of the Committee that NASA has achieved a good balance in minimizing risk and in establishing the depth and extent of testing the various subsystems of the Space Shuttle. Recognizing that NASA will not knowingly compromise personnel safety, the Committee encourages NASA at this juncture to resist the potential for over-emphasizing component level testing at this time while maintaining a balanced approach to minimizing risk.

SPACE SHUTTLE OPERATIONAL PROGRAM ECONOMIES

One of the major Congressional commitments made by the National Aeronautics and Space Administration at the outset of the Space Shuttle development program was to provide a system capable of an "out of pocket" cost of \$10,500,000 (1971 dollars) per flight at flight rates of 60 missions per year. Fiscal year 1980 will be a critical time as NASA will complete the orbital flight tests of the Space Shuttle and should begin operational flights. Establishment of operational program goals and a Shuttle pricing policy have materially improved the precision of NASA management control and direction of Space Shuttle operational program planning. Achievement of the desired operational economies and cost per flight targets will require intensive management attention to reduce institutional costs and promote operational efficiencies for the transportation system. The Committee encourages NASA to redouble efforts to achieve these goals.

ADVANCED PROGRAMS

The Committee is encouraged by the modest increase in the budget request for Advanced Programs studies. However, there continue to be reductions by the Office of Management and Budget in this budget category. The advanced program concept studies including the 25 KW power module, orbital transfer vehicles, large space structures construction, and advanced transportation systems are being significantly inhibited by continuing cutbacks in Advanced Programs.

The Committee continues to see a need to conduct studies to define systems for future missions which will exploit Space Shuttle capabilities in the 1980's. Increased emphasis is needed to provide for satellite retrieval, maintenance and repair—key areas for cost savings afforded by the Shuttle.

The Committee urges increased emphasis in Advanced Programs planning with sufficient funding to allow for a logical systematic evolution of space initiatives to capitalize on the Space Shuttle. The Committee requests that NASA submit a report which outlines strategies for future space programs to avoid NASA projected budget decreases and to avoid reductions in the institutional base at the NASA field centers.

The Space Transportation System is a national asset which will lead to expanded future space activities. In planning the advanced programs it is the position of the Committee that the needs of all agencies be considered and that multi-agency participation be encouraged for major programs.

The Committee specifically recommends initiation of the development of a 25 KW power module to extend the orbit stay-time and operational capabilities of the Space Shuttle and initiation of the development of a multi-use large deployable antenna system in fiscal year 1981.

SOLAR ELECTRIC PROPULSION SYSTEM

The Committee supports the definition studies on a solar electric propulsion system (SEPS) in fiscal year 1980 in order to assure the availability of the system to support the combined Halley/Tempel 2 comet mission. The comet mission must be initiated in fiscal year 1982 in order to encounter Halley's comet which will not return for seventy-six years and provide the opportunity to explore what are believed to be the most primitive bodies available for studying solar system evolution. The solar electric propulsion system concept has been under evolutionary study for as long as NASA has been in existence. The Committee urges NASA to take necessary action for a fiscal year 1981 new start to assure solar electric propulsion system availability for a Halley/Tempel 2 comet mission as well as for other high energy missions.

SPACE SCIENCE PROGRAMS

The Committee is concerned by the lack of new starts in the Physics and Astronomy Program and Planetary Exploration Program for fiscal year 1980. The National Aeronautics and Space Act of 1958 mandate for the expansion of human knowledge of phenomena in the atmosphere and space dictates a commitment to program continuity. Without new and challenging initiatives, the currently healthy character of NASA's space science activities cannot be sustained.

Physics and astronomy.—The Gamma Ray Observatory (GRO) has had extensive study by NASA to provide necessary follow-on to high energy physics investigations. The Committee recognizes that the Office of Management and Budget refused NASA the Gamma Ray Observatory start in Fiscal Year 1980. The Committee strongly supports initiation of the Gamma Ray Observatory no later than fiscal year 1981, consistent with the priorities established by NASA for high energy physics objectives. The Committee expects that these objectives will be achieved in order to prevent an extended gap in the high energy program orbital operations and recognizes that in support of these objectives, over \$1 million in research and development is provided for fiscal year 1980 advanced technology development for the Gamma Ray Observatory.

Planetary exploration.—The Venus Orbiting Imaging Radar (VOIR) mission is the next step in planetary exploration and provides necessary continuity in developing our understanding of the comparative planetology of Earth, Mars and Venus. The Committee also recognizes that NASA's request for the Venus Orbiting Imaging Radar new start in Fiscal Year 1980 was refused by the Office of Management and Budget. The Committee strongly supports initiation of this program no later than in fiscal year 1981, since failure to do so would preclude the mission from being flown with present technology within the current decade due to unfavorable planetary alignments. The Committee recognizes that over \$4 million in research and development is provided for advanced technology development for the Venus Orbiting Imaging Radar in fiscal year 1980 budget, and expects NASA to advance those technologies which supports a fiscal year 1981 Venus Orbiting Imaging Radar initiative.

EARTH SCIENCES

The Committee is aware of a number of issues which appear to be inhibiting basic research activities in the earth sciences. These issues involve the difficulty of carrying out basic research in the global and interdisciplinary areas of the earth sciences utilizing remote sensing from space, conflicting jurisdictional disputes among government agencies whose interests are relatively narrowly focused, and the need for a lead agency for fundamental investigations in the Earth Sciences. Therefore, the Committee requests that NASA advise the Committee by September 1979 of steps which need to be taken to resolve these jurisdictional issues.

SPACE APPLICATIONS USER DEVELOPMENT ACTIVITIES

In the fiscal year 1979 Authorization report the Committee noted a reduction in the funds to support technology transfer and demonstration projects and an increased emphasis on the scientific content of the applications programs. The Committee recommended that NASA evaluate what strategies and programs are necessary to strengthen user oriented programs at all levels and advise the Committee prior to the fiscal year 1980 annual authorization what steps need to be taken to meet this objective. NASA has yet to communicate with the Committee in this regard. Further, the Committee recommends that NASA review the space applications user development activities and make recommendations with regard to program balance and strategies for strengthening user oriented programs by September 30, 1979.

SPACE COMMUNICATION RESEARCH AND TECHNOLOGY

The Committee notes that NASA has announced its intention to re-enter the field of advanced space communications research and technology to assist in maintaining our National capability and to enhance our ability to be a major supplier of communications satellites and related equipment in the world marketplace.

Space communications research and technology makes a positive contribution to our Nation's balance of payments and should continue to do so as the world market grows. Therefore, the Committee urges NASA's continued attention to this important technology and a continuing evaluation of its role relative to the private sector to assure that high risk technologies in the communications satellite area, including navigation systems, are adequately served.

SPACE APPLICATIONS SUPPORTING RESEARCH AND TECHNOLOGY PROGRAMS

The Committee applauds the modest increases in space applications supporting research and technology programs. In this area, the Committee perceives a need to review the balance of in-house versus university activities and the rationale and procedures for review of both in-house and university proposals to assure the most effective utilization of these funds. The Committee understands that the Space and Terrestrial Applications Steering Committee is currently reviewing the supporting research and technology proposal evaluation procedures. The Committee requests that NASA report the results of this review to the Committee by September 30, 1979.

TECHNOLOGY UTILIZATION

The Technology Utilization Program has evolved over many years into an effective mechanism for the dissemination of technology information, as well as the secondary applications of this technology to uses outside of NASA for economic and societal benefit. To provide for the transfer of new knowledge and innovative ideas to industry, medicine and important public areas such as transportation, environment, urban development and public safety, NASA has developed a variety of mechanisms under the authority of the National Aeronautics and Space Act of 1958.

As part of its statutory responsibility to "provide for the widest practicable and appropriate dissemination" of NASA-developed technology, NASA has made wide distribution to industry and the public, scientific and technical publications and other materials. The Committee believes that if NASA finds it necessary to charge the public for these materials, the prices should be low enough so that they do not hinder the flow of information. NASA should not attempt, for example, to recover full costs of publications and dissemination if to do so in NASA's judgment would not serve the broader purposes of the Technology Utilization program.

The Committee further urges NASA to increase the efforts of the Industrial Application Centers in promoting awareness and involvement of local communities in the potentials of NASA technology in enhancing to the extent practicable, less developed and less populated regions of the country.

The reorganization of the Technology Utilization Program from the Office of External Affairs to the Office of Space and Terrestrial Applications (OSTA) may provide more direct access by OSTA programs to user development techniques and processes which have served the needs of Technology Utilization. The Committee urges NASA to make every effort to assure that transfer of available technology from across Program Offices continues unencumbered by specific mainline program requirements.

AERONAUTICS: FUTURE TRENDS

The Committee notes with considerable alarm, the budget projections that show an actual decline in spending for aeronautical R&T in Fiscal Year 1981 and 1982. Slow but steady budgetary progress in recent years has resulted from a begrudging acceptance by the Administration of the inescapable relationship between investments in R&D and the benefits that come from American preeminence in the civil aviation market.

It is extremely unfortunate that this painful lesson is being forgotten again at a time when foreign challenges to our leadership are enjoying unprecedented success. In 1974, the U.S. delivered 93 percent of the jet transports in the free world. By 1977 the figure had dropped to 69 percent.

The Committee believes the time is ripe for a bold new initiative in aeronautics, along the lines of the highly successful Aircraft Energy Efficiency program. As the level of activity in that program begins to tail off, the manpower, financial and facility resources which are thereby freed should be refocused on a new and imaginative program. This effort should be directed at advanced technology that responds to the clear national need for increased productivity in air transportation.

Furthermore a central feature of the new program should be that it will lead to exportable products and thereby reduce our balance of payments deficit.

To assist in the definition of such a new program, the Committee requests that NASA prepare a white paper detailing potential program options along with cost and schedule information. The Committee further requests that the paper be transmitted by July 30, 1979 to the Committee.

ADVANCED CHEMICAL PROPULSION TECHNOLOGY BASE

The Committee views with concern the declining industrial base for advanced chemical propulsion technology. In recent years the liquid rocket industry sales have become increasingly dominated by one engine development program because of limited new programs in the field. If our Nation is to be in a position to embark on future space initiatives, the government must make a deliberate determination as to the level and composition of the sustained industrial propulsion capability. To determine what national propulsion industry capability should be maintained, NASA should propose to the Congress a plan for advanced propulsion technology base activities and assess what portion of the industrial base will be maintained by their action.

ENERGY RESEARCH AND DEVELOPMENT

The Committee notes that the reimbursable energy technology responsibilities assigned to NASA by the Department of Energy is increasing. The Committee believes that the funds being devoted to energy technology identification and verification are being used effectively and continue to be necessary to assure that the capabilities of NASA are focused on energy problems in support of the Department of Energy (DOE). The Committee applauds NASA's continued work with DOE to expand this activity. However, in the face of manpower reductions NASA should strive to maintain a proper balance between reimbursable activities and mainline NASA programs to assure that NASA's research and development mission is not threatened.

With regard to the Solar Power Satellite Program, the Committee continues to be concerned over the lack of funds for necessary space related technology verification activities. Therefore, the Committee again urges that the NASA Administrator and responsible energy authorities within the executive branch encourage the use of NASA expertise and facilities by:

- (a) Allocating sufficient funds to the National Aeronautics and Space Administration for verification of the technology essential to solar power satellite demonstration; and,
- (b) Reviewing the existing National Aeronautics and Space Administration facilities and equipment complement to assure that these national assets are employed in solution of our energy problems.

TRACKING AND DATA RELAY SATELLITE SYSTEM

The Tracking and Data Relay Satellite System (TDRSS) will provide services to NASA satellites into the 1990's. The cost of leasing these services is greatly influenced by the cost of financing which is estimated to add over 40 percent to the lease. Whereas, the Federal Financing Bank (FFB) is providing the financing during the TDRSS development phase, alternative arrangements may prove more desirable during the operations phase.

Therefore, the Committee requests NASA to reevaluate TDRSS financing and to report their findings to the Committee by December 1979.

CONSTRUCTION OF FACILITIES

The Committee in authorizing \$1,760,000 for construction work at Ellington, AFB, wishes to express its strong support for NASA's right to continue using their present facilities at Ellington.

The Committee wishes to emphasize that the facilities at Ellington are vital to the Space Shuttle Mission and any forced relocation to a more remote area, either at this time or in the foreseeable future, would have a detrimental effect on the Mission in terms of schedule and cost.

The Committee requests that NASA diligently pursue and participate in all negotiations with or conducted by the General Services Administration. It is also requested that NASA keep the Committee completely and currently informed of every significant event concerning NASA's occupancy rights at Ellington to assure continued availability and use by NASA's Johnson Space Center.

R&D PROGRAM SUPPORT (DTMS AND IMS)

Contained within the research and development budget is a category known as Program Support. It consists of multi-program technical support functions required to carry out NASA's approved missions. These functions benefit various programs, but because of their multi-program nature are more effectively managed, accounted for and controlled as specific technical support functions rather than as elements of individual programs.

Program support is budgeted in two ways. Program support for the projects of the Office of Space Transportation Systems is contained within the Development, Test and Mission Support (DTMS) line item. Program support for all other NASA offices is contained within a fund source called Institutional Management Support (IMS). This can be viewed as a tax on the research and development programs to pay for multi-program services. It does not appear as a separate line item as DTMS does. Rather it is contained within the budget estimates for each program.

The Committee recognizes that in a research and development institution, a mechanism is needed to pay the costs associated with operation and maintenance of the common laboratories and other facilities that comprise the institutions research capability. Furthermore, the Committee understands the relative merits of both the DTMS and IMS approaches to this requirement. Nevertheless the Committee is concerned about the need for a strict constructionist approach in the booking of charges to either the Program Support category or directly to one of the research and development programs.

Therefore, the Committee requests NASA to develop a plan to govern future actions, that will: (1) assure adequate support of the research and development institution, (2) provide sufficient visibility of program support costs, (3) assure that all feasibly identifiable costs are charged to benefiting programs. The plan should specifically address the period during which Shuttle Operations are beginning and Shuttle development is completed. The Administrator of NASA is further requested to transmit this plan to the Committee by August 30, 1979.

PERSONNEL CUTS

With few exceptions, NASA depends more than other agencies on the steady flow of new ideas that comes largely from young minds. Without it, the process of innovation in space and aeronautics will slow considerably, and this Committee recognizes how very important that innovation is to the United States' preeminence in these fields.

However, the Committee views with increasing alarm the repeated reductions in NASA's authorized personnel ceiling which has dropped from 83,924 in 1966 to 22,563 at the end of fiscal year 1980. This year the problem is particularly insidious in that NASA is being cut to compensate for the needs of other agencies in meeting a government-wide goal. When combined with the safeguards inherent in the Civil Service System for continuing employees, NASA has been unable to hire meaningful numbers of young researchers. The potential loss of creativity is of major concern to this Committee.

EXPLANATION OF THE BILL

RESEARCH AND DEVELOPMENT

SUMMARY

Programs	Authorization fiscal year 1980	Page No.
1. Space Shuttle.....	\$1,393,000,000	17
2. Space Flight Operations.....	463,300,000	30
3. Expendable Launch Vehicles.....	70,700,000	45
4. Physics and Astronomy.....	337,500,000	47
5. Planetary Exploration.....	220,200,000	65
6. Life Sciences.....	43,900,000	72
7. Space Applications.....	338,300,000	75
8. Technology Utilization.....	12,100,000	111
9. Aeronautical Research and Technology.....	308,300,000	114
10. Space Research and Technology.....	116,400,000	133
11. Energy Technology.....	3,000,000	147
12. Tracking and Data Acquisition.....	332,800,000	148
Total.....	3,639,500,000	

CONSTRUCTION OF FACILITIES

SUMMARY

Projects	Authorization FY 1980	Page No.
1. Modification of static test facility, Ames Research Center.....	\$2,900,000	167
2. Construction of large aircraft maintenance dock, Dryden Flight Research Center.....	1,500,000	168
3. Rehabilitation and modification of flight operation facilities, Ellington Air Force Base.....	1,760,000	170
4. Modifications of central instru- mentation facilities, John F. Kennedy Space Center.....	1,260,000	171
5. Modifications to operations and checkout building, John F. Kennedy Space Center.....	950,000	172

6. Rehabilitation of roof, launch control complex, John F. Kennedy Space Center.....	600,000	173
7. Modifications to model support system 8-foot high temperature structures tunnel, Langley Research Center.....	1,410,000	174
8. Modifications to 8-foot transonic pressure tunnel, Langley Research Center.....	2,000,000	175
9. Modification of transonic dynamics tunnel, Langley Research Center.....	970,000	176
10. Rehabilitation and modification of gas dynamics laboratory, Langley Research Center.....	3,600,000	177
11. Modifications to central air system, various buildings, Lewis Research Center.....	5,720,000	178
12. Modifications to various buildings, Marshall Space Flight Center.....	2,640,000	181
13. Rehabilitation of roofs, various buildings, Marshall Space Flight Center.....	900,000	182
14. Rehabilitation of roof, phase I, building 103, Michoud Assembly Facility.....	3,100,000	183
15. Construction of facilities operations shop building, Wallops Flight Center.....	1,100,000	183
16. Large aeronautical facility: Construction of national transonic facility, Langley Research Center.....	12,000,000	184
17. Large aeronautical facility: modification of 40- by 80-foot subsonic wind tunnel, Ames Research Center.....	33,900,000	186
18. Space Shuttle facilities at various locations as follows:		
(A) Modifications to launch complex 39, John F. Kennedy Space Center.....	17,100,000	188
(B) Modifications to crawler transporter maintenance facility, John F. Kennedy Space Center.....	1,250,000	160
(C) Modification of manufacturing and final assembly facilities for external tanks, Michoud Assembly Facility.....	6,900,000	191

(D) Minor Shuttle—unique projects, various locations.....	2,500,000	192
19. Space Shuttle payload facilities at various locations as follows:		
(A) Rehabilitation and modification for payload ground support operations, John F. Kennedy Space Center.....	2,610,000	195
(B) Modification and addition to materials sciences laboratory, Ames Research Center.....	1,640,000	197
20. Repair of facilities at various locations, not in excess of \$500,000 per project.....	12,000,000	199
21. Rehabilitation and modification of facilities at various locations, not in excess of \$500,000 per project.....	19,790,000	201
22. Minor construction of new facilities and additions to existing facilities at various locations, not in excess of \$250,000 per project.....	3,500,000	203
23. Facility planning and design not otherwise provided for.....	14,000,000	204
Total.....	\$157,600,000	

RESEARCH AND PROGRAM MANAGEMENT, \$964,900,000

The Research and Program Management appropriation funds the performance of research, technology and test activities at NASA Centers, and the planning, management and support of contractor research and development activities necessary to meet the Nation's objectives in space and aeronautics research. The objectives of activities funded under Research and Program Management are to (1) to provide the technical and management capability of the civil service staff needed to conduct the full range of programs for which NASA is responsible, (2) to maintain facilities and laboratories in a state of operational capability and to manage their use in support of research and development programs and (3) to provide effective and efficient technical administrative support for the research and development programs.

The more than 22,000 civil service personnel funded by the Research and Program Management appropriation represent NASA's most important resource and are the strength on which the future of space and aeronautics research activities depend. Three-fourths of this appropriation is required to cover their salaries and related costs. About two percent of the appropriation is for the travel which is vital to successfully manage the Agency's research and development programs. The

remaining twenty-three percent provides for research, test and operational facility support and for related goods and services necessary to successfully operate the NASA Centers and to efficiently accomplish NASA's approved missions.

Each installation is assigned certain principal roles of fundamental importance in meeting NASA's overall program goals. These roles reflect the intrinsic competence of the installations on the basis of demonstrated capabilities and capacities.

The 1980 budget provides the necessary resources to apply these in-house capabilities to the appropriate program activities.

SUMMARY OF THE BUDGET PLAN BY FUNCTION
[In thousands of dollars]

	1978 actual	1979		1980 budget estimate
		Budget estimate	Current estimate	
Personnel and related costs.....	677,450	695,093	720,924	727,176
Travel.....	17,042	18,741	18,573	19,797
Facilities services.....	91,965	102,841	100,757	113,190
Technical services.....	40,435	40,357	39,723	42,288
Management and operations support.....	62,614	56,968	61,492	62,449
Total.....	889,506	914,000	941,469	964,900

SUMMARY OF BUDGET PLAN BY INSTALLATION
[In thousands of dollars]

	1978	1979		1980
		Budget Estimates	Current Estimates	
Johnson Space Center.....	146,654	150,296	154,163	156,466
Kennedy Space Center.....	113,765	118,431	120,907	128,149
Marshall Space Flight Center.....	143,445	140,857	148,276	148,884
National space technology laboratories.....	2,732	3,488	4,527	4,689
Goddard Space Flight Center.....	123,853	124,139	128,230	131,197
Wallops Flight Center.....	15,020	15,205	15,493	16,330
Ames Research Center.....	57,730	58,212	63,761	65,839
Dryden Flight Research Center.....	18,247	18,481	18,557	19,791
Langley Research Center.....	102,019	104,579	107,896	110,258
Lewis Research Center.....	84,916	83,780	82,513	85,900
Headquarters.....	81,125	84,532	86,046	87,497
Total.....	889,506	914,000	941,469	964,900

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 \$4,762,000,000 as follows: (a) for "Research and development," a total of 12 program line items aggregating the sum of \$3,639,500,000; (b) for "Construction of facilities" a total of 23 line items aggregating the sum of \$157,600,000; and (c) for "Research and program management," \$964,900,000. 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.

A line item entitled "Rehabilitation of roof, launch control complex, John F. Kennedy Space Center" and a line item entitled "Rehabilitation of roof, Phase I, building 103, Michoud Assembly Facility" have been added to more specifically identify projects necessary for the proper maintenance of facilities at these locations.

A line item entitled "Repair of facilities at various locations, not in excess of \$500,000 per project" has been added. The line item reflects the priority and necessity for facility repairs which in past years have competed with other programs for funding.

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 this 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 and to the extent provided 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 \$25,000 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) would provide that of the funds appropriated for "Research and development" and "Research and program management," not in excess of \$75,000 per project (including collateral equipment) may be used for construction of new facilities and additions to existing facilities, and for repairs, rehabilitation, or modification of facilities. The dollar level has been raised to \$75,000 from \$25,000 for construction of new facilities and additions to existing facilities and from \$50,000 for rehabilitation or modification of facilities to reflect the increased cost of facility projects over the period when the levels were initially established. The \$250,000 per project limitation on use of funds appropriated for "Research and development" for unforeseen programmatic needs remains unchanged.

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 at 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 Commerce, Science, and Transportation 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 (22).

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 the Administrator determines (1) that such action is necessary because of changes in the aeronautical and 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 Commerce, Science, and Transportation;

(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 make two amendments to the National Aeronautics and Space Act of 1958. Subsection (a) would amend section 203(c)(13) (A) and (B) to increase to \$25,000 the amount for which the Administration may settle or adjust claims on behalf of the United States for actions resulting from the conduct of the Administration's functions. The increase raises the adjustment to the same level established for the Federal Tort Claims Act (Public Law 89-506), which was set at \$2,500 prior to 1966.

Subsection (b) of Section 6 would add a new section 308 to the National Aeronautics and Space Act of 1958, as amended, and renumber existing section 308 as section 309.

The new section 308 includes six subsections, (a) through (f).

Subsection (a) would authorize the Administrator to provide liability insurance to any user of a space vehicle to compensate them

for claims by third parties for damage resulting from described activities. The Administration would be authorized to provide such insurance in its sole discretion on such terms and to the extent it may deem appropriate. Thus, for example, the Administration could require certain Shuttle users to obtain through NASA and pay for an equitable share of third-party liability insurance. On the other hand, the Administration could, in its discretion, exempt other Shuttle users, e.g., small self-contained payloads, from the requirement of obtaining insurance or paying for it.

This subsection would authorize the Administrator, for example, to procure insurance for a number of Shuttle flights in the future based on a projected schedule. In doing so, he would be authorized to use for the purchase of such insurance appropriated funds available to the Administration. In turn, he would be required to seek reimbursement of the appropriation used, to the maximum extent practicable, from the users under general Shuttle reimbursement policies established pursuant to section 203(c) of the National Aeronautics and Space Act of 1958, as amended. This, of course, could be accomplished by charging users a fixed price for the insurance based upon an estimate of the cost of insurance, the number of Shuttle flights and users to be protected by the insurance policy, and other relevant factors. Any other reasonable method of charging users for such insurance may be adopted, depending on NASA's experience and the insurance coverage available. It is not anticipated that NASA would use its appropriated funds to protect the U.S. Government (including NASA when flying its payloads) from liability; however, the subsection is broad enough to permit that if the Administrator would determine that to do so would be desirable and appropriate in any particular case, for example, depending on the mix of payloads to be flown on a given Shuttle flight.

Subsection (b) would authorize NASA, in its discretion, to provide in any agreement entered into by it and a user of a space vehicle (as defined in subsection 308(f)), for the indemnification of the user against claims by third parties (as defined in subsection 308(f)) for damage resulting from activities carried on in connection with the launch, operations or recovery of the space vehicle, but only to the extent that such claims are not compensated by liability insurance of the user. It would require the Administrator to issue implementing regulations which would take into account the availability, cost and terms of liability insurance.

The agreement to indemnify may be inserted in several different types of agreements with users of a space vehicle, including but not limited to, agreements under which NASA provides Shuttle launch services and other Government services and agreements under which non-U.S. Government persons provide to NASA payload specialist services on board Shuttle flights.

It is specifically provided that the indemnification may, if the Administration deems it appropriate, be limited to claims other than those resulting either from the actual negligence of the user or from willful misconduct of the user, or both. Under this authority the Administration will be able to tailor the extent of the indemnification to the particular circumstances of a given flight, indemnifying the user totally or, for example, indemnifying the user only with

respect to damage or injury which did not result from the user's willful misconduct.

Indemnification would only be applicable to claims of third parties who are defined in subsection 308(a)(f)(3) as "any person who may institute a claim against a user for death, bodily injury or loss of or damage to property." It is envisaged that a third party would not normally include persons who contract with NASA for launch services, since NASA expects to include in its launch agreements a provision under which the person procuring launch services agrees that he will not make a claim (and that he will hold NASA and other users harmless) for damage to his property or employees caused by NASA, other users or any other person involved in space transportation system operations during such operations. In turn, NASA and other users would promise not to bring a claim against the user for damage to their property or employees. The result would be that each person flying on a space vehicle would be required either to insure or self insure his own property.

The indemnification authority would be applicable to damage resulting from activities carried on in connection with the launch, operations or recovery of a space vehicle. The term "space vehicle" is defined in subsection 308(f)(1) to include spacecraft and other payloads that may be launched, with the term specifically including the Space Shuttle. The Administrator's implementing regulations would define technically and in detail the activities carried on that would be protected by indemnification and the extent and duration of such protection.

Subsection (c) would provide that certain described conditions must be contained in any agreement providing for indemnification under section 308. Specifically, it requires that (1) notice be given to the United States of any claim or suit against a user for damage; and (2) control of or assistance in the defense by the United States, at its election, of that suit or claim.

Subsection (d) would provide that no indemnification payment made under subsection (b) could be made unless the Administrator or his designee certifies that the amount is just and reasonable.

Subsection (e) would provide that upon the Administrator's approval, indemnification payments under subsection (b) may be made either from any funds available for NASA's research and development activities not otherwise obligated or from funds appropriated specifically for such indemnification payments. A decision on whether to use existing appropriations or seek additional appropriations from Congress specifically to pay meritorious claims would rest with the Administrator. It is the intent of this subsection that no authorized NASA program should be curtailed or terminated because of such indemnification payments.

Subsection (f) would provide a definition of three terms used in section 309.

The term "space vehicle" is defined in subsection (f)(1) as any object intended for launch, launched or assembled in outer space, specifically including the Space Shuttle and other components of a space transportation system, together with related equipment, devices, components and parts. This is intended to include, but not be limited to, Spacelab, upper stages, and any payload to be flown on board a Shuttle for a user.

The term "user," as defined in subsection (f) (2), would include anyone who enters into an agreement with the Administration for use of all or a portion of a space vehicle, who owns or provides property to be flown on a space vehicle, or who employs a person to be flown on a space vehicle. It could include as one "who owns or provides property to be flown on a space vehicle", a person who intends and has made appropriate arrangements to retain ownership of property at any time during flight; e.g., a manufacturer of an upper stage who may retain title to the upper stage during space flight. The definition also includes as one "who employs a person to be flown on a space vehicle" an entity such as a university which would provide under a contract with NASA its employees' services as a payload specialist for a particular Shuttle flight.

The term "third party," as defined in subsection (f) (3), means any person who may bring a claim against a user for damage sounding in tort. As explained previously in connection with subsection (b), a "third party" would not normally include users who contract with NASA for launch services; however, there may be circumstances under which such a person could be a "third party" for the purposes of section 308.

Section 7

Section 7 would authorize to be appropriated to the National Aeronautics and Space Administration for fiscal year 1981 such sums as may be necessary: (a) for "Research and development," (b) for "Construction of facilities," and (c) for "Research and program management." All of the limitations and other provisions of the Act applicable to amounts appropriated pursuant to subsections (a), (b), and (c) of section 1 would apply in the same manner to amounts appropriated pursuant to subsections (a), (b), and (c), respectively, of this section.

Section 8

Section 8 would provide that the Act may be cited as the "National Aeronautics and Space Administration Authorization Act, 1980."

COST AND BUDGET DATA

The bill will authorize appropriations for fiscal year 1980 in the amount of \$4,782,000,000. 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—	
1980	4,782,000,000
1981	4,607,000,000
1982	4,342,000,000
1983	4,088,000,000
1984	3,785,000,000

These estimates do not include provisions for any new program or program augmentation 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 cost 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.

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 italic, existing law in which no change is proposed is shown in roman: and large unchanged blocks of existing law is indicated by * * *).

National Aeronautics and Space Act of 1958, as amended:

FUNCTIONS OF THE ADMINISTRATOR

Sec. 203. (a) * * *
 (c) In performance of its functions the Administration is authorized—

13 (a) to consider, ascertain, adjust, determine, settle, and pay, on behalf of the United States, in full satisfaction thereof, any claim for [\$5,000] \$25,000 or less against the United States * * *

APPROPRIATIONS

[Sec. 308. (a)] Sec. 309. (a) * * *

INSURANCE AND INDEMNIFICATION

SEC. 308. (a) The Administration is authorized on such terms and to the extent it may deem appropriate to provide liability insurance for any user of a space vehicle to compensate all or a portion of claims by third parties for death, bodily injury, or loss of or damage to property resulting from activities carried on in connection with the launch, operations or recovery of the space vehicle. Appropriations available to the Administration may be used to acquire such insurance, but such appropriations shall be reimbursed to the maximum extent practicable by the users under reimbursement policies established pursuant to section 203(c) of this Act.

(b) Under such regulations in conformity with this section as the Administrator shall prescribe taking into account the availability, cost, and terms of liability insurance, any agreement between the Administration and a user of a space vehicle may provide that the United States will indemnify the user against claims (including reasonable expenses of litigation or settlement) by third parties for death, bodily injury, or loss of or damage to property resulting from activities carried on in connection with the launch, operations, or recovery of the space vehicle, but only to the extent that such claims are not compensated by liability insurance of the user: Provided, That such indemnification may be limited to claims resulting from other than the actual negligence or willful misconduct of the user.

(c) An agreement made under subsection (b) that provides indemnification must also provide for—

(1) notice to the United States of any claim or suit against the user for the death, bodily injury, or loss of or damage to the property; and

(2) control of or assistance in the defense by the United States, at its election, of that suit or claim.

(d) No payment may be made under subsection (b) unless the Administrator or his designee certifies that the amount is just and reasonable.

(e) Upon the approval by the Administrator, payments under subsection (b) may be made, at the Administrator's election, either from funds available for research and development not otherwise obligated or from funds appropriated for such payments.

(f) As used in this section—

(1) the term "space vehicle" means an object intended for launch, launched, or assembled in outer space, including the Space Shuttle and other components of a space transportation system, together with related equipment, devices, components, and parts;

(2) the term "user" includes anyone who enters into an agreement with the Administration for use of all or a portion of a space vehicle, who owns or provides property to be flown on a space vehicle, or who employs a person to be flown on a space vehicle; and

(3) the term "third party" means any person who may institute a claim against a user for death, bodily injury, or loss of or damage to property.

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 pages 1-3, International Space Activities Report, Committee on Science and Technology, serial vv, November 1978.]

(1) *Sovereignty over the geostationary orbit.*—Action should be initiated and vigorously pursued to establish an international codicil to the 1967 Outer Space Treaty which specifically forbids any individual nation's claiming sovereignty over the geostationary orbit. Further, the development of multipurpose space platforms should be encouraged and supported, since such platforms have the potential for reducing the demand on geostationary orbit locations and frequencies which constitute the cause of the problem.

(2) *Utilization of space by the developing nations.*—Two specific actions can be taken to increase the developing nations' participation in space activities and to increase the benefits they derive from space technology:

(a) Define and implement an equitable pricing policy for communications, Earth observations, and launch services which recognizes the need for varying combinations of incremental pricing ranging from full-cost pro-rata cost sharing through different scales of reduced charges for amortization of the initial system investment, depending on the customers' needs and fiscal resources. The implications of reduced-charge subsidies require careful consideration and evaluation.

(b) Establish a workable policy and methodology for equitable nondiscriminatory dissemination of data and information generated by civil Earth-observation space systems. One possible approach to assure such appropriate access would be a Global Resources Information Center.

(3) *Cost reduction of international space activities.*—Rising costs appear to be inhibiting both the scope and number of experiments users can afford (Spacelab is of particular concern here). Cost reductions should be actively sought. Specific suggestions are:

(a) Investigate the use of pallets and general-purpose free-flying spacecraft instead of Spacelab modules wherever possible.

(b) Support evolutionary pallet and spacecraft designs to improve load factor and load function.

(c) Relax programmatic requirements to permit more extensive sharing of shuttle flights; e.g., by extending the "getaway special" principle.

(d) Support evolutionary space technology programs which offer promise of increased payload capability, improved shuttle load factors, and lower-cost systems or procedures.

(e) Evaluate the cost-reduction benefits of private-industry management of space transportation system operations, including the aggregation of the diffuse commercial and international market for space transportation services.

(f) Permit NASA (or whatever entity operates the space transportation system) the flexibility to adjust incremental pricing for add-on payload users (particularly those from developing nations) and for innovative new space applications missions.

(4) *Satellite communications.*—Two special issues were identified: public service satellites and the role of government in research and development. Specific recommendations were as follows:

(a) Federal cost sharing policies and procedures should be established to reduce financial and institutional barriers faced by commercial organizations in developing public service systems, which can offer social (including international) benefit but which have not yet attracted substantial private capital.

(b) The federal government should reinstate a policy of performing research and development in advanced satellite communications technology, both to reduce the commercial risk of public service communications systems and to enhance the U.S. position relative to those overseas nations which have subsidized major advances in satellite communications technology.

(5) *Cooperation in space science.*—Continued improvements in international space science program cooperation can be achieved by reducing the uncertainties caused by year-to-year vagaries in budgetary support of these necessarily long-term efforts. A specific recommendation which would help in achieving this end would be to reinforce the scope and frequency of NASA's interaction with Congress prior to submission of actual budget requests, to increase congressional understanding of long-range space science goals and programs. Formal institutionalization of international cooperative agreement procedures rather than the present case-by-case treatment, however, would be counterproductive because it would reduce all-important flexibility.

(6) *Development of institutional infrastructures.*—Three specific concerns highlighted in this area were the prospective impact of multi-purpose space platforms, the implications of not proceeding with an operational Landsat, and the maximization of user involvement and initiative in space applications systems. Recommendations are as follows:

(a) A model for a multipurpose regional space platform might serve as the framework for a wide range of institutionalization procedures, and should be actively studied. Specific legislative actions could include supporting the development of large space structures creation of a regional coordinating entity, and initiating an institutional framework for domestic and international use of multipurpose space platforms.

(b) Although lack of assurance of Landsat data-collection continuity (because the present program is experimental rather than operational) is often cited as the major barrier to promoting the use of Landsat data, the Panel identified education of the user community as the real problem. Enhancement of user education activities is therefore recommended as the top-priority concern, as specified in (c) below.

(c) Because early and intensive user involvement and user perception of need are essential to stimulating transition of space technology

applications from the experimental to the operational phase, as was clearly demonstrated in the case of satellite communications, a substantial effort should be initiated to establish an infrastructure aimed at the development of a highly-motivated user community, particularly in the case of such disaggregated markets as those for Earth observations data.

(7) *Export of space technology and technology transfer.*—Because the present procedures inhibit the effectiveness of U.S. industry in competing for international procurements, the panel recommended that the State Department's Munitions Board list of spacecraft and related technologies be reviewed to streamline and simplify the control process for space-related exports.

(8) *United Nations Conference on Outer Space.*—The conclusion of the UN Committee on the Peaceful Uses of Outer Space that a Conference is desirable is strongly endorsed, but the panel recommends that the Conference be limited to technical matters, especially in the areas of system capabilities and user applications. This limitation would permit the free discussion of many potential developments in space, whereas a political debate would almost certainly inhibit the proper exposition of significant and potentially valuable space developments.

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. 1786.

ESTIMATE AND COMPARISON, CONGRESSIONAL BUDGET ACT INFORMATION

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

1. Bill number: H.R. 1786.
2. Bill title: National Aeronautics and Space Administration Authorization Act, 1980.
3. Bill status: As ordered reported by the House Committee on Science and Technology, March 14, 1979.
4. Bill purpose: This bill authorizes appropriations of \$4.8 billion for the National Aeronautics and Space Administration (NASA) for fiscal year 1980. This authorization level is \$37 million higher than the President's budget request for fiscal year 1980, and 9.5 percent above the current fiscal year 1979 appropriation (\$4.35 billion, excluding a pending supplemental request of \$185 million).

In addition, the bill authorizes the appropriation of additional sums as may be necessary for increases in salary and employee benefits authorized by law. The bill also amends the National Aeronautics and Space Act to increase the personal and property damage claims payment ceiling and to authorize NASA to provide liability insurance to private space vehicle users.

5. Cost estimate:

(By fiscal years, in millions of dollars)

	Fiscal year—				
	1980	1981	1982	1983	1984
Estimated authorization level:					
Function 250	4,197.1				
Function 400	564.9				
Function 920	75.8				
Total	4,837.8				
Estimated outlays:					
Function 250	3,157.6	854.0	174.8	11.8	2.3
Function 400	319.8	182.5	40.3	16.5	6.2
Function 920	72.0				
Total	3,549.4	1,036.5	215.1	28.3	8.5

Including outlays from prior years' authority enacted to date, total fiscal year 1980 outlays for NASA activities will be \$4,663.8 million, assuming the funding level authorized in this bill.

6. Basis of estimate: For the purpose of this estimate, it is assumed that this bill will be enacted and the entire amount authorized will be appropriated prior to fiscal year 1980. The estimated funding required for the pay comparability increase is based on CBO's current policy projection of a 10.5 percent increase, effective October 1, 1979. This increase falls within budget function 920 in fiscal year 1980. The estimated annual outlays are based on the historical spendout patterns of the major NASA programs.

The amendments to the National Aeronautics and Space Act are not expected to result in additional costs to the Government. The increase in the claims ceiling is to comply with government-wide policy. Based on agency experience, few if any claims are expected by NASA, although the amendment could result in higher payments should any claims occur. The provision of liability insurance to private space vehicle users is not expected to result in costs to the agency, because agency plans call for costs to be covered by user fees.

7. Estimate comparison: The National Aeronautics and Space Administration estimates that this bill's authorization level will result in outlays of \$4,624 million in fiscal year 1980 (excluding pay increases).

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 RECOMMENDATIONS

A quorum being present, the Committee unanimously approved the bill by roll call vote (39-0) 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:

JANUARY 30, 1979.

HON. THOMAS P. O'NEILL, Jr.,
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 1980. For that fiscal year, the bill would authorize appropriations totaling \$4,725,000,000 to be made to the National Aeronautics and Space Administration as follows:

- (1) for "Research and development" amounts totaling \$3,602,500,000;
- (2) for "Construction of facilities" amounts totaling \$157,600,000; and
- (3) for "Research and program management," \$964,900,000.

In addition, the bill would authorize such sums as may be necessary for fiscal year 1981, i.e., to be available October 1, 1980.

The enclosed draft bill follows generally the format of the National Aeronautics and Space Administration Authorization Act, 1979 (Public Law 95-401). 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, in addition to the specific "Construction of facilities" projects enumerated in subsection 1(b), a line item entitled "Repair of facilities at various locations, not in excess of \$500,000 per project" has been added.

Third, subsection 1(g) has been reworded to permit use of funds appropriated for "Research and development" and "Research and pro-

gram management" for repairs, subject to the same limitations placed on construction of new facilities, additions to existing facilities, and rehabilitation or modification of facilities. The dollar limitation for each project has been raised to \$75,000.

Fourth, two amendments to the National Aeronautics and Space Act of 1958 have been included. The first amendment increases to \$25,000 the amount for which the Administration may settle or adjust claims resulting from the conduct of the Administration's functions. The second amendment would add a new section 308, entitled "Insurance and Indemnification," and renumber the existing section 308 as section 309.

Fifth, section 6 of Public Law 95-401, which corrected the mislettering of subsections of section 203 of the National Aeronautics and Space Act of 1958, as amended, has been omitted.

Sixth, section 7 of Public Law 95-401, which added a new subsection (f) to section 102 of the National Aeronautics and Space Act of 1958, as amended, has been omitted since the amendment is now permanent law.

Seventh, section 8 of Public Law 95-401, requiring a report by December 31, 1978, on the Administration policy regarding conflicts of interest, standards of conduct and financial disclosure and the implementation of that policy, has been omitted.

Eighth, in addition to providing authorization of appropriations in the amounts recommended by the President in his Budget for fiscal year 1980, the bill also would provide authorization for such sums as may be necessary for fiscal year 1981. 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.

Finally, the last section of the draft bill, section 8, has been changed to provide that the bill, upon enactment, may be cited as the "National Aeronautics and Space and Administration Authorization Act, 1980", rather than "1979".

Where required by section 102(2)(C) of the National Environmental Policy Act of 1969, as amended (42 U.S.C. 4332(2)(C)), and the implementing regulations of the Council on Environmental Quality, environmental impact statements covering NASA installations and the programs to be funded pursuant to this bill have been or will be furnished to the Committee on Science and Technology as appropriate.

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.

Very truly yours,

ROBERT A. FROSCHE,
Administrator.

ADDITIONAL VIEW

We are concerned with the lack of recognition exhibited by our colleagues for the urgent requirement for improved energy efficiency in aircraft propulsion systems. The Committee has agreed to the Administration's desire—originated in the Office of Management and Budget—to defer funding Phase II of the Advanced Turboprop Program (ATP) of the Aircraft Energy Efficiency Program (ACEE). This would require \$3 million during fiscal year 1980 with program run-out costs of \$40 million through fiscal year 1984.

In 1975, recognizing the critical requirement for greater energy efficiency for air transportation vehicles of all classes, the Committee on Science and Technology requested that NASA initiate on a "first priority basis," a comprehensive program for aircraft energy efficiency. The Committee also suggested that emphasis should be given commercial transports at cruise speeds up to Mach 0.8 and altitudes above thirty thousand feet.

NASA initiated Phase I of the ATP during fiscal year 1976 with emphasis on the prop-fan having potential application to large transport aircraft. The ATP includes four major areas: propeller and nacelle, mechanical components, installation aerodynamics and both cabin and external noise environment. In parallel with the ATP, NASA initiated the "E" project for the development and demonstration of thermodynamic and propulsive efficiencies for both turbofan and turboprop engines where core technology is common. Both the "E" and the ATP portions of the ACEE propulsion effort are aimed at readying technology to make possible efficient, economic and environmentally (noise and exhaust emissions) acceptable transport aircraft during the mid-eighties. Phase I of the ATP project demonstrated that the goal of at least fifteen percent fuel savings over an advanced turbofan engine with equivalent core technology could readily be achieved. Studies showing potential fuel savings of twenty percent translate into DOC savings of six percent at .30/gal. fuel and 10 percent with .60/gal. fuel.

In addition to fuel savings, improvements in maintenance costs over earlier turboprop designs will equal those of advanced turbofan engines using a similar core.

The Congress has become increasingly concerned with our lack of commitment to research and development. It appears that this Administration is supporting R. & D. in inverse proportion to the need. Nowhere is this more evident than in aeronautics. With the establishment of NASA in 1958, air breathing technology has been relegated to a minor role receiving less than ten percent of the budget. Now, at a time when our major trading partners are challenging our leadership in aeronautics, we are doing nothing to meet the challenge. Of course, Boeing and other major airframe and engine manufacturers are doing more than their share in attempting to maintain the traditional U.S. share of world aeronautical markets. However, this share,

which was once on the order of 94%, has declined to less than 70% during the last five years. Our foreign competitors have more than doubled their percentage of gross national product (GNP) devoted to research while we have reduced ours to less than a third during the same period (2 versus 5 to 6 percent). The will of aeronautical technology is rapidly being depleted in this country. From supersonic to commuter transports, our competitors are enlarging their share of the world market at the expense of the United States. The largest category of manufactured goods exported by the U.S. is aeronautical equipment. We are in danger of becoming an importer rather than exporter of such high technology unless we take a longer term view of our budget priorities.

NASA's role in the ACEE program is quite traditional. That is, not to build a prototype engine or propfan. However, such components must be built and integrated to assess overall performance. The ATP program is designed to ready technology applicable to large cargo aircraft and new military aircraft requiring long range and endurance at subsonic speeds, as well as to air commuter and general aviation aircraft. Such aircraft will be built during the eighties and the availability of advanced propeller technology in the mid-eighties is essential if maximum fuel economy is to be achieved with U.S. built aircraft.

It is the Congress, not the OMB, which has primary responsibility for determining national policy. For a short term deferment of a \$20 million program over four years, or \$40 million over five years including full scale flight testing, the OMB may have saved three million in fiscal year 1980 and lost much more in the long run. The advanced turboprop is considered relatively short term having payoff applications on both existing and new aircraft. Yet, one program, laminar flow control (LFC), promising similar fuel economies on the order of twenty percent, was approved. However, LFC carries the highest risk over a much longer time. OMB allowed NASA to retain this program in fiscal year 1980 at some \$11 million. We believe both programs are important to the future of aeronautics.

During the late fifties, NASA conducted programs in designing propellers for high speed aircraft. An F-84 was fitted with a turboprop. The Russians have done a great deal more with turboprops. The "Bear (TU-114) is a Mach .75 transport/bomber having extremely long range and endurance with contra-rotating turboprops. The propfan would leapfrog such technology.

During Subcommittee discussion of the ATP program, the propfan efficiency was compared unfavorably to the turbofan. Quite the opposite is true, although at lower speeds the propfan which is optimized for cruise at Mach .8, is not so efficient as more conventional turboprops designed for such lower speeds. However, much technology fall-out is expected to benefit slower speed propellers from propfan work.

Many airlines including American, Eastern, TWA and United have indicated strong support for NASA propfan programs.

In addition to the Russians' development of large turboprops, Rolls-Royce has a promising candidate known as the geared-mid-fan (GMF) engine. The GMF has increased bypass ratio (over turbofans) without the lower component efficiencies negating its advantages. While

the advanced R.B.-248 has a 114 in. diameter fan (only slightly larger than the R.B.-211) the GMF is 140 inches, necessitating new design concepts for supporting structure and wing/nacelle interaction. Such concepts would be proven during full scale flight tests during the five year (\$40 million) Phase II program which we urge be reconsidered.

BARRY M. GOLDWATER, JR.
LARRY WINN, JR.

96TH CONGRESS }
1st Session }

SENATE

{ REPORT
No. 96-207

NASA AUTHORIZATION FOR
FISCAL YEAR 1980

REPORT

OF THE

COMMITTEE ON COMMERCE, SCIENCE,
AND TRANSPORTATION

ON

H.R. 1786

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



JUNE 11 (Legislative day, MAY 21), 1979.—Ordered to be printed

U.S. GOVERNMENT PRINTING OFFICE

WASHINGTON : 1979

30-010 O

96TH CONGRESS }
1st Session }

SENATE

{ REPORT
No. 96-207

AUTHORIZING APPROPRIATIONS TO THE NATIONAL
AERONAUTICS AND SPACE ADMINISTRATION

JUNE 11 (Legislative day, May 21), 1979.—Ordered to be printed

Mr. STEVENSON, from the Committee on Commerce, Science, and
Transportation, submitted the following

REPORT

[To accompany H.R. 1786]

The Committee on Commerce, Science, and Transportation, to which
was referred the bill (H.R. 1786) to authorize appropriations to the
National Aeronautics and Space Administration for research and de-
velopment, construction of facilities, and research and program man-
agement, and for other purposes, having considered the same, reports
favorably thereon, with an amendment in the nature of a substitute
and recommends that the bill as amended do pass.

**CONGRESSIONAL ADJUSTMENTS TO NASA REQUEST
FOR FISCAL YEAR 1980**

SUMMARY

Fiscal year 1980	Budget request	House action	Senate committee action
Research and development:			
Space Shuttle	\$1,589,000,000	\$1,593,000,000	\$1,589,000,000
Space flight operations	467,300,000	463,300,000	467,300,000
Expendable launch vehicles	70,700,000	70,700,000	70,700,000
Physics and astronomy	337,500,000	337,500,000	337,500,000
Planetary exploration	220,200,000	220,200,000	220,200,000
Life sciences	43,900,000	43,900,000	43,900,000
Space applications	332,300,000	338,300,000	334,300,000
Technology utilization	12,100,000	12,100,000	12,100,000
Aeronautical research and technology	300,300,000	308,300,000	309,300,000
Space research and technology	116,400,000	116,400,000	119,400,000
Energy technology	3,000,000	3,000,000	5,000,000
Tracking and data acquisition	332,800,000	332,800,000	332,800,000
Total	\$3,822,500,000	\$3,839,500,000	\$3,838,500,000
Construction of facilities	157,600,000	157,600,000	157,600,000
Research and program management	964,900,000	964,900,000	964,900,000
Grand total	4,945,000,000	4,762,000,000	4,961,000,000

PURPOSE OF THE BILL

The purpose of this bill is to authorize appropriations to the National Aeronautics and Space Administration totaling \$4,961,000,000 for fiscal year 1980 as follows:

Fiscal year 1980	Budget request	House action	Senate committee action
Research and development	\$3,822,500,000	\$3,839,500,000	\$3,838,500,000
Construction of facilities	157,600,000	157,600,000	157,600,000
Research and program management	964,900,000	964,900,000	964,900,000

LEGISLATIVE HISTORY

The budget request for fiscal year 1980 for the National Aeronautics and Space Administration was introduced in the House under H.R. 1786 on February 1, 1979 and in the Senate as S. 357 on February 6, 1979. After holding hearings, the House Committee on Science and Technology reported out H.R. 1786 with an amendment in the nature of a substitute. H.R. 1786 was passed by the House on March 28, 1979, with one technical amendment, and subsequently referred to this Committee.

The Committee held hearings on S. 357 during February and March 1979. During its consideration of the bill, the Committee determined that amendments were required. After amending S. 357, including an amendment authorizing a supplemental appropriation for fiscal year 1979, the Committee on April 10, 1979, ordered the House bill, H.R. 1786, reported with an amendment in the nature of a substitute.

Prior to reporting the bill, the Committee was notified by the agency that additional funds were required for fiscal year 1980. The Committee, on May 8, 1979, reconsidered H.R. 1786, ordered the authorization for a supplemental appropriation for fiscal year 1979 deleted from the bill and reported in separate legislation, H.R. 1787, and deferred fur-

ther action on H.R. 1786 pending developments. An amended budget request was submitted to the Congress by the President on May 14, 1979. Additional hearings were held. The Committee, on June 5, 1979, further amended H.R. 1786 and ordered the bill reported.

SUMMARY

For fiscal year 1980 NASA requested a budget totaling \$4,725 million, of which \$3,602,500,000 is for research and development, \$157,600,000 for construction of facilities, and \$964,900,000 for research and program management. However, following a reassessment of the Space Shuttle program, NASA on April 27, 1979, advised the Committee that additional funds would be required in fiscal years 1979 and 1980 for the Space Shuttle design, development, test and evaluation (D.D.T. & E.) program. Initially, NASA proposed to accommodate these new funding requirements within existing fiscal year 1979 and fiscal year 1980 budget levels by transferring funds from the orbiter fleet production program to the D.D.T. & E. program. However, such a transfer would have deferred substantially production and delivery of the Shuttle's operational fleet, thereby incurring a large cost penalty (as much as \$500 million); moreover, the Space Shuttle would not have been able to meet civil and military requirements for space launches during the early 1980's, thereby incurring additional costs approaching \$500 million for the procurement of expendable launch vehicles and losses associated with the unavailability of the Shuttle's unique capabilities.

On May 14, 1979, the President formally requested the Congress to consider an amendment to the fiscal year 1980 NASA budget request in the amount of \$220 million for the Space Shuttle program to maintain the D.D.T. & E. and production schedules necessary to meet civil and military requirements and to avoid steep cost penalties. Thus, for fiscal year 1980, the NASA budget request totals \$4,945 million of which \$3,822,500,000 is for research and development; the amounts requested for the construction of facilities and research and program management are unchanged from the original request.

The Committee recommends a total of \$4,961 million be authorized to be appropriated to the National Aeronautics and Space Administration for fiscal year 1980, an amount \$16 million above the amended request. Of the amount recommended by the Committee, \$3,838,500,000 is for research and development, which is \$16 million above the request and \$199 million above the amount approved by the House; \$157,600,000 is for construction of facilities which is identical to NASA's request and identical to the House-approved amount; and \$964,900,000 is for research and program management, which is identical to the request and to the amount approved by the House. It should be noted that the bill as passed by the House does not include consideration of the President's \$220 million budget amendment; the House passed the bill before the President sent his amended budget request to the Congress.

The Committee recommendation is \$394,831,000 above the amount available to NASA for fiscal year 1979 (including two fiscal year 1979 supplemental requests—for the Space Shuttle and for Federal employee pay increases), an increase of less than 1 percent after allowing for the effects of inflation. This recommendation by the Committee

represents about 0.8 percent of the total new budget authority recommended by the Budget Committees of the Senate and the House.

The NASA budget request for fiscal year 1980 has been carefully reviewed by the Committee. It was noted that, while supporting research and development projects underway, the request provided for no new initiatives and that important programs had been cut substantially by the Office of Management and Budget. The Committee found that some of these cuts impair the future needs of the Nation, therefore, the Committee recommends additions, directed to the Nation's future needs in space and aeronautics, as follows:

Two million dollars to initiate development of a solid state, multispectral resource sampler for remote sensing applications;

Four million dollars to be applied to technology of variable cycle aircraft engines;

Five million dollars to initiate a program in advanced rotorcraft technology directed to maintaining U.S. leadership in the technology and thus in the market for such aircraft;

Three million dollars for increased effort on the development of advanced space structures;

Two million dollars to support additional activities in NASA designed to identify and verify potential contributions to national energy needs.

In addition, the Committee in this report directs an internal reallocation of \$1 million to advanced programs in the space flight operations program for definition studies of a large deployable antenna, including planning for multiagency participation in a demonstration project.

Those new initiatives with a multiyear performance period can be supported without major impact on NASA's subsequent budgets.

The bill provides authorization for appropriations in three appropriation categories; research and development, construction of facilities, and research and program management.

The 12 line items under research and development are fully described in the subsequent sections of the report.

The principal elements of the construction of facilities request are: Space Shuttle facilities, \$31,450,000; large aeronautical facilities, \$45,900,000; other aeronautical research facilities, \$16,600,000; repair projects, a new facility category for fiscal year 1980, \$12 million; rehabilitation and/or modification projects, \$31,550,000 of which \$19,790,000 is for high priority projects not in excess of \$500,000 each; new construction, \$6,100,000 of which \$3,500,000 is for high priority minor construction projects not in excess of \$250,000 per project; and facility planning and design, \$14,000,000. The major Space Shuttle facility requirements are for completing the construction of the second launch facility at the Kennedy Space Center and for additional modifications at the Michoud Assembly Facility to support Space Shuttle external tank production operations. Funding for the large aeronautical facilities represents the fourth and final increment for both the transonic facility at the Langley Research Center and the expansion and upgrading of the low speed, subsonic 40- by 80-foot wind tunnel at the Ames Research Center.

The Committee recommendation for research and program management reflects a personnel level of 22,563 at the end of fiscal year 1980.

This is 674 positions below the level recommended for fiscal year 1979. Of the \$964,900,000 requested, about 75 percent is for salaries and personnel benefits. The remaining 25 percent is divided among facility services, technical services, management and operations support, and travel.

The Committee also considered several legislative amendments as discussed in the report under legislative changes. Two of the amendments are technical in nature; the third deletes the authorization of appropriations for NASA for fiscal year 1981 which will be the subject of a separate authorization bill next year.

Section 6 of the bill contains two amendments to the National Aeronautics and Space Act of 1958, as amended, both proposed by NASA. The first amendment modifies section 203(c)(13)(A) authorizing NASA to settle small claims not in excess of \$25,000 in lieu of the existing \$5,000 limitation on such actions. The second amendment adds a new section 308 entitled "Insurance and Indemnification." It is designed to facilitate an orderly and equitable allocation of tort liability risk in the operations of the Space Shuttle. In so doing, it is designed to encourage and maximize the commercial use of the Shuttle thus reducing the cost of space flights for both the U.S. Government and non-Government users. A detailed analysis of these amendments can be found in the section-by-section analysis section of the report.

The Subcommittee on Science, Technology, and Space held 6 days of hearings on the contents of this bill during February and March. On April 6, 1979, the subcommittee met to prepare its recommendations to the full committee. On April 10, 1979, the Committee on Commerce, Science, and Transportation met, marked up the bill, and ordered, without objection, the bill reported. However, as previously noted, before the Committee reported the bill, the Committee was notified of the need for additional funds for the Space Shuttle program. Therefore, on May 8, 1979, the Committee withdrew its order to report the bill. Additional hearings on Space Shuttle program funding requirements were held by the subcommittee on May 1 and June 4, 1979. On June 5, 1979, the Committee on Commerce, Science, and Transportation met and marked up the bill and, without objection, ordered the bill reported.

RESEARCH AND DEVELOPMENT

SUMMARY

Fiscal year 1980	Budget request	House action	Senate committee action
Research and development:			
Space Shuttle.....	\$1,586,000,000	\$1,393,000,000	\$1,586,000,000
Space flight operations.....	467,300,000	463,300,000	467,300,000
Expendable launch vehicles.....	70,700,000	70,700,000	70,700,000
Physics and astronomy.....	337,500,000	337,500,000	337,500,000
Planetary exploration.....	220,200,000	220,200,000	220,200,000
Life sciences.....	43,900,000	43,900,000	43,900,000
Space applications.....	332,300,000	338,300,000	331,300,000
Technology utilization.....	12,100,000	12,100,000	12,100,000
Aeronautical research and technology.....	300,300,000	308,300,000	305,300,000
Space research and technology.....	116,400,000	116,400,000	119,400,000
Energy technology.....	3,000,000	3,000,000	3,000,000
Tracking and data acquisition.....	332,800,000	332,800,000	332,800,000
Total.....	3,822,500,000	3,639,500,000	3,838,500,000

SPACE SHUTTLE PROGRAM, \$1,586,000,000

The Space Shuttle, under development since 1972, is the key element of the future U.S. space transportation system. It will provide users, both national and international, with round trip access to low-Earth orbits, beginning in 1981. Higher orbits and planetary missions will be achieved using upper stages such as the inertial upper stage and spinning solid upper stages.

The Space Shuttle will be launched from both the Kennedy Space Center, Fla., and the Vandenberg Air Force Base, Calif.

The Space Shuttle consists of the following basic flight hardware elements: the orbiter and its main engines; the external propellant tank; and twin rocket boosters. In addition, there is a ground-based launch and landing system. It is a reusable system, except for the external propellant tank. Consequently, it will make possible multipurpose, economical space operations for applications, scientific, defense, and technological payloads. It will offer capabilities that cannot be achieved with today's launch vehicles. For example, the Space Shuttle will carry both men and women in space to operate equipment that requires the manual dexterity and logical judgments of humans. It will be able to retrieve payloads from space for reuse; to service and repair satellites in space; to transport materials and equipment into orbit; and to carry out rescue missions if needed. These capabilities of the Shuttle will greatly enhance the flexibility and productivity of space operations and reduce their cost.

The Space Shuttle will have a large payload volume of 285 cubic meters (370 cubic yards) and a weight-carrying capacity of up to 29,500 kilograms (65,000 pounds).

The Space Shuttle will have a crew of three: the commander, the pilot, and a mission specialist. On some missions, one or more payload specialists will be added to the crew to operate payloads. The crew will be able to perform their duties in a shirt-sleeve environment.

The Department of Defense will launch all its spacecraft using the Space Shuttle and has scheduled its transition from expendable launch vehicles. The Air Force is the designated executive agent for the Department of Defense for all space transportation system matters. Coordination between NASA and the Department of Defense is achieved through the NASA/USAF Space Transportation System Committee and by detailing personnel between the Department and NASA to serve on each other's committees, boards, and panels, and in extensive day-to-day coordination.

In support of the Space Shuttle, the Air Force has undertaken the development and production of the inertial upper stage for the Space Shuttle and the full-scale development of the Vandenberg Air Force Base Space Shuttle launch and landing facility. Other efforts are underway in such areas as payload interfaces and integration, mission operations, data, and software systems, and future uses of the Space Shuttle.

Summary of Resources Requirements

Design, development, test, and evaluation:	
Orbiter	\$420,800,000
Main engine	140,800,000
External tank	68,400,000
Solid rocket booster	57,500,000
Launch and landing	143,200,000
Subtotal	830,500,000
Production:	
Orbiter	570,800,000
Main engine	109,900,000
Launch and landing	20,000,000
Spares and equipment	55,000,000
Subtotal	755,500,000
Total	1,586,000,000

Milestone schedule

First manned orbital flight	1st Quarter 1980.
Five orbital flight tests	1980.
Initial operational capability	Late February 1981.
Delivery of 2d orbiter	March 1982.
Delivery of 3d orbiter	3rd Quarter 1983.
Delivery of 4th orbiter	4th Quarter 1984.

Design, development, test, and evaluation (D.D.T. & E.).—Space Shuttle development, test and evaluation is now in a period of peak effort with the first orbital flight test now planned for early 1980. Major activities planned for fiscal year 1980 are:

- Complete main propulsion testing;
- Deliver the second set of main engines to the Kennedy Space Center;
- Complete delivery of four sets of solid rocket flight hardware for the orbital flight test program;
- Complete delivery of four external tanks for the orbital flight test program; and
- Conduct the first orbital test flight—manned—and continue subsequent orbital flight tests.

The reusable orbiter, approximately the size of a DC-9 jet transport, serves as the spacecraft to deploy and retrieve payloads, provide quarters for the personnel and a base for short duration on-orbit experiments. On completing its on-orbit task the orbiter reenters the atmosphere and lands similar to an airplane returning crew and payloads to the launch site. The first flight vehicle, Orbiter 102, is at the Kennedy Space Center undergoing final systems installation and checkout in preparation for an early 1980 launch. Six—may be reduced to five—orbital test flights using Orbiter 102 are scheduled progressively to support the verification of the Space Shuttle for operational use. During fiscal year 1980 orbital test flights are planned at intervals of approximately every 3 months.

Three high-pressure liquid hydrogen/oxygen engines, each with a 2,100,000 newton (470,000 pounds) thrust—in vacuum—will be used on the Space Shuttle. These engines represent a major advancement in propulsion technology. Progress on the main engine development, test, and evaluation has been significant. However, during the past year, problems were experienced with a number of engine components which have caused the main engine project to fall behind in accumulated engine test time. Although engine testing is still a pacing item in the program, it is expected to be completed by fiscal year 1980.

The external tank will carry all the propellants—liquid hydrogen as a fuel and liquid oxygen as the oxidizer—for the orbiter's three main engines which will burn from just before liftoff to cutoff, just prior to orbital insertion. The external tank will then be separated from the orbiter and put into a planned ballistic trajectory where it will tumble and break up with the pieces landing in a designated remote ocean area.

Two reusable solid rocket boosters (SRB) attached to the external tank will burn in parallel with the orbiter main engines to provide the necessary thrust for the Space Shuttle from liftoff to booster staging. Each SRB weighs approximately 583,600 kilograms (1.29 million pounds) and will deliver approximately 11.6 million newtons (2.6 million pounds) average thrust—in vacuum. The SRB's are approximately 3.6 meters (12.2 feet) in diameter and 45.5 meters (149 feet) long. After burnout, at an altitude of about 45 kilometers (150,000 feet) the SRB's will separate from the external tank, descend by parachute, and land in the ocean about 260 kilometers (140 nautical miles) from the launch site. They will be recovered by ship and returned for refurbishment and reuse.

The launch and landing project includes the preparation of a series of Space Shuttle ground processing, launch and landing station sets at the Kennedy Space Center and the Dryden Flight Research Center, and the operation of these sets through the orbital flight tests. These station sets include handling, testing and servicing systems, and ground support equipment. During fiscal year 1980, the major activities will focus on processing flight elements and conducting the first four orbital flight tests, recovery and processing of the reusable flight hardware from the orbital flight tests, and assessing ground processing activities to improve vehicle turnaround time.

A further assessment of D.D.T. & E. program status and funding requirements was made in conjunction with compiling the budget requirements for NASA for fiscal year 1981. It was determined that more work than previously anticipated remained to be accomplished to support the projected schedule for the first orbital test flight, and that additional funds were required in fiscal years 1979 and 1980. After considering various alternatives including rescheduling the D.D.T. & E. program; or transferring large amounts of funds to D.D.T. & E. from the production program, the President submitted a budget amendment increasing the recommended funding for the D.D.T. & E. program by \$220 million. These additional funds in fiscal year 1980 will be coupled with a transfer of \$70 million from the production program to support the more urgent D.D.T. & E. requirements in fiscal year 1979. The latter action will cause a delay in delivery of the vehicles for the Shuttle operational fleet by 6 to 12 months; however, the revised delivery

schedule will support the planned early Shuttle payloads. It is estimated that without the availability of additional funds, the Shuttle program could experience direct cost increases approaching \$500 million with indirect costs approaching an additional \$500 million.

Production.—The purpose of the Space Shuttle production program is to build a national fleet of operational orbiters. Again, as in his fiscal year 1979 budget request, the President has proposed a four-orbiter fleet retaining an option to buy a fifth orbiter at a later date reversing a decision in the fiscal year 1978 budget request to acquire a five-orbiter fleet. In its fiscal year 1979 action on the NASA authorization and appropriation bills, Congress supported a five-orbiter fleet and authorized and appropriated \$4 million for fiscal year 1979 to begin the production of the fifth orbiter.

The four-orbiter fleet will be made up of the refurbished Orbiter 102 (the orbiter used for the orbital flight tests); the structural test article (Orbiter 099) uprated to operational capability; and two new orbiters, Orbiters 103 and 104. If only four operational orbiters are built, and there is a serious orbiter accident, the fleet would have only three orbiters. After the middle 1980's a three-orbiter fleet cannot fly the expected number of missions. This would have serious repercussions for the U.S. space program and especially for the military space program which is planning to use the Space Shuttle for all its missions after about 1985.

Committee comment

D.D.T. & E.—The Committee considers the Space Shuttle development program to be of highest priority. The Nation's space launch requirements are dependent upon the availability of the shuttle system in a timely manner. Delays at this point in the program are very costly. The Committee urges NASA to continue to pursue this development activity with the utmost vigor keeping the Committee informed fully on progress and problems during the ensuing months. Further, the Committee desires to be informed on an interim basis of the progress in the management assessment of the space transportation system initiated by the Administrator.

Production.—The Committee remains convinced of the need for a five-orbiter fleet to support space launch requirements during the 1980's. It is clear from testimony that, as the availability of the Space Shuttle nears and planning for its use intensifies, more utilization, including longer duration missions, is contemplated by user organizations. This greater utilization is in addition to the latest revision of the NASA mission model that continues to demonstrate the need for a five-orbiter fleet if an assured launch capability is to be offered to users. However, with the delay in the delivery schedule of orbiters 099, 103 and 104 due to the need to concentrate resources on the development program, and testimony that no work could be accomplished on the fifth orbiter, the Committee is not recommending additional funds for procurement of a fifth orbiter at this time. It urges the Administration to reconsider its position on the fifth orbiter in view of critical national needs and to provide for the continuation of acquisition of this vehicle in the fiscal year 1981 budget.

The House added \$27 million to this program for the production of the fifth orbiter. This action was taken prior to receipt of the budget amendment.

SPACE FLIGHT OPERATIONS PROGRAM, \$467,300,000

The space flight operations program provides for space transportation system activities other than the Space Shuttle development, test, evaluation, and fleet production, and for common supporting functions at the NASA centers. It includes the activities listed in the following table.

Summary of Resources Requirements

Space transportation systems operations capability development...	\$128,800,000
Development, test and mission support.....	172,600,000
Advanced programs.....	13,000,000
Space transportation system operations.....	153,100,000
Total	467,300,000

*\$1 million to be reallocated to advanced programs from other program elements.

Space transportation systems operation capability development provides for space transportation system development not funded under the Space Shuttle program. These development and support activities are necessary to facilitate an orderly transition to space transportation system operations and to provide the means for expanding space capabilities while reducing the cost of space operations. Principal areas of activity include the spacelab, the space transportation system upper stages, multimission and payload support equipment, mission control center upgrading, payload and operations support, and thrust augmentation of the Space Shuttle.

Development, test, and mission support provides the common engineering, scientific and technical support required at the following NASA centers: Johnson, Marshall, Kennedy and the National Space Technology Laboratories.

Advanced programs provide technical as well as programmatic data for new initiatives for consideration for further development. These activities are conducted to develop new capabilities, to obtain significant performance improvements and reduce future program risks and development costs through the effective use of new technology.

Space transportation system operations integrate the Space Shuttle system, the Spacelab, and the upper stages into a versatile, economic system; accomplish mission planning, provide the operational reoccurring hardware and consumables, and support all launch, flight recovery, crew, and related activities. This funding category will increase significantly over fiscal year 1979 reflecting the preparation for routine Space Shuttle operations expected to begin in 1981.

Committee comment

Except for the advanced programs line item, the space flight operations program efforts are directed primarily to supporting activities to complete the Space Shuttle development program and to preparations for introducing the Shuttle as an operational national space launch system. The Committee believes that bringing the Shuttle into operational use as soon as possible must be the highest priority objective and, therefore, it supports fully the budget request for the space flight operations program.

The Committee notes the increase over the fiscal year 1979 budget plan proposed for advanced program activities in fiscal year 1980. These activities, by identifying future space flight requirements and

defining and evaluating alternative technologies, provide a foundation for developing new capabilities in space. One of these is a proposed large deployable antenna demonstration for which the House added \$1 million for additional effort on the concept. The Committee agrees with the importance of this proposal and it has also added \$1 million to advanced programs activities for this purpose; however, the additional amount is to be reallocated from within other elements of the space flight operations program. The Committee expects NASA to coordinate its efforts on the antenna project with all potential users of such a system.

The Committee recommends \$467,300,000 for the space flight operations program, an increase of \$4 million above that approved by the House.

PHYSICS AND ASTRONOMY PROGRAM, \$337,500,000

Committee comment

The Committee notes the extraordinary advances in scientific knowledge, as well as the outstanding technical successes, that have resulted from space science programs over the past two decades. This knowledge has led to a better understanding of the Earth, the planets, and the Earth's space environment. With the Earth as a unique body in the solar system it becomes increasingly important to extend our current base of knowledge in order to preserve the Earth as we know it and to understand fully what the universe itself holds for mankind. The Committee believes the Nation should continue progressive, step-by-step investigations in space science to increase the base of scientific knowledge to maintain direction and purpose in the space science effort and to maintain our scientific and engineering capability to produce successful missions. Accordingly, the Committee requests that NASA give priority attention to initiating development of the gamma ray observatory in fiscal year 1981, an instrument which is designed to conduct a whole-sky survey in the highest energy region of the electromagnetic spectrum. A delay beyond fiscal year 1981 would introduce an unacceptable gap in space science capability.

LUNAR AND PLANETARY EXPLORATION, \$220,200,000

Committee comment

For the reasons stated in its comment on the physics and astronomy program, the Committee believes it is also important for the Venus orbiting imaging radar (VOIR) project to be started as soon as possible. This project will determine surface and atmospheric characteristics of this nearby planet, expanding the data base from the successful Pioneer Venus probe project and prior Venus missions. The Committee, in recognition of budgetary constraints, is not recommending proceeding with the VOIR in fiscal year 1980; however, the Committee requests that the VOIR project be given the highest priority for a new start in formulating the fiscal year 1981 budget.

SPACE APPLICATIONS PROGRAM, \$334,300,000

Committee comment

Resource observations.—Resource observations characterized by the highly successful Landsat series of satellites continue to demonstrate the contribution of space-based technology to national needs. The multispectral resources sampler is an important remote sensing device designed to provide better data with high reliability. The Committee recommends initiating development of this instrument in fiscal year 1980 and has added \$2 million to the space applications program for this purpose. This action agrees with that of the House.

Environmental observations.—NASA has defined a national oceanic satellite system (NOSS) in conjunction with the National Oceanic and Atmospheric Administration and the Department of Defense. This system is designed to provide ocean condition data on an operational basis similar to weather data received routinely from the operational weather satellites. NASA would develop the space system and the other agencies and priority users would provide for the ground system to assure a fully integrated and useful data distribution system. The Committee concurs with the House on the importance of the NOSS system; however, with the need for budgetary restraint, the Committee did not believe it should support a new start in this fiscal year. Joint system definition and funding discussions with DOD and NOAA should be continued so that a fully unified project may be initiated at the earliest possible time.

The Committee recommends \$334,330,000 for the space applications program, an increase of \$2 million above the budget request.

AERONAUTICAL RESEARCH AND TECHNOLOGY PROGRAM, \$309,300,000

Committee comment

Supersonic technology.—The Committee recognizes the responsibility of NASA to pursue all elements of aeronautical research. Accordingly, it has supported a low-level funding commitment to supersonic technology—variable cycle engine and supersonic cruise aircraft research—over the past several years. Higher funding levels have not been advanced because of the necessity to address more immediate needs such as the aircraft energy efficiency program. The Committee also recognizes, as stated in testimony, that a point can be reached in technology advance where it is necessary to make a commitment to a more aggressive program or to terminate the effort for the lack of productive return on investment. The variable cycle engine project appears to have reached that point. Accordingly, the Committee requests that NASA decide whether a formal, targeted development effort is warranted and if so, present such a proposal. In the meantime, the Committee agreed to continue the variable cycle engine effort for another year at the \$9 million level, \$4 million above the request, and \$4 million below the amount approved by the House.

Advanced rotorcraft technology.—Three years ago NASA initiated a rotorcraft technology program to respond to an assessment of the potential market for rotorcraft and to the state of U.S. technology to compete for that market. Subsequently, NASA focused its rotorcraft activities at the Ames Research Center. It is the Committee's view that the United States must move expeditiously and aggressively to advance its rotorcraft technology if it is to maintain a leadership role equivalent to that held in commercial jet transports. Accordingly, the Committee has added \$5 million to the aeronautical research and technology program to initiate an advanced rotorcraft technology development activity.

Lighter-than-air technology.—In hearings conducted by this Committee on February 27 and March 1, 1979, considerable interest was expressed by industry and Government witnesses as to the potential value of lighter-than-air (LTA) applications in meeting national needs for lifting and emplacing very heavy loads and for conducting long endurance patrol, rescue and reconnaissance missions. The Committee believes that construction of a flight research vehicle is necessary to verify LTA heavy lifter technology. Accordingly, the Committee requests that NASA initiate definition of a LTA heavy lifter technology verification program with the objectives of integrating completed research in aerodynamics, structures, rotor-lift, and computer control, and of requesting funds for a flight research vehicle in the fiscal year 1981 budget or the fiscal year 1982 budget at the latest. In addition, NASA should review the requirements of Federal agencies for LTA vehicles for patrol, rescue, and reconnaissance and report to the Committee on or before March 1, 1980.

SPACE RESEARCH AND TECHNOLOGY PROGRAM, \$119,400,000

Committee comment

Consistent with the Committee's support for the study of advanced initiatives in space, such as a large deployable antenna, the Committee is recommending the addition of \$3 million to this program for additional effort on the development and testing of large space structures. It is clear that lightweight, strong, and easily assembled and deployed structures are basic to the development of space platforms to apply space-based systems to support national needs in communications and other areas.

ENERGY TECHNOLOGY PROGRAM, \$5,000,000

Committee comment

The Committee remains convinced that the energy technology identification and verification activities supported by this program are a most effective method for assuring the maximum application of technology developed in aeronautical and space activities to national energy needs. A relatively small investment, used as seed money, continues to pay substantial dividends. Therefore, the Committee is recommending \$5 million for the energy technology program, an increase of \$2 million to enhance the identification and verification activity.

CONSTRUCTION OF FACILITIES

<i>Item</i>	<i>Summary</i>	<i>Amount</i>
1.	Modification of static test facility, Ames Research Center.....	\$2,900,000
2.	Construction of large aircraft maintenance dock, Hugh L. Dryden Flight Research Center.....	1,500,000
3.	Rehabilitation and modification of flight operations facilities, Ellington Air Force Base.....	1,760,000
4.	Modifications to central instrumentation facility, John F. Kennedy Space Center.....	1,260,000
5.	Modifications to operations and checkout building, John F. Kennedy Space Center.....	950,000
6.	Rehabilitation of roof, launch control center, John F. Kennedy Space Center.....	600,000
7.	Modifications of model support system 8-foot high temperature structures tunnel, Langley Research Center.....	1,410,000
8.	Modifications to 8-foot transonic pressure tunnel, Langley Research Center.....	2,000,000
9.	Modification of transonic dynamics tunnel, Langley Research Center.....	970,000
10.	Rehabilitation and modification of gas dynamics laboratory, Langley Research Center.....	3,600,000
11.	Modifications to central air system, various buildings, Lewis Research Center.....	5,720,000
12.	Modifications to various buildings, Marshall Space Flight Center.....	2,640,000
13.	Rehabilitation of roofs, various buildings, Marshall Space Flight Center.....	900,000
14.	Rehabilitation of roof, Phase I, building 103, Michoud Assembly Facility.....	3,100,000
15.	Construction of facilities operations shop building, Wallops Flight Center.....	1,100,000
16.	Large aeronautical facility: Construction of national transonic facility, Langley Research Center.....	12,000,000
17.	Large aeronautical facility: modification of 40- by 80-foot subsonic wind tunnel, Ames Research Center.....	33,900,000
18.	Space Shuttle facilities at various locations as follows:	
	(a) Modifications to launch complex 39, John F. Kennedy Space Center.....	17,100,000
	(b) Modifications to crawler transporter maintenance facility, John F. Kennedy Space Center.....	1,250,000
	(c) Modification of manufacturing and final assembly facilities for external tanks, Michoud Assembly Facility.....	6,900,000
	(d) Minor Shuttle-unique projects, various locations.....	2,500,000
19.	Space Shuttle payload facilities at various locations as follows:	
	(a) Rehabilitation and modification for payload ground support operations, John F. Kennedy Space Center.....	2,610,000
	(b) Modification and addition to materials sciences laboratory, Ames Research Center.....	1,640,000
20.	Repair of facilities at various locations, not in excess of \$500,000 per project.....	12,000,000
21.	Rehabilitation and modification of facilities at various locations, not in excess of \$500,000 per project.....	19,790,000
22.	Minor construction of new facilities and additions to existing facilities at various locations, not in excess of \$250,000 per project.....	3,500,000
23.	Facility planning and design not otherwise provided for.....	14,000,000
	Total	157,600,000

Committee comment

The Committee recognizes the need for an organized repair program to protect the investment in facilities and to assure continuity of research and development activities. Therefore, the Committee supports fully the definition and establishment of a centrally managed repair activity within the construction of facilities program. Consistent with this position, the Committee has separated out from two heterogeneous modification projects two projects clearly within the repair definition and has established these as line items 1(b) (6) and (14) in the bill. The House established the same line items in its action on the authorization request.

RESEARCH AND PROGRAM MANAGEMENT

SUMMARY

Fiscal year 1980	Budget request	House action	Senate committee action
Personnel and related costs.....	\$727,176,000	\$727,176,000	\$727,176,000
Travel.....	19,797,000	19,797,000	19,797,000
Facilities services.....	113,190,000	113,190,000	113,190,000
Technical services.....	42,288,000	42,288,000	42,288,000
Administrative support.....	62,449,000	62,449,000	62,449,000
Total	\$64,900,000	\$64,900,000	\$64,900,000

The research and program management appropriation includes funding for research in Government laboratories, management of programs, and other activities of the National Aeronautics and Space Administration. Principally, it is intended to: (1) provide the civil service staff to conduct in-house research, and to plan, manage, and support the research and development programs; and (2) provide other elements of operational capability to the laboratories and facilities such as logistics support (travel and transportation, maintenance, and operation of facilities) and technical and administrative support.

Approximately three-fourths of this authorization recommendation for fiscal year 1980, or \$727,176,000, is required to pay the salaries and related personnel costs of NASA employees during the fiscal year. This amount will support 22,563 permanent positions, of which approximately 65 percent will be occupied by scientific, engineering, and supporting technician personnel. Programmatically, 18,642 employees will be assigned to space and 3,921 employees to aeronautics research activities. The recommended staffing plan for fiscal year 1980 represents a reduction of 268 positions from the on-board strength September 30, 1979, and a total reduction of 674 positions over fiscal years 1979 and 1980. NASA personnel strength has declined each year from the agency high of about 33,900 in 1966, and now is at a point where its technical competence to conduct and to manage complex research activities and to effectively utilize unique national research facilities, particularly in aeronautics, is endangered. In addition, the continuing annual personnel reductions make it exceedingly difficult to provide the flexibility to bring in young scientists and engineers to reinvigorate the work force. The major factor influencing funding requirements for NASA personnel is the necessity to fund the annual Federal salary

increases which more than offset personnel reductions. For example, the October 1978 Federal pay increase will necessitate a supplemental appropriation of \$30,969,000 for NASA for fiscal year 1979. The total NASA personnel cost estimate for fiscal year 1980 in this bill is \$6,252,000 above the current estimate for fiscal year 1979.

The remaining funding in this appropriation category is, for convenience, grouped into the functional budget categories of travel, facilities services, technical services, and management and operations support for which a total of \$237,724,000 is recommended. After net adjustments, this amount is about \$17 million above the fiscal year 1979 budget plan primarily due to rising utility rates and wage increases for support contractor personnel at the several installations. NASA has under way an aggressive energy conservation and reduction program achieving a level 37 percent below fiscal year 1973; however, continuing wage increases for support contractor personnel and increases in utility rates more than offset savings originating from energy usage reductions.

ESTIMATED COSTS

The NASA request for new budget authority for fiscal year 1980, including the budget amendment, was \$4,945 million. This bill, H.R. 1786, as recommended by the Committee, authorizes appropriations to the National Aeronautics and Space Administration in the amount of \$4,961 million for that fiscal period. This amount is \$16 million above the budget request.

In accordance with the requirements of section 252(a) of the Legislative Reorganization Act of 1970, the estimates for the next 5 years of NASA budget authority are as follows:

[In millions of dollars]

Fiscal year:	NASA estimate	Committee estimate
1980	4,945	4,961
1981	4,866	4,892
1982	4,575	4,603
1983	4,235	4,257
1984	3,875	3,890

The above estimates are future funding requirements for the continuation or completion of the NASA programs (including the development and production of the Space Shuttle) provided for in this bill. No provision is made for the initiation of new programs and projects after fiscal year 1982. Further, these estimates do not provide for administrative adjustments that may be required, such as Federal employee pay increases, and no provision is made for the impact of inflation beyond fiscal year 1980. Future year budgets must, of necessity, reflect the foregoing adjustments and in addition, will undoubtedly include requests for new programs and projects as currently approved activities are completed. 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 1984 will approximate \$4.9 billion, in fiscal year 1980 budget

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, space applications, and aeronautics. building on and capitalizing on the data and experience already acquired.

With respect to section 308(a) of the Congressional Budget Act of 1974, House Concurrent Resolution 107 establishes a level of \$5.7 billion for function 250 within which \$4.2 billion would be allocated for NASA space activities (Senate Budget Committee Mission 2). This bill would authorize \$4.4 billion for these activities, an amount \$200 million above the subtotal for space. This increase is due to the inclusion of the President's budget amendment submitted on May 14, 1979, a date that precluded consideration of the additional funds in the First Concurrent Resolution on the budget for fiscal year 1980. The remaining amount in this bill, \$566 million, falls within function 400 with a House Concurrent Resolution 107 total of \$19.45 billion, a level which, the Committee believes, can accommodate the funding for aeronautical research activities in this bill. These activities are authorized at \$9 million above the President's budget request.

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

The Committee will file a Senate resolution to waive the requirements of section 402(a) of the Congressional Budget Act of 1974 with respect to this bill.

The Congressional Budget Office has submitted to the Committee its estimate on this bill pursuant to section 403 of the Congressional Budget Act of 1974. The CBO submission of June 7, 1979 follows:

CONGRESSIONAL BUDGET OFFICE COST ESTIMATE

1. Bill Number: H.R. 1786.
2. Bill Title: National Aeronautics and Space Administration Authorization Act, 1980.
3. Bill Status: As ordered reported by the Senate Committee on Commerce, Science, and Transportation, June 5, 1979.
4. Bill Purpose: This bill authorizes appropriations of \$4.96 billion for the National Aeronautics and Space Administration (NASA) for fiscal year 1980. This authorization level is \$16 million higher than the President's amended budget request for fiscal year 1980, and 14 percent above the current fiscal year 1979 appropriation (\$4.35 billion, excluding a pending supplemental request of \$185 million). In addition, the bill authorizes the appropriation of additional sums as may be necessary for increases in salary and employee benefits authorized by law. The bill also amends the National Aeronautics and Space Act to increase the personal and property damage claims payment ceiling and to authorize NASA to provide liability insurance to private space vehicle users.

5. Cost Estimate:

(By fiscal years, in millions of dollars)

	1980	1981	1982	1983	1984
Estimated Authorization Level:					
Function 250	4,395.1	-----	-----	-----	-----
Function 400	565.9	-----	-----	-----	-----
Function 920	39.7	-----	-----	-----	-----
Total	5,000.7	-----	-----	-----	-----
Estimated Outlays:					
Function 250	3,318.2	887.6	177.7	11.8	2.2
Function 400	320.2	182.5	40.5	16.6	6.2
Function 920	37.2	-----	-----	-----	-----
Total	3,675.6	1,070.1	218.2	28.4	8.4

Including outlays from prior years' authority enacted to date, total fiscal year 1980 outlays for NASA activities will be \$4,790 million, assuming the funding level authorized in this bill.

6. Basis of Estimate: For the purpose of this estimate, it is assumed that this bill will be enacted and the entire amount authorized will be appropriated prior to fiscal year 1980. The estimated funding required for the pay comparability increase is based on a 5.5 percent increase, effective October 1, 1979. This increase falls within budget function 920 in fiscal year 1980. The estimated annual outlays for fiscal year 1980 funds are based on the historical spendout patterns of the major NASA programs.

The amendments to the National Aeronautics and Space Act are not expected to result in additional costs to the government. The increase in the claims ceiling is to comply with government-wide policy. Based on agency experience, few if any claims are expected by NASA, although the amendment could result in higher payments should any claims occur. The provision of liability insurance to private space vehicle users is not expected to result in costs to the agency, because agency plans call for costs to be covered by user fees.

7. Estimate Comparison: None.

8. Previous CBO Estimate: CBO transmitted a cost estimate on April 12, 1979, for H.R. 1786, as ordered reported by the Senate Committee on Commerce, Science, and Transportation, April 10, 1979. The new Senate version authorizes \$183 million more for fiscal year 1980 than the earlier version, resulting in additional 1980 outlays of \$150.7 million. However, this version of the Senate bill does not include an authorization for a 1979 supplemental, which was reported in a separate bill (H.R. 1787).

CBO transmitted a cost estimate on March 16, 1979 for H.R. 1786, as ordered reported by the House Committee on Science and Technology on March 14, 1979. The new Senate version of H.R. 1786 authorizes \$199 million more in appropriations than the House version for fiscal year 1980, resulting in additional outlays of \$161 million in fiscal year 1980. In addition, this estimate reflects a revised assumption

regarding projected federal pay raises, 5.5 percent rather than 10.5 percent reflected in the estimate for the House bill.

9. Estimate Prepared by: Mark Berkman.

10. Estimate Approved by:

JAMES L. BLUM,
Assistant Director for Budget Analysis.

LEGISLATIVE CHANGES

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

The Committee inserted two new line items, 1(b)(6) and 1(b)(14), in section 1(b) and renumbered the existing line items to conform with these changes. This action establishes as individual line items major facility repair projects proposed for accomplishment within other heterogeneous modification projects included in the bill. Funding levels for the modification projects were reduced accordingly so there is no change in total funding for the construction of facilities program. The Committee recommendation is consistent with its view as to the importance of the facility repair function and the identification of repair as a formal activity in the facilities program. The House adopted the same line items in its action on the fiscal year 1980 authorization request.

The Committee amended section 6 of the bill, by the addition of a subsection (c), to establish an effective date of October 1, 1979 for the two amendments to the National Aeronautics and Space Act of 1958, as amended, provided for in this section. This change is to conform with the requirements of the Congressional Budget and Impoundment Control Act of 1974. An identical provision was added to the House bill by floor amendment.

The Committee deleted section 7 of S. 357 which would have authorized to NASA total amounts for each appropriations category for fiscal year 1981. Since separate legislative action will be undertaken on the fiscal year 1981 authorization request, no action is necessary at this time. The House also deleted this provision during its consideration of the fiscal year 1980 authorization bill.

REGULATORY IMPACT STATEMENT

This bill authorizes the appropriation of funds for the conduct of space and aeronautical research and development activities to carry out the policy and purpose of the National Aeronautics and Space Act of 1958. These activities are conducted in NASA laboratories by NASA personnel and through contracts with industry, universities and research institutions for research and development and for supporting scientific and technical services. The Committee has concluded the nature of these activities is such that there is no regulatory impact on individuals and businesses and, therefore, it is impractical to include in this report a regulatory impact evaluation as set forth in paragraph 5(a), rule XXIX of the Standing Rules of the Senate.

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 \$4,961 million as follows: (a) For "Research and development," a total of 12 program line items aggregating the sum of \$3,838,500,000; (b) for "Construction of facilities" a total of 23 line items aggregating the sum of \$157,600,000; and (c) for "Research and program management", \$964,900,000. 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 this 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 and to the extent provided 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 12 months beginning at any time during the fiscal year.

Subsection 1(f) authorizes the use of not to exceed \$25,000 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 \$75,000 per project (including collateral equipment) may be used for construction of new facilities and additions to existing facilities, and for repair, rehabilitation, or modification of 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 any of the foregoing to meet 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 percent at the discretion of the Administrator or his designee, or 25 percent 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 Commerce, Science, and Transportation 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 (22).

Section 3

Section 3 provides that not more than one-half of 1 percent of the funds appropriated for "Research and development" may be transferred to the "Construction of facilities" appropriation and, when so transferred, together with \$10 million of the funds appropriated for "Construction of facilities" (other than funds appropriated for facility planning and design), shall be available for the construction of facilities and land acquisition at any location if the Administrator determines (1) that such action is necessary because of changes in the aeronautical and 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 Commerce, Science, and Transportation;

(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 makes two amendments to the National Aeronautics and Space Act of 1958. Subsection (a) amends section 203(c)(13) (A) and (B) to increase to \$25,000 the amount for which the Administration may settle or adjust claims on behalf of the United States for actions resulting from the conduct of the Administration's functions. The increase raises the adjustment to the same level established for the Federal Tort Claims Act (Public Law 89-506), which was set at \$2,500 prior to 1966.

Subsection (b) of section 6 adds a new section 308 to the National Aeronautics and Space Act of 1958, as amended, and renumbers existing section 308 as section 309.

The new section 308 includes six subsections, (a) through (f).

Subsection (a) authorizes the Administrator to provide liability insurance to any user of a space vehicle to compensate them for claims by third parties for damage resulting from described activities. The Administration is authorized to provide such insurance in its sole discretion on such terms and to the extent it may deem appropriate. Thus, for example, the Administration could require certain Shuttle users to obtain through NASA and pay for an equitable share of third-party liability insurance. On the other hand, the Administration could, in its discretion, exempt other Shuttle users, for example, small self-contained payloads, from the requirement of obtaining insurance or paying for it.

This subsection authorizes the Administrator, for example, to procure insurance for a number of Shuttle flights in the future based on a projected schedule. In doing so, he is authorized to use for the purchase of such insurance appropriated funds available to the Administration. In turn, he is required to seek reimbursement of the appropriation used, to the maximum extent practicable, from the users under general Shuttle reimbursement policies established pursuant to section 203(c) of the National Aeronautics and Space Act of 1958, as amended. This could be accomplished by charging users a fixed price for the insurance based upon an estimate of the cost of insurance, the number of Shuttle flights and users to be protected by the insurance policy, and other relevant factors. Any other reasonable method of charging users for such insurance may be adopted, depending on NASA's experience and the insurance coverage available. It is not anticipated that NASA would use its appropriated funds to protect the U.S. Government (including NASA when flying its payloads) from liability; however, the subsection is broad enough to permit that if the Administrator determines that to do so would be desirable and appropriate in any particular case, for example, depending on the mix of payloads to be flown on a given Shuttle flight.

Subsection (b) authorizes NASA, in its discretion, to provide in any agreement entered into by it and a user of a space vehicle (as defined in subsection 308(f)), for the indemnification of the user against claims by third parties (as defined in subsection 308(f)) for damage resulting from activities carried on in connection with the launch, operations, or recovery of the space vehicle, but only to the extent that such claims are not compensated by liability insurance of the user. It requires the Administrator to issue implementing regulations which take into account the availability, cost, and terms of liability insurance.

The agreement to indemnify may be inserted in several different types of agreements with users of a space vehicle, including but not limited to, agreements under which NASA provides Shuttle launch services and other Government services and agreements under which non-U.S. Government persons provide to NASA payload specialist services on board Shuttle flights.

It is specifically provided that the indemnification may, if the Administration deems it appropriate, be limited to claims other than those resulting either from the actual negligence of the user or from willful misconduct of the user, or both. Under this authority, the Administration will be able to tailor the extent of the indemnification to the particular circumstances of a given flight, indemnifying the user totally or, for example, indemnifying the user only with respect to damage or injury which did not result from the user's willful misconduct.

Indemnification is only applicable to claims of third parties who are defined in subsection 308(a)(f)(3) as "any person who may institute a claim against a user for death, bodily injury or loss of or damage to property." It is envisaged that a third party would not normally include persons who contract with NASA for launch services, since NASA expects to include in its launch agreements a provision under which the person procuring launch services agrees that he will not make a claim (and that he will hold NASA and other users harmless) for damage to his property or employees caused by NASA, other users or any other person involved in space transportation system operations during such operations. In turn, NASA and other users would promise not to bring a claim against the user for damage to their property or employees. The result would be that each person flying on a space vehicle would be required either to insure or self-insure his own property.

The indemnification authority is applicable to damage resulting from activities carried on in connection with the launch, operations, or recovery of a space vehicle. The term "space vehicle" is defined in subsection 308(f)(1) to include spacecraft and other payloads that may be launched, with the term specifically including the Space Shuttle. The Administrator's implementing regulations would define technically and in detail the activities carried on that would be protected by indemnification and the extent and duration of such protection.

Subsection (c) provides that certain described conditions must be contained in any agreement providing for indemnification under section 308. Specifically, it requires that (1) notice be given to the United States of any claim or suit against a user for damage; and (2) control of or assistance in the defense by the United States, at its election, of that suit or claim.

Subsection (d) provides that no indemnification payment made under subsection (b) may be made unless the Administrator or his designee certifies that the amount is just and reasonable.

Subsection (e) provides that upon the Administrator's approval, indemnification payments under subsection (b) may be made either from any funds available for NASA's research and development activities not otherwise obligated or from funds appropriated specifically for such indemnification payments. A decision on whether to use existing appropriations or seek additional appropriations from Congress specifically to pay meritorious claims rests with the Administrator. It is the intent of this subsection that no authorized NASA program should be curtailed or terminated because of such indemnification payments.

Subsection (f) provides a definition of three terms used in section 308.

The term "space vehicle" is defined in subsection (f)(1) as any object intended for launch, launched or assembled in outer space, specifically including the Space Shuttle and other components of a space transportation system, together with related equipment, devices, components and parts. This is intended to include, but not be limited to, Spacelab, upper stages, and any payload to be flown on board a Shuttle for a user.

The term "user," as defined in subsection (f)(2), includes anyone who enters into an agreement with the Administration for use of all or a portion of a space vehicle, who owns or provides property to be flown, on a space vehicle, or who employs a person to be flown on a space vehicle. It could include as one "who owns or provides property to be flown on a space vehicle", a person who intends and has made appropriate arrangements to retain ownership of property at any time during flight; e.g., a manufacturer of an upper stage who may retain title to the upper stage during space flight. The definition also includes as one "who employs a person to be flown on a space vehicle" an entity such as a university which would provide under a contract with NASA its employee's services as a payload specialist for a particular Shuttle flight.

The term "third party," as defined in subsection (f)(3), means any person who may bring a claim against a user for damage sounding in tort. An explained previously in connection with subsection (b), a "third party" would not normally include users who contract with NASA for launch services; however, there may be circumstances under which such a person could be a "third party" for the purposes of section 308.

Subsection (c) of section 6 establishes October 1, 1979 as the effective date of section 6.

Section 7

Section 7 provides that the act may be cited as the "National Aeronautics and Space Administration Authorization Act, 1980."

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 GOVERNMENT—HISTORICAL SUMMARY AND FISCAL YEAR 1980 BUDGET RECOMMENDATIONS

(In millions of dollars)

	NASA			Department				NSF	Total space ¹
	Total	Space ²	Defense	Energy	Com- merce	Interior	Agri- culture		
1955	56.9	56.9	3.0						59.6
1956	72.7	72.7	30.3					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	330.9	260.9	489.5		34.3				784.7
1960	523.6	461.5	560.9		43.3			.1	1,065.8
1961	864.0	826.0	813.9		67.7			.6	1,808.2
1962	1,824.9	1,786.8	1,280.2		147.8			1.3	3,284.6
1963	3,673.0	3,626.0	1,549.9		213.9			1.5	5,334.5
1964	5,059.7	5,016.3	1,589.3		210.0			3.0	6,831.4
1965	5,249.7	5,137.6	1,573.9		228.6			2.2	6,955.5
1966	5,174.9	5,064.5	1,688.8		196.8			3.2	6,969.8
1967	4,965.6	4,830.2	1,663.6		183.6			2.8	6,741.5
1968	4,587.3	4,430.0	1,621.8		145.1		0.2	0.5	6,351.4
1969	3,990.9	3,822.0	2,013.0		118.0		.2	.7	5,975.8
1970	3,745.8	3,547.0	1,678.4		182.8		1.1	.8	5,380.5
1971	3,311.2	3,101.3	1,512.3		84.8		1.9	.8	4,740.9
1972	3,306.6	3,071.0	1,407.0		55.2		31.3	5.8	4,574.7
1973	3,406.2	3,093.2	1,623.0		54.2		39.7	10.3	4,824.8
1974	3,036.9	2,758.5	1,766.0		41.7		60.2	9.0	4,640.3
1975	3,229.1	2,915.3	1,882.4		28.6		64.4	8.3	4,914.3
1976	3,550.3	3,225.4	1,983.3		23.3		71.5	10.4	5,319.9
Y0*	931.8	849.2	650.4		4.6		22.2	2.6	1,340.5
1977	3,817.8	3,440.2	2,411.9		21.7		90.8	8.5	5,822.8
1978	4,060.1	3,622.9	2,728.8		34.4		102.8	9.7	6,508.7
Budget:									
1979 est.	4,561.9	4,032.5	3,250.4		38.2		104.0	9.9	7,445.6
1980 est.	4,943.0	4,386.1	4,023.4		34.1		99.7	11.6	8,570.4

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.
* Adjusted for net offsetting receipts.
* Transitional quarter.
* May not add due to rounding.

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):

NATIONAL AERONAUTICS AND SPACE ACT OF 1958

Public Law 85-568 (72 Stat. 426)

• • • • •

TITLE II—COORDINATION OF AERONAUTICAL AND SPACE ACTIVITIES

FUNCTIONS OF THE ADMINISTRATION

SEC. 203. (a) * * *

(c) In the performance of its functions the Administration is authorized—

(13) (A) to consider, ascertain, adjust, determine, settle, and pay, on behalf of the United States, in full satisfaction thereof, any claim for ~~[\$5,000]~~ \$25,000 or less against the United States for bodily injury, death, or damage to or loss of real or personal property resulting from the conduct of the Administration's functions as specified in subsection (a) of this section, where such claim is presented to the Administration in writing within two years after the accident or incident out of which the claim arises; and

(B) if the Administration considers that a claim in excess of ~~[\$5,000]~~ \$25,000 is meritorious and would otherwise be covered by this paragraph, to report the facts and circumstances thereof to the Congress for its consideration; and

TITLE III—MISCELLANEOUS

APPROPRIATIONS

SEC. [308] 309. * * *

INSURANCE AND INDEMNIFICATION

Sec. 308. (a) The Administration is authorized on such terms and to the extent it may deem appropriate to provide liability insurance for any user of a space vehicle to compensate all or a portion of claims by third parties for death, bodily injury, or loss of or damage to property resulting from activities carried on in connection with the launch, operations or recovery of the space vehicle. Appropriations available to the Administration may be used to acquire such insurance, but such appropriations shall be reimbursed to the maximum extent practicable by the users under reimbursement policies established pursuant to section 203(c) of this Act.

(b) Under such regulations in conformity with this section as the Administrator shall prescribe taking into account the availability, cost and terms of liability insurance, any agreement between the Administration and a user of a space vehicle may provide that the United States will indemnify the user against claims (including reasonable expenses of litigation or settlement) by third parties for death, bodily injury, or loss of or damage to property resulting from activities carried on in connection with the launch, operations or recovery of the space vehicle, but only to the extent that such claims are not compensated by liability insurance of the user: Provided, That such indemnification may be limited to claims resulting from other than the actual negligence or willful misconduct of the user.

(c) An agreement made under subsection (b) that provides indemnification must also provide for—

(1) notice to the United States of any claim or suit against the user for the death, bodily injury, or loss of or damage to the property; and

(2) control of or assistance in the defense by the United States, at its election, of that suit or claim.

(d) No payment may be made under subsection (b) unless the Administrator or his designee certifies that the amount is just and reasonable.

(e) Upon the approval by the Administrator, payments under subsection (b) may be made, at the Administrator's election, either from funds available for research and development not otherwise obligated or from funds appropriated for such payments.

(f) As used in this section—

(1) the term "space vehicle" means an object intended for launch, launched or assembled in outer space, including the Space Shuttle and other components of a space transportation system, together with related equipment, devices, components and parts;

(2) the term "user" includes anyone who enters into an agreement with the Administration for use of all or a portion of a space vehicle, who owns or provides property to be flown on a space vehicle, or who employs a person to be flown on a space vehicle; and

(3) the term "third party" means any person who may institute a claim against a user for death, bodily injury or loss of or damage to property.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION AUTHORIZATION ACT, FISCAL YEAR 1980

JULY 20, 1979.—Ordered to be printed

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

CONFERENCE REPORT

[To accompany H.R. 1786]

The committee of conference on the disagreeing votes of the two Houses on the amendment of the Senate to the bill (H.R. 1786) 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 to become available October 1, 1979:

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

- (1) Space Shuttle, \$1,586,000,000;
- (2) Space flight operations, \$463,300,000;
- (3) Expendable launch vehicles, \$70,700,000;
- (4) Physics and astronomy, \$337,500,000;
- (5) Planetary exploration, \$220,200,000;
- (6) Life sciences, \$43,900,000;
- (7) Space applications, \$338,300,000;
- (8) Technology utilization, \$12,100,000;
- (9) Aeronautical research and technology, \$309,300,000;
- (10) Space research and technology, \$119,400,000;
- (11) Energy technology, \$5,000,000; and
- (12) Tracking and data acquisition, \$332,800,000.

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

- (1) Modification of static test facility, Ames Research Center, \$2,900,000;
- (2) Construction of large aircraft maintenance dock, Hugh L. Dryden Flight Research Center, \$1,500,000;
- (3) Rehabilitation and modification of flight operations facilities, Ellington Air Force Base, \$1,760,000;
- (4) Modifications to central instrumentation facility, John F. Kennedy Space Center, \$1,260,000;
- (5) Modifications to operations and checkout building, John F. Kennedy Space Center, \$950,000;
- (6) Rehabilitation of roof, launch control center, John F. Kennedy Space Center, \$600,000;
- (7) Modifications of model support system 8-foot high temperature structures tunnel, Langley Research Center, \$1,410,000;
- (8) Modifications to 8-foot transonic pressure tunnel, Langley Research Center, \$2,000,000;
- (9) Modification of transonic dynamics tunnel, Langley Research Center, \$970,000;
- (10) Rehabilitation and modification of gas dynamics laboratory, Langley Research Center, \$3,600,000;
- (11) Modifications to central air system, various buildings, Lewis Research Center, \$5,720,000;
- (12) Modifications to various buildings, Marshall Space Flight Center, \$2,640,000;
- (13) Rehabilitation of roofs, various buildings, Marshall Space Flight Center, \$900,000;
- (14) Rehabilitation of roof, Phase I, building 103, Michoud Assembly Facility, \$3,100,000;
- (15) Construction of facilities operations shop building, Wallops Flight Center, \$1,100,000;
- (16) Large aeronautical facility: construction of national transonic facility, Langley Research Center, \$12,000,000;
- (17) Large aeronautical facility: modification of 40- by 80-foot subsonic wind tunnel, Ames Research Center, \$33,900,000;
- (18) Space Shuttle facilities at various locations as follows:
 - (A) Modifications to launch complex 39, John F. Kennedy Space Center, \$17,100,000;
 - (B) Modifications to crawler transporter maintenance facility, John F. Kennedy Space Center, \$1,250,000;
 - (C) Modification of manufacturing and final assembly facilities for external tanks, Michoud Assembly Facility, \$6,900,000;
 - (D) Minor Shuttle-unique projects, various locations, \$2,500,000;
- (19) Space Shuttle payload facilities at various locations as follows:
 - (A) Rehabilitation and modification for payload ground support operations, John F. Kennedy Space Center, \$2,610,000;
 - (B) Modification and addition to materials sciences laboratory, Ames Research Center, \$1,640,000;

(20) Repair of facilities at various locations, not in excess of \$500,000 per project, \$12,000,000;

(21) Rehabilitation and modification of facilities at various locations, not in excess of \$500,000 per project, \$19,790,000;

(22) Minor construction of new facilities and additions to existing facilities at various locations, not in excess of \$250,000 per project, \$3,500,000; and

(23) Facility planning and design not otherwise provided for, \$11,000,000.

(c) For "Research and program management," \$964,900,000, 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 Commerce, Science, and Transportation of the Senate of the nature, location, and estimated cost of such facility.

(e) When so specified and to the extent provided 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 12 months beginning at any time during the fiscal year.

(f) Appropriations made pursuant to subsection 1(c) may be used, but not to exceed \$25,000, 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 \$75,000 for each project, including collateral equipment, may be used for construction of new facilities and additions to existing facilities, and for repair, rehabilitation, or modifica-

tion 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 (22), inclusive, of subsection 1(b)—

(1) in the discretion of the Administrator or his designee, may be varied upward 10 percent, 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 Commerce, Science, and Transportation of the Senate on the circumstances of such action, may be varied upward 25 percent,

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 percent 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 (23) 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 30 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 Commerce, Science, and Transportation 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 Tech-

nology or the Senate Committee on Commerce, Science, and Transportation,

(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 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. (a) Paragraph 13 of subsection (c) of section 203 of the National Aeronautics and Space Act of 1958, as amended (42 U.S.C. 2473(c)(13)), is amended by striking out "\$5,000" where it appears and inserting in lieu thereof "\$25,000".

(b) The National Aeronautics and Space Act of 1958, as amended, is amended (1) by redesignating section 308 as section 309 thereof; and (2) by inserting the following new section:

"INSURANCE AND INDEMNIFICATION"

"SEC. 308. (a) The Administration is authorized on such terms and to the extent it may deem appropriate to provide liability insurance for any user of a space vehicle to compensate all or a portion of claims by third parties for death, bodily injury, or loss of or damage to property resulting from activities carried on in connection with the launch, operations or recovery of the space vehicle. Appropriations available to the Administration may be used to acquire such insurance, but such appropriations shall be reimbursed to the maximum extent practicable by the users under reimbursement policies established pursuant to section 203(c) of this Act.

"(b) Under such regulations in conformity with this section as the Administrator shall prescribe taking into account the availability, cost and terms of liability insurance, any agreement between the Administration and a user of a space vehicle may provide that the United States will indemnify the user against claims (including reasonable expenses of litigation or settlement) by third parties for death, bodily injury, or loss of or damage to property resulting from activities carried on in connection with the launch, operations or recovery of the space vehicle, but only to the extent that such claims are not compensated by liability insurance of the user: Provided, That such

indemnification may be limited to claims resulting from other than the actual negligence or willful misconduct of the user.

"(c) An agreement made under subsection (b) that provides indemnification must also provide for—

"(1) notice to the United States of any claim or suit against the user for the death, bodily injury, or loss of or damage to the property; and

"(2) control of or assistance in the defense by the United States, at its election, of that suit or claim.

"(d) No payment may be made under subsection (b) unless the Administrator or his designee certifies that the amount is just and reasonable.

"(e) Upon the approval by the Administrator, payments under subsection (b) may be made, at the Administrator's election, either from funds available for research and development not otherwise obligated or from funds appropriated for such payments.

"(f) As used in this section—

"(1) the term 'space vehicle' means an object intended for launch, launched or assembled in outer space, including the Space Shuttle and other components of a space transportation system, together with related equipment, devices, components and parts;

"(2) the term 'user' includes anyone who enters into an agreement with the Administration for use of all or a portion of a space vehicle, who owns or provides property to be flown on a space vehicle, or who employs a person to be flown on a space vehicle; and

"(3) the term 'third party' means any person who may institute a claim against a user for death, bodily injury or loss of or damage to property."

(c) This section shall be effective October 1, 1979.

SEC. 7. This Act may be cited as the "National Aeronautics and Space Administration Authorization Act, 1980".

And the Senate agree to the same.

DON FUQUA,
TOM R. HARKIN,
MARILYN LLOYD BOUQUARD,
RONNIE G. FLIPPO,
WESLEY W. WATKINS,
BILL NELSON,
JOHN W. WYDLER,
LARRY WINN, JR.,
BARRY M. GOLDWATER, JR.,
Managers on the Part of the House.
HOWARD W. CANNON,
ADLAI E. STEVENSON,
WENDELL H. FORD,
BARRY M. GOLDWATER,
HARRISON H. SCHMITT,
Managers on the Part of the Senate.

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. 1786) to authorize appropriations to the National Aeronautics and Space Administration for fiscal year 1980 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 1980 totaled \$4,945 million. The House authorized \$4,762 million and the Senate amendment authorized \$4,961 million. The committee of conference agrees to a total authorization for fiscal year 1980 of \$4,961 million as follows:

SUMMARY—FISCAL YEAR 1980

	Budget request	House action	Senate action	Committee of conference
Research and development:				
Space Shuttle.....	\$1,586,000,000	\$1,393,000,000	\$1,586,000,000	\$1,586,000,000
Space flight operations.....	467,300,000	463,500,000	467,300,000	463,300,000
Expendable launch vehicles.....	70,700,000	70,700,000	70,700,000	70,700,000
Physics and astronomy.....	337,500,000	337,500,000	337,500,000	337,500,000
Planetary exploration.....	220,200,000	220,200,000	220,200,000	220,200,000
Life sciences.....	43,900,000	43,900,000	43,900,000	43,900,000
Space applications.....	332,300,000	338,300,000	334,300,000	338,300,000
Technology utilization.....	12,100,000	12,100,000	12,100,000	12,100,000
Aeronautical research and technology.....	300,300,000	308,300,000	309,300,000	309,300,000
Space research and technology.....	116,400,000	116,400,000	119,400,000	119,400,000
Energy technology.....	3,000,000	3,000,000	5,000,000	5,000,000
Tracking and data acquisition.....	332,800,000	332,800,000	332,800,000	332,800,000
Total.....	3,822,500,000	3,639,500,000	3,838,500,000	3,838,500,000
Construction of facilities.....	157,600,000	157,600,000	157,600,000	157,600,000
Research and program management.....	964,900,000	964,900,000	964,900,000	964,900,000
Grand total.....	4,945,000,000	4,762,000,000	4,961,000,000	4,961,000,000

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

1. NASA requested \$1,586 million for the space shuttle program (including a budget amendment for \$220 million submitted to the Congress on May 14, 1979).

The House, acting prior to receipt of the budget amendment, authorized \$1,393 million consisting of the original request of \$1,366 million and the addition of \$27 million for acquisition of the fifth orbiter for the operational shuttle fleet.

The Senate authorized the amended budget amount of \$1,586 million for the program.

The conference substitute authorizes \$1,586 million for the space shuttle program.

The conferees agree that while funding for continuing production activity on the fifth orbiter is not provided in this bill due to delays in the shuttle development program, a five orbiter operational fleet remains a firm requirement to support national needs for space transportation services in the most efficient and economical manner in the mid-1980's and beyond. Therefore, NASA is requested to provide for the resumption of production of the fifth orbiter in its budget for fiscal year 1981.

The conferees request that NASA keep the authorizing committees of the House and the Senate currently and fully informed on the technical and financial status of the space shuttle development program. Further, the conferees request that interim progress reports be submitted to the respective committees on the management and financial assessments of the space transportation system initiated by the Administrator, and that a final report on these assessments be submitted no later than October 1, 1979.

2. NASA requested \$467,300,000 for the space flight operations program.

The House reduced the request by \$5 million with the reduction to be assessed against program elements other than advanced programs. Advanced programs, in turn, were increased by \$1 million for definition studies of a large deployable space antenna resulting in an authorization of \$463,300,000 for the space flight operations program.

The Senate authorized the budget request, directing, however, that within that amount an additional \$1 million was to be applied to advanced program activities for the same purpose as set forth by the House.

The committee of conference authorizes \$463,300,000 for the space flight operations program.

3. The House authorized \$338,300,000 for the space applications program, an increase of \$6 million in the NASA request. Of the increase, the House allocated \$2 million to initiate development of an advanced remote sensing instrument, the multispectral resources sampler, and the remaining \$4 million to initiate development of a national oceanic satellite system.

The Senate authorized \$334,300,000, adding \$2 million to the NASA request to initiate development of the multispectral resources sampler.

The conference substitute authorizes \$338,300,000 for the space applications program.

The conferees agree that within the \$338,300,000 authorized, an additional \$4 million is to be used to complete system definition studies and to conduct initial work on instruments for a national oceanic satellite system. The conferees request that NASA refine its cost estimates for this system and formalize agreements with user agencies for participation in the project prior to submission of the fiscal year 1981 budget request to the Congress.

4. NASA requested \$300,300,000 for the aeronautics research and technology program.

The House authorized \$308,300,000, adding \$8 million to the request for additional experimentation in variable cycle engine technology.

The Senate increased the budget request by \$9 million, authorizing a total of \$309,300,000 for the aeronautical research and technology program. Of the \$9 million increase, \$4 million was designated for

additional effort on variable cycle engine technology and \$5 million was to be used to initiate an advanced rotorcraft technology development program.

The conference substitute authorizes \$309,300,000 for the aeronautical research and technology program.

The conferees agree that of the total amount authorized, \$9 million is to be applied to variable cycle engine technology advancement, and \$5 million is to be used to initiate an advanced rotorcraft technology development program.

5. The House authorized the NASA budget request of \$116,400,000 for the space research and technology program.

The Senate authorized \$119,400,000, increasing the NASA request by \$3 million for additional effort on the development and testing of large space structures.

The committee of conference authorizes \$119,400,000 for the space research and technology program.

6. NASA requested \$3 million for the energy technology program.

The House authorized the NASA budget request.

The Senate authorized \$5 million for the energy technology program, increasing the request by \$2 million for additional effort in the identification and verification of potential energy initiatives.

The conference substitute authorizes \$5 million for the energy technology program.

DON FUQUA,
TOM R. HARKIN,
MARILYN LLOYD BOUQUARD,
RONNIE G. FLIPPO,
WESLEY W. WATKINS,
BILL NELSON,
JOHN W. WYDLER,
LARRY WINN, JR.,
BARRY M. GOLDWATER, JR.,

Managers on the Part of the House.

HOWARD W. CANNON,
ADLAI E. STEVENSON,
WENDELL H. FORD,
BARRY M. GOLDWATER,
HARRISON H. SCHMITT,

Managers on the Part of the Senate.

○

PUBLIC LAW 96-48—AUG. 8, 1979

93 STAT. 345

Public Law 96-48
96th Congress

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.

Aug 8, 1979

[H.R. 1786]

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, 1979:

National
Aeronautics and
Space
Administration
Authorization
Act, 1980.

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

- (1) Space Shuttle, \$1,586,000,000;
- (2) Space flight operations, \$463,300,000;
- (3) Expendable launch vehicles, \$70,700,000;
- (4) Physics and astronomy, \$337,500,000;
- (5) Planetary exploration, \$220,200,000;
- (6) Life sciences, \$43,900,000;
- (7) Space applications, \$338,300,000;
- (8) Technology utilization, \$12,100,000;
- (9) Aeronautical research and technology, \$309,300,000;
- (10) Space research and technology, \$119,400,000;
- (11) Energy technology, \$5,000,000; and
- (12) Tracking and data acquisition, \$332,800,000.

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

- (1) Modification of static test facility, Ames Research Center, \$2,900,000;
- (2) Construction of large aircraft maintenance dock, Hugh L. Dryden Flight Research Center, \$1,500,000;
- (3) Rehabilitation and modification of flight operations facilities, Ellington Air Force Base, \$1,760,000;
- (4) Modifications to central instrumentation facility, John F. Kennedy Space Center, \$1,260,000;
- (5) Modifications to operations and checkout building, John F. Kennedy Space Center, \$950,000;
- (6) Rehabilitation of roof, launch control center, John F. Kennedy Space Center, \$600,000;
- (7) Modifications of model support system 8-foot high temperature structures tunnel, Langley Research Center, \$1,410,000;
- (8) Modifications to 8-foot transonic pressure tunnel, Langley Research Center, \$2,000,000;
- (9) Modification of transonic dynamics tunnel, Langley Research Center, \$970,000;
- (10) Rehabilitation and modification of gas dynamics laboratory, Langley Research Center, \$3,600,000;
- (11) Modifications to central air system, various buildings, Lewis Research Center, \$5,720,000;
- (12) Modifications to various buildings, Marshall Space Flight Center, \$2,640,000;
- (13) Rehabilitation of roofs, various buildings, Marshall Space Flight Center, \$900,000;

93 STAT. 346

PUBLIC LAW 96-48—AUG. 8, 1979

(14) Rehabilitation of roof, Phase I, building 103, Michoud Assembly Facility, \$3,100,000;

(15) Construction of facilities operations shop building, Wallops Flight Center, \$1,100,000;

(16) Large aeronautical facility: construction of national transonic facility, Langley Research Center, \$12,000,000;

(17) Large aeronautical facility: modification of 40- by 80-foot subsonic wind tunnel, Ames Research Center, \$33,900,000;

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

(A) Modifications to launch complex 39, John F. Kennedy Space Center, \$17,100,000;

(B) Modifications to crawler transporter maintenance facility, John F. Kennedy Space Center, \$1,250,000;

(C) Modification of manufacturing and final assembly facilities for external tanks, Michoud Assembly Facility, \$6,900,000;

(D) Minor Shuttle-unique projects, various locations, \$2,500,000;

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

(A) Rehabilitation and modification for payload ground support operations, John F. Kennedy Space Center, \$2,610,000;

(B) Modification and addition to materials sciences laboratory, Ames Research Center, \$1,640,000;

(20) Repair of facilities at various locations, not in excess of \$500,000 per project, \$12,000,000;

(21) Rehabilitation and modification of facilities at various locations, not in excess of \$500,000 per project, \$19,790,000;

(22) Minor construction of new facilities and additions to existing facilities at various locations, not in excess of \$250,000 per project, \$3,500,000; and

(23) Facility planning and design not otherwise provided for, \$14,000,000.

"Research and
program
management."

(c) For "Research and program management," \$964,900,000, and such additional or supplemental amounts as may be necessary for increases in salary, pay, retirement, or other employee benefits authorized by law.

"Research and
development."

(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 develop-

PUBLIC LAW 96-48—AUG. 8, 1979

93 STAT. 347

ment" 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 Commerce, Science, and Transportation of the Senate of the nature, location, and estimated cost of such facility.

(e) When so specified and to the extent provided 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 12 months beginning at any time during the fiscal year.

(f) Appropriations made pursuant to subsection 1(c) may be used, but not to exceed \$25,000, 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 \$75,000 for each project, including collateral equipment, may be used for construction of new facilities and additions to existing facilities, and for repair, 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 (22), inclusive, of subsection 1(b)—

(1) in the discretion of the Administrator or his designee, may be varied upward 10 percent, 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 Commerce, Science, and Transportation of the Senate on the circumstances of such action, may be varied upward 25 percent,

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 percent 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 (23) 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

Scientific consultations or extraordinary expenses.

Report to congressional committees.

Limitations.

Transfer of funds.

93 STAT. 348

PUBLIC LAW 96-48—AUG. 8, 1979

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 30 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 Commerce, Science, and Transportation 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 Commerce, Science, and Transportation,

(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 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 to 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. (a) Paragraph 13 of subsection (c) of section 203 of the National Aeronautics and Space Act of 1958, as amended (42 U.S.C. 2473(c)(13)), is amended by striking out "\$5,000" where it appears and inserting in lieu thereof "\$25,000".

(b) The National Aeronautics and Space Act of 1958, as amended, is amended (1) by redesignating section 308 as section 309 thereof; and (2) by inserting the following new section:

Federal research funds, geographical distribution.
42 USC 2459 note.

42 USC 2459.

"INSURANCE AND INDEMNIFICATION

"SEC. 308. (a) The Administration is authorized on such terms and to the extent it may deem appropriate to provide liability insurance for any user of a space vehicle to compensate all or a portion of claims by third parties for death, bodily injury, or loss of or damage to property resulting from activities carried on in connection with the launch, operations or recovery of the space vehicle. Appropriations available to the Administration may be used to acquire such insurance, but such appropriations shall be reimbursed to the maximum

PUBLIC LAW 96-48—AUG. 8, 1979

extent practicable by the users under reimbursement policies established pursuant to section 203(c) of this Act.

"(b) Under such regulations in conformity with this section as the Administrator shall prescribe taking into account the availability, cost and terms of liability insurance, any agreement between the Administration and a user of a space vehicle may provide that the United States will indemnify the user against claims (including reasonable expenses of litigation or settlement) by third parties for death, bodily injury, or loss of or damage to property resulting from activities carried on in connection with the launch, operations or recovery of the space vehicle, but only to the extent that such claims are not compensated by liability insurance of the user: *Provided*, That such indemnification may be limited to claims resulting from other than the actual negligence or willful misconduct of the user.

"(c) An agreement made under subsection (b) that provides indemnification must also provide for—

"(1) notice to the United States of any claim or suit against the user for the death, bodily injury, or loss of or damage to the property; and

"(2) control of or assistance in the defense by the United States, at its election, of that suit or claim.

"(d) No payment may be made under subsection (b) unless the Administrator or his designee certifies that the amount is just and reasonable.

"(e) Upon the approval by the Administrator, payments under subsection (b) may be made, at the Administrator's election, either from funds available for research and development not otherwise obligated or from funds appropriated for such payments.

"(f) As used in this section—

"(1) the term 'space vehicle' means an object intended for launch, launched or assembled in outer space, including the Space Shuttle and other components of a space transportation system, together with related equipment, devices, components and parts;

"(2) the term 'user' includes anyone who enters into an agreement with the Administration for use of all or a portion of a space vehicle, who owns or provides property to be flown on a space vehicle, or who employs a person to be flown on a space vehicle; and

93 STAT. 350

PUBLIC LAW 96-48—AUG. 8, 1979

"(3) the term 'third party' means any person who may institute a claim against a user for death, bodily injury or loss of or damage to property."

(c) This section shall be effective October 1, 1979.

SEC. 7. This Act may be cited as the "National Aeronautics and Space Administration Authorization Act, 1980".

Approved August 8, 1979.

Effective date.
42 USC 2458b
note.
Short title.

93 STAT. 349

Ante, p. 348.

Definitions.

LEGISLATIVE HISTORY:

HOUSE REPORTS: No. 96-52 (Comm. on Science and Technology) and No. 96-371 (Comm. of Conference).

SENATE REPORTS: No. 96-207 (Comm. on Commerce, Science, and Transportation) and No. 96-252 (Comm. of Conference).

CONGRESSIONAL RECORD, Vol. 125 (1979):

Mar. 28, considered and passed House.

June 14, considered and passed Senate, amended.

July 23, Senate agreed to conference report.

July 27, House agreed to conference report.

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT-INDEPENDENT AGENCIES APPROPRIATION BILL, 1980

JUNE 7, 1979.—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

ADDITIONAL VIEWS

[To accompany H.R. 4394]

The Committee on Appropriations submits the following report in explanation of the accompanying bill making appropriations for the Department of Housing and Urban Development, and for sundry independent agencies, boards, commissions, corporations, and offices for the fiscal year ending September 30, 1980, and for other purposes.

INDEX TO BILL AND REPORT

	Bill page	Report page
Title I—Department of Housing and Urban Development.....	2	8
Title II—Independent Agencies:		
American Battle Monuments Commission.....	10	15
Consumer Product Safety Commission.....	11	15
Cemeterial Expenses, Army.....	12	16
Environmental Protection Agency.....	12	17
Council on Environmental Quality.....	14	20
Office of Science and Technology Policy.....	15	21
Federal Emergency Management Agency.....	15	21
Consumer Information Center.....	17	24
Office of Consumer Affairs.....	17	24
National Aeronautics and Space Administration.....	18	25
National Commission on Air Quality.....	20	27

INDEX TO BILL AND REPORT—Continued

	Bill page	Report page
Title II—Independent Agencies—Continued		
National Consumer Cooperative Bank.....	20	27
National Credit Union Administration.....	21	29
National Institute of Building Sciences.....	21	40
National Science Foundation.....	21	40
Neighborhood Reinvestment Corporation.....	24	42
Selective Service System.....	24	43
Department of the Treasury.....	25	44
Veterans Administration.....	26	45
Title III—Corporations:		
Federal Home Loan Bank Board.....	23	23
Title IV—General Provisions.....	26	25

SUMMARY OF THE BILL

The Committee recommends \$72,215,975,000 in new budget (obligational) authority for the Department of Housing and Urban Development and twenty independent agencies and offices. This is \$506,771,750 below the budget estimates and \$4,152,458,000 above the comparable amounts appropriated for fiscal year 1979.

The following table summarizes the amounts recommended in the bill in comparison with the appropriations for fiscal year 1979 and budget estimates for fiscal year 1980.

SUMMARY OF ESTIMATES AND NEW BUDGET (OBLIGATIONAL) AUTHORITY IN BILL

Department or agency	Appropriations, 1979	Budget estimates, 1980	Recommended in bill	Bill compared with—	
				Appropriations, 1979	Budget estimates, 1980
(1)	(2)	(3)	(4)	(5)	(6)
American Battle Monuments Commission.....	\$6,240,000	\$7,603,000	\$8,186,000	+\$1,946,000	+\$583,000
Cemeterial expenses, Army.....	5,100,000	7,943,000	8,326,000	+3,226,000	+383,000
Consumer Information Center.....	1,146,000	1,364,000	1,315,000	+169,000	-49,000
Consumer Product Safety Commission.....	40,000,000	41,776,000	41,250,000	+1,250,000	-526,000
Council on Environmental Quality.....	3,026,000	3,126,000	3,026,000	-----	-100,000
Department of Housing and Urban Development.....	31,658,573,000	33,442,150,750	33,610,526,000	+1,951,953,000	+168,375,250
Department of the Treasury.....	6,863,174,000	6,822,295,000	6,912,195,000	+49,021,000	-10,100,000
Environmental Protection Agency.....	5,403,946,000	5,087,238,000	4,619,288,000	-784,658,000	-467,950,000
Federal Emergency Management Agency.....	451,450,000	452,316,000	443,830,000	-7,820,000	-8,486,000
Federal Home Loan Bank Board.....	(48,628,000)	(52,550,000)	(51,825,000)	(+3,197,000)	(-725,000)
National Aeronautics and Space Administration.....	4,350,200,000	4,945,000,000	4,910,500,000	+560,300,000	-34,500,000
National Commission on Air Quality.....	2,000,000	6,000,000	5,000,000	+3,000,000	-1,000,000
National Consumer Cooperative Bank.....	-----	28,900,000	24,000,000	+24,000,000	-4,900,000
National Credit Union Administration.....	-----	500,000,000	300,000,000	+300,000,000	-200,000,000
National Institute of Building Sciences.....	750,000	750,000	718,000	-32,000	-32,000
National Science Foundation.....	911,000,000	1,006,000,000	987,000,000	+76,000,000	-19,000,000
Neighborhood Reinvestment Corporation.....	-----	9,500,000	9,500,000	+9,500,000	-----
Office of Consumer Affairs.....	1,700,000	1,861,000	1,861,000	+161,000	-----
Office of Science and Technology Policy.....	2,476,000	2,900,000	2,725,000	+249,000	-175,000
Selective Service System.....	7,045,000	9,825,000	7,830,000	+785,000	-1,995,000
Veterans Administration.....	18,355,691,000	20,246,199,000	20,318,899,000	+1,963,208,000	+72,700,000
Total.....	68,063,517,000	72,722,746,750	72,215,975,000	+4,152,458,000	-506,771,750

¹ Limitation on corporate funds to be expended.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

RESEARCH AND DEVELOPMENT

1979 appropriation.....	\$3,292,200,000
Estimate, 1980.....	3,822,500,000
Recommended in bill.....	3,799,500,000
Decrease below estimate.....	-23,000,000

The Committee recommends an appropriation of \$3,799,500,000 for 1980. This is a decrease of \$23,000,000 below the budget estimate. Within the total recommended, the following changes are made from the amount requested in the budget plan:

—A decrease of \$15,000,000 for thrust augmentation. The 1980 level is requested for additional studies leading to initial development funding in fiscal year 1981. Thrust augmentation is proposed for the space shuttle to restore an 8,000 pound payload deficit in launches from the Western Test Range. The Committee believes that funding can be deferred one year in view of cost overruns and technical problems that will delay delivery of orbiter 103 from December 1982 to September 1983. In addition, various Administration witnesses have testified before the Committee that there is no national defense requirement for thrust augmentation in 1984 or 1985.

—A decrease of \$3,000,000 of \$10,000,000 requested for automated data processing services to be applied to lower priority computer purchases. The agency is advised that additional funds in this activity will be considered after NASA's automated data processing plans are reviewed by the Committee.

—A decrease of \$5,000,000 for space flight operations to conform with the House authorization bill.

The Committee has included the full budget amendment of \$220,000,000 requested for on-going shuttle development problems. The cumulative impact of main engine, thermal protection and other testing problems will cost from \$400,000,000 to \$500,000,000 above the current estimated requirement in fiscal years 1980, 1981 and 1982. While the Committee's long-standing support of the space shuttle is demonstrated by its recommended approval of the \$220,000,000 budget amendment, it believes that NASA's fiscal and programmatic management of the space transportation system should be thoroughly reviewed.

In the context of similar management concerns, the Committee has included language limiting funding for the Jupiter Orbiter Probe (Project Galileo) and Space Transportation System Upper Stages to \$116,100,000 and \$18,300,000, respectively. These amounts represent the budget requests for both programs. This action is taken because the Committee has learned that inertial upper stage weight deficiencies may cost from \$25,000,000 to \$50,000,000 to correct before the currently planned Galileo mission can meet the January, 1982 launch date. The Committee believes that NASA should request transfer authority or seek a supplemental appropriation or budget amendment to cover any additional 1980 requirement for this activity. This approach will permit a full budget hearing on the Galileo/IUS weight problem and its ultimate cost impact.

Finally, although the Committee has continued limiting funds provided in this bill to a two-year availability, any monies obligated under contract during that period may be used for activities or work performed after September 30, 1981.

CONSTRUCTION OF FACILITIES

1979 appropriation.....	\$127,500,000
Estimate, 1980.....	157,600,000
Recommended in bill.....	156,100,000
Decrease below estimate.....	-1,500,000

The Committee recommends \$156,100,000 for construction of facilities in 1980. This is a decrease of \$1,500,000 below the budget request. The funds provided are as requested with the following exception:

A decrease of \$1,500,000 for a Large Aircraft Maintenance Dock (hangar) at the Dryden Flight Research Center. The Committee believes this request represents a lower priority that can be deferred in an austere budget atmosphere.

The Committee directs that the \$12,800,000 appropriated in fiscal year 1979 and \$15,100,000 requested in 1980 for shuttle launch Pad "B" may not be reprogrammed to any other activity.

RESEARCH AND PROGRAM MANAGEMENT

1979 appropriation.....	\$910,500,000
Estimate, 1980.....	964,900,000
Recommended in bill.....	954,900,000
Decrease below estimate.....	-10,000,000

The Committee recommends \$954,900,000 for research and program management in 1980. This is a decrease of \$10,000,000 below the budget estimate. The reduction should be applied on a priority basis to contractual services, travel and public affairs. In addition, part of the reduction should be absorbed through a higher lapse rate than is assumed in the 1980 budget.

The Committee is particularly concerned with certain contractual service costs. Janitorial services, for example, are averaging as high as \$26,000 per work year. Agency witnesses testified that these rates are partially governed by Department of Labor regulations. NASA is urged to explore alternative contractual service options that will effectively reduce these costs.

TITLE IV

GENERAL PROVISIONS

The Committee recommends that all of the general provisions applicable to the Department and agencies carried in the current fiscal year be continued in fiscal year 1980.

LIMITATIONS AND LEGISLATIVE PROVISIONS

The following limitations and legislative provisions not heretofore carried in connection with any appropriation bill are recommended:

On page 18, in connection with the National Aeronautics and Space Administration, Research and Development:

; and including not to exceed \$116,100,000 for Project Galileo and not to exceed \$18,300,000 for space transportation system upper stages, without the approval of the Committees on Appropriations,

INFLATIONARY IMPACT STATEMENT

Clause 2(1) (4) of Rule XI of the House of Representatives requires that each committee report on a bill or resolution shall contain a statement whether enactment of such bill or resolution may have an inflationary impact on prices and costs in the operation of the national economy.

Critics of government spending suggest that practically any spending by government is inflationary. If that were true, then the funds proposed in this bill would be inflationary. However, all Federal spending is not inherently inflationary. It should be analyzed in the context of the economic situation in which it is occurring, the financial condition of the government at the time, and the sectors of the economy which the spending may affect.

The amount proposed for appropriation totals \$72,215,975,000. This is \$506,771,750 below the President's request. Included in the total recommended are funds for veterans benefits, housing assistance, community development grants, environmental programs and general revenue sharing. Other funds will support advanced technology and science that directly and indirectly increase productivity.

It is the considered opinion of the Committee that enactment of this bill will not have an inflationary impact on prices and costs in the operation of the national economy.

Further information on the purpose of the spending proposed in this bill can be obtained in other parts of the report. Also, a large amount of detailed statistical and financial information can be obtained in the hearings conducted in developing this bill.

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 Environmental Protection Agency, the Federal Emergency Management Agency, the National Aeronautics and Space Administration, the National Science Foundation, and the Neighborhood Reinvestment Corporation.

2. In many cases, the Committee has recommended appropriations which are less than the maximum amounts authorized for the various programs funded in the bill. Whether these actions constitute a change in the application of existing law is subject to interpretation, but the Committee felt this should be mentioned.

3. The bill provides that several appropriations shall remain available until expended for which the basic authorizing legislation does not presently authorize such extended availability. Most of these items have been carried in previous appropriation acts. The Committee deems such language desirable in order to provide for the effective use of the funds.

4. The Committee has included limitations for official reception and representation expenses for selected agencies in the bill.

5. The bill contains a number of administrative provisions under the Environmental Protection Agency and the Veterans Administration which have been carried for a number of years. Some of these could possibly be construed as changing the application of existing law.

6. Sections 401 through 408 of title IV of the bill are general provisions, all of which have been 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.

7. The bill includes, in certain instances, limitations on the obligation of funds for particular functions or programs. These limitations include restrictions on the obligation of funds for administrative expenses, the use of consultants, and programmatic areas within the overall jurisdiction of a particular agency.

8. The provisions on pages 2 and 3, in connection with annual contributions for assisted housing, provide earmarkings of funds for certain purposes, and that certain authorities contained in previous acts shall be merged with authority provided in this bill. These could be construed as indirectly changing the application of existing law.

9. The appropriation language on page 4, in connection with the uncommitted loan limitations from prior years for the housing for the elderly or handicapped fund, could be construed as changing the application of existing law.

10. The provision on page 4, in connection with housing for the elderly or handicapped, provides that the receipts and disbursements of the fund shall be included in the totals of the budget of the United States Government.

11. The appropriation language on page 5 in connection with troubled projects operating subsidy, limits assistance to projects insured or formerly insured with the Federal Housing Administration and provides for the use of excess rental charges.

12. The appropriation language on page 7, in connection with community development grants, limiting expenses for planning and management development and administration activities, and for the Secretary's discretionary fund could be construed as changing the application of existing law.

13. The provision on page 7, in connection with urban development action grants, provides that certain funds shall be made available notwithstanding any other provision of law.

14. The appropriation language on page 8, in connection with the rehabilitation loan fund, provides for the merger of all previously appropriated funds. This could be construed as changing the application of existing law.

15. The bill contains two administrative provisions under the Federal Emergency Management Agency that have been carried previously under different headings, and which might, under some circumstances, be construed as changing the application of existing law.

16. The provision on page 17, in connection with the Consumer Information Center, provides for reimbursement by executive agencies for payment to the Government Printing Office for distribution of free consumer information.

17. The appropriation language on page 18, in connection with research and development, limits funds for certain projects to the amounts requested in the budget without approval of the Committees on Appropriations.

18. The provisions on page 21, in connection with the National Credit Union Administration, Central Liquidity Facility, limiting borrowing authority and administrative expenses could be construed as changing the application of existing law.

19. The provisions on page 22, in connection with research and related activities, provide for the use of receipts from other research facilities, and could require proportional reductions in legislative earmarkings. These could be construed as changing the application of existing law.

20. The provision on page 23, in connection with science education activities, could require proportional reductions in legislative earmarkings. This could be construed as changing the application of existing law.

21. The provision on page 24, in connection with the Selective Service System, permits the President to exempt the agency from apportionment restrictions of the Budget and Accounting Act of 1921, as amended.

22. The appropriation language for general operating expenses on page 28 provides for reimbursement to the Department of Defense for the cost of overseas employee mail. This language has been carried previously, and permits free mailing privileges for VA personnel stationed in the Philippines.

23. The provision on page 32, in connection with corporations, requires release in an appropriation act of loans and mortgage purchase authority not otherwise required by law.

24. The appropriation language on page 35, in connection with the Federal Savings and Loan Insurance Corporation, provides for examination of Federal and State chartered institutions.

COMPARISONS WITH BUDGET RESOLUTION

In accordance with section 308(a)(1)(A) of the Congressional Budget Act of 1974 (Public Law 93-344), the following table provides comparisons between the new budget authority targets set forth

in the First Concurrent Resolution on the Budget, as allocated by the Committee on Appropriations under section 302 of the Act, and the budget authority contained in the accompanying bill.

(In thousands of dollars)

Function	Amounts in concurrent resolution	Committee recommendations	Difference
060 National defense	1,148,245	1,132,251	-15,995
250 General science, space, and technology	5,222,501	5,344,074	+121,573
270 Energy	102,461	102,461	
300 Natural resources and environment	4,990,777	4,521,827	-468,950
370 Commerce and housing credit	1,383,813	1,383,813	
400 Transportation	556,900	553,426	-3,474
450 Community and regional development	5,345,705	5,321,259	-24,446
500 Education, training, employment, and social services	10,861	10,861	
550 Health	41,776	41,250	-526
600 Income security	27,381,171	27,574,183	+193,012
700 Veterans benefits and services	20,634,804	20,335,411	-299,393
750 Administration of justice	20,941	20,513	-428
800 General government	6,026	5,751	-275
850 General purpose fiscal assistance	6,328,527	6,062,195	-266,332
Total	72,175,208	72,215,975	+40,766

FIVE YEAR PROJECTION OF OUTLAYS

In accordance with section 308(a)(1)(B) of the Congressional Budget Act of 1974 (Public Law 93-344), the following table contains the five year projection of the outlays associated with the budget authority provided in the accompanying bill.

Budget authority, \$72,215,975,000.

Outlays:	
1980	\$31,116,274,000
1981	7,289,861,000
1982	3,018,894,000
1983	2,510,478,000
1984	1,243,535,000
Future years	27,086,933,000

ASSISTANCE TO STATE AND LOCAL GOVERNMENTS

In accordance with section 308(a)(1)(C) of the Congressional Budget Act of 1974 (Public Law 93-344), the new budget authority and outlays provided in the accompanying bill for financial assistance to State and local governments are as follows:

Fiscal year 1980 new budget authority: \$22,973,211,000.

Fiscal year 1980 outlays resulting therefrom: \$884,317,000.

96TH CONGRESS } HOUSE OF REPRESENTATIVES { REPORT
1st Session } No. 96-248

TREASURY, POSTAL SERVICE AND GENERAL
GOVERNMENT APPROPRIATION BILL, 1980

JUNE 7, 1979.—Committed to the Committee of the Whole House on the State of
the Union and ordered to be printed

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

REPORT

[To accompany H.R. 4393]

The Committee on Appropriations submits the following report in
explanation of the accompanying bill making appropriations for the
Treasury Department, the U.S. Postal Service, the Executive Office
of the President, and certain independent agencies, for the fiscal year
ending September 30, 1980, and for other purposes.

TITLE VI GENERAL PROVISIONS
DEPARTMENTS, AGENCIES AND CORPORATIONS

Sec. 602

Sec. 602. The Committee has inserted the word "*Israel*" in this
general provision. The effect of this change is to exempt citizens of
Israel from the prohibition against employment of foreign nationals
by the U.S. Government.

Sec. 613

Sec. 613. (a) No part of any of the funds appropriated for
the fiscal year ending September 30, 1980, by this Act or any
other Act, may be used to pay the salary or pay of any indi-
vidual in any office or position in an amount which exceeds
the rate of salary or basic pay payable for such office or
position on September 30, 1979, by more than the *overall*
average percentage increase in the General Schedule rates of basic
pay, as a result of any adjustments which take effect during
such fiscal year under section 5343 of title 5, United States
Code, if such adjustment is granted pursuant to a wage sur-
vey (but only with respect to prevailing rate employees
described in section 5342(a)(2)(A) of that title).

(b) For the purpose of administering any provision of law,
rule, or regulation which provides premium pay, retirement,
life insurance, or other employee benefit, which requires any
deduction or contribution, or which imposes any requirement
or limitation, on the basis of a rate of salary or basic pay, the
rate of salary or basic pay payable after the application of this
section shall be treated as the rate of salary or basic pay.

Calendar No. 273

96TH CONGRESS }
1st Session }

SENATE

REPORT
No. 96-258

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT—INDEPENDENT AGENCIES APPROPRIATION BILL, 1980

JULY 24 (legislative day, JUNE 21), 1979.—Ordered to be printed

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

REPORT

[To accompany H.R. 4394]

The Committee on Appropriations, to which was referred the bill (H.R. 4394) making appropriations for the Department of Housing and Urban Development, and for sundry independent agencies, boards, commissions, corporations, and offices for the fiscal year ending September 30, 1980, and for other purposes, reports the same to the Senate with various amendments and presents herewith an explanation of the contents of the bill.

AMOUNT OF NEW BUDGET (OBLIGATIONAL) AUTHORITY

	<i>Fiscal year 1980</i>
Amount of bill as passed by House.....	\$71,963,475,000
Amount of change by Committee.....	—607,324,000
Amount of bill as reported to Senate.....	71,356,151,000
Amount of appropriations to date, 1979.....	70,040,207,000
Amount of budget estimates, 1980.....	¹ 72,950,860,750
Under estimates for 1980.....	—1,594,709,750
Over appropriations for 1979.....	+1,315,944,000

¹ Does not include offset of \$200,000,000 attributable in budget submission to rescission of existing rent supplement budget authority.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

RESEARCH AND DEVELOPMENT

1979 appropriation.....	\$3,477,200,000
1980 budget estimate.....	3,822,500,000
House allowance.....	3,799,500,000
Committee recommendation.....	3,822,500,000

¹ Includes \$220,000,000 request contained in H. Doc. 96-124.

The Committee recommends an appropriation of \$3,822,500,000 in fiscal year 1980 for research and development activities of the National Aeronautics and Space Administration (NASA). This amount is the same as the budget estimate, with some adjustments to that estimate as explained at the end of this narrative.

NASA conducts the nonmilitary space programs of the United States, including the exploration of space and its utilization for peaceful purposes, and conducts advanced research and development related to space and aeronautics in support of both civil and military requirements. The research and development program at NASA consists of the following activities:

Space transportation systems—The space transportation systems program provides all the transportation and related capabilities required to conduct space operations. The major development objective within the program is the reusable Space Shuttle, the key element of a versatile, economical transportation system designed to provide a wide variety of users with round trip access to space during the 1980's and beyond. The \$2,124,000 requested by the administration for the space transportation systems program in fiscal year 1980 would provide for continuation of shuttle design, development, test, and evaluation activity on a schedule consistent with the major program milestones. The first orbital flight is now scheduled for launch in 1980 with a series of orbital flight test missions to follow. NASA's fiscal year 1980 program also calls for activities leading to a national fleet of four shuttle orbiter vehicles, which will include necessary modifications to the first two orbital flight vehicles and fabrication and assembly of two additional orbiters. The 1980 program also provides for expendable launch vehicles and services, as well as engineering support, required during the transition to the Space Transportation System.

Space science—The space science program utilizes space systems, supported by airborne and ground-based observations, to conduct scientific investigations of the Earth and its space environment, the Sun, the planets, and interplanetary and interstellar space, as well as the other stars of our galaxy and universe. The results of these studies contribute to our understanding of the universe, including the key questions on life, matter, energy and the complex phenomena that affect life and the environment on Earth.

Although the \$601,600,000 requested by the Administration for space science will not include funding for any new flight programs, it will provide support for the continued development of the Space Telescope (\$112,700,000), the Galileo mission (\$116,100,000), the International Solar Polar mission (\$50,000,000) and experiments to be conducted on Spacelab missions. Continuation of the operations for Voyager, Pioneer Venus, the High Energy Astronomy Observatories, the International Ultraviolet Explorer, and the International

Sun-Earth Explorer mission is planned in fiscal year 1980. The Solar Maximum mission is scheduled for launch in early fiscal year 1980.

Space and terrestrial applications—NASA's space and terrestrial applications program is designed to develop, demonstrate and transfer space technology, systems and related capabilities which can be applied for practical benefits here on Earth. Space Applications research and development covers the areas of resource observations, environmental observations, applications systems, technology transfers, materials processing in space and space communications. Technology utilization activities of the program are designed to accelerate and expand the availability and use of technology developed in all NASA programs into the private and public sectors of the economy.

Among the major space and terrestrial applications proposals for fiscal year 1980 is a multi-year cooperative program with the Departments of Agriculture, Commerce, and the Interior, and the Agency for International Development in crop monitoring and commodity production forecasting which will cost a total of \$307,300,000 through 1985. Under this effort, NASA plans to spend \$16,000,000 in fiscal year 1980 to develop and test remote sensing techniques to provide both commodity production forecasts and early warning of changes affecting crop production or quality. NASA also plans to re-enter selected areas of the communications satellite systems area in fiscal year 1980 and intends to concentrate on the development of the technology required to increase the usable capacity of the radio frequency spectrum for communications satellites in geosynchronous orbit, including development of multibeam antennae and on-board switching techniques.

Aeronautics and space technology—The principal objective of NASA's aeronautics and space technology program is the advancement of aeronautical technology to ensure safer, more economical, efficient and environmentally acceptable air transportation systems which are responsive to current and projected national needs. This technology serves to help maintain the competitive position of the United States in the international aviation market place and to aid the military in maintaining the superiority of the Nation's military aircraft.

NASA's fiscal year 1980 aeronautics and space technology program will continue to focus on technology aimed at improving aircraft efficiency, reducing noise and pollution, improving safety and terminal area operations, and advancing long- and short-haul air transportation concepts.

Tracking and data acquisition—The tracking and data acquisition program at NASA provides for tracking and data acquisition support for earth orbital spacecraft, planetary missions, sounding rockets, and research aircraft. In fiscal year 1980, the Spaceflight Tracking and Data Network will support an average of approximately 50 earth orbital scientific and applications spacecraft and the Deep Space Network will support a full complement of planetary missions including the high Energy Astronomy Observatories, the Heat Capacity Mapping Mission, and Landsat-3.

Although the Committee has recommended the full \$1,586,000,000 requested for the Shuttle, including a budget amendment of \$220,000,000, the Committee is deeply concerned about escalating Shuttle costs as well as the slow progress of the Shuttle program. The Committee is particularly distressed by the failure of the Agency to anticipate as recently as last March 30, when the Agency appeared before the Committee, the time and money problems currently being encountered. The Committee is pleased to note that a thorough review of the Shuttle program is currently being conducted by NASA and expects that the Agency will be in a position to accurately predict its future Shuttle budget needs when it appears before the Committee to justify its fiscal year 1981 budget request.

The Committee concurs with the bill language recommended by the House placing a limitation of \$116,100,000 on the amount that can be spent on Project Galileo and a limitation of \$18,300,000 on Space Transportation System upper stages funding in the absence of the approval of the House and Senate Appropriations Committees. Recent reports of potential cost escalation in the Galileo/TUS program indicate the wisdom of requiring Committee approval before funds budgeted for this effort can be increased.

While the Committee has approved an amount equal to the budget estimate it has made the following additions and reductions:

- An additional \$4,000,000 for the variable cycle engine program.
- An additional \$2,000,000 for the multi-spectral resources sampler.
- An additional \$4,000,000 for the National Oceanic Satellite System (NOSS).
- An additional \$5,000,000 for advanced rotorcraft technology.
- An additional \$2,000,000 for energy technology, identification and verification.
- A decrease of \$10,000,000 for thrust augmentation.
- A decrease of \$4,000,000 for space flight operations.
- A general unspecified reduction of \$3,000,000.

These recommendations will enable NASA to start some of the programs which were unfortunately turned down by the Office of Management and Budget for inclusion in this year's request. The Committee feels that all of these programs are important and deserve support this year, a position also strongly held by the authorizing committees.

Finally, although the Committee has continued limiting funds provided in the bill to a two-year availability, any moneys obligated under contract during that period may be used for activities or work performed after September 30, 1981.

CONSTRUCTION OF FACILITIES

1979 appropriation.....	\$147,500,000
1980 budget estimate.....	157,600,000
House allowance.....	156,100,000
Committee recommendation.....	156,100,000

The Committee recommends an appropriation of \$156,100,000 for construction of facilities activities in fiscal year 1980. This amount is \$1,500,000 below the budget estimate and the same as the House allowance.

The construction of facilities appropriation provides for contractual services for the design, major rehabilitation, and modification of facilities; the construction of new facilities; minor construction; the purchase of land and equipment related to construction and modification; and advanced design related to facilities planned for future authorization. The level of funding recommended by the Committee will provide for the continuation of prior years' initiatives in meeting the facilities requirements for the Space Shuttle and Space Shuttle payloads; construction and modification of large aeronautical research and development facilities; construction, repair, rehabilitation, and modification of other facilities to maintain, upgrade and improve the usefulness of the NASA physical plant; and facility planning and design activities.

Of the appropriation proposed by the Committee, \$12,000,000 is scheduled to be used for completion of construction of the National Transonic Facility begun in fiscal year 1977 at the Langley Research Center. NASA also plans to spend \$33,900,000 to continue the modification of the 40 X 80 foot Subsonic Wind Tunnel at the Ames Research Center. The Agency has targeted \$31,450,000 for Space Shuttle facilities, primarily related to launch and landing requirements at the Kennedy Space Center and the external tank manufacturing and final assembly areas at the Michoud Assembly Facility in New Orleans, La. The funding proposed by the Committee will also allow the Agency to pursue a number of necessary support activities, including rehabilitation and modification of flight operations facilities at the Ellington Air Force Base, modifications to the central instrumentation facility, and the operations and checkout building at the Kennedy Space Center and modifications to various buildings and the rehabilitation of roofs of various buildings at the Marshall Space Flight Center, Ala.

The Committee concurs with the House decision to reduce NASA's construction of facilities budget by \$1,500,000 for the proposed construction of a large aircraft maintenance dock at the Dryden Flight Research Center. NASA had requested funding for the installation of this large Air Force surplus aircraft maintenance dock at Dryden to provide protection from temperature extremes, sand and dust for personnel and equipment involved in preflight, postflight, maintenance, and ground test operations. The dock was primarily designed to house and protect such large aircraft as the B-52 carrier aircraft, the YC-14 and YC-15 Advanced Medium STOL transports and other aircraft. In a time of severe budget strain, the Committee agrees with the House that this low priority project can be postponed.

RESEARCH AND PROGRAM MANAGEMENT

1979 appropriation.....	\$936,469,000
1980 budget estimate.....	964,900,000
House allowance.....	954,900,000
Committee recommendation.....	964,900,000

The Committee recommends the appropriation of \$964,900,000 in fiscal year 1980 for research and program management. This level of funding is identical to the budget estimate.

The research and program management appropriation supports the performance of research, technology and test activities at NASA Centers, and the planning, management and support of contractor research and development activities necessary to meet the Nation's objectives in space and aeronautics research. The principal objectives of activities funded under this account are: (1) to provide the technical and management capability of the civil service staff needed to conduct the full range of programs for which NASA is responsible; (2) to maintain facilities and laboratories in a state of operational capability and to manage their use in support of research and development programs; and (3) to provide effective and efficient technical and administrative support for the research and development programs. Approximately seventy-five percent of the funding requested for these purposes is required to cover salaries and related costs with the balance to be spent on travel and research, test and operational facility support, and for related goods and services needed to operate the NASA Centers and help accomplish NASA mission objectives.

TITLE IV—GENERAL PROVISIONS

The Committee agrees that the General Provisions approved by the House and applicable to the Department and agencies in fiscal year 1980 as set forth in Title IV should be controlling.

The Committee has also recommended the adoption of language which would prohibit agency employees from taking annual leave in the course of travelling on agency business. A Committee Investigations Staff report on travel abuses within the Environmental Protection Agency indicated that in a number of cases EPA employees were taking extensive periods of annual leave following brief business visits to such distant points as the West Coast of the United States and Western Europe. The recommended language is intended to prevent this sort of abuse by making it clear that annual leave is only to be taken from an official duty station.

BUDGETARY IMPACT OF H.R. 4384¹

[Dollars in millions]

	Budget authority		Outlays	
	Committee allocation	Amount in bill	Committee allocation	Amount in bill
I. Comparison of amounts in the bill with the committee allocation to its subcommittees of amounts in the first concurrent resolution for 1980:				
Subcommittee on Housing and Urban Development—Independent Agencies.....	\$71,400	\$71,356	\$48,500	\$47,637
II. Summary of functional category of 1980 budget amounts recommended in the bill:				
050—National defense.....		137		\$140
150—International affairs.....				
250—General science, space, and technology.....		5,394		\$5,159
270—Energy.....		102		\$131
300—Natural resources and environment.....		4,571		\$4,626
350—Agriculture.....				
370—Commerce and housing credit.....		1,084		\$671
400—Transportation.....		555		\$512
450—Community and regional development.....		5,338		\$4,698
500—Education, training, employment, and social services.....		11		\$11
550—Health.....		41		\$40
600—Income security.....		27,587		\$5,293
700—Veterans benefits and services.....		20,332		\$20,151
750—Administration of justice.....		20		\$20
800—General government.....		6		\$6
850—General purpose fiscal assistance.....		6,178		\$6,176
900—Interest.....				
III. Financial assistance to State and local governments for 1980 in the bill.....				
		23,280		888
IV. Projections of outlays associated with budget authority recommended in the bill:				
1980.....				\$30,486
1981.....				7,829
1982.....				3,461
1983.....				2,486
1984.....				906
Future year.....				26,187

¹ Prepared by the Congressional Budget Office pursuant to sec. 308(a), Public Law 93-344.² Includes outlays from prior year budget authority.³ Excludes outlays from prior year budget authority.

COMPARATIVE STATEMENT OF NEW BUDGET (OBLIGATIONAL)
AND AMOUNTS RECOMMENDED IN THE

(Amounts

Item	1979 Appropriation	Budget estimate
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION		
Research and development.....	3,477,200,000	3,822,500,000
Construction of facilities.....	147,500,000	157,600,000
Research and program management.....	936,469,000	964,900,000
Total, National Aeronautics and Space Administration.....	4,561,169,000	4,945,000,000

AUTHORITY FOR FISCAL YEAR 1979 AND BUDGET ESTIMATES
BILL FOR FISCAL YEAR 1980—Continued

in dollars)

House allowance	Committee recommendation	Increase (+) or decrease (-) compared with—		
		1979 Appropriation	Budget estimate	House allowance
3,799,500,000	3,822,500,000	+345,300,000	---	+23,000,000
156,100,000	156,100,000	+8,600,000	-1,500,000	---
954,900,000	964,900,000	+28,431,000	---	+10,000,000
4,910,500,000	4,943,500,000	+382,331,000	-1,500,000	+33,000,000

MAKING APPROPRIATION FOR HUD

AUGUST 2, 1979.—Ordered to be printed

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

CONFERENCE REPORT

[To accompany H.R. 4394]

The Committee of Conference on the disagreeing votes of the two Houses on the amendments of the Senate to the bill (H.R. 4394) "making appropriations for the Department of Housing and Urban Development, and for sundry independent agencies, boards, commissions, corporations, and offices for the fiscal year ending September 30, 1980, 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 Senate recede from its amendments numbered 17, 19, and 44.

That the House recede from its disagreement to the amendments of the Senate numbered 1, 3, 8, 15, 16, 21, 23, 24, 25, 26, 29, 31, 32, 36, 37, and 40, and agree to the same.

Amendment numbered 5:

That the House recede from its disagreement to the amendment of the Senate numbered 5, and agree to the same with an amendment as follows:

In lieu of the sum proposed by said amendment insert *\$830,000,000*; and the Senate agree to the same.

Amendment numbered 6:

That the House recede from its disagreement to the amendment of the Senate numbered 6, and agree to the same with an amendment as follows:

In lieu of the sum proposed by said amendment insert *\$79,500,000*; and the Senate agree to the same.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Amendment No. 27: Reported in disagreement.

Amendment No. 28: Appropriates \$959,900,000 for research and program management, instead of \$954,900,000 as proposed by the House and \$964,900,000 as proposed by the Senate.

TITLE IV—GENERAL PROVISIONS

Amendment No. 44: Deletes without prejudice language proposed by the Senate relating to agency employees taking annual leave in the course of travelling on agency business. The conferees are greatly concerned about the travel abuses highlighted in a Senate Investigative Staff report. The language has been deleted because this issue can be more properly addressed by agency regulations. Therefore, the Committee of Conference directs the Department and agencies covered by this Act to issue regulations prohibiting employees from taking annual leave while on travel status, except in unique or emergency situations. Any annual leave to be taken while on travel status must be shown and approved on the travel authorization. The Committee further directs that the Department and agencies covered by this Act report on the status of implementing the above directive by December 31, 1979.

Amendment No. 45: Reported in technical disagreement. The managers on the part of the House will offer a motion to recede and concur in the amendment of the Senate prohibiting funds appropriated in this or any other Act for fiscal year 1980 from being used to contract with private firms to provide plant care or watering services.

CONFERENCE TOTAL—WITH COMPARISONS

The total new budget (obligational) authority for the fiscal year 1980 recommended by the Committee of Conference, with comparisons to the fiscal year 1979 amount, the 1980 budget estimates, and the House and Senate bills for 1980 follow:

New budget (obligational) authority, fiscal year 1979.....	\$70,040,207,000
Budget estimates of new (obligational) authority, fiscal year 1980.....	1 72,815,238,750
House bill, fiscal year 1980.....	71,963,475,000
Senate bill, fiscal year 1980.....	71,930,247,000
Conference agreement.....	* 71,834,634,000
Conference agreement compared with:	
New budget (obligational) authority, fiscal year 1979....	+1,794,477,000
Budget estimates of new (obligational) authority fiscal year 1980.....	-980,554,750
House bill, fiscal year 1980.....	-128,791,000
Senate bill, fiscal year 1980.....	-95,563,000

¹ Includes \$92,492,000 of budget estimates not considered by the House.

² Includes House passed amounts for the livable cities program and research and development of the National Aeronautics and Space Administration.

EDWARD P. BOLAND,
BOB TRAXLER,
LOUIS STOKES,
TOM BEVILL,
LINDY BOGGS,
MARTIN OLAV SABO,
BENNETT M. STEWART,
JAMIE L. WHITTEN,
LAWRENCE COUGHLIN,
JOSEPH M. MCDADE,
BILL YOUNG,
SILVIO O. CONTE,

Managers on the Part of the House.

WILLIAM PROXMIRE,
JOHN C. STENNIS,
BIRCH BAYH,
WALTER D. HUDDLESTON,
PATRICK J. LEAHY,
JIM SASSER,
JOHN A. DURKIN,
WARREN G. MAGNUSON,
CHARLES MCC. MATHIAS, Jr.,
HENRY BELLMON,
LOWELL P. WEICKER, Jr.,
PAUL LAXALT,
HARRISON SCHMITT,
MILTON YOUNG.

Managers on the Part of the Senate.

○

96TH CONGRESS } HOUSE OF REPRESENTATIVES } REPORT
 1st Session } } No. 96-542

MAKING APPROPRIATIONS FOR THE DEPARTMENT OF
 HOUSING AND URBAN DEVELOPMENT

OCTOBER 23, 1979.—Ordered to be printed

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

CONFERENCE REPORT

[To accompany H.R. 4394]

The committee of conference on the disagreeing votes of the two Houses on the amendments of the Senate numbered 12 and 27 to the bill (H.R. 4394) "making appropriations for the Department of Housing and Urban Development, and for sundry independent agencies, boards, commissions, corporations, and offices for the fiscal year ending September 30, 1980, and for other purposes," having met, after further full and free conference, have agreed to recommend and do recommend to their respective Houses as follows:

That the Senate recede from its amendment numbered 12.

58-006 O

2

Amendment numbered 27:

That the House recede from its disagreement to the amendment of the Senate numbered 27, and agree to the same with an amendment as follows:

In lieu of the sum proposed by said amendment insert \$3,807,500,000; and the Senate agree to the same.

EDWARD P. BOLAND,
 BOB TRAXLER,
 LOUIS STOKES,
 TOM BEVILL,
 LINDY (MRS. HALE) BOGGS,
 MARTIN OLAV SABO,
 BENNETT M. STEWART,
 JAMIE L. WHITTEN,
 LAWRENCE COUGHLIN,
 JOSEPH M. McDADE,
 C. W. BILL YOUNG,
 SILVIO O. CONTE,
Managers on the Part of the House.

WILLIAM PROXMIRE,
 JOHN C. STENNIS,
 BIRCH BAYH,
 WALTER D. HUDDLESTON,
 PATRICK J. LEAHY,
 JIM SASSER,
 JOHN A. DURKIN,
 WARREN G. MAGNUSON,
 CHARLES MCC. MATHIAS, Jr.,
 HENRY BELLMON,
 LOWELL P. WEICKER, Jr.,
 PAUL LAXALT,
 HARRISON SCHMITT,
 MILTON YOUNG,
Managers on the Part of the Senate.

**JOINT EXPLANATORY STATEMENT OF THE COMMITTEE
OF CONFERENCE**

The managers on the part of the House and the Senate at the further conference on the disagreeing votes of the two Houses on the amendments of the Senate to the bill (H.R. 4394) making appropriations for the Department of Housing and Urban Development, and for sundry independent agencies, boards, commissions, corporations, and offices for the fiscal year ending September 30, 1980, 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 report:

TITLE II—INDEPENDENT AGENCIES

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Amendment No. 27: Appropriates \$3,807,500,000 for research and development, instead of \$3,799,500,000 as proposed by the House and \$3,822,500,000 as proposed by the Senate. The conferees agree to the recommendations contained in the report of the House with the following changes:

- + \$3,000,000 for the variable cycle engine program and
- + \$5,000,000 for advanced rotorcraft technology.

CONFERENCE TOTAL—WITH COMPARISONS

The total new budget (obligational) authority for the fiscal year 1980 recommended by the Committee of Conference, with compari-

(3)

4

sons to the fiscal year 1979 amount, the 1980 budget estimates, and the House and Senate bills for 1980 follows:

New budget (obligational authority, fiscal year 1979.....	\$70,040,207,000
Budget estimates of new (obligational) authority, fiscal year	
1980	72,815,258,750
House bill, fiscal year 1980.....	71,963,475,000
Senate bill, fiscal year 1980.....	71,930,247,000
Conference agreement.....	71,842,684,000
Conference agreement compared with:	
New budget (obligational) authority, fiscal year 1979.....	+1,802,477,000
Budget estimates of new (obligational) authority, fiscal	
year 1980.....	-972,554,750
House bill, fiscal year 1980.....	-120,791,000
Senate bill, fiscal year 1980.....	-87,563,000

¹ Includes \$92,492,000 of budget estimates not considered by the House.

EDWARD P. BOLAND,
BOB TRAXLER,
LOUIS STOKES,
TOM BEVILL,
LINDY (MRS. HALE) BOGGS,
MARTIN OLAV SABO,
BENNETT M. STEWART,
JAMIE L. WHITTEN,
LAWRENCE COUGHLIN,
JOSEPH M. MCDADE,
C. W. BILL YOUNG,
SILVIO O. CONTE,
Managers on the Part of the House.

WILLIAM PROXMIRE,
JOHN C. STENNIS,
BIRCH BAYH,
WALTER D. HUDDLESTON,
PATRICK J. LEAHY,
JIM SASSER,
JOHN A. DURKIN,
WARREN G. MAGNUSON,
CHARLES MCC. MATHIAS, JR.,
HENRY BELLMON,
LOWELL P. WEICKER, JR.,
PAUL LAXALT,
HARRISON SCHMITT,
MILTON YOUNG,
Managers on the Part of the Senate.

○

PUBLIC LAW 96-103—NOV. 5, 1979

93 STAT. 771

Public Law 96-103
96th Congress

An Act

Making appropriations for the Department of Housing and Urban Development, and for sundry independent agencies, boards, commissions, corporations, and offices for the fiscal year ending September 30, 1980, and for other purposes.

Nov. 5, 1979
[H.R. 4394]

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 agencies, boards, commissions, corporations, and offices for the fiscal year ending September 30, 1980, and for other purposes, namely:

Department of
Housing and
Urban
Development—
Independent
Agencies
Appropriation
Act, 1980.

TITLE I

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

RESEARCH AND DEVELOPMENT

93 STAT. 778

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; 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; and including not to exceed \$116,100,000 for Project Galileo and not to exceed \$18,300,000 for space transportation system upper stages, without the approval of the Committees on Appropriations, \$3,807,500,000, to remain available until September 30, 1981.

CONSTRUCTION OF FACILITIES

93 STAT. 779

For construction, repair, 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, \$156,100,000, to remain available until September 30, 1982: *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 repair, 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 thirty-two for replacement only) and hire of passenger motor vehicles; and maintenance and repair of real and personal property, and not in excess of \$75,000 per project for construction of new facilities and additions to existing facilities, repairs, and rehabilitation and modification of facilities; \$959,900,000: *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 \$25,000 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.

93 STAT. 787

TITLE IV

GENERAL PROVISIONS

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 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.

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.

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. 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. 405. 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.

Sec. 406. None of the funds provided in this Act to any department or agency may be expended for the transportation of any officer or employee of such department or agency between his domicile and his place of employment, with the exception of the Secretary of the Department of Housing and Urban Development, who, under title 5, United States Code, section 101, is exempted from such limitations.

Legal services.
31 USC 841 note.
12 USC 1749a.

93 STAT. 788

PUBLIC LAW 96-103—NOV. 5, 1979

Research
projects.

Sec. 407. 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.

Sec. 408. None of the funds provided in this Act may be used, directly or through grants, to pay or to provide reimbursement for payment of the salary of a consultant (whether retained by the Federal Government or a grantee) at more than the daily equivalent of the maximum rate paid for GS-18, unless specifically authorized by law.

Sec. 409. No part of any appropriation for the fiscal year ending September 30, 1980, contained in this or any other Act shall be used to contract with private firms to provide plant care or watering services.

This Act may be cited as the "Department of Housing and Urban Development—Independent Agencies Appropriation Act, 1980".

Approved November 5, 1979.

44 FR 58671.

Short title.

Certain
government
transportation,
prohibition.

LEGISLATIVE HISTORY:

HOUSE REPORTS: No. 96-249 (Comm. on Appropriations) and No. 96-409 and No. 96-542 (Comm. of Conference).

SENATE REPORT No. 96-258 (Comm. on Appropriations).
CONGRESSIONAL RECORD, Vol. 125 (1979):

June 21, 22, 27, considered and passed House.

July 27, considered and passed Senate, amended.

Sept. 27, House agreed to conference report; receded from its disagreement and concurred in certain Senate amendments, in others with amendments, and disagreed to Senate amendment No. 12.

Sept. 28, Senate agreed to conference report; resolved certain amendments in disagreement, and insisted on its amendment No. 12.

Oct. 24, House and Senate agreed to further conference report.

PUBLIC LAW 96-74—SEPT. 29, 1979

93 STAT. 559

Public Law 96-74
96th Congress

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, 1980, and for other purposes.

Sept. 29, 1979
[H.R. 4393]

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, 1980, and for other purposes, namely:

Treasury, Postal
Service, and
General
Government
Appropriation
Act, 1980.

TITLE VI—GENERAL PROVISIONS

DEPARTMENTS, AGENCIES, AND CORPORATIONS

93 STAT. 574

31 USC 638a.

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 \$3,400 except station wagons for which the maximum shall be \$3,800: *Provided*, That these limits may be exceeded by not to exceed \$1,700 for police-type vehicles, and by not to exceed \$3,600 for special heavy-duty vehicles: *Provided further*, That the limits set forth in this section shall not apply to electric or hybrid vehicles purchased for demonstration under the provisions of the Electric and Hybrid Vehicle Research, Development, and Demonstration Act of 1976.

Citizenship
requirement for
employees.
31 USC 699b.

SEC. 602. Unless otherwise specified 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, (4) is an alien from Cuba, Poland, South Vietnam, or the Baltic countries lawfully admitted to the United States for permanent residence, or (5) South Vietnamese, Cambodian and Laotian refugees paroled into the United States between January 1, 1975, and the date of enactment of this Act: *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*,

Motor vehicle
purchase.
31 USC 638c.

Penalty.

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 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 Israel, 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.

Quarters allowances.

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. 604. No part of any appropriation for the current fiscal year contained in this or any other Act shall be paid to any person for the filling of any position for which he or she has been nominated after the Senate has voted not to approve the nomination of said person.

Administrative expense funds.

SEC. 605. Funds made available by this or any other Act for administrative expenses in the current fiscal year of the corporations and agencies subject to the Government Corporation Control Act, as amended (31 U.S.C. 841) shall be available, in addition to objects for which such funds are otherwise available, for rent in the District of Columbia; services in accordance with 5 U.S.C. 3109; and the objects specified under this head, all the provisions of which shall be applicable to the expenditure of such funds unless otherwise specified in the Act by which they are made available: *Provided*, That in the event any functions budgeted as administrative expenses are subsequently transferred to or paid from other funds, the limitations on administrative expenses shall be correspondingly reduced.

93 STAT. 575

Foreign credits.
31 USC 724.

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.

Publicity or
propaganda.

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.

U.S. Postal
Service
employees,
communication
with Congress.

(b) No part of any appropriation contained in this Act shall be available for the payment of the salary of any officer or employee of the United States Postal Service, who—

(1) prohibits or prevents, or attempts or threatens to prohibit or prevent, any officer or employee of the United States Postal Service from having any direct oral or written communication or contact with any Member or committee of Congress in connection with any matter pertaining to the employment of such officer or employee or pertaining to the United States Postal Service in any way, irrespective of whether such communication or contact is at the initiative of such officer or employee or in response to the request or inquiry of such Member or committee; or

(2) removes, suspends from duty without pay, demotes, reduces in rank, seniority, status, pay, or performance or efficiency rating, denies promotion to, relocates, reassigns, transfers, disciplines, or discriminates in regard to any employment right, entitlement, or benefit, or any term or condition of employment of, any officer or employee of the United States Postal Service, or attempts or threatens to commit any of the foregoing actions with respect to such officer or employee, by reason of any communication or contact of such officer or employee with any Member or committee of Congress as described in paragraph (1) of this subsection.

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.

93 STAT. 576

SEC. 610. Funds made available by this or any other Act to (1) the General Services Administration, including the fund created by the Public Buildings Amendments of 1972 (86 Stat. 216), and (2) the "Postal Service Fund" (39 U.S.C. 2003), shall be available for employment of guards for all buildings and areas owned or occupied by the United States or the Postal Service and under the charge and control of the General Services Administration or the Postal Service, and such guards shall have, with respect to such property, the powers of special policemen provided by the first section of the Act of June 1, 1948 (62 Stat. 281; 40 U.S.C. 318), but shall not be restricted to certain Federal property as otherwise required by the proviso contained in said section, and, as to property owned or occupied by the Postal Service, the Postmaster General may take the same actions as the Administrator of General Services may take under the provisions of sections 2 and 3 of the Act of June 1, 1948 (62 Stat. 281; 40 U.S.C. 318a, 318b) attaching thereto penal consequences under the authority and within the limits provided in section 4 of the Act of June 1, 1948 (62 Stat. 281; 40 U.S.C. 318c).

Rental of space and services.

SEC. 611. 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 the rate per square foot established for the space and services by the General Services Administration for the current fiscal year and for which appropriations were granted.

40 USC 492.

SEC. 612. None of the funds available under this or any other Act shall be available for administrative expenses in connection with the designation for construction, arranging for financing, or execution of contracts or agreements for financing or construction of any additional purchase contract projects pursuant to section 5 of the Public Buildings Amendments of 1972 (Public Law 92-313) during the period beginning October 1, 1976, and ending September 30, 1980.

40 USC 602a.

Interdepartmental groups, expenses.

Space and service charges and building improvements.

40 USC 601 note.
40 USC 603 note.

U.S. or Postal Service guards.

26 USC 170.

SEC. 613. (a) No part of any of the funds appropriated for the fiscal year ending September 30, 1980, by this Act or any other Act, may be used to pay the salary or pay of any individual in any office or position in an amount which exceeds the rate of salary or basic pay payable for such office or position on September 30, 1979, by more than the overall average percentage increase in the General Schedule rates of basic pay, as a result of any adjustments which take effect during such fiscal year under section 5343 of title 5, United States Code, if such adjustment is granted pursuant to a wage survey (but only with respect to prevailing rate employees described in section 5342(a)(A) of that title).

(b) The limitations on the availability of funds imposed by this section shall not restrict the payment of any rate of basic pay which does not exceed \$4.22 per hour, if such rate of basic pay would be payable were it not for this section.

(c) For the purpose of administering any provision of law, rule, or regulation which provides premium pay, retirement, life insurance, or any other employee benefit, which requires any deduction or contribution, or which imposes any requirement or limitation, on the basis of a rate of salary or basic pay, the rate of salary or basic pay payable after the application of this section shall be treated as the rate of salary or basic pay.

SEC. 614. None of the funds available under this Act may be used to carry out any revenue ruling of the Internal Revenue Service which rules that a taxpayer is not entitled to a charitable deduction for general purpose contributions which are used for educational purposes by a religious organization which is an exempt organization as described in section 170(c)(2) of the Internal Revenue Code of 1954.

93 STAT. 577

SEC. 615. None of the funds available under this Act may be used to carry out proposed revenue procedure 4830-01-M of the Internal Revenue Service entitled "Proposed Revenue Procedure on Private Tax-Exempt Schools" (44 F.R. 9451 through 9455, February 13, 1979, F.R. Document 79-4801), and proposed revenue procedure 4830-01 of the Internal Revenue Service entitled "Proposed Revenue Procedure on Private Tax-Exempt Schools" (43 F.R. 37296 through 37298, August 22, 1978, F.R. Document 78-23515), or parts thereof.

SEC. 616. It is the sense of the Congress that, upon the sale of the estate known as Casa Pacifica located in San Clemente, California, former President Richard M. Nixon should reimburse the United States for the original cost of any construction, renovation, improvements, equipment or articles paid for by the Federal Government of the United States, or for the amount by which they have increased the fair market value of the property, as determined by the Comptroller General of the United States, as of the date of sale, whichever is less.

This Act may be cited as the "Treasury, Postal Service, and General Government Appropriations Act, 1980".

Short title.

Approved September 29, 1979.

LEGISLATIVE HISTORY:

HOUSE REPORTS: No. 96-248 (Comm. on Appropriations) and No. 96-471 (Comm. of Conference).

SENATE REPORT No. 96-299 (Comm. on Appropriations).

CONGRESSIONAL RECORD, Vol. 125 (1979):

July 13, 16, considered and passed House.

Sept. 5, 6, considered and passed Senate, amended.

Sept. 26, House and Senate agreed to conference report; House receded and concurred in certain Senate amendments and in others with amendments; Senate concurred in House amendments.

96TH CONGRESS } HOUSE OF REPRESENTATIVES { REPORT
2d Session } No. 96-898

AUTHORIZING APPROPRIATIONS TO THE NATIONAL
AERONAUTICS AND SPACE ADMINISTRATION

APRIL 22, 1980.—Committed to the Committee of the Whole House on the State
of the Union and ordered to be printed

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

REPORT

[To accompany H.R. 6412]

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

The Committee on Science and Technology, to whom was referred (H.R. 6412) to authorize a supplemental appropriation to the National Aeronautics and Space Administration for research and development, having considered the same, report favorably thereon without amendment and recommend that the bill do pass.

PURPOSE OF THE BILL

The purpose of the bill is to authorize a supplemental appropriation to the National Aeronautics and Space Administration for research and development.

Program	Authorization fiscal year 1980 (Public Law 96-48)	Supplemental authorization fiscal year 1981	Page No.
Research and development (total).....	\$3, 838, 500, 000	\$300, 000, 000	3

COMMITTEE ACTION

RESEARCH AND DEVELOPMENT—SPACE SHUTTLE

During the first session of the 96th Congress, the Committee on Science and Technology authorized the appropriation of \$1,586 million for the Space Shuttle design, development, test and evaluation program and the Shuttle production program for a four-orbiter fleet.

A need has developed for additional funds resulting from technical problems encountered in the development, manufacturing and testing of the Space Shuttle thermal protection system and main engine. The additional funding required for fiscal year 1980 (Public law 96-48) is \$300 million.

The committee has reviewed this request and has conducted sufficient investigations and oversight activity to recommend the acceptance of this supplemental authorization of appropriations request. According to NASA data the impact of not receiving these funds is as follows:

Impact on Space Shuttle program

1. Extension of D.D.T. & E. period 3 to 4 months.
2. Disruption in period of intensive preparation for first orbital flight.
3. Total D.D.T. & E. dollar impact \$200 to \$250 million.
4. Follow-on orbiters \$400 to \$600 million.
5. Requirement for expendable launch vehicles to replace Shuttle missions (\$250 million net).

Impact on employment

Employment on Shuttle at end of fiscal year 1980 would be reduced from current and planned level of 50,000 to 25,000-27,000.

Impact on schedule

First orbital flight: 3- to 4-month delay.

Follow-on orbiter deliveries: 7- to 9-month delay.

Therefore, the committee recommends this supplemental authorization of appropriations be adopted by the whole House.

This supplemental authorization of appropriations when added to the \$1,586 million authorized and appropriated for fiscal year 1980 would provide a total of \$1,886 million for the Space Shuttle programs within the research and development appropriation.

EXPLANATION OF THE BILL

RESEARCH AND DEVELOPMENT SUMMARY

Program	Authorization fiscal year 1980 (Public Law 96-48)	Supplemental authorization fiscal year 1980
Space Shuttle.....	\$1, 586, 000, 000	\$300, 000, 000

SPACE SHUTTLE PROGRAM

The Space Shuttle program is in the final period of development toward the first orbital flight, targeted for the first quarter of 1981. All Space Shuttle system flight elements have been delivered to the Kennedy Space Center (KSC) for STS-1, other elements are proceeding in test and manufacture, and major ground test programs are being conducted. Hardware certification is continuing across all Space Shuttle elements.

The mated vertical ground vibration test (MVGVT), conducted at the Marshall Space Flight Center (MSFC), was completed early in 1979, and the data has been used to update Space Shuttle system dynamic math models to predict the vehicle response under vibration during the launch and ascent phases of flight. The test elements used in the MVGVT were delivered to KSC for launch facility verification and tests, which were successfully completed. Orbiter 101 (*Enterprise*) was then returned to Palmdale, Calif., where it will be used for future tests, removal of critical flightworthy parts, and possible use as part of a facility verification vehicle for the Western Test Range (WTR) at Vandenberg Air Force Base (VAFB). The main propulsion test (MPT) series, which started in 1978 at the National Space Technology Laboratories (NSTL), will continue into 1980. This includes three main engines mounted on an orbiter aft-fuselage, and an external tank. MPT process has been delayed due to failures in testing and necessary engine modifications, but the test activity is now progressing. The successful full-duration MPT test lasting 550 seconds on December 17, 1979, represented a significant milestone in the main engine development program.

Fiscal year 1980 activities' support preparations for the first orbital flight. Orbiter 102 (*Columbia*), which will be used for the orbital flight test (OFT) program, is in final assembly and checkout in the orbiter processing facility (OPF) at KSC. Thermal protection system (TPS) installation problems have been a major cause for delay in the orbiter final assembly. In 1980, the orbiter will be delivered to the vehicle assembly building (VAB) for assembly with the external tank (ET) and solid rocket boosters (SRB's) to prepare for launch. The orbiter structural test article (STA) testing was completed by Lockheed in 1979, and the STA was transferred back to Rockwell in Palmdale, Calif., for modification to become the second flight orbiter, Orbiter 099 (*Challenger*).

The flight hardware elements for STS-1 have been delivered to KSC and are progressing well through element processing toward stacking and mating into the overall assembled vehicle. The SRB's are stacked on the mobile launcher awaiting the ET. The ET checkout will be completed, and it will be mated with the SRB's during the

first quarter of 1980. *Columbia* (which has been undergoing manufacturing, modifications, and testing throughout Fiscal Year 1979) is being prepared for mating. Integrated vehicle processing is planned to continue through a flight readiness firing prior to launch. The primary orbital flight test landing station at Dryden Flight Research Center (DFRC) in California is operational and an alternate landing strip is being prepared at the White Sands Missile Range in New Mexico.

In summary, the technical progress at this critical phase of the development effort has been substantial, but has not sustained the pace necessary to accomplish the prior Fiscal Year 1980 budget plan, thus making it necessary to adjust program schedules and request a supplemental appropriation.

SECTIONAL ANALYSIS

A bill to authorize supplemental appropriations for fiscal year 1980 to the National Aeronautics and Space Administration for research and development.

Paragraph (1) subsection 1(a) of the National Aeronautics and Space Administration Act, 1980 (Public Law 96-48) is amended to increase the authorization for research and development for the Space Shuttle from \$1,586,000,000 to \$1,886,000,000.

The supplemental authorization of appropriations will be subject to the same conditions and limitations contained in the National Aeronautics and Space Administration Act, 1980 (Public Law 96-48).

COST AND BUDGET DATA

The bill would authorize supplemental appropriations for fiscal year 1980 (Public Law 96-48) in the amount of \$300 million for research and development. In accordance with the requirements of rule XIII, clause 7 of the Rules of the House of Representatives, the committee's estimate for the next 5 years of the NASA supplemental budget request is as follows:

Fiscal year:	Outlay
1980.....	\$250,000,000
1981.....	50,000,000
1982.....	0
1983.....	0
1984.....	0

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 long-run inflationary effects on prices and cost 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. NASA employs about 23,000 civil servants and supports about 117,000 contractor employees. Assuming a multiplier effect of 2.5, the total, short-run employment effect on the U.S. economy is about 350,000 jobs. This represents less than one-half of one percent of the total civilian labor force in the United States—far too small to

have a significant national effect, although there could be small industrial and regional employment and price changes influenced by NASA expenditures.

The most significant economic effects of NASA spending are the long-run productivity advances from new technologies developed for the space and aeronautics programs. Many direct advances in communications satellites, improved aircraft (including more energy efficient aircraft), remote sensing satellites, and other innovations have both improved the productive capacity of industry and stimulated the development and growth of many new businesses. Indirectly, through the development and dissemination of advanced technologies to U.S. firms, the spinoffs from the space and aeronautics programs have been applied in virtually every sector of the economy.

Although it is difficult to assess the results of the various macro-economic studies of the effects of NASA spending on GNP, it is clear from analyses done by the Midwest Research Institute, Chase Econometrics, Inc., and others, that NASA high technology expenditures have returned more to the economy in substantial and long-lasting productivity gains than has been spent. Since these gains are through spinoff commercial advances, they are "extra" returns above and beyond the primary goal of NASA programs: the successful completion of the various R. & D. mission assignments. Therefore, any gains which show positive returns to GNP in the long-run indicate a non-inflationary, significant return to the citizens of the United States.

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 with new matter printed in italic, existing law is shown in roman: and large unchanged blocks of existing law is indicated by * * *).

Paragraph (1) of subsection 1(a) of the National Aeronautics and Space Administration Authorization Act 1980 (Public Law 96-48) reads as follows:

"Space Shuttle, **[\$1,586,000,000]** *\$1,886,000,000.*

OVERSIGHT FINDINGS AND RECOMMENDATIONS

Pursuant to clause 2(l)(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 associated with this bill are contained in a committee print entitled "Space Shuttle 1980" prepared and printed in January 1980. The three major conclusions of the 590 page report are:

1. Supplemental funding for fiscal year 1980 is requisite to accomplishing a first manned orbital flight in 1980 and maintaining the production orbiter delivery schedule to meet currently defined national needs. The Space Shuttle fiscal year 1980 funding requirements including reserves is assessed to be \$1,851 million by the field centers compared to the headquarters funding assessment of \$1,801 million. The currently authorized funding level for the Space Shuttle program in fiscal year 1980 is \$1,586 million.

2. If fiscal year 1980 supplemental funding is not approved by June 1980, NASA will likely have to use production funding to support

design, development, test, and evaluation activities which will result in additional production funding requirements in fiscal year 1981 and increased cost and schedule risk.

3. The total cost estimate for the NASA Space Shuttle design, development, test and evaluation (D.D.T. & E.) program is now \$6.18 billion (in 1971 dollars) which is approximately \$1 billion more than the \$5.15 billion estimate made at the initiation of the program. This represents a cost growth of 20 percent as compared to a June 1979 projected cost growth of 15 percent.

In addition to the above specific report, program review hearings were held in November and December 1979 where the subject of additional research and development funding was covered (1981 NASA Authorization Program Review).

More recently, NASA appeared before the Subcommittee on Space Science and Applications where the specific supplemental funding issue was addressed at a hearing on February 5, 1980.

CONGRESSIONAL BUDGET ACT INFORMATION

This bill provides for new authorization rather than new budget authority and consequently the provisions of section 308(a) of the Congressional Budget Act of 1974 are not applicable. No authorization for State or local financial assistance is included in the bill.

ESTIMATE AND COMPARISON, CONGRESSIONAL BUDGET ACT INFORMATION

Pursuant to clause (2)(l)(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

1. Bill number: H.R. 6412.
2. Bill title: A bill to authorize a supplemental appropriation to the National Aeronautics and Space Administration for research and development.
3. Bill status: As ordered reported by the House Committee on Science and Technology, April 16, 1980.
4. Bill purpose: This bill authorizes the appropriation of \$300 million in additional funds to the National Aeronautics and Space Administration (NASA) for fiscal year 1980. The funds have been requested by the Administration and are to be used for space shuttle orbiter production activities. Fiscal year 1980 appropriations to date for NASA space flight research and development activities total \$2,103 million, with total 1980 outlays estimated to be \$2,115 million, before enactment of the supplemental.

96TH CONGRESS }
2d Session }

SENATE

{ REPORT
No. 96-694

NASA SUPPLEMENTAL AUTHORIZATION
FOR FISCAL YEAR 1980

REPORT

OF THE

COMMITTEE ON COMMERCE, SCIENCE,
AND TRANSPORTATION

ON

S. 2238

TO AUTHORIZE A SUPPLEMENTAL APPROPRIATION TO THE
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION FOR
RESEARCH AND DEVELOPMENT



MAY 12 (legislative day, JANUARY 3), 1980.—Ordered to be printed

U.S. GOVERNMENT PRINTING OFFICE
WASHINGTON : 1980

62-346 O

96TH CONGRESS }
2d Session }

SENATE

{ REPORT
No. 96-694

AUTHORIZING APPROPRIATIONS TO THE NATIONAL
AERONAUTICS AND SPACE ADMINISTRATION

MAY 12 (legislative day, JANUARY 3), 1980.—Ordered to be printed

Mr. CANNON, from the Committee on Commerce, Science, and
Transportation, submitted the following

REPORT

[To accompany S. 2238]

The Committee on Commerce, Science, and Transportation, to
which was referred the bill (S. 2238) to authorize a supplemental ap-
propriation to the National Aeronautics and Space Administration
for research and development having considered the same, reports fav-
orably thereon without amendment and recommends that the bill
do pass.

PURPOSE OF THE BILL

The basic purpose of this bill is to authorize a supplemental ap-
propriation of \$300,000,000 to the National Aeronautics and Space
Administration for fiscal year 1980 as follows:

Supplemental fiscal year 1980	Budget request	Senate com- mittee action
Research and development: Space Shuttle.....	\$300,000,000	\$300,000,000

LEGISLATIVE HISTORY

The request for authorization of a supplemental appropriation for
the National Aeronautics and Space Administration for fiscal year
1980 was introduced in the Senate as S. 2238 on January 30, 1980.

The Committee held hearings on S. 2238 on February 6-7, 1980, in
conjunction with its hearings on the NASA fiscal year 1981 budget
request.

The Committee, on May 8, 1980, ordered the bill, S. 2238, reported
without amendment.

RESEARCH AND DEVELOPMENT

SPACE SHUTTLE PROGRAM, \$300,000,000

The Space Shuttle, under development since 1972, is the key element of the future U.S. space transportation system. It will provide users, both national and international, with round trip access to low-Earth orbits, beginning in 1982. Higher orbits and planetary missions will be achieved using upper stages such as the inertial upper stage and spinning solid upper stages.

The Space Shuttle will be launched from both the Kennedy Space Center, Fla., and the Vandenberg Air Force Base, Calif.

The Space Shuttle consists of the following basic flight hardware elements: the orbiter and its main engines; the external propellant tank; and twin rocket boosters. In addition, there is a ground-based launch and landing system. It is a reusable system, except for the external propellant tank. Consequently, it will make possible multipurpose, economical space operations for applications, scientific, defense, and technological payloads. It will offer capabilities that cannot be achieved with today's launch vehicles. For example, the Space Shuttle will carry both men and women in space to operate equipment that requires the manual dexterity and logical judgments of humans. It will be able to retrieve payloads from space for reuse; to service and repair satellites in space; to transport materials and equipment into orbit; and to carry out rescue missions if needed. These capabilities of the Shuttle will greatly enhance the flexibility and productivity of space operations and reduce their cost.

The Space Shuttle will have a large payload volume of 285 cubic meters (370 cubic yards) and a weight-carrying capacity of up to 29,500 kilograms (65,000 pounds). It will be operated by a three-man crew: the commander, the pilot, and a mission specialist. On some missions, one or more payload specialists will be added to the crew to operate payloads. The crew will be able to perform their duties in a shirt-sleeve environment.

The Department of Defense will launch all its spacecraft using the Space Shuttle and has scheduled its transition from the use of expendable launch vehicles. The Air Force is the designated executive agent for the Department of Defense for all space transportation system matters. Coordination between NASA and the Department of Defense is achieved through the NASA/USAF Space Transportation System Committee and by detailing personnel between the Department and NASA to serve on each other's committees, boards, and panels, and in extensive day-to-day coordination.

In support of the Space Shuttle, the Air Force has undertaken the development and production of the inertial upper stage for the Space Shuttle and the full-scale development of the Vandenberg Air Force Base Space Shuttle launch and landing facility. Other efforts are underway in such areas as payload interfaces and integration, mission operations, data, and software systems, and future uses of the Space Shuttle.

Summary of resources requirements

Design, development, test, and evaluation:

Orbiter	\$140,100,000
Main engine	0
External tank	11,000,000
Solid rocket booster	3,700,000
Launch and landing	45,200,000
Changes/systems upgrading	100,000,000
Total	300,000,000

The Administration submitted this request for authorization of a supplemental appropriation of \$300 million for fiscal year 1980 for the Space Shuttle development program concurrent with the presentation of the fiscal year 1981 budget request. The supplemental appropriation is required to maintain program balance and momentum and to overcome expeditiously the continuing development problems that have delayed final qualification and certification of the Shuttle system for flight. These actions are necessary to avoid major cost penalties.

Development program delays over the past year have become a major concern due to the increasing funding requirements and the unavailability of the Space Shuttle to support U.S. space operations, particularly those of the Department of Defense. Therefore, following submission to, with subsequent approval by, the Congress of an urgent fiscal year 1980 budget amendment in May 1979, three program assessments were initiated—a NASA program review directed by the Deputy Administrator utilizing senior Government and non-Government personnel, a financial review conducted by the NASA Comptroller, and an examination by three outside consultants initiated by the NASA Administrator at the request of the President.

A principal conclusion was that annual funding limitations on the program to meet budgetary ceilings resulted in underfunding the program at key development points. Management, therefore, used schedule extensions and the deferral of development tasks and testing (and most recently production program funds as well) to offset the impact of the funding constraints. The net effect of these actions has been to reach a point in time (flight hardware assembly and checkout) where all flexibility has been removed from the program and all outstanding and newly identified problems must be solved promptly. No basic technical weaknesses have been identified; however, recommendations were made for management improvements in determining program status and forecasting requirements. These recommendations have been implemented through additional staff and a Shuttle program management reorganization.

The funding requirements represented by the \$300 million supplemental request and the fiscal year 1981 request result from the assessments discussed above: will support a first orbital test flight as early as November 1980 and as late as March 1981; represent the current best estimate of funding needed, exclusive of systems upgrading, to complete the development program; and will permit the orbiter fleet production program to proceed on the optimum schedule to meet user requirements, particularly those of the DOD. Including these funding requirements, the total cost of the Shuttle development program is

estimated at \$6.185 billion (in 1975 dollars), an increase of 20 percent since the program was initiated in January 1972.

Should the \$300 million fiscal year 1980 supplemental not become available, adjustments will have to be made in both the development program and the fleet production program to maintain a rational balance between and within the activities. Impact estimates of these actions reflect a 3 to 4 month delay in development and a 7 to 9 month delay in follow-on orbiters, for a total program cost increase of \$600 to \$850 million. The Committee recommends full funding of this development request in order to bring the Shuttle to operational status as soon as technically feasible. This will permit fleet production to proceed on the current schedule, established in mid-1979, to support launch requests. Firm commitments for payloads and plans to transition to Shuttle clearly demonstrate that users are most desirous of taking advantage of the unique capabilities the system offers—a principal reason for initiating its development. In addition, testimony by Department of Defense witnesses, including the Secretary of Defense, clearly states the importance of early activation of the Space Shuttle to the national security.

This supplemental authorization will increase the fiscal year 1980 authorization for the Space Shuttle program from \$1,586 million to \$1,886 million, and increase the total NASA authorization for fiscal year 1980 from \$4,961 million to \$5,261 million.

ESTIMATED COSTS

This paragraph addresses the requirements of paragraph 11(a), rule XXVI of the Standing Rules of the Senate. The NASA request for new budget authority for fiscal year 1980 was \$4,945 million. The National Aeronautics and Space Administration Authorization Act, 1980 (Public Law 96-48), authorized \$4,961 million, following which \$4,923,500,000 was appropriated to the agency. The bill, S. 2238, authorizes an additional \$300 million for fiscal year 1980 for research and development activities in the Space Shuttle program. Since these activities are being conducted at a very intense level to support an early launch of the first Shuttle orbital test flight and thereby avoid cost penalties associated with program rescheduling, the need for this supplemental authorization is most urgent. Therefore, the Committee believes these funds will be obligated within fiscal year 1980 with outlays of \$250 million in fiscal year 1980 and \$50 million in fiscal year 1981. Funding requirements for NASA for subsequent years will be addressed in the pending NASA authorization bill for fiscal year 1981.

With respect to section 308(a) of the Congressional Budget Act of 1974, this supplemental authorization recommendation for fiscal year 1980 has been provided for in the revisions to S. Con. Res. 53 reported to and adopted by the House and the Senate. The Committee will file a Senate resolution to waive the requirements of section 402(a) of the Congressional Budget Act of 1974 with respect to consideration of this bill by the Senate.

This bill contains no budget authority to provide 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 Act of 1974. The CBO submission of May 8, 1980 is as follows:

U.S. CONGRESS,
CONGRESSIONAL BUDGET OFFICE,
Washington, D.C., May 8, 1980.

HON. HOWARD W. CANNON,
Chairman, Committee on Commerce, Science, and Transportation, U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: Pursuant to Section 403 of the Congressional Budget Act of 1974, the Congressional Budget Office has prepared the attached cost estimate for S. 2238, a bill to authorize a supplemental appropriation to the National Aeronautics and Space Administration for research and development.

Should the Committee so desire, we would be pleased to provide further details on this estimate.

Sincerely,

ALICE M. RIVLIN, Director.

CONGRESSIONAL BUDGET OFFICE COST ESTIMATE

MAY 8, 1980.

1. Bill No. S. 2238.
2. Bill title: A bill to authorize a supplemental appropriation to the National Aeronautics and Space Administration for research and development.
3. Bill status: As ordered reported by the Senate Committee on Commerce, Science and Transportation, May 8, 1980.
4. Bill purpose: This bill authorizes the appropriation of \$300 million in additional funds to the National Aeronautics and Space Administration (NASA) for fiscal year 1980. The funds have been requested by the Administration and are to be used for space shuttle orbiter production activities. Fiscal year 1980 appropriations to date for NASA space flight research and development activities total \$2.103 million, with total 1980 outlays estimated to be \$2.115 million, before enactment of the supplemental.
5. Cost estimate:

	(In millions of dollars)
Authorization level:	
Fiscal year:	
1980	300
1981	-----
1982	-----
1983	-----
1984	-----
Estimated outlays:	
Fiscal year:	
1980	180
1981	120
1982	-----
1983	-----
1984	-----

The costs of this bill fall within budget function 250.

6. Basis of estimate: The authorization level is that stated in the bill. All funds authorized are assumed to be appropriated in July 1980. The estimated outlays are based on NASA plans to use the funds primarily to meet contractor payroll expenses for ongoing space shuttle production activities, which will result in a relatively rapid spendout of the funds.

7. Estimate comparison: NASA estimates outlays of \$200 million in fiscal year 1980 and \$100 million in fiscal year 1981. CBO projects a somewhat slower spendout of the funds, because of a later assumed date of the appropriation. NASA estimates outlays of \$2,287 million for space flight research and development activities in 1980 including this supplemental. The CBO estimate is \$2,295 million.

8. Previous CBO estimate: On April 17, 1980, CBO transmitted a cost estimate for H.R. 6412, as ordered reported by the House Committee on Science and Technology, April 16, 1980. S. 2238 is identical to H.R. 6412.

9. Estimate prepared by Mark Berkman.

10. Estimate approved by:

JAMES L. BLUM,
Assistant Director for Budget Analysis.

REGULATORY IMPACT STATEMENT

This bill authorizes the appropriation of funds for the conduct of space research and development activities to carry out the policy and purpose of the National Aeronautics and Space Act of 1958. These activities are conducted in NASA laboratories by NASA personnel and through contracts with industry, universities and research institutions for research and development and for supporting scientific and technical services. The Committee has concluded the nature of these activities is such that there is no regulatory impact on individuals and businesses and, therefore, it is impractical to include in this report a regulatory impact evaluation as set forth in paragraph 11(b), rule XXVI of the Standing Rules of the Senate.

AGENCY COMMENTS

The following documents constitute the departmental data received by the Committee with reference to the provisions of this bill:

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION,
Washington, D.C., January 28, 1980.

HON. WALTER F. MONDALE,
President of the Senate,
Washington, D.C.

DEAR MR. PRESIDENT: Submitted herewith is a draft of a bill, to authorize a supplemental appropriation to the National Aeronautics and Space Administration for Research and Development, together with the analysis thereof.

The bill would authorize an additional appropriation for "Research and Development" for Space Shuttle totaling \$300 million. The additional funding is required in FY 1980 to sustain the Space Shuttle development efforts required to achieve a first orbital flight by the

end of the year, while allowing for the buildup of follow-on orbiter production activities on a schedule to meet critical civil and military operational requirements. The funding requirement is due primarily to increased efforts in completing systems installation and test, particularly the thermal protection system, and pre-launch processing of the first orbital vehicle and in systems qualification and certification testing across all elements of the program. These increased efforts have required more work than was planned resulting in a delay of the first manned orbital flight from the previous schedule of March 1980.

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.

Very truly yours,

ROBERT A. FROSCHE,
Administrator.

Enclosure.

A BILL To authorize a supplemental appropriation to the National Aeronautics and Space Administration for Research and Development

Paragraph (1) of subsection 1(a) of the National Aeronautics and Space Administration Authorization Act, 1980 (Public Law 96-48), is amended by striking out "\$1,586,000,000" and inserting in lieu thereof "\$1,886,000,000."

SECTION-BY-SECTION ANALYSIS

This bill authorizes to be appropriated to the National Aeronautics and Space Administration for fiscal year 1980 additional funds in the amount of \$300 million for the Space Shuttle program increasing the amount authorized from \$1,586 million to \$1,886 million. This action amends paragraph (1) of subsection 1(a) of the National Aeronautics and Space Administration Authorization Act of 1980 (Public Law 96-48).

CHANGES IN EXISTING LAW

In compliance with paragraph 12 of rule XXVI 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):

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION AUTHORIZATION
ACT, 1980

Public Law 96-48

SEC. 1. (a) For "Research and development," for the following programs:

(1) Space Shuttle. [~~\$1,586,000,000~~] *\$1,886,000,000*;

* * * * *

○

SUPPLEMENTAL APPROPRIATIONS AND RESCISSION
BILL, 1980

JUNE 11, 1980.—Committed to the Committee of the Whole House on the State of the Union and ordered to be printed

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

REPORT

[To accompany H.R. 7542]

The Committee on Appropriations submits the following report in explanation of the accompanying bill making supplemental appropriations for the fiscal year ending September 30, 1980, rescinding certain budget authority and for other purposes.

INDEX TO BILL AND REPORT

	Page number	
	Bill	Report
Narrative summary of Committee action.....		2
Tabular summary of bill.....		10
Title I—General Supplementals		
Chapter I—Agriculture—Rural Development.....	2	15
Chapter II—Defense.....	5	27
Chapter III—District of Columbia.....	15	55
Chapter IV—Energy and Water Development.....	18	64
Chapter V—Foreign Operations.....	27	87
Chapter VI—Housing and Urban Development—Independent Agencies.....	27	89
Chapter VII—Interior and Related Agencies.....	33	103
Chapter VIII—Labor, and Health, Education, and Welfare.....	38	119
Chapter IX—Legislative Branch.....	47	146
Chapter X—Military Construction.....	50	152
Chapter XI—State, Justice, Commerce, and Judiciary.....	52	160
Chapter XII—Transportation.....	59	178
Chapter XIII—Treasury, Postal Service, and General Government.....	67	190
Title II—Increased pay costs, fiscal year 1980.....	73	207
Title III—General Provisions.....	100	239

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

RESEARCH AND DEVELOPMENT

The Committee has approved the full budget request of \$300,000,000 to provide additional funding required for the Space Shuttle program.

The added requirement results from ongoing technical problems encountered in developing, manufacturing and testing the shuttle system. These include problems with the thermal protection system, engine development and various other factors. The difficulties incurred continued to impact seriously the first manned orbital launch date (now estimated for February 1, 1981) and the subsequent operational capability of the shuttle system which is now estimated to begin in August of 1982.

The nation has made a commitment to develop a space shuttle system that is vital to this country's future in space. Therefore, it is important to fund the shuttle to completion as soon as possible. This approach will result in the lowest overall program cost. The Committee further urges NASA to earmark sufficient funds from within the space shuttle line item in 1980 to purchase long-lead time titanium required for a fifth shuttle orbiter. The Committee understands that this decision must be made within the next three to six months in order to assure an adequate supply of titanium if a decision is made to proceed with production of a fifth orbiter.

RESCISSION OF FUNDS

The Committee has rescinded \$15,000,000 of research and development funds and directs that the solar polar mission be cancelled. The International Solar Polar mission is a joint NASA and European Space Agency mission designed to obtain a view of the solar system from a new perspective, a view from far above and far below the plane in which the planets orbit the sun's equator. It was anticipated that the two spacecraft would aid in the study of the relationship between the sun and its magnetic field and particle emissions (solar wind and cosmic rays) as a function of earth's weather and climate. Initial funding of this program was provided in the amount of \$12,500,000 in 1979. The 1980 current estimate is \$47,900,000.

The revised 1981 budget proposes that the solar polar mission be slipped two years—to 1985. This will have the effect of saving \$43,000,000 in 1981—but delaying the mission for two years will add at least \$150,000,000 to the total cost of the mission. It should also be pointed out that in making this proposal NASA is doing precisely what it told the Committee last December was not a good idea from the standpoint of efficiency—from the standpoint of risk—and from the standpoint of our relationship with the European space community.

By cancelling the solar polar program in 1980—an additional \$40,000,000 is saved in 1981 which can be used to offset other cuts made in program areas which by being delayed—will also cost more money in the out years. A substantial number of these other program reductions were restored in the 1981 legislative authorization bill reported by the House Committee on Science and Technology. The anticipated \$40,000,000 savings in 1981 will be available to fund many of these activities—including, for example, the Solar Electric Propulsion System.

The Committee is recommending this rescission and the cancellation of the solar polar program because it believes that the proposed reductions in 1981 are inefficient. Actual outlay savings occurring as a result of 1981 reductions total \$224,000,000 in 1981. However, by simply delaying many programs—the net result is that instead of realizing these savings to the Federal Government and the taxpayer, the delays will cost more than the proposed \$224,000,000 reduction. In short, the budget revisions are inefficient and simply delay projects which result in long-term cost growth.

**COMPARATIVE STATEMENT OF NEW BUDGET (OBLIGATIONAL) AUTHORITY ESTIMATES AND AMOUNTS
RECOMMENDED IN THE BILL—Continued**

TITLE I—GENERAL SUPPLEMENTALS—Continued

Requested in H. Doc. 96-247 as amended by H. Doc.:	Department or activity	Budget estimates	Recommended in the bill	Bill compared with estimates
	NATIONAL AERONAUTICS AND SPACE ADMINISTRATION			
	Research and development.....	\$300,000,000	\$ 300,000,000	---
---	Rescission.....	---	-15,000,000	-\$15,000,000
	Total, National Aeronautics and Space Administration.....	300,000,000	285,000,000	-15,000,000

**COMPARATIVE STATEMENT OF NEW BUDGET (OBLIGATIONAL) AUTHORITY ESTIMATES AND AMOUNTS
RECOMMENDED IN THE BILL—Continued**

TITLE II—INCREASED PAY COSTS—Continued

Requested in H. Doc. 96-247 as amended by H. Doc.:	Department or activity	Supplemental estimate	Recommended in bill	Bill compared with estimates
	NATIONAL AERONAUTICS AND SPACE ADMINISTRATION			
	Research and program management.....	46,286,000	36,286,000	-10,000,000

Calendar No. 905

90TH CONGRESS }
2d Session }

SENATE

REPORT
No. 96-829SUPPLEMENTAL APPROPRIATIONS AND
RESCISSION BILL, 1980

JUNE 28 (legislative day, JUNE 12), 1980.—Ordered to be printed

MR. MAGNUSON, from the Committee on Appropriations,
submitted the following

REPORT

[To accompany H.R. 7542]

The Committee on Appropriations, to which was referred the bill (H.R. 7542) making supplemental appropriations for the fiscal year ending September 30, 1980, rescinding certain budget authority and for other purposes, reports the same to the Senate with various amendments and presents herewith information relative to the changes recommended.

INDEX TO BILL AND REPORT

	Page number	
	Bill	Report
Narrative summary of bill.....		2
Tabular summary of bill.....		21
Title I—Supplementals.....		28
Chapter I—Agriculture—Rural Development.....		28
Chapter II—Defense.....		40
Chapter III—Funds appropriated to the President.....		65
Chapter IV—District of Columbia.....		67
Chapter V—Energy and Water Development.....		75
Chapter VI—Foreign Operations.....		99
Chapter VII—Housing and Urban Development—Independent Agencies.....		108
Chapter VIII—Interior and Related Agencies.....		136
Chapter IX—Labor, HHS, and Education.....		157
Chapter X—Legislative Branch.....		207
Chapter XI—Military Construction.....		223
Chapter XII—State, Justice, Commerce, and Judiciary.....		233
Chapter XIII—Transportation.....		263
Chapter XIV—Treasury, Postal Service, and General Government.....		275
Title II—Increased pay costs.....		292
Title III—General Provisions.....		321

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

RESEARCH AND DEVELOPMENT

1980 appropriations to date.....	\$3,807,500,000
1980 supplemental estimate.....	300,000,000
House allowance.....	300,000,000
Committee recommendation.....	285,000,000

The Committee recommends a supplemental appropriation of \$285,000,000 in fiscal year 1980 for increased development, installation, and testing necessary to maintain the space shuttle program on schedule. This amount is \$15,000,000 below both the budget estimate and the level of funding recommended by the House.

The Shuttle is a key element of a versatile space transportation system under development by the National Aeronautics and Space Administration (NASA) to provide a variety of national and international users with round trip access to space during the 1980's and beyond. The Shuttle will be the first reusable space vehicle and is designed to carry scientific, defense-related, and technological payloads of various sizes to and from low Earth orbit. The Shuttle consists of a reusable manned orbiter with three liquid oxygen/hydrogen main engines, two reusable solid rocket boosters, and an expendable liquid propellant tank called the external tank.

The supplemental proposed by the Administration is requested to cover development problems in the Shuttle, necessary program changes, the need for more work than was projected, particularly in the thermal protection system and systems installation effort on the first orbital vehicle (Orbiter 102) at the Kennedy Space Center, and increased systems qualification and certification testing across all elements of the Shuttle program. These problems have caused hardware delivery delays, increased engineering and manufacturing requirements affecting prime and subcontracts, and significant deferrals of work into fiscal year 1980. Substantial additional supplemental funding is required in the current fiscal year in order to keep development work on schedule and to proceed with follow-on fabrication activities.

The Committee notes that NASA is requesting \$100,000,000 for changes and systems upgrading for the Shuttle. While the Committee recognizes that adequate contingency reserves must be set aside to meet unexpected program changes and systems modifications, it believes that \$85,000,000, for unanticipated cost increases, rather than the \$100,000,000 requested by the Administration, should be adequate in the remaining five months of fiscal year 1980.

The \$285,000,000 supplemental recommended by the Committee for continued Shuttle development work is to be distributed as follows:

Orbiter design, development, test, and evaluation.....	\$140,100,000
External tank design, development, test, and evaluation.....	11,000,000
Solid rocket booster.....	8,700,000
Launch and landing design, development, test, and evaluation.....	45,200,000
Changes and systems upgrading.....	85,000,000
Total Shuttle supplemental recommended.....	285,000,000

The Committee directs NASA to inform the Committee of any proposed changes in the above allocation of Shuttle resources as well as the allocation of the contingency reserve into specific development activities.

The Committee feels that if money is spent by NASA for maintaining the option of a fifth orbiter for the space shuttle transportation system, the priority funding should go toward the procurement of long-lead items—for example titanium—so that when the decision is made to go forward with the fifth orbiter, the production of this vehicle will not be unduly delayed.

**COMPARATIVE STATEMENT OF NEW BUDGET (OBLIGATIONAL) AUTHORITY ESTIMATES AND AMOUNTS RECOMMENDED
IN THE BILL—Continued**

TITLE I—GENERAL SUPPLEMENTALS AND RESCISSIONS

[Amounts in dollars]

H. Doc.	Department or activity	Budget estimates	House bill	Senate committee recommendation	Senate committee recommendation compared with (+ or -):	
					Budget estimates	House bill
	NATIONAL AERONAUTICS AND SPACE ADMINISTRATION					
	Research and development.....	300,000,000	300,000,000	285,000,000	-15,000,000	-15,000,000

**COMPARATIVE STATEMENT OF NEW BUDGET (OBLIGATIONAL) AUTHORITY ESTIMATES AND AMOUNTS RECOMMENDED
IN THE BILL—Continued**

TITLE II—INCREASED PAY COSTS—Continued

[Amounts in dollars]

H. Doc.	Department or activity	Budget estimates	House bill	Senate committee recommendation	Senate committee recommendation compared with (+ or -):	
					Budget estimates	House bill
	NATIONAL AERONAUTICS AND SPACE ADMINISTRATION					
	Research and program management.....	46,286,000	36,286,000	36,286,000	-10,000,000	—

SUPPLEMENTAL APPROPRIATIONS

JULY 2, 1980.—Ordered to be printed

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

CONFERENCE REPORT

[To accompany H.R. 7542]

The Committee of Conference on the disagreeing votes of the two Houses on the amendments of the Senate to the bill (H.R. 7542) "making supplemental appropriations for the fiscal year ending September 30, 1980, rescinding certain budget authority, 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 Senate recede from its amendments numbered 4, 11, 12, 17, 19, 20, 22, 23, 24, 27, 28, 29, 30, 35, 39, 40, 43, 47, 49, 50, 66, 69, 73, 77, 79, 80, 82, 83, 84, 89, 92, 94, 105, 110A, 130, 132, 137, 143, 145, 160, 163, 173, 190, 191, 197, 201, 217, 226, 230, 231, 234, 270, 271, 272, 306, 309, 310, 311, 312, 313, 314, 322, 323, 324, 330, 335, and 344.

That the House recede from its disagreement to the amendments of the Senate numbered 1, 2, 3, 14, 16, 25, 26, 41, 44, 45, 51, 52, 58, 62, 63, 68, 70, 76, 86, 90, 98, 99, 108, 111, 126, 129, 134, 135, 139, 140, 142, 149, 151, 154, 159, 164, 171, 195, 198, 200, 203, 206, 207, 210, 211, 212, 213, 222, 225, 228, 232, 235, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 273, 274, 282, 283, 291, 292, 293, 295, 298, 303, 305, 315, 321, 329, 333, 334, 336, and 338, and agree to the same.

Amendment numbered 5:

That the House recede from its disagreement to the amendment of the Senate numbered 5, and agree to the same with an amendment as follows:

In lieu of the matter proposed by said amendment insert:

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Amendment No. 111: Appropriates \$285,000,000 for research and development as proposed by the Senate, instead of \$300,000,000 as proposed by the House.

TITLE III—GENERAL PROVISIONS

Amendment No. 339: Reported in technical disagreement. The managers on the part of the House will offer a motion to recede and concur in the amendment of the Senate with an amendment as follows:

In lieu of the matter stricken by said amendment insert:

Sec. 303. Notwithstanding any other provision of law, the number of career appointees in any agency paid performance awards during fiscal year 1980 under 5 U.S.C. 5384, or any comparable personnel system established on or after October 13, 1978, may not exceed 25 percent of the number of Senior Executive Service or comparable personnel system positions in any such agency.

The managers on the part of the Senate will move to concur in the amendment of the House to the amendment of the Senate.

The Conferees are agreed that no more than 25 percent of the number of Senior Executive Service positions, or positions under similar personnel systems, in any agency may receive performance awards. In agreeing to this limit, the Conferees are concerned with the reports that an excessive number of SES employees are being designated to receive bonuses, and that the bonuses are being used in lieu of salary increases which are being denied to all other senior appointed and elected officials of the government.

The Conferees wish to draw attention to potential abuses in the bonus award system and direct that the General Accounting Office in cooperation with the Office of Personnel Management do a thorough study of bonus system payments, and report the findings to the authorizing and appropriations committees. If it is found that SES or SES-type payments are being made on the basis of personal or political favoritism or if it is found that SES or SES-type payments are being made on a rotational basis, the Conferees agree that all SES or SES-type payments shall be suspended until such abuses are cleared up.

Amendment No. 340: Reported in technical disagreement. The managers on the part of the House will offer a motion to recede and concur in the amendment of the Senate with an amendment as follows:

In lieu of the matter inserted by said amendment, insert the following:

Sec. 304. (a) Out of the total moneys appropriated for the operation of the departments and agencies of the Federal Government for fiscal year 1980, \$220,000,000 of this total ap-

propriated for the purchase of furniture is hereby rescinded. Excluded from this rescission are furniture items produced by Federal Prison Industries, Inc., or by sheltered workshops for the blind and other severely handicapped under the auspices of Public Law 92-28: Provided, That such items are fully justified by agency needs. The Director of the Office of Management and Budget is directed to allocate this rescission total among the departments and agencies of the Federal Government and report back to the House and Senate Committees on Appropriations within 30 days following the date of the enactment of this Act as to the allocation made: Provided further, That no allocation shall exceed 25 percent of said amount.

(b) With respect to the provisions of the Treasury, Postal Service, and General Government Appropriations Act, 1980, under the heading General Services Administration, Federal Buildings Fund, Limitations on Availability of Revenue, the aggregate amount made available from the revenues and collections deposited into the Federal Buildings Fund pursuant to section 210 (f) of the Federal Property and Administrative Services Act of 1949, as amended (40 U.S.C. 4901 (f)), for the purposes set forth in the provisions contained under such heading is reduced by \$15,000,000, which reduction shall apply specifically to the limitation on rental of space under clause (4) of such provisions.

The managers on the part of the Senate will move to concur with the amendment of the House to the amendment of the Senate.

Amendment No. 341: Section 305: Reported in technical disagreement. The managers on the part of the House will offer a motion to recede and concur in the amendment of the Senate with an amendment, as follows:

In lieu of the section number named in said amendment, insert "305".

The managers on the part of the Senate will move to concur in the amendment of the House to the amendment of the Senate.

This provision deals with the completion of government audits.

Amendment No. 342: Section 306: Reported in technical disagreement. The managers on the part of the House will offer a motion to recede and concur in the amendment of the Senate with an amendment, as follows:

In lieu of the section number named in said amendment, insert "306".

The managers on the part of the Senate will move to concur in the amendment of the House to the amendment of the Senate.

This provision deals with the collection of overdue debts owed to the United States.

Amendment No. 343: Section 307: Reported in technical disagreement. The managers on the part of the House will offer a motion to recede and concur in the amendment of the Senate with an amendment, as follows:

In lieu of the section number named in said amendment, insert "307".

The managers on the part of the Senate will move to concur in the amendment of the House to the amendment of the Senate.

This provision deals with the compilation of certain data regarding consulting services.

Amendment No. 344: Deletes language proposed by the Senate. The conferees are agreed that this amendment expresses the sense of the Senate that any future legislation to restrict the use of tax-exempt State and local bonds issued to provide mortgages for housing would be effective only after January 1, 1981. The conferees on the part of the Senate emphasize that their conference action on this matter does not diminish the resolve of the Senate as expressed by Amendment No. 344.

CONFERENCE TOTAL—WITH COMPARISONS

The total net new budget (obligational) authority recommended by the Committee of Conference, with comparisons to the budget estimates, and the House and Senate bills follow:

Budget estimates of new (obligational) authority	\$20,703,945,971
House bill	16,096,014,363
Senate bill	23,614,833,253
Conference agreement	16,583,077,772
Conference agreement compared with:	
Budget estimates of new (obligational) authority	-4,120,868,199
House bill	+488,063,409
Senate bill	-7,031,755,481

¹ Includes \$3,491,025,554 of budget estimates not considered by the House. Excludes \$9,494,109,404 of budget estimates considered by the Senate for the Foreign Operations items.

² Excludes amounts for Foreign Operations items which are in true disagreement. Includes \$511,600,000 in advance appropriations for fiscal year 1981.

PUBLIC LAW 96-304—JULY 8, 1980

94 STAT. 857

Public Law 96-304
96th Congress

An Act

Making supplemental appropriations for the fiscal year ending September 30, 1980,
repealing certain budget authority, and for other purposes.July 8, 1980
[H.R. 7542]

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 and Rescission Act, 1980") for the fiscal year ending September 30, 1980, that the following rescissions of budget authority are made, and for other purposes, namely:

Supplemental
Appropriations
and Rescission
Act, 1980.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

RESEARCH AND DEVELOPMENT

For an additional amount for "Research and development", \$285,000,000, to remain available until September 30, 1981.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

"Research and program management", \$36,286,000;

TITLE III

GENERAL PROVISIONS

(INCLUDING TRANSFER OF FUNDS)

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 1980, 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. Notwithstanding any other provision of law, the number of career appointees in any agency paid performance awards during fiscal year 1980 under 5 U.S.C. 5384, or any comparable personnel system established on or after October 13, 1978, may not exceed 25 percent of the number of Senior Executive Service or comparable personnel system positions in any such agency.

Sec. 304. (a) Out of the total moneys appropriated for the operation of the departments and agencies of the Federal Government for fiscal year 1980, \$220,000,000 of this total appropriated for the purchase of furniture is hereby rescinded. Excluded from this rescission are furniture items produced by Federal Prison Industries, Inc., or by sheltered workshops for the blind and other severely handicapped under the auspices of Public Law 92-28: *Provided*, That such items are fully justified by agency needs. The Director of the Office of Management and Budget is directed to allocate this rescission total among the departments and agencies of the Federal Government and report back to the House and Senate Committees on Appropriations within 30 days following the date of the enactment of this Act as to the allocation made: *Provided further*, That no allocation shall exceed 25 percent of said amount.

(b) With respect to the provisions of the Treasury, Postal Service, and General Government Appropriations Act, 1980, under the heading General Services Administration, Federal Buildings Fund, Limitations on Availability of Revenue, the aggregate amount made

Career
appointees.
5 USC 5384 note.

41 USC 46-48b.

98 Stat. 556.

94 STAT. 928

PUBLIC LAW 96-304—JULY 8, 1980

40 USC 490.

Unresolved and
new audits.Delinquent
debts.Funds for
consulting
services and
information,
submittal to
congressional
committees.
31 USC 28.Agency budget
controls and
progress,
submittal to
Congress.

available from the revenues and collections deposited into the Federal Buildings Fund pursuant to section 210(f) of the Federal Property and Administrative Services Act of 1949, as amended (40 U.S.C. 490(f)), for the purposes set forth in the provisions contained under such heading is reduced by \$15,000,000, which reduction shall apply specifically to the limitation on rental of space under clause (4) of such provisions.

Sec. 305. All unresolved audits currently pending within agencies and departments, for which appropriations are made under this Act, shall be resolved not later than September 30, 1981. Any new audits, involving questioned costs, arising after the enactment of this Act shall be resolved within 6 months.

Sec. 306. Each department and agency for which appropriations are made under this Act shall take immediate action (1) to improve the collection of overdue debts owed to the United States within the jurisdiction of that department or agency; (2) to bill interest on delinquent debts as required by the Federal Claims Collection Standards; and (3) to reduce amounts of such debts written off as uncollectible.

Sec. 307. (a) Effective October 1, 1981, for application in fiscal year 1982, a department, agency, or establishment, as defined by section 2, subchapter I, chapter 1, title 31, United States Code, shall submit annually to the House and Senate Appropriations Committees, as part of its budget justification, the estimated amount of funds requested for consulting services; the appropriation accounts in which these funds are located; and a brief description of the need for these services, including a list of those major programs that require consulting services.

(b) Effective October 1, 1981, for application in fiscal year 1982, the Inspector General of such department, agency, or establishment, or comparable official, or if the agency has no Inspector General or comparable official, the agency head or the agency head's designee, shall submit to the Congress along with the agency's budget justification, an evaluation of the agency's progress to institute effective management controls and improve the accuracy and completeness of the data provided to the Federal Procurement Data System regarding consultant service contractual arrangements.

Approved July 8, 1980.

LEGISLATIVE HISTORY—

HOUSE REPORTS: No. 96-1086 (Comm. on Appropriations), No. 96-1149 (Comm. of Conference) and No. 96-984 accompanying H.R. 7325 (Comm. on Appropriations).

SENATE REPORT No. 96-829 (Comm. on Appropriations).

CONGRESSIONAL RECORD, Vol. 126 (1980):

June 17-18, considered and passed House in lieu of H.R. 7325.

June 25-28, considered and passed Senate, amended.

July 1, House disagreed to Senate amendments, and agreed to conference.

July 2, House and Senate agreed to conference report and resolved amendments in disagreement.

CHRONOLOGY OF EVENTS
AUTHORIZATION BILL
 HOUSE (H.R. 1786)

SUBCOMMITTEE ON SPACE SCIENCE AND APPLICATIONS

9/25/78 John F. Yardley, Richard G. Smith, Philip E. Culbertson,
 C. Ronald Hovell, Myron S. Malkin, Chester M. Lee,
 Joseph B. Mahon, John D. Disher, Douglas R. Lord

9/26/78 Dr. Anthony Calio, Samuel W. Keller, Dr. S. Ichthiaque Rasool,
 Dr. L.R. Greenwood, Donald K. Dement, Dr. John R. Carruthers,
 I. Duke Stanford, Pitt G. Thome, Floyd I. Roberson

9/27/78 Dr. James J. Kramer, Donald A. Beattie

2/6/79 Dr. Robert A. Frosch, Dr. Alan M. Lovelace, William E. Lilly,
 Dr. Anthony J. Calio, S. Neil Hosenball, Adm. Stuart J. Evans,
 Arnold W. Frutkin, John F. Yardley, Raymond Kline,
 Dr. James J. Kramer, Dr. Noel W. Hinners, Dr. William Schneider

2/13/79 Dr. William C. Schneider, Norman Pozinsky, Richard L. Stock

2/14/79 Dr. Noel Hinners

2/15/79 John F. Yardley, William E. Lilly, Richard G. Smith,
 Douglas R. Lord, Dr. Myron S. Malkin, Joseph B. Mahon,
 Chester M. Lee, C. Ronald Hovell, John D. Disher

2/22/79 William E. Lilly, Ray Kline, Billie J. McCarvey, S. Neil Hosenball

2/28/79 Dr. Anthony J. Calio

3/28/79 House Floor Action

FIELD HEARINGS

2/9/79 John F. Kennedy Space Center - Lee Scherer, Joseph Malaga,
 John Neilon, Pete Minderman, Bob Gray, Walter Kapryan, George Page,
 G.D. Griffin

National Space Technology Laboratories - I.J. Hlass

2/10/79 Martin Marietta, Michoud Operations - George E. Smith,
 James B. Odom, Robert C. Littlefield

2/11/79 Lyndon B. Johnson Space Center - Dr. C.C. Kraft, Jr., Bob Thompson,
 Aaron Cohen, Jesse Jones, Glynn Lunney, George Abbey

2/12/79 George C. Marshall Space Flight Center - Dr. W.R. Lucas,
 Robert E. Lindstrom, James R. Thompson, Jr., George B. Hardy,
 James B. Odom, James A. Downey III, Thomas J. Lee, Otha C. Jean,
 William Teir, William C. Keathley, Lowell K. Zoller, F.A. Speer,
 Harold W. Hallisey, John H. Harlow, William G. Huber

3/9/79 Rockwell International, TRW Defense and Space Systems Group

3/12/79 Lockheed Missiles and Space Company

CHRONOLOGY OF EVENTS
AUTHORIZATION BILL
 SENATE (S. 357)

<u>COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION</u>	<u>CONFERENCE COMMITTEE ACTION</u>
2/21/79 Dr. Robert A. Frosch, John Yardley, Ray Kline	7/20/79 Conference Committee Report No. 96-371
2/22/79 John F. Yardley, Richard D. Smith, C. Ronald Hovell	7/23/79 Senate Approved Conference Report
2/28/79 Dr. Noel W. Hinners, Andrew J. Stofan, Adrienne Timothy, Charles E. Wash	7/27/79 House Approved Conference Report
3/2/79 Dr. Anthony J. Galio	8/8/79 President Approved P.L. 96-48
3/14/79 Don Beattie	
3/15/79 Arnold W. Frutkin, Kenneth Pedersen	
5/1/79 Dr. Robert A. Frosch, John F. Yardley, Alan M. Lovelace, William E. Lilly	

SUPPLEMENTAL AUTHORIZATION (H.R. 6412)
 4/22/80 House Report (96-898)

SUPPLEMENTAL AUTHORIZATION (S. 2238)
 5/12/80 Senate Report (96-694)

CHRONOLOGY OF EVENTS
APPROPRIATION BILL

HOUSE (HR 4394)

3/6/79 Dr. Robert A. Frosch, Dr. Alan M. Lovelace,
Robert F. Alnutt, William E. Lilly,
Gen. Billie McGarvey, S. Neil Hosenball,
Aronold W. Frutkin, John F. Yardley, Ray Kline,
Dr. James Kramer, Dr. Noel W. Hinners,
Dr. Anthony J. Calio, Dr. William Schneider,
Dr. Harriet Jenkins

6/7/79 House Committee Report No. 96-249

6/27/79 House Floor Action

SENATE (HR 4394)

3/29/79 Dr. Robert A. Frosch, Dr. Alan M. Lovelace,
William E. Lilly, S. Neil Hosenball, John M.
Yardley, Dr. Anthony Calio, Dr. James Kramer,
Dr. Noel Hinners, Ray Kline, Arnold W. Frutkin,
Dr. William Schneider, Dr. Harriet Jenkins,
Gen. Billie McGarvey, Adm. Stuart J. Evans,
Terrence Finn

7/24/79 Senate Committee Report No. 96-258

7/27/79 Senate Approved

CONFERENCE COMMITTEE ACTION

8/2/79 Conference Committee Report No. 96-409

9/27/79 House Approved Conference Report

9/28/79 Senate Approved Conference Report

10/23/79 Conference Committee Report No. 96-542

10/24/79 House Approved Conference Report

10/24/79 Senate Approved Conference Report

11/5/79 President Approved P.L. 96-103

SUPPLEMENTAL (HR 7542)

7/2/80 Conference Committee Report No. 96-1149

7/2/80 House Approved Conference Report

7/2/80 Senate Approved Conference Report

7/8/80 President Approved P.L. 96-304